

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
317549	1.0	19.9	169379	1.1	19.6	90806	1.1	16.9	145542	1.2	20.8	409470	1.3	21.3	281356	1.3	20.6
42255	1.0	19.0	245732	1.1	20.1	122744	1.1	20.8	84571	1.2	18.8	446837	1.3	21.1	32463	1.3	19.3
109822	1.0	19.2	168912	1.1	18.6	416723	1.1	20.4	426293	1.2	21.2	138250	1.3	19.6	30170	1.3	18.5
323524	1.0	21.5	217540	1.1	19.5	448456	1.1	20.6	297001	1.2	20.0	277935	1.3	19.8	398878	1.3	19.9
413541	1.0	20.9	389996	1.1	20.5	432068	1.1	20.8	213309	1.2	20.7	235446	1.3	18.9	97926	1.3	18.9
319573	1.0	21.4	230992	1.1	19.6	352122	1.1	20.1	240508	1.2	19.5	314230	1.3	20.8	104797	1.3	19.6
83604	1.0	18.2	330382	1.1	19.4	25627	1.1	17.7	128463	1.2	19.4	43288	1.3	18.2	463950	1.3	20.2
107133	1.0	19.4	221270	1.1	19.9	114503	1.1	19.3	414560	1.2	20.7	236770	1.3	21.0	360298	1.3	20.6
426546	1.0	20.3	89146	1.1	19.0	245627	1.1	19.1	194065	1.2	20.7	221920	1.3	20.4	188411	1.3	19.9
506374	1.0	20.8	421398	1.1	20.7	338248	1.1	19.7	153344	1.2	20.1	458729	1.3	22.2	179721	1.3	19.3
424857	1.0	20.7	85936	1.1	19.9	421602	1.1	21.5	114070	1.2	18.7	416875	1.3	20.8	315659	1.4	20.9
345097	1.0	21.0	135395	1.1	20.0	276329	1.1	19.9	154748	1.2	19.7	396579	1.3	20.0	456380	1.4	20.4
331039	1.0	21.1	38131	1.1	19.4	319854	1.1	20.1	148369	1.2	20.3	397966	1.3	21.0	517671	1.4	20.5
184327	1.0	20.9	31359	1.1	17.7	448471	1.1	21.1	429749	1.2	19.8	428361	1.3	20.8	35750	1.4	18.4
301415	1.0	20.2	294970	1.1	19.7	331847	1.1	19.4	206838	1.2	20.0	522184	1.3	20.6	162175	1.4	20.5
224241	1.0	21.2	461479	1.1	21.4	240520	1.1	19.9	215951	1.2	21.0	429252	1.3	20.9	494955	1.4	21.2
170676	1.0	19.5	94724	1.1	17.9	372960	1.1	21.1	195740	1.2	19.7	408993	1.3	20.5	148651	1.4	18.1
79764	1.0	19.5	324495	1.1	19.8	178890	1.1	19.3	454410	1.2	20.2	467268	1.3	20.6	282927	1.4	19.6
113876	1.0	18.8	404139	1.1	20.4	217078	1.1	17.3	96531	1.2	19.4	321366	1.3	20.7	371760	1.4	20.7
159662	1.0	19.4	59522	1.1	17.6	306011	1.1	21.6	402259	1.2	21.2	163503	1.3	19.7	359087	1.4	20.9
490739	1.0	20.4	127997	1.1	19.5	260942	1.1	19.6	367559	1.2	21.1	48331	1.3	18.6	323489	1.4	21.3
160302	1.0	19.5	125753	1.1	19.8	55189	1.1	17.7	336846	1.2	20.9	432444	1.3	21.7	394420	1.4	22.9
106867	1.0	18.1	422062	1.1	20.2	186938	1.1	21.1	133470	1.2	20.9	460932	1.3	20.6	369408	1.4	19.5
210393	1.0	20.8	39063	1.1	19.2	366709	1.1	20.1	97686	1.2	17.5	254043	1.3	20.1	253173	1.4	20.6
217992	1.0	19.7	58536	1.1	19.8	28310	1.1	17.7	157941	1.2	20.1	442621	1.3	21.7	415192	1.4	20.7
281161	1.0	21.0	271313	1.1	20.6	243075	1.1	20.5	260801	1.2	19.9	339033	1.3	20.1	350738	1.4	19.8
301732	1.0	19.8	223684	1.1	19.3	439947	1.1	21.1	93263	1.2	19.3	709	1.3	13.5	80194	1.4	19.5
265316	1.0	20.1	18425	1.1	17.6	388875	1.1	22.0	122351	1.2	19.2	401014	1.3	21.1	415318	1.4	21.5
186238	1.0	19.7	180910	1.1	21.2	27757	1.2	17.8	362129	1.2	20.8	20924	1.3	17.6	214312	1.4	20.8
204167	1.0	19.4	145174	1.1	19.8	161583	1.2	20.4	201740	1.2	19.1	248831	1.3	21.0	90179	1.4	18.2
26444	1.0	18.5	182616	1.1	19.7	47626	1.2	18.4	43886	1.2	19.6	485489	1.3	22.1	127	1.4	12.2
405937	1.0	21.0	235043	1.1	20.5	113556	1.2	19.5	426656	1.2	19.2	362960	1.3	20.8	30143	1.4	18.2
332919	1.0	19.0	156751	1.1	19.4	248076	1.2	21.3	272589	1.2	20.6	519117	1.3	22.3	456363	1.4	20.8
463242	1.0	21.3	494204	1.1	21.6	429340	1.2	20.6	88758	1.2	20.1	425204	1.3	21.1	306481	1.4	19.7
348578	1.0	19.5	490361	1.1	22.1	62060	1.2	19.4	426789	1.2	20.0	409794	1.3	21.5	345147	1.4	21.1
70131	1.0	18.8	78034	1.1	18.5	239779	1.2	20.3	69505	1.2	17.7	10166	1.3	17.3	400158	1.4	21.0
132187	1.0	19.5	155646	1.1	19.4	457137	1.2	21.4	77728	1.2	18.8	19071	1.3	18.5	236817	1.4	19.0
467287	1.0	20.3	35448	1.1	17.6	343051	1.2	20.6	92577	1.2	19.4	273997	1.3	20.8	164565	1.4	18.7
226885	1.0	20.2	491247	1.1	19.8	304843	1.2	20.0	473835	1.2	20.5	464869	1.3	21.9	181619	1.4	20.3
430067	1.0	20.3	458914	1.1	21.2	281737	1.2	20.0	9972	1.2	17.2	519091	1.3	21.2	21303	1.4	18.2
454925	1.0	20.3	209590	1.1	19.2	467344	1.2	17.7	229742	1.2	19.8	113498	1.3	18.9	494143	1.4	20.4
427670	1.0	20.6	455873	1.1	20.2	49512	1.2	16.5	165541	1.2	19.5	125672	1.3	19.6	49384	1.4	17.6
240635	1.0	19.7	195993	1.1	19.8	136855	1.2	20.2	319521	1.2	19.6	394389	1.3	20.4	506346	1.4	22.6
375113	1.0	20.0	372231	1.1	20.0	446304	1.2	21.4	381234	1.2	19.8	458580	1.3	19.5	445296	1.4	19.7
450363	1.0	20.0	305788	1.1	20.3	425503	1.2	21.9	76766	1.2	19.7	433485	1.3	19.9	504306	1.4	22.0
203758	1.0	19.1	467712	1.1	20.5	364394	1.2	20.0	119392	1.2	19.4	114338	1.3	19.2	51744	1.4	19.1
157290	1.0	19.5	296205	1.1	19.6	493805	1.2	20.7	22681	1.2	18.2	502126	1.3	20.5	202634	1.4	20.2
80664	1.0	18.1	322832	1.1	19.6	291517	1.2	19.9	310038	1.2	21.2	518474	1.3	21.0	151872	1.4	21.1
182396	1.0	21.2	207743	1.1	18.9	161187	1.2	19.1	57239	1.2	18.9	326316	1.3	20.6	4785	1.4	16.9
90347	1.0	18.7	71828	1.1	19.3	473989	1.2	21.2	223685	1.2	18.9	233985	1.3	20.8	430430	1.4	21.0
400575	1.0	21.1	62204	1.1	19.0	278763	1.2	20.3	241554	1.2	21.1	162077	1.3	19.7	453014	1.4	21.4
66587	1.0	19.7	494735	1.1	20.7	517536	1.2	22.0	389603	1.2	20.9	217984	1.3	19.3	495494	1.4	21.5
281277	1.0	20.3	251187	1.1	19.7	54538	1.2	18.7	306605	1.2	19.2	353276	1.3	21.1	493375	1.4	21.7
233533	1.0	19.7	167867	1.1	20.3	276653	1.2	20.2	358642	1.2	20.7	228400	1.3	19.4	58081	1.4	18.9
455791	1.0	20.3	29290	1.1	18.9	162912	1.2	18.8	159549	1.2	19.3	153849	1.3	18.7	343902	1.4	19.9
275474	1.0	20.1	168353	1.1	20.5	495076	1.2	22.0	37345	1.2	19.2	423121	1.3	21.3	178478	1.4	19.6
219367	1.0	19.6	3193	1.1	15.5	239469	1.2	20.5	423805	1.2	20.9	460931	1.3	20.1	520712	1.4	21.7
1259	1.0	15.4	93018	1.1	18.3	60474	1.2	18.9	246273	1.3	20.0	427079	1.3	20.8	59724	1.4	19.3
351240	1.0	20.9	6942	1.1	17.1	1256	1.2	15.4	230495	1.3	19.5	465344	1.3	21.1	209907	1.4	21.2
165099	1.0	20.1	98400	1.1	18.6	106596	1.2	18.5	459100	1.3	21.4	105029	1.3	20.0	224672	1.4	20.0
202346	1.1	19.2	338890	1.1	20.4	118310	1.2	16.8	12091	1.3	18.1	301106	1.3	20.4	158918	1.4	19.0
335865	1.1	21.4	283526	1.1	19.9	426237	1.2	20.1	246871	1.3	20.1	206108	1.3	21.3	110821	1.4	19.1
255873	1.1	20.6	432565	1.1	20.9	218937	1.2	19.9	110741	1.3	18.4	17137	1.3	17.0	275194	1.4	20.4
442639	1.1	21.4	19119	1.1	17.5	169345	1.2	19.4	453960	1.3	20.7	317014	1.3	20.0	126332	1.4	19.1
134466	1.1	19.4	48031	1.1	19.1	426427	1.2	20.8	187752	1.3	20.8	489382	1.3	22.0	359029	1.4	20.2
31556	1.1	19.2	180471	1.1	20.0	187881	1.2	20.3	368048	1.3	20.1	401876	1.3	20.1	492095	1.4	20.8
394436	1.1	21.1	414746	1.1	22.1	79491	1.2	17.9	194786	1.3	18.7	133124	1.3	20.0	309897	1.4	20.0
487864	1.1	21.1	417821	1.1	20.9	161986	1.2	20.0	365177	1.3	20.6	429005	1.3	20.4	63626	1.4	18.1
250137	1.1	21.1	60508	1.1	19.4	434176	1.2	20.9	164811	1.3	20.4	432572	1.3	20.7	353611	1.4	21.0
315516	1.1	19.6	29178	1.1	18.8	247984	1.2	19.7	463796	1.3	20.9	46652	1.3	19.2	442628	1.4	21.6
448235	1.1	21.4	235723	1.1	20.2	318868	1.2	20.7	213642	1.3	20.0	313893	1.3	19.7	274239		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
247478	1.4	20.7	329603	1.5	20.0	188325	1.6	20.5	260123	1.6	20.2	137203	1.7	19.2	522473	1.8	20.9
517598	1.4	20.1	240371	1.5	19.5	375110	1.6	20.1	58076	1.6	19.4	422236	1.7	20.4	184136	1.8	19.7
331688	1.4	19.8	436357	1.5	20.1	301604	1.6	21.3	394411	1.6	21.4	288444	1.7	20.2	461275	1.8	20.1
393706	1.4	21.1	379970	1.5	19.9	82152	1.6	20.0	291294	1.6	20.9	219013	1.7	20.6	356300	1.8	20.7
61260	1.4	20.1	423556	1.5	19.9	112877	1.6	19.1	226799	1.6	20.9	136415	1.7	20.4	339612	1.8	19.5
243423	1.4	20.5	237274	1.5	19.6	215321	1.6	21.6	2899	1.6	16.7	309870	1.7	20.8	367265	1.8	20.2
362780	1.4	19.4	277699	1.5	19.8	183322	1.6	18.8	107615	1.6	20.5	208191	1.7	20.1	297503	1.8	19.2
351442	1.4	19.9	462074	1.5	21.1	350455	1.6	21.4	351681	1.6	19.2	375593	1.7	20.1	39219	1.8	19.2
345728	1.4	19.6	520945	1.5	19.8	350679	1.6	19.7	274266	1.6	21.4	25764	1.7	18.4	174862	1.8	19.3
404786	1.4	20.7	258227	1.5	19.6	187635	1.6	20.4	243610	1.6	19.2	200810	1.7	19.1	152245	1.8	19.6
413041	1.4	19.7	482945	1.5	20.1	396532	1.6	21.2	422259	1.6	20.3	270418	1.7	20.3	23202	1.8	18.9
169361	1.4	19.1	302931	1.5	21.0	90217	1.6	18.6	278481	1.6	20.6	15241	1.7	17.8	304017	1.8	21.1
431367	1.4	20.3	142443	1.5	19.3	58284	1.6	18.5	8999	1.6	17.3	113547	1.7	19.8	493750	1.8	20.2
62186	1.4	18.9	15688	1.5	16.7	111862	1.6	19.3	374637	1.6	20.7	186884	1.7	20.1	430241	1.8	20.9
384118	1.4	20.0	166065	1.5	20.4	224258	1.6	20.2	453367	1.6	19.7	283264	1.7	19.5	79173	1.8	19.5
38138	1.4	19.8	32803	1.5	18.5	152867	1.6	19.3	22398	1.6	18.0	206430	1.7	19.7	334636	1.8	20.7
29633	1.4	19.7	281852	1.5	20.0	448154	1.6	21.3	406923	1.6	21.1	253	1.7	14.4	313489	1.8	20.8
186233	1.4	18.9	61917	1.5	19.8	427780	1.6	20.3	328637	1.6	20.6	414500	1.7	20.2	330981	1.8	19.9
270790	1.4	20.6	394512	1.5	21.7	12259	1.6	17.8	4450	1.6	18.7	195924	1.7	20.1	56585	1.8	17.5
384154	1.4	20.7	499608	1.5	20.7	428454	1.6	20.1	245015	1.6	19.1	462420	1.7	20.9	280772	1.8	20.3
252459	1.4	19.5	108794	1.5	19.6	462048	1.6	21.7	244924	1.6	21.0	491980	1.7	20.5	216976	1.8	17.9
349525	1.4	19.2	145847	1.5	19.5	404645	1.6	20.6	370207	1.6	19.6	307691	1.7	20.2	56198	1.8	18.8
516189	1.4	21.7	194184	1.5	19.5	248233	1.6	19.6	258070	1.6	21.1	456291	1.7	20.8	230798	1.8	19.9
246296	1.4	20.0	69045	1.5	16.3	404288	1.6	21.2	326025	1.6	20.6	153271	1.7	20.4	401356	1.8	20.6
104719	1.4	20.1	26073	1.5	18.0	95762	1.6	19.8	7392	1.6	16.5	238112	1.7	20.6	323926	1.8	20.7
82909	1.4	19.8	447026	1.5	21.1	54947	1.6	17.4	109205	1.6	18.5	424739	1.7	20.3	298942	1.8	21.1
206882	1.4	19.6	379092	1.5	20.5	80820	1.6	20.3	384596	1.6	20.1	63646	1.7	18.5	201406	1.8	19.4
194073	1.4	19.2	91467	1.5	19.0	77346	1.6	19.9	489114	1.6	19.8	150487	1.7	19.5	512293	1.8	22.6
464599	1.4	20.5	426858	1.5	20.0	252020	1.6	19.9	31753	1.6	18.4	69663	1.7	20.2	142611	1.8	19.6
195837	1.4	20.8	83169	1.5	18.3	244550	1.6	18.9	242224	1.6	21.0	491962	1.7	20.5	345073	1.8	20.6
424300	1.4	21.2	425970	1.5	21.4	182967	1.6	19.5	519475	1.6	19.4	216620	1.7	19.4	144187	1.8	19.5
422937	1.4	20.6	113199	1.5	19.7	226333	1.6	20.7	18950	1.6	18.4	207034	1.7	19.6	305661	1.8	21.5
155844	1.4	19.0	244145	1.5	20.0	367380	1.6	21.2	336029	1.6	20.0	52681	1.7	18.3	400318	1.8	22.0
218053	1.4	20.9	61001	1.5	19.8	29382	1.6	19.0	197655	1.6	21.1	15257	1.7	18.9	460814	1.8	21.1
412343	1.4	20.2	75778	1.5	19.3	325213	1.6	20.8	115039	1.6	18.3	380228	1.7	20.1	30855	1.8	19.8
276292	1.4	19.5	45686	1.5	18.1	519030	1.6	21.5	469282	1.6	21.0	284638	1.7	19.6	433728	1.8	20.1
170328	1.4	20.6	53145	1.5	18.3	104823	1.6	19.3	177749	1.6	20.6	226902	1.7	19.7	32130	1.8	18.4
317557	1.4	19.7	276197	1.5	19.7	38271	1.6	19.1	87912	1.6	19.1	295494	1.7	21.0	377055	1.8	19.9
432569	1.4	21.2	377496	1.5	20.5	85842	1.6	18.0	2333	1.6	15.1	213711	1.7	20.6	101290	1.8	19.4
208681	1.4	19.3	462164	1.5	20.8	93614	1.6	19.2	295726	1.6	21.2	433834	1.7	20.3	341384	1.8	20.8
69800	1.4	18.8	397473	1.5	20.7	450295	1.6	22.1	221778	1.6	20.8	171401	1.7	19.4	502484	1.8	19.8
256206	1.4	19.7	274265	1.5	20.1	464450	1.6	20.8	272345	1.6	20.2	223592	1.7	20.4	217251	1.8	20.1
105723	1.4	18.1	134841	1.5	20.6	258199	1.6	21.0	397916	1.6	19.7	463841	1.7	20.8	109571	1.8	19.3
351660	1.4	20.1	52238	1.5	18.4	432278	1.6	21.7	424859	1.6	20.5	79521	1.7	19.4	3544	1.8	16.6
178876	1.4	19.0	139971	1.5	20.0	403119	1.6	20.1	121040	1.6	19.8	293083	1.7	20.3	451466	1.8	20.2
324483	1.4	20.5	249835	1.5	19.1	115910	1.6	19.5	37196	1.6	19.3	8433	1.7	17.2	13292	1.8	17.9
366917	1.5	20.8	489123	1.5	20.4	368161	1.6	19.3	85325	1.6	19.4	82298	1.7	19.2	235092	1.8	20.5
129279	1.5	18.0	422449	1.5	21.0	87860	1.6	19.9	24672	1.6	19.0	299043	1.7	19.1	522064	1.8	20.8
426562	1.5	20.1	429739	1.5	21.4	305142	1.6	20.9	224934	1.6	20.4	370559	1.7	20.7	172394	1.8	19.1
330118	1.5	21.2	149262	1.5	18.5	108702	1.6	19.0	266321	1.6	20.2	338309	1.7	20.2	235251	1.8	19.7
333103	1.5	19.4	125902	1.5	19.9	256973	1.6	19.8	489896	1.6	21.8	454808	1.7	20.6	451068	1.8	20.7
185367	1.5	20.5	457080	1.5	21.2	358573	1.6	20.4	340594	1.6	21.1	228277	1.7	19.3	375612	1.8	20.0
41819	1.5	18.7	518528	1.5	20.2	264237	1.6	19.8	432072	1.6	19.5	455551	1.7	20.8	63875	1.8	18.0
362962	1.5	20.1	105184	1.5	19.6	459264	1.6	21.5	124279	1.6	17.6	501707	1.7	20.6	422485	1.8	21.2
68445	1.5	19.1	522226	1.5	20.7	348459	1.6	20.4	359269	1.6	19.6	468193	1.7	21.1	419492	1.8	20.4
472602	1.5	21.3	367907	1.5	20.2	76369	1.6	19.1	461091	1.6	20.8	169267	1.7	20.0	289857	1.8	20.4
59078	1.5	18.9	208165	1.5	20.0	4272	1.6	15.7	490774	1.7	21.6	194092	1.7	21.0	286627	1.8	20.4
401374	1.5	21.2	330375	1.5	19.1	226837	1.6	20.4	354166	1.7	19.9	244370	1.7	20.0	239078	1.8	20.5
85693	1.5	18.1	449567	1.5	21.6	34736	1.6	17.4	274698	1.7	20.0	143056	1.7	19.8	280445	1.8	20.6
268622	1.5	19.9	279056	1.5	20.8	104176	1.6	18.7	425791	1.7	20.7	103524	1.7	18.1	224855	1.8	20.1
195963	1.5	18.7	224637	1.5	19.8	46069	1.6	18.6	87687	1.7	18.5	76330	1.7	17.3	56020	1.8	18.2
162004	1.5	17.5	26549	1.5	19.2	445590	1.6	19.9	51333	1.7	17.5	17498	1.7	17.6	456870	1.8	20.4
419032	1.5	22.1	160117	1.5	18.7	452735	1.6	21.1	204933	1.7	19.7	134452	1.7	19.3	451401	1.8	21.8
240531	1.5	20.6	138254	1.5	19.3	130463	1.6	18.1	425100	1.7	22.3	458173	1.7	19.9	258071	1.8	19.9
59727	1.5	19.4	125854	1.5	19.5	419186	1.6	20.4	461995	1.7	20.5	79478	1.7	18.4	278766	1.8	20.3
146634	1.5	19.6	32686	1.5	18.8	215044	1.6	20.2	55429	1.7	18.8	167244	1.7	18.6	30765	1.8	17.0
102004	1.5	18.2	518520	1.5	21.3	147375	1.6	20.1	125904	1.7	20.5	231976	1.7	19.8	4523	1.8	16.4
96717	1.5	19.8	15413	1.5	18.2	210866	1.6	19.1	198050	1.7	19.7	327260	1.8	21.0	520871	1.8	21.6
237708	1.5	19.7	285400	1.5	21.7	487642	1.6	19.7	462218	1.7	20.2	492985	1.8	21.2	276878	1.8	20.7
490435	1.5	21.4	137085	1.5	19.0	151182	1.6	18.9	89221	1.7	19.2	89301	1.8	19.1	488033	1.8	20.1
517662	1.5	20.6	423371	1.5	20.5	29285	1.6	18.1	331006	1.7	20.7	174847	1.8	19.0	291461	1.8	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
369826	1.8	20.6	455181	1.9	21.0	135428	1.9	19.4	320915	2.0	20.4	344489	2.1	19.9	155409	2.2	19.8
490293	1.8	21.0	333033	1.9	21.2	457094	1.9	20.5	438067	2.0	20.2	171484	2.1	20.1	7179	2.2	16.4
490197	1.8	20.5	318121	1.9	21.7	143001	1.9	19.0	182560	2.0	20.4	170829	2.1	19.8	295809	2.2	19.3
72900	1.8	18.5	465496	1.9	21.0	374667	1.9	20.2	502606	2.0	20.4	31778	2.1	16.6	368533	2.2	18.7
222101	1.8	19.8	101296	1.9	18.6	126882	1.9	19.2	77878	2.0	17.7	118674	2.1	20.6	432513	2.2	21.4
223289	1.8	20.0	466053	1.9	22.3	466454	1.9	20.7	150341	2.0	18.3	491969	2.1	21.1	350638	2.2	19.3
426567	1.8	20.5	330134	1.9	20.9	201987	1.9	21.0	244	2.0	14.1	388470	2.1	21.2	493570	2.2	21.8
62913	1.8	19.4	108922	1.9	19.3	449167	1.9	20.3	413534	2.0	20.1	47610	2.1	19.2	421565	2.2	20.6
430306	1.8	19.9	411404	1.9	20.1	430360	1.9	20.1	734	2.0	13.9	405582	2.1	20.8	99836	2.2	19.1
410066	1.8	20.6	72150	1.9	19.0	273418	1.9	20.1	148679	2.0	18.1	310711	2.1	19.5	297342	2.2	17.0
341324	1.8	20.8	351677	1.9	19.7	125102	1.9	18.4	28509	2.0	18.2	406108	2.1	20.3	465531	2.2	20.3
420666	1.8	20.9	206717	1.9	20.1	347375	1.9	21.1	51081	2.0	18.1	28097	2.1	17.9	494935	2.2	20.8
199746	1.8	19.4	457233	1.9	21.9	360453	1.9	21.4	304864	2.0	18.9	319603	2.1	20.0	109583	2.2	19.1
463457	1.8	21.2	351771	1.9	21.2	123536	1.9	18.4	51806	2.0	19.3	381933	2.1	21.0	8513	2.2	15.6
463869	1.8	21.1	459952	1.9	21.1	193180	1.9	19.8	13751	2.0	17.6	338961	2.1	20.4	204388	2.2	19.9
147715	1.8	20.3	254664	1.9	20.6	157983	1.9	19.5	123038	2.0	19.2	440145	2.1	21.3	76113	2.2	18.9
501351	1.8	21.3	246345	1.9	20.8	219365	1.9	19.1	113425	2.0	19.0	233071	2.1	20.5	460567	2.2	20.7
369059	1.8	21.0	106265	1.9	18.6	74409	1.9	18.8	433308	2.1	20.8	326724	2.1	20.4	108596	2.2	19.6
457672	1.8	20.8	116526	1.9	19.1	256137	1.9	18.4	338093	2.1	20.8	415511	2.1	21.2	328947	2.2	19.8
424297	1.8	20.6	38706	1.9	18.4	445095	1.9	20.8	6914	2.1	17.0	453359	2.1	19.8	61103	2.2	18.6
144354	1.8	19.1	427380	1.9	20.8	52608	1.9	18.3	169322	2.1	19.1	462482	2.1	20.1	232249	2.2	19.6
494872	1.8	21.3	152019	1.9	19.0	197999	1.9	20.1	464532	2.1	20.1	235101	2.1	21.0	76379	2.2	19.4
519128	1.8	21.2	50742	1.9	17.8	59472	1.9	19.8	239321	2.1	20.9	448264	2.1	20.1	432085	2.2	20.2
147378	1.8	20.2	147011	1.9	20.0	4798	1.9	16.6	444195	2.1	21.2	194424	2.1	20.1	25832	2.2	18.9
246303	1.9	21.5	147582	1.9	19.2	19784	1.9	18.9	347103	2.1	20.5	409342	2.1	18.3	295865	2.2	19.5
492570	1.9	21.8	182510	1.9	20.3	353687	1.9	21.0	319767	2.1	20.2	306217	2.1	20.5	295834	2.2	19.4
362499	1.9	21.7	354200	1.9	20.5	94497	2.0	18.7	491586	2.1	20.1	465012	2.1	21.0	220939	2.2	19.3
350700	1.9	20.7	416617	1.9	20.4	466485	2.0	20.4	408165	2.1	20.9	331106	2.1	20.5	428490	2.2	20.9
24564	1.9	18.0	96211	1.9	19.7	127863	2.0	19.0	496417	2.1	20.9	496978	2.1	22.0	304866	2.2	21.3
332424	1.9	19.5	469244	1.9	19.7	149242	2.0	18.9	269106	2.1	19.9	398231	2.1	20.7	468918	2.2	19.6
16930	1.9	17.9	296784	1.9	19.7	125464	2.0	18.6	186137	2.1	19.2	62087	2.1	17.9	245735	2.2	21.5
463900	1.9	21.2	76565	1.9	17.8	222002	2.0	20.4	216833	2.1	20.1	23432	2.1	18.7	304786	2.2	20.3
458603	1.9	20.9	134796	1.9	18.8	96169	2.0	19.7	34740	2.1	17.9	492847	2.1	20.7	167550	2.2	18.9
445027	1.9	21.0	27300	1.9	16.6	249382	2.0	20.8	354173	2.1	20.3	35292	2.1	17.7	237365	2.2	20.0
334929	1.9	20.0	210199	1.9	19.9	483594	2.0	21.6	322823	2.1	19.4	290311	2.1	19.3	210209	2.2	20.1
305723	1.9	20.6	447247	1.9	21.1	74373	2.0	19.4	363375	2.1	20.1	378252	2.1	21.8	62726	2.2	18.3
429338	1.9	20.3	451105	1.9	21.0	109496	2.0	19.0	407944	2.1	19.4	56268	2.1	18.8	497466	2.2	20.2
54050	1.9	19.1	264462	1.9	20.7	379418	2.0	19.9	379952	2.1	20.5	216215	2.1	21.3	124246	2.2	20.0
313886	1.9	20.7	288909	1.9	21.0	81330	2.0	17.8	89313	2.1	19.1	144362	2.1	20.0	258726	2.2	20.6
286703	1.9	20.8	313462	1.9	20.6	156483	2.0	18.6	321011	2.1	20.4	328674	2.1	20.9	113255	2.2	19.0
238376	1.9	20.0	247689	1.9	19.7	363581	2.0	18.3	473444	2.1	20.1	419431	2.1	20.5	481901	2.2	20.3
204217	1.9	19.2	83031	1.9	18.2	201973	2.0	20.0	231122	2.1	18.7	280669	2.1	20.2	200617	2.2	19.7
83485	1.9	20.1	276256	1.9	21.2	350813	2.0	21.0	458745	2.1	17.6	19757	2.1	17.5	181621	2.2	19.3
219426	1.9	19.2	440474	1.9	20.9	3853	2.0	15.9	98376	2.1	19.5	34120	2.1	16.8	363580	2.2	21.8
327237	1.9	20.7	187631	1.9	20.3	278812	2.0	19.9	460820	2.1	20.2	236891	2.1	19.2	315609	2.2	19.7
399410	1.9	20.3	317514	1.9	19.2	5141	2.0	16.7	94853	2.1	18.3	19556	2.1	17.5	334170	2.2	20.8
139318	1.9	20.4	399239	1.9	21.4	370815	2.0	20.7	480101	2.1	20.9	8104	2.1	17.5	368993	2.2	19.0
90656	1.9	19.9	290229	1.9	20.6	403271	2.0	19.6	497829	2.1	20.5	360817	2.1	21.2	178889	2.2	19.6
109233	1.9	18.7	122417	1.9	20.0	165735	2.0	19.5	367948	2.1	20.6	114112	2.1	18.8	112450	2.2	19.6
463335	1.9	21.0	366446	1.9	19.7	370916	2.0	19.6	111299	2.1	19.0	458278	2.2	20.5	101048	2.2	18.1
467050	1.9	20.8	242634	1.9	20.2	169368	2.0	19.7	419034	2.1	21.1	10642	2.2	16.9	398654	2.2	20.2
280725	1.9	20.3	14618	1.9	16.7	140019	2.0	19.1	415375	2.1	21.1	288540	2.2	19.4	39035	2.2	18.5
196295	1.9	19.4	368178	1.9	22.1	84881	2.0	18.9	203102	2.1	18.3	277997	2.2	20.0	242785	2.2	19.9
180533	1.9	19.8	398660	1.9	20.5	199931	2.0	20.5	245770	2.1	19.8	146391	2.2	18.1	346273	2.2	21.2
170790	1.9	19.9	34714	1.9	18.4	317391	2.0	20.4	200031	2.1	19.6	81671	2.2	17.7	147007	2.2	19.2
99932	1.9	17.9	69733	1.9	17.2	463712	2.0	20.8	503579	2.1	20.8	53779	2.2	18.9	464891	2.2	21.8
51096	1.9	18.5	159657	1.9	19.9	489263	2.0	20.7	171339	2.1	20.5	171528	2.2	19.9	221355	2.2	18.4
47500	1.9	18.9	207893	1.9	20.1	203556	2.0	19.1	456253	2.1	21.5	265758	2.2	19.8	337048	2.2	20.4
293606	1.9	20.9	405188	1.9	19.3	166270	2.0	20.6	101615	2.1	19.0	440486	2.2	21.0	40529	2.2	19.3
374339	1.9	20.4	52574	1.9	17.9	76055	2.0	18.6	30989	2.1	19.0	76654	2.2	18.6	228702	2.2	19.3
202324	1.9	19.8	487098	1.9	21.3	396103	2.0	21.0	334639	2.1	19.9	128319	2.2	19.1	290723	2.2	19.1
414793	1.9	21.1	395443	1.9	21.7	184749	2.0	20.1	492344	2.1	21.7	493509	2.2	20.7	142967	2.2	18.9
238977	1.9	20.5	491854	1.9	21.2	485063	2.0	21.6	235008	2.1	19.9	211597	2.2	19.0	168675	2.2	20.5
26051	1.9	19.0	206842	1.9	20.6	327836	2.0	19.6	423887	2.1	20.5	468287	2.2	21.2	153126	2.2	19.7
311050	1.9	20.4	368075	1.9	19.4	466228	2.0	21.8	445947	2.1	20.1	274405	2.2	20.5	293373	2.2	20.6
79425	1.9	19.7	495459	1.9	21.2	212742	2.0	18.8	355340	2.1	21.1	77578	2.2	18.8	87276	2.2	19.4
61341	1.9	19.5	14453	1.9	17.7	6192	2.0	16.7	273193	2.1	20.5	132266	2.2	20.1	44503	2.2	16.7
81221	1.9	19.0	67119	1.9	19.3	189013	2.0	21.0	12402	2.1	16.7	21529	2.2	17.9	43330	2.2	18.5
378150	1.9	21.1	471004	1.9	21.5	465521	2.0	20.6	455275	2.1	19.3	423808	2.2	20.8	17113	2.2	18.7
160751	1.9	20.4	256875	1.9	20.3	290938	2.0	20.6	270970	2.1	20.0	350771	2.2	19.3	245315	2.2	19.9
194037	1.9	20.9	258252	1.9	19.4	327032	2.0	20.5	3834	2.1	17.4	414870	2.2	20.2	498920	2.2	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
252223	2.2	21.0	494699	2.3	20.8	466968	2.4	19.9	447179	2.5	20.3	132225	2.5	18.2	344848	2.6	19.5
241875	2.2	20.1	287142	2.3	20.3	82490	2.4	18.4	370318	2.5	19.8	208688	2.5	20.9	210559	2.6	19.9
492548	2.2	20.8	483012	2.3	19.5	148491	2.4	19.6	113135	2.5	19.0	15686	2.5	18.4	260093	2.6	19.8
407464	2.2	20.3	455776	2.3	20.3	124578	2.4	18.5	84451	2.5	19.3	208280	2.5	20.5	59375	2.6	19.6
264739	2.2	19.6	25844	2.3	17.6	466898	2.4	20.2	19458	2.5	17.5	319902	2.5	20.0	43840	2.6	19.3
367141	2.2	20.4	155113	2.3	19.8	164695	2.4	21.7	455971	2.5	21.5	359177	2.5	20.8	268071	2.6	20.3
256150	2.2	19.4	216826	2.3	19.6	41003	2.4	19.1	423400	2.5	20.1	136374	2.5	19.1	488810	2.6	21.8
403567	2.2	19.8	21753	2.3	17.4	10889	2.4	17.4	232725	2.5	19.0	511778	2.5	20.5	456187	2.6	21.0
478424	2.2	19.3	388548	2.3	20.7	466690	2.4	20.8	90177	2.5	18.9	226112	2.5	19.9	122656	2.6	19.2
462879	2.2	20.4	419006	2.3	20.1	197086	2.4	20.0	252259	2.5	20.1	431434	2.5	20.4	197345	2.6	18.6
377305	2.2	19.0	464526	2.3	20.3	24647	2.4	18.7	354946	2.5	21.0	295245	2.5	20.1	10619	2.6	16.8
31409	2.2	17.2	425497	2.3	21.1	46351	2.4	19.4	136409	2.5	19.2	165562	2.5	19.1	310401	2.6	19.0
197673	2.3	20.3	394816	2.3	21.5	125176	2.4	19.5	317644	2.5	20.6	451058	2.5	19.9	280196	2.6	19.4
1835	2.3	15.3	416419	2.3	20.1	498848	2.4	19.5	68956	2.5	18.7	98790	2.5	18.4	27219	2.6	17.3
139236	2.3	20.3	18404	2.3	16.4	35374	2.4	18.0	67451	2.5	17.2	191874	2.5	19.6	372695	2.6	20.7
426152	2.3	20.0	136868	2.3	19.1	417136	2.4	20.5	517608	2.5	20.1	154628	2.5	19.3	52394	2.6	17.3
221383	2.3	20.4	378477	2.3	20.5	484982	2.4	20.3	59433	2.5	19.7	425473	2.5	20.6	4887	2.6	17.3
248224	2.3	20.0	124486	2.3	19.4	73481	2.4	17.6	304055	2.5	20.8	128219	2.5	19.4	417146	2.6	21.3
130022	2.3	19.5	319955	2.3	20.1	128930	2.4	19.5	153974	2.5	18.8	163471	2.5	19.6	51778	2.6	18.4
13858	2.3	18.7	113325	2.4	19.1	157135	2.4	20.3	306054	2.5	20.2	321143	2.5	20.8	17469	2.6	16.3
154866	2.3	19.8	517633	2.4	21.1	30258	2.4	18.4	293878	2.5	21.2	185109	2.5	20.1	313861	2.6	20.0
49285	2.3	18.6	364398	2.4	19.0	269221	2.4	20.2	369723	2.5	19.4	27192	2.5	17.3	455269	2.6	20.9
378932	2.3	20.1	325694	2.4	20.7	179881	2.4	19.5	74501	2.5	19.2	96031	2.5	19.9	43875	2.6	16.8
209078	2.3	19.2	331407	2.4	19.6	320837	2.4	21.0	154953	2.5	19.9	301057	2.5	19.9	447024	2.6	21.1
240211	2.3	19.7	468087	2.4	20.5	247240	2.4	19.6	138338	2.5	18.5	502304	2.5	20.3	42436	2.6	18.9
486744	2.3	21.6	200808	2.4	18.9	303340	2.4	20.0	199972	2.5	18.8	202757	2.6	19.9	90176	2.6	18.2
252421	2.3	19.5	95453	2.4	19.8	71220	2.4	19.5	326736	2.5	19.8	426869	2.6	20.1	416563	2.6	20.6
242799	2.3	19.6	404762	2.4	20.7	46533	2.4	17.7	499886	2.5	20.5	457909	2.6	20.9	349622	2.6	20.0
415827	2.3	20.2	204923	2.4	19.7	455556	2.4	21.2	484245	2.5	20.4	461738	2.6	20.5	85946	2.6	19.7
365232	2.3	20.3	132315	2.4	20.5	83083	2.4	18.8	9912	2.5	16.6	18490	2.6	16.4	469193	2.6	20.1
277802	2.3	19.6	506100	2.4	20.9	174730	2.4	21.2	134107	2.5	19.2	261939	2.6	20.7	286737	2.6	20.9
149897	2.3	19.7	419546	2.4	20.6	186899	2.4	20.6	54585	2.5	19.1	323958	2.6	20.7	286643	2.6	19.8
400281	2.3	19.9	37507	2.4	19.8	464341	2.4	19.8	63376	2.5	19.4	400889	2.6	19.3	4418	2.6	17.2
460452	2.3	20.8	122734	2.4	19.5	240358	2.4	20.7	128672	2.5	19.6	42686	2.6	17.6	105245	2.6	19.3
241290	2.3	20.3	390596	2.4	21.2	180247	2.4	19.5	63490	2.5	17.8	246237	2.6	20.2	159196	2.6	19.5
32542	2.3	18.5	355290	2.4	21.7	406217	2.4	18.4	191238	2.5	19.3	55307	2.6	18.4	84582	2.6	19.0
348158	2.3	20.7	237663	2.4	20.1	283150	2.4	20.4	236906	2.5	20.5	462666	2.6	21.2	286717	2.6	19.3
451057	2.3	19.8	419107	2.4	20.8	63697	2.4	19.1	185909	2.5	20.5	28146	2.6	16.5	168400	2.6	19.8
359406	2.3	19.7	241546	2.4	20.5	296407	2.4	20.0	108181	2.5	19.8	502731	2.6	20.9	423395	2.6	20.6
309436	2.3	21.5	460793	2.4	21.2	317926	2.4	20.0	243309	2.5	19.4	355407	2.6	21.2	225183	2.6	20.9
400921	2.3	19.9	424742	2.4	20.0	7653	2.4	16.8	418654	2.5	21.0	234183	2.6	20.3	433702	2.6	19.5
17270	2.3	17.6	119456	2.4	19.3	202503	2.4	19.7	107415	2.5	19.5	53041	2.6	17.5	200476	2.6	19.4
256163	2.3	19.9	410085	2.4	20.4	518256	2.4	20.8	348553	2.5	19.7	51332	2.6	17.2	417181	2.6	20.6
135406	2.3	20.4	84843	2.4	19.3	27424	2.4	19.7	270728	2.5	21.3	153992	2.6	18.9	118065	2.6	18.0
394887	2.3	20.6	103180	2.4	18.5	1638	2.4	16.0	281311	2.5	20.8	15403	2.6	18.2	61531	2.6	18.5
223806	2.3	20.0	9397	2.4	19.1	503712	2.4	20.3	24464	2.5	16.4	76426	2.6	19.1	75766	2.6	18.8
116583	2.3	18.5	381331	2.4	19.4	169618	2.4	19.9	522566	2.5	21.4	120233	2.6	19.8	201181	2.6	19.5
249123	2.3	19.8	251039	2.4	19.2	416600	2.4	18.9	288831	2.5	19.3	246196	2.6	20.2	523417	2.6	20.2
236063	2.3	20.2	463808	2.4	20.5	200118	2.4	19.2	303629	2.5	19.4	453308	2.6	20.6	409980	2.6	21.1
467808	2.3	21.2	258705	2.4	18.6	148803	2.4	19.6	58769	2.5	17.9	496158	2.6	19.9	167656	2.6	18.7
217785	2.3	19.5	148728	2.4	20.2	450338	2.4	21.6	466992	2.5	19.4	130505	2.6	17.6	455898	2.6	20.5
2399	2.3	16.7	219040	2.4	20.0	205732	2.4	18.8	325178	2.5	19.7	45469	2.6	16.6	89604	2.6	19.2
447089	2.3	21.3	425513	2.4	19.2	196070	2.4	19.2	207975	2.5	18.0	254700	2.6	19.9	406086	2.6	19.6
282556	2.3	19.8	103754	2.4	19.2	238368	2.4	20.0	382281	2.5	20.7	124993	2.6	19.1	503833	2.6	20.9
9177	2.3	15.9	68648	2.4	18.2	149424	2.4	18.7	6339	2.5	16.6	43871	2.6	18.0	345530	2.6	21.9
263690	2.3	20.0	287699	2.4	20.8	41503	2.4	19.1	114068	2.5	19.2	65190	2.6	19.0	96940	2.6	18.8
421444	2.3	21.8	317518	2.4	20.3	128177	2.4	19.8	20303	2.5	17.7	99383	2.6	18.4	318762	2.6	20.3
488245	2.3	20.2	367617	2.4	20.4	302423	2.4	20.8	419290	2.5	20.2	378519	2.6	20.7	81907	2.6	19.3
400276	2.3	20.7	31660	2.4	17.3	338126	2.4	20.6	98578	2.5	19.0	520435	2.6	21.0	366966	2.6	20.1
354220	2.3	20.4	293597	2.4	20.4	241119	2.4	19.4	412569	2.5	20.1	155984	2.6	19.8	330125	2.6	20.0
63982	2.3	17.9	236175	2.4	19.6	173375	2.4	19.4	114102	2.5	19.1	145117	2.6	20.3	236962	2.6	20.4
11879	2.3	18.0	463675	2.4	20.1	318694	2.4	20.8	70305	2.5	19.4	203815	2.6	19.2	205349	2.7	19.1
405697	2.3	20.4	381282	2.4	20.3	348058	2.4	20.6	245893	2.5	20.5	3250	2.6	15.5	139507	2.7	16.9
289600	2.3	20.0	255963	2.4	20.8	319006	2.4	20.3	422076	2.5	21.8	43751	2.6	17.7	495270	2.7	20.4
16753	2.3	17.3	188726	2.4	19.6	162958	2.4	19.9	209377	2.5	20.0	405162	2.6	20.6	460463	2.7	20.2
413572	2.3	20.2	219455	2.4	18.4	77583	2.5	18.7	451891	2.5	21.2	35160	2.6	18.8	433647	2.7	19.8
69163	2.3	20.3	234475	2.4	20.2	367156	2.5	21.1	37371	2.5	18.9	315533	2.6	20.0	355280	2.7	20.6
427103	2.3	20.5	203845	2.4	19.2	20434	2.5	16.3	144360	2.5	20.5	313862	2.6	19.9	283436	2.7	19.0
506145	2.3	21.7	456477	2.4	20.6	39048	2.5	16.9	375586	2.5	18.7	277097	2.6	20.1	202682	2.7	20.2
420487	2.3	20.0	402215	2.4	19.9	429024	2.5	19.9	65432	2.5	20.1	453150	2.6	19.6	133738	2.7	18.6
82393	2.3	19.0	460010	2.4	20.5	110156	2.5	19.4	232718	2.5	20.2	460000	2.6	20.1	54730	2.7	18.

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
128895	2.7	20.4	19538	2.7	18.9	474034	2.8	21.5	469001	2.9	20.2	215381	2.9	19.4	464048	3.0	20.7
502179	2.7	20.1	98873	2.7	19.4	277897	2.8	21.1	391571	2.9	20.7	32969	2.9	18.7	7971	3.0	17.5
291518	2.7	18.6	383760	2.7	19.9	291387	2.8	20.6	820	2.9	14.9	62272	2.9	18.8	313821	3.0	20.4
455328	2.7	21.6	142925	2.7	19.4	413518	2.8	20.8	77099	2.9	17.7	295894	2.9	20.1	238334	3.0	19.9
384031	2.7	20.3	223707	2.7	20.0	310930	2.8	20.9	404152	2.9	20.1	414233	2.9	21.2	293269	3.0	19.9
499398	2.7	20.8	245768	2.7	20.9	358593	2.8	20.6	1196	2.9	13.5	415133	2.9	20.2	145285	3.0	19.6
428937	2.7	20.5	96499	2.7	19.3	266827	2.8	19.8	293084	2.9	20.4	356933	2.9	21.3	158000	3.0	20.2
473770	2.7	21.0	81264	2.7	19.6	80045	2.8	19.1	113887	2.9	19.2	165106	2.9	20.2	290014	3.0	19.7
457831	2.7	21.2	304073	2.7	20.9	336567	2.8	20.4	132045	2.9	19.7	378761	2.9	19.9	248017	3.0	19.1
404802	2.7	21.6	10805	2.7	16.1	356048	2.8	20.9	2701	2.9	17.7	303431	2.9	18.8	352884	3.0	20.3
156124	2.7	20.0	31244	2.7	19.4	157680	2.8	19.7	83136	2.9	18.6	353270	2.9	20.9	81682	3.0	18.5
144916	2.7	20.4	279694	2.7	20.7	412546	2.8	21.8	170066	2.9	20.0	144427	2.9	19.3	37247	3.0	18.8
260190	2.7	20.3	240372	2.7	19.5	419109	2.8	21.0	426958	2.9	21.0	521575	2.9	21.2	153520	3.0	20.1
148070	2.7	18.3	212990	2.7	20.2	211551	2.8	19.1	144554	2.9	19.4	252272	2.9	19.5	99986	3.0	18.3
8272	2.7	15.5	18698	2.7	17.7	432054	2.8	19.8	268812	2.9	20.3	360478	2.9	20.9	376616	3.0	20.3
118685	2.7	18.5	321024	2.7	20.5	356484	2.8	20.2	283933	2.9	20.8	433960	2.9	21.8	119224	3.0	18.6
138517	2.7	21.2	457125	2.7	20.7	189033	2.8	18.8	62049	2.9	18.1	472353	2.9	20.5	408113	3.0	20.8
202540	2.7	19.4	344568	2.7	19.1	417006	2.8	19.1	465562	2.9	20.8	179830	2.9	20.2	55313	3.0	18.4
251067	2.7	20.8	207818	2.7	19.9	19000	2.8	17.0	137843	2.9	18.2	302946	2.9	19.9	161157	3.0	19.7
252233	2.7	20.5	368053	2.7	20.4	53027	2.8	18.1	425469	2.9	20.2	457118	2.9	21.8	432060	3.0	19.7
54664	2.7	19.0	285844	2.7	20.7	201974	2.8	21.1	116477	2.9	19.6	418331	2.9	21.0	277065	3.0	20.4
19728	2.7	17.5	153833	2.7	17.8	372009	2.8	21.9	55543	2.9	18.5	315710	2.9	19.1	379457	3.0	20.4
171238	2.7	19.8	226077	2.8	21.2	128024	2.8	19.2	129622	2.9	19.6	144459	2.9	20.0	425425	3.0	20.5
37562	2.7	17.5	25071	2.8	17.3	288819	2.8	20.8	343224	2.9	20.8	395418	2.9	21.6	127906	3.0	19.3
110703	2.7	20.5	408051	2.8	19.1	54461	2.8	17.5	52535	2.9	19.1	400582	2.9	19.9	407439	3.0	21.7
473906	2.7	20.4	205577	2.8	19.8	293472	2.8	20.0	126416	2.9	19.3	209073	2.9	19.9	399781	3.0	19.5
416909	2.7	20.7	447704	2.8	20.7	282917	2.8	20.0	378782	2.9	20.7	292790	2.9	21.1	265367	3.0	19.9
201221	2.7	19.9	327884	2.8	19.6	110606	2.8	17.5	334457	2.9	20.6	198772	2.9	19.8	275778	3.0	21.1
440448	2.7	21.1	200093	2.8	20.0	35148	2.8	17.7	377260	2.9	20.0	463497	2.9	22.1	126160	3.0	18.9
463875	2.7	20.4	295148	2.8	21.6	274526	2.8	20.7	28915	2.9	18.7	290957	2.9	19.1	165676	3.0	17.4
160097	2.7	18.7	182592	2.8	19.9	222814	2.8	20.1	493504	2.9	20.9	147308	2.9	19.4	456583	3.0	21.1
143495	2.7	19.2	38770	2.8	17.3	134714	2.8	19.4	424143	2.9	21.3	223287	2.9	20.0	450799	3.0	21.0
204828	2.7	19.3	129847	2.8	19.4	469228	2.8	20.9	450933	2.9	20.1	459692	2.9	21.1	232065	3.0	19.7
280795	2.7	19.3	165841	2.8	19.2	349220	2.8	20.5	430610	2.9	19.9	127460	2.9	19.4	335669	3.0	20.4
325347	2.7	19.6	170403	2.8	18.4	109383	2.8	19.5	58943	2.9	17.9	52562	2.9	18.2	500158	3.0	22.0
271206	2.7	19.8	378895	2.8	19.8	453238	2.8	21.5	202620	2.9	19.6	430076	2.9	20.0	409447	3.0	21.0
52825	2.7	19.2	225441	2.8	18.9	137913	2.8	17.5	104373	2.9	21.0	157613	2.9	20.1	171757	3.0	18.3
342976	2.7	20.0	344230	2.8	19.3	395319	2.8	20.8	350637	2.9	19.3	213389	2.9	20.1	219561	3.0	19.3
77012	2.7	18.0	252246	2.8	18.8	375060	2.8	20.4	238923	2.9	20.4	471430	2.9	19.6	205022	3.0	19.2
205816	2.7	20.6	319723	2.8	20.2	267532	2.8	20.0	307764	2.9	19.4	280698	2.9	20.3	423359	3.0	21.2
377040	2.7	20.5	285988	2.8	20.1	109898	2.8	19.2	259097	2.9	19.6	408834	2.9	20.9	425717	3.0	20.1
480	2.7	12.0	61024	2.8	18.2	224989	2.8	19.5	247484	2.9	15.7	330424	2.9	20.2	397340	3.1	20.6
178499	2.7	19.2	205320	2.8	19.5	454305	2.8	20.0	154666	2.9	19.8	60912	2.9	18.8	3418	3.1	16.5
388858	2.7	21.2	502124	2.8	20.6	275551	2.8	20.7	68747	2.9	19.9	7371	2.9	18.7	519843	3.1	21.3
71903	2.7	18.3	223529	2.8	18.6	516454	2.8	25.1	346920	2.9	19.7	75829	2.9	17.5	240912	3.1	20.7
47924	2.7	17.8	331827	2.8	20.9	231007	2.8	19.7	30531	2.9	18.4	282330	2.9	19.8	429023	3.1	20.5
422326	2.7	20.3	150555	2.8	19.0	178658	2.8	20.0	91442	2.9	20.2	426010	2.9	21.4	134449	3.1	20.0
8176	2.7	20.4	301179	2.8	20.1	335948	2.8	20.1	302345	2.9	19.4	110704	2.9	18.1	101845	3.1	18.6
281338	2.7	20.8	90463	2.8	19.5	171866	2.8	19.8	292287	2.9	19.8	111119	2.9	18.6	353293	3.1	20.7
412609	2.7	20.7	299412	2.8	20.2	5560	2.8	16.8	275855	2.9	20.5	151903	2.9	20.8	27110	3.1	18.2
82420	2.7	19.0	377259	2.8	19.8	107530	2.8	18.8	302489	2.9	20.3	356292	2.9	20.8	315545	3.1	19.4
413531	2.7	20.3	28733	2.8	19.1	339710	2.8	19.5	77954	2.9	19.1	326923	2.9	19.1	389960	3.1	20.5
499976	2.7	21.8	70327	2.8	17.5	95267	2.8	20.0	161980	2.9	19.9	14422	2.9	18.1	378446	3.1	21.2
165129	2.7	19.5	402705	2.8	20.2	238927	2.8	19.2	188992	2.9	20.1	4128	2.9	17.9	205473	3.1	18.7
113318	2.7	19.4	309357	2.8	21.4	73120	2.8	19.4	495601	2.9	20.2	226771	2.9	19.4	326729	3.1	19.1
378376	2.7	19.2	423148	2.8	20.7	461202	2.8	20.0	142924	2.9	17.8	460779	2.9	19.7	428503	3.1	20.6
218370	2.7	20.4	283162	2.8	19.8	171071	2.8	20.0	361370	2.9	21.2	499390	2.9	21.5	284910	3.1	19.4
258733	2.7	19.5	394377	2.8	21.2	40414	2.8	18.8	517174	2.9	22.0	191396	2.9	20.0	339534	3.1	21.7
203819	2.7	18.6	196637	2.8	19.9	460596	2.9	20.5	133800	2.9	19.0	16738	2.9	19.6	401627	3.1	20.2
231374	2.7	19.9	383740	2.8	20.8	503676	2.9	22.4	462658	2.9	21.1	72769	2.9	18.9	68551	3.1	18.7
464365	2.7	20.5	131472	2.8	19.9	90108	2.9	18.4	306138	2.9	20.4	323922	2.9	20.5	171148	3.1	20.4
215925	2.7	20.3	446867	2.8	20.0	105106	2.9	20.0	433915	2.9	20.7	204374	2.9	20.9	495431	3.1	20.2
475097	2.7	21.1	31708	2.8	18.5	393703	2.9	21.8	16487	2.9	17.8	432530	2.9	21.3	152403	3.1	19.9
114366	2.7	17.4	164702	2.8	20.4	242963	2.9	18.4	96705	2.9	19.0	429359	2.9	20.9	77895	3.1	18.9
360816	2.7	20.9	495684	2.8	20.6	458868	2.9	20.4	152282	2.9	19.2	462013	2.9	20.5	201420	3.1	19.1
243784	2.7	20.0	68124	2.8	18.8	390602	2.9	19.8	237161	2.9	19.5	321705	2.9	20.7	426306	3.1	21.0
417173	2.7	20.6	363125	2.8	20.8	210404	2.9	19.4	233123	2.9	19.6	367522	2.9	20.6	161205	3.1	19.6
299407	2.7	20.1	193826	2.8	19.2	472344	2.9	21.0	209607	2.9	19.0	85816	2.9	18.8	464429	3.1	20.8
345201	2.7	20.4	196356	2.8	19.7	490081	2.9	21.4	459345	2.9	21.3	224801	2.9	20.6	157260	3.1	19.3
253944	2.7	20.1	381688	2.8	20.2	4968	2.9	15.6	258588	2.9	20.4	245980	2.9	20.5	457237	3.1	20.9
295422	2.7	20.7	272137	2.8	21.4	324506	2.9	19.2	364374	2.9	20.8	15484	2.9	17.5	3000		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
132779	3.1	18.9	202020	3.2	21.0	500178	3.2	22.1	31808	3.3	16.9	220556	3.4	20.4	491018	3.5	20.6
227076	3.1	20.6	332412	3.2	20.7	140751	3.2	20.1	175978	3.3	19.9	134443	3.4	20.0	389003	3.5	21.4
151833	3.1	19.1	499429	3.2	21.0	214547	3.2	21.1	427408	3.3	19.5	290813	3.4	19.8	376299	3.5	21.0
243965	3.1	19.3	134747	3.2	18.4	370524	3.2	20.3	285577	3.3	20.6	221299	3.4	20.0	310299	3.5	20.6
122009	3.1	19.8	494737	3.2	21.4	355322	3.2	21.0	164457	3.3	20.9	498699	3.4	19.3	469011	3.5	20.4
16236	3.1	19.1	487963	3.2	20.8	169233	3.2	20.5	94140	3.3	18.5	78803	3.4	19.1	485378	3.5	21.1
75607	3.1	18.3	491987	3.2	21.7	127900	3.2	19.9	491983	3.3	21.2	36699	3.4	18.4	147575	3.5	20.6
458366	3.1	20.4	121973	3.2	19.0	307586	3.2	22.1	213278	3.3	20.6	445581	3.4	20.1	445111	3.5	20.4
421421	3.1	19.8	242925	3.2	21.1	134193	3.2	20.2	163600	3.3	19.0	447697	3.4	20.5	400119	3.5	21.1
166812	3.1	19.2	52392	3.2	19.3	85490	3.2	19.0	56476	3.3	18.1	190754	3.4	20.1	494226	3.5	21.1
46399	3.1	19.0	65400	3.2	19.1	164607	3.2	20.3	100476	3.3	20.0	484244	3.4	20.2	162755	3.5	19.3
178935	3.1	19.9	327461	3.2	20.3	427299	3.2	20.2	466845	3.3	20.9	185525	3.4	20.2	40422	3.5	18.8
73779	3.1	19.7	330076	3.2	20.6	370487	3.3	21.1	368169	3.3	20.4	463544	3.4	20.2	19823	3.5	18.4
271289	3.1	19.2	243947	3.2	20.4	243217	3.3	19.9	223748	3.3	19.8	197692	3.4	20.4	328551	3.5	20.5
367370	3.1	20.6	278180	3.2	20.0	173044	3.3	21.0	273002	3.3	19.9	180576	3.4	18.7	298384	3.5	19.8
381190	3.1	19.3	302521	3.2	20.1	96673	3.3	18.2	378409	3.3	20.3	440607	3.4	20.2	215483	3.5	20.1
318138	3.1	20.9	104607	3.2	19.4	376349	3.3	20.2	288643	3.3	20.9	164188	3.4	18.9	212289	3.5	20.3
418887	3.1	20.1	428810	3.2	19.9	462352	3.3	20.9	98566	3.3	18.0	39568	3.4	18.1	170104	3.5	18.6
369809	3.1	20.3	322892	3.2	19.3	259861	3.3	19.8	100588	3.3	18.6	318064	3.4	21.0	433301	3.5	18.7
398354	3.1	20.9	236043	3.2	20.5	375400	3.3	21.1	384145	3.3	20.2	66301	3.4	19.8	431698	3.5	23.4
242787	3.1	19.5	278460	3.2	19.8	65843	3.3	18.9	76325	3.3	18.9	344538	3.4	19.6	236830	3.5	19.6
113700	3.1	18.4	28736	3.2	16.5	174274	3.3	19.2	465732	3.3	21.0	334536	3.4	20.6	108718	3.5	19.9
298844	3.1	21.1	40161	3.2	17.5	285253	3.3	19.3	339829	3.3	19.3	429006	3.4	20.0	40099	3.5	18.0
80400	3.1	17.9	107115	3.2	18.4	462769	3.3	21.1	458370	3.3	21.3	240254	3.4	21.2	152508	3.5	19.6
197493	3.1	19.1	459708	3.2	20.8	378910	3.3	20.9	318650	3.3	21.3	496793	3.4	19.8	188308	3.5	19.0
157525	3.1	19.6	164279	3.2	19.0	390982	3.3	19.5	415687	3.3	21.3	262578	3.4	20.0	30198	3.5	18.9
351753	3.1	20.0	308141	3.2	19.0	5438	3.3	14.7	310457	3.3	19.9	251721	3.4	20.7	389194	3.5	20.9
277931	3.1	21.0	96417	3.2	17.9	13693	3.3	18.5	353912	3.3	19.2	492174	3.4	20.7	59493	3.5	17.2
1669	3.1	15.2	312283	3.2	20.0	240863	3.3	19.5	272945	3.3	20.4	156481	3.4	19.9	240351	3.5	20.6
405987	3.1	20.3	253121	3.2	20.2	105112	3.3	18.6	313412	3.3	20.6	391401	3.4	21.1	112510	3.5	20.6
463721	3.1	20.3	53390	3.2	18.2	210737	3.3	18.7	502920	3.3	21.2	185737	3.4	19.5	454243	3.5	19.9
148673	3.1	18.4	355895	3.2	19.9	461441	3.3	20.5	414483	3.3	19.9	142289	3.4	19.0	284729	3.5	20.7
129529	3.1	20.1	449546	3.2	21.0	334681	3.3	19.0	185042	3.3	19.8	238302	3.4	19.1	174395	3.5	18.5
203635	3.1	19.6	77523	3.2	18.9	340458	3.3	21.7	105971	3.4	19.8	105321	3.4	18.3	47944	3.5	17.9
39710	3.1	17.5	180876	3.2	19.8	81306	3.3	18.8	273625	3.4	20.6	415564	3.4	20.7	284787	3.5	20.4
327014	3.1	21.0	425370	3.2	20.3	377955	3.3	20.7	348731	3.4	19.9	412145	3.4	20.8	90811	3.5	19.0
308820	3.1	19.0	237672	3.2	20.0	94562	3.3	17.1	118682	3.4	19.7	473869	3.4	20.7	317570	3.5	18.6
95041	3.1	18.4	218882	3.2	19.8	235093	3.3	20.0	281339	3.4	20.8	371664	3.4	19.7	189979	3.5	20.0
340578	3.1	20.6	296992	3.2	20.6	402542	3.3	21.9	339515	3.4	21.5	83716	3.4	18.4	421426	3.5	20.1
298937	3.1	20.8	87089	3.2	19.2	322050	3.3	20.1	228054	3.4	20.7	231656	3.4	20.2	368453	3.5	20.0
113131	3.1	19.3	373413	3.2	20.1	275151	3.3	19.5	135789	3.4	20.0	352125	3.4	20.1	258137	3.5	21.0
519056	3.1	21.3	322043	3.2	20.1	110686	3.3	19.4	456616	3.4	21.0	58334	3.4	19.2	239498	3.5	19.3
258250	3.1	20.5	405022	3.2	21.5	243755	3.3	20.2	178999	3.4	19.9	363936	3.4	19.6	275535	3.5	19.2
135021	3.1	20.1	230993	3.2	19.7	387858	3.3	20.9	204558	3.4	20.5	408187	3.4	21.0	331279	3.5	20.1
395952	3.1	19.9	40192	3.2	18.1	187651	3.3	20.1	253225	3.4	18.8	189631	3.4	20.6	422890	3.5	20.6
166555	3.1	20.1	55154	3.2	18.2	190153	3.3	20.6	33596	3.4	18.0	380676	3.4	20.8	502884	3.5	21.4
93543	3.1	19.3	52236	3.2	19.2	183512	3.3	19.8	373998	3.4	18.9	60448	3.4	17.5	491934	3.5	20.8
288429	3.1	21.5	141979	3.2	19.4	323802	3.3	18.8	108187	3.4	19.5	132480	3.5	20.0	494167	3.5	21.1
355986	3.1	19.7	453019	3.2	21.7	116586	3.3	19.6	252065	3.4	19.8	468110	3.5	20.0	354520	3.5	19.7
366936	3.1	19.9	283206	3.2	20.7	406189	3.3	20.2	81050	3.4	19.4	151891	3.5	19.6	427840	3.5	21.4
143165	3.1	18.7	228754	3.2	18.7	418283	3.3	21.9	89752	3.4	18.3	117921	3.5	19.6	159479	3.5	20.4
249304	3.1	20.3	65389	3.2	19.4	327247	3.3	20.4	171414	3.4	19.7	171948	3.5	20.0	324033	3.5	19.8
354087	3.1	20.5	110748	3.2	19.0	350908	3.3	20.6	18897	3.4	16.6	104417	3.5	19.0	81509	3.5	19.8
106058	3.1	18.4	466034	3.2	21.8	490652	3.3	20.9	7672	3.4	17.8	236806	3.5	20.1	484624	3.5	20.6
122340	3.1	19.1	450727	3.2	21.5	161115	3.3	18.5	296661	3.4	20.1	20843	3.5	18.4	98885	3.5	19.0
414021	3.1	19.6	461762	3.2	20.3	57001	3.3	18.9	247199	3.4	19.5	77279	3.5	18.9	363208	3.5	20.2
377926	3.1	21.2	95925	3.2	18.8	61042	3.3	17.9	118172	3.4	17.8	372335	3.5	19.8	174919	3.5	20.1
487119	3.1	21.6	77725	3.2	18.9	209604	3.3	19.7	465716	3.4	21.1	215709	3.5	19.3	123093	3.5	18.9
167145	3.1	20.6	37429	3.2	19.3	147124	3.3	19.4	10041	3.4	17.3	351726	3.5	21.2	201975	3.5	19.9
432424	3.1	20.7	430174	3.2	19.8	6717	3.3	18.1	503711	3.4	20.9	340704	3.5	21.0	335917	3.5	20.2
246251	3.1	18.9	381223	3.2	21.5	318024	3.3	20.6	463781	3.4	21.2	122138	3.5	18.1	421241	3.5	21.2
293696	3.1	20.7	140880	3.2	19.0	419889	3.3	19.4	369144	3.4	20.3	225033	3.5	20.0	90328	3.5	18.9
302901	3.1	19.5	236007	3.2	19.2	61304	3.3	18.5	241185	3.4	19.6	355973	3.5	19.8	464209	3.5	20.6
368253	3.2	19.0	399169	3.2	20.6	476524	3.3	19.9	35384	3.4	18.6	131713	3.5	18.9	452471	3.5	19.2
236927	3.2	20.2	196987	3.2	18.9	432095	3.3	20.5	36048	3.4	18.4	194214	3.5	18.3	129386	3.5	20.1
276362	3.2	20.2	76372	3.2	18.7	353390	3.3	20.2	202551	3.4	20.5	209396	3.5	20.3	89799	3.5	19.5
183810	3.2	20.0	454089	3.2	21.2	49353	3.3	18.1	495397	3.4	20.8	426917	3.5	20.8	328639	3.5	20.1
456887	3.2	19.8	475447	3.2	20.5	408697	3.3	21.7	317377	3.4	18.4	33078	3.5	17.5	312272	3.5	19.8
470597	3.2	19.5	355450	3.2	21.2	143136	3.3	19.4	68767	3.4	19.6	239545	3.5	20.2	162918	3.5	17.3
430215	3.2	20.3	121855	3.2	18.9	21424	3.3	17.1	308731	3.4	21.0	419483	3.5	20.5	144	3.5	11.0
144667	3.2	20.3	76613	3.2	18.7	78745	3.3	19.8	238010	3.4	19.5	413664	3.5	20.6			

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
457210	3.5	20.8	125137	3.6	18.5	100229	3.7	19.4	499920	3.8	21.3	140293	3.8	19.6	233430	3.9	19.9
229248	3.5	18.5	361537	3.6	19.2	241293	3.7	19.2	225376	3.8	19.5	495215	3.8	21.5	351265	3.9	20.3
388535	3.5	21.8	240353	3.6	21.3	154077	3.7	19.5	371828	3.8	18.7	20618	3.8	17.2	472674	3.9	20.5
244979	3.5	18.9	465440	3.6	20.9	153983	3.7	19.1	17046	3.8	19.1	122373	3.8	19.4	429346	3.9	20.8
412492	3.5	20.6	64176	3.6	18.3	168042	3.7	19.7	428981	3.8	20.5	114606	3.8	18.4	468207	3.9	20.4
191606	3.5	20.0	116128	3.6	18.6	492994	3.7	20.9	268631	3.8	20.6	1718	3.8	17.4	409932	3.9	20.9
166869	3.5	19.1	435836	3.6	19.8	236333	3.7	20.5	461790	3.8	20.4	138436	3.8	19.1	310932	3.9	20.9
454293	3.6	21.2	482809	3.6	20.6	22415	3.7	18.6	282796	3.8	20.2	95011	3.8	18.4	429933	3.9	21.6
473458	3.6	19.7	171193	3.6	20.5	313421	3.7	18.1	401047	3.8	21.0	425352	3.8	21.2	279546	3.9	20.4
413654	3.6	19.4	454749	3.6	19.4	312211	3.7	19.9	109338	3.8	18.7	410516	3.8	21.3	298993	3.9	19.3
60744	3.6	18.1	193723	3.6	19.6	356511	3.7	21.4	351294	3.8	20.4	124926	3.8	20.0	4532	3.9	16.3
209596	3.6	19.1	404574	3.6	20.5	499453	3.7	20.6	522220	3.8	22.0	310125	3.8	19.9	304103	3.9	19.4
441344	3.6	21.4	101195	3.6	19.0	217844	3.7	20.6	303477	3.8	19.6	518445	3.8	21.3	296485	3.9	21.1
163595	3.6	19.7	164175	3.6	19.6	59873	3.7	19.6	114185	3.8	18.8	278404	3.8	21.0	292359	3.9	20.3
199820	3.6	20.3	490320	3.6	20.3	281182	3.7	20.6	117628	3.8	19.5	322844	3.8	19.9	46582	3.9	17.8
448136	3.6	20.3	246226	3.6	20.3	39956	3.7	19.4	223668	3.8	20.8	427070	3.8	21.0	381298	3.9	20.3
165858	3.6	19.1	66277	3.6	19.7	348160	3.7	20.7	267782	3.8	20.2	375305	3.8	19.5	153163	3.9	19.4
349686	3.6	20.3	435386	3.6	19.5	250205	3.7	19.3	348539	3.8	20.1	240860	3.8	19.4	3830	3.9	16.1
179963	3.6	19.2	464624	3.6	21.2	139361	3.7	19.8	313428	3.8	19.7	288397	3.8	20.3	301122	3.9	20.9
30917	3.6	20.2	82230	3.6	18.2	516460	3.7	22.5	489084	3.8	19.8	469715	3.8	22.5	309443	3.9	19.7
325902	3.6	19.7	93639	3.6	19.0	375573	3.7	20.0	432175	3.8	20.5	430257	3.8	20.3	23225	3.9	17.1
334218	3.6	20.7	266786	3.6	20.4	404192	3.7	20.5	298982	3.8	19.3	272980	3.9	21.0	93734	3.9	19.2
201383	3.6	19.6	452472	3.6	20.4	245967	3.7	20.8	9853	3.8	17.1	296551	3.9	20.5	467028	3.9	20.5
88506	3.6	17.8	227353	3.6	20.5	68582	3.7	18.7	214221	3.8	19.2	324644	3.9	20.1	169108	3.9	21.1
426177	3.6	20.0	18074	3.6	16.5	486742	3.7	21.0	19861	3.8	17.8	320755	3.9	20.9	321383	3.9	19.8
416611	3.6	20.9	462788	3.6	21.2	464266	3.7	20.1	83644	3.8	18.3	379956	3.9	21.1	313492	3.9	19.9
277972	3.6	20.0	420884	3.6	21.2	255874	3.7	18.5	148311	3.8	20.1	186875	3.9	19.1	32631	3.9	17.3
493498	3.6	21.0	485010	3.6	20.3	219545	3.7	20.4	459252	3.8	20.7	287463	3.9	19.4	518972	3.9	20.9
47925	3.6	18.0	378711	3.6	20.0	119730	3.7	19.3	400193	3.8	19.5	168518	3.9	18.8	196272	3.9	19.6
313232	3.6	20.0	364393	3.6	20.3	304013	3.7	20.2	412984	3.8	21.5	143408	3.9	19.6	255914	3.9	20.1
468717	3.6	21.4	190087	3.6	19.5	199143	3.7	20.2	113309	3.8	19.0	261183	3.9	19.6	127978	3.9	20.4
459795	3.6	20.8	207665	3.6	19.8	114293	3.7	18.3	433430	3.8	20.5	310413	3.9	19.6	489106	3.9	19.8
194297	3.6	20.7	477979	3.6	20.5	428801	3.7	20.6	216666	3.8	20.4	380662	3.9	20.5	511621	3.9	20.3
113268	3.6	18.9	262579	3.6	20.2	413608	3.7	20.5	473798	3.8	20.5	446754	3.9	19.9	160423	3.9	19.3
61199	3.6	19.3	182652	3.6	19.1	89176	3.7	18.5	261369	3.8	19.3	30347	3.9	17.9	345214	3.9	19.1
314754	3.6	20.7	32175	3.6	18.9	68847	3.7	18.7	103554	3.8	18.3	320726	3.9	20.8	381340	3.9	20.3
230634	3.6	19.7	17249	3.6	18.2	472316	3.7	21.2	12947	3.8	16.2	174154	3.9	19.7	86491	3.9	18.2
483484	3.6	21.5	429330	3.6	20.3	472577	3.7	20.8	236228	3.8	19.1	137572	3.9	19.1	175954	3.9	20.0
71268	3.6	18.1	251406	3.6	20.4	279435	3.7	20.9	28406	3.8	18.1	210264	3.9	18.7	200819	3.9	18.8
132007	3.6	19.6	420686	3.6	20.4	10384	3.7	17.4	197962	3.8	19.9	407883	3.9	19.8	196478	3.9	19.3
8171	3.6	17.6	202002	3.7	19.9	334137	3.7	20.4	503404	3.8	22.1	454600	3.9	21.5	367589	3.9	21.0
492056	3.6	21.9	448745	3.7	21.4	129615	3.7	19.5	418847	3.8	19.8	432901	3.9	22.2	262931	3.9	19.7
50692	3.6	18.7	165847	3.7	19.4	139430	3.7	19.5	464976	3.8	20.8	250112	3.9	21.0	59557	3.9	19.8
403552	3.6	22.2	282488	3.7	20.4	258497	3.7	19.8	201309	3.8	19.1	395392	3.9	20.9	501946	3.9	20.2
221507	3.6	20.4	109049	3.7	19.8	378435	3.7	20.7	53344	3.8	17.6	42252	3.9	18.2	459197	3.9	20.5
59265	3.6	18.1	143049	3.7	19.9	200366	3.7	20.4	286811	3.8	20.6	325778	3.9	19.8	325059	3.9	19.8
6226	3.6	16.2	364384	3.7	20.7	402567	3.7	22.2	208761	3.8	20.7	247295	3.9	18.5	407389	3.9	20.8
233009	3.6	20.0	38163	3.7	19.3	3072	3.7	17.2	15685	3.8	18.3	420851	3.9	21.2	90841	3.9	18.7
117277	3.6	19.4	323131	3.7	19.3	316090	3.7	20.8	3416	3.8	16.7	503730	3.9	22.2	267772	3.9	19.8
58718	3.6	18.2	120054	3.7	18.3	486846	3.7	21.6	183995	3.8	20.2	399321	3.9	20.4	399370	3.9	19.5
229019	3.6	19.3	327432	3.7	20.8	314843	3.7	18.9	232759	3.8	20.8	29875	3.9	17.8	381327	3.9	20.4
92817	3.6	18.9	96259	3.7	19.0	330488	3.7	18.9	463062	3.8	20.6	210468	3.9	20.2	222521	3.9	20.7
198975	3.6	20.9	100221	3.7	19.0	76912	3.7	18.1	403256	3.8	19.3	309846	3.9	20.2	456454	3.9	19.6
497242	3.6	21.7	370567	3.7	20.0	303649	3.7	19.3	68704	3.8	19.0	491955	3.9	19.7	466045	3.9	21.9
437819	3.6	19.9	405144	3.7	20.1	422012	3.7	19.8	89272	3.8	18.8	131284	3.9	18.6	40369	3.9	18.8
318803	3.6	20.9	142527	3.7	19.4	39906	3.7	18.3	61032	3.8	19.1	34156	3.9	18.2	336694	3.9	20.4
428955	3.6	20.2	29932	3.7	18.3	460344	3.7	20.0	25141	3.8	19.1	166707	3.9	19.9	182406	3.9	19.4
219447	3.6	20.0	349599	3.7	20.1	5030	3.7	16.8	228860	3.8	19.7	313417	3.9	19.7	263849	3.9	19.7
442844	3.6	20.0	319953	3.7	20.4	37321	3.7	16.7	214697	3.8	20.8	242453	3.9	20.6	413600	3.9	21.1
163791	3.6	20.4	206850	3.7	19.9	46846	3.7	18.2	338228	3.8	21.4	392487	3.9	20.5	340897	3.9	20.3
256072	3.6	19.6	336924	3.7	20.9	207867	3.7	20.0	131490	3.8	19.9	315499	3.9	20.1	373287	3.9	20.8
100365	3.6	19.4	417095	3.7	20.6	95973	3.7	19.3	397456	3.8	20.9	350601	3.9	19.4	58425	3.9	18.2
13595	3.6	17.8	56660	3.7	17.9	465459	3.7	21.1	194154	3.8	19.9	396040	3.9	21.0	149799	3.9	18.6
98734	3.6	18.0	250219	3.7	19.7	133655	3.7	19.0	242209	3.8	19.9	201477	3.9	20.2	236653	3.9	20.7
201890	3.6	18.8	217055	3.7	21.2	282990	3.7	21.0	273791	3.8	19.9	279108	3.9	19.6	54362	3.9	18.8
235951	3.6	19.7	458810	3.7	20.0	246666	3.7	20.1	259245	3.8	19.5	408911	3.9	20.9	493411	3.9	20.1
73752	3.6	17.3	432093	3.7	20.4	134455	3.7	19.1	196752	3.8	19.8	176894	3.9	19.2	134218	3.9	19.4
387554	3.6	21.9	109617	3.7	19.6	132893	3.7	19.1	319674	3.8	19.9	454445	3.9	19.7	71450	3.9	18.6
27724	3.6	18.3	145663	3.7	20.1	184869	3.7	19.5	10793	3.8	16.9	413957	3.9	19.4	20643	3.9	18.1
502204	3.6	20.4	250190	3.7	21.0	31690	3.8	19.3	73550	3.8	18.6	38818	3.9	17.4	125960	3.9	19.7
265019	3.6	20.4	197273	3.7	19.3	425510	3.8	20.3	226337	3.8	20.0	112422	3.9	19.0	173668		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
284239	3.9	20.2	186562	4.0	18.1	69417	4.1	18.7	12757	4.2	17.6	47988	4.3	18.8	131421	4.3	19.7
170482	3.9	19.2	492083	4.0	21.5	461460	4.1	22.0	152400	4.2	20.5	25598	4.3	17.6	36495	4.3	17.7
114191	3.9	19.4	28318	4.0	17.2	373979	4.1	19.7	65903	4.2	18.5	269223	4.3	19.8	353261	4.3	21.1
76136	3.9	18.9	226883	4.0	20.0	236078	4.1	21.1	243231	4.2	19.7	253278	4.3	19.4	19132	4.3	17.1
500293	3.9	21.1	395853	4.0	19.8	502891	4.1	20.3	35135	4.2	18.9	214369	4.3	19.4	313410	4.3	20.3
6225	3.9	17.6	468409	4.0	21.2	121014	4.1	18.2	128502	4.2	19.6	354503	4.3	19.5	160991	4.3	19.1
491671	3.9	20.7	412116	4.0	21.0	248574	4.1	19.2	310134	4.2	20.6	196719	4.3	19.6	238808	4.3	19.7
455863	3.9	20.5	29914	4.0	17.7	178126	4.1	20.3	192273	4.2	20.3	414184	4.3	20.3	338316	4.3	20.0
186156	3.9	19.6	459950	4.0	20.5	152244	4.1	18.7	94852	4.2	17.5	86881	4.3	19.1	495589	4.3	20.3
31738	3.9	17.6	165395	4.0	18.6	230793	4.1	20.0	432436	4.2	21.2	424730	4.3	20.6	518693	4.3	20.6
422875	3.9	21.5	279064	4.0	19.9	422608	4.1	20.4	204891	4.2	19.6	296957	4.3	20.7	422451	4.3	20.5
397031	3.9	19.9	111428	4.0	19.0	374609	4.1	20.3	461711	4.2	20.1	287292	4.3	20.8	282185	4.3	20.8
256050	3.9	20.5	15752	4.0	17.0	327359	4.1	20.4	284579	4.2	19.4	427215	4.3	20.1	80293	4.3	17.6
110797	3.9	20.0	461020	4.0	21.0	134577	4.1	17.7	502916	4.2	21.5	217600	4.3	20.3	502392	4.3	20.1
388360	3.9	20.5	241091	4.0	21.3	205445	4.1	19.1	217779	4.2	19.3	377220	4.3	19.4	75036	4.3	18.9
27561	3.9	17.9	461056	4.0	20.0	21607	4.1	17.3	55690	4.2	18.0	97732	4.3	18.9	254765	4.3	19.2
301177	3.9	19.2	402724	4.0	19.9	286275	4.1	20.9	173738	4.2	19.5	124146	4.3	20.2	343528	4.3	20.2
39616	3.9	16.7	182608	4.1	19.7	219404	4.1	19.6	105143	4.2	19.3	437369	4.3	19.1	455539	4.3	20.2
451441	3.9	21.1	173132	4.1	20.0	175305	4.1	19.7	253012	4.2	19.8	518843	4.3	21.0	424798	4.3	20.0
454975	3.9	20.5	85453	4.1	19.0	375537	4.1	20.1	19238	4.2	16.5	521006	4.3	19.8	186256	4.3	18.5
41293	3.9	18.6	293485	4.1	20.4	414470	4.1	20.1	80762	4.2	18.9	399192	4.3	20.2	160721	4.3	21.1
282555	3.9	18.4	399486	4.1	20.6	130139	4.1	19.1	304837	4.2	20.6	357935	4.3	20.8	29143	4.3	17.5
33851	3.9	18.0	215261	4.1	20.2	27086	4.1	18.8	416863	4.2	22.0	46391	4.3	18.6	493368	4.3	20.9
198911	3.9	19.6	196827	4.1	20.5	379075	4.1	20.1	158895	4.2	20.1	153204	4.3	19.6	470903	4.3	21.1
334209	3.9	20.7	157999	4.1	21.0	456617	4.1	20.5	411660	4.2	20.5	168243	4.3	20.2	175947	4.3	20.6
126667	3.9	19.6	203090	4.1	19.4	23243	4.1	18.3	52085	4.2	18.4	502592	4.3	21.3	229845	4.3	19.7
434008	3.9	18.5	472628	4.1	20.2	142622	4.1	18.6	250169	4.2	21.2	296188	4.3	19.1	214287	4.3	21.6
166276	3.9	20.1	154501	4.1	19.5	105451	4.1	17.9	317637	4.2	19.8	88851	4.3	19.7	180503	4.3	18.8
19552	3.9	18.0	181783	4.1	19.8	210379	4.1	20.4	336702	4.2	20.7	4374	4.3	14.8	167964	4.3	19.9
101651	3.9	18.6	455078	4.1	20.8	425286	4.1	19.2	12029	4.2	17.3	161524	4.3	19.5	63732	4.3	18.9
30903	3.9	18.2	519888	4.1	21.1	126486	4.1	19.5	39787	4.2	16.6	299018	4.3	19.7	225152	4.3	19.5
165710	3.9	20.7	461314	4.1	20.9	231671	4.1	19.9	322279	4.2	20.9	446933	4.3	18.6	493701	4.3	21.0
206352	3.9	20.5	312305	4.1	20.7	200131	4.1	20.5	445120	4.2	21.0	323486	4.3	21.0	32094	4.3	19.6
269628	3.9	18.1	153812	4.1	18.5	238784	4.1	20.1	82468	4.2	19.3	51893	4.3	17.8	109507	4.3	20.0
9278	4.0	16.4	218732	4.1	19.4	165738	4.2	20.2	144302	4.2	19.9	467085	4.3	20.2	44036	4.3	19.6
13559	4.0	17.9	309353	4.1	20.5	157540	4.2	19.0	235630	4.2	20.0	364222	4.3	20.5	17587	4.3	18.1
518223	4.0	19.6	285138	4.1	20.6	202129	4.2	18.0	148129	4.2	19.5	51148	4.3	18.8	219869	4.3	19.6
341016	4.0	18.7	394807	4.1	21.2	420846	4.2	21.6	426887	4.2	20.0	204695	4.3	20.7	224019	4.3	19.7
425964	4.0	20.9	229674	4.1	20.3	224814	4.2	19.5	452292	4.2	19.9	410071	4.3	19.2	231002	4.3	19.8
32538	4.0	18.7	105417	4.1	20.5	13918	4.2	17.2	495017	4.2	19.4	137199	4.3	15.1	275923	4.3	21.1
502282	4.0	21.2	124120	4.1	20.2	105368	4.2	19.2	421411	4.2	20.0	7936	4.3	16.4	195665	4.3	18.8
457081	4.0	19.8	437374	4.1	19.9	306294	4.2	21.1	273381	4.2	20.0	16698	4.3	17.0	403527	4.3	21.0
319651	4.0	20.6	131058	4.1	18.7	246115	4.2	20.3	429007	4.2	20.6	296266	4.3	20.0	85345	4.3	19.6
465951	4.0	20.3	94246	4.1	19.0	318711	4.2	20.4	439058	4.2	21.0	485017	4.3	19.0	66467	4.3	19.3
458217	4.0	20.8	431151	4.1	21.0	144198	4.2	20.0	229780	4.2	19.6	495124	4.3	19.2	393681	4.3	20.8
8307	4.0	18.0	357586	4.1	20.1	25367	4.2	17.4	143277	4.2	18.3	347728	4.3	20.5	496642	4.4	20.2
341920	4.0	20.9	358515	4.1	21.4	220910	4.2	20.1	227521	4.2	19.5	179098	4.3	19.8	113998	4.4	19.5
454888	4.0	20.0	375362	4.1	20.6	150175	4.2	18.9	451439	4.2	21.3	401882	4.3	21.3	212986	4.4	20.0
350849	4.0	20.7	31962	4.1	18.7	147751	4.2	19.9	414962	4.2	19.4	238373	4.3	19.8	309406	4.4	19.6
300259	4.0	21.3	463600	4.1	20.5	444062	4.2	20.8	407277	4.2	20.9	153799	4.3	19.4	72041	4.4	18.9
204196	4.0	19.2	62296	4.1	18.3	51767	4.2	18.4	358129	4.2	20.0	286625	4.3	19.9	81792	4.4	19.4
170055	4.0	19.8	18256	4.1	18.4	350695	4.2	20.4	196875	4.2	20.4	89885	4.3	19.5	96691	4.4	18.1
345221	4.0	20.0	78700	4.1	19.4	448766	4.2	19.6	76221	4.2	18.9	461034	4.3	19.8	406037	4.4	21.0
201258	4.0	19.3	50646	4.1	18.4	315482	4.2	19.7	247932	4.2	20.1	29738	4.3	17.4	457220	4.4	20.3
401945	4.0	21.6	219375	4.1	19.7	459822	4.2	20.4	428167	4.2	21.5	123126	4.3	19.9	180851	4.4	19.8
357217	4.0	21.3	281069	4.1	20.5	401786	4.2	21.2	318934	4.2	20.8	12323	4.3	17.2	421379	4.4	19.4
351002	4.0	21.1	288678	4.1	20.1	315569	4.2	19.0	340972	4.2	19.7	355266	4.3	20.1	143682	4.4	20.5
17744	4.0	18.3	192458	4.1	17.9	274659	4.2	19.7	462504	4.2	21.1	166594	4.3	20.1	378381	4.4	20.1
360824	4.0	21.3	412197	4.1	21.1	263203	4.2	18.4	204607	4.2	19.5	135187	4.3	17.9	88942	4.4	18.9
320890	4.0	20.9	401835	4.1	20.9	298350	4.2	21.8	134971	4.2	19.7	314869	4.3	20.2	204301	4.4	19.5
403299	4.0	20.2	460303	4.1	20.9	27906	4.2	18.9	427086	4.2	20.0	122710	4.3	19.7	234254	4.4	20.3
93471	4.0	18.9	320212	4.1	20.6	174961	4.2	19.6	185312	4.2	20.1	238706	4.3	21.4	330137	4.4	20.1
466828	4.0	21.3	416844	4.1	21.1	27701	4.2	18.2	3803	4.2	15.4	473571	4.3	20.2	326737	4.4	20.2
46628	4.0	18.3	253224	4.1	19.0	403005	4.2	21.1	517159	4.2	20.3	253041	4.3	20.1	31252	4.4	17.6
395850	4.0	20.2	115014	4.1	19.0	382089	4.2	20.8	65581	4.2	19.7	131978	4.3	18.9	314224	4.4	20.8
460996	4.0	20.9	519550	4.1	21.6	28998	4.2	18.0	456259	4.2	20.2	168194	4.3	19.9	239550	4.4	19.6
169113	4.0	19.6	37973	4.1	18.5	321569	4.2	20.0	223678	4.2	20.6	187391	4.3	19.9	122357	4.4	18.6
260779	4.0	20.4	388024	4.1	20.9	29905	4.2	17.3	298979	4.2	19.4	381308	4.3	20.4	266378	4.4	20.1
351252	4.0	20.4	227952	4.1	19.5	418367	4.2	20.7	522509	4.2	20.7	520948	4.3	20.8	200072	4.4	19.3
31693	4.0	18.0	445899	4.1	20.7	170291	4.2	20.3	331228	4.2	19.8	345241	4.3	19.5	16198	4.4	17.5
457809	4.0	20.4	5172	4.1	16.4	171941	4.2	19.6	168298	4.2	19.2	191053	4.3	19.5	5405		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
451224	4.4	20.7	424246	4.5	21.0	277973	4.5	21.2	239409	4.6	20.3	281301	4.7	20.5	447774	4.7	19.8
61390	4.4	19.2	429268	4.5	20.7	419913	4.5	20.2	44532	4.6	18.6	468398	4.7	20.1	421029	4.7	21.6
421212	4.4	21.2	116460	4.5	18.9	132239	4.5	19.7	234169	4.6	20.0	89075	4.7	19.5	256154	4.7	18.5
407941	4.4	20.4	212817	4.5	19.5	318778	4.5	20.6	409979	4.6	21.7	177368	4.7	19.4	52408	4.7	17.3
462043	4.4	21.1	130344	4.5	18.8	437336	4.5	19.6	1292	4.6	14.4	113912	4.7	19.0	64096	4.7	18.6
429979	4.4	20.3	177411	4.5	20.3	194180	4.5	19.3	252473	4.6	19.4	176764	4.7	19.3	220239	4.7	18.6
127804	4.4	19.6	23723	4.5	18.8	330435	4.5	20.2	463224	4.6	20.1	426361	4.7	21.1	86860	4.7	20.0
245053	4.4	20.1	369413	4.5	21.3	170318	4.5	21.1	451663	4.6	20.1	88357	4.7	20.1	316612	4.8	19.4
424748	4.4	20.9	48530	4.5	17.5	288481	4.5	19.5	48287	4.6	19.0	87846	4.7	19.1	137875	4.8	17.2
51945	4.4	19.2	235495	4.5	19.2	138053	4.5	18.9	152272	4.6	19.4	27763	4.7	19.2	421604	4.8	19.7
378384	4.4	19.5	454881	4.5	20.0	465435	4.5	20.6	325774	4.6	19.5	319554	4.7	20.4	321154	4.8	19.6
271199	4.4	20.5	64391	4.5	18.5	166856	4.5	20.2	258652	4.6	20.6	242587	4.7	20.3	278903	4.8	20.2
159377	4.4	20.5	406845	4.5	20.3	324062	4.5	20.5	285547	4.6	21.3	7526	4.7	16.4	417158	4.8	20.1
132510	4.4	19.4	465539	4.5	21.5	193924	4.6	21.1	442783	4.6	20.5	227577	4.7	20.1	245451	4.8	20.4
216807	4.4	18.4	4487	4.5	18.7	467590	4.6	20.1	288962	4.6	20.1	492012	4.7	20.8	205955	4.8	19.4
236247	4.4	19.7	284994	4.5	20.3	469041	4.6	20.2	224010	4.6	20.2	317157	4.7	20.5	6472	4.8	18.1
456677	4.4	20.9	274139	4.5	19.0	21635	4.6	18.5	303994	4.6	20.9	254670	4.7	20.7	248016	4.8	20.3
453803	4.4	21.4	86032	4.5	19.1	222913	4.6	20.6	161913	4.6	20.8	241577	4.7	20.6	468490	4.8	20.4
281332	4.4	20.9	502515	4.5	20.8	142472	4.6	20.4	343218	4.6	19.6	519369	4.7	21.5	168461	4.8	20.3
246716	4.4	20.5	446053	4.5	19.5	269133	4.6	20.8	327021	4.6	20.4	519446	4.7	20.1	360291	4.8	19.6
381243	4.4	21.9	206772	4.5	19.6	467689	4.6	20.7	445969	4.6	20.2	100651	4.7	20.0	424040	4.8	20.2
114224	4.4	19.1	456520	4.5	20.2	383689	4.6	21.3	388413	4.6	20.2	249187	4.7	19.9	110584	4.8	17.4
8551	4.4	17.5	15085	4.5	17.8	58740	4.6	19.0	414222	4.6	19.9	33221	4.7	18.1	425094	4.8	21.4
462126	4.4	21.7	133500	4.5	20.5	454503	4.6	20.6	316700	4.6	20.3	73645	4.7	18.0	309888	4.8	19.9
106074	4.4	18.2	368572	4.5	21.2	379085	4.6	19.0	80116	4.6	18.6	352730	4.7	20.6	52923	4.8	18.9
419081	4.4	21.3	84163	4.5	18.4	121996	4.6	18.5	166224	4.6	18.6	146323	4.7	18.6	70264	4.8	19.6
160310	4.4	20.7	323764	4.5	20.1	285728	4.6	20.0	423093	4.6	20.0	450018	4.7	20.4	256403	4.8	18.7
414797	4.4	20.2	373922	4.5	20.3	354162	4.6	20.0	136392	4.6	20.3	455853	4.7	21.0	458972	4.8	19.4
187394	4.4	19.2	411848	4.5	20.1	333626	4.6	20.4	75788	4.6	18.6	204211	4.7	19.3	458386	4.8	20.2
166996	4.4	18.8	291100	4.5	19.8	349006	4.6	19.6	500279	4.6	21.2	325064	4.7	20.0	325496	4.8	21.4
125349	4.4	18.4	492942	4.5	21.3	424974	4.6	20.9	286492	4.6	19.7	373827	4.7	19.5	422583	4.8	21.2
120883	4.4	20.6	191268	4.5	19.6	327427	4.6	19.7	397211	4.6	21.5	64275	4.7	18.8	310091	4.8	19.0
151258	4.4	19.5	122130	4.5	20.5	400341	4.6	20.6	282081	4.6	20.5	191095	4.7	19.4	456271	4.8	20.9
152764	4.4	20.2	74558	4.5	18.9	194727	4.6	20.0	320961	4.6	19.8	273195	4.7	20.5	105	4.8	12.7
283976	4.4	20.0	368839	4.5	20.4	277970	4.6	21.0	272837	4.6	20.4	334667	4.7	19.1	426914	4.8	20.1
212075	4.4	19.2	489161	4.5	20.4	116716	4.6	19.6	223747	4.6	19.7	422295	4.7	20.6	518119	4.8	20.9
426400	4.4	22.2	489146	4.5	21.1	400037	4.6	20.7	175382	4.6	20.6	333674	4.7	20.0	21603	4.8	18.4
311052	4.4	19.7	97786	4.5	20.4	353508	4.6	20.2	10564	4.6	15.7	420522	4.7	20.5	79510	4.8	18.6
461098	4.4	20.1	125217	4.5	18.7	179210	4.6	20.3	295308	4.6	20.5	113649	4.7	18.3	280707	4.8	21.3
454472	4.4	20.8	455834	4.5	20.5	128588	4.6	18.9	102099	4.7	20.2	329006	4.7	19.9	452447	4.8	20.7
124427	4.4	19.7	451516	4.5	20.3	490873	4.6	20.2	448255	4.7	19.9	190859	4.7	19.2	219010	4.8	22.0
24645	4.4	17.7	349603	4.5	19.7	80255	4.6	18.7	474015	4.7	20.4	195810	4.7	19.6	419901	4.8	21.1
494824	4.4	21.2	164337	4.5	19.0	166112	4.6	20.6	353989	4.7	20.3	193813	4.7	19.8	411264	4.8	21.2
418296	4.4	20.8	308724	4.5	20.9	359605	4.6	20.2	245827	4.7	20.0	310167	4.7	21.3	379103	4.8	19.0
275780	4.4	19.4	82000	4.5	19.5	154755	4.6	19.5	519610	4.7	22.0	65914	4.7	17.7	409515	4.8	20.0
27786	4.4	17.3	284078	4.5	20.6	95764	4.6	19.5	309327	4.7	20.6	460601	4.7	20.3	109999	4.8	19.3
463249	4.4	21.7	373751	4.5	20.6	335633	4.6	20.8	449583	4.7	20.6	130369	4.7	20.1	248027	4.8	20.1
164275	4.4	18.6	245848	4.5	20.7	271796	4.6	20.5	187898	4.7	19.1	389590	4.7	20.6	142730	4.8	18.2
376430	4.4	20.6	284205	4.5	19.2	243862	4.6	19.1	414566	4.7	20.4	495519	4.7	20.4	249843	4.8	19.0
35999	4.4	19.0	27720	4.5	17.6	253103	4.6	20.4	33936	4.7	19.5	127227	4.7	19.9	51284	4.8	20.4
234914	4.4	19.5	306020	4.5	18.5	423020	4.6	20.4	15451	4.7	17.0	58207	4.7	17.9	376069	4.8	19.7
492593	4.4	20.7	288767	4.5	20.0	50658	4.6	17.0	460245	4.7	21.1	456078	4.7	20.3	458188	4.8	19.4
204787	4.4	19.7	467177	4.5	21.1	240332	4.6	20.7	299526	4.7	20.5	321940	4.7	20.1	200171	4.8	19.4
326700	4.4	18.6	468093	4.5	21.4	283523	4.6	20.4	81592	4.7	19.2	297483	4.7	20.3	256335	4.8	19.6
426886	4.4	20.6	227352	4.5	20.2	488826	4.6	21.6	77882	4.7	19.0	473996	4.7	19.9	127960	4.8	19.7
133940	4.4	19.9	375358	4.5	20.4	286183	4.6	19.1	5618	4.7	16.2	51113	4.7	18.5	397901	4.8	20.9
83775	4.4	19.5	245883	4.5	20.9	421152	4.6	20.4	413516	4.7	20.6	452473	4.7	18.9	407405	4.8	20.5
150179	4.4	19.1	326464	4.5	19.4	290374	4.6	19.3	489930	4.7	18.8	399560	4.7	20.6	57924	4.8	16.7
116284	4.4	18.3	463554	4.5	20.7	323871	4.6	20.0	516976	4.7	25.8	194554	4.7	19.9	372426	4.8	21.1
492136	4.4	22.0	488861	4.5	21.8	182778	4.6	19.8	192998	4.7	19.0	338071	4.7	20.4	412334	4.8	19.9
401018	4.4	21.2	464912	4.5	21.2	327876	4.6	19.3	365147	4.7	20.8	256760	4.7	18.8	345119	4.8	21.0
37624	4.4	18.2	347177	4.5	20.7	61495	4.6	19.9	122720	4.7	17.8	25073	4.7	18.0	333916	4.8	20.4
205259	4.5	19.2	351233	4.5	20.1	181056	4.6	19.7	27805	4.7	17.0	404930	4.7	21.2	377000	4.8	20.6
402296	4.5	20.6	464521	4.5	20.8	86570	4.6	18.7	394381	4.7	21.0	373256	4.7	20.7	125735	4.8	18.6
183344	4.5	19.0	269473	4.5	19.8	378439	4.6	20.8	114321	4.7	18.3	206010	4.7	20.1	135317	4.8	18.4
303538	4.5	19.1	462651	4.5	21.0	111306	4.6	18.4	205533	4.7	20.2	408170	4.7	20.9	139393	4.8	20.4
82693	4.5	18.3	20726	4.5	17.8	288622	4.6	21.0	332181	4.7	20.8	409465	4.7	20.1	93918	4.8	19.5
364321	4.5	20.8	308174	4.5	19.6	118	4.6	11.3	330509	4.7	21.5	495172	4.7	20.7	189702	4.8	21.2
180264	4.5	19.8	304920	4.5	21.5	308204	4.6	20.0	83289	4.7	18.8	455821	4.7	20.7	52657	4.8	18.1
455371	4.5	20.7	419453	4.5	20.7	336482	4.6	20.3	251092	4.7	19.2	321026	4.7	20.7	83909	4.8	17.4
340789	4.5	20.1	249690	4.5	19.7	169281	4.6	18.1	351263	4.7	20.2	94592	4.7				

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
519123	4.8	22.1	30756	4.9	17.9	357399	4.9	20.6	125130	5.0	20.5	217798	5.1	18.9	242057	5.2	19.6
425518	4.8	20.8	433802	4.9	19.8	164502	4.9	19.2	87939	5.0	20.0	283387	5.1	19.9	276347	5.2	20.5
125163	4.8	19.1	370478	4.9	20.8	416904	4.9	20.2	380025	5.0	20.8	171989	5.1	19.6	393184	5.2	20.5
258206	4.8	20.9	334549	4.9	20.1	423564	4.9	20.1	24874	5.0	18.4	285578	5.1	20.5	241842	5.2	20.3
401758	4.8	19.8	33625	4.9	18.1	500484	4.9	21.6	223783	5.0	20.5	103609	5.1	18.4	241171	5.2	21.4
56806	4.8	19.6	26552	4.9	18.4	24495	4.9	17.4	495471	5.0	20.8	291582	5.1	20.9	187917	5.2	19.5
135938	4.8	19.7	407304	4.9	19.5	351782	4.9	20.9	140260	5.0	18.6	364297	5.1	20.0	290432	5.2	21.2
430084	4.8	19.2	39889	4.9	17.8	243716	4.9	19.3	228409	5.0	19.6	31663	5.1	17.3	413604	5.2	20.3
61741	4.8	19.3	90647	4.9	19.6	328261	4.9	20.0	299014	5.0	19.7	122398	5.1	20.0	18673	5.2	18.7
104774	4.8	18.8	498324	4.9	21.3	499450	4.9	21.1	445634	5.0	20.3	466946	5.1	20.5	232243	5.2	20.3
104959	4.8	19.5	409928	4.9	21.8	308752	4.9	19.4	340581	5.0	20.7	57731	5.1	18.3	5388	5.2	16.8
487863	4.8	21.4	326975	4.9	19.5	317039	4.9	20.2	108299	5.1	20.0	144275	5.1	19.8	4601	5.2	16.3
258228	4.8	19.1	488768	4.9	20.8	146648	4.9	20.2	522062	5.1	20.6	166297	5.1	20.2	315580	5.2	19.7
474066	4.8	20.1	405592	4.9	19.8	339561	4.9	21.8	362175	5.1	20.7	142136	5.1	19.0	498890	5.2	20.7
494175	4.8	20.7	15709	4.9	17.2	466791	4.9	20.5	69909	5.1	20.3	258269	5.1	19.3	97910	5.2	19.7
241100	4.8	19.4	288315	4.9	20.5	62094	4.9	18.6	378253	5.1	20.4	261910	5.1	21.0	329344	5.2	19.9
201305	4.8	18.2	39107	4.9	19.4	468705	4.9	21.9	272122	5.1	19.8	472383	5.1	20.5	293417	5.2	20.8
151794	4.8	19.5	400110	4.9	20.6	194259	4.9	19.5	495946	5.1	22.4	58226	5.1	18.9	177428	5.2	20.3
496594	4.8	20.7	45535	4.9	19.0	417719	4.9	19.9	204326	5.1	19.7	425340	5.1	20.2	464259	5.2	20.3
443632	4.8	19.6	148697	4.9	19.6	369512	4.9	20.6	242831	5.1	21.0	238773	5.1	20.9	177747	5.2	20.9
169354	4.8	19.5	297422	4.9	20.8	301224	4.9	19.6	498222	5.1	20.8	182169	5.1	19.5	3591	5.2	17.2
338169	4.8	21.0	104586	4.9	20.2	379884	4.9	20.9	13373	5.1	17.7	291312	5.1	20.1	132308	5.2	20.2
421277	4.8	21.6	34079	4.9	17.3	423292	4.9	20.9	434433	5.1	21.1	99660	5.1	18.5	222324	5.2	19.5
341572	4.8	21.4	206879	4.9	19.7	428171	4.9	21.1	193850	5.1	19.4	332442	5.1	19.7	41777	5.2	18.1
445550	4.8	21.1	455513	4.9	19.5	338245	4.9	20.2	62090	5.1	19.7	72958	5.1	19.5	130692	5.2	19.9
519548	4.8	20.2	283961	4.9	21.3	457122	4.9	21.6	296896	5.1	19.3	502761	5.1	21.1	460370	5.2	20.9
383716	4.8	19.5	174904	4.9	19.4	239537	4.9	20.1	222359	5.1	19.3	424966	5.1	20.3	256051	5.2	20.4
423498	4.8	20.5	66396	4.9	17.6	279302	4.9	20.3	338213	5.1	19.8	133784	5.1	19.0	25183	5.2	17.8
243728	4.8	20.3	77763	4.9	18.9	234412	4.9	19.2	503353	5.1	21.9	283289	5.1	20.0	254782	5.2	20.8
256542	4.8	20.7	122712	4.9	20.7	110215	4.9	20.6	378369	5.1	21.1	124319	5.1	18.5	516406	5.2	20.9
73452	4.8	18.0	23914	4.9	17.5	15399	4.9	18.7	217412	5.1	17.4	267946	5.1	19.6	457103	5.2	22.0
468298	4.8	20.4	162416	4.9	23.8	185175	4.9	18.9	52840	5.1	17.8	121999	5.1	19.0	274984	5.2	19.3
78468	4.8	18.8	299420	4.9	20.4	53106	4.9	18.2	468970	5.1	20.4	53356	5.1	16.9	446727	5.2	21.5
37917	4.8	18.8	435208	4.9	20.6	83933	4.9	17.8	341423	5.1	21.2	278985	5.1	19.7	313870	5.2	20.0
83791	4.8	19.5	325840	4.9	20.6	35737	5.0	19.3	280453	5.1	20.1	81602	5.1	19.2	241181	5.2	20.6
72246	4.8	17.8	518618	4.9	21.5	242066	5.0	20.4	167396	5.1	18.8	496262	5.1	21.4	76137	5.2	18.0
161120	4.8	17.9	365227	4.9	21.1	132806	5.0	20.1	112329	5.1	18.2	325281	5.1	20.6	520987	5.2	21.2
327931	4.8	20.4	59337	4.9	17.8	459158	5.0	20.5	16028	5.1	16.5	117818	5.1	19.7	266955	5.2	19.8
13158	4.8	17.6	256290	4.9	20.3	93238	5.0	17.7	284707	5.1	20.9	393238	5.1	20.8	125972	5.2	19.6
371705	4.8	20.3	298823	4.9	20.8	47968	5.0	17.0	376622	5.1	20.4	522185	5.1	21.1	464776	5.2	21.0
382075	4.9	21.3	160935	4.9	19.3	430264	5.0	20.4	81797	5.1	19.1	391782	5.1	20.4	186208	5.2	19.7
441458	4.9	20.6	226737	4.9	20.6	146390	5.0	19.8	354191	5.1	20.4	418874	5.1	19.1	457215	5.2	21.9
361350	4.9	21.7	81110	4.9	18.4	68150	5.0	19.0	296027	5.1	20.5	451894	5.1	21.0	379108	5.2	19.7
267228	4.9	19.7	171364	4.9	19.9	167999	5.0	19.5	406130	5.1	20.3	207962	5.2	20.4	23541	5.2	18.3
493646	4.9	20.8	20028	4.9	18.3	65443	5.0	19.2	457136	5.1	20.7	112712	5.2	19.6	285966	5.2	21.1
451419	4.9	20.7	426925	4.9	19.6	467135	5.0	20.6	335253	5.1	19.9	320818	5.2	20.7	235454	5.2	19.4
414912	4.9	21.0	382130	4.9	20.2	203560	5.0	18.9	215366	5.1	20.0	316064	5.2	20.6	239807	5.2	19.8
194076	4.9	18.4	375591	4.9	20.5	233999	5.0	19.8	326999	5.1	20.4	64397	5.2	18.1	354993	5.2	20.0
152919	4.9	20.0	124307	4.9	19.0	460429	5.0	21.4	325463	5.1	20.1	43575	5.2	18.4	413603	5.2	20.8
70777	4.9	18.7	251061	4.9	20.8	256082	5.0	20.9	26922	5.1	18.1	306115	5.2	21.0	315543	5.2	19.5
84078	4.9	18.5	395124	4.9	19.3	5622	5.0	16.3	449194	5.1	19.6	144006	5.2	19.8	201295	5.2	18.8
382351	4.9	19.3	329627	4.9	19.2	25838	5.0	17.8	393835	5.1	20.5	368619	5.2	20.5	400830	5.2	21.3
424256	4.9	20.6	378996	4.9	19.5	418033	5.0	20.1	93058	5.1	17.2	201977	5.2	19.6	203072	5.2	20.0
367584	4.9	19.9	359195	4.9	20.8	13648	5.0	18.1	486777	5.1	21.4	352795	5.2	20.3	457773	5.2	20.5
3998	4.9	14.4	31860	4.9	20.0	421600	5.0	20.7	503640	5.1	22.5	149852	5.2	19.8	201206	5.2	20.3
30779	4.9	18.0	378320	4.9	20.9	36931	5.0	17.6	467298	5.1	20.0	411750	5.2	19.4	87597	5.2	18.3
473764	4.9	20.4	222328	4.9	19.8	54482	5.0	19.0	279477	5.1	20.5	219740	5.2	19.2	251206	5.2	19.5
27863	4.9	19.2	375066	4.9	20.6	201466	5.0	20.7	382147	5.1	20.9	13926	5.2	17.2	113577	5.2	18.6
30825	4.9	18.1	125566	4.9	19.0	236726	5.0	21.2	147067	5.1	19.0	201959	5.2	19.9	40569	5.2	18.3
384455	4.9	20.8	218648	4.9	20.9	68451	5.0	18.4	182593	5.1	19.6	112273	5.2	18.8	468212	5.2	20.8
271261	4.9	19.9	324065	4.9	20.0	295712	5.0	20.3	235074	5.1	20.8	426718	5.2	21.3	144365	5.2	19.7
411388	4.9	19.6	88856	4.9	18.1	281583	5.0	20.3	427135	5.1	20.1	171550	5.2	20.5	228022	5.2	20.3
165772	4.9	20.4	215533	4.9	20.7	120282	5.0	20.0	397129	5.1	20.5	449087	5.2	19.9	212158	5.2	20.9
37984	4.9	19.4	307634	4.9	20.1	94457	5.0	18.5	276305	5.1	19.9	376691	5.2	20.7	184313	5.2	19.5
125142	4.9	18.3	318796	4.9	21.1	161291	5.0	20.3	364337	5.1	20.3	277344	5.2	20.3	153328	5.2	20.2
104731	4.9	19.7	403017	4.9	19.9	387664	5.0	21.6	405958	5.1	20.4	387990	5.2	21.0	332993	5.2	20.0
237625	4.9	20.5	76132	4.9	19.4	346275	5.0	21.1	318069	5.1	19.8	139657	5.2	19.7	370250	5.2	20.3
67397	4.9	18.3	130508	4.9	18.3	312253	5.0	19.2	211964	5.1	19.4	14786	5.2	17.7	229395	5.2	19.0
459108	4.9	20.2	399453	4.9	20.7	231972	5.0	20.6	375512	5.1	20.8	193827	5.2	20.4	43461	5.2	18.4
169597	4.9	20.3	390806	4.9	21.5	113654	5.0	18.5	414920	5.1	20.5	30456	5.2	19.0	305604	5.2	20.4
83666	4.9	18.4	500014	4.9	22.8	290966	5.0	18.7	204621	5.1	19.5	81804	5.2	18.3	132960		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
83987	5.2	19.5	230964	5.3	20.0	293599	5.4	19.9	286491	5.5	20.2	493648	5.5	21.3	466589	5.6	20.7
366044	5.3	19.1	350220	5.3	20.2	159885	5.4	19.7	238103	5.5	20.6	34080	5.5	19.1	502956	5.6	21.1
81695	5.3	19.0	274133	5.3	20.8	474575	5.4	23.0	362694	5.5	20.2	246125	5.5	19.2	411383	5.6	21.5
8042	5.3	16.8	258272	5.3	19.4	12771	5.4	17.7	165413	5.5	18.2	64175	5.5	18.6	163444	5.6	19.3
135367	5.3	21.0	344814	5.3	20.0	237612	5.4	19.9	412428	5.5	20.9	311049	5.5	20.5	308143	5.6	19.1
436086	5.3	21.9	306218	5.3	20.5	93645	5.4	19.2	154048	5.5	19.6	83832	5.5	18.4	59623	5.6	19.4
376257	5.3	20.2	457104	5.3	21.6	456600	5.4	21.3	485429	5.5	20.9	282079	5.5	19.5	490648	5.6	21.5
69915	5.3	19.6	364983	5.3	21.2	142567	5.4	19.2	495097	5.5	21.4	125934	5.5	18.0	471350	5.6	21.3
458293	5.3	19.6	184897	5.3	20.3	419087	5.4	20.8	376640	5.5	21.7	143080	5.5	20.0	493102	5.6	21.3
314215	5.3	20.9	217594	5.3	20.3	405585	5.4	19.6	220562	5.5	20.8	522139	5.5	20.5	283184	5.6	20.2
160686	5.3	19.2	271352	5.3	20.3	429048	5.4	19.9	83230	5.5	19.4	96676	5.5	18.5	268699	5.6	20.0
419126	5.3	20.4	190840	5.3	18.5	522587	5.4	22.1	353430	5.5	20.5	82557	5.5	19.3	482091	5.6	20.8
14637	5.3	17.9	17481	5.3	17.9	483598	5.4	20.7	200920	5.5	19.4	327970	5.5	20.8	457911	5.6	21.4
370604	5.3	19.5	18537	5.3	16.7	116813	5.4	19.8	276246	5.5	20.3	427186	5.5	20.7	293566	5.6	20.6
56382	5.3	18.4	459330	5.3	19.2	34687	5.4	18.9	247607	5.5	20.2	41431	5.5	18.9	245262	5.6	19.3
409426	5.3	20.9	401993	5.3	19.4	355980	5.4	20.2	463833	5.5	19.5	415396	5.5	20.3	449183	5.6	20.3
438889	5.3	21.7	459315	5.3	21.1	467670	5.4	20.4	449097	5.5	21.1	22465	5.5	17.8	193875	5.6	19.6
33690	5.3	18.5	460692	5.3	21.4	95009	5.4	18.6	316095	5.5	20.7	448772	5.5	19.4	468726	5.6	21.7
33353	5.3	17.6	136403	5.3	19.9	76697	5.4	19.2	439276	5.5	21.9	155677	5.5	19.9	2881	5.6	14.9
49343	5.3	17.4	83844	5.3	19.3	421768	5.4	20.9	377297	5.5	19.1	190729	5.5	19.7	17760	5.6	16.9
177879	5.3	20.2	179912	5.3	19.2	381636	5.4	20.6	217419	5.5	21.1	343616	5.5	20.6	255525	5.6	20.3
61620	5.3	18.9	312116	5.3	21.7	230206	5.4	20.0	180852	5.5	19.7	433175	5.5	21.4	454191	5.6	20.0
266847	5.3	20.3	447452	5.3	19.8	194141	5.4	18.8	196908	5.5	19.7	343238	5.5	20.7	451236	5.6	20.5
199024	5.3	19.2	360799	5.3	20.4	519011	5.4	20.4	347349	5.5	20.5	29010	5.5	18.5	111121	5.6	18.6
29555	5.3	16.8	172385	5.3	19.7	328617	5.4	20.1	114004	5.5	19.2	454353	5.5	21.8	455349	5.6	20.6
169188	5.3	19.5	302912	5.3	20.3	367253	5.4	20.2	91348	5.5	20.1	137127	5.5	18.1	104860	5.6	19.5
405924	5.3	21.8	326098	5.3	20.5	278490	5.4	20.0	485464	5.5	20.9	7043	5.5	16.8	359187	5.6	20.5
229608	5.3	19.8	398191	5.3	21.4	309470	5.4	20.8	340939	5.5	19.5	228654	5.5	20.1	108707	5.6	19.0
8618	5.3	17.0	419216	5.3	21.6	225306	5.4	19.8	15790	5.5	18.0	96467	5.5	19.4	135430	5.6	19.6
429041	5.3	20.3	383368	5.3	21.2	336884	5.4	21.4	216689	5.5	22.2	447739	5.5	20.9	18699	5.6	18.0
38234	5.3	18.0	52586	5.3	17.9	502085	5.4	19.8	38990	5.5	19.0	110759	5.5	18.6	246081	5.6	19.0
471193	5.3	21.0	13756	5.3	18.2	228161	5.4	21.0	242114	5.5	19.6	307242	5.5	20.7	724	5.6	16.1
452806	5.3	21.1	344571	5.3	20.1	79910	5.4	19.9	421084	5.5	20.4	411198	5.5	21.3	239898	5.6	19.7
82130	5.3	18.7	503206	5.3	21.6	222454	5.4	21.4	310194	5.5	20.6	124716	5.6	18.6	323411	5.6	19.6
29059	5.3	18.3	190764	5.3	18.9	453281	5.4	21.9	218751	5.5	19.9	98130	5.6	18.6	114468	5.6	18.7
248556	5.3	20.4	43707	5.3	19.6	40349	5.4	19.0	499959	5.5	21.5	520845	5.6	20.6	184567	5.6	20.1
446828	5.3	21.0	407057	5.3	20.6	66748	5.4	19.2	244984	5.5	20.0	33257	5.6	17.3	280754	5.6	20.6
190329	5.3	19.7	379126	5.3	19.1	11622	5.4	18.3	165491	5.5	18.4	218032	5.6	18.6	280821	5.6	20.3
128057	5.3	20.6	406121	5.3	19.8	194656	5.4	18.4	484580	5.5	21.2	276070	5.6	19.8	65801	5.6	19.6
150880	5.3	19.0	17775	5.3	18.4	325937	5.4	19.9	282451	5.5	19.4	330901	5.6	19.7	197300	5.6	19.6
325325	5.3	19.3	144186	5.3	19.8	448453	5.4	20.0	231018	5.5	19.3	231274	5.6	19.3	283016	5.6	19.9
325549	5.3	20.4	79818	5.3	17.7	378501	5.4	19.5	375120	5.5	20.3	17796	5.6	17.2	136010	5.6	19.3
191056	5.3	19.4	254031	5.3	19.6	206390	5.4	20.4	48440	5.5	16.9	268057	5.6	19.3	312900	5.6	21.2
335624	5.3	21.0	496992	5.4	20.9	419870	5.4	20.3	372979	5.5	20.4	117241	5.6	19.9	453846	5.6	20.9
500358	5.3	21.2	78762	5.4	17.9	174439	5.4	19.7	151050	5.5	19.4	26380	5.6	17.9	459179	5.6	20.7
324611	5.3	19.5	268479	5.4	20.6	238775	5.4	20.1	392557	5.5	21.4	293257	5.6	19.3	302002	5.6	19.8
161886	5.3	19.4	231709	5.4	18.8	494153	5.4	20.0	422911	5.5	20.7	170831	5.6	20.0	345094	5.6	21.1
129837	5.3	19.5	416612	5.4	21.0	437774	5.4	21.1	428257	5.5	19.9	66360	5.6	18.8	110295	5.6	18.3
293065	5.3	20.2	494123	5.4	20.6	356342	5.4	20.8	368401	5.5	18.9	24586	5.6	18.8	337364	5.6	21.7
109122	5.3	19.0	236919	5.4	20.6	25122	5.4	18.3	82814	5.5	18.1	375415	5.6	19.8	494759	5.6	21.4
24800	5.3	18.7	275811	5.4	20.6	427845	5.4	21.0	455386	5.5	20.2	382204	5.6	20.2	333247	5.6	20.7
92920	5.3	18.6	240221	5.4	20.6	196783	5.4	19.9	294637	5.5	19.9	462624	5.6	21.2	252400	5.6	20.4
32248	5.3	16.8	8758	5.4	18.0	387435	5.4	19.7	274727	5.5	20.3	448061	5.6	22.0	429971	5.6	20.0
129310	5.3	19.7	278060	5.4	20.3	354555	5.4	20.9	422826	5.5	19.3	158329	5.6	20.8	313431	5.6	20.3
502703	5.3	20.1	198763	5.4	19.1	380669	5.4	20.3	84624	5.5	19.0	364982	5.6	19.2	106558	5.6	18.5
176185	5.3	19.0	117003	5.4	18.2	47696	5.4	19.2	143062	5.5	18.9	76711	5.6	18.7	346956	5.6	21.0
28673	5.3	18.1	435287	5.4	20.3	452276	5.4	20.7	494802	5.5	19.2	496525	5.6	20.6	421329	5.6	20.9
184145	5.3	20.0	61228	5.4	17.9	233867	5.4	19.3	242594	5.5	20.0	311703	5.6	20.1	29270	5.6	19.1
450989	5.3	21.5	200582	5.4	20.5	322730	5.4	20.6	32450	5.5	18.3	201960	5.6	21.0	301987	5.6	21.4
462984	5.3	19.9	186682	5.4	19.4	134948	5.4	19.5	279860	5.5	22.3	132449	5.6	17.9	162424	5.6	20.7
389620	5.3	21.2	92531	5.4	19.4	516164	5.4	21.3	33343	5.5	18.2	155238	5.6	19.6	324104	5.6	20.9
188008	5.3	19.8	15777	5.4	16.4	432125	5.4	21.7	325104	5.5	19.7	466372	5.6	21.0	14051	5.6	17.7
433932	5.3	19.7	148727	5.4	18.9	423377	5.4	20.5	503954	5.5	22.0	213153	5.6	19.6	506805	5.6	21.9
456794	5.3	21.1	461113	5.4	20.5	350583	5.4	20.5	22956	5.5	18.7	64423	5.6	19.1	350850	5.6	20.3
271991	5.3	19.7	436749	5.4	19.5	61104	5.4	18.7	91528	5.5	18.8	503253	5.6	22.2	388040	5.6	20.9
257335	5.3	20.8	486945	5.4	21.3	121139	5.5	18.9	148221	5.5	19.2	436380	5.6	20.8	281337	5.6	21.2
141024	5.3	19.6	430535	5.4	20.3	384593	5.5	19.9	203638	5.5	19.4	148383	5.6	19.9	182126	5.6	20.1
62847	5.3	18.8	26901	5.4	18.5	78717	5.5	18.3	78388	5.5	18.7	465278	5.6	21.2	324580	5.6	20.2
411320	5.3	21.0	339458	5.4	20.8	296555	5.5	21.4	375666	5.5	20.0	143368	5.6	19.2	95500	5.6	18.3
447388	5.3	20.1	338224	5.4	20.3	56896	5.5	19.2	180229	5.5	19.4	165913	5.6	18.5	283967	5.6	19.7
307874	5.3	18.3	290601	5.4	20.2	233140	5.5	20.1	105608	5.5	19.1	459711	5.6	20.2	279974		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
97137	5.7	19.6	85846	5.7	18.8	86456	5.8	19.3	152246	5.8	19.7	521038	5.9	20.4	493028	5.9	20.8
193217	5.7	19.6	278642	5.7	20.5	344539	5.8	20.2	322128	5.8	19.9	155516	5.9	19.5	52043	5.9	18.8
428380	5.7	20.2	47991	5.7	19.1	415970	5.8	20.7	14450	5.8	17.3	32930	5.9	19.4	200756	5.9	18.9
21994	5.7	18.4	455921	5.7	20.5	215480	5.8	20.3	42311	5.9	18.3	205217	5.9	20.0	226932	5.9	19.8
81939	5.7	19.5	68222	5.7	18.6	279934	5.8	20.8	486685	5.9	21.1	48842	5.9	17.6	371698	5.9	20.7
217309	5.7	20.1	29981	5.7	23.7	35179	5.8	18.9	238851	5.9	19.9	58932	5.9	19.1	194649	5.9	18.9
223735	5.7	20.4	522195	5.7	20.3	417108	5.8	20.0	521856	5.9	21.0	410214	5.9	21.3	150718	5.9	20.0
280201	5.7	20.0	136552	5.7	20.5	132458	5.8	19.5	78684	5.9	18.6	150978	5.9	19.1	310316	5.9	19.5
350711	5.7	19.5	330450	5.7	19.9	412543	5.8	20.4	198977	5.9	17.3	104856	5.9	19.3	274790	5.9	19.9
80741	5.7	19.5	413652	5.7	20.8	403534	5.8	21.5	33346	5.9	18.2	372909	5.9	19.6	144539	5.9	18.9
426417	5.7	20.4	252454	5.7	19.4	348505	5.8	19.5	376661	5.9	20.9	218725	5.9	20.3	234232	5.9	19.8
74177	5.7	17.2	223244	5.7	19.6	272651	5.8	20.3	68447	5.9	17.9	497520	5.9	21.0	188478	5.9	19.5
236785	5.7	20.7	124197	5.7	17.8	447760	5.8	20.9	149321	5.9	19.9	184031	5.9	19.1	123294	5.9	19.5
407371	5.7	19.9	207675	5.7	20.1	487852	5.8	20.9	458206	5.9	20.0	58003	5.9	18.3	218727	5.9	20.9
489929	5.7	21.3	459911	5.7	21.4	205870	5.8	20.1	409894	5.9	20.7	352854	5.9	20.2	502401	5.9	21.3
447245	5.7	21.7	154767	5.7	20.8	258887	5.8	20.2	240735	5.9	20.1	407512	5.9	20.2	284005	5.9	20.5
418493	5.7	20.6	351768	5.7	19.5	31605	5.8	18.1	115754	5.9	19.3	185362	5.9	19.8	79059	5.9	19.1
184176	5.7	20.2	242058	5.7	20.9	368098	5.8	19.9	347632	5.9	19.6	178660	5.9	20.6	275358	5.9	20.2
235650	5.7	19.2	380696	5.7	20.6	448273	5.8	20.0	81759	5.9	19.2	192582	5.9	19.5	473409	5.9	20.4
245434	5.7	20.1	443560	5.7	19.7	321370	5.8	20.6	496183	5.9	20.0	49312	5.9	17.7	110436	5.9	19.8
254400	5.7	19.2	442627	5.7	21.2	440461	5.8	21.1	96817	5.9	17.8	21018	5.9	18.0	363199	5.9	21.6
291392	5.7	21.1	87827	5.7	18.3	527771	5.8	18.5	82344	5.9	17.7	237391	5.9	19.3	410487	5.9	20.5
483376	5.7	21.4	456450	5.7	20.0	163526	5.8	19.2	426849	5.9	20.6	522618	5.9	22.2	286072	6.0	19.8
144898	5.7	20.7	471148	5.7	22.5	186471	5.8	20.1	208186	5.9	20.0	166807	5.9	19.5	381585	6.0	21.1
449573	5.7	21.4	148929	5.7	19.1	227558	5.8	18.6	402859	5.9	20.8	497243	5.9	19.6	64929	6.0	19.2
189296	5.7	19.7	356641	5.7	20.0	346866	5.8	20.2	121135	5.9	20.6	237494	5.9	19.8	445872	6.0	21.1
46542	5.7	16.6	313386	5.7	20.3	491388	5.8	21.0	78527	5.9	18.1	459424	5.9	20.6	82575	6.0	19.6
108861	5.7	18.4	283949	5.7	20.9	456717	5.8	21.2	104908	5.9	18.7	168285	5.9	20.7	401371	6.0	20.7
297879	5.7	19.7	265500	5.7	20.6	301603	5.8	20.1	78470	5.9	19.1	396848	5.9	21.0	459888	6.0	22.0
413991	5.7	19.7	229191	5.7	18.8	345065	5.8	22.5	496744	5.9	20.9	410518	5.9	20.1	368834	6.0	20.7
495604	5.7	19.9	106132	5.7	20.2	379096	5.8	19.9	381981	5.9	20.6	379005	5.9	20.3	406381	6.0	20.8
356372	5.7	21.1	41072	5.7	18.6	234880	5.8	19.7	196155	5.9	18.9	463519	5.9	21.7	132204	6.0	19.4
20634	5.7	17.1	3467	5.7	15.3	36448	5.8	18.7	31700	5.9	19.5	100915	5.9	19.8	136290	6.0	19.6
42814	5.7	19.3	413893	5.7	20.0	192514	5.8	20.1	432545	5.9	20.8	427413	5.9	20.1	111137	6.0	19.0
450493	5.7	20.3	90545	5.8	19.6	417081	5.8	21.7	160819	5.9	19.2	318088	5.9	19.7	241845	6.0	20.0
305815	5.7	20.1	35761	5.8	19.4	116337	5.8	18.4	433466	5.9	20.8	189252	5.9	18.9	141013	6.0	19.7
412281	5.7	21.3	324441	5.8	20.1	337576	5.8	21.4	2968	5.9	19.0	200632	5.9	18.8	445951	6.0	20.2
399517	5.7	20.2	109590	5.8	19.7	25259	5.8	18.7	285943	5.9	20.3	289081	5.9	19.7	469115	6.0	20.2
488607	5.7	20.4	132005	5.8	19.2	421103	5.8	20.3	52680	5.9	19.1	27103	5.9	18.3	459313	6.0	20.9
410585	5.7	20.6	271388	5.8	19.9	430280	5.8	20.1	244676	5.9	20.0	450029	5.9	20.2	159940	6.0	18.4
200424	5.7	20.5	243186	5.8	19.3	340645	5.8	20.0	197971	5.9	20.8	472621	5.9	21.7	256240	6.0	20.0
411772	5.7	20.6	440637	5.8	20.7	492149	5.8	21.2	22445	5.9	17.0	236790	5.9	20.6	242913	6.0	19.3
65781	5.7	18.4	284636	5.8	20.8	317650	5.8	20.4	297383	5.9	20.6	380422	5.9	19.2	218992	6.0	19.9
313868	5.7	19.8	191927	5.8	20.7	57403	5.8	16.7	409490	5.9	20.4	438894	5.9	21.9	48879	6.0	19.4
457712	5.7	20.5	499472	5.8	21.1	48818	5.8	18.3	252016	5.9	20.5	28359	5.9	17.8	305657	6.0	19.5
320836	5.7	21.6	502297	5.8	21.4	43743	5.8	18.9	491042	5.9	21.2	78759	5.9	18.0	350678	6.0	19.7
243126	5.7	19.8	323880	5.8	19.3	412290	5.8	20.8	419938	5.9	20.7	179951	5.9	20.0	497107	6.0	21.1
30493	5.7	18.1	227519	5.8	20.3	66230	5.8	17.4	355965	5.9	19.2	327035	5.9	20.3	81938	6.0	18.3
260797	5.7	20.3	128361	5.8	19.3	408852	5.8	21.2	310157	5.9	20.9	427805	5.9	21.1	251248	6.0	19.7
453045	5.7	21.4	207651	5.8	20.0	54390	5.8	18.7	236883	5.9	20.9	413993	5.9	20.3	131901	6.0	18.8
56889	5.7	18.5	32012	5.8	19.0	180679	5.8	19.4	336001	5.9	20.2	273257	5.9	20.9	109124	6.0	18.8
424145	5.7	20.0	122910	5.8	19.0	2605	5.8	17.0	83930	5.9	19.7	109110	5.9	19.4	45527	6.0	18.0
4072	5.7	15.4	258175	5.8	19.8	338107	5.8	20.7	335935	5.9	20.9	49803	5.9	19.4	330090	6.0	20.5
409429	5.7	20.4	408810	5.8	19.8	379026	5.8	18.9	122503	5.9	19.9	277873	5.9	19.6	90951	6.0	18.0
164791	5.7	21.0	83209	5.8	18.6	457216	5.8	21.7	137193	5.9	20.2	378454	5.9	20.7	424104	6.0	21.0
352182	5.7	20.2	88275	5.8	19.2	268628	5.8	19.9	163042	5.9	19.6	354219	5.9	21.0	17505	6.0	18.4
517604	5.7	20.2	52361	5.8	19.3	296487	5.8	20.7	460441	5.9	20.7	33637	5.9	17.6	33423	6.0	18.0
242944	5.7	20.6	358188	5.8	21.2	166668	5.8	19.1	322896	5.9	19.0	369324	5.9	21.8	125507	6.0	18.3
129538	5.7	19.6	132130	5.8	20.1	490123	5.8	20.2	351755	5.9	20.0	104588	5.9	18.5	58167	6.0	18.3
357010	5.7	20.5	460447	5.8	19.8	240848	5.8	21.1	454594	5.9	21.6	367756	5.9	20.1	292304	6.0	20.8
426792	5.7	20.4	473479	5.8	20.0	33406	5.8	18.4	223791	5.9	19.5	186269	5.9	18.8	95767	6.0	20.1
423388	5.7	20.6	193367	5.8	19.2	333320	5.8	20.7	407266	5.9	20.8	458630	5.9	20.2	236676	6.0	20.0
200932	5.7	18.7	413017	5.8	20.9	451434	5.8	20.7	178617	5.9	18.9	29184	5.9	18.1	192368	6.0	19.9
34450	5.7	18.7	244436	5.8	17.0	204318	5.8	20.1	211961	5.9	19.0	353263	5.9	20.7	318040	6.0	20.7
270972	5.7	20.1	313124	5.8	18.5	273210	5.8	20.9	349308	5.9	20.1	201801	5.9	19.4	180981	6.0	20.2
210778	5.7	18.8	319926	5.8	20.0	51956	5.8	18.4	403621	5.9	21.6	56338	5.9	17.4	155026	6.0	19.2
124782	5.7	18.5	96714	5.8	19.1	227575	5.8	20.4	503812	5.9	20.8	468239	5.9	20.2	467592	6.0	20.9
400144	5.7	21.6	384462	5.8	19.7	363124	5.8	21.2	293188	5.9	19.3	324514	5.9	20.8	205895	6.0	19.4
475844	5.7	20.8	274549	5.8	20.2	219342	5.8	20.7	142585	5.9	18.7	241395	5.9	19.4	193003	6.0	19.0
412127	5.7	21.5	117005	5.8	18.5	28274	5.8	17.8	98886	5.9	19.1	412496	5.9	20.7	86998	6.0	18.7
265340	5.7	20.0	226851	5.8	20.1	423328	5.8	20.7	61653	5.9	19.3	19312	5.9	17.4	2		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
325489	6.0	20.7	458094	6.1	20.7	199374	6.2	19.4	347294	6.3	20.6	206344	6.4	20.5	227308	6.4	20.4
197356	6.0	19.0	135360	6.1	19.6	30984	6.2	18.0	257885	6.3	19.4	447337	6.4	20.3	465245	6.4	21.8
440071	6.1	20.9	10241	6.1	18.1	236372	6.2	20.2	76688	6.3	19.3	266435	6.4	20.6	69490	6.4	17.7
317069	6.1	20.0	429863	6.1	21.3	488187	6.2	20.9	293411	6.3	20.1	84390	6.4	18.1	294130	6.4	19.2
335951	6.1	22.6	160818	6.1	18.7	1866	6.2	14.6	455331	6.3	21.4	25859	6.4	16.4	491990	6.4	20.5
149463	6.1	19.2	193061	6.1	20.2	326462	6.2	19.9	491979	6.3	21.2	370592	6.4	19.6	426290	6.4	21.1
82016	6.1	19.0	430899	6.1	20.0	364451	6.2	20.0	315500	6.3	20.1	343834	6.4	20.2	286963	6.4	20.3
41806	6.1	18.3	95968	6.1	19.8	453136	6.2	19.5	45775	6.3	19.0	103162	6.4	19.5	111491	6.4	19.5
454485	6.1	20.6	126987	6.1	19.7	332406	6.2	21.8	54172	6.3	18.9	30398	6.4	19.1	129223	6.4	19.7
37344	6.1	19.3	26126	6.1	18.7	345106	6.2	20.4	269081	6.3	20.4	458186	6.4	20.5	339764	6.4	19.2
319962	6.1	20.3	86453	6.1	18.1	413127	6.2	19.0	245711	6.3	20.2	202014	6.4	20.4	146473	6.4	19.4
425404	6.1	21.0	484288	6.1	21.1	522544	6.2	22.1	288596	6.3	20.9	293005	6.4	20.4	63654	6.4	17.9
253933	6.1	19.9	246309	6.1	18.9	359673	6.2	20.1	206830	6.3	19.6	276569	6.4	19.9	289945	6.4	21.1
219462	6.1	18.4	289707	6.1	20.1	83956	6.2	19.3	264030	6.3	21.7	357584	6.4	19.6	88222	6.4	17.9
66390	6.1	18.2	75608	6.1	17.7	43322	6.2	17.5	327443	6.3	20.0	310311	6.4	21.6	68517	6.4	18.5
269698	6.1	20.3	392550	6.1	22.0	467816	6.2	20.3	425351	6.3	20.2	128304	6.4	19.5	35053	6.4	17.0
190742	6.1	19.7	311024	6.1	19.3	440046	6.2	20.3	82979	6.3	19.1	433070	6.4	20.8	198917	6.4	20.0
405503	6.1	19.2	344511	6.1	21.0	30673	6.2	20.2	235651	6.3	20.7	448174	6.4	20.6	174355	6.4	19.9
290917	6.1	19.8	299578	6.1	19.9	233118	6.2	19.6	406173	6.3	21.3	518778	6.4	21.1	201391	6.4	19.6
456379	6.1	19.6	79010	6.1	19.3	104808	6.2	20.8	100375	6.3	19.2	38983	6.4	18.6	453858	6.5	20.2
196885	6.1	20.9	491122	6.1	20.1	191362	6.2	19.9	216221	6.3	20.8	398166	6.4	21.1	436035	6.5	24.2
41133	6.1	19.9	206129	6.1	20.1	366928	6.2	20.3	165886	6.3	20.6	205911	6.4	19.1	493502	6.5	20.7
149234	6.1	19.3	443852	6.1	20.8	285143	6.2	20.0	350526	6.3	19.9	233568	6.4	20.1	391083	6.5	20.7
255130	6.1	19.6	167148	6.1	19.7	290778	6.2	20.1	299119	6.3	20.1	408631	6.4	21.3	243059	6.5	20.6
93903	6.1	19.2	216742	6.1	20.2	123085	6.2	18.7	60276	6.3	18.1	238140	6.4	20.4	234415	6.5	20.1
191253	6.1	18.9	114990	6.1	20.2	86682	6.2	19.6	63651	6.3	17.9	518426	6.4	23.3	465269	6.5	20.7
400040	6.1	21.5	196246	6.1	19.5	442730	6.2	20.3	37815	6.3	17.9	221708	6.4	19.7	382547	6.5	20.0
388503	6.1	20.5	495499	6.1	20.3	275418	6.2	19.7	10616	6.3	18.9	53555	6.4	18.6	419197	6.5	20.0
411255	6.1	21.7	297498	6.1	19.9	459076	6.2	20.3	490638	6.3	20.5	441652	6.4	20.9	166069	6.5	19.8
74454	6.1	18.5	343972	6.1	21.0	223809	6.2	18.8	194617	6.3	19.5	448109	6.4	21.7	401967	6.5	20.6
266222	6.1	19.8	502604	6.2	21.1	163764	6.2	19.4	65569	6.3	20.0	198859	6.4	19.3	52192	6.5	18.2
373723	6.1	20.0	427771	6.2	19.8	333409	6.2	19.6	141498	6.3	19.0	113918	6.4	19.5	117916	6.5	19.0
231950	6.1	19.8	180538	6.2	20.0	138175	6.2	19.0	151245	6.3	19.2	292298	6.4	19.4	444393	6.5	20.2
47186	6.1	19.0	330702	6.2	19.9	327291	6.2	20.3	56375	6.3	18.8	2084	6.4	14.9	201770	6.5	19.1
118226	6.1	18.5	429881	6.2	20.8	372924	6.2	20.7	276211	6.3	21.0	424762	6.4	20.4	250466	6.5	20.2
37500	6.1	18.8	424987	6.2	20.2	194234	6.2	20.6	487933	6.3	20.6	132122	6.4	19.2	353786	6.5	19.9
42851	6.1	16.9	460939	6.2	20.6	460866	6.2	20.8	373660	6.3	20.8	364759	6.4	19.8	18510	6.5	19.2
190492	6.1	19.1	502540	6.2	20.8	362117	6.2	20.3	3062	6.3	14.8	171428	6.4	20.8	203591	6.5	19.8
25276	6.1	18.3	313175	6.2	21.0	313184	6.2	20.7	462380	6.3	21.6	265849	6.4	20.2	1407	6.5	14.0
227506	6.1	19.5	202015	6.2	19.5	427829	6.2	21.2	428979	6.3	21.2	518130	6.4	20.2	393722	6.5	21.4
8049	6.1	17.1	132002	6.2	18.5	296797	6.2	20.7	493456	6.3	21.4	131449	6.4	19.6	464368	6.5	20.8
256396	6.1	18.8	45510	6.2	18.5	154795	6.2	19.6	460856	6.3	20.7	14393	6.4	18.6	423055	6.5	20.9
427088	6.1	21.3	29864	6.2	18.3	430689	6.2	19.9	307715	6.3	19.3	217985	6.4	19.0	200195	6.5	19.6
403304	6.1	19.6	8700	6.2	16.5	409965	6.2	19.8	291167	6.3	20.8	165282	6.4	20.8	234623	6.5	19.0
142929	6.1	19.6	267511	6.2	20.4	5043	6.2	17.4	231953	6.3	20.6	358055	6.4	19.5	6004	6.5	16.0
171631	6.1	18.4	321457	6.2	20.4	100987	6.2	18.6	408917	6.3	19.8	202646	6.4	20.6	466432	6.5	21.0
433900	6.1	20.3	277038	6.2	19.8	181896	6.2	19.1	410389	6.3	19.1	469240	6.4	19.8	226922	6.5	20.3
204685	6.1	20.3	241824	6.2	20.2	183432	6.2	19.4	418883	6.3	20.4	331704	6.4	21.0	165882	6.5	20.0
240588	6.1	19.9	7156	6.2	16.5	207418	6.2	19.7	383638	6.3	20.9	157026	6.4	19.4	276200	6.5	20.4
13955	6.1	17.6	246616	6.2	20.5	430353	6.2	20.2	408828	6.3	20.2	239047	6.4	21.1	386906	6.5	20.7
481482	6.1	24.0	269705	6.2	20.0	418391	6.2	20.6	66847	6.3	18.8	425096	6.4	20.8	64459	6.5	18.8
347918	6.1	19.3	29201	6.2	18.2	143961	6.2	18.8	115501	6.3	19.0	90279	6.4	18.7	85505	6.5	19.2
66976	6.1	18.8	379013	6.2	19.9	246227	6.2	21.1	278478	6.3	20.5	494852	6.4	21.7	285650	6.5	19.1
83262	6.1	19.2	32624	6.2	18.9	508569	6.2	21.5	254654	6.3	20.7	204251	6.4	20.8	415803	6.5	22.5
306030	6.1	21.5	355960	6.2	20.5	379879	6.2	20.8	392544	6.3	21.8	230578	6.4	19.2	378515	6.5	19.8
14702	6.1	17.8	401878	6.2	18.9	367348	6.2	20.3	3229	6.3	16.1	226099	6.4	18.9	268647	6.5	20.3
492039	6.1	22.4	158170	6.2	20.0	375531	6.3	20.6	502853	6.3	19.6	347377	6.4	19.8	359490	6.5	20.2
343741	6.1	20.6	323504	6.2	21.2	59267	6.3	17.7	193710	6.3	19.1	453026	6.4	21.4	411321	6.5	20.6
169339	6.1	18.8	405061	6.2	20.8	114711	6.3	19.4	471502	6.3	19.7	37616	6.4	19.5	163880	6.5	18.8
67421	6.1	19.2	203803	6.2	19.7	187344	6.3	20.0	241253	6.3	20.0	89305	6.4	19.2	244653	6.5	19.5
178631	6.1	20.2	377505	6.2	20.3	78037	6.3	20.3	158245	6.3	19.6	373720	6.4	19.9	459228	6.5	20.6
48722	6.1	17.8	465582	6.2	20.9	451048	6.3	20.5	395331	6.3	20.7	319714	6.4	19.2	186190	6.5	20.2
243396	6.1	19.6	30390	6.2	18.6	164805	6.3	20.7	370170	6.3	20.2	263657	6.4	19.9	334193	6.5	19.9
285906	6.1	21.0	23319	6.2	17.3	427227	6.3	19.9	275256	6.3	20.3	455392	6.4	20.5	427509	6.5	19.8
44530	6.1	16.2	354877	6.2	21.6	160173	6.3	19.5	68727	6.3	19.6	429380	6.4	20.0	275093	6.5	19.9
203890	6.1	20.5	156044	6.2	20.2	370278	6.3	20.7	83837	6.3	18.8	744	6.4	14.4	151667	6.5	19.4
130667	6.1	18.9	425326	6.2	20.4	304964	6.3	19.6	196186	6.3	18.9	83279	6.4	20.4	147570	6.5	20.6
350066	6.1	21.6	319638	6.2	19.9	66753	6.3	19.4	377009	6.3	21.4	302492	6.4	18.8	522204	6.5	20.1
407808	6.1	20.3	152677	6.2	19.3	496193	6.3	21.9	58862	6.4	18.1	55778	6.4	18.7	306534	6.5	18.0
343577	6.1	21.1	192030	6.2	20.2	97863	6.3	19.9	170134	6.4	19.1	443857	6.4	20.8	132180	6.5	19.6
165728	6.1	20.1	371025	6.2	19.4	497236	6.3	23.8	464456	6.4	21.8	353516	6.4	20.4	8059	6.5	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
216737	6.5	19.3	363843	6.6	20.3	89725	6.7	19.1	51896	6.7	19.2	127856	6.8	19.5	221203	6.9	19.2
243061	6.5	20.5	294671	6.6	20.5	62945	6.7	18.1	168582	6.7	20.2	280006	6.8	21.9	463912	6.9	20.5
386817	6.5	20.5	144349	6.6	18.6	456990	6.7	20.9	461327	6.7	21.0	444068	6.8	21.1	405308	6.9	20.4
228280	6.5	18.8	227780	6.6	20.4	78898	6.7	18.5	377962	6.7	21.1	226711	6.8	21.6	466215	6.9	21.1
429361	6.5	20.9	358520	6.6	20.9	219378	6.7	19.6	355461	6.7	21.1	7757	6.8	17.7	76391	6.9	19.1
86010	6.5	19.6	123507	6.6	19.0	427158	6.7	20.1	37588	6.7	18.8	457856	6.8	20.4	195443	6.9	18.5
466502	6.5	20.1	366011	6.6	19.9	78533	6.7	19.1	369822	6.7	20.7	297884	6.8	19.1	272916	6.9	19.9
152575	6.5	20.8	416590	6.6	20.5	28450	6.7	17.3	433824	6.7	21.2	502754	6.8	21.1	380917	6.9	21.1
264271	6.5	20.6	179938	6.6	19.2	82750	6.7	19.5	156754	6.7	18.1	400826	6.8	21.4	469635	6.9	21.0
289003	6.5	20.2	423348	6.6	20.5	296644	6.7	20.0	239482	6.7	20.4	466765	6.8	20.9	487925	6.9	20.7
518582	6.5	20.7	234957	6.6	20.0	141425	6.7	19.2	159099	6.7	20.1	120499	6.8	20.4	241138	6.9	19.9
461964	6.5	20.4	103437	6.6	18.6	339522	6.7	20.7	359644	6.7	19.9	502640	6.8	20.8	497145	6.9	22.0
33310	6.5	18.3	405396	6.6	20.6	359190	6.7	20.1	202661	6.7	20.6	420620	6.8	20.8	228406	6.9	19.8
3287	6.5	18.6	391781	6.6	20.6	54951	6.7	18.6	522644	6.7	21.1	106300	6.8	19.2	490055	6.9	20.5
248094	6.5	21.0	44171	6.6	18.1	323152	6.7	19.6	93853	6.7	18.6	160767	6.8	20.0	351549	6.9	21.1
453276	6.5	21.6	288680	6.6	19.4	391210	6.7	20.9	274031	6.7	21.4	506794	6.8	21.9	88071	6.9	19.0
49260	6.5	18.7	243115	6.6	19.9	20328	6.7	18.8	410010	6.7	20.4	135402	6.8	19.1	272916	6.9	19.5
111096	6.5	19.0	152052	6.6	19.9	64117	6.7	18.0	345118	6.7	20.1	177396	6.8	20.0	193712	6.9	19.7
342931	6.5	20.2	108987	6.6	19.0	373896	6.7	20.6	341435	6.7	20.5	7414	6.8	17.2	228273	6.9	19.5
172092	6.5	18.9	419161	6.6	20.7	464179	6.7	20.4	8880	6.7	17.5	142073	6.8	19.0	403570	6.9	20.2
420026	6.5	21.1	287395	6.6	19.1	212142	6.7	20.0	400625	6.7	20.7	7719	6.8	17.5	54760	6.9	18.1
161088	6.5	18.8	79269	6.6	19.7	430294	6.7	20.3	105765	6.7	19.8	81531	6.8	18.6	72335	6.9	18.2
333799	6.5	20.0	205325	6.6	18.8	76135	6.7	18.2	276235	6.7	19.7	181759	6.8	20.6	125439	6.9	19.1
136323	6.5	18.4	45525	6.6	16.4	169359	6.7	19.7	52203	6.7	18.2	420635	6.8	20.6	413012	6.9	21.0
270023	6.5	21.1	483023	6.6	20.1	467074	6.7	20.9	201188	6.7	19.6	6600	6.8	15.7	464026	6.9	20.6
118516	6.5	18.8	29973	6.6	20.1	193266	6.7	18.6	373509	6.7	19.1	169185	6.8	19.7	261528	6.9	19.4
397812	6.5	20.8	47118	6.6	18.7	221308	6.7	20.3	127719	6.7	17.7	218960	6.8	20.3	62034	6.9	19.3
467919	6.5	22.0	132996	6.6	19.2	253315	6.7	19.1	69863	6.7	18.3	55886	6.8	17.1	153981	6.9	18.4
283211	6.5	20.8	205340	6.6	19.7	43357	6.7	18.3	19570	6.7	16.5	184078	6.8	19.8	473830	6.9	20.8
9201	6.5	17.7	397466	6.6	21.9	468963	6.7	20.8	380360	6.7	21.2	357657	6.8	21.5	10228	6.9	17.3
280245	6.5	20.5	4750	6.6	15.8	334102	6.7	21.2	457206	6.7	20.6	382546	6.8	20.5	207790	6.9	19.8
224558	6.5	20.2	234457	6.6	19.9	52737	6.7	19.1	463853	6.7	19.5	69147	6.8	17.5	258403	6.9	19.7
197595	6.5	21.3	286932	6.6	19.8	203122	6.7	19.6	79466	6.7	19.0	120625	6.8	18.9	54465	6.9	18.6
122514	6.5	20.4	334249	6.6	20.7	387353	6.7	20.5	208716	6.7	20.5	217784	6.8	19.1	185742	6.9	20.8
60636	6.5	18.3	334088	6.6	19.7	154702	6.7	20.6	317176	6.7	20.2	343657	6.8	20.7	497265	6.9	23.1
243347	6.5	19.2	247560	6.6	20.5	409427	6.7	20.7	54053	6.7	18.1	370540	6.8	20.3	292263	6.9	20.5
413555	6.5	20.7	92489	6.6	19.0	340572	6.7	20.6	429257	6.7	20.1	201976	6.8	20.8	235429	6.9	19.4
160317	6.5	19.5	122173	6.6	19.1	317017	6.7	20.5	273029	6.8	20.1	122480	6.8	19.5	281352	6.9	20.2
365780	6.5	20.9	262746	6.6	19.0	495865	6.7	21.3	496025	6.8	21.7	187827	6.8	19.8	426355	6.9	20.3
409587	6.5	20.1	402816	6.6	21.5	348617	6.7	20.1	226816	6.8	20.3	252370	6.8	19.7	202617	6.9	19.9
298897	6.5	21.1	140277	6.6	17.8	155753	6.7	18.9	246757	6.8	19.3	133169	6.8	20.2	165170	6.9	20.2
221255	6.5	19.8	141521	6.6	20.5	495850	6.7	20.8	379793	6.8	19.9	457031	6.8	21.2	296144	6.9	19.9
230599	6.5	21.5	235445	6.6	19.8	305566	6.7	20.2	420651	6.8	21.0	454559	6.8	21.2	54451	6.9	18.7
103610	6.5	18.9	433143	6.6	20.8	251110	6.7	20.9	449169	6.8	20.0	446882	6.8	20.5	245804	6.9	20.2
73965	6.5	17.7	204936	6.6	20.8	363858	6.7	21.2	156444	6.8	18.5	401247	6.8	20.0	75860	6.9	18.8
252356	6.5	19.3	498558	6.6	21.5	329400	6.7	19.9	175339	6.8	20.2	171294	6.8	20.5	205478	6.9	19.3
363591	6.5	19.4	331203	6.6	19.4	208678	6.7	20.9	37396	6.8	18.0	206338	6.8	20.3	348440	6.9	20.1
301076	6.5	20.2	266698	6.6	19.4	463924	6.7	20.8	59439	6.8	18.8	503666	6.8	20.9	473823	6.9	20.6
230736	6.5	19.4	143970	6.6	19.0	131142	6.7	18.7	416627	6.8	21.4	134854	6.8	19.7	366018	6.9	20.3
327939	6.5	19.3	169981	6.6	20.5	127864	6.7	19.5	57015	6.8	18.1	180607	6.8	19.9	404167	6.9	20.1
296668	6.5	21.4	279910	6.6	20.3	280713	6.7	20.5	344574	6.8	18.9	464039	6.8	20.1	287249	6.9	19.9
366465	6.5	19.8	104486	6.6	20.1	427162	6.7	20.3	109680	6.8	20.0	521849	6.8	21.3	101537	6.9	18.9
49650	6.5	17.6	49130	6.6	17.9	358572	6.7	20.3	341647	6.8	19.9	171956	6.8	19.7	2007	6.9	15.1
210231	6.5	19.9	29577	6.6	16.9	356293	6.7	20.5	321063	6.8	21.2	222	6.8	14.1	58666	6.9	17.5
26606	6.5	17.4	493440	6.6	20.5	281128	6.7	19.2	38517	6.8	19.1	464062	6.8	20.6	422447	6.9	21.2
281576	6.6	19.5	134849	6.6	19.8	347352	6.7	20.7	202868	6.8	20.4	282843	6.8	20.9	311887	6.9	19.4
243374	6.6	18.5	196702	6.6	19.7	126324	6.7	20.0	273344	6.8	20.5	375598	6.8	20.9	329713	6.9	21.7
487754	6.6	21.1	352852	6.6	21.0	315550	6.7	19.6	296116	6.8	19.7	164814	6.8	20.7	132882	6.9	19.4
399518	6.6	20.4	196910	6.6	19.5	460920	6.7	20.6	88876	6.8	19.3	222323	6.8	20.0	146567	6.9	18.0
180506	6.6	21.1	331446	6.6	21.1	441841	6.7	21.8	37058	6.8	19.0	493520	6.8	20.6	117001	6.9	20.6
327392	6.6	19.5	464481	6.6	21.4	459167	6.7	20.5	332434	6.8	20.4	21422	6.8	17.1	107074	6.9	18.2
519380	6.6	21.5	417596	6.6	20.8	294164	6.7	21.4	77813	6.8	18.8	53844	6.8	18.2	131476	6.9	21.1
272431	6.6	20.2	378448	6.6	20.4	420517	6.7	21.4	456431	6.8	21.3	297044	6.8	20.7	335994	6.9	19.9
375074	6.6	20.4	314221	6.6	20.1	440417	6.7	19.7	447175	6.8	22.3	416667	6.8	19.4	53634	6.9	17.7
110021	6.6	18.2	601	6.6	14.7	300331	6.7	21.1	493291	6.8	20.8	415182	6.8	20.4	244521	6.9	20.6
101286	6.6	20.2	90013	6.6	17.5	38011	6.7	18.5	309839	6.8	21.1	171241	6.8	19.2	111579	6.9	18.6
177637	6.6	19.2	277581	6.6	20.0	318952	6.7	20.2	423108	6.8	18.9	482797	6.8	19.0	350669	6.9	19.4
358482	6.6	20.5	354221	6.6	20.8	43868	6.7	18.2	65989	6.8	19.2	306199	6.9	20.8	4542	6.9	15.9
259237	6.6	19.2	212150	6.6	20.8	37955	6.7	19.7	454954	6.8	19.2	260819	6.9	21.0	179801	6.9	19.6
279088	6.6	19.8	359133	6.6	19.2	236236	6.7	19.2	496178	6.8	21.3	144774	6.9	19.9	222945	6.9	19.5
305911	6.6	19.7	37178	6.6	18.7	18172	6.7	15.6	267576	6.8	21.1	5275	6.9	16.8	241159		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
99838	6.9	18.7	448236	7.0	21.4	258423	7.1	19.6	302920	7.2	19.9	476423	7.2	21.2	267474	7.3	19.6
106913	6.9	18.6	314217	7.0	20.3	31936	7.1	19.2	161754	7.2	20.5	446963	7.2	23.5	298945	7.3	21.1
281654	6.9	20.4	494934	7.0	21.2	154358	7.1	19.1	426586	7.2	19.9	185931	7.2	19.6	335879	7.3	20.6
323121	6.9	18.8	495145	7.0	20.5	494992	7.1	20.6	218642	7.2	20.4	413690	7.2	20.7	485406	7.3	20.8
321796	6.9	20.2	290061	7.0	20.9	453036	7.1	21.3	91409	7.2	19.8	265025	7.2	21.1	26522	7.3	18.6
194421	6.9	18.8	131860	7.0	19.0	407379	7.1	20.8	225326	7.2	20.7	193858	7.2	20.6	156582	7.3	19.6
100248	6.9	19.4	242858	7.0	20.9	71598	7.1	18.7	325626	7.2	20.8	45672	7.2	18.1	443853	7.3	20.7
415131	6.9	20.3	138332	7.0	18.1	262196	7.1	20.9	360020	7.2	20.0	315574	7.2	20.7	245005	7.3	19.2
10248	6.9	17.3	491604	7.0	20.6	146092	7.1	20.0	238729	7.2	19.4	144167	7.2	19.2	163066	7.3	19.9
27482	6.9	17.5	138707	7.0	19.9	182301	7.1	18.0	362030	7.2	20.2	306816	7.2	20.1	405543	7.3	20.2
328668	6.9	21.0	147648	7.0	19.1	223704	7.1	20.4	86816	7.2	19.1	273063	7.2	20.8	36894	7.3	19.2
413212	6.9	19.2	168536	7.0	19.9	410447	7.1	19.8	291096	7.2	19.9	461052	7.2	20.5	379087	7.3	20.3
84744	6.9	18.1	241837	7.0	20.3	350632	7.1	20.8	455389	7.2	19.2	76316	7.2	18.4	475504	7.3	20.6
239380	6.9	20.3	355932	7.0	20.5	91116	7.1	19.7	459155	7.2	20.5	286067	7.2	20.1	276226	7.3	20.3
355951	6.9	20.9	245064	7.0	20.3	79965	7.1	18.0	416215	7.2	19.3	84275	7.2	18.8	197578	7.3	21.1
327394	6.9	20.0	69843	7.0	19.1	94120	7.1	17.9	289011	7.2	20.2	194506	7.2	20.0	124654	7.3	19.4
256252	6.9	20.1	454205	7.0	20.6	306031	7.1	20.5	492128	7.2	21.7	359077	7.2	19.9	197289	7.3	19.3
234387	6.9	21.0	432429	7.0	20.5	427104	7.1	20.0	376997	7.2	21.5	479179	7.2	21.3	500191	7.3	21.1
451013	6.9	20.8	419015	7.0	21.8	126513	7.1	19.5	61317	7.2	18.6	405632	7.2	20.1	319103	7.3	19.9
187909	6.9	19.8	8069	7.0	16.6	73584	7.1	18.8	165661	7.2	20.8	151567	7.2	20.0	227956	7.3	20.4
222106	6.9	19.5	406539	7.0	19.2	98705	7.1	18.9	145658	7.2	18.9	410777	7.3	23.1	406175	7.3	19.6
222728	6.9	19.9	20652	7.0	17.4	55016	7.1	17.8	114780	7.2	20.3	265790	7.3	20.5	163772	7.3	19.8
85972	6.9	19.4	124189	7.0	19.8	420794	7.1	21.9	73531	7.2	20.1	240226	7.3	19.4	125841	7.3	18.8
503524	6.9	21.8	91107	7.0	18.9	292711	7.1	21.6	182438	7.2	19.8	337236	7.3	21.0	131418	7.3	18.9
372172	6.9	20.1	32922	7.1	18.0	97845	7.1	18.9	122043	7.2	19.1	475807	7.3	20.5	397998	7.3	20.4
164661	6.9	19.2	452266	7.1	21.8	441650	7.1	20.7	440571	7.2	20.6	34554	7.3	19.3	135830	7.3	19.1
313150	6.9	19.0	452964	7.1	18.8	89594	7.1	19.1	411343	7.2	20.2	400870	7.3	21.5	304874	7.3	20.8
417143	6.9	20.6	13199	7.1	17.5	521132	7.1	20.1	335922	7.2	21.1	472722	7.3	21.1	450967	7.3	22.1
108640	6.9	18.1	116227	7.1	18.9	522356	7.1	20.9	352135	7.2	20.8	233183	7.3	20.1	127545	7.3	18.3
343859	6.9	21.5	335930	7.1	21.0	490745	7.1	21.5	166883	7.2	18.2	117104	7.3	20.2	203847	7.3	19.1
400606	6.9	19.6	444187	7.1	21.4	105778	7.1	18.4	318208	7.2	20.4	155195	7.3	19.5	116836	7.3	19.3
495151	6.9	20.9	490379	7.1	21.6	85194	7.1	19.0	207508	7.2	20.5	282977	7.3	20.5	444031	7.3	20.7
154329	6.9	20.0	427066	7.1	21.1	343926	7.1	21.2	194298	7.2	19.2	310954	7.3	19.7	417086	7.3	20.9
271227	6.9	20.4	289712	7.1	19.6	377291	7.1	19.7	104172	7.2	19.2	489138	7.3	21.5	492621	7.3	21.7
351711	6.9	20.6	233012	7.1	19.4	508770	7.1	23.6	283765	7.2	20.3	21695	7.3	18.8	413955	7.3	18.6
166280	6.9	19.4	360461	7.1	20.9	157909	7.1	19.6	121333	7.2	19.5	409435	7.3	20.2	6745	7.3	17.3
144632	6.9	19.3	349996	7.1	20.6	29526	7.1	17.5	424755	7.2	20.5	252228	7.3	19.9	387793	7.3	22.4
473897	6.9	20.7	256094	7.1	20.2	17968	7.1	19.1	237639	7.2	18.5	175532	7.3	19.9	402584	7.3	21.1
18712	6.9	17.8	415878	7.1	21.0	31116	7.1	19.1	130679	7.2	18.9	151944	7.3	19.6	404191	7.3	19.9
567	6.9	13.6	313853	7.1	20.7	302913	7.1	21.0	239723	7.2	20.0	284875	7.3	19.6	415201	7.3	20.2
401916	6.9	19.9	132363	7.1	19.7	405158	7.1	22.2	379102	7.2	19.8	179913	7.3	18.7	58612	7.3	18.8
69409	6.9	19.1	188527	7.1	19.8	137835	7.1	19.1	412688	7.2	21.5	33182	7.3	18.9	218632	7.3	19.2
66598	6.9	19.4	223763	7.1	20.0	123429	7.1	18.8	445041	7.2	19.7	395808	7.3	20.4	110081	7.3	19.0
184108	6.9	20.7	289517	7.1	20.1	241306	7.1	20.9	234410	7.2	19.9	202438	7.3	19.3	459366	7.3	20.1
289023	6.9	19.6	419217	7.1	20.1	32303	7.1	18.0	230528	7.2	18.9	451736	7.3	20.3	405926	7.3	21.8
433325	6.9	20.9	460195	7.1	19.6	24204	7.1	18.8	48876	7.2	18.5	395794	7.3	20.3	365623	7.3	20.8
395337	6.9	21.2	465165	7.1	20.9	455127	7.1	19.2	159504	7.2	19.4	336611	7.3	19.6	417005	7.3	19.9
131442	6.9	18.5	152326	7.1	19.2	498	7.1	12.9	70368	7.2	19.4	159596	7.3	19.1	424914	7.3	20.9
461237	6.9	20.7	135235	7.1	19.7	447444	7.1	20.0	36313	7.2	18.5	164795	7.3	19.6	138316	7.4	19.7
465281	6.9	21.7	237906	7.1	18.7	35092	7.1	18.2	32512	7.2	18.5	519850	7.3	21.5	23727	7.4	18.4
81893	6.9	20.0	373917	7.1	20.5	366979	7.1	21.2	362163	7.2	20.3	454345	7.3	21.4	157214	7.4	19.8
453876	6.9	20.9	374194	7.1	20.0	495532	7.1	21.4	170978	7.2	19.9	141173	7.3	19.2	426071	7.4	21.1
221853	6.9	20.6	235421	7.1	19.0	224359	7.1	21.2	261662	7.2	18.8	249860	7.3	20.0	171144	7.4	20.3
127778	6.9	19.9	67113	7.1	17.1	118186	7.1	19.6	159606	7.2	18.8	425980	7.3	19.8	322425	7.4	21.1
31715	6.9	18.9	21313	7.1	17.6	309261	7.1	21.1	413960	7.2	19.0	459136	7.3	20.3	322882	7.4	19.4
319634	6.9	20.3	291030	7.1	20.4	90926	7.1	17.9	10896	7.2	17.0	285292	7.3	20.0	293697	7.4	19.8
87579	6.9	19.1	203835	7.1	19.8	240911	7.2	20.7	419125	7.2	21.0	154026	7.3	19.3	28758	7.4	18.7
408764	7.0	20.1	502380	7.1	21.5	37913	7.2	18.7	465594	7.2	20.7	100320	7.3	20.6	8516	7.4	16.6
85904	7.0	18.1	201753	7.1	20.0	40647	7.2	19.6	285569	7.2	19.6	439958	7.3	21.7	19908	7.4	18.0
325168	7.0	20.1	216974	7.1	20.7	445088	7.2	20.1	448216	7.2	20.9	110863	7.3	20.6	432090	7.4	20.5
147528	7.0	19.7	421060	7.1	20.4	424283	7.2	21.6	27417	7.2	18.1	276075	7.3	19.9	111019	7.4	19.3
242946	7.0	20.8	219393	7.1	18.7	104616	7.2	20.0	28500	7.2	18.7	359318	7.3	21.1	296096	7.4	21.4
226969	7.0	20.1	148654	7.1	18.7	464665	7.2	21.6	112652	7.2	19.1	447194	7.3	20.5	426197	7.4	21.8
276586	7.0	20.2	132975	7.1	18.3	486683	7.2	20.5	88455	7.2	19.6	27686	7.3	17.0	233524	7.4	21.5
179214	7.0	21.1	36978	7.1	17.5	365244	7.2	21.8	420561	7.2	21.0	21882	7.3	19.2	102393	7.4	18.7
346946	7.0	19.4	420607	7.1	20.3	267475	7.2	20.1	172771	7.2	18.5	188309	7.3	20.8	228668	7.4	19.7
393426	7.0	20.6	169698	7.1	20.3	80115	7.2	17.9	449235	7.2	19.5	237277	7.3	19.4	239033	7.4	21.3
164839	7.0	20.4	109612	7.1	20.3	136493	7.2	19.6	194330	7.2	20.4	140497	7.3	19.1	220088	7.4	18.9
463357	7.0	21.4	337544	7.1	21.6	238328	7.2	20.4	363013	7.2	20.9	321547	7.3	20.7	470390	7.4	20.5
343210	7.0	20.6	266703	7.1	19.8	335221	7.2	20.1	445054	7.2	21.1	33894	7.3	18.6	404863	7.4	21.3
192535	7.0	21.0	243492	7.1	19.9	457817	7.2	20.9	268606	7.2	20.5	79346	7.3	18.8			

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
20828	7.4	17.8	379868	7.4	19.8	168802	7.5	18.6	101711	7.6	18.2	121006	7.6	20.2	166771	7.7	18.8
95811	7.4	20.1	381654	7.5	20.4	205559	7.5	19.7	178176	7.6	20.3	288961	7.6	20.6	116590	7.7	19.8
98260	7.4	19.4	323859	7.5	20.9	302412	7.5	19.7	195658	7.6	19.8	111823	7.6	19.2	360786	7.7	20.1
221749	7.4	19.4	74569	7.5	17.8	126305	7.5	19.4	460888	7.6	21.1	218655	7.6	20.0	170504	7.7	20.7
51656	7.4	17.1	122538	7.5	19.5	147726	7.5	19.4	461499	7.6	19.8	490654	7.6	19.3	445127	7.7	20.5
117018	7.4	20.1	280718	7.5	19.3	332556	7.5	21.7	490712	7.6	21.1	58378	7.7	19.9	286465	7.7	19.4
318893	7.4	20.0	304040	7.5	20.8	344806	7.5	18.4	414257	7.6	20.1	143461	7.7	19.1	329147	7.7	20.2
130841	7.4	18.9	18005	7.5	16.6	325621	7.5	20.9	347275	7.6	20.5	381648	7.7	20.1	256562	7.7	19.8
332834	7.4	19.9	99361	7.5	19.2	69100	7.5	18.8	280077	7.6	20.1	280799	7.7	20.3	140051	7.7	20.9
218730	7.4	20.3	468518	7.5	21.2	420050	7.5	21.0	218637	7.6	21.1	521004	7.7	20.6	345755	7.7	18.9
405155	7.4	20.3	72062	7.5	18.6	247975	7.5	19.7	17920	7.6	18.4	306418	7.7	21.1	149992	7.7	19.6
497104	7.4	19.9	113160	7.5	19.3	330121	7.5	20.4	26328	7.6	17.9	322168	7.7	20.4	429050	7.7	20.9
389631	7.4	20.4	34415	7.5	17.5	149588	7.5	19.8	147960	7.6	20.3	368006	7.7	20.6	295838	7.7	20.0
468108	7.4	20.4	381890	7.5	20.2	343183	7.5	20.4	294131	7.6	19.5	413056	7.7	21.6	17401	7.7	18.5
433908	7.4	20.3	152280	7.5	18.6	501916	7.5	20.1	422251	7.6	21.5	178641	7.7	20.4	323487	7.7	20.8
14978	7.4	17.4	92699	7.5	19.1	429037	7.5	20.5	132868	7.6	19.9	108287	7.7	19.6	428388	7.7	20.1
248906	7.4	20.3	49869	7.5	18.7	82009	7.5	18.0	167687	7.6	20.0	492175	7.7	22.1	27367	7.7	17.3
193211	7.4	19.8	458788	7.5	21.4	186175	7.5	20.3	221375	7.6	19.6	353266	7.7	21.1	82710	7.7	18.9
36915	7.4	19.8	117519	7.5	19.5	70287	7.5	20.0	92406	7.6	19.1	284007	7.7	20.2	263973	7.7	19.9
222427	7.4	20.4	357074	7.5	21.1	36377	7.5	18.8	431211	7.6	21.9	142023	7.7	19.6	350785	7.7	20.5
411444	7.4	20.2	72946	7.5	19.2	314703	7.5	20.1	29965	7.6	17.7	186849	7.7	19.7	250179	7.7	18.1
97974	7.4	20.0	304912	7.5	19.7	424721	7.5	20.4	286903	7.6	21.4	496866	7.7	20.9	283886	7.7	19.2
362156	7.4	21.0	393641	7.5	22.1	425435	7.5	21.8	354985	7.6	20.9	364381	7.7	20.9	448740	7.7	21.0
495490	7.4	20.7	24735	7.5	18.4	1320	7.5	16.3	382292	7.6	20.2	399489	7.7	20.6	486763	7.7	21.5
372159	7.4	19.9	421803	7.5	21.8	495754	7.5	22.2	55753	7.6	19.4	75441	7.7	17.9	383736	7.7	20.6
85091	7.4	19.0	134400	7.5	19.8	425383	7.5	20.6	273064	7.6	20.2	135288	7.7	20.6	459336	7.7	20.2
163794	7.4	19.6	500904	7.5	20.3	361165	7.5	20.7	401147	7.6	21.6	323133	7.7	19.5	54115	7.7	18.2
461733	7.4	20.4	11424	7.5	14.9	451674	7.5	20.0	286196	7.6	20.4	149395	7.7	19.0	489186	7.7	20.6
484143	7.4	20.0	153384	7.5	20.1	456614	7.5	20.9	3858	7.6	17.1	334179	7.7	20.3	381647	7.7	20.8
469264	7.4	19.9	311575	7.5	21.5	169248	7.5	20.3	334247	7.6	20.4	334440	7.7	20.0	459974	7.7	20.6
341519	7.4	21.4	414003	7.5	20.0	112064	7.5	19.4	101721	7.6	19.5	309242	7.7	20.0	154879	7.7	19.6
31720	7.4	18.1	257355	7.5	20.9	239300	7.5	20.9	49160	7.6	17.4	89402	7.7	18.6	144196	7.7	20.6
379959	7.4	21.4	358049	7.5	20.5	522242	7.5	20.1	343752	7.6	22.3	459217	7.7	20.7	407374	7.7	21.0
11558	7.4	18.5	377176	7.5	19.9	17510	7.5	17.6	298379	7.6	19.3	399296	7.7	22.0	125219	7.7	19.3
323123	7.4	19.1	422914	7.5	21.0	440728	7.5	20.5	14787	7.6	17.7	31704	7.7	18.2	461086	7.7	21.0
494684	7.4	21.3	495508	7.5	20.7	127973	7.5	20.3	149924	7.6	19.9	350629	7.7	20.1	253240	7.7	19.1
417200	7.4	20.6	276692	7.5	19.4	429323	7.5	20.5	290268	7.6	20.1	407394	7.7	19.9	164324	7.7	20.0
87732	7.4	18.9	612	7.5	16.5	302410	7.5	19.8	196372	7.6	20.3	503128	7.7	20.3	493092	7.7	21.0
81935	7.4	18.6	278472	7.5	20.2	422495	7.5	19.8	373295	7.6	21.2	61365	7.7	19.1	15574	7.8	17.5
84166	7.4	19.0	316888	7.5	19.0	26466	7.5	17.4	169300	7.6	20.5	76801	7.7	18.0	190168	7.8	20.6
401897	7.4	20.0	124883	7.5	18.0	356560	7.5	21.3	378872	7.6	21.0	15238	7.7	17.5	444313	7.8	19.9
256058	7.4	19.2	456940	7.5	20.2	317191	7.5	19.7	157975	7.6	19.2	340637	7.7	21.5	78787	7.8	19.1
9934	7.4	18.4	460158	7.5	20.8	433833	7.5	19.9	59680	7.6	18.5	424689	7.7	20.8	392203	7.8	20.9
373819	7.4	19.7	421028	7.5	20.9	173209	7.5	19.6	151743	7.6	19.3	55766	7.7	18.9	404532	7.8	20.6
516476	7.4	19.8	5563	7.5	15.5	325657	7.5	20.5	461368	7.6	20.9	426931	7.7	19.7	190163	7.8	19.4
181409	7.4	20.6	503604	7.5	21.6	267003	7.5	21.3	203608	7.6	20.0	45989	7.7	19.0	230801	7.8	19.2
150662	7.4	19.6	456898	7.5	22.8	232345	7.5	19.8	86438	7.6	18.9	257810	7.7	19.0	336929	7.8	20.8
517194	7.4	21.6	196884	7.5	19.0	417094	7.5	20.9	54485	7.6	18.4	302887	7.7	20.6	432198	7.8	19.8
340995	7.4	19.5	43824	7.5	17.7	325146	7.5	20.7	495723	7.6	21.2	485001	7.7	20.0	111671	7.8	18.7
427260	7.4	20.8	364277	7.5	20.7	50524	7.5	19.3	166902	7.6	18.7	503735	7.7	21.7	121953	7.8	19.0
287951	7.4	21.1	85513	7.5	19.3	259324	7.5	19.0	293690	7.6	21.0	110386	7.7	19.4	318662	7.8	19.9
83207	7.4	19.3	402761	7.5	19.9	495623	7.5	20.9	276566	7.6	20.1	302938	7.7	20.6	127800	7.8	20.2
282473	7.4	20.7	376044	7.5	20.2	24881	7.6	18.2	363889	7.6	21.7	313816	7.7	19.3	144602	7.8	20.0
273995	7.4	20.1	305512	7.5	20.9	201351	7.6	18.7	490394	7.6	21.8	467464	7.7	20.5	273176	7.8	21.3
393430	7.4	20.5	413589	7.5	20.2	206742	7.6	19.3	281597	7.6	20.6	331815	7.7	19.5	466483	7.8	20.3
420871	7.4	21.8	282820	7.5	21.7	309275	7.6	20.6	31651	7.6	17.5	126279	7.7	18.4	118767	7.8	19.4
58278	7.4	17.5	459030	7.5	19.9	419329	7.6	20.2	473886	7.6	20.9	116196	7.7	19.3	13939	7.8	18.5
108335	7.4	19.8	49439	7.5	18.1	262687	7.6	21.0	236968	7.6	20.4	431440	7.7	21.3	311013	7.8	19.5
137751	7.4	18.5	133866	7.5	19.5	28929	7.6	18.4	462359	7.6	21.6	467810	7.7	20.1	131466	7.8	18.8
424996	7.4	19.9	278056	7.5	19.8	79878	7.6	17.8	14506	7.6	17.0	117173	7.7	19.0	299513	7.8	20.3
256170	7.4	20.1	253206	7.5	18.7	154051	7.6	19.8	422168	7.6	20.8	283991	7.7	20.1	164462	7.8	20.8
247017	7.4	20.4	421927	7.5	20.9	374205	7.6	19.7	287757	7.6	20.0	156619	7.7	19.6	432154	7.8	20.5
238465	7.4	19.4	418871	7.5	19.5	325580	7.6	21.0	55347	7.6	19.8	339618	7.7	20.1	403078	7.8	20.2
7291	7.4	15.9	13669	7.5	18.5	379022	7.6	20.1	233554	7.6	19.8	186181	7.7	20.0	82915	7.8	18.9
206340	7.4	20.0	244021	7.5	20.7	16426	7.6	16.3	408283	7.6	21.2	296741	7.7	20.5	281720	7.8	19.9
406658	7.4	19.9	473711	7.5	20.6	587	7.6	14.6	238388	7.6	21.4	161182	7.7	19.7	252224	7.8	20.3
248583	7.4	21.1	135743	7.5	20.0	85626	7.6	18.1	185743	7.6	20.3	54443	7.7	18.0	16088	7.8	17.2
410029	7.4	19.3	89761	7.5	17.8	203600	7.6	20.1	210490	7.6	20.4	260809	7.7	19.8	14410	7.8	17.5
403539	7.4	21.3	51618	7.5	19.1	338987	7.6	20.3	232786	7.6	19.0	56777	7.7	19.2	215557	7.8	18.3
460348	7.4	20.3	363794	7.5	21.3	162928	7.6	19.7	85659	7.6	18.9	194199	7.7	20.1	411270	7.8	21.4
59602	7.4	18.9	361563	7.5	20.0	97474	7.6	18.2	74519	7.6	18.2	179928	7.7	18.3	134431	7.8</	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
118570	7.8	18.4	406880	7.9	20.7	165862	7.9	19.1	318070	8.0	20.9	317517	8.1	19.2	16866	8.2	16.1
370383	7.8	20.4	517586	7.9	21.0	79493	7.9	19.3	496790	8.0	20.8	258235	8.1	18.8	496016	8.2	20.8
2883	7.8	15.7	286656	7.9	21.1	489035	7.9	20.0	498900	8.0	19.5	52383	8.1	18.1	275903	8.2	20.5
222279	7.8	19.5	236479	7.9	21.4	208972	7.9	18.4	29406	8.0	17.6	233547	8.1	20.5	18566	8.2	17.3
492123	7.8	21.7	218896	7.9	19.4	23054	7.9	19.1	291411	8.0	20.2	319907	8.1	20.1	115251	8.2	19.5
335875	7.8	19.8	204276	7.9	20.2	39153	7.9	18.6	153	8.0	13.8	180600	8.1	20.4	95369	8.2	18.8
467397	7.8	22.2	373285	7.9	20.3	38723	7.9	17.0	469605	8.0	21.1	471234	8.1	20.7	486842	8.2	20.5
302928	7.8	20.3	84060	7.9	19.4	463976	7.9	21.0	468381	8.0	20.3	394888	8.1	21.2	429916	8.2	21.5
354379	7.8	20.7	445286	7.9	20.9	428935	7.9	20.8	50984	8.0	17.9	16849	8.1	17.3	422302	8.2	20.2
485391	7.8	21.7	422022	7.9	20.0	240343	7.9	21.1	375602	8.0	20.3	131790	8.1	19.0	305582	8.2	20.3
229774	7.8	19.8	439927	7.9	21.2	323845	7.9	20.9	66267	8.0	20.1	397899	8.1	20.9	376610	8.2	19.9
461028	7.8	20.8	130815	7.9	18.6	471320	7.9	21.1	167051	8.0	18.7	157258	8.1	20.2	182597	8.2	19.3
202572	7.8	19.3	301314	7.9	19.7	412030	7.9	20.6	421021	8.0	20.7	292424	8.1	20.2	136972	8.2	20.9
419112	7.8	20.8	432573	7.9	19.9	281653	7.9	20.4	119687	8.0	19.7	221967	8.1	21.3	385956	8.2	20.9
265662	7.8	19.8	17474	7.9	16.8	60709	7.9	19.1	289824	8.0	21.2	81060	8.1	19.1	82124	8.2	19.7
468102	7.8	19.7	162161	7.9	21.9	411346	7.9	20.4	53933	8.0	19.9	350967	8.1	19.9	321125	8.2	21.0
231142	7.8	20.0	228656	7.9	19.8	449543	7.9	21.7	402837	8.0	21.4	77708	8.1	18.6	332605	8.2	20.4
249517	7.8	19.5	369913	7.9	19.7	37760	7.9	16.8	428376	8.0	20.0	281389	8.1	21.1	203869	8.2	20.1
58074	7.8	19.2	317608	7.9	19.5	119960	7.9	18.8	264762	8.0	19.9	208262	8.1	19.3	205544	8.2	20.7
317715	7.8	20.4	127304	7.9	20.3	167150	7.9	20.0	473987	8.0	20.0	111408	8.1	18.6	356552	8.2	20.1
292405	7.8	19.8	224321	7.9	20.6	154328	7.9	19.2	103342	8.0	19.0	356616	8.1	20.0	398379	8.2	21.2
351567	7.8	20.5	120314	7.9	19.7	328341	7.9	20.5	419692	8.0	20.8	275013	8.1	20.5	401124	8.2	21.6
112034	7.8	19.6	398341	7.9	20.7	81458	7.9	20.2	383756	8.0	19.8	238401	8.1	19.7	310937	8.2	20.8
340045	7.8	19.9	276385	7.9	19.9	163710	7.9	20.5	11641	8.0	17.0	246033	8.1	19.2	318932	8.2	21.3
150059	7.8	18.1	80989	7.9	20.7	404519	7.9	20.5	424325	8.0	21.1	45074	8.1	18.6	390646	8.2	21.6
283953	7.8	21.8	7747	7.9	17.5	351519	7.9	20.5	424875	8.0	20.3	43744	8.1	19.2	193910	8.2	20.4
131394	7.8	20.2	517160	7.9	20.0	265698	7.9	20.3	465327	8.0	20.9	186395	8.1	20.8	237657	8.2	20.8
459337	7.8	21.9	335646	7.9	20.8	354039	7.9	21.8	352843	8.0	20.1	105148	8.1	19.9	455292	8.2	20.7
455022	7.8	20.2	424597	7.9	21.2	1142	7.9	15.0	350690	8.0	19.9	429255	8.1	20.8	479912	8.2	21.3
205313	7.8	19.3	208730	7.9	20.9	119828	7.9	19.0	251692	8.0	20.4	375003	8.1	21.8	502913	8.2	21.9
177421	7.8	19.4	353277	7.9	21.7	421229	7.9	21.0	460229	8.0	20.7	15750	8.1	17.0	458160	8.2	21.3
336043	7.8	20.3	171659	7.9	20.3	196283	7.9	19.6	391443	8.0	21.1	282328	8.1	20.2	194027	8.2	19.5
302441	7.8	19.7	384150	7.9	18.8	255875	7.9	20.9	164562	8.0	18.7	286604	8.1	20.4	290584	8.2	20.4
188507	7.8	20.7	364290	7.9	20.8	109070	7.9	17.4	424962	8.0	20.3	139184	8.1	19.8	466808	8.2	19.7
428988	7.8	20.4	410571	7.9	19.2	396574	7.9	21.6	384538	8.0	20.5	201923	8.1	18.7	296928	8.2	19.2
265807	7.8	20.4	219399	7.9	20.6	448744	7.9	21.2	14295	8.0	17.7	424942	8.1	20.3	41562	8.2	17.7
322867	7.8	20.3	179723	7.9	18.2	453111	7.9	19.8	357561	8.0	20.1	349539	8.1	19.6	381905	8.2	20.2
352117	7.8	20.5	374038	7.9	23.2	241657	7.9	20.8	470104	8.0	20.4	98440	8.1	18.4	403150	8.2	20.4
311008	7.8	19.1	296037	7.9	20.4	64013	7.9	18.5	464192	8.0	20.8	93752	8.1	18.5	258763	8.2	19.8
496698	7.8	20.8	125116	7.9	18.8	215493	7.9	19.1	430254	8.0	20.2	201829	8.1	19.3	31478	8.2	17.4
253043	7.8	20.2	238507	7.9	20.2	434102	7.9	19.9	265858	8.0	20.9	243536	8.1	20.4	422254	8.2	21.9
145251	7.8	20.3	297290	7.9	19.9	214265	7.9	20.9	222798	8.0	20.2	239912	8.1	20.2	150254	8.2	19.3
405750	7.8	21.5	301190	7.9	20.5	502094	7.9	21.3	307914	8.0	19.9	358043	8.1	20.9	359661	8.2	20.8
123129	7.8	19.6	502917	7.9	21.7	162816	7.9	18.5	120529	8.0	19.6	281377	8.1	20.9	188358	8.2	18.6
147845	7.8	19.6	5577	7.9	15.9	430240	7.9	20.5	191486	8.0	19.0	330073	8.1	20.9	285773	8.2	20.3
105384	7.8	21.0	318709	7.9	20.6	340655	7.9	20.8	458145	8.0	21.1	129409	8.1	18.8	93393	8.2	19.7
53567	7.8	18.6	138173	7.9	17.9	116922	7.9	19.6	207717	8.0	20.5	327964	8.1	20.5	271195	8.2	21.0
165879	7.8	19.4	19988	7.9	18.6	380399	7.9	19.7	328012	8.0	21.9	186267	8.1	19.3	458162	8.2	20.5
197923	7.8	21.2	122316	7.9	19.5	163614	7.9	19.2	491787	8.0	20.3	166842	8.1	18.9	234944	8.2	20.1
422014	7.8	21.2	78356	7.9	18.7	81871	7.9	18.7	372675	8.0	21.0	371241	8.1	20.5	109647	8.2	18.3
452882	7.8	19.9	323956	7.9	20.0	193456	7.9	18.2	406180	8.0	20.9	258921	8.1	20.3	427222	8.2	20.3
376380	7.8	21.3	164250	7.9	20.1	256308	7.9	21.1	319824	8.0	20.8	360322	8.1	20.9	117009	8.2	19.0
417165	7.8	20.8	34822	7.9	17.9	179807	7.9	19.0	146404	8.0	19.3	283438	8.1	20.0	419939	8.2	19.7
154093	7.8	20.3	257886	7.9	19.8	419084	7.9	20.9	415422	8.0	20.7	166040	8.1	19.4	170848	8.2	19.8
353239	7.8	20.5	43770	7.9	18.5	258554	7.9	18.1	495460	8.1	20.5	456471	8.1	20.9	328256	8.2	20.7
135433	7.8	19.0	152029	7.9	20.1	454341	7.9	20.6	456539	8.1	19.6	127767	8.1	20.7	310039	8.2	20.7
343978	7.8	20.5	300316	7.9	20.6	79370	7.9	18.0	237219	8.1	20.6	168181	8.1	20.6	237431	8.2	20.4
396527	7.8	21.3	411455	7.9	20.8	193142	7.9	20.9	182114	8.1	20.0	376446	8.1	21.4	227631	8.2	20.2
88936	7.8	19.6	260018	7.9	20.3	33355	7.9	19.7	329046	8.1	20.8	109101	8.1	19.9	66278	8.2	19.5
314866	7.8	20.7	406342	7.9	21.4	124570	7.9	18.1	463871	8.1	20.8	519010	8.1	20.4	22674	8.2	18.4
438266	7.8	19.8	221965	7.9	20.2	86897	7.9	19.0	369939	8.1	20.6	516428	8.1	23.7	217478	8.2	19.4
35299	7.8	18.0	350614	7.9	20.4	377029	7.9	19.3	376625	8.1	21.1	226862	8.1	20.3	232378	8.2	19.6
330148	7.9	20.2	62615	7.9	19.3	450314	7.9	21.1	419128	8.1	20.9	521938	8.1	21.8	466391	8.2	20.2
407548	7.9	19.6	321128	7.9	20.4	285764	7.9	20.2	212119	8.1	20.2	252358	8.1	20.4	334128	8.2	20.6
197305	7.9	19.4	409542	7.9	19.6	99887	7.9	19.0	176758	8.1	19.6	271844	8.1	19.8	443279	8.2	20.7
296325	7.9	21.2	492666	7.9	21.5	114106	7.9	19.4	103992	8.1	18.3	134327	8.1	20.2	343427	8.2	19.9
200864	7.9	18.9	240754	7.9	19.7	135401	7.9	19.2	109978	8.1	19.2	88792	8.1	19.7	252220	8.2	20.1
184047	7.9	20.6	9304	7.9	17.9	275197	7.9	20.1	288817	8.1	19.1	309399	8.1	21.6	17363	8.2	17.5
131603	7.9	18.9	206260	7.9	19.1	516562	7.9	20.2	72972	8.1	19.5	351736	8.1	19.4	12663	8.2	17.8
11719	7.9	17.7	318142	7.9	20.8	230808	7.9	18.8	244987	8.1	18.7	304858	8.1	19.4	25213	8.2	19.8
261072	7.9	18.8	293706	7.9	20.8	134417	7.9	19.4	59501	8.1	18.8	322293					

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
296127	8.2	20.1	432425	8.3	20.4	43596	8.4	19.4	159111	8.5	20.3	234016	8.5	20.4	266928	8.6	19.7
48627	8.2	19.0	53391	8.3	18.0	117132	8.4	20.1	322113	8.5	19.9	216908	8.5	20.0	274539	8.6	20.6
29230	8.2	17.2	498884	8.3	20.6	46720	8.4	20.5	461041	8.5	20.2	52604	8.5	18.4	61389	8.6	19.3
493494	8.2	20.2	90689	8.3	19.3	16275	8.4	18.3	322455	8.5	20.0	417068	8.5	21.4	85611	8.6	19.6
331125	8.2	19.5	366421	8.3	19.2	211244	8.4	19.6	90045	8.5	19.1	164567	8.5	19.6	335680	8.6	20.5
302426	8.2	20.3	69486	8.3	18.2	239484	8.4	21.0	190730	8.5	20.2	284170	8.5	19.5	6387	8.6	16.3
428847	8.2	20.4	397482	8.3	21.2	104670	8.4	20.5	461241	8.5	20.2	360822	8.5	21.1	23071	8.6	18.8
468352	8.2	21.0	177853	8.3	21.6	234515	8.4	20.0	231811	8.5	20.4	86428	8.5	17.6	430553	8.6	19.7
310854	8.2	18.5	327030	8.3	20.3	167929	8.4	20.2	243381	8.5	19.6	30583	8.5	18.7	164178	8.6	19.4
383791	8.3	20.1	61285	8.3	18.4	373746	8.4	19.6	176865	8.5	18.8	39509	8.5	17.9	320964	8.6	19.2
207894	8.3	20.1	97553	8.3	19.1	80054	8.4	19.0	383675	8.5	20.5	392498	8.5	21.4	312504	8.6	21.1
461936	8.3	21.1	163755	8.3	20.2	370732	8.4	22.4	203078	8.5	20.3	210788	8.5	20.6	81545	8.6	19.2
401138	8.3	21.7	157206	8.3	20.6	397215	8.4	21.2	92554	8.5	18.7	236850	8.6	20.5	279424	8.6	20.9
490699	8.3	21.4	170867	8.3	18.6	335857	8.4	21.2	32188	8.5	18.4	298930	8.6	20.6	291500	8.6	21.5
126665	8.3	19.5	269911	8.3	20.6	235724	8.4	19.6	7055	8.5	17.0	139278	8.6	20.3	351592	8.6	20.4
280785	8.3	21.0	293882	8.3	20.4	465792	8.4	20.1	196583	8.5	20.2	412339	8.6	21.0	503807	8.6	21.1
183990	8.3	19.4	356568	8.3	20.0	270054	8.4	21.1	461831	8.5	21.7	406903	8.6	21.0	315459	8.6	19.6
241945	8.3	20.5	436112	8.3	22.3	143890	8.4	20.0	449681	8.5	20.5	81963	8.6	20.0	519514	8.6	21.8
142526	8.3	18.7	445998	8.3	20.6	29872	8.4	17.0	463460	8.5	21.2	412805	8.6	21.5	37013	8.6	18.4
78585	8.3	17.7	375464	8.3	19.6	224943	8.4	20.1	490134	8.5	20.7	61127	8.6	17.9	318748	8.6	20.2
55389	8.3	17.5	174892	8.3	19.9	331142	8.4	19.4	307859	8.5	19.8	461953	8.6	20.6	360191	8.6	23.2
488993	8.3	20.2	403560	8.3	21.2	29956	8.4	18.2	119108	8.5	18.1	1340	8.6	15.7	366863	8.6	20.9
52844	8.3	17.4	164452	8.3	19.9	162587	8.4	18.7	236034	8.5	20.6	388028	8.6	21.2	458360	8.6	20.5
345273	8.3	18.8	496255	8.3	20.8	238361	8.4	20.0	295321	8.5	19.2	459892	8.6	22.2	178898	8.6	20.0
452291	8.3	21.4	115726	8.3	19.4	115726	8.4	19.6	10593	8.5	17.0	279904	8.6	20.4	62487	8.6	18.9
520044	8.3	21.3	396577	8.3	21.1	52702	8.4	19.1	64689	8.5	18.4	114054	8.6	19.1	126319	8.6	19.5
502128	8.3	20.8	239219	8.3	19.6	110603	8.4	18.4	138267	8.5	19.0	425137	8.6	21.2	135372	8.6	19.3
335979	8.3	20.7	170822	8.3	19.1	291332	8.4	21.1	55608	8.5	18.3	463356	8.6	21.7	338975	8.6	19.6
373079	8.3	20.3	429303	8.3	20.1	414495	8.4	20.7	98329	8.5	19.8	145549	8.6	18.9	408112	8.6	21.5
316463	8.3	19.8	164380	8.3	19.3	203447	8.4	18.9	271738	8.5	20.4	84511	8.6	18.4	41436	8.6	18.2
464229	8.3	20.2	205542	8.3	19.6	464110	8.4	21.1	491965	8.5	20.5	491970	8.6	20.4	390834	8.6	21.1
230659	8.3	20.4	253040	8.3	21.0	348790	8.4	21.5	308741	8.5	21.1	105050	8.6	19.8	11366	8.6	16.6
199885	8.3	19.9	274971	8.3	20.7	116853	8.4	19.1	462061	8.5	20.1	265892	8.6	20.3	68784	8.6	19.2
333403	8.3	20.0	163294	8.3	18.0	79464	8.4	18.2	417065	8.5	20.7	31284	8.6	19.1	66662	8.6	18.5
46905	8.3	17.2	143207	8.3	19.2	100437	8.4	19.8	166198	8.5	20.5	89980	8.6	18.6	233059	8.6	21.1
149033	8.3	18.5	517147	8.3	19.8	331335	8.4	19.0	382023	8.5	20.6	488919	8.6	20.7	283412	8.6	19.3
405989	8.3	20.5	327403	8.3	20.6	256006	8.4	18.8	365636	8.5	20.2	201200	8.6	19.5	333039	8.6	20.7
96027	8.3	20.2	83939	8.3	19.5	428487	8.4	20.5	348626	8.5	20.5	53368	8.6	18.1	317566	8.6	19.1
394063	8.3	20.8	402063	8.4	21.5	156524	8.4	18.3	394399	8.5	20.8	149467	8.6	19.2	65900	8.6	17.8
328618	8.3	20.8	260793	8.4	20.2	66435	8.4	19.1	48844	8.5	18.1	33340	8.6	21.2	82854	8.6	19.9
32536	8.3	17.2	92583	8.4	18.2	364310	8.4	21.6	456337	8.5	20.5	138512	8.6	19.9	18984	8.6	17.7
221317	8.3	20.2	309376	8.4	21.6	54597	8.4	18.7	368591	8.5	20.5	78559	8.6	18.7	45577	8.6	18.2
446845	8.3	21.5	357182	8.4	19.7	129601	8.4	17.3	7780	8.5	17.8	288323	8.6	19.7	190116	8.7	20.1
166850	8.3	18.6	460439	8.4	20.5	36427	8.4	17.7	236277	8.5	20.6	51689	8.6	18.0	433780	8.7	19.9
140040	8.3	18.7	217980	8.4	20.1	24435	8.4	18.2	334273	8.5	20.5	79434	8.6	19.8	247464	8.7	20.1
442837	8.3	20.5	95520	8.4	18.6	487582	8.4	20.6	113664	8.5	18.7	334194	8.6	19.8	336011	8.7	20.4
89119	8.3	18.2	99283	8.4	19.7	400099	8.4	21.0	467701	8.5	20.1	286041	8.6	20.9	460085	8.7	20.9
350431	8.3	19.6	157137	8.4	20.6	109127	8.4	19.8	490655	8.5	20.9	460044	8.6	21.1	75377	8.7	18.2
288516	8.3	19.1	64709	8.4	18.7	203852	8.4	19.4	426898	8.5	20.1	276542	8.6	19.8	106820	8.7	19.0
379040	8.3	21.4	13567	8.4	16.2	327274	8.4	20.5	315639	8.5	21.1	178765	8.6	19.5	461444	8.7	20.6
202311	8.3	19.6	235151	8.4	19.6	27771	8.4	17.4	366177	8.5	19.4	235505	8.6	19.9	314691	8.7	19.8
468776	8.3	20.2	242589	8.4	20.1	201210	8.4	20.0	348154	8.5	20.4	139468	8.6	19.9	235006	8.7	19.4
98020	8.3	20.2	130943	8.4	20.9	132942	8.4	19.4	457432	8.5	21.1	488717	8.6	20.8	407323	8.7	19.8
105551	8.3	19.0	206892	8.4	20.4	191959	8.4	19.9	65471	8.5	19.1	81501	8.6	19.3	149493	8.7	19.5
424836	8.3	21.2	178468	8.4	19.9	65285	8.4	19.0	367144	8.5	20.4	345188	8.6	20.1	101187	8.7	18.8
455758	8.3	21.3	450265	8.4	20.9	101585	8.4	19.4	60799	8.5	18.8	360773	8.6	21.1	34817	8.7	15.8
117494	8.3	19.4	253064	8.4	20.5	171972	8.4	19.8	28577	8.5	18.2	441598	8.6	20.6	290539	8.7	19.0
287518	8.3	18.8	339469	8.4	21.5	424196	8.4	20.9	492013	8.5	21.6	133854	8.6	19.3	124655	8.7	19.3
296739	8.3	20.4	409874	8.4	21.1	128681	8.4	19.1	240045	8.5	20.1	432265	8.6	22.4	487670	8.7	21.6
149794	8.3	19.8	116730	8.4	19.7	93191	8.4	17.0	133211	8.5	19.9	264424	8.6	18.9	314908	8.7	19.8
415360	8.3	20.8	49611	8.4	17.6	293770	8.4	21.2	92440	8.5	19.3	53707	8.6	19.1	258402	8.7	19.9
217764	8.3	18.9	118038	8.4	18.0	389840	8.5	20.4	372569	8.5	21.0	115681	8.6	19.6	138032	8.7	19.8
323793	8.3	20.6	452451	8.4	19.7	357376	8.5	20.9	466730	8.5	19.6	400810	8.6	21.9	495428	8.7	21.4
473715	8.3	19.2	487726	8.4	19.4	57520	8.5	17.1	241324	8.5	21.0	520848	8.6	21.1	209499	8.7	19.9
421162	8.3	20.5	202321	8.4	19.7	45576	8.5	18.0	425872	8.5	21.3	329989	8.6	20.0	120642	8.7	20.4
264008	8.3	21.3	456569	8.4	21.3	351708	8.5	21.1	367188	8.5	19.8	221970	8.6	20.2	104200	8.7	19.2
357207	8.3	20.1	69637	8.4	18.4	181615	8.5	19.6	454287	8.5	21.6	164295	8.6	19.9	103333	8.7	19.0
133770	8.3	19.9	309088	8.4	20.3	462649	8.5	20.7	45260	8.5	18.5	345031	8.6	20.6	182418	8.7	20.1
325279	8.3	19.4	185902	8.4	19.9	433527	8.5	20.2	378419	8.5	20.4	108839	8.6	18.9	49767	8.7	17.4
355953	8.3	20.0	453867	8.4	20.2	413523	8.5	21.3	379076	8.5	20.1	423428	8.6	21.9	29356	8.7	18.9
518902	8.3	20.2	4846	8.4	16.7	238516	8.5	20.6	378835	8.5	20.3	175950	8.6	20.4	460853		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
256414	8.7	18.9	283558	8.7	19.6	173398	8.8	18.8	373719	8.9	20.2	457092	8.9	21.4	267773	9.1	19.7
354106	8.7	19.0	328287	8.8	20.1	46325	8.8	17.9	102137	8.9	19.4	354933	8.9	21.3	29240	9.1	19.0
23782	8.7	17.1	23023	8.8	18.0	272971	8.8	20.7	333705	8.9	20.4	126596	8.9	19.4	251032	9.1	19.5
430172	8.7	21.1	419065	8.8	21.3	337057	8.8	19.5	363850	8.9	21.4	115970	8.9	19.2	488856	9.1	22.2
101597	8.7	20.2	426257	8.8	20.2	26332	8.8	18.2	464787	8.9	20.6	393277	8.9	19.6	393422	9.1	20.6
465911	8.7	20.5	135308	8.8	19.4	109273	8.8	18.9	432055	8.9	20.5	381227	8.9	21.1	326035	9.1	20.4
96017	8.7	19.5	200847	8.8	20.0	148666	8.8	18.7	132446	8.9	20.1	502650	8.9	21.0	353300	9.1	20.6
436089	8.7	22.3	196665	8.8	19.9	449099	8.8	20.9	340409	8.9	20.7	283945	8.9	21.5	448304	9.1	19.5
116368	8.7	19.3	220568	8.8	20.8	186550	8.8	18.6	456343	8.9	20.7	400265	8.9	21.4	961	9.1	15.7
168041	8.7	19.5	207741	8.8	19.5	2576	8.8	16.2	401144	8.9	21.4	198895	8.9	19.5	309844	9.1	20.6
38217	8.7	18.6	333049	8.8	21.3	417575	8.8	20.4	313430	8.9	20.9	82014	8.9	19.5	150567	9.1	19.9
47178	8.7	18.2	14024	8.8	17.9	30501	8.8	17.6	459789	8.9	21.1	251044	8.9	20.0	185927	9.1	20.2
370698	8.7	21.2	126274	8.8	19.8	387660	8.8	20.4	254088	8.9	19.2	31532	8.9	19.1	110561	9.1	17.9
279800	8.7	20.5	181291	8.8	19.9	493107	8.8	21.3	99465	8.9	19.9	455169	8.9	21.5	151270	9.1	19.5
494029	8.7	21.0	88295	8.8	19.1	456550	8.8	20.9	83717	8.9	19.6	72050	8.9	18.7	36018	9.1	18.1
282642	8.7	20.2	15270	8.8	16.6	159875	8.8	20.1	244320	8.9	21.2	3406	8.9	15.9	138025	9.1	20.2
47036	8.7	17.8	4498	8.8	16.1	154691	8.8	19.6	44464	8.9	18.9	256143	8.9	19.8	293884	9.1	20.4
258564	8.7	19.5	393418	8.8	20.0	71490	8.8	18.9	399616	8.9	18.8	311038	8.9	18.8	373093	9.1	20.0
409558	8.7	20.1	197463	8.8	18.3	229214	8.9	20.8	522264	8.9	21.4	260247	8.9	20.4	309444	9.1	20.2
53431	8.7	17.1	313203	8.8	20.5	356708	8.9	20.5	85923	8.9	17.6	41912	8.9	18.6	417444	9.1	20.3
454722	8.7	19.9	169122	8.8	20.2	401889	8.9	20.6	458195	8.9	20.3	298923	8.9	20.8	120317	9.1	19.5
233569	8.7	20.2	282540	8.8	20.9	420005	8.9	20.9	134839	8.9	21.1	144860	8.9	19.2	272968	9.1	20.5
149295	8.7	19.3	459643	8.8	21.0	467690	8.9	19.8	483564	8.9	20.4	250232	8.9	19.2	204382	9.1	20.0
276230	8.7	20.5	453214	8.8	21.0	82464	8.9	19.3	262679	8.9	20.0	118845	8.9	19.7	489409	9.1	20.8
499042	8.7	20.6	69071	8.8	19.2	73093	8.9	18.8	340752	8.9	20.9	3933	8.9	17.6	326049	9.1	20.7
104330	8.7	18.9	345285	8.8	18.3	78519	8.9	19.6	518158	8.9	21.1	241198	9.0	21.4	142954	9.1	19.2
276354	8.7	20.4	456290	8.8	21.1	354981	8.9	20.7	203747	8.9	18.9	74484	9.0	19.5	129798	9.1	19.6
401119	8.7	20.3	323109	8.8	19.0	12815	8.9	17.5	4443	8.9	15.7	300378	9.0	18.8	88581	9.1	18.4
65368	8.7	19.5	249327	8.8	19.2	207527	8.9	20.7	251656	8.9	19.8	414214	9.0	20.7	457148	9.1	21.6
460287	8.7	19.8	284067	8.8	20.4	135169	8.9	18.9	473921	8.9	21.1	50019	9.0	18.5	30472	9.1	17.4
251538	8.7	19.9	184530	8.8	20.5	78575	8.9	19.2	6237	8.9	17.3	260613	9.0	20.1	100173	9.1	18.7
63383	8.7	19.3	3886	8.8	17.0	368746	8.9	20.8	66543	8.9	19.3	284504	9.0	19.9	319865	9.1	20.5
495610	8.7	20.6	429305	8.8	21.0	417671	8.9	19.2	36001	8.9	19.1	105176	9.0	19.3	10039	9.1	18.7
46439	8.7	18.5	91333	8.8	17.5	372411	8.9	20.7	402568	8.9	22.3	424998	9.0	20.8	19003	9.1	17.7
518642	8.7	20.9	368267	8.8	19.6	262518	8.9	20.4	522269	8.9	21.1	266525	9.0	19.1	427044	9.1	21.3
193775	8.7	19.9	379449	8.8	20.4	323092	8.9	18.9	360346	8.9	21.1	216799	9.0	19.9	277055	9.1	20.6
335881	8.7	20.8	428867	8.8	20.7	56080	8.9	16.9	189639	8.9	20.1	16407	9.0	17.4	397178	9.1	21.1
43578	8.7	18.5	30417	8.8	18.9	256278	8.9	19.9	321117	8.9	20.4	281349	9.0	20.6	494869	9.1	22.2
278403	8.7	20.6	239696	8.8	21.1	279912	8.9	20.6	251267	8.9	19.4	463867	9.0	20.7	378371	9.1	20.3
52360	8.7	18.7	39619	8.8	19.3	83588	8.9	19.4	198944	8.9	20.4	270635	9.0	20.4	335870	9.1	20.8
165786	8.7	19.4	230490	8.8	19.1	300922	8.9	20.4	133368	8.9	19.2	167022	9.0	20.2	399465	9.1	21.5
435395	8.7	19.7	119716	8.8	18.7	238562	8.9	20.0	455844	8.9	21.5	20809	9.0	16.6	110719	9.1	18.9
446025	8.7	20.5	322625	8.8	20.8	102107	8.9	17.8	128066	8.9	19.8	361334	9.0	21.3	254092	9.1	20.3
189430	8.7	20.8	462559	8.8	21.5	247452	8.9	20.6	485409	8.9	21.4	263632	9.0	19.4	201761	9.1	20.1
370576	8.7	20.0	407924	8.8	20.6	432141	8.9	20.6	426124	8.9	20.3	370802	9.0	20.7	490154	9.1	21.5
469186	8.7	20.3	99520	8.8	19.0	288818	8.9	19.9	170770	8.9	20.1	256334	9.0	18.9	116351	9.1	19.6
197359	8.7	18.3	427360	8.8	20.2	345086	8.9	21.3	13138	8.9	18.0	503297	9.0	20.2	243799	9.1	21.2
53508	8.7	19.4	260943	8.8	19.7	404324	8.9	20.1	95979	8.9	20.4	322333	9.0	20.4	363186	9.1	20.8
495474	8.7	20.6	93549	8.8	19.9	218351	8.9	21.1	402753	8.9	20.1	190837	9.0	18.2	322736	9.1	20.7
372560	8.7	21.3	464231	8.8	20.3	80575	8.9	18.2	278457	8.9	20.2	152936	9.0	19.2	458007	9.1	20.7
427026	8.7	20.7	217783	8.8	20.7	258236	8.9	20.4	496589	8.9	21.0	301049	9.0	21.3	467892	9.1	21.3
397480	8.7	20.9	311000	8.8	18.5	47009	8.9	17.9	120649	8.9	19.9	418195	9.0	21.3	404843	9.1	21.0
459187	8.7	21.4	366200	8.8	20.3	408871	8.9	20.4	110758	8.9	17.2	208001	9.0	19.6	464083	9.1	21.1
167862	8.7	19.6	296798	8.8	20.8	144556	8.9	20.4	38988	8.9	19.3	158553	9.0	20.5	86841	9.1	19.6
215475	8.7	20.0	306293	8.8	20.5	159930	8.9	19.4	54201	8.9	17.8	360309	9.0	22.2	383353	9.1	20.7
329967	8.7	20.6	433564	8.8	20.2	317520	8.9	20.4	375350	8.9	21.1	156071	9.0	19.1	317983	9.1	20.1
416002	8.7	19.5	381267	8.8	20.2	399401	8.9	21.0	28001	8.9	17.8	367608	9.0	20.8	165764	9.1	19.1
460949	8.7	20.4	493330	8.8	21.2	224555	8.9	19.9	444406	8.9	20.4	379110	9.0	19.6	67004	9.1	19.2
335639	8.7	21.4	57825	8.8	19.2	76700	8.9	20.0	412714	8.9	20.4	387429	9.0	19.7	160010	9.1	20.6
110005	8.7	18.6	55562	8.8	17.8	406636	8.9	20.5	283284	8.9	19.9	14550	9.0	17.9	234494	9.1	19.6
278407	8.7	19.9	34299	8.8	19.0	448077	8.9	22.6	20199	8.9	18.1	91274	9.0	17.4	216233	9.1	20.5
194221	8.7	20.8	154650	8.8	19.1	134709	8.9	19.6	140077	8.9	19.8	31788	9.0	17.0	308683	9.1	21.0
234842	8.7	20.3	32840	8.8	17.8	410794	8.9	21.4	28837	8.9	18.5	329545	9.0	21.8	84818	9.1	18.5
114713	8.7	19.4	206353	8.8	20.4	201027	8.9	18.9	240793	8.9	20.3	445034	9.0	20.9	275488	9.1	20.5
359082	8.7	19.8	258934	8.8	21.2	67448	8.9	18.5	234274	8.9	20.1	425768	9.0	21.0	264239	9.1	20.5
429339	8.7	21.0	69701	8.8	17.4	166234	8.9	20.0	264768	8.9	19.9	326720	9.0	18.8	355952	9.1	20.9
522348	8.7	20.3	431982	8.8	19.8	397135	8.9	19.4	325473	8.9	20.8	320864	9.0	20.0	87854	9.1	19.1
445942	8.7	19.4	6238	8.8	16.6	68052	8.9	19.2	330660	8.9	21.6	157984	9.0	19.3	362068	9.1	20.1
523508	8.7	21.0	388357	8.8	20.6	98670	8.9	18.0	493238	8.9	21.1	299544	9.0	20.7	125688	9.1	18.8
39741	8.7	18.5	420653	8.8	19.9	244444	8.9	20.3	6292	8.9	16.7	170274	9.0	20.4	189693	9.1	18.9
77473	8.7	19.5	408349	8.8	19.7	95502	8.9	19.0	29529	8.9	17.7	125264	9.0	20.3	77861	9.1	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
332680	9.1	21.2	132051	9.2	18.7	409598	9.3	20.2	52622	9.3	19.0	281862	9.4	20.3	341496	9.5	21.0
256112	9.1	21.0	309456	9.2	20.8	140820	9.3	20.3	318286	9.3	20.7	137050	9.4	17.8	187904	9.5	19.1
223662	9.1	20.3	359107	9.2	19.7	249370	9.3	20.6	119465	9.3	18.5	88720	9.4	19.2	303342	9.5	20.8
453840	9.1	21.7	120665	9.2	18.9	53293	9.3	18.8	371045	9.3	20.7	188704	9.4	19.9	257620	9.5	20.2
519100	9.1	20.6	428110	9.2	21.6	368956	9.3	19.3	389815	9.3	20.7	113712	9.4	18.0	401376	9.5	20.2
156143	9.1	19.5	54797	9.2	16.7	352647	9.3	20.1	243132	9.3	20.1	159767	9.4	20.5	108979	9.5	19.2
307735	9.1	19.9	503314	9.2	20.2	79832	9.3	17.6	167893	9.3	19.6	131882	9.4	19.4	121988	9.5	20.8
165821	9.1	19.3	29744	9.2	18.2	247044	9.3	21.1	157233	9.4	19.6	61200	9.4	19.4	469202	9.5	20.5
173073	9.1	20.3	425043	9.2	21.8	486765	9.3	21.0	377255	9.4	20.4	95710	9.4	19.8	288788	9.5	20.8
70492	9.1	20.1	79697	9.2	19.0	416549	9.3	19.5	376634	9.4	20.1	293911	9.4	20.5	247586	9.5	20.0
435661	9.1	20.6	187580	9.2	19.6	104560	9.3	20.4	165714	9.4	19.6	425414	9.4	20.3	347727	9.5	19.9
84604	9.1	17.8	191334	9.2	19.5	196952	9.3	19.5	126934	9.4	20.4	324718	9.4	20.8	317554	9.5	19.4
134814	9.1	20.3	520617	9.2	20.2	231675	9.3	19.7	438161	9.4	21.1	137076	9.4	17.2	267114	9.5	19.9
289135	9.1	20.8	308712	9.2	21.6	445112	9.3	20.4	142459	9.4	19.0	321799	9.4	20.3	216615	9.5	20.5
223739	9.1	20.4	162204	9.2	18.7	29770	9.3	18.0	261330	9.4	19.8	405936	9.4	21.9	405941	9.5	20.7
342907	9.1	20.7	265800	9.2	20.2	70257	9.3	19.4	145410	9.4	19.6	236041	9.4	19.9	274370	9.5	20.7
463324	9.1	21.7	291457	9.2	20.4	267940	9.3	21.5	3639	9.4	15.9	390807	9.4	20.8	313852	9.5	19.5
319605	9.1	20.8	460360	9.2	20.4	232333	9.3	19.4	300303	9.4	20.3	330485	9.4	20.8	190768	9.5	19.5
1202	9.1	15.8	394388	9.2	21.4	288804	9.3	20.1	33433	9.4	17.1	322817	9.4	20.3	51231	9.5	18.6
95271	9.1	19.3	446850	9.2	21.6	111790	9.3	19.2	118039	9.4	18.2	406159	9.4	19.2	306007	9.5	21.4
158916	9.1	20.6	496661	9.2	21.0	263709	9.3	20.6	38958	9.4	18.4	405922	9.4	21.7	38942	9.5	18.0
459231	9.1	20.5	491977	9.2	21.4	135249	9.3	20.6	187037	9.4	20.3	271893	9.4	20.5	131985	9.5	20.1
272160	9.1	21.9	31467	9.2	18.8	415247	9.3	20.3	119315	9.4	22.6	123619	9.4	18.6	191127	9.5	20.1
432004	9.1	20.0	429038	9.2	20.5	251214	9.3	20.6	421317	9.4	20.9	440422	9.4	21.6	81164	9.5	18.6
486004	9.1	20.2	84342	9.2	19.0	69669	9.3	19.9	1534	9.4	14.1	88024	9.4	20.0	406038	9.5	21.1
413526	9.1	21.6	116773	9.2	19.3	236911	9.3	20.9	135904	9.4	19.4	137026	9.4	20.5	26195	9.5	18.1
34990	9.1	18.8	492060	9.2	21.2	99446	9.3	18.8	424139	9.4	20.8	89447	9.4	19.5	28468	9.5	17.5
399533	9.1	21.6	490660	9.2	22.4	485100	9.3	21.5	67237	9.4	19.3	296052	9.4	20.3	260758	9.5	21.4
395633	9.1	20.3	5194	9.2	18.2	259899	9.3	20.4	307352	9.4	19.6	26596	9.4	19.2	266225	9.5	19.8
324558	9.2	20.2	62007	9.2	19.6	502564	9.3	21.1	347606	9.4	20.7	110039	9.4	20.3	455517	9.5	20.6
371276	9.2	20.8	236909	9.2	20.4	26271	9.3	18.5	113954	9.4	19.2	107433	9.4	19.5	506345	9.5	21.5
246158	9.2	20.3	191477	9.2	19.8	6748	9.3	18.0	230996	9.4	19.6	427704	9.4	20.3	193877	9.5	19.8
16538	9.2	15.8	373313	9.2	20.8	270637	9.3	21.0	39064	9.4	18.5	274875	9.4	20.6	429869	9.5	20.8
455626	9.2	21.4	141142	9.2	18.4	257835	9.3	20.3	499857	9.4	22.1	50711	9.4	16.9	360470	9.5	20.7
61828	9.2	18.9	365214	9.2	20.4	151947	9.3	19.6	222258	9.4	20.7	26843	9.4	17.8	82607	9.5	19.5
367575	9.2	22.4	459169	9.2	21.5	174886	9.3	19.1	489230	9.4	21.7	346909	9.4	20.5	489209	9.5	22.2
468721	9.2	20.6	320753	9.2	22.0	364298	9.3	20.8	157252	9.4	19.7	360308	9.4	21.3	134423	9.5	19.5
127953	9.2	19.7	354867	9.2	20.5	329611	9.3	20.7	336921	9.4	21.3	30750	9.4	17.9	442624	9.5	20.9
201411	9.2	19.3	51692	9.2	18.9	75519	9.3	18.3	308753	9.4	21.8	397484	9.4	21.3	323171	9.5	19.8
96537	9.2	19.6	101221	9.2	19.0	465729	9.3	21.4	207537	9.4	20.9	520861	9.4	19.9	282914	9.5	20.5
200875	9.2	18.8	236675	9.2	21.1	274312	9.3	20.5	76572	9.4	20.8	114656	9.4	17.8	461771	9.5	20.8
283153	9.2	20.0	301156	9.2	20.2	217428	9.3	20.7	163565	9.4	19.6	142702	9.4	19.8	121339	9.5	19.7
491997	9.2	20.8	31699	9.2	18.5	181748	9.3	19.3	423351	9.4	20.9	428101	9.4	21.0	65132	9.5	19.7
123661	9.2	18.3	145537	9.2	20.0	499518	9.3	21.4	227437	9.4	20.7	445879	9.4	21.6	380700	9.5	20.1
245145	9.2	20.0	202604	9.2	20.4	32454	9.3	19.4	179253	9.4	20.5	128715	9.4	19.3	360039	9.5	20.1
290542	9.2	19.3	357201	9.2	18.6	518702	9.3	20.9	498228	9.4	21.3	200827	9.4	19.9	223852	9.5	19.8
81080	9.2	19.4	3697	9.2	16.7	393718	9.3	21.1	269637	9.4	19.9	241922	9.4	18.7	271956	9.5	19.9
322186	9.2	20.1	435887	9.2	20.0	116942	9.3	19.6	366980	9.4	21.4	311694	9.4	20.3	459672	9.5	20.8
44662	9.2	18.3	493365	9.2	21.5	36496	9.3	17.3	464019	9.4	20.3	427665	9.4	20.2	172857	9.5	20.1
338323	9.2	20.4	485002	9.2	20.3	428987	9.3	20.4	235672	9.4	20.2	113978	9.4	19.9	458300	9.5	20.3
406131	9.2	19.7	193079	9.2	19.7	419687	9.3	19.9	290628	9.4	20.1	421524	9.4	21.8	121031	9.5	19.5
154044	9.2	19.6	457183	9.2	21.5	247451	9.3	20.8	165860	9.4	20.3	52161	9.4	18.3	424050	9.5	19.5
145699	9.2	20.5	497109	9.2	20.6	43092	9.3	19.3	46898	9.4	19.1	111470	9.4	19.2	466035	9.5	22.0
523760	9.2	22.1	275409	9.2	20.4	485918	9.3	20.4	369728	9.4	20.0	460176	9.4	20.2	343225	9.5	21.0
379453	9.2	20.1	78648	9.2	20.1	429256	9.3	21.1	64720	9.4	19.0	263754	9.4	19.1	321936	9.5	19.7
425696	9.2	20.0	7994	9.2	16.7	424965	9.3	19.8	375323	9.4	21.0	125091	9.4	18.2	426853	9.5	20.6
406683	9.2	19.2	363804	9.2	21.3	130650	9.3	19.7	100780	9.4	18.3	190189	9.4	20.3	125624	9.5	18.6
36478	9.2	17.2	328670	9.2	21.1	296394	9.3	20.5	284952	9.4	20.3	165747	9.5	19.7	101827	9.5	18.4
243541	9.2	20.4	163594	9.2	19.3	252521	9.3	20.2	222358	9.4	19.1	415636	9.5	21.0	29334	9.5	16.9
401787	9.2	20.6	369319	9.2	21.0	485448	9.3	21.7	285911	9.4	19.6	281105	9.5	18.1	404731	9.5	21.2
427726	9.2	20.7	239715	9.2	19.5	220614	9.3	19.7	149968	9.4	19.9	256277	9.5	21.3	502419	9.5	21.1
69627	9.2	19.3	381307	9.2	20.4	473239	9.3	21.5	457027	9.4	20.3	193780	9.5	20.9	272298	9.5	20.4
461967	9.2	20.1	6716	9.2	16.9	229529	9.3	20.8	55611	9.4	18.4	10318	9.5	16.5	88272	9.5	18.9
257876	9.2	19.1	421088	9.2	20.7	51540	9.3	19.8	171942	9.4	20.1	286752	9.5	19.5	400148	9.5	19.8
81484	9.2	17.3	457050	9.2	20.6	289826	9.3	21.3	294627	9.4	19.8	131481	9.5	20.5	503707	9.5	20.9
455364	9.2	20.4	126054	9.3	19.5	209076	9.3	19.8	237280	9.4	19.2	391009	9.5	20.7	249571	9.5	19.6
131834	9.2	19.4	46744	9.3	18.0	403260	9.3	20.6	51918	9.4	18.7	95921	9.5	19.6	466949	9.5	20.9
8726	9.2	16.9	337945	9.3	18.7	252235	9.3	20.6	364300	9.4	20.5	10141	9.5	16.9	376835	9.5	19.7
187751	9.2	19.8	419067	9.3	20.4	408413	9.3	21.2	270021	9.4	20.1	440563	9.5	21.5	81283	9.5	18.4
456332	9.2	20.0	46993	9.3	17.5	144428	9.3	18.8	289100	9.4	20.3	418822	9.5	19.9	166006	9.5	19.5
442635	9.2	19.8	438035	9.3	21.2	227884	9.3	20.3	374310	9.4	21.2	88978	9.5	18.9			

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
356474	9.5	20.5	96598	9.6	17.5	319635	9.7	19.6	22795	9.7	18.4	296761	9.8	20.8	297848	9.9	18.8
416662	9.5	20.6	27471	9.6	18.8	421606	9.7	20.5	398492	9.7	20.8	301228	9.8	18.7	11058	9.9	17.4
85104	9.5	19.1	221137	9.6	21.0	493370	9.7	21.5	366947	9.7	21.6	331154	9.8	19.7	460762	9.9	20.4
236036	9.5	19.7	117426	9.6	18.5	41838	9.7	17.9	496399	9.7	21.7	325799	9.8	20.0	31481	9.9	18.9
246854	9.5	21.2	470413	9.6	21.3	3675	9.7	15.7	217426	9.7	20.0	451074	9.8	20.6	278423	9.9	21.6
425005	9.5	20.0	275414	9.6	19.3	291767	9.7	20.9	105940	9.8	18.5	499969	9.8	21.3	221282	9.9	20.0
142087	9.5	19.2	30000	9.6	17.7	237078	9.7	20.6	46686	9.8	18.3	317049	9.8	20.5	171107	9.9	19.9
175554	9.5	20.5	201184	9.6	20.0	90666	9.7	19.3	287385	9.8	20.5	422944	9.8	20.8	464623	9.9	22.3
186067	9.5	18.3	377206	9.6	20.0	173013	9.7	21.2	59960	9.8	19.8	167538	9.8	18.9	489837	9.9	21.9
382236	9.5	20.7	96716	9.6	18.9	295986	9.7	19.7	337102	9.8	21.1	494796	9.8	21.1	330411	9.9	20.3
405533	9.5	20.3	14995	9.6	17.3	245798	9.7	21.5	55534	9.8	19.2	264685	9.8	19.4	343667	9.9	20.8
9955	9.5	16.7	247197	9.6	20.7	279489	9.7	20.0	148365	9.8	20.0	485184	9.8	20.1	166197	9.9	20.6
100164	9.5	19.5	77484	9.6	18.9	146382	9.7	20.1	331743	9.8	20.5	457548	9.8	20.6	400372	9.9	20.6
149998	9.5	19.6	219868	9.6	19.9	41014	9.7	17.2	467986	9.8	20.9	26989	9.8	17.0	350304	9.9	20.8
370219	9.5	20.0	384196	9.6	20.4	61209	9.7	19.4	414954	9.8	20.3	426465	9.8	21.2	75728	9.9	18.8
414926	9.5	19.4	359387	9.6	20.8	422036	9.7	20.2	64141	9.8	18.7	353495	9.8	20.4	210157	9.9	20.8
75985	9.5	19.0	225888	9.6	19.2	147995	9.7	19.9	239220	9.8	21.2	439974	9.8	20.0	171107	9.9	19.2
281310	9.5	20.3	63989	9.6	17.5	162725	9.7	19.3	382686	9.8	20.8	288580	9.8	18.7	451871	9.9	21.5
470887	9.5	21.3	413571	9.6	20.8	242051	9.7	19.3	206280	9.8	18.8	255986	9.8	19.8	176670	9.9	19.9
163187	9.5	20.3	467888	9.6	20.7	219360	9.7	17.3	342835	9.8	19.1	217563	9.8	19.7	489269	9.9	21.8
492597	9.5	21.0	205270	9.6	19.3	325339	9.7	21.7	205809	9.8	20.1	500153	9.8	21.3	467597	9.9	20.8
192987	9.6	19.0	334199	9.6	20.5	351299	9.7	20.1	240809	9.8	19.7	87921	9.9	19.9	85479	9.9	19.1
432092	9.6	19.1	249933	9.6	19.3	349124	9.7	20.1	466203	9.8	22.1	483801	9.9	20.0	397365	9.9	19.8
458336	9.6	21.1	86011	9.6	19.0	354123	9.7	20.0	202053	9.8	20.4	522272	9.9	20.5	130454	9.9	18.6
282814	9.6	20.7	133084	9.6	20.5	26679	9.7	18.8	78198	9.8	18.6	104623	9.9	19.0	283620	9.9	19.6
12521	9.6	17.4	291753	9.6	20.9	467579	9.7	21.2	375123	9.8	19.9	238058	9.9	18.9	433919	9.9	20.4
321708	9.6	19.5	144633	9.6	18.1	325836	9.7	18.5	1891	9.8	16.1	261527	9.9	19.8	83164	9.9	18.7
57624	9.6	18.8	252293	9.6	21.4	364407	9.7	19.9	493515	9.8	21.1	50617	9.9	19.6	256897	9.9	19.0
241614	9.6	20.7	369309	9.6	20.5	492408	9.7	21.4	380040	9.8	20.6	49862	9.9	16.8	455130	9.9	20.5
186633	9.6	18.8	428920	9.6	20.8	391821	9.7	21.2	372499	9.8	21.3	468253	9.9	20.4	404787	9.9	23.2
63418	9.6	18.9	232779	9.6	20.5	424902	9.7	21.4	51967	9.8	16.9	368808	9.9	20.5	51349	9.9	18.7
258337	9.6	20.1	491083	9.6	20.3	267828	9.7	20.5	288938	9.8	20.2	240468	9.9	19.2	275316	9.9	20.5
188746	9.6	19.8	256307	9.6	19.9	138523	9.7	19.7	324012	9.8	21.4	320735	9.9	19.4	86991	9.9	19.5
291819	9.6	21.4	310898	9.6	19.1	128853	9.7	19.6	185892	9.8	20.3	13835	9.9	17.5	133949	9.9	18.7
55225	9.6	18.1	149305	9.6	21.3	422473	9.7	20.9	455252	9.8	20.4	427827	9.9	20.4	495085	9.9	20.9
522211	9.6	20.2	143302	9.6	18.8	204325	9.7	21.0	336462	9.8	19.5	460337	9.9	20.9	36768	9.9	19.4
147238	9.6	18.6	153511	9.6	19.7	115655	9.7	18.7	456269	9.8	21.2	279926	9.9	20.3	252602	9.9	18.7
236591	9.6	20.0	50852	9.6	18.2	244234	9.7	19.8	236913	9.8	19.8	253254	9.9	19.1	95328	9.9	19.1
405658	9.6	19.4	205240	9.6	20.0	308232	9.7	19.7	437316	9.8	17.3	445862	9.9	19.6	465828	9.9	20.9
321581	9.6	21.1	520048	9.6	21.3	181755	9.7	20.5	275515	9.8	20.3	205959	9.9	20.1	238330	9.9	19.5
462737	9.6	21.8	243124	9.6	19.8	341356	9.7	19.7	33632	9.8	17.8	15735	9.9	17.7	394378	9.9	21.3
158745	9.6	20.1	327393	9.6	20.5	348476	9.7	20.4	335654	9.8	20.3	116704	9.9	19.3	276612	9.9	19.5
101768	9.6	18.6	184101	9.6	20.4	149750	9.7	19.9	264034	9.8	21.4	172280	9.9	18.8	416876	9.9	20.9
184528	9.6	20.9	499958	9.6	22.5	192965	9.7	20.2	416263	9.8	19.9	271803	9.9	20.1	495458	9.9	19.9
345731	9.6	19.8	378846	9.6	21.1	8450	9.7	16.9	377079	9.8	19.6	493362	9.9	21.3	331661	9.9	21.8
487799	9.6	21.0	276861	9.6	20.9	79186	9.7	17.7	163506	9.8	18.7	14739	9.9	17.0	453022	9.9	20.5
487846	9.6	20.6	205854	9.6	20.1	67219	9.7	19.0	325792	9.8	19.9	360458	9.9	20.8	522027	9.9	20.5
396792	9.6	20.4	327360	9.6	19.9	492425	9.7	22.5	307749	9.8	20.9	457322	9.9	21.1	24058	9.9	17.6
234511	9.6	20.0	33846	9.6	19.6	421378	9.7	20.6	88998	9.8	19.2	215266	9.9	20.4	203911	9.9	19.6
246699	9.6	19.2	215228	9.6	20.0	235526	9.7	19.9	413421	9.8	21.0	49307	9.9	18.9	176944	9.9	19.4
395300	9.6	21.1	284995	9.6	20.8	43980	9.7	19.6	20086	9.8	23.8	414239	9.9	20.3	159795	9.9	20.0
487366	9.6	21.2	179030	9.6	20.4	197477	9.7	19.7	489755	9.8	20.1	419178	9.9	20.4	167036	9.9	20.4
122487	9.6	20.0	428898	9.7	20.4	265774	9.7	19.0	90304	9.8	19.7	43593	9.9	18.1	260846	9.9	20.0
5711	9.6	17.4	450315	9.7	19.5	351730	9.7	21.0	308667	9.8	18.6	22311	9.9	16.8	237416	9.9	20.5
266326	9.6	20.3	459110	9.7	20.1	503519	9.7	20.9	456962	9.8	20.2	301306	9.9	20.4	164415	9.9	20.6
223719	9.6	19.3	290393	9.7	20.4	207134	9.7	20.0	164203	9.8	19.2	276397	9.9	18.7	259236	9.9	19.7
445043	9.6	21.1	34202	9.7	17.9	55898	9.7	17.6	292948	9.8	20.7	190284	9.9	19.8	81331	9.9	18.6
209991	9.6	20.9	194162	9.7	19.9	10076	9.7	18.2	467479	9.8	21.0	393262	9.9	19.9	319777	9.9	20.7
347645	9.6	20.5	362127	9.7	21.3	50034	9.7	19.2	84787	9.8	18.3	348650	9.9	19.6	343850	9.9	20.5
310935	9.6	21.4	220649	9.7	20.4	413943	9.7	20.5	180697	9.8	19.6	181226	9.9	21.1	504302	9.9	21.9
318683	9.6	20.7	201993	9.7	18.8	58424	9.7	17.7	60064	9.8	18.4	122583	9.9	20.1	506084	9.9	20.8
321455	9.6	20.8	521937	9.7	21.4	421224	9.7	20.8	109844	9.8	19.4	281388	9.9	20.9	312354	9.9	20.5
450483	9.6	21.1	428467	9.7	21.3	90953	9.7	17.4	120464	9.8	20.0	90748	9.9	19.8	343532	9.9	20.7
148853	9.6	18.1	427164	9.7	19.8	76324	9.7	19.5	132797	9.8	19.7	363751	9.9	19.5	288998	9.9	19.6
82596	9.6	19.3	149176	9.7	17.8	425009	9.7	19.9	130986	9.8	19.0	200777	9.9	19.4	163556	9.9	18.8
376765	9.6	20.8	239443	9.7	20.1	234781	9.7	20.7	284161	9.8	20.7	335939	9.9	20.4	113785	9.9	19.2
305655	9.6	19.9	174319	9.7	20.4	456999	9.7	20.5	347248	9.8	21.6	124978	9.9	18.5	454276	9.9	22.2
63050	9.6	18.3	217566	9.7	20.1	269969	9.7	20.2	32425	9.8	17.7	50042	9.9	18.8	411440	9.9	21.1
417007	9.6	20.4	488737	9.7	21.4	327306	9.7	20.1	36549	9.8	19.4	458793	9.9	21.4	358050	9.9	20.9
7170	9.6	16.5	258309	9.7	20.3	357998	9.7	21.1	165893	9.8	20.3	354393	9.9	20.9	80520	9.9	17.4
453983	9.6	20.2	132270	9.7	20.4	150548	9.7	19.7	271874	9.8	20.7	78865	9.9	18.4	325		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
393311	9.9	20.1	419399	10.0	20.4	165399	10.1	19.3	458242	10.2	21.4	452559	10.2	20.7	294883	10.3	20.4
47714	9.9	19.3	33765	10.0	18.4	491062	10.1	21.6	39622	10.2	18.5	264592	10.2	19.5	412242	10.3	21.0
468233	9.9	20.6	28492	10.0	18.1	186909	10.1	20.2	152476	10.2	19.6	6685	10.2	17.9	442696	10.3	20.6
423125	9.9	19.7	394891	10.0	21.3	496502	10.1	20.6	3941	10.2	17.0	409530	10.2	20.2	65610	10.3	19.2
204420	9.9	19.0	98991	10.0	19.2	400153	10.1	20.0	378456	10.2	19.9	391777	10.2	21.2	158541	10.3	20.4
297499	9.9	19.7	51542	10.0	19.5	164473	10.1	20.6	360676	10.2	19.8	106865	10.2	19.0	36816	10.3	16.9
457109	9.9	20.8	447265	10.0	21.9	58927	10.1	19.1	145703	10.2	19.6	152684	10.2	20.1	415202	10.3	20.3
29985	9.9	17.3	425374	10.0	20.6	23636	10.1	17.2	171179	10.2	20.2	149441	10.2	19.7	182526	10.3	20.3
241650	9.9	19.7	288631	10.0	21.7	83633	10.1	19.3	235675	10.2	20.1	226114	10.2	20.2	331508	10.3	19.8
392283	9.9	19.4	493703	10.0	21.9	179327	10.1	20.9	205912	10.2	20.5	304081	10.2	20.8	68076	10.3	18.7
408647	9.9	21.8	58583	10.0	17.8	7848	10.1	18.5	194111	10.2	21.9	324551	10.2	20.4	196269	10.3	19.1
333789	9.9	19.4	464356	10.0	20.0	194091	10.1	21.2	11671	10.2	17.8	518457	10.2	21.3	279079	10.3	20.6
116763	9.9	20.9	110727	10.0	19.7	445898	10.1	20.7	180846	10.2	19.9	8043	10.2	16.6	276348	10.3	20.5
314737	9.9	20.7	158232	10.0	20.4	62736	10.1	19.1	377244	10.2	20.3	194857	10.2	17.7	156059	10.3	19.8
30514	9.9	19.2	373664	10.0	20.4	397452	10.1	21.8	56493	10.2	18.5	280788	10.2	20.1	155453	10.3	19.6
311704	9.9	19.5	502486	10.1	20.7	304845	10.1	20.7	194894	10.2	19.7	329652	10.2	20.7	376405	10.3	20.7
453811	9.9	22.0	385130	10.1	20.6	116398	10.1	18.9	15538	10.2	17.6	394461	10.2	21.2	381618	10.3	20.6
145677	9.9	19.9	141744	10.1	18.6	282508	10.1	20.5	234149	10.2	20.7	422628	10.2	20.9	34954	10.3	18.6
321518	9.9	20.9	414899	10.1	20.1	309291	10.1	20.4	372446	10.2	20.8	461759	10.2	21.4	300258	10.3	21.7
343124	9.9	20.4	231501	10.1	18.9	341860	10.1	20.7	219699	10.2	18.7	145781	10.2	18.6	48784	10.3	17.6
518879	9.9	21.6	109726	10.1	20.3	160120	10.1	19.7	376375	10.2	20.4	155519	10.2	20.7	257545	10.3	22.6
293585	9.9	20.9	458709	10.1	20.7	345631	10.1	21.1	178615	10.2	19.8	31558	10.2	18.0	122155	10.3	20.0
443869	9.9	21.1	439893	10.1	19.9	9602	10.1	17.6	287789	10.2	21.6	264746	10.2	19.1	502554	10.3	21.6
374585	9.9	20.1	285558	10.1	20.7	493118	10.1	21.5	180465	10.2	19.3	105190	10.2	18.9	460579	10.3	20.6
416005	9.9	19.9	367979	10.1	20.0	165775	10.1	20.3	462361	10.2	21.3	192058	10.2	20.3	189100	10.3	19.8
120127	9.9	19.3	190685	10.1	19.8	502221	10.1	20.6	464205	10.2	19.8	111184	10.2	20.1	26895	10.3	17.9
381	9.9	13.3	331710	10.1	20.2	379023	10.1	20.7	410448	10.2	20.0	100426	10.2	18.7	408805	10.3	19.9
159601	9.9	19.2	519904	10.1	21.2	493663	10.1	20.9	432121	10.2	20.5	419979	10.2	20.3	338897	10.3	20.9
459705	9.9	21.8	445923	10.1	19.7	296897	10.1	19.7	32181	10.2	18.3	454371	10.2	21.8	375434	10.3	20.9
458307	9.9	20.2	185643	10.1	19.8	152190	10.1	19.4	379799	10.2	20.0	121269	10.2	19.3	212084	10.3	21.2
326439	9.9	20.0	184091	10.1	19.7	203586	10.1	19.5	107789	10.2	19.3	180856	10.3	20.5	73646	10.3	18.3
258576	9.9	19.0	280689	10.1	19.9	176863	10.1	18.7	164149	10.2	19.3	445085	10.3	19.9	421818	10.3	20.9
30094	9.9	18.3	375052	10.1	20.7	422118	10.1	21.5	274198	10.2	20.4	502312	10.3	21.1	285072	10.3	20.8
7216	10.0	17.8	103899	10.1	19.3	403665	10.1	21.7	359234	10.2	20.8	481884	10.3	19.6	377248	10.3	20.6
439914	10.0	21.3	193290	10.1	20.0	221232	10.1	20.2	414478	10.2	20.6	311041	10.3	19.3	110784	10.3	18.8
486027	10.0	21.4	252771	10.1	20.9	375061	10.1	19.8	444175	10.2	21.4	430193	10.3	20.4	132846	10.3	20.1
8045	10.0	15.6	273043	10.1	20.6	460584	10.1	20.8	272700	10.2	20.8	115596	10.3	18.4	194009	10.3	20.3
163267	10.0	19.6	36525	10.1	19.0	156068	10.1	19.8	423127	10.2	20.3	17396	10.3	18.8	79894	10.3	19.0
337878	10.0	20.4	459109	10.1	20.8	363146	10.1	19.9	75989	10.2	18.1	466763	10.3	20.8	234502	10.3	20.7
220624	10.0	19.8	136097	10.1	18.3	427075	10.1	20.3	245991	10.2	20.6	398313	10.3	20.7	216289	10.3	19.1
458190	10.0	21.0	321684	10.1	20.8	199826	10.1	21.4	319814	10.2	20.4	447102	10.3	20.7	321632	10.3	19.9
85708	10.0	17.7	34008	10.1	19.0	280433	10.1	19.8	373802	10.2	20.0	203086	10.3	19.6	190173	10.3	19.8
132867	10.0	19.9	462031	10.1	19.8	76842	10.1	17.5	126261	10.2	19.8	493860	10.3	21.3	202673	10.3	21.0
341301	10.0	20.6	143405	10.1	18.1	490177	10.1	21.4	354950	10.2	20.4	492011	10.3	21.5	502507	10.3	20.6
258107	10.0	21.0	216245	10.1	20.5	362563	10.1	20.6	69568	10.2	18.2	460810	10.3	20.8	521942	10.3	21.3
133301	10.0	18.9	68778	10.1	18.4	337520	10.1	20.2	260923	10.2	19.9	14538	10.3	18.4	496208	10.3	22.0
105709	10.0	18.5	375108	10.1	20.9	124193	10.1	19.2	421385	10.2	19.8	472964	10.3	20.1	326078	10.3	20.4
54424	10.0	18.9	138736	10.1	20.0	362133	10.1	20.4	22352	10.2	17.7	26361	10.3	15.9	84305	10.3	18.9
402447	10.0	19.9	61223	10.1	19.0	54508	10.1	18.1	51099	10.2	19.5	452992	10.3	22.1	104751	10.3	19.9
9287	10.0	18.2	126259	10.1	19.5	446010	10.1	19.8	453176	10.2	20.3	453786	10.3	21.8	403077	10.3	19.4
97879	10.0	19.8	251140	10.1	20.1	68529	10.1	19.6	495497	10.2	20.9	460512	10.3	21.2	277876	10.3	20.6
8637	10.0	17.0	153632	10.1	19.9	349940	10.1	19.7	488613	10.2	21.7	127570	10.3	18.4	370479	10.3	20.4
499628	10.0	21.1	133809	10.1	18.4	95206	10.1	19.0	364395	10.2	20.9	281142	10.3	19.9	351214	10.3	20.2
243141	10.0	19.6	349249	10.1	20.2	45898	10.1	16.1	50418	10.2	17.5	337033	10.3	21.3	213655	10.3	20.6
343512	10.0	20.9	201426	10.1	19.5	363894	10.1	20.4	494878	10.2	21.0	410732	10.3	22.1	493095	10.3	21.4
330428	10.0	19.7	79477	10.1	17.9	92771	10.1	19.5	414945	10.2	20.2	112653	10.3	19.5	86608	10.3	19.1
455594	10.0	22.7	193855	10.1	20.4	32905	10.1	19.8	168372	10.2	19.7	496263	10.3	21.1	192023	10.3	20.8
282826	10.0	20.9	165682	10.1	19.1	483029	10.1	20.7	83779	10.2	19.3	154557	10.3	20.0	297863	10.4	19.7
275110	10.0	19.5	468356	10.1	22.1	82123	10.1	18.7	166896	10.2	19.5	456582	10.3	21.7	170340	10.4	18.9
301577	10.0	20.6	461054	10.1	20.5	254719	10.1	19.4	431573	10.2	20.9	205860	10.3	20.0	223696	10.4	20.6
496647	10.0	20.5	237498	10.1	19.9	522535	10.1	20.6	41011	10.2	19.0	167164	10.3	20.8	177499	10.4	19.5
135236	10.0	19.5	422135	10.1	20.7	390851	10.1	21.6	458756	10.2	21.2	167129	10.3	21.0	35769	10.4	19.2
63424	10.0	19.8	414246	10.1	20.6	410006	10.1	20.2	210772	10.2	18.8	426023	10.3	21.3	459188	10.4	21.5
235091	10.0	20.9	358685	10.1	20.2	376614	10.1	21.2	41307	10.2	19.6	16387	10.3	18.1	247595	10.4	19.5
120911	10.0	19.8	18011	10.1	19.0	251994	10.1	19.9	236866	10.2	19.7	83769	10.3	19.3	383783	10.4	19.7
410048	10.0	19.2	406080	10.1	21.3	17837	10.1	18.6	258045	10.2	20.4	252386	10.3	20.6	100348	10.4	19.6
246614	10.0	21.0	19529	10.1	18.5	47855	10.1	18.3	276395	10.2	19.9	278310	10.3	19.7	232394	10.4	19.3
82008	10.0	19.8	258549	10.1	18.9	165418	10.1	18.3	20442	10.2	17.9	262721	10.3	20.4	306343	10.4	20.7
174856	10.0	19.5	492520	10.1	21.5	464108	10.1	20.7	308746	10.2	21.1						

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
240530	10.4	20.4	473487	10.4	19.9	377552	10.5	19.9	399613	10.6	19.4	171936	10.7	20.5	427794	10.7	20.0
99246	10.4	19.3	403014	10.4	19.7	134878	10.5	19.7	427800	10.6	21.3	25168	10.7	19.1	468261	10.7	20.2
145630	10.4	19.4	240488	10.4	19.6	75911	10.5	18.3	375384	10.6	20.8	2128	10.7	19.1	109723	10.7	19.7
381323	10.4	20.0	149251	10.4	18.4	79117	10.5	19.7	277948	10.6	20.1	369395	10.7	21.0	147259	10.7	20.3
251102	10.4	21.0	327368	10.4	20.3	179088	10.5	20.8	456996	10.6	20.8	239378	10.7	21.0	490038	10.7	21.1
161797	10.4	18.9	189180	10.4	19.0	316263	10.5	20.2	323762	10.6	20.5	113631	10.7	18.9	130207	10.7	18.5
364309	10.4	21.4	327976	10.4	20.9	415457	10.5	21.3	412790	10.6	21.7	451714	10.7	19.9	31536	10.7	19.5
266419	10.4	20.3	210807	10.4	20.8	8768	10.5	16.2	351262	10.6	20.6	417231	10.7	21.0	90479	10.7	18.4
393220	10.4	20.3	85026	10.5	19.8	424205	10.5	20.6	218645	10.6	20.1	55916	10.7	19.0	355998	10.7	21.0
87021	10.4	19.9	110679	10.5	19.6	214088	10.5	16.6	192	10.6	10.1	88197	10.7	18.8	453896	10.7	20.2
302911	10.4	20.3	110597	10.5	19.6	300284	10.5	21.4	348533	10.6	19.6	425063	10.7	21.5	276609	10.7	21.0
172565	10.4	21.1	305903	10.5	19.5	406104	10.5	20.7	35076	10.6	17.6	183573	10.7	20.8	399365	10.7	19.7
197290	10.4	19.5	98727	10.5	18.3	417706	10.5	21.0	32234	10.6	18.0	145926	10.7	19.9	242822	10.7	20.3
136006	10.4	20.3	384151	10.5	20.5	22283	10.5	18.0	334594	10.6	19.7	463226	10.7	21.5	74443	10.7	17.6
165549	10.4	19.3	477927	10.5	19.6	218634	10.5	19.5	29177	10.6	18.2	435811	10.7	19.7	109682	10.7	19.7
327451	10.4	20.8	456232	10.5	20.1	433326	10.5	20.4	495400	10.6	20.0	329836	10.7	20.0	492519	10.7	22.5
454396	10.4	20.7	485381	10.5	20.2	139760	10.5	18.8	152203	10.6	19.9	384945	10.7	21.3	100997	10.7	19.4
385402	10.4	23.9	314740	10.5	19.4	248564	10.5	20.3	323115	10.6	19.3	466490	10.7	21.4	253949	10.7	20.1
198174	10.4	20.3	19016	10.5	17.9	217601	10.5	20.3	32338	10.6	18.3	76642	10.7	18.8	113488	10.7	19.9
61707	10.4	19.9	110702	10.5	17.4	120868	10.5	20.2	32080	10.6	18.3	222887	10.7	19.0	199405	10.7	19.9
257396	10.4	19.9	283908	10.5	19.3	283002	10.5	21.0	34449	10.6	19.7	365702	10.7	21.0	463071	10.7	22.2
30964	10.4	18.1	238870	10.5	19.2	379961	10.5	20.5	17508	10.6	18.9	40691	10.7	19.4	123818	10.7	19.4
502524	10.4	21.0	19076	10.5	18.3	15260	10.5	18.5	189714	10.6	20.2	168395	10.7	19.9	489574	10.7	20.8
406185	10.4	19.5	315651	10.5	20.3	425468	10.5	19.7	131575	10.6	17.8	26348	10.7	17.1	466823	10.7	21.5
3163	10.4	18.3	409489	10.5	20.3	123281	10.5	19.0	363095	10.6	20.5	464263	10.7	20.7	235652	10.7	19.6
199008	10.4	19.2	351219	10.5	20.1	14748	10.5	17.7	301625	10.6	21.1	413530	10.7	20.5	146061	10.7	21.1
227340	10.4	19.9	244551	10.5	18.9	238604	10.5	19.7	270929	10.6	20.9	189645	10.7	20.2	453031	10.7	20.5
56915	10.4	19.1	256977	10.5	19.9	233774	10.5	19.8	363156	10.6	22.2	429929	10.7	21.6	132069	10.7	19.4
24617	10.4	18.4	295202	10.5	20.3	483544	10.5	20.2	193999	10.6	19.6	302890	10.7	20.4	466940	10.8	19.1
24489	10.4	18.3	405378	10.5	21.1	405378	10.5	20.4	65378	10.6	18.1	52818	10.7	19.1	426263	10.8	20.3
230686	10.4	19.8	296509	10.5	21.3	50792	10.5	18.3	450550	10.6	20.4	15285	10.7	18.2	304840	10.8	21.2
393189	10.4	20.4	287622	10.5	20.1	114026	10.5	19.8	463682	10.6	19.7	340574	10.7	21.6	6935	10.8	17.3
369374	10.4	21.3	8255	10.5	17.8	416778	10.5	19.7	3514	10.6	17.4	62810	10.7	19.0	307829	10.8	18.2
455535	10.4	20.3	14721	10.5	17.2	331613	10.5	19.1	427226	10.6	20.0	355282	10.7	20.0	181372	10.8	18.7
452241	10.4	20.2	522501	10.5	21.6	232272	10.5	20.2	484995	10.6	21.4	27351	10.7	17.8	459742	10.8	21.1
357233	10.4	21.9	259151	10.5	19.9	466044	10.5	21.9	123239	10.6	19.1	66338	10.7	19.8	171992	10.8	20.5
296953	10.4	19.6	464747	10.5	21.0	87967	10.5	18.6	327317	10.6	20.6	306274	10.7	20.8	392245	10.8	21.0
209644	10.4	18.9	381662	10.5	19.6	64776	10.6	19.1	7366	10.6	16.6	492034	10.7	21.3	378407	10.8	19.8
206957	10.4	19.4	297429	10.5	21.0	67401	10.6	18.4	146072	10.6	20.1	131518	10.7	19.2	306502	10.8	19.5
244315	10.4	19.6	462928	10.5	20.3	427204	10.6	20.2	419841	10.6	20.1	49433	10.7	18.0	148589	10.8	18.7
285716	10.4	20.0	73425	10.5	19.3	334268	10.6	20.1	161104	10.6	19.6	171412	10.7	18.9	175995	10.8	20.6
209633	10.4	19.8	427673	10.5	20.8	336947	10.6	20.0	131957	10.6	19.6	430510	10.7	19.9	225108	10.8	20.6
66219	10.4	18.3	287714	10.5	21.1	378365	10.6	20.6	265728	10.6	19.7	328412	10.7	21.2	236321	10.8	19.7
5268	10.4	17.7	255833	10.5	21.6	201967	10.6	21.2	216843	10.6	19.6	379111	10.7	19.0	169318	10.8	20.5
204698	10.4	19.9	297891	10.5	20.6	49422	10.6	17.8	458245	10.6	21.0	217422	10.7	19.4	325986	10.8	20.1
245643	10.4	20.6	473544	10.5	21.3	136759	10.6	19.4	4349	10.6	15.2	466042	10.7	21.3	335950	10.8	20.6
63595	10.4	18.7	289343	10.5	20.0	349141	10.6	19.6	35275	10.6	19.9	341433	10.7	22.2	281747	10.8	19.6
409492	10.4	20.1	233796	10.5	20.3	73775	10.6	18.6	362630	10.6	20.0	78451	10.7	18.5	344332	10.8	17.4
185263	10.4	20.2	121137	10.5	19.4	495826	10.6	20.1	228038	10.6	21.4	57178	10.7	18.6	503080	10.8	20.7
201192	10.4	20.2	110187	10.5	20.0	368603	10.6	22.2	56181	10.6	17.8	369286	10.7	20.5	81608	10.8	19.5
87428	10.4	17.7	228026	10.5	20.3	178741	10.6	21.3	460266	10.6	21.0	263858	10.7	20.6	92703	10.8	18.7
502733	10.4	22.0	207844	10.5	20.6	427272	10.6	20.9	203554	10.6	19.3	35841	10.7	19.0	457054	10.8	21.2
59185	10.4	18.9	327954	10.5	21.1	34056	10.6	19.0	166853	10.6	19.3	152324	10.7	19.8	256408	10.8	18.7
413628	10.4	19.9	18213	10.5	17.6	430271	10.6	19.8	523186	10.6	21.4	376506	10.7	21.6	262865	10.8	20.2
430319	10.4	20.1	408672	10.5	21.1	170325	10.6	20.4	458371	10.6	20.7	125983	10.7	19.7	183331	10.8	19.0
462236	10.4	20.3	206347	10.5	20.8	372477	10.6	20.8	197801	10.6	21.1	158308	10.7	19.0	488752	10.8	22.9
163170	10.4	19.7	320827	10.5	20.8	151952	10.6	20.7	507315	10.6	21.4	91573	10.7	20.6	151634	10.8	19.6
258540	10.4	18.5	113829	10.5	18.8	178281	10.6	20.6	50371	10.6	18.2	217999	10.7	19.3	111369	10.8	20.1
47576	10.4	18.6	82081	10.5	18.6	168969	10.6	19.0	437596	10.6	20.7	2303	10.7	15.6	450340	10.8	20.4
52693	10.4	18.6	277809	10.5	20.6	499978	10.6	21.6	290741	10.6	20.5	98002	10.7	19.9	323518	10.8	20.4
263034	10.4	20.6	169232	10.5	19.4	113669	10.6	19.5	454965	10.6	21.2	248657	10.7	20.5	251079	10.8	19.6
346199	10.4	19.9	427084	10.5	20.3	461924	10.6	20.9	402572	10.6	21.9	364363	10.7	22.5	491876	10.8	20.4
89654	10.4	18.8	157101	10.5	19.3	16745	10.6	18.4	216981	10.6	19.5	293072	10.7	20.8	265851	10.8	19.8
44714	10.4	18.2	178383	10.5	20.2	40289	10.6	18.5	50125	10.6	18.0	359095	10.7	19.6	315488	10.8	20.2
57002	10.4	19.4	361571	10.5	19.9	467807	10.6	20.9	91461	10.6	19.9	185413	10.7	20.8	481516	10.8	19.9
327022	10.4	20.4	250168	10.5	21.1	142560	10.6	17.9	424775	10.6	20.7	29658	10.7	18.1	65092	10.8	19.1
334558	10.4	20.2	460559	10.5	20.3	467710	10.6	20.3	246656	10.6	19.6	420915	10.7	19.2	258050	10.8	21.0
117454	10.4	19.8	308669	10.5	20.9	283239	10.6	20.3	85315	10.6	18.2	365242	10.7	21.6	327908	10.8	20.1
489586	10.4	20.9	101144	10.5	19.3	425493	10.6	21.2	40								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
381231	10.8	20.0	114514	10.9	18.5	38790	10.9	17.2	338979	11.0	20.9	375077	11.1	19.6	389351	11.1	20.0
94977	10.8	18.7	340731	10.9	20.1	349777	10.9	20.2	417450	11.0	21.4	368561	11.1	19.6	421956	11.1	20.9
328331	10.8	20.6	397033	10.9	20.5	421924	10.9	21.5	394806	11.0	20.8	219797	11.1	19.6	465458	11.1	20.9
373872	10.8	20.2	197127	10.9	19.1	20897	10.9	18.4	256872	11.0	19.7	43793	11.1	18.4	86805	11.1	20.3
378981	10.8	20.5	262585	10.9	20.9	304047	10.9	21.4	336466	11.0	18.9	184798	11.1	21.3	148714	11.1	19.3
87750	10.8	20.2	119376	10.9	19.0	274373	10.9	20.0	206806	11.0	19.8	169308	11.1	20.4	411220	11.1	20.8
109703	10.8	19.5	8765	10.9	17.8	110117	10.9	18.8	306923	11.0	19.7	417149	11.1	21.2	143032	11.1	18.7
424975	10.8	19.4	183880	10.9	20.0	488761	10.9	21.6	162651	11.0	20.3	371223	11.1	21.3	512190	11.1	20.8
381321	10.8	20.7	198985	10.9	20.3	122199	10.9	20.6	209860	11.0	20.6	89231	11.1	19.5	11267	11.1	18.0
127231	10.8	18.9	482766	10.9	22.6	297100	10.9	21.5	276236	11.0	19.8	161466	11.1	19.2	319093	11.1	20.1
241162	10.8	21.4	170957	10.9	19.2	519493	10.9	20.7	176209	11.0	20.0	63521	11.1	17.6	217877	11.1	19.9
457032	10.8	20.7	416978	10.9	19.7	365161	10.9	20.7	113926	11.0	18.9	78868	11.1	19.0	105635	11.2	19.5
443919	10.8	22.0	317010	10.9	20.4	455345	10.9	21.1	65716	11.0	17.5	325570	11.1	20.3	298910	11.2	21.0
37929	10.8	19.2	202369	10.9	19.9	343513	10.9	20.5	441622	11.0	21.0	6391	11.1	16.3	34146	11.2	18.9
191955	10.8	20.6	491950	10.9	20.1	457818	10.9	21.3	886	11.0	14.0	508444	11.1	23.5	166831	11.2	19.9
113477	10.8	18.9	164641	10.9	20.1	337547	10.9	20.7	104127	11.0	19.6	503533	11.1	21.5	466208	11.2	21.1
376421	10.8	21.5	39277	10.9	18.7	226175	10.9	19.6	460293	11.0	21.3	165848	11.1	19.3	380028	11.2	21.1
363196	10.8	21.7	158493	10.9	19.5	376570	10.9	20.5	495042	11.0	21.2	94906	11.1	18.7	490683	11.2	22.9
455500	10.8	20.7	8610	10.9	15.8	190183	10.9	20.4	26074	11.0	16.2	487434	11.1	21.8	107364	11.2	19.8
461116	10.8	20.6	122703	10.9	19.2	148716	10.9	18.9	275771	11.0	20.3	39719	11.1	18.6	88705	11.2	19.0
325291	10.8	21.1	240054	10.9	18.5	125511	10.9	19.4	169633	11.0	20.2	341623	11.1	20.1	440425	11.2	19.8
258077	10.8	20.7	111152	10.9	19.8	214736	10.9	20.6	412807	11.0	22.0	489549	11.1	20.8	460204	11.2	21.2
286776	10.8	19.9	322381	10.9	20.5	450026	10.9	21.4	264723	11.0	19.9	125664	11.1	19.0	13602	11.2	17.8
278428	10.8	20.9	192294	10.9	19.0	62444	10.9	19.8	204997	11.0	19.7	296618	11.1	21.1	53790	11.2	18.3
124163	10.8	19.9	25308	10.9	17.5	137187	10.9	20.2	358341	11.0	20.7	523506	11.1	20.8	359185	11.2	20.1
296970	10.8	21.6	153987	10.9	19.1	380241	10.9	19.9	267451	11.0	20.5	85606	11.1	19.5	27007	11.2	19.5
363373	10.8	20.1	193933	10.9	20.4	413983	10.9	20.7	252456	11.0	19.7	468589	11.1	20.5	147198	11.2	19.2
234913	10.8	19.9	82463	10.9	18.3	414844	10.9	21.3	370636	11.0	19.0	379459	11.1	20.5	327947	11.2	20.8
440019	10.8	21.2	28797	10.9	19.0	404635	10.9	21.3	240874	11.0	20.7	520639	11.1	20.0	112868	11.2	20.1
382364	10.8	20.5	151275	10.9	19.6	505773	10.9	20.2	21827	11.0	18.3	425453	11.1	20.5	168363	11.2	20.5
39155	10.8	18.5	354142	10.9	20.2	218284	10.9	19.5	336388	11.0	21.0	33641	11.1	17.8	226059	11.2	20.2
415469	10.8	20.5	11498	10.9	18.5	165477	10.9	19.0	249166	11.0	19.9	449572	11.1	21.3	194757	11.2	19.3
417790	10.8	20.3	30604	10.9	19.2	489264	10.9	20.9	351691	11.0	20.8	136486	11.1	19.7	473815	11.2	20.4
381673	10.8	20.0	456514	10.9	20.7	79087	10.9	17.7	184785	11.0	20.9	403061	11.1	20.3	485024	11.2	20.9
462331	10.8	22.0	416838	10.9	21.9	450296	10.9	21.5	332582	11.0	20.6	461592	11.1	21.5	153061	11.2	18.8
406025	10.8	21.1	164346	10.9	20.3	452489	10.9	20.3	433936	11.0	21.1	427717	11.1	20.5	369656	11.2	19.7
333045	10.8	19.7	424702	10.9	20.2	406718	10.9	20.7	30662	11.0	17.6	400862	11.1	22.2	343546	11.2	21.0
49595	10.8	18.3	31124	10.9	18.3	441600	10.9	21.3	359085	11.0	20.0	459372	11.1	21.4	76727	11.2	18.8
452304	10.8	21.6	235009	10.9	20.5	260538	10.9	21.4	144421	11.0	19.8	411323	11.1	21.0	322000	11.2	20.3
409425	10.8	20.2	393424	10.9	20.5	221343	10.9	19.1	233210	11.0	20.0	238029	11.1	19.6	314214	11.2	21.2
76370	10.8	18.9	412328	10.9	20.6	347323	10.9	20.9	193044	11.0	20.6	461769	11.1	19.7	354391	11.2	20.9
363123	10.8	20.4	140705	10.9	19.4	202070	10.9	20.3	159339	11.0	20.5	512283	11.1	20.9	495233	11.2	20.9
316451	10.8	20.4	29944	10.9	18.8	428712	10.9	20.4	205894	11.0	18.6	181485	11.1	20.1	341876	11.2	21.4
12468	10.8	17.5	200862	10.9	19.5	378424	10.9	20.0	343223	11.0	20.6	57329	11.1	18.6	204129	11.2	19.5
356351	10.8	19.3	304083	10.9	21.1	59159	10.9	18.3	486138	11.0	20.7	394397	11.1	22.1	109990	11.2	19.8
39239	10.8	18.2	220552	10.9	20.8	271284	10.9	20.0	400264	11.0	22.0	334593	11.1	20.3	105131	11.2	18.9
368422	10.8	20.5	8333	10.9	17.2	168247	10.9	20.5	20129	11.0	17.3	236042	11.1	19.8	150024	11.2	19.4
45624	10.8	18.9	278935	10.9	20.4	266673	10.9	19.7	289045	11.0	19.4	335891	11.1	19.7	204359	11.2	19.2
108019	10.8	19.6	6932	10.9	17.9	284143	10.9	20.2	22691	11.1	17.1	68281	11.1	18.8	217236	11.2	20.5
451413	10.8	21.9	318067	10.9	20.7	104436	10.9	18.8	115977	11.1	19.6	429760	11.1	20.3	238695	11.2	20.0
152343	10.8	19.5	425418	10.9	20.8	217891	10.9	21.0	108996	11.1	20.2	377282	11.1	19.7	488967	11.2	22.1
749	10.8	15.0	101485	10.9	21.0	1077	10.9	15.5	238066	11.1	20.0	94822	11.1	19.2	279455	11.2	19.3
297005	10.8	20.9	413501	10.9	21.0	354916	10.9	20.8	228403	11.1	19.5	405609	11.1	19.4	447323	11.2	19.7
200732	10.8	19.9	486077	10.9	21.4	284086	10.9	21.0	136548	11.1	19.8	276272	11.1	20.4	442697	11.2	20.5
50975	10.8	18.6	519187	10.9	21.2	428401	10.9	20.1	76938	11.1	19.0	132034	11.1	19.4	333318	11.2	20.0
90889	10.8	18.9	376664	10.9	21.0	82348	10.9	18.0	425052	11.1	21.5	345116	11.1	21.2	254668	11.2	20.9
450139	10.8	20.3	177495	10.9	20.6	103051	10.9	18.9	372087	11.1	20.9	292548	11.1	20.6	405932	11.2	20.2
338114	10.8	20.1	325313	10.9	20.6	142318	10.9	19.6	151164	11.1	19.5	465579	11.1	20.3	463530	11.2	21.7
34634	10.8	18.7	206285	10.9	18.5	256353	10.9	18.3	38145	11.1	18.8	369088	11.1	21.3	357194	11.2	20.6
429927	10.8	21.0	233477	10.9	20.0	252241	10.9	19.9	334970	11.1	19.9	38407	11.1	18.8	99179	11.2	18.5
179666	10.8	20.9	418593	10.9	21.0	252281	10.9	20.5	419155	11.1	20.2	172393	11.1	19.4	493896	11.2	20.8
295737	10.8	20.5	125728	10.9	19.3	138772	10.9	20.3	29540	11.1	18.4	145268	11.1	21.0	274328	11.2	20.3
366885	10.9	20.2	52293	10.9	17.5	27543	10.9	17.8	447283	11.1	20.3	405680	11.1	20.7	337736	11.2	21.5
278410	10.9	20.4	165836	10.9	19.2	301240	10.9	19.8	208264	11.1	19.0	495034	11.1	20.4	178454	11.2	20.8
488582	10.9	23.2	377010	10.9	20.6	148821	10.9	20.2	447239	11.1	20.9	329613	11.1	19.6	462165	11.2	21.5
265677	10.9	19.8	6282	10.9	16.1	72052	10.9	18.9	123023	11.1	18.6	155260	11.1	19.9	131219	11.2	19.7
151227	10.9	19.1	170409	10.9	19.9	234158	10.9	20.1	486631	11.1	21.4	503718	11.1	20.5	88430	11.2	19.7
154880	10.9	20.2	450715	10.9	21.0	381646	10.9	19.8	375131	11.1	20.0	212050	11.1	20.4	343025	11.2	20.8
325135	10.9	20.1	108486	10.9	19.0	144648	1										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
104845	11.2	19.4	488322	11.3	20.0	33261	11.4	18.1	313855	11.4	19.8	52721	11.5	18.6	199221	11.5	20.2
16203	11.2	18.7	492286	11.3	20.8	373973	11.4	19.8	301716	11.4	20.4	253100	11.5	20.7	410443	11.5	21.2
18866	11.2	17.7	64987	11.3	19.3	143069	11.4	19.8	489137	11.4	21.5	327239	11.5	19.8	31109	11.6	18.7
7233	11.2	16.5	451445	11.3	20.2	378969	11.4	19.9	394860	11.4	22.2	302900	11.5	19.8	230841	11.6	20.9
85605	11.2	19.5	456358	11.3	20.3	279412	11.4	20.7	410324	11.4	20.9	3440	11.5	16.9	48244	11.6	18.2
63542	11.2	17.9	457130	11.3	21.4	104984	11.4	19.3	129608	11.4	19.0	256215	11.5	20.6	455543	11.6	21.0
424332	11.2	21.2	462004	11.3	20.3	324673	11.4	20.9	94709	11.4	19.9	322063	11.5	20.5	323746	11.6	19.7
408849	11.2	20.7	50161	11.3	16.6	462099	11.4	20.5	279005	11.4	20.5	171200	11.5	19.6	53102	11.6	17.6
18395	11.2	17.4	456788	11.3	20.5	200560	11.4	18.3	192433	11.4	19.1	90551	11.5	19.6	258397	11.6	18.7
191001	11.2	18.1	323995	11.3	19.9	429294	11.4	21.2	138185	11.4	19.0	217782	11.5	20.5	180611	11.6	20.1
520794	11.2	21.3	462852	11.3	20.2	275777	11.4	21.4	201887	11.4	19.5	485040	11.5	19.7	463641	11.6	20.8
190538	11.2	19.1	377121	11.3	18.8	372998	11.4	21.1	281884	11.4	20.9	287479	11.5	19.6	269352	11.6	20.4
260967	11.2	18.8	246083	11.3	17.9	17948	11.4	17.9	353817	11.4	20.4	391445	11.5	21.6	405963	11.6	21.1
269331	11.2	19.8	495783	11.3	20.5	48300	11.4	17.6	428447	11.4	20.7	181177	11.5	19.4	350619	11.6	18.9
33921	11.2	18.3	240184	11.3	19.4	372004	11.4	22.0	122947	11.4	19.5	324445	11.5	19.8	447061	11.6	20.5
110905	11.2	19.8	464260	11.3	20.1	381279	11.4	20.0	454366	11.4	20.7	50141	11.5	18.1	426028	11.6	21.0
8659	11.2	17.4	75896	11.3	18.7	380094	11.4	20.5	93495	11.4	18.0	333067	11.5	20.2	115598	11.6	18.8
203914	11.2	20.2	305588	11.3	20.3	114096	11.4	20.0	381659	11.4	19.5	488689	11.5	20.9	248869	11.6	21.0
402569	11.2	21.5	53143	11.3	18.2	499474	11.4	22.7	439982	11.4	20.4	74497	11.5	18.2	48487	11.6	17.8
136561	11.2	19.4	85948	11.3	20.1	444197	11.4	22.2	381670	11.4	20.7	432827	11.5	20.8	131772	11.6	18.4
86551	11.2	19.2	380951	11.3	21.0	461969	11.4	20.2	150998	11.4	18.5	91254	11.5	18.5	345522	11.6	20.6
307720	11.2	20.3	162179	11.3	20.5	131389	11.4	19.3	455966	11.4	21.3	402726	11.5	19.8	194668	11.6	18.6
188583	11.2	21.4	125709	11.3	17.6	104942	11.4	19.7	461112	11.4	21.1	425702	11.5	20.8	190119	11.6	18.5
273308	11.2	20.9	213590	11.3	20.0	498282	11.4	21.3	455961	11.4	20.3	327938	11.5	21.4	307685	11.6	20.4
325238	11.2	20.6	77527	11.3	19.0	405561	11.4	21.1	145181	11.4	20.3	67971	11.5	18.7	34859	11.6	17.8
83229	11.2	18.8	412524	11.3	21.4	47225	11.4	19.2	300360	11.4	19.8	457163	11.5	20.3	319530	11.6	20.4
73652	11.2	18.8	281080	11.3	21.5	124590	11.4	20.7	366	11.4	13.5	159220	11.5	20.1	378993	11.6	19.8
450049	11.2	20.9	460714	11.3	19.8	29951	11.4	18.1	112066	11.4	19.4	501914	11.5	21.0	19303	11.6	17.6
234555	11.2	19.7	464134	11.3	20.3	335648	11.4	21.0	412763	11.4	20.3	296203	11.5	20.0	1456	11.6	15.9
68755	11.2	19.1	272894	11.3	20.5	77277	11.4	19.4	288976	11.4	20.5	364689	11.5	19.6	217463	11.6	19.7
416908	11.2	20.8	392213	11.3	20.9	502910	11.4	20.5	453042	11.4	21.6	446944	11.5	19.7	247399	11.6	19.7
163018	11.2	20.0	6613	11.3	18.0	207639	11.4	20.6	275232	11.4	19.5	520651	11.5	21.0	99273	11.6	19.1
408830	11.2	21.0	347642	11.3	19.8	354566	11.4	20.6	402449	11.4	21.1	116220	11.5	19.6	138361	11.6	19.8
381221	11.3	20.1	320828	11.3	21.5	3536	11.4	16.7	291425	11.4	20.5	466945	11.5	19.5	325299	11.6	21.1
13654	11.3	18.2	502417	11.3	20.3	471194	11.4	21.5	104520	11.4	19.1	201925	11.5	18.8	309755	11.6	20.6
240485	11.3	20.0	250175	11.3	19.6	15583	11.4	18.7	168716	11.4	20.9	321792	11.5	20.9	158571	11.6	20.8
430282	11.3	20.6	78712	11.3	18.6	334233	11.4	20.6	80035	11.4	19.4	156211	11.5	19.0	90831	11.6	18.7
231480	11.3	20.9	169564	11.3	20.8	183758	11.4	19.1	344812	11.4	21.0	146359	11.5	19.1	429351	11.6	20.9
520061	11.3	20.8	413065	11.3	21.5	378379	11.4	19.9	50118	11.4	18.1	51529	11.5	18.9	120251	11.6	18.7
163180	11.3	20.4	148642	11.3	19.2	354918	11.4	20.9	500027	11.4	21.8	329055	11.5	20.1	163529	11.6	19.6
8406	11.3	17.7	133123	11.3	20.1	362635	11.4	19.8	289492	11.4	20.5	345153	11.5	19.4	224339	11.6	20.1
154129	11.3	19.2	13410	11.3	17.9	452647	11.4	21.2	295964	11.4	19.9	353764	11.5	20.5	323911	11.6	20.5
323905	11.3	20.1	234989	11.3	19.5	314727	11.4	20.2	142978	11.4	18.7	170857	11.5	19.7	78584	11.6	18.8
417100	11.3	20.8	488653	11.3	20.0	6431	11.4	16.7	416879	11.4	21.7	267461	11.5	20.3	227622	11.6	20.5
348577	11.3	19.7	485379	11.3	21.8	137856	11.4	19.0	149899	11.4	20.4	43269	11.5	17.9	522153	11.6	21.7
27005	11.3	18.3	429259	11.3	21.6	518133	11.4	20.3	291683	11.4	21.2	463288	11.5	20.3	448755	11.6	21.2
451238	11.3	20.6	272148	11.3	20.8	194149	11.4	19.5	146346	11.4	19.3	234871	11.5	20.0	25274	11.6	18.1
111072	11.3	19.6	409608	11.3	20.2	221835	11.4	19.6	365624	11.5	21.0	268583	11.5	20.2	334259	11.6	20.9
22894	11.3	18.2	142840	11.3	18.9	237495	11.4	20.4	51983	11.5	19.4	326712	11.5	19.4	408363	11.6	20.2
53055	11.3	19.1	377530	11.3	20.6	431585	11.4	20.4	381313	11.5	20.3	319565	11.5	19.5	206821	11.6	19.9
81433	11.3	19.1	115582	11.3	19.2	450306	11.4	20.9	69683	11.5	19.1	152003	11.5	19.4	140611	11.6	20.0
309246	11.3	20.4	144203	11.3	19.3	496202	11.4	21.2	464311	11.5	20.9	87135	11.5	15.6	430244	11.6	20.9
296243	11.3	19.9	165567	11.3	19.2	286667	11.4	20.5	308196	11.5	20.5	239558	11.5	20.0	362168	11.6	20.9
12492	11.3	17.3	461096	11.3	21.2	461776	11.4	21.7	104047	11.5	19.2	80898	11.5	19.5	347863	11.6	21.0
38096	11.3	19.4	460198	11.3	21.3	49785	11.4	19.9	33902	11.5	18.9	451232	11.5	20.4	140727	11.6	19.7
59402	11.3	17.4	295058	11.3	20.3	14763	11.4	18.9	495716	11.5	21.3	262525	11.5	20.6	328737	11.6	19.9
365334	11.3	20.4	381263	11.3	21.5	118089	11.4	19.1	236767	11.5	20.4	114059	11.5	18.9	281284	11.6	20.7
54502	11.3	19.1	207669	11.3	20.0	365733	11.4	21.1	31178	11.5	18.4	188072	11.5	20.7	443348	11.6	21.5
419825	11.3	20.7	4539	11.3	16.8	293581	11.4	19.5	110963	11.5	19.5	236155	11.5	19.1	98859	11.6	18.6
206373	11.3	21.6	107870	11.3	19.5	165842	11.4	19.6	229372	11.5	20.3	402925	11.5	21.5	231101	11.6	20.4
238411	11.3	20.0	306526	11.3	19.9	406152	11.4	20.1	401911	11.5	20.0	26046	11.5	18.8	402666	11.6	20.7
98098	11.3	18.6	124244	11.3	18.4	453910	11.4	21.3	88800	11.5	20.3	178623	11.5	19.4	109413	11.6	18.0
132251	11.3	20.2	489139	11.3	21.6	43409	11.4	18.5	146637	11.5	20.1	337927	11.5	20.3	57168	11.6	19.5
159562	11.3	19.5	149962	11.3	19.4	345557	11.4	21.5	8568	11.5	18.2	123058	11.5	18.8	335945	11.6	20.0
306133	11.3	21.1	322879	11.3	20.3	472513	11.4	19.9	295664	11.5	21.1	426861	11.5	20.4	148857	11.6	19.6
266418	11.3	19.8	402563	11.3	21.3	379485	11.4	20.7	280861	11.5	20.7	370562	11.5	20.7	486163	11.6	20.0
347605	11.3	20.7	424284	11.3	21.3	403028	11.4	19.7	161287	11.5	19.9	456349	11.5	21.0	451053	11.6	20.1
238091	11.3	19.9	71362	11.3	18.0	241130	11.4	20.8	383641	11.5	21.1	455384	11.5	20.2	399512	11.6	20.6
104355	11.3	18.8	453591	11.3	20.5	85546	11.4	19.1									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
464035	11.6	21.3	29839	11.7	18.6	221847	11.8	20.1	28650	11.8	18.1	419551	11.9	19.8	279214	11.9	20.7
417042	11.6	20.1	278707	11.7	20.4	68343	11.8	19.5	201271	11.8	19.8	409930	11.9	21.8	98163	11.9	19.4
46589	11.6	17.0	235680	11.7	20.8	457071	11.8	21.2	399218	11.8	21.3	459831	11.9	20.1	150342	11.9	18.4
301969	11.6	21.6	253998	11.7	20.5	315652	11.8	19.9	447035	11.8	21.1	341771	11.9	20.9	236077	11.9	20.1
453821	11.6	21.4	38891	11.7	17.5	282151	11.8	21.4	246221	11.8	21.7	491204	11.9	20.9	465167	11.9	19.4
308219	11.6	20.1	239737	11.7	20.1	453317	11.8	21.2	57475	11.8	18.3	34944	11.9	19.8	204304	11.9	19.4
379689	11.6	21.2	489469	11.7	22.0	147937	11.8	19.6	462280	11.8	21.7	460518	11.9	20.9	207057	11.9	18.6
284011	11.6	20.0	14243	11.7	18.3	259088	11.8	18.5	218898	11.8	19.2	37392	11.9	18.4	44767	11.9	18.2
292614	11.6	20.8	425486	11.7	20.8	294440	11.8	20.0	76366	11.8	18.1	459055	11.9	20.2	312280	11.9	20.5
426862	11.6	19.9	224562	11.7	20.3	460456	11.8	20.7	32313	11.8	19.7	292680	11.9	21.2	377189	11.9	21.6
235558	11.6	20.4	485395	11.7	21.5	277862	11.8	20.3	265889	11.8	20.2	490413	11.9	21.7	399525	11.9	19.1
497114	11.6	21.9	218241	11.7	21.0	150200	11.8	20.0	242097	11.8	19.8	378465	11.9	20.1	280516	11.9	21.1
247661	11.6	19.0	111317	11.7	19.4	447031	11.8	21.3	415443	11.8	20.5	231413	11.9	20.6	118030	11.9	19.3
144765	11.6	18.5	329567	11.7	20.6	296647	11.8	20.2	105680	11.8	19.2	191210	11.9	18.0	16920	11.9	17.8
284228	11.6	20.6	144307	11.7	20.2	446870	11.8	19.4	463465	11.8	21.4	458260	11.9	19.5	206893	11.9	19.9
122376	11.6	20.1	491963	11.7	20.4	296090	11.8	20.2	48841	11.8	18.7	217423	11.9	20.1	77868	11.9	18.3
56070	11.6	17.1	149692	11.7	19.3	289191	11.8	20.1	166798	11.8	19.3	20502	11.9	16.8	97527	11.9	18.6
166114	11.6	20.0	321421	11.7	21.6	82937	11.8	19.2	27037	11.9	17.2	343979	11.9	21.1	157992	12.0	20.5
495031	11.7	21.3	266679	11.7	20.8	364333	11.8	21.2	322148	11.9	20.5	211212	11.9	21.2	14019	12.0	18.6
452352	11.7	20.8	381970	11.7	19.6	427024	11.8	20.7	123666	11.9	18.6	126217	11.9	19.2	521021	12.0	20.8
205023	11.7	19.4	165126	11.7	19.5	161156	11.8	19.8	166196	11.9	19.9	468246	11.9	19.8	159469	12.0	18.6
155406	11.7	19.9	205607	11.7	19.8	29748	11.8	18.4	111301	11.9	17.6	290487	11.9	19.6	375416	12.0	19.6
332085	11.7	19.5	224461	11.7	20.5	188862	11.8	19.4	245027	11.9	20.4	495580	11.9	20.4	387852	12.0	21.7
125778	11.7	19.4	373302	11.7	21.1	428089	11.8	20.6	285571	11.9	21.8	450972	11.9	21.4	373300	12.0	21.0
293303	11.7	20.2	244753	11.7	20.2	152910	11.8	19.6	521133	11.9	21.3	520732	11.9	21.1	98665	12.0	17.3
82587	11.7	19.0	188206	11.7	20.8	162427	11.8	20.1	239657	11.9	19.2	463563	11.9	21.4	85128	12.0	17.2
37181	11.7	18.5	493669	11.7	21.3	77609	11.8	19.5	330819	11.9	20.7	27992	11.9	17.5	342905	12.0	20.3
489086	11.7	19.9	464725	11.7	20.6	456649	11.8	21.8	37154	11.9	17.7	26909	11.9	18.3	399418	12.0	19.5
59627	11.7	18.7	142677	11.7	17.6	430263	11.8	20.5	205336	11.9	19.0	104462	11.9	19.3	330476	12.0	21.0
279413	11.7	20.6	348463	11.7	20.8	4376	11.8	15.4	44725	11.9	20.9	296980	11.9	19.4	263918	12.0	19.9
105202	11.7	20.6	286482	11.7	19.4	4360	11.8	16.1	146140	11.9	19.6	466415	11.9	20.7	245568	12.0	18.9
413373	11.7	21.1	194227	11.7	21.0	83959	11.8	19.4	240825	11.9	19.7	193890	11.9	20.0	187201	12.0	20.1
320470	11.7	21.4	394353	11.7	21.1	288387	11.8	19.9	142860	11.9	20.2	247032	11.9	20.7	398672	12.0	20.2
472478	11.7	21.8	432151	11.7	20.8	464552	11.8	20.7	196405	11.9	20.1	250472	11.9	19.7	455079	12.0	21.2
357597	11.7	19.9	278468	11.7	19.5	227457	11.8	20.7	251195	11.9	20.3	373335	11.9	21.3	197036	12.0	18.7
203484	11.7	19.6	519804	11.7	22.0	328314	11.8	20.1	56370	11.9	18.5	456818	11.9	20.7	99198	12.0	19.2
486925	11.7	21.7	188776	11.7	20.1	121097	11.8	19.5	37391	11.9	16.3	289310	11.9	19.3	114521	12.0	19.3
134290	11.7	19.8	276652	11.7	19.6	94694	11.8	19.0	489659	11.9	20.0	430191	11.9	20.5	382114	12.0	20.8
323156	11.7	18.8	357360	11.7	21.5	32820	11.8	18.4	490657	11.9	21.7	142378	11.9	20.3	285622	12.0	20.3
221207	11.7	19.5	470872	11.7	20.8	397475	11.8	20.5	458172	11.9	20.0	302917	11.9	19.8	53666	12.0	19.2
294473	11.7	20.5	73565	11.7	20.3	451411	11.8	21.3	384756	11.9	20.7	15012	11.9	17.1	457801	12.0	20.6
363149	11.7	21.9	177280	11.7	19.5	278833	11.8	20.2	36825	11.9	19.8	345623	11.9	21.3	128795	12.0	19.7
252283	11.7	20.1	17564	11.7	17.0	67138	11.8	17.2	412203	11.9	21.5	496049	11.9	19.5	332390	12.0	20.7
459033	11.7	20.2	418261	11.7	21.3	239902	11.8	20.9	447335	11.9	17.4	243723	11.9	20.3	355841	12.0	21.0
45484	11.7	19.1	99969	11.7	19.8	351608	11.8	20.9	37517	11.9	17.2	450352	11.9	20.4	109761	12.0	19.9
179819	11.7	20.0	443849	11.7	22.0	290650	11.8	20.1	320711	11.9	20.9	263007	11.9	20.0	381217	12.0	21.6
442715	11.7	21.5	122269	11.7	19.3	177511	11.8	19.8	397802	11.9	20.6	350664	11.9	19.6	178920	12.0	20.0
39896	11.7	16.7	83045	11.7	19.1	33027	11.8	20.2	81670	11.9	19.7	43805	11.9	17.8	518740	12.0	21.1
516156	11.7	20.8	93573	11.7	19.7	244103	11.8	19.5	247043	11.9	19.5	101042	11.9	19.5	56332	12.0	17.6
36068	11.7	19.4	382262	11.7	19.9	280001	11.8	20.5	266986	11.9	20.3	244235	11.9	19.8	208483	12.0	20.8
31620	11.7	16.8	99901	11.7	19.4	376660	11.8	20.1	319661	11.9	20.6	351723	11.9	20.4	96651	12.0	19.4
370722	11.7	20.6	373034	11.7	20.3	21845	11.8	18.1	261946	11.9	20.2	90379	11.9	19.2	431150	12.0	20.9
420493	11.7	20.1	120989	11.7	19.0	322807	11.8	20.5	87896	11.9	19.8	16391	11.9	18.7	65413	12.0	18.7
165984	11.7	19.1	138711	11.7	20.2	205933	11.8	18.4	375096	11.9	20.1	375356	11.9	21.3	225192	12.0	20.2
32678	11.7	17.4	465971	11.7	21.1	69629	11.8	19.0	81785	11.9	18.6	426231	11.9	21.4	138670	12.0	19.7
474699	11.7	20.9	240304	11.7	19.6	451021	11.8	20.4	147585	11.9	19.8	121947	11.9	20.3	372674	12.0	20.5
37315	11.7	19.1	39657	11.7	19.4	239317	11.8	20.5	27196	11.9	18.0	485441	11.9	21.0	37360	12.0	18.0
174874	11.7	19.5	183406	11.7	19.4	239888	11.8	18.7	418862	11.9	20.4	4456	11.9	17.4	305646	12.0	20.5
407312	11.7	20.2	160275	11.7	19.3	460819	11.8	21.3	150488	11.9	19.5	335899	11.9	21.0	423561	12.0	21.3
90674	11.7	17.9	54791	11.7	18.1	412367	11.8	21.3	4540	11.9	15.4	326994	11.9	20.4	486727	12.0	21.0
422458	11.7	21.6	255915	11.7	20.7	415480	11.8	21.1	196590	11.9	19.4	50930	11.9	18.9	459035	12.0	19.5
311054	11.7	20.2	36595	11.7	18.9	486798	11.8	20.9	53305	11.9	17.7	110432	11.9	19.5	191815	12.0	19.6
7376	11.7	17.6	461818	11.7	20.6	357585	11.8	19.3	347116	11.9	20.7	421187	11.9	21.4	182679	12.0	20.1
494771	11.7	22.4	37480	11.7	19.2	37098	11.8	19.3	374627	11.9	21.0	401959	11.9	20.6	35865	12.0	18.5
270930	11.7	21.0	241858	11.7	20.3	67306	11.8	19.2	111434	11.9	20.0	493205	11.9	21.6	414190	12.0	21.3
16265	11.7	18.3	264772	11.7	20.1	449243	11.8	19.7	331456	11.9	20.6	443847	11.9	21.0	96912	12.0	18.5
363360	11.7	21.1	170782	11.7	19.7	400039	11.8	21.5	450446	11.9	21.9	201815	11.9	19.3	344853	12.0	21.4
109751	11.7	18.7	241844	11.7	19.7	302933	11.8	21.3	135467	11.9	19.7	140002	11.9	20.2	243189	12.0	19.6
183374	11.7	20.2	120116	11.8	18.7	128641	11.8	19.1									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
427078	12.0	19.7	457680	12.1	20.5	241529	12.2	20.7	321564	12.2	20.3	55297	12.3	18.0	176796	12.4	19.0
342864	12.0	19.7	59974	12.1	19.0	425466	12.2	20.7	18660	12.2	17.4	75090	12.3	18.7	265342	12.4	20.6
55029	12.0	18.5	394901	12.1	20.7	411900	12.2	20.6	291789	12.2	18.9	191977	12.3	19.9	249524	12.4	19.7
27238	12.0	17.7	373372	12.1	20.8	223296	12.2	19.7	340717	12.2	20.8	245784	12.3	20.5	317614	12.4	18.9
151530	12.0	19.6	387557	12.1	21.4	88481	12.2	19.2	463500	12.2	21.6	423112	12.3	20.6	455370	12.4	20.3
190728	12.0	21.6	278832	12.1	19.6	325564	12.2	21.0	165737	12.2	19.1	135747	12.3	18.3	160451	12.4	19.4
71559	12.0	19.1	120367	12.1	19.6	149689	12.2	19.9	413958	12.2	20.0	160422	12.3	19.5	161113	12.4	19.6
95899	12.0	19.4	314924	12.1	20.5	227582	12.2	20.2	336004	12.2	20.5	243389	12.3	20.3	381208	12.4	20.2
454297	12.0	21.1	42356	12.1	19.2	488989	12.2	20.8	182416	12.2	19.6	344227	12.3	20.1	244712	12.4	20.5
143261	12.0	18.3	305044	12.1	19.3	15551	12.2	18.1	105255	12.2	19.8	57655	12.3	18.3	228762	12.4	19.4
220604	12.0	20.1	285633	12.1	20.8	82576	12.2	18.9	457785	12.2	21.6	284339	12.3	21.4	108597	12.4	19.9
192963	12.0	19.7	160733	12.1	20.2	209511	12.2	20.2	232267	12.2	19.6	463364	12.3	22.1	408269	12.4	20.6
381292	12.0	20.6	91374	12.1	20.0	169028	12.2	18.6	298946	12.2	20.0	144481	12.3	19.1	83936	12.4	19.6
87897	12.0	19.6	32337	12.1	18.7	90253	12.2	18.9	458372	12.2	20.7	183370	12.3	19.3	334068	12.4	20.5
189984	12.0	20.0	408652	12.1	20.8	49824	12.2	17.8	347378	12.2	20.9	15822	12.3	17.5	73926	12.4	19.1
287924	12.1	20.7	224284	12.1	19.8	187043	12.2	20.5	56195	12.2	17.6	27817	12.3	18.4	389346	12.4	21.5
148807	12.1	19.9	103984	12.1	19.6	473707	12.2	19.5	355255	12.2	21.2	274864	12.3	20.2	328362	12.4	20.5
50258	12.1	18.4	9216	12.1	16.4	89353	12.2	19.1	467568	12.2	20.6	246753	12.3	19.9	408901	12.4	19.5
432501	12.1	20.7	241025	12.1	19.6	377096	12.2	20.1	396084	12.2	20.6	27390	12.3	17.7	58363	12.4	19.0
220581	12.1	20.8	206888	12.1	19.4	86423	12.2	19.6	410463	12.2	20.1	285047	12.3	19.8	399464	12.4	21.9
330425	12.1	19.6	233393	12.1	21.2	413500	12.2	21.0	158562	12.2	19.5	187263	12.3	19.5	280260	12.4	20.0
263676	12.1	20.3	84745	12.1	17.3	252782	12.2	19.1	158700	12.3	20.2	124730	12.3	18.7	86075	12.4	18.6
312269	12.1	19.8	118725	12.1	19.3	95054	12.2	19.2	279068	12.3	20.8	36189	12.3	18.2	457385	12.4	21.0
181776	12.1	19.6	41528	12.1	17.7	128721	12.2	19.5	219045	12.3	20.0	78573	12.3	18.9	134826	12.4	18.7
448166	12.1	20.8	193216	12.1	19.5	293419	12.2	20.1	4158	12.3	16.5	148922	12.3	19.6	292043	12.4	20.9
318093	12.1	21.3	162758	12.1	18.6	315740	12.2	19.6	203460	12.3	18.7	30904	12.3	18.9	433378	12.4	20.6
5595	12.1	15.8	368530	12.1	19.7	447066	12.2	21.0	112205	12.3	19.3	451870	12.3	21.3	267683	12.4	20.5
85187	12.1	20.5	317571	12.1	19.9	110281	12.2	19.5	28120	12.3	18.4	94556	12.3	19.0	420041	12.4	19.4
448317	12.1	19.3	137205	12.1	21.1	454573	12.2	20.4	112518	12.3	19.2	146535	12.3	19.8	143646	12.4	20.0
151195	12.1	19.1	454185	12.1	20.4	151980	12.2	19.4	281088	12.3	20.2	20832	12.3	18.0	420948	12.4	20.7
43287	12.1	17.8	266878	12.1	20.8	166137	12.2	20.1	271748	12.3	21.1	339592	12.3	19.8	426584	12.4	19.7
425893	12.1	20.7	367168	12.1	19.2	314669	12.2	21.1	370396	12.3	19.1	409448	12.3	20.9	367169	12.4	18.9
368033	12.1	20.6	30271	12.1	18.2	293216	12.2	19.7	155948	12.3	19.9	304862	12.3	21.1	105456	12.4	20.0
249565	12.1	20.2	103807	12.1	19.2	180057	12.2	20.1	489406	12.3	21.9	177318	12.3	18.1	130726	12.4	19.6
320705	12.1	18.8	333971	12.1	20.4	161073	12.2	21.5	34781	12.3	18.3	235519	12.3	19.7	337110	12.4	20.7
366943	12.1	22.0	260757	12.1	19.4	378901	12.2	21.3	198799	12.3	20.0	129393	12.3	18.6	454380	12.4	21.4
337144	12.1	20.8	394879	12.1	20.6	209985	12.2	20.4	202327	12.3	20.2	370522	12.3	19.7	461100	12.4	20.3
60654	12.1	18.9	259323	12.1	19.9	173511	12.2	18.2	186475	12.3	20.6	165759	12.3	18.5	431206	12.4	20.3
56689	12.1	18.3	429065	12.1	20.5	31439	12.2	17.3	230009	12.3	20.3	493883	12.3	20.5	293052	12.4	19.9
414248	12.1	19.8	74444	12.1	17.0	415183	12.2	19.8	462636	12.3	21.0	358086	12.3	20.9	427553	12.4	21.1
381304	12.1	20.3	62603	12.1	17.8	59765	12.2	19.2	108770	12.3	19.6	129634	12.3	19.5	89507	12.4	18.6
78176	12.1	18.5	286013	12.1	20.4	305643	12.2	19.3	366354	12.3	20.3	372684	12.3	20.6	105679	12.4	18.7
460433	12.1	21.2	314226	12.1	20.6	350733	12.2	20.2	5576	12.3	15.8	277963	12.3	20.4	379074	12.4	20.2
286633	12.1	20.4	293931	12.1	21.6	369581	12.2	20.5	492658	12.3	21.8	283410	12.3	20.3	148544	12.4	18.5
413512	12.1	18.6	457029	12.1	20.0	128288	12.2	20.1	176204	12.3	20.1	213645	12.3	19.8	227467	12.4	20.4
83408	12.1	18.6	280671	12.1	19.8	523050	12.2	19.8	9449	12.3	16.7	225382	12.3	19.0	74239	12.4	18.3
387443	12.1	20.3	507355	12.1	21.6	161137	12.2	19.6	333781	12.3	20.6	206289	12.3	18.4	335903	12.4	20.4
365939	12.1	19.6	92721	12.1	17.9	155651	12.2	19.6	321025	12.3	21.4	285310	12.3	19.4	319620	12.4	19.7
397137	12.1	20.0	101553	12.1	18.1	206326	12.2	21.0	5838	12.3	17.5	415196	12.3	20.4	301998	12.4	22.9
82245	12.1	19.0	413675	12.1	20.5	6855	12.2	16.8	306286	12.3	20.4	57797	12.3	17.4	126600	12.4	18.4
190218	12.1	19.6	233027	12.2	19.2	312702	12.2	19.9	44510	12.3	17.2	34894	12.3	18.3	496597	12.4	19.9
503846	12.1	21.2	92469	12.2	20.1	87764	12.2	19.0	4026	12.3	15.8	87878	12.3	19.9	236087	12.4	21.0
162717	12.1	20.3	445062	12.2	20.4	424366	12.2	21.2	505015	12.3	22.9	93237	12.3	17.3	419221	12.4	19.1
63470	12.1	18.6	373395	12.2	20.8	241113	12.2	19.9	281342	12.3	20.3	242448	12.3	20.6	497240	12.4	20.7
500296	12.1	21.6	38284	12.2	19.1	464362	12.2	21.5	500201	12.3	20.8	422274	12.3	20.6	67677	12.4	19.3
368127	12.1	21.8	143072	12.2	20.2	32505	12.2	17.3	409986	12.3	20.1	211394	12.3	20.5	294978	12.4	20.6
288701	12.1	19.7	466905	12.2	20.5	395823	12.2	19.8	483609	12.3	20.3	421210	12.3	20.9	393839	12.4	20.7
423849	12.1	20.3	15321	12.2	18.1	426186	12.2	20.8	204153	12.3	19.2	237629	12.3	19.8	64655	12.4	17.5
234361	12.1	19.1	414177	12.2	20.6	149845	12.2	19.9	87980	12.3	20.3	324469	12.3	19.5	324447	12.4	20.1
486452	12.1	21.2	279911	12.2	20.0	72983	12.2	19.3	415789	12.3	20.6	425407	12.3	20.4	144525	12.4	18.8
240326	12.1	20.9	428500	12.2	20.8	57852	12.2	18.8	77835	12.3	18.8	488519	12.3	20.6	123783	12.4	18.2
257522	12.1	21.2	200174	12.2	19.3	386925	12.2	20.2	82723	12.3	17.9	459220	12.3	19.7	169366	12.4	21.1
490290	12.1	20.6	235019	12.2	19.3	226934	12.2	20.9	123332	12.3	18.9	350594	12.3	20.7	20166	12.4	18.7
247202	12.1	18.9	373247	12.2	21.7	327942	12.2	20.1	309439	12.3	19.7	166838	12.3	18.8	204879	12.4	20.6
377099	12.1	20.2	88647	12.2	18.1	293793	12.2	20.0	464574	12.3	20.1	111951	12.3	19.4	8446	12.4	17.7
347414	12.1	19.6	293722	12.2	21.0	1369	12.2	16.2	83244	12.3	18.5	96648	12.3	19.4	32447	12.4	19.6
270040	12.1	19.4	106525	12.2	17.8	451081	12.2	20.3	221361	12.3	19.6	329827	12.3	20.2	128994	12.4	20.3
234142	12.1	20.2	205905	12.2	18.6	265819	12.2	20.7	320159	12.3	21.6	335953	12.3	20.1	256047	12.4	19.9
496088	12.1	20.4	347087	12.2	21.2	58992	12.2	18.8	31001								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
301696	12.4	19.9	366977	12.5	20.1	189771	12.6	19.5	487298	12.7	21.9	262298	12.7	20.5	204617	12.8	19.3
354568	12.4	19.7	345151	12.5	20.7	264767	12.6	19.4	183349	12.7	17.9	23251	12.7	18.1	378412	12.8	20.4
439832	12.4	22.2	190192	12.5	20.9	252299	12.6	19.8	319645	12.7	20.8	238365	12.7	20.4	338957	12.8	20.7
364237	12.4	20.4	367752	12.5	20.6	62560	12.6	18.6	376455	12.7	21.0	202875	12.7	20.4	506232	12.8	21.7
34774	12.4	17.6	448211	12.5	20.1	406205	12.6	19.5	44690	12.7	17.9	403657	12.7	18.9	11175	12.8	19.0
94743	12.4	18.6	163488	12.5	20.4	501740	12.6	20.4	70382	12.7	18.7	175926	12.7	19.7	49913	12.8	17.4
92617	12.4	19.1	62629	12.5	19.4	238743	12.6	20.3	70400	12.7	19.0	354982	12.7	20.6	63322	12.8	19.4
237642	12.4	19.7	19774	12.5	16.1	192550	12.6	20.3	73583	12.7	19.2	83789	12.7	19.0	463276	12.8	20.6
364266	12.4	21.4	47298	12.5	19.0	68701	12.6	20.0	369060	12.7	20.3	379402	12.7	20.1	176969	12.8	19.8
357534	12.4	20.5	461278	12.5	20.2	341367	12.6	20.8	418738	12.7	20.3	37067	12.7	18.1	272977	12.8	19.9
306841	12.4	21.0	287619	12.5	20.1	410826	12.6	21.2	155181	12.7	19.5	232389	12.7	18.9	146653	12.8	19.7
236193	12.4	19.9	327053	12.5	21.1	522369	12.6	20.3	123226	12.7	19.3	144388	12.7	20.9	105438	12.8	19.1
150678	12.4	19.0	427558	12.5	21.2	18387	12.6	19.2	218663	12.7	20.9	125230	12.7	19.2	85704	12.8	19.1
287767	12.4	20.8	206714	12.5	19.1	27634	12.6	19.2	21608	12.7	18.4	241259	12.7	20.4	170541	12.8	19.1
401026	12.4	21.6	111759	12.5	20.0	293171	12.6	20.3	171217	12.7	19.9	213717	12.7	19.5	57280	12.8	19.3
344446	12.4	20.0	100609	12.5	19.3	11403	12.6	17.8	166562	12.7	18.9	168324	12.7	20.1	418411	12.8	21.1
238113	12.4	20.3	19288	12.5	16.0	36612	12.6	18.3	282127	12.7	19.7	383741	12.7	20.1	215914	12.8	21.4
319830	12.4	20.6	160351	12.5	19.3	267464	12.6	18.9	466960	12.7	20.1	31863	12.7	19.1	369333	12.8	21.1
400287	12.4	21.2	336539	12.5	20.4	358547	12.6	20.3	484263	12.7	20.6	344849	12.7	19.2	485392	12.8	21.0
245932	12.4	20.2	67638	12.5	17.5	448137	12.6	19.7	242608	12.7	20.5	313206	12.7	21.2	198929	12.8	18.6
122506	12.4	19.6	188962	12.5	19.8	149974	12.6	19.4	247498	12.7	20.2	230535	12.7	19.1	317612	12.8	19.1
62365	12.4	19.5	282981	12.5	20.3	444455	12.6	20.3	253185	12.7	19.1	287672	12.7	20.9	8358	12.8	16.6
258519	12.5	19.0	7048	12.5	17.3	98131	12.6	18.2	160854	12.7	18.0	122565	12.7	19.7	302511	12.8	19.6
110628	12.5	19.7	415559	12.5	20.7	254667	12.6	19.9	382730	12.7	18.4	244629	12.7	17.9	495469	12.8	20.6
519834	12.5	20.1	13852	12.5	17.5	10669	12.6	17.3	54696	12.7	19.1	467894	12.7	21.5	172700	12.8	19.2
30605	12.5	17.6	288889	12.5	20.3	63474	12.6	19.0	256314	12.7	19.6	98099	12.7	17.9	210307	12.8	20.0
87376	12.5	16.5	423117	12.5	20.6	123291	12.6	19.5	314337	12.7	20.8	491677	12.7	20.0	102472	12.8	17.6
209629	12.5	19.0	297387	12.5	21.0	51150	12.6	16.9	59571	12.7	19.2	326447	12.7	19.2	49206	12.8	18.1
334590	12.5	21.1	260854	12.5	18.2	209410	12.6	19.4	469053	12.7	19.7	125892	12.7	19.3	162185	12.8	18.2
24219	12.5	18.5	427625	12.5	20.5	306327	12.6	21.8	221250	12.7	19.9	167048	12.7	19.2	131251	12.8	18.7
369610	12.5	20.1	113638	12.5	19.7	27964	12.6	18.2	22936	12.7	18.3	64598	12.7	18.4	162451	12.8	20.1
234625	12.5	19.5	281618	12.5	19.5	273326	12.6	21.1	376983	12.7	20.9	415367	12.7	20.5	397099	12.8	20.5
502294	12.5	20.4	376167	12.5	21.3	129048	12.6	18.6	398224	12.7	20.0	20367	12.7	18.5	421406	12.8	19.6
364856	12.5	19.5	117450	12.5	19.4	241328	12.6	20.3	47074	12.7	17.5	14470	12.7	18.0	181135	12.8	20.7
157122	12.5	19.9	172990	12.5	20.5	441461	12.6	20.8	4182	12.7	16.6	82778	12.7	18.8	346110	12.8	20.7
54647	12.5	19.6	66331	12.5	19.1	453820	12.6	20.6	194355	12.7	20.0	226594	12.7	20.0	284429	12.8	19.8
332771	12.5	20.9	378954	12.5	20.1	202356	12.6	19.8	292968	12.7	19.4	3441	12.7	16.4	480086	12.8	20.5
76054	12.5	18.4	88673	12.5	18.5	294015	12.6	20.7	301680	12.7	20.3	253336	12.7	18.8	273321	12.8	21.3
188688	12.5	19.9	493718	12.5	20.1	432003	12.6	20.5	206259	12.7	18.6	377920	12.7	21.7	119325	12.8	19.5
436351	12.5	20.2	98277	12.5	17.8	269369	12.6	19.9	97534	12.7	18.9	471641	12.8	21.2	448094	12.8	21.0
458200	12.5	20.2	388026	12.5	20.8	462092	12.6	21.5	248011	12.7	19.4	242248	12.8	21.2	145148	12.8	19.6
244324	12.5	19.4	336423	12.5	20.7	203753	12.6	20.1	47321	12.7	17.7	410456	12.8	20.7	412910	12.8	21.1
38196	12.5	19.2	327936	12.5	21.5	159580	12.6	19.7	339517	12.7	20.3	415749	12.8	19.4	378812	12.8	20.9
314195	12.5	19.5	6888	12.5	16.0	110366	12.6	18.7	395346	12.7	21.5	165684	12.8	20.0	355954	12.8	19.7
406136	12.5	19.9	489042	12.5	20.1	243476	12.6	20.1	381264	12.7	20.1	235459	12.8	19.6	76673	12.8	19.1
235618	12.5	20.4	8673	12.5	17.2	368829	12.6	20.6	197436	12.7	19.9	330714	12.8	20.4	450968	12.8	20.2
123064	12.5	19.5	258545	12.5	19.0	214313	12.6	20.9	170818	12.7	19.7	329602	12.8	19.8	413098	12.8	20.6
490383	12.5	21.2	502136	12.5	20.8	188225	12.6	20.5	291473	12.7	21.0	250199	12.8	20.7	503478	12.8	21.1
1109	12.5	14.9	168239	12.5	20.1	114946	12.6	19.8	454340	12.7	21.4	424322	12.8	20.9	503701	12.8	20.9
408902	12.5	20.2	126021	12.5	18.6	316468	12.6	20.4	266855	12.7	20.0	496739	12.8	20.3	18828	12.8	18.6
492431	12.5	20.9	94817	12.5	19.4	57550	12.6	18.2	320807	12.7	20.5	104280	12.8	18.9	131452	12.8	20.0
358744	12.5	22.3	405908	12.5	20.1	366904	12.6	20.5	428114	12.7	21.0	198521	12.8	19.5	219332	12.8	20.9
251601	12.5	21.1	459191	12.5	21.2	57674	12.6	18.1	180037	12.7	18.6	285354	12.8	20.6	463246	12.8	21.2
152528	12.5	19.2	108444	12.5	19.4	400417	12.6	19.2	197536	12.7	19.1	235973	12.8	19.7	92289	12.8	20.0
350670	12.5	20.4	272391	12.5	20.0	444171	12.6	21.7	466790	12.7	20.6	465661	12.8	21.2	352676	12.8	20.1
361655	12.5	20.2	353366	12.5	20.3	141215	12.6	20.0	25459	12.7	17.5	502153	12.8	19.8	229593	12.8	20.0
398838	12.5	20.4	201929	12.5	19.4	369659	12.6	20.4	78403	12.7	19.1	420732	12.8	20.3	179019	12.8	19.9
368985	12.5	20.8	166135	12.5	19.7	465198	12.6	20.5	381251	12.7	20.2	253999	12.8	19.5	415886	12.8	21.6
331588	12.5	20.3	321149	12.5	20.3	124878	12.6	17.5	492427	12.7	21.5	178148	12.8	19.8	32429	12.8	18.4
238341	12.5	19.6	58767	12.5	17.7	109451	12.6	19.6	197535	12.7	20.3	404457	12.8	20.7	51865	12.8	18.8
125802	12.5	18.9	115894	12.5	19.1	227808	12.6	19.5	237218	12.7	19.9	275351	12.8	19.9	227776	12.8	20.7
7938	12.5	17.2	397449	12.5	21.3	402057	12.6	21.6	243794	12.7	21.0	63391	12.8	18.9	233101	12.8	19.3
367988	12.5	19.6	422291	12.5	21.0	330900	12.6	20.7	110937	12.7	18.8	332883	12.8	21.1	110926	12.8	20.0
63643	12.5	19.3	205608	12.5	19.8	460196	12.6	21.0	174402	12.7	19.5	364867	12.8	19.6	27202	12.8	17.9
149574	12.5	19.4	501919	12.5	19.6	165896	12.6	19.4	7400	12.7	17.5	332142	12.8	19.9	250197	12.8	21.1
302941	12.5	19.5	429909	12.6	20.9	124387	12.6	18.4	429320	12.7	20.2	486887	12.8	21.4	462768	12.8	21.3
485021	12.5	20.6	16332	12.6	18.0	299604	12.6	19.1	233629	12.7	19.3	236140	12.8	18.9	270499	12.8	20.1
427707	12.5	21.1	104564	12.6	18.6	16371	12.6	17.5	27198	12.7	17.8	170441	12.8	20.4	356306	12.8	19.4
125616	12.5	19.1	517542	12.6	21.5	323149	12.6	20.									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
8496	12.8	16.8	53690	12.9	18.5	332665	12.9	19.6	54926	13.1	18.3	246458	13.1	19.2	455793	13.2	21.0
484989	12.8	20.2	429311	12.9	20.7	62013	12.9	18.9	110678	13.1	20.1	53858	13.1	18.2	61089	13.2	18.9
204131	12.8	19.5	245747	12.9	21.4	363148	12.9	21.0	197814	13.1	19.5	502328	13.1	21.0	433106	13.2	20.8
149506	12.8	19.8	245718	12.9	20.4	181478	12.9	20.0	29257	13.1	18.7	350087	13.1	21.1	237047	13.2	20.0
8980	12.8	16.9	24581	12.9	18.8	379960	12.9	20.6	113313	13.1	18.9	270578	13.1	18.9	302876	13.2	20.9
462075	12.8	21.1	263870	12.9	19.8	163689	12.9	19.4	203859	13.1	19.1	369269	13.1	21.1	63262	13.2	18.8
481857	12.8	18.7	53322	12.9	18.6	62493	13.0	18.9	182663	13.1	20.4	90434	13.1	18.4	313052	13.2	20.6
519329	12.8	22.1	161110	12.9	19.6	108894	13.0	19.1	97485	13.1	19.2	400841	13.1	20.6	416840	13.2	19.7
405917	12.8	20.9	7990	12.9	17.7	199773	13.0	20.0	73595	13.1	19.3	6441	13.1	17.6	88639	13.2	18.8
285340	12.8	21.6	115399	12.9	19.3	484572	13.0	20.4	39542	13.1	19.4	522565	13.1	20.5	306101	13.2	20.0
124921	12.8	18.6	377124	12.9	18.9	288585	13.0	20.1	136289	13.1	17.9	314813	13.1	20.5	520820	13.2	20.7
112763	12.9	18.7	169157	12.9	20.1	316352	13.0	20.3	280124	13.1	20.8	64340	13.1	19.1	416958	13.2	20.9
355853	12.9	19.6	288833	12.9	19.6	285017	13.0	20.7	331489	13.1	19.8	300968	13.1	20.7	296719	13.2	20.7
496609	12.9	20.5	14457	12.9	16.6	89544	13.0	19.9	27113	13.1	18.2	50097	13.1	17.3	275748	13.2	21.0
410009	12.9	20.3	58261	12.9	17.6	151781	13.0	19.6	346360	13.1	19.2	94599	13.1	18.4	403807	13.2	20.5
216460	12.9	20.3	190734	12.9	19.6	47731	13.0	19.1	232006	13.1	20.4	4446	13.1	18.0	322435	13.2	19.8
223755	12.9	19.9	192868	12.9	20.3	749302	13.0	21.1	465452	13.1	20.5	336978	13.2	20.7	168288	13.2	21.3
466405	12.9	21.0	240897	12.9	20.9	58290	13.0	17.6	114079	13.1	19.3	60570	13.2	18.8	255917	13.2	21.3
135911	12.9	18.9	38053	12.9	18.2	484131	13.0	20.9	463888	13.1	20.9	324679	13.2	20.4	154333	13.2	20.5
362063	12.9	19.3	35587	12.9	18.3	82227	13.0	20.1	343899	13.1	20.1	13547	13.2	18.4	183452	13.2	19.8
420157	12.9	19.8	337267	12.9	21.5	178170	13.0	19.9	21275	13.1	18.8	522104	13.2	20.1	399981	13.2	20.7
207658	12.9	19.9	167037	12.9	20.9	296484	13.0	21.1	223801	13.1	20.6	317106	13.2	20.7	184711	13.2	20.4
49896	12.9	18.1	284364	12.9	21.2	293503	13.0	20.2	28569	13.1	18.3	500204	13.2	21.5	464955	13.2	20.5
245442	12.9	19.6	248703	12.9	20.0	409445	13.0	20.0	110142	13.1	17.6	459759	13.2	21.5	21158	13.2	17.9
424285	12.9	21.1	127555	12.9	18.6	102230	13.0	18.9	15528	13.1	18.3	314200	13.2	19.6	295751	13.2	19.8
354092	12.9	19.4	521112	12.9	20.6	378938	13.0	19.2	321994	13.1	19.9	389171	13.2	20.5	295385	13.2	20.8
363160	12.9	21.4	272900	12.9	19.9	36761	13.0	18.4	459394	13.1	20.7	409457	13.2	20.3	77688	13.2	18.5
522193	12.9	21.4	420530	12.9	20.3	97904	13.0	18.8	3259	13.1	14.6	4001	13.2	16.8	401929	13.2	19.1
51942	12.9	18.2	323175	12.9	20.9	318062	13.0	20.6	461674	13.1	22.5	271728	13.2	19.9	35109	13.2	17.7
373911	12.9	20.0	206143	12.9	18.9	321890	13.0	19.6	490077	13.1	21.1	202688	13.2	20.2	334134	13.2	20.6
175923	12.9	19.9	234491	12.9	20.1	345520	13.0	20.1	488725	13.1	21.5	29629	13.2	17.5	76785	13.2	18.9
73126	12.9	20.6	219677	12.9	19.3	213588	13.0	20.2	19513	13.1	18.0	149749	13.2	19.6	235682	13.2	20.3
387570	12.9	21.2	106458	12.9	18.3	23888	13.0	18.4	444052	13.1	20.8	116971	13.2	18.9	494983	13.2	20.1
449321	12.9	19.4	109077	12.9	17.6	514914	13.0	23.8	142641	13.1	19.9	45266	13.2	18.6	241879	13.2	20.6
493020	12.9	19.9	409971	12.9	19.9	399484	13.0	22.0	171417	13.1	19.3	256037	13.2	20.7	183649	13.2	20.4
247504	12.9	20.6	9876	12.9	17.1	86024	13.0	18.4	459475	13.1	19.7	258543	13.2	19.1	277117	13.2	20.0
280470	12.9	19.9	234841	12.9	19.0	66189	13.0	19.0	363118	13.1	21.2	95349	13.2	18.8	139759	13.2	18.0
148699	12.9	19.1	298321	12.9	20.9	405178	13.0	20.9	78786	13.1	18.5	81967	13.2	19.5	204679	13.2	20.4
42842	12.9	17.5	142926	12.9	19.8	57222	13.0	19.3	401338	13.1	19.5	246711	13.2	19.5	499626	13.2	21.0
293115	12.9	19.9	213332	12.9	21.0	293828	13.0	19.9	2871	13.1	15.5	455902	13.2	21.5	242116	13.2	20.2
255960	12.9	20.3	522674	12.9	20.8	463648	13.0	20.7	238374	13.1	19.8	460385	13.2	20.7	25872	13.2	21.4
56588	12.9	19.1	165845	12.9	19.8	265029	13.0	20.2	229195	13.1	20.6	413680	13.2	19.5	212937	13.2	19.7
270910	12.9	20.6	146614	12.9	19.2	185152	13.0	20.2	408844	13.1	20.7	448190	13.2	20.2	334793	13.2	21.4
94550	12.9	19.0	421462	12.9	19.8	277053	13.0	20.6	5554	13.1	16.1	176845	13.2	20.1	431802	13.2	21.0
325244	12.9	20.4	152352	12.9	19.3	206873	13.0	19.4	133442	13.1	19.0	357999	13.2	20.4	53905	13.2	18.2
273709	12.9	20.1	148798	12.9	18.6	79317	13.0	20.5	234390	13.1	19.8	367327	13.2	20.1	259025	13.2	19.8
423133	12.9	20.9	194723	12.9	17.9	62824	13.0	19.2	348739	13.1	20.9	56389	13.2	19.3	27362	13.2	18.8
19787	12.9	18.0	48107	12.9	18.4	354050	13.0	20.4	473804	13.1	20.2	459239	13.2	20.7	423186	13.2	21.3
359200	12.9	19.6	34456	12.9	18.7	145160	13.0	20.0	309938	13.1	19.8	99528	13.2	18.9	145768	13.2	20.3
399458	12.9	20.4	378842	12.9	23.7	452193	13.0	20.2	21401	13.1	18.9	194754	13.2	18.4	229794	13.2	20.5
362575	12.9	22.0	163644	12.9	19.6	411702	13.0	20.3	27995	13.1	18.6	105053	13.2	20.4	295997	13.2	20.1
447387	12.9	18.8	522481	12.9	20.7	153681	13.0	19.2	68032	13.1	18.3	464922	13.2	20.3	395810	13.2	20.5
258322	12.9	20.9	201419	12.9	17.9	327268	13.0	20.2	426262	13.1	20.8	493799	13.2	19.7	55166	13.2	17.9
344826	12.9	20.3	202754	12.9	20.2	288765	13.0	21.1	127801	13.1	19.8	321492	13.2	20.6	90158	13.2	19.1
310056	12.9	21.4	378286	12.9	21.0	248285	13.0	19.7	337737	13.1	20.9	46765	13.2	16.9	342304	13.2	20.0
488836	12.9	21.6	456924	12.9	20.5	397810	13.0	20.1	400847	13.1	19.6	355927	13.2	19.2	503772	13.2	21.6
333819	12.9	19.9	101814	12.9	22.0	229223	13.0	19.0	430690	13.1	20.2	421415	13.2	19.9	101861	13.2	18.6
64164	12.9	18.1	398328	12.9	21.2	226702	13.0	20.1	196962	13.1	18.4	411213	13.2	19.8	161863	13.2	18.8
59066	12.9	19.0	397476	12.9	21.2	209016	13.0	19.9	502192	13.1	20.6	458286	13.2	20.5	242491	13.2	18.6
5531	12.9	16.6	146815	12.9	18.9	375922	13.0	20.5	127796	13.1	19.6	160747	13.2	20.4	473917	13.3	20.0
347502	12.9	20.8	398322	12.9	21.3	409964	13.0	21.0	89224	13.1	18.0	417978	13.2	20.3	499974	13.3	21.3
451452	12.9	19.7	364719	12.9	20.4	364336	13.0	20.5	373299	13.1	21.1	253104	13.2	20.6	365635	13.3	20.6
58455	12.9	19.9	258048	12.9	19.9	156492	13.0	19.2	429906	13.1	20.9	361155	13.2	20.9	247569	13.3	19.1
322307	12.9	20.4	220327	12.9	19.4	166632	13.0	17.6	154524	13.1	19.7	206205	13.2	19.1	252494	13.3	17.9
422906	12.9	19.8	26224	12.9	18.5	390398	13.0	19.4	379064	13.1	20.5	382298	13.2	20.8	472660	13.3	20.2
284089	12.9	20.5	260926	12.9	19.9	130522	13.0	18.9	237430	13.1	20.4	159188	13.2	19.7	290816	13.3	19.7
56700	12.9	17.6	408992	12.9	20.4	490240	13.0	20.5	335853	13.1	20.2	459758	13.2	20.8	413972	13.3	20.2
270817	12.9	20.2	51030	12.9	18.3	326292	13.0	20.9	129776	13.1	19.5	241729	13.2	19.9	275038	13.3	20.3
253943	12.9	19.7	232983	12.9	20.0	51809	13.0	19.0	302								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
516975	13.3	20.8	78687	13.3	18.3	273035	13.4	20.3	179140	13.5	19.6	449680	13.6	20.7	339537	13.6	20.0
81718	13.3	18.6	496476	13.3	21.2	401400	13.4	19.6	54019	13.5	18.4	494723	13.6	21.6	465709	13.6	20.8
124791	13.3	20.4	424912	13.3	19.8	47865	13.4	17.5	110121	13.5	19.7	288621	13.6	19.9	207341	13.6	20.2
138470	13.3	19.0	420941	13.3	20.9	152594	13.4	20.3	429043	13.5	19.1	281281	13.6	21.0	37825	13.6	18.9
404950	13.3	20.3	85929	13.3	17.5	112570	13.4	19.2	177798	13.5	20.1	125358	13.6	19.6	262666	13.6	20.3
86349	13.3	17.9	201272	13.3	19.6	421233	13.4	20.1	182582	13.5	20.1	394796	13.6	21.2	224573	13.6	20.0
180497	13.3	20.0	473208	13.3	21.7	135504	13.4	19.7	351762	13.5	20.2	301312	13.6	19.5	515049	13.6	23.7
152668	13.3	19.9	51011	13.3	18.5	232247	13.4	19.8	331825	13.5	20.1	376673	13.6	20.9	66202	13.6	17.8
350444	13.3	19.8	92417	13.3	18.9	17932	13.4	18.1	266841	13.5	20.5	89320	13.6	18.7	232363	13.7	19.4
465483	13.3	21.2	133192	13.3	19.9	193963	13.4	20.3	258242	13.5	20.5	235001	13.6	19.1	347520	13.7	20.8
44114	13.3	18.9	192323	13.3	21.2	8743	13.4	17.8	256034	13.5	19.7	367163	13.6	20.8	160247	13.7	19.1
324538	13.3	19.7	421402	13.3	19.6	340777	13.4	21.0	491951	13.5	19.9	76616	13.6	18.8	234950	13.7	20.0
59834	13.3	17.9	497119	13.3	21.3	181721	13.4	20.4	227901	13.5	20.7	126189	13.6	19.0	325316	13.7	21.2
88487	13.3	18.9	323938	13.3	20.9	466907	13.4	20.9	78770	13.5	18.9	201905	13.6	19.3	495466	13.7	20.1
8586	13.3	17.8	147596	13.3	19.2	232124	13.4	19.3	153658	13.5	19.7	417030	13.6	21.0	406888	13.7	20.0
457319	13.3	21.2	224542	13.3	20.5	292037	13.4	19.9	30709	13.5	17.8	104140	13.6	18.9	372242	13.7	19.2
280880	13.3	20.5	315548	13.3	19.3	492929	13.4	20.5	200843	13.5	19.0	245605	13.6	19.7	260470	13.7	21.2
46306	13.3	18.3	460104	13.3	20.5	351675	13.4	18.7	343929	13.5	20.6	258148	13.6	20.9	448152	13.7	20.8
490254	13.3	20.6	170738	13.3	20.0	406566	13.4	20.2	494229	13.5	22.1	101562	13.6	19.5	120950	13.7	19.9
276306	13.3	21.0	156442	13.3	19.4	461796	13.4	20.0	283306	13.5	20.1	355911	13.6	20.6	264733	13.7	20.1
232772	13.3	19.8	10177	13.3	17.1	401140	13.4	20.6	296068	13.5	20.0	142390	13.6	18.9	234414	13.7	19.6
248033	13.3	19.6	153356	13.4	19.8	504568	13.4	21.1	70655	13.5	18.5	14558	13.6	17.5	64163	13.7	15.4
386751	13.3	19.9	492684	13.4	20.5	400096	13.4	19.9	142660	13.5	19.6	67284	13.6	18.7	55772	13.7	17.9
127146	13.3	20.0	53398	13.4	18.5	217024	13.4	20.5	282842	13.5	19.3	157970	13.6	20.2	15340	13.7	17.7
354975	13.3	20.8	466621	13.4	20.3	210315	13.4	19.7	258805	13.5	21.5	502412	13.6	21.2	128654	13.7	20.8
413668	13.3	20.4	10469	13.4	18.8	497771	13.4	21.9	14411	13.5	16.6	353767	13.6	20.8	185699	13.7	19.9
372955	13.3	20.3	376461	13.4	22.0	350162	13.4	20.6	401229	13.5	20.2	103550	13.6	18.5	433136	13.7	20.7
84773	13.3	18.6	85509	13.4	18.5	202013	13.4	20.4	217208	13.5	20.5	64965	13.6	19.5	56129	13.7	18.3
495376	13.3	20.2	135455	13.4	18.5	352782	13.4	20.3	185913	13.5	20.4	451414	13.6	20.6	502418	13.7	20.8
297136	13.3	19.7	234385	13.4	20.1	487511	13.4	20.4	456524	13.5	20.1	322055	13.6	20.1	5245	13.7	16.3
117714	13.3	20.0	203811	13.4	18.8	376584	13.4	20.9	104187	13.5	20.0	188936	13.6	18.9	326450	13.7	19.7
463006	13.3	19.5	15383	13.4	17.3	460675	13.4	21.2	59770	13.5	18.9	433861	13.6	20.7	3977	13.7	16.5
168523	13.3	18.9	440401	13.4	21.6	440086	13.4	20.7	53550	13.5	21.1	206770	13.6	18.9	301143	13.7	20.3
228750	13.3	19.0	131933	13.4	17.1	224582	13.4	19.8	459755	13.5	21.6	212866	13.6	19.5	148599	13.7	18.6
418267	13.3	21.5	427516	13.4	20.8	289420	13.4	20.0	328967	13.5	19.9	138279	13.6	19.0	233113	13.7	18.8
245342	13.3	19.7	81736	13.4	19.9	79060	13.4	19.3	114397	13.5	18.5	221181	13.6	19.9	116262	13.7	19.4
132454	13.3	19.6	221724	13.4	19.6	158526	13.4	19.9	33369	13.5	17.8	182474	13.6	20.9	401049	13.7	21.6
327917	13.3	20.5	159477	13.4	20.1	272131	13.4	20.6	330409	13.5	20.1	231660	13.6	18.9	305896	13.7	20.0
239012	13.3	20.6	465948	13.4	20.3	98294	13.4	18.8	17380	13.5	17.8	348788	13.6	20.5	313452	13.7	20.7
334445	13.3	20.2	239298	13.4	20.7	229208	13.4	20.2	148284	13.5	19.2	53481	13.6	18.4	84720	13.7	19.0
218905	13.3	19.5	104381	13.4	19.6	457152	13.4	21.5	419080	13.5	20.3	31451	13.6	18.5	283022	13.7	20.0
331838	13.3	19.6	197964	13.4	20.5	348265	13.4	20.7	166865	13.5	19.2	86863	13.6	19.6	347764	13.7	19.4
184117	13.3	20.3	144930	13.4	19.1	61374	13.4	19.0	489453	13.5	21.4	232982	13.6	19.7	191309	13.7	20.6
312222	13.3	20.4	376172	13.4	20.5	467596	13.4	21.3	418348	13.5	21.4	269484	13.6	20.4	499994	13.7	21.2
183352	13.3	19.1	43800	13.4	17.3	2185	13.4	15.8	239030	13.5	21.2	96308	13.6	18.8	131502	13.7	20.5
414764	13.3	21.1	428369	13.4	20.5	237378	13.4	19.7	306002	13.5	20.2	183364	13.6	19.5	327946	13.7	19.9
78718	13.3	18.8	241477	13.4	19.6	465068	13.4	21.3	158847	13.5	19.9	423318	13.6	20.6	209775	13.7	20.0
68402	13.3	19.4	495919	13.4	21.4	387465	13.4	20.6	150259	13.5	20.2	193227	13.6	19.5	262959	13.7	20.0
423334	13.3	21.2	149680	13.4	20.3	404175	13.4	20.1	8565	13.5	17.7	396338	13.6	20.6	48872	13.7	19.4
433854	13.3	20.6	96396	13.4	17.9	246706	13.4	19.3	291844	13.5	20.4	115334	13.6	19.8	419305	13.7	20.6
221977	13.3	19.2	63522	13.4	19.3	424908	13.4	21.0	132405	13.5	20.5	279563	13.6	20.6	288338	13.7	19.5
420023	13.3	20.8	214503	13.4	21.0	517180	13.4	21.4	155605	13.5	18.6	176784	13.6	20.1	323476	13.7	20.8
492753	13.3	21.3	363346	13.4	20.6	105434	13.5	19.0	56681	13.5	19.0	500198	13.6	22.1	54958	13.7	19.3
227598	13.3	20.0	465189	13.4	20.3	167659	13.5	18.5	367995	13.5	20.3	80808	13.6	18.4	251041	13.7	20.0
362453	13.3	21.0	90827	13.4	20.0	156728	13.5	19.1	328775	13.5	20.6	217574	13.6	19.6	430741	13.7	21.3
467302	13.3	21.2	240872	13.4	19.5	420497	13.5	20.1	323470	13.5	21.5	101270	13.6	19.0	180887	13.7	20.1
230540	13.3	18.4	420216	13.4	20.6	47410	13.5	18.3	121938	13.5	19.0	2043	13.6	15.0	456209	13.7	21.1
427046	13.3	20.7	381224	13.4	20.1	408411	13.5	20.9	400959	13.5	20.6	395369	13.6	21.3	171326	13.7	20.0
420994	13.3	20.7	18792	13.4	17.4	394930	13.5	21.1	79479	13.5	17.5	101059	13.6	19.5	53982	13.7	18.0
304905	13.3	20.4	71758	13.4	16.5	324664	13.5	19.7	341497	13.5	21.0	241665	13.6	20.4	243056	13.7	20.7
394474	13.3	21.7	387848	13.4	21.2	291596	13.5	20.5	113229	13.5	19.1	303529	13.6	19.9	304106	13.7	19.2
85327	13.3	18.9	257002	13.4	18.9	493505	13.5	20.9	24825	13.5	16.7	302056	13.6	20.7	248752	13.7	19.9
413697	13.3	19.8	72981	13.4	19.9	193375	13.5	18.9	264163	13.5	19.9	420867	13.6	20.9	424781	13.7	20.1
36765	13.3	18.1	64604	13.4	18.7	126257	13.5	18.9	373334	13.5	20.2	445030	13.6	20.9	417213	13.7	20.9
411447	13.3	20.4	230514	13.4	20.5	467539	13.5	21.0	312167	13.5	21.0	221177	13.6	19.8	9496	13.7	17.1
469038	13.3	20.2	85063	13.4	20.6	239736	13.5	20.0	38931	13.5	17.3	88721	13.6	19.0	297507	13.7	19.9
219796	13.3	19.2	307418	13.4	19.4	206277	13.5	19.8	411327	13.6	20.9	152235	13.6	19.5	197997	13.7	19.5
167762	13.3	19.2	317060	13.4	20.7	496524	13.5	21.0	91619	13.6	19.0	197879	13.6	19.3	445075	13.7	21.2
179872	13.3	19.2	372608	13.4	19.6	326245	13.5										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
288752	13.7	20.3	247924	13.8	19.2	201488	13.9	20.1	298825	13.9	21.1	188828	14.0	21.0	234207	14.1	21.6
186898	13.7	20.9	106838	13.8	18.2	39241	13.9	18.9	237493	13.9	21.2	56084	14.0	18.6	5799	14.1	17.5
418930	13.7	20.3	167132	13.8	20.5	142521	13.9	19.3	130641	13.9	19.1	18200	14.0	16.3	354174	14.1	19.7
454458	13.7	20.9	431594	13.8	21.2	423114	13.9	19.8	490125	13.9	20.4	90711	14.0	18.9	112791	14.1	18.6
167060	13.7	18.0	502139	13.8	21.0	488562	13.9	21.1	205492	13.9	19.3	192414	14.0	21.1	181465	14.1	20.5
124174	13.7	20.0	163073	13.8	19.1	383673	13.9	20.7	229886	13.9	20.2	18189	14.0	17.6	38898	14.1	19.4
473365	13.7	20.2	417724	13.8	20.4	260051	13.9	20.2	229980	13.9	20.0	464871	14.0	22.0	129176	14.1	19.9
418371	13.7	20.8	1772	13.8	15.5	242717	13.9	19.7	307848	13.9	18.7	57985	14.0	18.7	432128	14.1	20.3
412583	13.7	20.6	457229	13.8	21.1	493660	13.9	20.5	403774	13.9	20.8	161462	14.0	19.0	408629	14.1	20.3
496911	13.7	21.7	302874	13.8	21.6	223808	13.9	20.2	455115	13.9	20.5	516461	14.0	22.4	468248	14.1	20.1
136110	13.7	19.4	468766	13.8	19.4	302387	13.9	19.7	367196	13.9	19.9	46642	14.0	18.7	80062	14.1	19.5
311056	13.7	20.7	372085	13.8	21.0	317018	13.9	20.2	39964	13.9	18.3	193006	14.0	20.0	382243	14.1	20.1
132778	13.7	18.8	262187	13.8	21.7	108032	13.9	18.7	251593	13.9	19.8	338942	14.0	20.0	347676	14.1	18.8
231978	13.7	20.1	398340	13.8	21.0	498838	13.9	20.5	492667	13.9	21.5	341611	14.0	20.5	498993	14.1	20.4
131315	13.7	20.7	322249	13.8	20.6	409647	13.9	20.3	113448	13.9	19.2	466494	14.0	21.4	134180	14.1	18.9
50932	13.7	17.6	230829	13.8	20.3	424938	13.9	19.9	245924	13.9	20.9	222817	14.0	20.0	74150	14.1	16.6
118158	13.7	19.8	187856	13.8	19.8	12157	13.9	18.3	92815	13.9	18.4	120074	14.0	19.5	412748	14.1	21.2
431500	13.7	20.7	134446	13.8	19.0	70802	13.9	18.6	17908	13.9	18.2	402068	14.0	19.7	7818	14.1	15.7
453366	13.7	20.9	156556	13.8	19.9	141576	13.9	19.9	378399	13.9	20.3	465267	14.0	21.4	494830	14.1	21.4
333197	13.7	20.6	87018	13.8	19.5	50687	13.9	17.7	51232	13.9	18.7	153950	14.0	19.5	462360	14.1	20.9
519065	13.7	21.0	461519	13.8	20.5	422167	13.9	21.8	124290	13.9	20.1	65582	14.0	18.4	418718	14.1	20.2
464988	13.7	20.2	363873	13.8	21.3	161559	13.9	19.1	281362	13.9	21.2	47689	14.0	17.7	124580	14.1	19.3
360097	13.7	20.5	339551	13.8	21.3	362886	13.9	19.9	235067	13.9	20.5	210182	14.0	19.8	245076	14.1	20.4
340625	13.7	20.0	485453	13.8	20.3	448752	13.9	21.0	262747	13.9	19.8	109780	14.0	20.2	159249	14.1	19.6
223770	13.7	19.6	420692	13.8	21.1	85369	13.9	18.3	247605	13.9	20.6	364456	14.0	20.5	423588	14.1	20.2
153609	13.7	20.1	418592	13.8	19.8	138002	13.9	18.5	522513	13.9	21.2	391476	14.0	21.6	305734	14.1	19.4
234888	13.7	20.2	100332	13.8	19.4	166226	13.9	19.0	184060	13.9	19.8	457028	14.0	20.7	63713	14.1	18.2
480391	13.7	21.3	120253	13.8	20.0	167094	13.9	20.8	187447	13.9	20.2	345238	14.0	19.4	224015	14.1	19.6
466752	13.7	21.0	486010	13.8	21.3	277239	13.9	20.4	24086	13.9	18.2	191409	14.0	19.4	182450	14.1	19.9
347499	13.7	19.9	395455	13.8	21.1	345069	13.9	22.2	469064	13.9	20.1	273129	14.0	20.3	6519	14.1	17.3
394042	13.7	20.0	14238	13.8	16.5	500007	13.9	22.6	421513	13.9	21.2	102766	14.0	19.0	33886	14.1	19.0
406469	13.7	21.6	169303	13.8	19.4	300330	13.9	19.7	2373	13.9	16.4	268144	14.0	20.4	182528	14.1	20.3
86350	13.7	17.9	59137	13.8	17.5	331017	13.9	19.8	36952	13.9	18.8	33493	14.0	16.3	442649	14.1	21.5
460357	13.7	21.4	130892	13.8	18.8	231090	13.9	18.9	340869	13.9	19.4	279890	14.0	20.1	204313	14.1	19.3
302867	13.7	21.1	459243	13.8	20.2	94870	13.9	19.2	424305	13.9	20.1	53693	14.0	18.1	347860	14.1	21.8
31059	13.8	18.1	419235	13.8	19.9	368	13.9	15.1	278470	13.9	20.5	310155	14.0	20.5	323820	14.1	20.7
307641	13.8	21.1	451733	13.8	20.2	489039	13.9	20.2	108668	13.9	19.4	27505	14.0	17.6	36685	14.1	19.3
335657	13.8	20.3	304810	13.8	20.8	472304	13.9	19.7	252318	13.9	19.4	493024	14.0	21.3	96634	14.1	18.8
98497	13.8	18.3	10458	13.8	18.2	138418	13.9	18.8	542	13.9	13.6	16955	14.0	15.0	217039	14.1	20.3
49564	13.8	17.8	276548	13.8	20.6	219756	13.9	19.8	486071	13.9	20.6	354963	14.0	19.4	323877	14.1	20.7
33492	13.8	17.5	489429	13.8	21.1	347274	13.9	20.4	79352	13.9	17.9	206324	14.0	20.5	322722	14.1	21.4
263759	13.8	19.7	346111	13.8	20.8	445101	13.9	20.1	204258	13.9	19.6	325832	14.0	20.0	281189	14.1	19.7
213706	13.8	19.8	282861	13.8	20.2	423325	13.9	19.5	303551	13.9	20.0	67709	14.0	19.2	457058	14.1	20.9
51703	13.8	19.4	93652	13.8	19.5	177544	13.9	20.6	56873	13.9	19.0	203853	14.0	19.5	79496	14.1	19.9
206796	13.8	18.9	89486	13.8	18.5	274636	13.9	21.0	133181	13.9	20.7	334955	14.0	19.5	179923	14.1	18.5
21403	13.8	19.0	19378	13.8	17.8	257819	13.9	21.7	373891	13.9	21.1	144820	14.0	18.4	492032	14.1	20.8
99608	13.8	18.8	234787	13.8	19.9	266361	13.9	20.0	163447	13.9	18.6	351217	14.0	20.7	505848	14.1	20.4
50964	13.8	17.9	170326	13.8	21.4	400026	13.9	21.1	126111	13.9	19.2	55240	14.0	18.7	55906	14.1	19.8
492559	13.8	20.2	232246	13.8	19.9	196189	13.9	18.8	149624	13.9	19.0	53089	14.0	17.3	368737	14.1	20.2
449113	13.8	20.5	6202	13.8	16.3	64000	13.9	18.4	502145	13.9	20.6	317610	14.0	19.2	433508	14.1	20.0
469042	13.8	20.0	311701	13.8	20.1	416628	13.9	21.4	13941	13.9	17.5	239610	14.0	19.6	401498	14.1	21.3
361131	13.8	20.2	57943	13.8	18.9	354980	13.9	20.6	197376	13.9	18.9	43646	14.0	18.6	541	14.1	14.1
151562	13.8	20.2	294442	13.8	21.2	248573	13.9	19.8	90585	13.9	18.6	334678	14.0	18.4	11773	14.1	17.6
291858	13.8	20.6	424988	13.8	19.6	293016	13.9	20.7	459437	13.9	21.6	226734	14.0	20.3	204285	14.1	20.6
10701	13.8	18.7	256242	13.8	20.4	467802	13.9	20.8	111341	13.9	19.4	358625	14.0	20.3	354000	14.1	20.6
110969	13.8	20.3	77083	13.8	19.0	55187	13.9	17.9	394398	13.9	21.0	496059	14.0	20.1	29056	14.1	18.6
23170	13.8	17.3	265372	13.8	20.5	28187	13.9	17.1	301815	13.9	20.3	283955	14.0	21.0	353798	14.1	19.7
382220	13.8	20.2	453166	13.8	18.9	68476	13.9	18.1	49431	13.9	16.9	138210	14.0	18.7	502626	14.1	20.5
333812	13.8	17.9	220633	13.8	19.3	153332	13.9	19.3	256146	13.9	20.6	463957	14.0	20.4	521783	14.1	18.8
119593	13.8	19.9	37352	13.8	18.4	473969	13.9	20.7	256041	13.9	19.5	287551	14.0	19.8	243222	14.1	20.0
205957	13.8	19.4	418992	13.8	21.2	279081	13.9	19.6	431510	13.9	20.2	116618	14.0	17.8	320970	14.1	20.1
266390	13.8	20.4	78496	13.8	18.4	25229	13.9	18.4	205218	13.9	18.5	201198	14.1	19.6	377570	14.1	19.7
183710	13.8	19.0	196636	13.8	20.1	89080	13.9	18.4	429264	13.9	21.3	181064	14.1	19.7	226706	14.1	20.7
340641	13.8	22.1	288715	13.8	20.4	205867	13.9	20.6	101236	13.9	20.0	145399	14.1	19.9	53826	14.1	19.0
279931	13.8	21.1	498873	13.8	20.7	502643	13.9	19.8	192232	13.9	19.9	52865	14.1	17.6	168235	14.1	20.7
124584	13.8	18.2	51885	13.8	19.7	369540	13.9	20.4	94759	13.9	17.9	73252	14.1	20.1	163680	14.1	16.9
495530	13.8	20.8	23396	13.9	18.8	449849	13.9	18.7	126354	13.9	19.5	416764	14.1	20.5	280232	14.1	19.3
170203	13.8	20.7	9285	13.9	17.2	59621	13.9	19.2	312273	13.9	19.7	408717	14.1	20.7	279898	14.1	19.9
207335	13.8	20.2	455830	13.9	20.8	431538	13.9	19.9	68374</								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
126044	14.1	19.0	193042	14.2	19.9	898	14.3	17.0	150500	14.4	19.6	4110	14.4	16.7	250138	14.5	20.7
159550	14.1	20.0	492477	14.2	21.8	86921	14.3	19.4	415124	14.4	20.6	366870	14.4	19.7	210359	14.5	20.0
490792	14.1	21.6	20036	14.2	17.9	148941	14.3	19.8	320631	14.4	20.0	372247	14.4	20.1	313446	14.5	20.3
176203	14.1	20.5	131904	14.2	18.0	233889	14.3	20.4	217781	14.4	19.9	282590	14.4	20.5	241142	14.5	19.9
352688	14.1	20.1	36295	14.2	19.6	30724	14.3	16.7	75176	14.4	19.9	500773	14.4	21.4	427661	14.5	19.9
467537	14.1	20.6	304094	14.2	19.9	328243	14.3	21.3	250145	14.4	21.4	288982	14.4	19.4	358973	14.5	19.6
412200	14.1	21.1	149483	14.2	17.9	473858	14.3	21.1	149935	14.4	20.2	327911	14.4	19.7	439990	14.5	20.2
282960	14.1	20.1	292015	14.2	21.5	83170	14.3	18.1	497599	14.4	22.1	125354	14.4	19.0	518542	14.5	21.1
345189	14.1	19.6	118309	14.2	19.7	424923	14.3	19.6	46477	14.4	19.5	334227	14.4	20.5	167871	14.5	19.3
409581	14.1	20.6	409843	14.2	21.2	426408	14.3	20.6	454146	14.4	21.1	35832	14.4	18.6	400050	14.5	20.7
4207	14.1	15.5	6944	14.2	17.7	36342	14.3	18.1	460073	14.4	20.7	98229	14.4	19.8	263049	14.5	20.0
42682	14.1	17.6	280734	14.2	19.8	326308	14.3	20.8	437317	14.4	20.1	86452	14.4	18.4	276356	14.5	20.4
393416	14.1	21.3	226754	14.2	20.9	100133	14.3	20.6	330017	14.4	20.1	465197	14.4	21.2	179925	14.5	18.6
317550	14.1	19.9	240524	14.2	20.2	356473	14.3	19.8	170454	14.4	19.7	81506	14.4	18.7	31967	14.5	18.3
306050	14.1	20.5	329280	14.2	20.7	325333	14.3	20.3	199158	14.4	19.3	364986	14.4	19.8	433455	14.5	20.1
158390	14.1	20.0	238379	14.2	20.1	64004	14.3	18.9	304798	14.4	20.3	503683	14.4	21.8	440404	14.5	21.9
494741	14.1	21.7	206547	14.2	19.7	110733	14.3	19.5	183924	14.4	20.6	362143	14.4	20.2	157958	14.5	19.1
412733	14.1	20.7	80494	14.2	18.4	363245	14.3	19.3	191845	14.4	19.5	150802	14.4	18.3	210813	14.5	20.9
344525	14.1	19.8	449536	14.2	20.5	236091	14.3	21.1	195649	14.4	20.0	88016	14.4	19.6	243405	14.5	19.7
424666	14.1	20.8	490644	14.2	20.6	381906	14.3	20.2	400339	14.4	21.5	388466	14.5	20.8	223194	14.5	21.2
371888	14.2	21.5	490744	14.2	20.3	243053	14.3	19.5	29703	14.4	17.4	376302	14.5	20.9	412331	14.5	20.8
293602	14.2	20.9	200990	14.2	18.8	424370	14.3	21.1	451002	14.4	21.3	218596	14.5	20.1	29939	14.5	18.2
238777	14.2	20.0	18121	14.2	18.8	367583	14.3	19.7	265870	14.4	19.4	253267	14.5	19.2	400111	14.5	20.5
207663	14.2	19.5	31521	14.2	17.7	193871	14.3	19.1	313122	14.4	18.7	190194	14.5	19.8	433715	14.5	19.8
6639	14.2	17.8	56734	14.2	18.8	318039	14.3	19.8	177920	14.4	19.8	369310	14.5	21.8	187585	14.5	19.3
363171	14.2	20.9	499486	14.2	20.8	79253	14.3	19.4	356110	14.4	20.4	343306	14.5	20.2	362237	14.5	21.1
450453	14.2	19.7	179970	14.2	18.8	293020	14.3	20.5	161456	14.4	19.5	8991	14.5	16.9	56884	14.5	19.1
34127	14.2	18.9	204270	14.2	19.9	288539	14.3	19.9	332343	14.4	19.6	16922	14.5	17.6	157386	14.5	20.2
351678	14.2	20.4	135652	14.2	20.0	135164	14.3	19.5	397803	14.4	21.0	237792	14.5	20.3	142747	14.5	20.0
377315	14.2	20.6	190541	14.2	18.7	90357	14.3	19.6	330071	14.4	19.0	51277	14.5	18.1	158173	14.5	19.7
297156	14.2	20.8	57827	14.2	18.3	420505	14.3	20.8	343198	14.4	20.3	59515	14.5	19.1	124336	14.5	19.6
242569	14.2	19.5	106135	14.2	19.2	168403	14.3	19.0	249551	14.4	19.8	57426	14.5	18.1	245051	14.5	19.7
82503	14.2	19.1	227552	14.2	20.3	269296	14.3	20.7	383684	14.4	19.9	367782	14.5	19.7	292016	14.5	19.7
368765	14.2	20.8	64834	14.2	19.2	456952	14.3	21.1	182050	14.4	20.0	235557	14.5	20.1	268750	14.5	20.9
177757	14.2	20.4	112032	14.2	20.1	86777	14.3	17.7	99483	14.4	19.3	389423	14.5	20.1	111393	14.5	19.7
431355	14.2	21.3	167038	14.2	20.6	186480	14.3	19.4	29279	14.4	19.3	263756	14.5	19.1	246346	14.5	20.6
81541	14.2	18.3	336000	14.2	20.1	31733	14.3	17.7	432528	14.4	21.2	154468	14.5	19.8	48253	14.5	18.5
369420	14.2	21.1	344553	14.2	20.2	76771	14.3	18.2	78234	14.4	19.2	88763	14.5	19.4	135384	14.5	19.9
296057	14.2	19.1	55221	14.2	16.6	297402	14.3	21.1	290810	14.4	19.6	459537	14.5	20.7	179090	14.5	19.7
489017	14.2	20.7	239427	14.2	19.6	95432	14.3	18.7	108610	14.4	18.5	310933	14.5	20.7	298970	14.5	20.6
11418	14.2	17.1	90834	14.2	18.9	131761	14.3	18.6	408549	14.4	20.6	262662	14.5	19.8	454863	14.5	20.1
359482	14.2	20.7	29489	14.2	17.9	382297	14.3	19.9	319685	14.4	20.1	427083	14.5	19.6	367398	14.5	20.9
404120	14.2	20.3	144575	14.2	19.0	131896	14.3	17.9	277173	14.4	20.4	423622	14.5	19.5	89760	14.5	19.5
30024	14.2	18.9	468465	14.2	20.3	218257	14.3	18.8	429799	14.4	20.4	490692	14.5	21.6	223742	14.5	20.0
189438	14.2	20.0	354399	14.2	21.1	460200	14.3	20.7	135697	14.4	20.4	220	14.5	14.9	466888	14.5	20.5
336959	14.2	20.1	246715	14.2	20.4	354834	14.3	19.1	262950	14.4	20.4	47260	14.5	19.2	492744	14.5	21.6
320743	14.2	21.0	436399	14.2	21.1	157139	14.3	19.9	166939	14.4	19.9	378953	14.5	20.4	132208	14.5	19.7
125431	14.2	19.2	203074	14.2	19.8	294227	14.3	20.3	391035	14.4	21.1	92654	14.5	18.0	11561	14.5	18.4
344846	14.2	19.8	369684	14.2	19.0	182428	14.3	20.3	501347	14.4	20.4	8041	14.5	16.5	85158	14.5	19.1
113580	14.2	19.2	365080	14.2	19.9	43032	14.3	18.6	254819	14.4	20.0	258481	14.5	18.2	136338	14.5	20.1
90452	14.2	16.6	323898	14.2	20.7	36565	14.3	18.2	381682	14.4	19.2	345175	14.5	19.7	99232	14.5	18.9
493348	14.2	21.1	100497	14.3	19.7	5579	14.3	16.8	201324	14.4	19.0	260940	14.5	19.5	492422	14.5	21.4
203846	14.2	19.5	433087	14.3	21.0	314756	14.3	19.4	334582	14.4	19.9	278861	14.5	20.7	221815	14.5	19.3
126443	14.2	18.6	76410	14.3	18.4	176189	14.3	20.1	433851	14.4	19.5	399767	14.5	19.2	104103	14.5	19.0
240275	14.2	19.4	33439	14.3	18.7	301813	14.3	20.6	88375	14.4	18.0	203582	14.5	18.7	29704	14.6	19.4
59177	14.2	17.2	226888	14.3	19.4	372727	14.3	20.8	436094	14.4	22.9	517196	14.5	20.0	245107	14.6	20.4
242958	14.2	19.8	332428	14.3	20.0	496708	14.3	19.6	281430	14.4	20.7	332813	14.5	20.5	256018	14.6	19.9
398141	14.2	21.3	65948	14.3	17.8	456685	14.3	20.9	61084	14.4	18.8	503568	14.5	20.7	154106	14.6	19.5
265895	14.2	20.3	252243	14.3	19.6	143285	14.3	19.1	244472	14.4	20.3	407272	14.5	20.7	457605	14.6	20.3
409246	14.2	20.4	81511	14.3	17.3	109361	14.3	18.5	257831	14.4	20.3	204820	14.5	20.7	162988	14.6	19.2
192915	14.2	20.0	236607	14.3	20.0	454139	14.3	21.3	184854	14.4	19.6	391785	14.5	20.8	413532	14.6	20.5
117673	14.2	19.7	423264	14.3	21.3	80053	14.3	19.2	19972	14.4	18.0	74900	14.5	18.3	249560	14.6	20.6
518219	14.2	20.9	454636	14.3	20.2	261284	14.3	20.4	431516	14.4	20.6	468285	14.5	20.3	95861	14.6	18.6
42901	14.2	18.7	41751	14.3	17.3	78663	14.3	19.2	87825	14.4	19.7	227929	14.5	20.9	252457	14.6	18.2
83905	14.2	18.9	222739	14.3	20.0	169346	14.3	20.0	62435	14.4	18.5	363021	14.5	20.9	83508	14.6	19.3
465979	14.2	21.0	149978	14.3	19.4	460652	14.3	20.7	242081	14.4	19.7	406157	14.5	20.6	331247	14.6	20.9
456451	14.2	20.9	377550	14.3	20.3	348580	14.3	19.6	413679	14.4	18.7	109508	14.5	19.8	398813	14.6	21.0
167102	14.2	20.2	173392	14.3	19.4	347644	14.3	20.1	264914	14.4	19.4	428468	14.5	21.0	83563	14.6	18.6
175961	14.2	20.6	318102	14.3	20.8	386743	14.3	20.4									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
129434	14.6	19.3	438342	14.6	22.5	323468	14.7	20.8	5064	14.8	16.8	495906	14.9	22.0	162689	14.9	18.5
381214	14.6	21.1	460693	14.6	21.3	432461	14.7	21.2	203123	14.8	20.2	435140	14.9	22.0	51059	14.9	18.3
242613	14.6	19.5	350719	14.6	19.4	185281	14.7	19.5	167847	14.8	19.2	63492	14.9	18.6	494950	14.9	22.0
493361	14.6	20.8	55136	14.6	19.2	92480	14.7	19.1	455868	14.8	20.7	466332	14.9	20.8	519157	14.9	22.4
42640	14.6	18.6	164574	14.6	20.2	466854	14.7	20.6	360190	14.8	20.5	336026	14.9	20.4	104773	14.9	19.9
545	14.6	14.2	240400	14.7	21.0	139772	14.7	19.9	283416	14.8	20.6	462196	14.9	20.6	250198	14.9	20.8
330095	14.6	19.9	266356	14.7	19.7	95304	14.7	19.1	229206	14.8	19.4	232609	14.9	20.4	462342	14.9	20.7
235569	14.6	20.3	98141	14.7	19.1	132569	14.7	19.5	409459	14.8	20.4	146697	14.9	19.5	258515	14.9	18.6
329956	14.6	21.4	193920	14.7	20.6	450299	14.7	21.8	124518	14.8	18.4	93431	14.9	19.0	319601	14.9	19.0
153334	14.6	19.2	367214	14.7	20.2	286593	14.7	19.6	267457	14.8	19.9	306696	14.9	20.1	325273	14.9	20.4
322826	14.6	19.7	121096	14.7	19.6	169309	14.7	18.8	244684	14.8	20.4	239329	14.9	20.1	273146	14.9	21.1
455768	14.6	21.2	317043	14.7	21.0	161176	14.7	19.8	402676	14.8	21.3	15011	14.9	17.2	139375	14.9	19.5
455759	14.6	21.1	78012	14.7	20.2	421413	14.7	20.1	440974	14.8	20.3	55256	14.9	17.8	166288	14.9	19.3
335859	14.6	20.5	274010	14.7	20.8	347598	14.7	20.3	429723	14.8	20.4	324057	14.9	20.0	419929	14.9	19.9
444320	14.6	20.5	428910	14.7	20.3	285682	14.7	20.2	110788	14.8	18.3	33585	14.9	17.0	240932	14.9	20.9
168489	14.6	20.5	180500	14.7	20.1	325150	14.7	20.5	110322	14.8	19.7	519227	14.9	19.4	26317	14.9	18.1
309296	14.6	20.9	368450	14.7	20.8	271234	14.7	19.6	68628	14.8	19.0	43331	14.9	17.3	338111	14.9	21.2
321243	14.6	19.7	94563	14.7	17.8	26097	14.7	17.2	218644	14.8	20.8	300368	14.9	19.2	395694	14.9	20.9
199837	14.6	20.8	242227	14.7	20.4	114460	14.7	19.2	210033	14.8	19.8	132198	14.9	19.2	379673	14.9	20.3
309370	14.6	19.9	460678	14.7	19.4	348442	14.7	20.3	369567	14.8	19.9	402471	14.9	20.4	453809	14.9	20.1
319761	14.6	20.2	304099	14.7	20.8	491885	14.7	20.1	425382	14.8	21.3	80787	14.9	19.2	196248	14.9	19.4
15853	14.6	18.1	339521	14.7	21.7	363228	14.7	21.1	162949	14.8	18.3	396003	14.9	20.9	287969	14.9	20.1
15795	14.6	17.1	8941	14.7	16.8	409929	14.7	21.6	388033	14.8	21.7	142329	14.9	19.9	337379	14.9	21.7
419066	14.6	21.2	166976	14.7	20.3	274467	14.7	20.3	226578	14.8	19.7	136627	14.9	21.0	465788	14.9	21.7
396836	14.6	20.3	113722	14.7	18.5	143718	14.7	19.3	331460	14.8	20.0	210161	14.9	20.2	146647	14.9	20.0
280226	14.6	20.7	491213	14.7	21.1	9596	14.7	17.9	50615	14.8	18.5	15353	14.9	17.3	240655	14.9	19.9
354075	14.6	20.7	301149	14.7	19.6	48049	14.8	19.3	126869	14.8	18.6	521976	14.9	20.1	126586	14.9	19.4
459821	14.6	20.6	473296	14.7	20.0	492131	14.8	20.6	26062	14.8	17.9	104533	14.9	20.3	179949	14.9	18.9
505248	14.6	21.3	206337	14.7	20.8	144799	14.8	19.1	202306	14.8	20.0	485529	14.9	21.9	457716	14.9	19.8
430231	14.6	20.1	375316	14.7	20.6	399224	14.8	20.8	175473	14.8	20.4	96455	14.9	18.9	231486	14.9	20.8
81819	14.6	20.1	460903	14.7	21.0	475384	14.8	21.6	522386	14.8	20.9	48265	14.9	19.6	18246	14.9	19.3
325306	14.6	21.1	428862	14.7	21.1	276809	14.8	19.7	282803	14.8	20.7	376425	14.9	21.7	457039	14.9	20.9
197277	14.6	19.4	278274	14.7	19.5	210217	14.8	20.4	401435	14.8	20.7	345109	14.9	20.7	371237	14.9	20.1
480028	14.6	18.5	135297	14.7	20.0	358287	14.8	21.5	10185	14.8	17.6	207569	14.9	20.8	254692	14.9	20.2
190250	14.6	20.9	274655	14.7	20.2	457061	14.8	21.1	404278	14.8	20.4	207389	14.9	17.7	66072	14.9	19.2
20948	14.6	18.4	502502	14.7	21.0	495924	14.8	19.4	377035	14.8	20.5	53097	14.9	17.2	197615	14.9	21.3
146530	14.6	20.1	418173	14.7	20.6	393696	14.8	22.3	227922	14.8	20.6	326476	14.9	19.4	116403	14.9	18.5
282182	14.6	20.5	186537	14.7	18.9	419138	14.8	20.9	319680	14.8	20.5	343498	14.9	20.4	296251	14.9	21.4
141563	14.6	19.6	466229	14.7	22.4	25254	14.8	18.2	493167	14.8	20.8	212038	14.9	19.8	218358	14.9	21.0
348602	14.6	20.3	15712	14.7	18.5	253236	14.8	19.1	159081	14.8	20.2	37143	14.9	19.2	377082	14.9	20.9
415934	14.6	20.3	307237	14.7	19.2	258518	14.8	19.3	366786	14.8	21.0	280655	14.9	20.4	354976	14.9	21.2
243311	14.6	21.3	39920	14.7	18.9	369807	14.8	20.2	297513	14.8	19.2	321206	14.9	21.2	419769	14.9	21.4
372082	14.6	20.5	237503	14.7	20.4	317596	14.8	19.6	189264	14.8	20.0	346933	14.9	19.3	263603	14.9	19.6
487748	14.6	20.5	206875	14.7	20.0	90636	14.8	20.0	327019	14.8	20.6	458220	14.9	21.2	195616	14.9	20.5
101026	14.6	19.5	267825	14.7	19.7	424122	14.8	21.3	160393	14.8	20.2	517593	14.9	21.0	393798	14.9	21.0
225619	14.6	18.8	235969	14.7	19.9	427802	14.8	21.4	438040	14.8	19.6	255889	14.9	20.4	431514	14.9	19.9
168984	14.6	19.4	92064	14.7	17.9	224477	14.8	19.5	357134	14.8	19.9	109206	14.9	18.9	38286	14.9	19.2
498359	14.6	20.1	247820	14.7	19.9	381228	14.8	20.1	492426	14.8	20.7	82885	14.9	19.3	224612	14.9	20.0
114738	14.6	19.1	388865	14.7	20.4	83140	14.8	19.5	433857	14.8	19.7	460156	14.9	21.1	104848	14.9	19.5
445066	14.6	20.9	28908	14.7	18.1	451430	14.8	20.7	9957	14.8	17.4	280810	14.9	21.0	409586	14.9	19.8
154825	14.6	20.4	76314	14.7	16.9	109309	14.8	19.9	238094	14.8	19.3	474091	14.9	21.6	83276	14.9	18.9
320988	14.6	20.8	156554	14.7	19.4	432477	14.8	20.9	277258	14.8	20.6	439953	14.9	21.4	41088	14.9	18.9
421849	14.6	21.7	204123	14.7	19.4	450904	14.8	19.1	98283	14.8	18.9	160792	14.9	20.1	341418	14.9	20.9
442724	14.6	20.4	455866	14.7	21.2	448239	14.8	20.7	276686	14.8	20.3	401819	14.9	21.5	390613	14.9	20.7
453781	14.6	20.1	89606	14.7	19.1	53113	14.8	16.6	153821	14.8	19.0	245088	14.9	20.2	439865	14.9	21.8
518155	14.6	20.5	191994	14.7	19.0	77351	14.8	18.6	199095	14.8	20.3	261597	14.9	20.8	185024	14.9	21.1
119123	14.6	19.3	433108	14.7	20.8	214515	14.8	20.2	37828	14.8	17.1	461503	14.9	21.4	355896	14.9	20.5
429326	14.6	20.1	221702	14.7	19.6	151203	14.8	19.2	345143	14.8	19.3	223266	14.9	20.0	426836	14.9	19.9
144597	14.6	19.3	460961	14.7	20.9	365150	14.8	20.3	3365	14.8	17.0	210451	14.9	20.3	139388	14.9	19.5
496267	14.6	21.5	248210	14.7	19.7	423331	14.8	20.2	130023	14.8	18.5	184109	14.9	19.6	336989	14.9	19.6
452510	14.6	21.7	522487	14.7	21.3	110112	14.8	20.4	218994	14.8	20.0	14653	14.9	18.6	324670	14.9	19.9
88026	14.6	19.4	26027	14.7	18.0	195878	14.8	19.5	170020	14.8	19.1	389902	14.9	20.9	427695	14.9	19.7
207874	14.6	19.1	274682	14.7	20.8	191458	14.8	19.9	379134	14.8	19.1	369757	14.9	19.7	440557	14.9	20.5
253264	14.6	19.2	125099	14.7	18.9	347475	14.8	20.6	105237	14.8	20.2	317374	14.9	19.4	393222	14.9	19.7
365990	14.6	19.2	289644	14.7	20.6	401412	14.8	19.9	244335	14.8	20.7	13919	14.9	16.8	34430	14.9	19.4
373410	14.6	21.5	105003	14.7	19.3	301197	14.8	19.9	349258	14.8	20.5	391786	14.9	20.8	172994	14.9	19.9
109296	14.6	19.2	449203	14.7	19.7	217604	14.8	20.7	238795	14.8	19.8	81773	14.9	19.4	468664	14.9	20.9
10814	14.6	17.5	49295	14.7	18.8	2508	14.8	16.7	467161	14.8	20.3	381193	14.9	20.8	318414	14.9	19.7
55484	14.6	16.5	462132	14.7	20.8	88558</											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
221138	14.9	19.5	354552	15.1	20.3	10309	15.1	16.8	344079	15.2	20.5	119690	15.3	20.0	401522	15.4	20.7
428994	14.9	19.3	492268	15.1	19.9	400177	15.1	20.9	146605	15.2	18.0	489622	15.3	20.6	60941	15.4	19.1
159873	14.9	20.2	496367	15.1	20.7	102987	15.1	18.4	314929	15.2	19.4	89435	15.3	18.9	53459	15.4	18.0
324594	14.9	18.9	424132	15.1	21.2	310356	15.1	20.1	55182	15.2	17.5	153303	15.3	19.7	100024	15.4	18.9
469215	14.9	20.6	292697	15.1	21.5	256109	15.1	20.1	459653	15.2	21.1	126276	15.3	19.4	88575	15.4	18.4
180578	14.9	19.4	163539	15.1	19.7	335858	15.1	20.8	121018	15.2	17.9	259164	15.3	19.1	459303	15.4	19.7
393441	14.9	20.8	301745	15.1	20.3	374025	15.1	19.5	318084	15.2	19.7	294433	15.3	20.7	16972	15.4	17.9
325882	14.9	19.0	63592	15.1	17.6	318693	15.1	21.0	5597	15.2	17.4	71871	15.3	17.7	168125	15.4	20.4
108965	14.9	18.7	450302	15.1	20.5	378383	15.1	20.4	79633	15.2	17.9	57609	15.3	17.9	454127	15.4	20.4
294683	14.9	20.4	409438	15.1	19.9	465800	15.1	20.1	324604	15.2	19.0	64605	15.3	18.5	145902	15.4	20.6
432018	15.0	20.9	238325	15.1	20.2	492536	15.1	20.0	393357	15.2	20.3	240339	15.3	21.0	83426	15.4	19.4
203115	15.0	19.0	49243	15.1	18.2	114387	15.2	18.3	362076	15.2	20.6	278485	15.3	20.0	490302	15.4	20.3
6459	15.0	16.7	43953	15.1	17.3	447780	15.2	20.2	197772	15.2	20.0	310244	15.3	20.4	106561	15.4	18.6
106924	15.0	18.9	451708	15.1	20.3	36124	15.2	18.0	173033	15.2	19.9	54210	15.3	19.4	380485	15.4	19.6
3191	15.0	16.2	125136	15.1	18.8	218380	15.2	20.2	125755	15.2	19.0	236684	15.3	21.6	35319	15.4	18.3
176968	15.0	19.8	223762	15.1	20.3	243754	15.2	20.5	11132	15.2	16.8	146881	15.3	19.3	28902	15.4	18.1
73949	15.0	18.2	420065	15.1	19.7	19226	15.2	17.8	403060	15.2	20.6	278313	15.3	20.8	406623	15.4	20.3
199067	15.0	19.1	365231	15.1	21.4	293209	15.2	19.0	87617	15.2	18.1	240585	15.3	20.7	227557	15.4	20.6
261487	15.0	20.0	61192	15.1	19.5	238737	15.2	21.1	459180	15.2	20.9	83288	15.3	18.8	140986	15.4	18.8
246148	15.0	21.0	265004	15.1	19.6	215495	15.2	19.4	119007	15.2	17.5	97548	15.3	18.7	281763	15.4	20.3
252597	15.0	17.8	285636	15.1	20.2	67631	15.2	18.7	467533	15.2	21.0	430465	15.3	21.1	189477	15.4	20.1
334950	15.0	19.2	493014	15.1	20.8	245168	15.2	19.4	279346	15.2	20.2	350425	15.3	21.1	164842	15.4	19.9
243540	15.0	19.8	288735	15.1	21.1	323493	15.2	20.6	70343	15.2	19.9	81654	15.3	17.8	179969	15.4	17.9
187270	15.0	20.5	447018	15.1	20.7	200019	15.2	19.9	304790	15.2	20.7	296066	15.3	19.6	284098	15.4	20.1
198886	15.0	20.2	175328	15.1	20.4	113769	15.2	18.7	506622	15.2	21.7	373182	15.3	21.1	96133	15.4	19.5
60909	15.0	18.2	491014	15.1	21.1	127475	15.2	19.5	46464	15.2	18.8	373153	15.3	19.9	143324	15.4	18.9
117194	15.0	19.5	57366	15.1	18.4	205943	15.2	20.9	200140	15.2	18.9	418899	15.3	20.4	34539	15.4	18.8
499791	15.0	20.6	116214	15.1	19.1	320760	15.2	20.3	110043	15.2	18.2	256860	15.3	20.6	78731	15.4	19.0
381898	15.0	19.9	30133	15.1	18.4	340642	15.2	21.2	407766	15.2	20.5	142715	15.3	18.1	160982	15.4	19.9
403103	15.0	20.7	163144	15.1	19.3	310339	15.2	20.6	76954	15.2	18.7	339557	15.3	21.4	413494	15.4	21.5
318606	15.0	19.5	499132	15.1	22.4	166810	15.2	19.4	243780	15.2	20.5	8249	15.3	17.1	468492	15.4	21.2
388866	15.0	20.9	80843	15.1	18.8	34514	15.2	18.2	378485	15.2	19.5	433039	15.3	20.2	439873	15.4	21.3
84995	15.0	18.8	483560	15.1	20.7	413510	15.2	20.1	283320	15.2	21.1	413660	15.3	19.7	317558	15.4	20.2
310052	15.0	20.9	251107	15.1	19.9	381215	15.2	20.2	281325	15.2	20.3	55070	15.3	18.4	333326	15.4	19.2
23495	15.0	16.6	195755	15.1	19.4	277200	15.2	19.8	389604	15.2	20.7	414280	15.3	20.0	217466	15.4	20.1
423356	15.0	21.7	428957	15.1	20.1	336623	15.2	19.9	92916	15.2	18.8	186214	15.3	19.3	129808	15.4	20.4
412547	15.0	20.5	338076	15.1	21.1	53768	15.2	18.6	427256	15.2	20.9	212031	15.3	19.4	340595	15.4	20.6
164672	15.0	18.6	466500	15.1	20.2	80951	15.2	19.3	691	15.2	13.4	130553	15.3	18.8	108981	15.4	19.9
55554	15.0	18.6	456934	15.1	20.0	242902	15.2	20.0	53147	15.2	18.2	472281	15.3	20.0	217944	15.4	19.9
454079	15.0	19.5	335866	15.1	20.4	14480	15.2	17.2	2446	15.3	16.7	14192	15.3	17.2	120853	15.4	19.6
307368	15.0	20.4	155773	15.1	18.6	354126	15.2	19.2	451046	15.3	20.3	419123	15.3	21.1	53187	15.4	18.8
521015	15.0	21.3	170308	15.1	20.3	206168	15.2	19.9	239408	15.3	20.1	165100	15.3	20.1	167109	15.4	19.8
268531	15.0	19.0	170567	15.1	20.9	274718	15.2	20.5	379016	15.3	19.5	405993	15.3	20.1	424756	15.4	20.5
320873	15.0	20.3	393886	15.1	20.2	330924	15.2	21.0	46976	15.3	18.3	280807	15.3	21.5	243740	15.4	21.3
194196	15.0	21.1	128000	15.1	18.0	369414	15.2	20.7	327907	15.3	19.2	258556	15.3	19.9	462002	15.4	21.0
365361	15.0	20.6	455575	15.1	21.2	82079	15.2	18.3	455778	15.3	21.6	295465	15.3	20.4	235599	15.4	19.7
43768	15.0	17.9	448777	15.1	20.3	261383	15.2	19.2	311603	15.3	20.1	461815	15.3	20.1	269059	15.4	20.9
278782	15.0	21.2	228737	15.1	19.6	288428	15.2	19.9	272105	15.3	21.0	380396	15.3	19.0	84730	15.4	18.6
192720	15.0	19.7	459288	15.1	20.7	77612	15.2	16.5	154168	15.3	18.7	123475	15.3	19.2	422512	15.4	20.6
372936	15.0	20.3	328663	15.1	20.4	437781	15.2	20.3	35100	15.3	19.2	9943	15.3	16.5	374189	15.4	19.5
84722	15.0	18.4	444323	15.1	20.6	62315	15.2	18.8	44480	15.3	18.8	51036	15.3	18.8	502923	15.4	20.5
241317	15.0	19.9	255934	15.1	20.5	367606	15.2	20.3	79489	15.3	19.2	298781	15.3	20.8	421049	15.4	20.9
376477	15.0	21.8	367202	15.1	20.3	75944	15.2	18.2	101977	15.3	19.0	355858	15.3	19.8	415688	15.4	20.1
380214	15.0	20.6	384794	15.1	19.9	157842	15.2	19.8	423473	15.3	20.8	424224	15.3	21.2	304137	15.4	19.8
214327	15.0	20.1	334077	15.1	20.5	199417	15.2	20.4	412335	15.3	21.0	415102	15.3	20.6	433810	15.4	20.6
2465	15.0	16.3	54140	15.1	17.6	459689	15.2	20.8	320857	15.3	20.1	206762	15.3	19.1	426140	15.4	20.4
271390	15.0	18.9	450298	15.1	21.6	16207	15.2	18.1	159535	15.3	18.7	96036	15.3	20.5	272869	15.4	20.5
36475	15.0	18.0	9095	15.1	17.4	11053	15.2	16.4	190737	15.3	20.7	492680	15.3	21.9	500749	15.4	23.8
473874	15.0	21.2	312423	15.1	19.5	84608	15.2	19.7	364436	15.3	21.8	122445	15.3	19.2	468284	15.4	20.7
364405	15.0	21.2	196997	15.1	20.3	61031	15.2	18.7	455247	15.3	20.6	152635	15.3	20.6	411840	15.4	19.5
53203	15.0	18.0	129478	15.1	19.9	205352	15.2	19.2	138699	15.3	18.5	501836	15.3	20.7	424949	15.4	20.0
274308	15.1	19.7	240826	15.1	19.2	32627	15.2	18.1	110042	15.3	19.4	73488	15.3	18.1	423678	15.4	20.0
227708	15.1	19.4	166316	15.1	20.4	109441	15.2	18.9	394810	15.3	21.3	484272	15.3	21.2	39006	15.4	18.3
506304	15.1	20.3	381624	15.1	19.3	452648	15.2	21.5	117582	15.3	19.8	154736	15.3	19.9	308048	15.4	21.0
291396	15.1	20.2	333614	15.1	20.9	402022	15.2	22.0	82248	15.3	18.4	286002	15.3	21.0	465200	15.4	20.7
34249	15.1	18.7	267509	15.1	20.2	486062	15.2	21.7	442732	15.3	19.4	276315	15.4	20.6	271416	15.4	20.0
226830	15.1	19.8	83463	15.1	19.2	268087	15.2	20.8	454042	15.3	19.2	222068	15.4	19.8	43867	15.4	19.0
95840	15.1	19.5	28040	15.1	18.8	309460	15.2	20.5	288628	15.3	20.4	13368	15.4	17.8	159987	15.4	20.4
140233	15.1	19.4	99970	15.1	17.3	156829	15.2	18.5	72262								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
309343	15.4	20.7	465675	15.5	21.0	355840	15.6	19.7	360307	15.7	20.8	422502	15.7	20.8	53328	15.8	16.9
368701	15.4	19.9	261601	15.5	19.9	274833	15.6	21.0	503923	15.7	21.2	502437	15.7	20.2	312265	15.8	19.3
103109	15.4	17.9	125930	15.5	18.3	102346	15.6	19.3	8172	15.7	16.7	119113	15.7	18.5	318002	15.8	19.2
81371	15.4	18.9	36330	15.5	19.2	168534	15.6	19.0	255945	15.7	20.3	68571	15.7	18.9	229234	15.8	20.0
503310	15.4	19.6	33147	15.5	18.1	461082	15.6	19.5	195909	15.7	19.7	6084	15.7	15.3	267510	15.8	21.3
10970	15.4	18.0	180213	15.5	19.6	191933	15.6	20.1	330466	15.7	19.9	230965	15.7	19.8	188473	15.8	20.7
293645	15.4	20.4	488528	15.5	21.9	377531	15.6	20.1	465986	15.7	21.2	454958	15.7	22.2	302512	15.8	19.5
15617	15.4	18.1	231383	15.5	20.4	1659	15.6	13.7	194576	15.7	19.1	296611	15.7	19.4	154385	15.8	19.1
398413	15.4	20.8	327921	15.5	19.7	179769	15.6	20.3	239279	15.7	20.5	62427	15.7	18.6	57794	15.8	18.6
499837	15.4	21.0	327788	15.5	19.9	117126	15.6	20.1	243725	15.7	20.7	372185	15.7	20.5	54604	15.8	18.5
457214	15.4	21.6	249362	15.5	20.1	299456	15.6	19.4	373962	15.7	20.2	363754	15.7	19.9	155274	15.8	19.9
166557	15.4	21.5	240830	15.5	19.6	356328	15.6	20.3	421589	15.7	22.1	209776	15.7	19.6	236025	15.8	20.9
152667	15.4	22.7	241205	15.5	19.8	393740	15.6	21.2	351659	15.7	20.2	406138	15.7	21.1	215771	15.8	19.9
6420	15.4	16.7	275033	15.5	21.1	168481	15.6	20.1	220606	15.7	19.9	523536	15.7	21.2	463366	15.8	21.9
451014	15.4	21.1	165720	15.5	19.9	486012	15.6	20.6	425987	15.7	21.2	379473	15.7	20.3	24293	15.8	18.2
94044	15.4	19.1	311037	15.5	19.1	378449	15.6	20.9	374604	15.7	19.7	473945	15.7	19.8	285610	15.8	19.6
300388	15.4	21.0	85610	15.5	20.0	445578	15.6	21.3	244014	15.7	19.0	152465	15.7	19.9	492812	15.8	21.8
371753	15.4	20.9	366671	15.5	19.8	494719	15.6	21.2	64616	15.7	18.0	19625	15.7	16.4	103881	15.8	19.8
356283	15.4	20.3	402741	15.5	18.7	320737	15.6	20.9	413979	15.7	19.8	2155	15.7	16.2	343455	15.8	19.8
452419	15.4	19.1	101528	15.5	18.7	417041	15.6	21.5	235561	15.7	20.2	460682	15.7	20.8	343315	15.8	20.9
205779	15.4	19.1	186101	15.5	19.6	467106	15.6	21.6	341371	15.7	20.5	5302	15.7	16.7	32225	15.8	18.9
125673	15.4	18.6	236952	15.5	20.3	509012	15.6	21.9	256320	15.7	19.3	364707	15.7	20.5	364635	15.8	19.8
118095	15.5	19.5	231829	15.5	20.2	43946	15.6	17.0	238451	15.7	20.2	424736	15.7	21.5	149940	15.8	19.7
468201	15.5	20.4	64780	15.5	18.2	154372	15.6	18.9	81712	15.7	18.8	234965	15.7	20.0	442651	15.8	20.4
425400	15.5	19.8	282942	15.5	19.7	88281	15.6	19.6	4965	15.7	18.1	76471	15.7	18.3	256152	15.8	20.2
225564	15.5	19.9	359798	15.5	20.5	62202	15.6	18.6	410044	15.7	19.6	466191	15.7	21.5	498012	15.8	21.6
456993	15.5	20.4	425229	15.5	20.4	265859	15.6	20.3	4371	15.7	16.3	90303	15.7	19.4	463268	15.8	19.9
130682	15.5	18.4	278952	15.5	20.1	452540	15.6	21.3	318867	15.7	21.5	511	15.7	9.6	133560	15.8	18.8
469093	15.5	21.1	363134	15.5	19.3	171445	15.6	20.2	143194	15.7	18.4	369349	15.7	22.2	464363	15.8	20.9
89552	15.5	18.0	456294	15.5	20.0	135700	15.6	18.6	328601	15.7	21.0	110947	15.7	19.0	456799	15.8	21.7
183609	15.5	20.0	456467	15.5	20.8	104824	15.6	19.4	5140	15.7	16.2	336510	15.7	19.3	132144	15.8	20.1
44737	15.5	19.7	91115	15.5	18.2	51888	15.6	19.2	19546	15.7	18.6	229183	15.7	20.7	299979	15.8	21.8
16915	15.5	18.0	518887	15.5	20.1	467067	15.6	20.6	374191	15.7	19.7	316836	15.7	20.4	114458	15.8	18.4
277978	15.5	20.8	323767	15.5	21.1	16715	15.6	19.7	405875	15.7	21.2	3896	15.7	15.7	245448	15.8	21.0
56165	15.5	19.0	397950	15.5	19.9	332156	15.6	20.5	119003	15.7	18.9	358562	15.7	20.4	351237	15.8	21.1
49300	15.5	18.0	357551	15.5	19.8	193832	15.6	20.0	521101	15.7	19.8	89344	15.7	19.7	135137	15.8	17.9
10864	15.5	16.7	405929	15.5	21.2	329004	15.6	19.7	282595	15.7	20.5	192412	15.7	20.9	79674	15.8	18.9
66509	15.5	18.1	177478	15.5	20.4	394390	15.6	21.2	146424	15.7	18.2	448094	15.7	21.7	414823	15.8	20.6
109408	15.5	18.6	101096	15.5	19.6	144659	15.6	19.5	410765	15.7	20.7	375334	15.7	20.9	128401	15.8	20.3
202352	15.5	19.8	281734	15.5	19.4	61593	15.6	19.5	380957	15.7	20.3	362084	15.7	20.0	394432	15.8	21.0
460722	15.5	20.6	221087	15.5	20.4	209661	15.6	19.8	99568	15.7	18.4	248678	15.7	21.1	473176	15.8	19.1
131500	15.5	19.0	448179	15.5	20.3	286155	15.6	21.2	376288	15.7	20.6	490183	15.7	20.3	110172	15.8	19.4
95314	15.5	19.4	340781	15.5	21.2	139891	15.6	19.3	77721	15.7	18.3	423286	15.7	19.9	381244	15.8	20.7
337422	15.5	20.8	518940	15.5	20.2	62370	15.6	19.7	453938	15.7	19.8	294859	15.7	20.5	19514	15.8	16.6
87483	15.5	17.5	378408	15.5	20.0	226749	15.6	20.8	87657	15.7	19.9	444147	15.7	20.4	354626	15.8	20.9
157605	15.5	19.4	373126	15.6	19.8	502575	15.6	21.3	27528	15.7	18.1	372934	15.7	20.6	464576	15.8	19.4
315597	15.5	20.0	166767	15.6	19.5	323873	15.6	19.9	339004	15.7	20.0	521005	15.7	21.8	236953	15.8	20.1
299557	15.5	19.9	81	15.6	11.7	309224	15.6	21.5	415892	15.7	21.5	492822	15.7	20.2	382232	15.8	19.9
189005	15.5	19.8	54569	15.6	19.1	463350	15.6	20.4	256997	15.7	20.1	337813	15.7	20.8	348623	15.8	20.3
143522	15.5	19.5	56036	15.6	18.1	9796	15.6	17.3	159030	15.7	19.2	55477	15.7	19.3	121275	15.8	19.5
301198	15.5	19.6	516421	15.6	21.5	489552	15.6	21.7	76910	15.7	19.0	427914	15.7	20.2	66995	15.8	18.7
492675	15.5	21.4	231619	15.6	20.0	226046	15.6	21.2	458473	15.7	20.8	128659	15.7	19.4	141944	15.8	19.9
364795	15.5	20.3	314906	15.6	20.8	143124	15.6	19.6	321436	15.7	20.5	146612	15.7	18.6	502602	15.8	20.4
100307	15.5	19.8	233603	15.6	19.6	242481	15.6	19.1	147253	15.7	18.6	368588	15.8	21.2	96744	15.8	16.3
194493	15.5	19.4	6884	15.6	16.2	439248	15.6	21.9	368820	15.7	19.9	29354	15.8	19.9	231136	15.8	20.3
111342	15.5	19.3	240432	15.6	20.2	494073	15.6	20.4	258	15.7	12.5	466955	15.8	20.1	147217	15.8	18.9
307231	15.5	20.2	367592	15.6	21.3	320633	15.6	20.3	252307	15.7	20.9	503681	15.8	20.9	127795	15.8	18.7
84569	15.5	18.4	19437	15.6	18.4	98698	15.6	19.1	242934	15.7	20.4	333098	15.8	19.7	172581	15.8	19.2
459245	15.5	20.7	234489	15.6	20.3	351719	15.6	20.2	424356	15.7	20.3	48456	15.8	18.7	397912	15.8	19.6
417766	15.5	20.2	303435	15.6	19.3	499499	15.6	20.1	170081	15.7	19.9	80919	15.8	18.5	109824	15.8	20.1
325254	15.5	21.0	188218	15.6	20.4	324535	15.6	19.4	163569	15.7	19.7	334014	15.8	20.4	299435	15.8	20.0
65958	15.5	19.5	8729	15.6	17.7	354538	15.6	21.0	253947	15.7	19.5	520891	15.8	21.1	280780	15.8	20.5
467702	15.5	20.0	11643	15.6	15.9	296274	15.6	20.4	335981	15.7	20.0	319526	15.8	20.8	367780	15.8	20.2
442743	15.5	20.2	316467	15.6	20.3	450560	15.6	19.3	412757	15.7	20.4	379129	15.8	19.5	396611	15.8	19.8
39903	15.5	18.4	157582	15.6	19.3	211865	15.6	20.3	350691	15.7	20.3	264230	15.8	20.5	242109	15.8	19.9
393393	15.5	21.7	274611	15.6	20.9	460934	15.6	20.7	429352	15.7	20.7	427304	15.8	20.0	314735	15.8	20.3
262601	15.5	19.9	115623	15.6	18.4	493031	15.6	21.4	140168	15.7	17.5	202809	15.8	20.2	213691	15.8	20.3
370723	15.5	22.1	90475	15.6	17.9	109075	15.6	20.1	247842	15.7	19.5	45714	15.8	18.6	268512	15.8	19.9
394131	15.5	21.1	288562	15.6	20.3	193876	15.6	20.2	72								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
308750	15.8	20.9	73540	15.9	20.1	270636	15.9	20.3	54146	16.1	18.6	404500	16.1	19.7	274756	16.2	20.5
248032	15.8	19.3	483535	15.9	20.1	120378	15.9	20.5	472449	16.1	20.3	164617	16.1	20.6	301914	16.2	20.9
117246	15.9	19.6	423089	15.9	19.6	466590	15.9	19.5	185529	16.1	19.5	169310	16.1	19.5	35834	16.2	17.1
351604	15.9	19.7	522053	15.9	20.1	223687	15.9	20.4	193950	16.1	21.0	20342	16.1	18.4	129894	16.2	20.9
24748	15.9	17.5	23136	15.9	18.3	405050	15.9	21.2	460933	16.1	20.1	290868	16.1	21.1	338900	16.2	19.2
502758	15.9	21.0	485070	15.9	20.5	218011	15.9	19.3	296545	16.1	20.9	214385	16.1	20.3	291434	16.2	20.3
460954	15.9	20.6	110833	15.9	19.4	490247	15.9	19.6	316277	16.1	20.2	34936	16.1	18.7	320477	16.2	19.9
85571	15.9	18.5	23708	15.9	17.2	138479	15.9	20.3	450993	16.1	21.4	411782	16.1	20.4	489220	16.2	21.7
104930	15.9	19.8	460301	15.9	20.8	156509	15.9	19.1	299010	16.1	19.7	404451	16.1	20.6	41608	16.2	18.4
333119	15.9	21.6	93249	15.9	19.5	10819	15.9	18.1	82007	16.1	19.3	132248	16.1	19.4	234064	16.2	19.8
343492	15.9	20.6	169258	15.9	19.8	203773	15.9	20.4	369854	16.1	20.6	51103	16.1	18.0	110916	16.2	18.7
485085	15.9	21.2	500563	15.9	21.2	363195	16.0	21.1	278938	16.1	19.5	305844	16.1	19.3	109619	16.2	19.7
101121	15.9	18.3	178109	15.9	20.3	77884	16.0	19.2	169376	16.1	20.0	416048	16.1	20.5	224435	16.2	20.0
204387	15.9	20.3	499396	15.9	20.4	207503	16.0	19.4	27440	16.1	18.3	522459	16.1	20.9	466758	16.2	20.8
407352	15.9	21.0	101008	15.9	19.7	240471	16.0	19.5	290787	16.1	20.0	90387	16.1	18.5	70261	16.2	20.1
467186	15.9	20.0	309231	15.9	20.2	460191	16.0	20.2	251114	16.1	19.9	20522	16.1	17.8	30776	16.2	18.3
117768	15.9	19.4	294369	15.9	20.2	361407	16.0	20.0	433547	16.1	20.7	131993	16.1	19.7	363817	16.2	19.5
129337	15.9	19.5	209972	15.9	20.8	238752	16.0	19.6	69912	16.1	19.1	54000	16.1	18.3	204369	16.2	20.2
66203	15.9	17.7	122185	15.9	19.3	236031	16.0	19.9	340601	16.1	20.3	444367	16.1	20.5	53199	16.2	18.1
16311	15.9	18.2	260688	15.9	20.8	203077	16.0	19.9	160877	16.1	18.8	168589	16.1	17.8	27210	16.2	18.1
235690	15.9	19.9	457021	15.9	20.5	32968	16.0	18.0	129396	16.1	19.3	169275	16.1	20.8	432943	16.2	20.3
262994	15.9	20.4	11093	15.9	16.7	494816	16.0	20.6	66313	16.1	18.1	118273	16.1	20.2	327017	16.2	19.8
169647	15.9	19.6	271717	15.9	20.2	221696	16.0	19.8	278450	16.1	20.0	118794	16.1	19.2	180534	16.2	20.1
232963	15.9	19.5	347123	15.9	20.6	104937	16.0	19.9	310049	16.1	20.5	25366	16.1	17.1	459224	16.2	21.1
236015	15.9	21.1	235621	15.9	20.5	244876	16.0	17.8	313812	16.1	19.8	362555	16.1	20.1	269774	16.2	18.8
167666	15.9	19.7	89810	15.9	19.5	435375	16.0	20.3	261074	16.1	20.0	59407	16.1	17.2	142144	16.2	19.5
351001	15.9	20.2	79070	15.9	19.6	425463	16.0	21.4	154277	16.1	19.9	169364	16.1	19.5	298855	16.2	20.9
459473	15.9	20.0	1411	15.9	15.2	465601	16.0	19.8	205028	16.1	20.3	424359	16.1	21.6	420278	16.2	21.2
252946	15.9	20.6	260805	15.9	20.2	365596	16.0	19.5	85720	16.1	18.7	100340	16.1	19.8	295861	16.2	19.5
153868	15.9	18.5	324543	15.9	19.9	150498	16.0	19.1	452282	16.1	21.3	462058	16.1	21.1	104790	16.2	19.4
490497	15.9	20.7	191942	15.9	20.1	277828	16.0	20.3	18280	16.1	16.7	290857	16.1	20.4	84815	16.2	19.1
323155	15.9	19.8	466489	15.9	20.5	105696	16.0	19.0	105295	16.1	19.6	77192	16.1	18.8	416044	16.2	20.8
106529	15.9	17.8	460188	15.9	20.8	234171	16.0	20.3	135556	16.1	20.0	109053	16.1	19.6	26757	16.2	18.6
439313	15.9	24.0	3988	15.9	20.0	18241	16.0	17.7	506363	16.1	21.2	121144	16.1	19.9	397039	16.2	20.0
461770	15.9	21.1	245837	15.9	19.8	237116	16.0	19.3	755	16.1	14.4	32555	16.1	18.0	459128	16.2	21.2
48436	15.9	17.1	216456	15.9	19.8	459419	16.0	20.8	517537	16.1	21.8	256151	16.1	19.7	323126	16.2	21.6
105670	15.9	20.1	136471	15.9	19.6	309564	16.0	19.6	498908	16.1	20.7	14607	16.1	17.0	424203	16.2	20.0
363260	15.9	19.4	68377	15.9	19.8	235141	16.0	21.0	419210	16.1	20.6	313823	16.1	19.7	110974	16.2	17.8
108356	15.9	19.6	376530	15.9	20.0	200782	16.0	19.1	80141	16.1	19.8	281664	16.2	19.7	366432	16.2	20.8
50723	15.9	18.6	225378	15.9	19.7	522452	16.0	22.3	128647	16.1	20.0	56090	16.2	18.2	309255	16.2	20.1
1543	15.9	16.8	92813	15.9	17.1	306335	16.0	20.0	125317	16.1	19.6	421824	16.2	20.6	6782	16.2	16.6
350723	15.9	19.2	79870	15.9	17.5	54748	16.0	19.2	28059	16.1	17.7	111879	16.2	19.4	239639	16.2	19.6
456489	15.9	20.4	194015	15.9	21.0	225165	16.0	19.8	185899	16.1	20.4	9000	16.2	17.8	65996	16.2	24.3
51989	15.9	17.1	377507	15.9	20.2	118592	16.0	20.3	40368	16.1	18.2	424761	16.2	20.5	78530	16.2	18.7
160190	15.9	19.5	61601	15.9	19.1	94471	16.0	18.6	21007	16.1	17.2	340600	16.2	21.2	432492	16.2	20.9
256330	15.9	19.9	144342	15.9	19.4	458395	16.0	20.5	58151	16.1	18.0	424763	16.2	20.9	323940	16.2	20.0
134252	15.9	18.6	81675	15.9	19.3	158680	16.0	20.0	10429	16.1	17.1	457143	16.2	21.0	371701	16.2	21.3
187349	15.9	20.3	109586	15.9	19.1	26377	16.0	17.8	399502	16.1	21.3	224239	16.2	20.0	522685	16.2	22.8
100208	15.9	19.9	172924	15.9	19.9	208723	16.0	20.6	465219	16.1	21.0	373249	16.2	20.6	253291	16.2	18.5
139268	15.9	19.9	334180	15.9	20.6	419372	16.0	20.3	192415	16.1	20.9	246915	16.2	20.0	335668	16.2	21.2
3919	15.9	17.2	447114	15.9	19.9	414977	16.0	19.8	307358	16.1	20.3	54150	16.2	18.8	272995	16.2	19.8
8036	15.9	17.5	116415	15.9	19.5	453818	16.0	21.7	355469	16.1	19.9	345089	16.2	21.8	195529	16.2	19.7
404301	15.9	20.8	473662	15.9	21.4	79137	16.0	19.3	126615	16.1	20.9	296640	16.2	21.2	20232	16.2	18.1
371995	15.9	20.8	283379	15.9	21.1	3861	16.0	15.1	275754	16.1	20.1	426830	16.2	19.8	456264	16.2	20.9
337156	15.9	21.0	333095	15.9	20.0	234380	16.0	19.5	332420	16.1	19.0	369103	16.2	21.2	498861	16.2	19.9
99626	15.9	19.8	340657	15.9	20.2	368691	16.0	21.5	348450	16.1	21.1	249248	16.2	20.3	344839	16.2	21.0
109425	15.9	17.1	311682	15.9	19.8	167042	16.0	20.0	401061	16.1	21.5	283034	16.2	20.4	328590	16.2	20.2
461545	15.9	20.6	270675	15.9	20.4	190233	16.0	18.7	472668	16.1	20.1	167606	16.2	19.4	144208	16.2	19.2
89426	15.9	19.8	317255	15.9	22.3	167006	16.0	19.6	377117	16.1	19.1	37726	16.2	19.3	235931	16.2	19.8
347411	15.9	19.7	250156	15.9	19.2	289520	16.0	19.9	81909	16.1	19.7	461149	16.2	21.2	68599	16.2	18.5
37099	15.9	18.9	16988	15.9	18.6	136419	16.0	20.0	225630	16.1	20.2	259901	16.2	20.2	52414	16.2	18.4
419001	15.9	22.4	222264	15.9	21.2	93657	16.0	18.6	378994	16.1	20.8	186143	16.2	20.4	258093	16.2	21.4
42462	15.9	18.8	277721	15.9	20.3	157976	16.0	20.2	220612	16.1	19.6	93125	16.2	18.4	188820	16.2	19.4
208385	15.9	19.0	203752	15.9	19.4	229225	16.0	19.8	428488	16.1	21.2	260813	16.2	21.0	316145	16.2	20.9
189626	15.9	20.4	273049	15.9	20.3	296685	16.0	20.6	454178	16.1	20.3	63323	16.2	19.6	252930	16.2	21.1
209496	15.9	19.8	492715	15.9	20.7	463253	16.0	20.7	302082	16.1	19.8	129699	16.2	19.6	274162	16.2	21.0
408532	15.9	20.4	353274	15.9	20.3	228180	16.0	19.9	457227	16.1	20.7	90371	16.2	19.4	164430	16.2	19.6
34007	15.9	19.2	157224	15.9	19.6	383752	16.0	19.8	284190	16.1	19.5	447007	16.2	20.1	465704	16.2	20.3
39376	15.9	18.6	467719	15.9	20.4	330904	16.0	20.8	52676								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
346143	16.3	20.3	162681	16.3	19.9	265345	16.4	20.5	427795	16.5	19.9	69651	16.5	17.8	83876	16.6	20.1
142565	16.3	19.3	200903	16.3	19.0	507311	16.4	20.9	395763	16.5	20.4	334973	16.5	19.8	350675	16.6	21.1
313146	16.3	19.1	86944	16.3	19.5	53624	16.4	19.2	210495	16.5	19.4	142261	16.5	18.1	31217	16.6	16.7
519490	16.3	21.2	59393	16.3	18.1	163154	16.4	19.3	300274	16.5	21.4	62216	16.5	19.6	384162	16.6	20.5
145220	16.3	19.6	288498	16.3	21.2	157997	16.4	19.9	13813	16.5	16.3	296981	16.5	19.6	398365	16.6	21.5
301221	16.3	19.0	86004	16.3	18.5	70500	16.4	19.8	94881	16.5	18.3	268523	16.5	19.3	490653	16.6	22.0
432179	16.3	20.5	27668	16.3	17.4	105955	16.4	18.1	152724	16.5	19.1	79182	16.5	19.8	236688	16.6	20.8
221291	16.3	19.6	76725	16.3	18.7	489399	16.4	20.5	169295	16.5	19.7	151974	16.5	19.5	103325	16.6	19.1
341887	16.3	20.9	297151	16.3	20.0	250193	16.4	20.0	323495	16.5	21.2	15404	16.5	18.3	363137	16.6	20.6
371059	16.3	20.4	257233	16.3	20.5	176713	16.4	18.8	154857	16.5	19.6	373943	16.5	21.8	22127	16.6	18.0
394905	16.3	21.0	398982	16.3	20.6	379015	16.4	20.9	412347	16.5	21.1	146142	16.5	20.6	256287	16.6	20.2
22776	16.3	17.8	340754	16.3	21.1	354424	16.4	20.7	117089	16.5	20.3	465714	16.5	21.3	130661	16.6	18.8
58701	16.3	17.9	235592	16.3	20.6	57466	16.4	18.5	290589	16.5	20.2	104306	16.5	18.7	110354	16.6	19.2
104484	16.3	20.3	203817	16.3	19.8	362136	16.4	20.7	169187	16.5	19.3	35270	16.5	19.7	445570	16.6	21.0
401899	16.3	20.2	188323	16.3	19.9	170652	16.4	18.7	492459	16.5	22.2	319221	16.5	21.1	219762	16.6	19.8
377101	16.3	19.9	347139	16.3	20.5	499448	16.4	20.5	423203	16.5	21.6	1539	16.5	15.3	466235	16.6	21.5
123751	16.3	20.4	428959	16.3	20.4	70980	16.4	16.6	153202	16.5	19.6	88474	16.5	18.0	415920	16.6	21.1
320811	16.3	20.8	37024	16.3	18.1	357383	16.4	21.4	111232	16.5	20.6	466327	16.5	21.1	132123	16.6	17.1
64630	16.3	18.7	227550	16.3	20.0	459086	16.4	20.7	257546	16.5	20.2	295847	16.5	19.7	109953	16.6	19.4
379094	16.3	19.4	116537	16.3	18.8	473954	16.4	20.5	107487	16.5	18.3	523668	16.5	23.9	80097	16.6	19.1
296722	16.3	20.0	291959	16.3	20.7	409017	16.4	19.2	522474	16.5	21.0	372997	16.5	20.6	168918	16.6	18.6
323469	16.3	20.7	348118	16.3	19.9	323512	16.4	20.4	381288	16.5	20.3	109305	16.5	19.5	337563	16.6	20.7
100271	16.3	18.2	424347	16.3	20.7	480047	16.4	20.6	75812	16.5	18.5	45601	16.5	18.3	299489	16.6	20.4
324654	16.3	19.8	35589	16.3	19.2	446859	16.4	21.6	422256	16.5	21.0	412669	16.5	19.5	431601	16.6	20.8
239348	16.3	20.5	321409	16.3	21.3	210052	16.4	20.5	227004	16.5	19.5	39744	16.5	17.5	327288	16.6	19.8
136395	16.3	20.3	41685	16.3	17.9	129707	16.4	18.9	103682	16.5	18.7	293872	16.5	21.5	127837	16.6	19.0
19455	16.3	17.2	373469	16.3	22.3	467476	16.4	21.4	416991	16.5	20.5	464930	16.5	20.5	92614	16.6	18.9
131954	16.3	19.0	77719	16.3	19.2	458905	16.4	21.1	181253	16.5	21.1	194303	16.5	19.7	208387	16.6	20.0
354152	16.3	19.1	404267	16.3	21.2	87088	16.4	18.8	9729	16.5	17.0	241220	16.5	20.9	123124	16.6	19.2
163736	16.3	21.2	422306	16.4	21.0	110742	16.4	19.7	201524	16.5	19.3	192147	16.5	19.6	352752	16.6	20.1
395834	16.3	19.8	466701	16.4	20.8	396128	16.4	21.2	28595	16.5	18.2	161711	16.5	19.3	108251	16.6	20.1
414928	16.3	21.1	373629	16.4	19.8	246475	16.4	19.9	409576	16.5	19.6	203861	16.5	19.8	96989	16.6	18.5
18391	16.3	19.3	459380	16.4	21.3	169385	16.4	20.3	258178	16.5	20.2	256683	16.5	20.5	373893	16.6	20.7
152079	16.3	20.3	496737	16.4	21.0	246024	16.4	19.7	195910	16.5	19.1	364037	16.5	20.8	68489	16.6	18.9
204209	16.3	20.4	350668	16.4	20.6	391455	16.4	21.4	146544	16.5	18.7	417755	16.6	19.6	381317	16.6	19.5
183294	16.3	20.0	15799	16.4	16.1	246377	16.4	20.3	468316	16.5	20.5	496707	16.6	21.3	465508	16.6	20.2
345727	16.3	19.4	110390	16.4	19.6	68365	16.4	18.7	21851	16.5	18.5	275537	16.6	20.1	294720	16.6	19.7
126196	16.3	19.5	270765	16.4	20.7	328359	16.4	21.3	351295	16.5	20.5	28862	16.6	17.2	463707	16.6	19.4
313565	16.3	19.0	402123	16.4	19.3	27815	16.4	19.0	421139	16.5	21.7	495901	16.6	21.6	258049	16.6	21.8
417687	16.3	20.7	164447	16.4	20.2	433917	16.4	21.0	304935	16.5	21.2	81589	16.6	19.5	485384	16.6	21.2
457120	16.3	20.3	304890	16.4	21.4	432057	16.4	19.7	32690	16.5	18.8	404239	16.6	21.2	231250	16.6	20.5
111276	16.3	18.6	273718	16.4	19.1	502597	16.4	21.4	160857	16.5	19.2	127566	16.6	18.1	290262	16.6	20.4
119770	16.3	18.3	164618	16.4	19.5	235587	16.4	20.1	238799	16.5	20.4	318920	16.6	20.6	385010	16.6	20.4
258200	16.3	19.7	463284	16.4	21.2	291083	16.4	19.0	430957	16.5	21.4	47966	16.6	19.4	148847	16.6	19.2
27097	16.3	18.0	362087	16.4	20.7	334609	16.4	20.3	336562	16.5	20.5	141051	16.6	20.3	194113	16.6	19.3
61077	16.3	19.1	495432	16.4	20.7	203196	16.4	19.0	216977	16.5	20.1	295668	16.6	20.8	141225	16.6	19.9
73036	16.3	20.0	240837	16.4	20.1	458524	16.4	21.4	216203	16.5	19.7	121051	16.6	18.1	207999	16.6	19.1
110701	16.3	20.3	339572	16.4	21.2	163706	16.4	20.7	401926	16.5	17.9	197245	16.6	20.2	81326	16.6	18.4
79133	16.3	17.7	99867	16.4	19.4	26992	16.4	17.9	58739	16.5	19.3	224497	16.6	20.4	89053	16.6	19.1
16410	16.3	17.1	11009	16.4	18.3	416553	16.4	20.7	289718	16.5	20.7	177724	16.6	19.7	278260	16.6	20.1
495629	16.3	20.1	495827	16.4	20.1	340724	16.4	22.1	349067	16.5	19.5	245065	16.6	19.6	306328	16.6	19.8
460653	16.3	20.7	124380	16.4	18.8	501419	16.4	20.6	273072	16.5	19.5	195654	16.6	20.7	43866	16.6	18.0
42177	16.3	18.7	461089	16.4	19.8	275747	16.4	20.4	78501	16.5	19.3	117320	16.6	19.0	335848	16.6	20.0
402554	16.3	21.4	186057	16.4	19.5	390798	16.4	20.2	325314	16.5	20.9	417034	16.6	21.1	258368	16.6	19.7
127732	16.3	18.9	424091	16.4	20.9	96720	16.4	17.2	264720	16.5	18.2	87717	16.6	19.0	464063	16.6	19.9
37640	16.3	17.5	347929	16.4	18.6	63583	16.4	18.8	356636	16.5	20.4	235699	16.6	20.0	189024	16.6	20.4
518148	16.3	21.3	153154	16.4	20.0	195572	16.4	21.5	327910	16.5	20.4	313836	16.6	19.8	279422	16.6	20.2
146601	16.3	19.0	362095	16.4	20.0	221184	16.4	19.8	456538	16.5	20.8	240888	16.6	20.2	177834	16.6	20.5
334049	16.3	20.4	18663	16.4	17.1	127618	16.4	19.1	222488	16.5	21.0	493010	16.6	20.4	274927	16.6	20.4
185905	16.3	19.1	41750	16.4	18.8	150685	16.4	20.1	177433	16.5	19.2	384164	16.6	20.1	166513	16.6	20.2
190336	16.3	20.2	284097	16.4	20.8	262209	16.4	20.7	396598	16.5	20.7	465195	16.6	20.9	429269	16.6	20.2
180902	16.3	20.8	283624	16.4	19.7	378393	16.4	19.2	375854	16.5	21.2	51652	16.6	19.4	233195	16.6	20.2
340611	16.3	20.7	465273	16.4	21.2	403525	16.4	21.0	175245	16.5	20.8	50773	16.6	17.6	318808	16.6	20.6
62271	16.3	18.9	458253	16.4	21.5	290012	16.4	21.2	172595	16.5	20.9	234878	16.6	19.2	10870	16.6	18.8
427058	16.3	20.9	74643	16.4	18.6	13777	16.4	18.0	293549	16.5	20.2	122814	16.6	20.1	17486	16.6	19.9
160579	16.3	18.7	462659	16.4	21.3	233001	16.4	20.1	490782	16.5	20.5	9412	16.6	16.9	19337	16.6	16.9
354131	16.3	20.1	109505	16.4	19.2	429831	16.4	21.4	233900	16.5	19.0	158348	16.6	19.8	135872	16.6	19.9
366206	16.3	20.1	495247	16.4	21.6	30564	16.4	17.5	384207	16.5	20.7	194694	16.6	20.0	205892	16.6	19.4
233986	16.3	21.0	452458	16.4	19.8	29019	16.4										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
55409	16.7	19.1	405890	16.7	21.4	468229	16.8	20.8	288848	16.9	20.9	161667	16.9	20.5	381198	17.0	20.9
333820	16.7	20.0	299074	16.7	18.7	397038	16.8	21.1	175930	16.9	20.4	179288	16.9	20.9	491281	17.0	21.5
52860	16.7	18.7	205939	16.7	19.3	258655	16.8	19.9	338255	16.9	20.6	167300	16.9	19.9	30681	17.0	18.1
330713	16.7	20.7	319671	16.7	20.2	240838	16.8	19.4	376704	16.9	21.1	462922	16.9	20.2	119625	17.0	19.8
144320	16.7	19.1	320703	16.7	20.9	194156	16.8	20.6	223674	16.9	19.8	238017	16.9	19.4	362165	17.0	20.3
117289	16.7	18.5	522060	16.7	20.7	276182	16.8	20.3	105722	16.9	18.3	433149	16.9	20.5	135151	17.0	19.0
321216	16.7	20.0	418428	16.7	19.9	7506	16.8	17.9	235685	16.9	19.7	424171	16.9	20.5	386847	17.0	20.5
240021	16.7	20.1	325440	16.7	19.9	259376	16.8	20.4	121210	16.9	19.9	315501	16.9	20.6	152345	17.0	20.0
424882	16.7	20.1	297043	16.7	20.3	465822	16.8	21.5	135410	16.9	19.8	503560	16.9	21.1	285783	17.0	19.1
332896	16.7	19.7	124361	16.7	19.7	392549	16.8	21.3	126032	16.9	18.9	309749	16.9	21.1	318849	17.0	20.2
78752	16.7	18.6	387497	16.7	20.8	32714	16.8	18.7	404904	16.9	19.8	208250	16.9	19.6	238700	17.0	20.0
230482	16.7	19.1	337976	16.7	20.1	77299	16.8	17.8	378422	16.9	20.5	14357	16.9	16.7	498191	17.0	20.9
264241	16.7	19.4	301720	16.7	20.4	243838	16.8	19.5	8294	16.9	16.0	328526	16.9	20.5	240559	17.0	20.0
424740	16.7	20.7	130486	16.7	17.1	429836	16.8	20.8	166249	16.9	19.4	64913	16.9	19.2	190881	17.0	18.4
233579	16.7	20.2	145141	16.7	20.5	242460	16.8	21.2	139367	16.9	18.5	122957	16.9	18.8	242199	17.0	20.5
242391	16.7	20.0	353459	16.7	20.3	347372	16.8	20.5	185150	16.9	20.3	372433	16.9	21.8	2672	17.0	16.6
459153	16.7	21.0	166534	16.7	19.1	466156	16.8	21.0	297380	16.9	21.0	417250	16.9	20.2	354515	17.0	20.5
520559	16.7	21.0	271647	16.7	19.8	324631	16.8	20.5	193372	16.9	19.5	458924	16.9	20.4	143311	17.0	19.1
50864	16.7	17.1	183583	16.7	20.6	270832	16.8	20.2	193135	16.9	20.8	365693	16.9	20.8	336007	17.0	19.8
233204	16.7	20.2	381203	16.8	20.5	487897	16.8	21.6	457192	16.9	20.7	393672	16.9	20.6	375542	17.0	20.1
244696	16.7	21.3	253174	16.8	19.6	140742	16.8	20.3	117379	16.9	19.2	151938	16.9	19.8	405182	17.0	19.9
251097	16.7	21.1	417206	16.8	19.2	495808	16.8	21.3	143151	16.9	18.7	401982	16.9	20.2	327058	17.0	20.7
425746	16.7	20.3	2492	16.8	16.7	455460	16.8	21.8	402534	16.9	20.5	246250	16.9	20.7	373417	17.0	21.1
419797	16.7	22.1	243526	16.8	19.3	54840	16.8	19.2	255962	16.9	20.3	412978	16.9	22.4	101584	17.1	18.5
251082	16.7	21.2	297252	16.8	19.3	103576	16.8	17.6	25052	16.9	18.5	215036	16.9	19.8	97603	17.1	19.0
400533	16.7	20.9	182065	16.8	19.8	217998	16.8	19.6	171352	16.9	21.4	216613	16.9	19.8	364293	17.1	20.8
263438	16.7	20.5	345133	16.8	19.7	77636	16.8	18.4	391047	16.9	21.0	52320	16.9	18.5	178989	17.1	19.3
378839	16.7	20.8	25411	16.8	17.8	461417	16.8	20.8	357568	16.9	19.0	414242	16.9	20.6	188777	17.1	20.2
68643	16.7	19.1	160157	16.8	20.9	492019	16.8	22.6	314772	16.9	19.9	175029	16.9	19.4	236248	17.1	20.7
946	16.7	13.9	62637	16.8	18.8	354864	16.8	20.6	354409	16.9	20.8	90940	16.9	20.1	40315	17.1	19.9
143612	16.7	20.0	166245	16.8	20.1	231960	16.8	20.5	66425	16.9	19.3	241838	16.9	20.3	123980	17.1	19.1
172576	16.7	19.1	282872	16.8	20.6	1138	16.8	15.9	406679	16.9	19.2	203501	16.9	18.7	258155	17.1	19.8
499027	16.7	21.2	253745	16.8	19.7	424670	16.8	20.8	188927	16.9	20.5	457803	16.9	20.9	276188	17.1	20.8
56228	16.7	19.2	114359	16.8	18.8	280249	16.8	19.3	90327	16.9	18.3	54739	16.9	19.3	363	17.1	12.9
428092	16.7	21.3	485438	16.8	20.9	276601	16.8	20.7	222833	16.9	19.0	80031	16.9	18.8	234052	17.1	19.9
206855	16.7	20.0	506367	16.8	21.0	399958	16.8	21.3	320747	16.9	20.5	425680	16.9	20.6	420603	17.1	20.5
335940	16.7	18.9	167763	16.8	18.4	316472	16.8	21.2	222353	16.9	19.8	505175	16.9	20.4	496655	17.1	21.4
249355	16.7	19.2	214973	16.8	20.2	448241	16.8	21.3	165546	16.9	18.5	432526	16.9	19.9	132859	17.1	18.8
212046	16.7	19.9	380480	16.8	20.7	361356	16.8	21.5	378897	16.9	20.5	499427	16.9	20.9	87265	17.1	17.7
381272	16.7	20.7	450521	16.8	19.9	469013	16.8	20.4	144265	16.9	18.6	409939	16.9	19.9	379430	17.1	20.5
333324	16.7	20.3	302955	16.8	20.0	281280	16.8	20.1	101494	16.9	19.0	233108	16.9	19.7	96446	17.1	18.0
27336	16.7	18.1	8346	16.8	17.1	166247	16.8	19.0	425491	16.9	20.6	459347	16.9	20.2	378734	17.1	20.7
312150	16.7	20.1	27420	16.8	17.7	424916	16.8	19.7	76051	16.9	18.8	199022	16.9	19.9	468324	17.1	20.4
15774	16.7	18.0	393187	16.8	21.2	429912	16.8	21.6	13390	16.9	16.0	85749	16.9	19.2	422418	17.1	20.8
403533	16.7	21.7	503040	16.8	21.1	170132	16.8	18.9	163478	16.9	19.5	30707	16.9	17.4	411979	17.1	19.7
274747	16.7	21.2	305315	16.8	19.3	162956	16.8	19.4	391041	16.9	21.6	341621	16.9	20.6	140270	17.1	18.7
206901	16.7	20.0	328313	16.8	21.4	256848	16.8	19.9	444385	16.9	19.4	11576	16.9	17.1	255872	17.1	19.8
506308	16.7	22.1	271687	16.8	19.8	133806	16.9	19.8	245690	16.9	21.0	30879	16.9	17.3	424990	17.1	20.1
29479	16.7	17.3	422926	16.8	20.9	459556	16.9	21.2	8598	16.9	17.2	90130	16.9	18.3	105078	17.1	20.0
426406	16.7	21.0	17114	16.8	17.3	108403	16.9	19.8	204213	16.9	19.7	131643	16.9	18.5	220554	17.1	21.6
330403	16.7	20.3	175920	16.8	20.3	145651	16.9	20.5	158362	16.9	20.0	100330	16.9	19.7	47726	17.1	19.1
246647	16.7	20.1	263382	16.8	20.1	451769	16.9	20.1	343058	16.9	20.3	313793	16.9	19.0	406042	17.1	20.6
496587	16.7	20.9	390389	16.8	19.1	283164	16.9	21.3	336519	16.9	19.2	381928	16.9	19.9	363811	17.1	20.8
327896	16.7	20.6	135178	16.8	20.1	95396	16.9	19.8	75154	16.9	18.8	239720	16.9	20.9	469014	17.1	20.5
158604	16.7	18.7	217268	16.8	20.0	492590	16.9	20.7	56711	16.9	18.2	204330	16.9	19.4	266445	17.1	19.4
231165	16.7	19.7	381957	16.8	19.7	505630	16.9	21.5	330140	16.9	20.2	419997	16.9	21.2	521049	17.1	21.2
457794	16.7	21.0	4984	16.8	18.0	101445	16.9	18.6	486832	16.9	22.1	182595	16.9	19.5	236694	17.1	21.0
301627	16.7	21.2	256023	16.8	19.5	283409	16.9	19.9	84448	16.9	18.4	298882	17.0	20.6	239322	17.1	20.2
242406	16.7	19.0	75001	16.8	18.2	325300	16.9	21.8	383359	16.9	20.9	274652	17.0	21.0	199288	17.1	20.6
195661	16.7	20.3	89463	16.8	17.1	452283	16.9	21.2	461572	16.9	20.9	336516	17.0	20.3	448090	17.1	21.7
469736	16.7	21.8	423382	16.8	21.4	486935	16.9	21.0	17384	16.9	19.6	32020	17.0	17.2	139332	17.1	19.7
234365	16.7	20.9	362149	16.8	20.6	501453	16.9	20.6	482817	16.9	21.2	317597	17.0	20.0	74046	17.1	19.1
122267	16.7	17.7	280762	16.8	20.4	335969	16.9	20.0	95978	16.9	20.0	290969	17.0	21.3	468915	17.1	19.9
288743	16.7	20.8	464785	16.8	21.0	252398	16.9	18.3	223639	16.9	21.5	62389	17.0	17.3	205323	17.1	18.8
450970	16.7	21.9	365236	16.8	20.3	210811	16.9	20.6	409962	16.9	20.0	41073	17.0	19.1	118919	17.1	17.4
40001	16.7	19.1	341174	16.8	21.0	458357	16.9	21.5	100293	16.9	20.1	499400	17.0	21.5	461793	17.1	21.1
344856	16.7	20.0	10361	16.8	16.8	242437	16.9	20.6	240327	16.9	20.5	500414	17.0	20.4	93770	17.1	19.5
456314	16.7	20.8	500253	16.8	21.0	143242	16.9	19.1	499397	16.9	20.2	456653	17.0	21.7	371729	17.1	20.3
262176	16.7	21.1	412099	16.8	21.9	408466											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
256031	17.1	20.2	174	17.2	13.0	193802	17.2	20.8	56715	17.3	19.5	280764	17.4	20.7	90975	17.5	19.3
273006	17.1	20.6	427708	17.2	21.9	264910	17.2	21.1	453381	17.3	20.6	460595	17.4	20.7	104298	17.5	18.1
127954	17.1	19.2	445908	17.2	20.3	46634	17.2	16.9	89573	17.3	18.1	447118	17.4	20.5	460532	17.5	21.0
84793	17.1	19.3	347138	17.2	20.8	403585	17.2	21.1	76805	17.3	19.6	226596	17.4	20.0	222538	17.5	19.7
193238	17.1	20.4	42016	17.2	18.3	14982	17.2	18.4	411776	17.3	19.5	81999	17.4	19.7	45193	17.5	16.5
429004	17.1	20.1	431581	17.2	20.7	152601	17.2	20.6	272873	17.3	20.2	39365	17.4	17.4	144855	17.5	19.7
350215	17.1	20.2	283032	17.2	20.5	244273	17.2	19.8	59209	17.3	18.0	393640	17.4	20.7	162052	17.5	20.1
408661	17.1	21.3	502243	17.2	21.0	127149	17.2	19.6	279872	17.3	20.5	182661	17.4	20.6	1409	17.5	14.8
251220	17.1	20.1	109395	17.2	19.3	254467	17.2	20.0	433484	17.3	20.7	331739	17.4	20.3	18103	17.5	16.7
66617	17.1	20.1	473868	17.2	21.4	256193	17.2	19.6	112933	17.3	19.2	72351	17.4	18.3	497995	17.5	21.6
452993	17.1	20.6	290960	17.2	19.9	119487	17.2	19.9	149584	17.3	19.4	85180	17.4	18.7	179192	17.5	20.5
86915	17.1	19.7	287415	17.2	21.2	146561	17.2	19.7	290582	17.3	20.4	383703	17.4	20.2	187231	17.5	19.5
351300	17.1	20.6	175091	17.2	19.4	320822	17.2	19.9	58913	17.3	19.4	78806	17.4	19.4	232339	17.5	19.8
213684	17.1	20.6	11432	17.2	19.4	488262	17.2	19.8	138364	17.3	17.1	466013	17.4	21.4	33443	17.5	18.9
420435	17.1	20.6	28474	17.2	18.3	293324	17.2	20.2	35777	17.3	18.9	95102	17.4	19.1	239296	17.5	20.6
104941	17.1	20.0	451677	17.2	20.3	162059	17.2	19.1	350621	17.3	20.9	109858	17.4	19.7	466225	17.5	21.6
310043	17.1	20.2	32122	17.2	18.4	273972	17.2	20.1	243420	17.3	20.1	254661	17.4	20.7	166180	17.5	20.0
399288	17.1	22.0	445281	17.2	20.8	402282	17.2	20.2	399487	17.3	21.4	336518	17.4	20.3	328962	17.5	19.2
153357	17.1	20.7	381963	17.2	20.7	241663	17.2	21.5	201525	17.3	20.1	240484	17.4	19.4	86471	17.5	18.8
92363	17.1	20.1	31397	17.2	18.5	9947	17.2	16.9	97528	17.3	19.1	239302	17.4	20.1	111376	17.5	19.0
464554	17.1	20.2	250195	17.2	19.9	189982	17.3	20.7	522151	17.3	21.9	77886	17.4	18.4	302506	17.5	20.3
461476	17.1	20.6	383764	17.2	20.7	391404	17.3	19.5	476589	17.3	21.0	118392	17.4	19.0	303980	17.5	21.0
235733	17.1	20.2	64454	17.2	18.4	199093	17.3	20.0	149710	17.3	20.0	502858	17.4	21.0	160267	17.5	19.0
492703	17.1	21.9	60540	17.2	18.4	62525	17.3	19.3	432181	17.3	20.6	136736	17.4	20.3	387418	17.5	19.8
233163	17.1	19.7	110347	17.2	19.3	110523	17.3	19.1	410037	17.3	20.1	177139	17.4	20.2	260435	17.5	19.3
158505	17.1	19.9	323173	17.2	20.3	110025	17.3	18.1	232747	17.3	20.3	395188	17.4	21.3	266663	17.5	20.6
410449	17.1	20.6	320709	17.2	20.5	357148	17.3	20.0	30864	17.3	17.5	75297	17.4	17.1	208062	17.5	20.4
368270	17.1	19.8	243391	17.2	21.0	275853	17.3	21.4	469089	17.3	21.2	501686	17.4	20.7	377334	17.5	20.6
144106	17.1	19.3	327346	17.2	20.9	54986	17.3	18.4	222074	17.3	20.0	391432	17.4	21.2	462340	17.5	22.3
518159	17.1	20.3	423106	17.2	19.0	280209	17.3	19.9	350652	17.3	21.0	61124	17.4	18.6	237302	17.5	20.2
29736	17.1	17.5	269235	17.2	19.9	358108	17.3	21.0	96632	17.3	19.0	194417	17.4	19.6	233754	17.5	19.8
160786	17.1	19.0	79134	17.2	18.0	6684	17.3	17.5	64344	17.3	18.1	176875	17.4	19.8	194717	17.5	19.6
230502	17.1	19.6	109752	17.2	19.0	58512	17.3	18.8	462766	17.3	20.9	13503	17.4	16.9	417219	17.5	20.3
309363	17.1	19.8	380659	17.2	21.0	155442	17.3	18.9	455242	17.3	20.9	406336	17.4	21.3	234198	17.5	21.2
207530	17.1	19.8	64214	17.2	17.4	430835	17.3	20.4	131923	17.4	19.4	165929	17.4	17.3	55551	17.5	19.1
17637	17.1	17.6	499966	17.2	21.1	279466	17.3	18.8	451675	17.4	20.5	502505	17.4	21.0	485145	17.5	21.4
8936	17.1	17.2	226020	17.2	19.5	421793	17.3	20.8	281376	17.4	21.5	247441	17.4	19.8	473622	17.5	20.3
329843	17.1	20.7	367590	17.2	21.5	119992	17.3	18.4	193767	17.4	20.3	84512	17.4	19.1	231141	17.5	19.7
302885	17.1	21.0	459209	17.2	21.4	110716	17.3	19.3	58295	17.4	19.1	743	17.4	14.0	5592	17.5	16.8
299040	17.1	20.0	335242	17.2	20.9	26613	17.3	18.1	45538	17.4	18.8	466389	17.4	20.3	22105	17.5	17.8
179137	17.1	20.3	46751	17.2	18.1	377928	17.3	21.1	187452	17.4	20.0	248527	17.4	20.2	46517	17.5	19.6
231233	17.1	19.9	432052	17.2	19.5	335910	17.3	20.2	418901	17.4	19.8	58190	17.4	19.6	132220	17.5	20.4
445168	17.1	20.2	240755	17.2	20.2	183975	17.3	19.9	31316	17.4	17.8	34204	17.4	17.5	167916	17.5	19.4
422954	17.1	20.1	104961	17.2	19.4	6882	17.3	16.6	180558	17.4	20.1	325676	17.4	20.5	36712	17.5	17.1
22454	17.1	18.7	58775	17.2	18.0	221312	17.3	19.4	402564	17.4	20.9	322615	17.4	19.4	473476	17.5	20.9
348520	17.1	20.3	474038	17.2	21.0	353282	17.3	20.3	397479	17.4	20.7	438127	17.4	20.5	351695	17.5	19.5
277199	17.1	21.0	81806	17.2	19.3	369960	17.3	21.0	443862	17.4	20.7	452330	17.4	20.3	253014	17.5	20.6
381253	17.1	20.1	404272	17.2	20.4	96403	17.3	19.7	25765	17.4	18.9	333408	17.4	19.9	382608	17.5	21.2
279906	17.1	21.1	317013	17.2	20.6	240030	17.3	19.3	357952	17.4	20.5	268454	17.4	19.1	30153	17.5	19.3
251053	17.1	20.0	42735	17.2	19.3	520951	17.3	21.0	325134	17.4	20.1	437362	17.4	20.6	210031	17.5	20.8
269137	17.1	19.7	301338	17.2	19.9	53642	17.3	19.3	518894	17.4	20.8	297447	17.4	20.7	95400	17.5	20.0
363140	17.1	20.9	468895	17.2	20.2	451869	17.3	21.9	110909	17.4	19.6	36701	17.4	19.2	19633	17.5	18.3
467320	17.1	20.4	272668	17.2	20.8	493946	17.3	20.4	465743	17.4	20.4	184935	17.4	19.9	262311	17.5	18.4
327254	17.2	20.6	293077	17.2	20.1	296679	17.3	20.7	406005	17.4	20.5	49507	17.4	17.2	190100	17.5	19.6
250240	17.2	18.9	494692	17.2	22.3	323091	17.3	19.5	189768	17.4	18.7	374452	17.4	18.6	350597	17.5	18.5
185196	17.2	20.3	321415	17.2	20.3	236776	17.3	20.8	256362	17.4	19.7	406006	17.4	21.3	97822	17.5	19.6
242645	17.2	19.2	13553	17.2	21.0	46458	17.3	20.1	187658	17.4	19.9	20829	17.4	19.0	276359	17.5	20.4
289891	17.2	20.6	424944	17.2	21.1	271013	17.3	19.0	318715	17.4	20.2	170357	17.4	20.0	500783	17.5	20.6
453057	17.2	21.1	246343	17.2	19.5	469195	17.3	20.1	518859	17.4	20.3	235038	17.4	21.1	274407	17.5	20.3
413838	17.2	20.9	43377	17.2	18.0	188280	17.3	18.3	149434	17.4	19.7	165800	17.4	19.6	368589	17.5	20.8
7662	17.2	17.7	7334	17.2	17.2	203076	17.3	19.9	95429	17.4	19.1	417563	17.4	19.8	186206	17.5	20.1
88273	17.2	19.6	207061	17.2	19.0	380667	17.3	20.6	217424	17.4	20.3	203552	17.4	19.2	327854	17.5	18.8
192317	17.2	20.1	23045	17.2	18.1	324567	17.3	20.3	359800	17.4	20.7	166645	17.4	19.9	136831	17.5	19.0
5605	17.2	15.8	354971	17.2	21.5	492132	17.3	21.1	458247	17.4	19.6	343932	17.4	21.3	31719	17.5	17.6
410510	17.2	20.0	17165	17.2	17.8	419211	17.3	21.5	252245	17.4	21.0	76659	17.4	17.9	86659	17.5	19.7
42334	17.2	19.2	95378	17.2	18.2	502781	17.3	20.6	410075	17.4	18.8	65861	17.4	19.0	118197	17.5	17.5
381574	17.2	21.2	206297	17.2	19.2	456772	17.3	20.7	313900	17.4	19.9	433082	17.4	20.8	183761	17.5	19.9
255913	17.2	21.1	453807	17.2	21.0	396638	17.3	21.4	432127	17.4	20.8	460772	17.4	20.3	142178	17.5	19.7
238087	17.2	20.1	71493	17.2	18.6	225196	17.3	20.0	41478	17.4							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
295129	17.5	20.2	496670	17.6	20.5	288674	17.7	21.0	366224	17.8	21.1	8376	17.8	18.2	151563	17.9	19.5
104055	17.5	17.1	149244	17.6	20.0	429960	17.7	21.1	349936	17.8	19.7	502176	17.8	20.6	455533	17.9	20.6
457779	17.5	20.8	83850	17.6	19.5	409486	17.7	19.7	489093	17.8	21.4	239713	17.8	20.1	359192	17.9	19.9
289597	17.5	20.1	214512	17.6	20.5	364354	17.7	19.7	60582	17.8	19.3	78732	17.8	18.9	298819	17.9	20.5
210358	17.5	20.0	77820	17.6	20.3	56311	17.7	19.6	221081	17.8	20.1	224548	17.8	21.2	463864	17.9	19.9
200319	17.5	19.0	423554	17.6	20.4	320944	17.7	19.7	362951	17.8	20.5	295968	17.8	18.0	95155	17.9	19.3
395327	17.5	21.4	281645	17.6	20.1	42542	17.7	17.7	102738	17.8	20.1	117597	17.8	19.4	375627	17.9	20.7
36649	17.5	19.3	277788	17.6	20.5	365581	17.7	20.3	80586	17.8	17.9	407344	17.8	20.8	89096	17.9	18.2
516934	17.5	19.7	464594	17.6	21.0	96655	17.7	19.1	456523	17.8	19.0	169882	17.8	20.0	274052	17.9	21.2
277819	17.5	20.9	215524	17.6	19.8	56866	17.7	17.9	276813	17.8	20.2	321261	17.8	19.4	275482	17.9	20.4
463424	17.5	21.3	270676	17.6	21.6	303427	17.7	19.5	372564	17.8	20.6	55404	17.9	18.3	424800	17.9	20.5
258308	17.5	20.2	244544	17.6	20.3	178210	17.7	19.7	203095	17.8	18.8	63437	17.9	18.8	107083	17.9	19.0
62035	17.5	19.2	202447	17.6	19.9	58218	17.7	18.5	291335	17.8	18.8	242826	17.9	21.1	433448	17.9	19.8
7118	17.5	15.7	198647	17.6	19.6	226227	17.7	20.1	373281	17.8	20.2	91246	17.9	17.9	464015	17.9	19.7
494763	17.5	21.1	298980	17.6	19.1	41458	17.7	19.8	456388	17.8	20.8	306225	17.9	20.8	256304	17.9	19.9
502448	17.5	20.7	230449	17.6	20.9	18110	17.7	18.9	407334	17.8	21.1	443932	17.9	20.2	334263	17.9	20.6
53939	17.5	18.4	490376	17.6	21.2	378982	17.7	20.9	90534	17.8	20.3	57810	17.9	18.3	518444	17.9	21.1
101139	17.5	19.1	59443	17.6	19.4	431489	17.7	21.4	323544	17.8	20.9	51459	17.9	18.9	351227	17.9	20.5
275776	17.5	20.4	433823	17.6	21.7	11743	17.7	16.6	422381	17.8	20.2	288285	17.9	19.7	415357	17.9	21.0
306679	17.5	20.7	71934	17.6	19.2	52628	17.7	18.2	432580	17.8	22.5	467234	17.9	20.0	194371	17.9	19.9
180542	17.5	19.4	373890	17.6	21.2	146592	17.7	20.1	133031	17.8	19.9	283574	17.9	19.8	45522	17.9	18.7
328223	17.5	20.8	501633	17.6	20.5	95293	17.7	19.6	408913	17.8	20.9	277845	17.9	20.8	396878	17.9	21.1
375631	17.5	20.4	153836	17.6	18.7	255947	17.7	19.4	376632	17.8	21.2	290642	17.9	20.7	62530	17.9	19.7
201972	17.5	20.8	506344	17.6	20.6	197639	17.7	19.9	412559	17.8	20.7	374220	17.9	19.6	242793	17.9	20.4
226725	17.5	20.2	291219	17.6	21.0	323129	17.7	19.5	255869	17.8	19.5	70189	17.9	19.0	85174	17.9	20.6
71740	17.5	18.6	87917	17.6	18.8	21580	17.7	17.6	222291	17.8	20.8	114777	17.9	19.5	360814	17.9	20.3
406027	17.5	21.3	325555	17.6	20.9	30475	17.7	18.5	238148	17.8	21.0	251029	17.9	21.3	457656	17.9	20.5
39770	17.5	18.5	398476	17.6	21.6	372914	17.7	20.5	401386	17.8	21.1	101384	17.9	18.3	109787	17.9	20.3
473525	17.5	20.8	135230	17.6	19.5	499927	17.7	21.7	65516	17.8	19.8	426178	17.9	20.7	19261	17.9	17.0
332848	17.5	20.4	325228	17.6	20.7	104600	17.7	19.0	123218	17.8	18.2	369597	17.9	20.0	383678	17.9	20.5
122294	17.5	19.7	359146	17.6	20.3	51724	17.7	18.7	424334	17.8	20.4	293588	17.9	20.9	228227	17.9	20.4
241165	17.5	21.1	20233	17.6	18.3	367385	17.7	20.6	5776	17.8	17.4	154988	17.9	20.5	226255	17.9	19.0
286793	17.5	21.3	209665	17.6	18.6	252388	17.7	20.2	13764	17.8	17.7	462394	17.9	21.2	159618	17.9	19.4
300261	17.5	21.1	322341	17.6	20.2	450777	17.7	20.1	345650	17.8	21.3	353988	17.9	21.1	149328	17.9	19.7
350697	17.5	19.2	29612	17.6	16.7	206417	17.7	21.2	238378	17.8	19.7	266613	17.9	21.0	474583	17.9	21.9
360751	17.6	19.1	447134	17.6	19.4	292810	17.7	22.4	370587	17.8	20.5	59108	17.9	17.5	212837	17.9	19.9
424920	17.6	20.2	41780	17.6	18.8	260524	17.7	21.2	281057	17.8	20.2	258214	17.9	21.0	344228	17.9	20.5
61899	17.6	19.6	285947	17.6	20.9	394884	17.7	21.6	337877	17.8	19.9	48357	17.9	19.6	122238	17.9	19.9
35604	17.6	19.1	320072	17.6	20.2	78429	17.7	19.7	444140	17.8	19.7	5236	17.9	16.0	485442	17.9	20.1
413112	17.6	19.8	255955	17.6	20.7	63896	17.7	18.6	234047	17.8	18.4	161186	17.9	19.0	280898	17.9	20.5
72799	17.6	18.2	259387	17.6	20.4	55179	17.7	18.4	434039	17.8	21.5	206206	17.9	19.6	453968	17.9	19.4
197240	17.6	20.0	93059	17.6	18.0	419988	17.7	20.4	148733	17.8	19.4	451229	17.9	20.3	143134	17.9	20.6
80269	17.6	18.2	9121	17.6	17.0	59600	17.7	18.2	430218	17.8	19.5	208470	17.9	20.0	86549	17.9	19.1
123482	17.6	19.1	123421	17.6	18.3	406117	17.7	20.2	27047	17.8	18.3	364419	17.9	20.6	18223	17.9	18.4
127941	17.6	19.8	67872	17.6	19.1	309825	17.7	20.3	492766	17.8	22.0	96032	17.9	20.1	324361	17.9	19.6
412885	17.6	19.9	462724	17.6	19.9	131881	17.7	19.3	169636	17.8	19.9	462357	17.9	21.3	157330	17.9	20.8
407419	17.6	21.1	492670	17.6	21.9	34965	17.7	19.9	117857	17.8	19.8	381651	17.9	20.8	179180	17.9	20.3
43141	17.6	17.6	117107	17.7	19.5	377512	17.7	19.8	298738	17.8	20.5	237611	17.9	20.1	199226	17.9	19.4
382206	17.6	20.8	179883	17.7	19.5	355888	17.7	20.1	367358	17.8	21.0	8371	17.9	17.8	162768	17.9	20.2
78456	17.6	19.2	207876	17.7	19.4	109845	17.7	19.1	119334	17.8	19.5	466348	17.9	20.9	166962	17.9	21.5
2481	17.6	17.8	210148	17.7	20.1	205242	17.7	19.0	209478	17.8	19.9	207358	17.9	19.6	121533	17.9	18.7
116985	17.6	19.0	150409	17.7	19.8	368595	17.7	21.9	124136	17.8	20.4	57104	17.9	16.3	379019	17.9	20.8
60982	17.6	18.1	27296	17.7	16.8	381667	17.7	19.9	226369	17.8	19.9	491685	17.9	20.9	296936	17.9	20.2
357548	17.6	20.6	105567	17.7	20.2	226909	17.7	20.9	163244	17.8	20.8	412042	17.9	21.5	333618	17.9	22.2
334615	17.6	20.5	495467	17.7	21.2	364230	17.7	21.1	493881	17.8	21.2	496084	17.9	20.7	150338	17.9	18.8
307205	17.6	19.8	58101	17.7	18.4	22232	17.7	18.4	56164	17.8	18.4	209573	17.9	19.6	245925	17.9	20.2
103649	17.6	18.3	291098	17.7	20.8	456190	17.7	20.6	437123	17.8	20.8	234140	17.9	19.8	66384	17.9	19.2
18650	17.6	17.7	47561	17.7	17.7	34075	17.7	19.0	341285	17.8	20.5	298725	17.9	21.3	401237	17.9	20.6
372712	17.6	19.4	119054	17.7	19.6	272121	17.7	21.4	377107	17.8	19.8	66432	17.9	19.0	399939	17.9	20.3
405567	17.6	20.8	519393	17.7	21.5	244647	17.7	19.6	273214	17.8	20.1	144313	17.9	18.8	258115	17.9	20.2
191049	17.6	18.8	100599	17.7	19.8	207572	17.7	20.5	330882	17.8	20.7	34434	17.9	17.3	218713	17.9	19.8
376996	17.6	21.0	114706	17.7	19.9	458452	17.7	19.0	55027	17.8	17.5	234051	17.9	20.6	413027	17.9	20.8
420555	17.6	20.2	268113	17.7	20.0	258094	17.7	20.8	118895	17.8	17.3	234189	17.9	21.3	89203	17.9	19.0
159293	17.6	19.6	62028	17.7	18.6	15585	17.7	18.1	361601	17.8	19.8	109816	17.9	19.4	118235	17.9	19.1
260480	17.6	19.2	379513	17.7	19.8	369774	17.7	19.1	202153	17.8	18.8	491783	17.9	20.2	273052	17.9	20.5
522427	17.6	21.2	503734	17.7	20.8	56116	17.7	17.8	197600	17.8	21.1	165700	17.9	18.5	134029	17.9	19.8
276055	17.6	19.1	459225	17.7	20.0	253963	17.7	19.0	366747	17.8	20.3	372970	17.9	20.4	22739	17.9	18.2
241966	17.6	20.3	147400	17.7	20.3	201849	17.7	19.5	397941	17.8	20.9	159637	17.9	18.6	369096	17.9	21.8
151555	17.6	19.6	128761	17.7	20.0	181864	17.7	18.9									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
145229	17.9	20.0	139488	18.1	19.9	157765	18.1	20.1	155450	18.2	20.8	297449	18.3	20.7	226199	18.3	19.6
463443	17.9	21.7	382199	18.1	20.6	15135	18.1	17.8	341454	18.2	20.0	29946	18.3	18.0	7171	18.3	16.5
156335	17.9	20.0	78303	18.1	18.2	465862	18.1	20.0	89385	18.2	19.6	429044	18.3	20.1	118766	18.3	19.3
91234	18.0	17.9	299506	18.1	21.2	197338	18.1	20.1	275796	18.2	20.7	161605	18.3	19.2	252274	18.3	20.4
277603	18.0	20.9	59020	18.1	18.5	77679	18.1	17.5	55445	18.2	18.6	478405	18.3	20.5	520031	18.3	21.0
39776	18.0	18.9	116670	18.1	19.0	390662	18.1	21.6	446549	18.2	20.8	341554	18.3	20.3	246769	18.3	20.2
182569	18.0	20.3	435638	18.1	19.2	465237	18.1	21.3	418292	18.2	20.3	205888	18.3	20.0	165920	18.3	20.4
421348	18.0	20.2	410609	18.1	20.5	83539	18.1	19.3	5382	18.2	16.0	203294	18.3	20.2	207754	18.3	21.1
18499	18.0	20.0	279925	18.1	21.2	457554	18.1	20.6	325188	18.2	20.1	383721	18.3	20.8	462042	18.3	21.0
207634	18.0	20.0	369225	18.1	20.7	223483	18.1	19.8	165419	18.2	18.5	492003	18.3	21.0	451505	18.3	20.4
279827	18.0	19.9	57525	18.1	18.3	307430	18.1	19.9	273870	18.2	19.4	138539	18.3	20.6	171904	18.3	21.5
323907	18.0	20.7	520952	18.1	20.9	27901	18.1	18.6	297409	18.2	20.6	182403	18.3	21.0	109236	18.3	18.5
286160	18.0	20.1	453034	18.1	21.7	67632	18.1	18.1	167065	18.2	20.9	400284	18.3	21.3	291369	18.3	20.1
432548	18.0	21.7	376040	18.1	20.2	404207	18.1	20.9	294825	18.2	21.1	431530	18.3	20.4	252007	18.3	20.5
67943	18.0	19.1	83122	18.1	18.6	264029	18.1	21.9	102104	18.2	20.7	192067	18.3	19.9	362643	18.3	19.5
183231	18.0	19.7	247453	18.1	20.6	208991	18.1	19.4	34172	18.2	19.1	204669	18.3	20.2	1258	18.3	15.2
453791	18.0	21.5	12503	18.1	18.7	223768	18.1	19.9	35199	18.2	19.1	494970	18.3	22.0	153370	18.3	19.5
131508	18.0	19.0	178445	18.1	18.4	145504	18.1	20.8	114426	18.2	19.4	453610	18.3	19.5	231507	18.3	19.9
48528	18.0	18.7	95708	18.1	18.6	426265	18.1	21.3	322008	18.2	21.1	17638	18.3	19.1	237490	18.3	19.8
114245	18.0	19.9	273024	18.1	19.4	135404	18.1	19.4	297405	18.2	20.0	15993	18.3	16.4	424968	18.3	19.5
325282	18.0	21.5	491940	18.1	20.7	123953	18.1	19.6	21605	18.2	17.4	466855	18.3	21.4	308697	18.3	20.8
446787	18.0	21.5	329407	18.1	20.6	18815	18.1	17.8	163832	18.2	20.0	220444	18.3	19.7	238449	18.3	19.7
112929	18.0	19.3	328717	18.1	20.6	419135	18.1	20.5	108748	18.2	18.2	29814	18.3	17.6	239281	18.4	21.0
428961	18.0	20.0	81858	18.1	19.9	378984	18.1	20.6	110357	18.2	19.3	425138	18.3	20.8	85575	18.4	18.2
221425	18.0	19.8	81404	18.1	19.5	465981	18.1	21.1	2136	18.2	15.6	120086	18.3	19.4	422821	18.4	19.7
430290	18.0	21.3	240509	18.1	19.3	428776	18.1	20.0	465160	18.2	19.5	71896	18.3	20.8	348465	18.4	21.1
2225	18.0	15.7	414821	18.1	20.5	95644	18.1	18.6	492889	18.2	21.3	385170	18.3	20.0	332417	18.4	20.1
462912	18.0	20.4	184171	18.1	21.1	266594	18.1	20.0	114916	18.2	20.0	278081	18.3	19.8	273343	18.4	21.4
413708	18.0	20.2	3296	18.1	15.6	51157	18.1	16.2	234911	18.2	20.2	239294	18.3	20.1	309217	18.4	21.2
202878	18.0	20.8	282483	18.1	21.0	125502	18.1	20.2	285121	18.2	21.1	413636	18.3	20.8	169228	18.4	19.6
413912	18.0	19.0	47983	18.1	17.0	299054	18.1	19.6	492112	18.2	21.4	227969	18.3	20.5	81591	18.4	18.4
464442	18.0	20.6	381490	18.1	21.0	210541	18.1	20.2	367340	18.2	21.3	85335	18.3	18.9	265337	18.4	19.9
60741	18.0	18.6	69712	18.1	18.2	295279	18.1	20.8	226009	18.2	19.7	241115	18.3	20.1	40684	18.4	19.2
233003	18.0	19.4	222355	18.1	19.1	200799	18.1	19.3	436958	18.2	21.1	402962	18.3	21.8	379829	18.4	21.0
409826	18.0	21.8	432541	18.1	19.7	101508	18.1	19.3	89009	18.2	18.6	25762	18.3	17.9	289189	18.4	20.4
492930	18.0	20.9	223720	18.1	19.9	428476	18.1	20.7	92894	18.2	18.2	248	18.3	13.7	419996	18.4	20.4
200830	18.0	19.4	457098	18.1	19.8	329118	18.2	20.6	495266	18.2	22.7	323168	18.3	19.6	316300	18.4	21.1
258232	18.0	19.3	216527	18.1	20.3	95982	18.2	18.9	167610	18.2	19.0	289922	18.3	20.7	369680	18.4	19.6
171064	18.0	19.1	181935	18.1	19.5	190320	18.2	20.7	291458	18.2	20.9	331499	18.3	20.6	401950	18.4	21.2
499471	18.0	20.7	155959	18.1	20.6	51224	18.2	18.2	420477	18.2	21.1	343604	18.3	20.1	460745	18.4	20.5
102130	18.0	20.6	461318	18.1	19.8	124190	18.2	19.6	284815	18.2	20.8	455572	18.3	20.8	266006	18.4	21.0
108290	18.0	19.1	274871	18.1	20.3	280779	18.2	20.2	200951	18.2	18.4	420055	18.3	20.8	455374	18.4	20.4
19818	18.0	16.4	369290	18.1	21.5	95176	18.2	19.2	336502	18.2	20.8	249695	18.3	19.8	67781	18.4	17.5
157218	18.0	20.6	492415	18.1	20.7	338369	18.2	20.3	223658	18.2	20.0	244536	18.3	17.7	427102	18.4	21.3
522180	18.0	20.9	142551	18.1	19.1	383659	18.2	20.9	50816	18.2	18.1	423767	18.3	19.7	290696	18.4	20.6
88889	18.0	18.6	284796	18.1	20.0	170705	18.2	19.2	8964	18.2	17.1	159926	18.3	20.2	463546	18.4	21.3
10558	18.0	18.1	167967	18.1	20.4	406021	18.2	20.2	162965	18.2	19.2	52695	18.3	18.0	489020	18.4	20.4
395728	18.0	20.4	142529	18.1	19.2	221945	18.2	20.4	3581	18.2	18.0	218368	18.3	20.4	206354	18.4	19.7
428908	18.0	20.5	69792	18.1	20.2	363833	18.2	20.6	324729	18.2	20.5	198819	18.3	19.6	403531	18.4	21.0
55450	18.0	19.3	235603	18.1	20.9	152542	18.2	20.3	492480	18.2	21.7	491227	18.3	20.1	275365	18.4	20.1
320870	18.0	20.3	122653	18.1	19.1	88298	18.2	17.2	253217	18.2	21.0	462688	18.3	20.7	154731	18.4	20.5
160253	18.0	19.8	66881	18.1	18.7	208694	18.2	20.2	404368	18.2	21.7	273446	18.3	20.8	265357	18.4	20.3
353494	18.0	20.0	304903	18.1	21.2	426271	18.2	20.7	373972	18.2	19.9	408111	18.3	20.7	380952	18.4	19.8
338283	18.0	20.6	420548	18.1	20.3	313215	18.2	21.7	415147	18.2	19.9	245369	18.3	20.0	235666	18.4	20.5
421505	18.0	19.5	212369	18.1	20.3	116694	18.2	19.7	48246	18.2	18.8	41746	18.3	18.0	366882	18.4	21.0
160087	18.0	19.7	281382	18.1	20.1	161290	18.2	20.0	504216	18.2	22.7	325940	18.3	19.6	306729	18.4	19.2
84184	18.0	17.8	5276	18.1	17.2	232676	18.2	19.3	284347	18.2	21.7	241168	18.3	19.8	362077	18.4	20.3
498041	18.0	21.6	265860	18.1	20.0	89670	18.2	19.0	99579	18.2	19.1	372329	18.3	20.1	150088	18.4	19.1
258448	18.0	19.3	473919	18.1	20.2	129820	18.2	20.5	383640	18.2	21.7	60387	18.3	18.5	228053	18.4	21.1
159015	18.0	20.2	217307	18.1	20.1	332136	18.2	21.5	89710	18.2	18.7	210841	18.3	20.2	325993	18.4	20.0
239767	18.0	20.2	358024	18.1	20.5	345030	18.2	21.2	400068	18.2	21.6	488502	18.3	21.4	336536	18.4	20.2
384184	18.0	19.7	53009	18.1	18.1	521094	18.2	21.7	277247	18.2	19.8	461345	18.3	21.2	120267	18.4	20.5
224623	18.0	20.0	210023	18.1	20.9	226116	18.2	19.6	359061	18.2	20.0	411227	18.3	21.2	210781	18.4	18.5
135269	18.0	19.5	135663	18.1	19.6	261589	18.2	20.1	370185	18.2	20.2	233056	18.3	20.0	290567	18.4	20.3
381289	18.0	20.4	492463	18.1	21.2	410604	18.2	20.7	143177	18.2	19.3	1670	18.3	15.1	330987	18.4	21.0
102618	18.0	18.5	499391	18.1	21.0	467575	18.2	20.7	333501	18.2	19.6	52338	18.3	18.0	166026	18.4	19.1
371187	18.0	20.4	285328	18.1	19.8	54181	18.2	18.1	502476	18.2	20.4	20280	18.3	17.9	427694	18.4	20.1
432876	18.0	20.8	357987	18.1	20.8	503257	18.2	20.4	127257	18.2	19.1	336980	18.3	20.8	307411	18.4	20.0
61265	18.1	18.7	325205	18.1	19.0	9814	18.2	18.3									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
463362	18.4	21.4	365090	18.5	20.5	235613	18.6	20.5	88675	18.6	19.0	30983	18.7	18.4	502460	18.8	21.0
188106	18.4	18.8	431292	18.5	21.6	213597	18.6	19.1	318	18.6	13.6	162726	18.7	20.3	82578	18.8	20.0
155277	18.4	19.7	215063	18.5	20.2	207699	18.6	20.9	325820	18.6	19.3	18705	18.7	18.9	130546	18.8	19.8
66381	18.4	19.8	134475	18.5	18.5	104141	18.6	19.0	4269	18.6	16.9	161766	18.7	20.5	269582	18.8	21.1
92909	18.4	18.3	272567	18.5	19.9	211556	18.6	19.5	431572	18.6	21.4	406158	18.7	20.1	507122	18.8	22.6
35073	18.4	19.3	378463	18.5	20.5	498887	18.6	21.1	191450	18.7	19.6	411922	18.7	19.9	152682	18.8	20.4
493762	18.4	20.9	232766	18.5	20.2	96167	18.6	19.1	107507	18.7	18.8	240238	18.7	18.6	13351	18.8	16.4
219737	18.4	19.5	361669	18.5	20.4	34081	18.6	18.0	279504	18.7	18.8	244721	18.7	21.4	164801	18.8	19.9
68673	18.4	19.9	500504	18.5	21.3	353321	18.6	20.8	237223	18.7	20.3	281678	18.7	19.8	166269	18.8	19.8
488907	18.4	21.2	115680	18.5	19.2	158961	18.6	20.5	12589	18.7	18.2	83879	18.7	19.5	26551	18.8	18.7
258439	18.4	20.0	54155	18.5	19.6	205455	18.6	20.4	44655	18.7	18.8	330463	18.7	20.5	203513	18.8	19.2
283931	18.4	19.0	412072	18.5	20.7	422402	18.6	20.1	319478	18.7	20.7	244513	18.7	19.7	500240	18.8	21.8
467805	18.4	21.1	345088	18.5	21.5	97824	18.6	19.4	259325	18.7	19.9	82903	18.7	17.7	11676	18.8	18.1
430243	18.4	20.3	452273	18.5	20.9	292866	18.6	20.0	416582	18.7	20.6	256003	18.7	20.4	373918	18.8	20.2
219433	18.4	20.3	519363	18.5	20.6	54756	18.6	19.4	426295	18.7	21.5	498564	18.7	22.4	201964	18.8	19.8
116068	18.4	18.8	71636	18.5	18.5	230522	18.6	19.7	142119	18.7	20.0	402086	18.7	21.0	354556	18.8	20.3
270949	18.4	21.2	210227	18.5	20.7	433433	18.6	19.9	11519	18.7	18.0	152858	18.7	18.8	234045	18.8	19.6
503839	18.4	21.3	296708	18.5	21.3	142470	18.6	20.4	110275	18.7	19.9	492543	18.7	20.5	76815	18.8	17.3
21462	18.4	16.9	150293	18.5	19.0	325031	18.6	21.5	328655	18.7	20.1	222813	18.7	20.6	82339	18.8	18.4
13623	18.4	18.3	249297	18.5	19.5	166890	18.6	19.5	305637	18.7	21.1	128527	18.7	19.6	460989	18.8	20.9
297451	18.4	20.2	83820	18.5	19.4	439570	18.6	21.7	54317	18.7	18.0	495596	18.7	19.7	80048	18.8	19.6
494008	18.4	20.2	16175	18.5	18.2	104801	18.6	20.7	171418	18.7	19.8	350737	18.7	19.7	399583	18.8	21.8
310482	18.4	19.7	86874	18.5	19.5	164614	18.6	19.1	115494	18.7	19.1	368067	18.7	19.3	29867	18.8	16.6
83722	18.4	18.9	258191	18.5	20.2	150886	18.6	19.9	156804	18.7	19.9	492867	18.7	21.6	237752	18.8	19.5
81403	18.4	19.2	426437	18.5	20.9	177766	18.6	20.4	114803	18.7	19.7	500508	18.7	21.1	205932	18.8	19.4
167795	18.4	19.3	174934	18.5	19.7	265335	18.6	20.0	350581	18.7	20.1	457872	18.7	21.0	281283	18.8	20.3
171337	18.4	20.9	107990	18.5	18.4	198531	18.6	19.1	186222	18.7	20.6	496124	18.7	19.6	410815	18.8	21.3
32744	18.4	18.6	143094	18.5	19.9	286602	18.6	19.7	184300	18.7	20.9	473606	18.7	20.9	266578	18.8	19.9
421998	18.4	20.8	270862	18.5	20.2	453380	18.6	20.1	197329	18.7	20.3	296228	18.7	19.9	421098	18.8	21.1
606	18.4	13.6	86936	18.5	19.8	325255	18.6	21.2	247448	18.7	19.7	505257	18.7	21.1	194627	18.8	18.7
237330	18.4	20.6	522250	18.5	21.8	8646	18.6	17.9	136904	18.7	20.0	297028	18.7	20.7	379500	18.8	19.8
458348	18.4	20.7	432516	18.5	20.8	354542	18.6	20.3	202163	18.7	19.7	413977	18.7	20.8	492800	18.8	21.4
205670	18.4	19.4	383373	18.5	21.3	388071	18.6	21.1	428459	18.7	21.2	411716	18.7	20.7	409942	18.8	21.3
193851	18.4	20.2	468768	18.5	21.9	240499	18.6	20.3	41475	18.7	16.3	329108	18.7	21.1	206810	18.8	19.5
273380	18.4	20.3	135413	18.5	18.2	453382	18.6	20.7	63619	18.7	18.2	57936	18.7	20.3	327412	18.8	20.7
122402	18.4	18.7	399995	18.5	20.4	196899	18.6	19.7	169277	18.7	21.0	147278	18.7	18.9	395399	18.8	21.5
467182	18.5	20.9	283530	18.5	21.2	168325	18.6	20.1	251027	18.7	19.9	126713	18.7	18.7	464332	18.8	20.1
458848	18.5	19.7	330889	18.5	20.1	421193	18.6	20.8	193784	18.7	20.6	143622	18.7	19.6	399511	18.8	20.9
67570	18.5	18.6	5457	18.5	16.6	135163	18.6	20.6	323987	18.7	19.8	260649	18.7	20.1	36673	18.8	17.9
226834	18.5	20.9	19374	18.5	18.4	469722	18.6	22.9	95882	18.7	18.1	159149	18.7	19.7	197091	18.8	19.9
300266	18.5	21.2	196864	18.5	19.4	198527	18.6	19.6	189472	18.7	19.9	207116	18.7	19.4	241532	18.8	20.7
466764	18.5	20.9	418804	18.5	20.0	409901	18.6	22.1	238380	18.7	19.8	190949	18.7	19.9	427197	18.8	20.9
255857	18.5	19.9	402429	18.5	20.7	381698	18.6	19.4	416049	18.7	21.0	240823	18.7	19.4	295602	18.8	20.3
258083	18.5	19.7	149289	18.5	19.6	422261	18.6	20.6	495160	18.7	20.6	406116	18.8	21.0	188724	18.8	20.0
331514	18.5	20.0	303396	18.5	19.4	165745	18.6	19.9	1051	18.7	15.4	464430	18.8	20.4	83690	18.8	19.3
430954	18.5	21.1	454478	18.5	21.3	208415	18.6	21.0	338179	18.7	19.6	217099	18.8	21.1	76449	18.8	18.3
242128	18.5	19.0	164085	18.5	19.0	319836	18.6	19.5	284439	18.7	21.1	360770	18.8	20.9	368462	18.8	19.7
488002	18.5	20.4	333617	18.5	20.4	33613	18.6	17.4	268499	18.7	19.4	429273	18.8	20.4	45562	18.8	17.9
343611	18.5	20.4	73202	18.5	18.8	132759	18.6	20.5	301097	18.7	21.0	193838	18.8	20.3	394371	18.8	19.9
87995	18.5	19.6	40622	18.5	19.8	230660	18.6	19.7	83546	18.7	20.2	207128	18.8	19.2	33255	18.8	18.5
190187	18.5	19.6	69997	18.5	18.5	3928	18.6	16.8	73744	18.7	20.0	314239	18.8	20.3	433124	18.8	21.7
169306	18.5	20.2	325317	18.5	20.4	448460	18.6	20.8	493349	18.7	21.8	109643	18.8	19.2	348412	18.8	21.8
148688	18.5	20.2	291698	18.5	20.0	460794	18.6	20.0	118624	18.7	19.8	496556	18.8	19.9	492665	18.8	20.6
384152	18.5	20.3	358092	18.5	20.5	45710	18.6	18.4	259073	18.7	19.6	218617	18.8	19.5	109405	18.8	19.1
241033	18.5	19.7	458225	18.5	21.2	285953	18.6	20.5	371917	18.7	21.5	379772	18.8	22.1	199393	18.8	20.4
376372	18.5	21.4	42806	18.5	17.3	405959	18.6	21.1	25241	18.7	17.7	280217	18.8	19.9	429880	18.8	20.7
316775	18.5	21.0	151922	18.5	19.0	29358	18.6	18.6	52011	18.7	19.5	146049	18.8	18.9	76298	18.8	19.0
518781	18.5	20.9	319463	18.5	19.7	343968	18.6	21.3	92415	18.7	19.9	273039	18.8	20.3	15863	18.8	17.7
496741	18.5	21.3	88595	18.5	18.1	372962	18.6	20.9	233983	18.7	21.0	492260	18.8	20.2	486285	18.8	19.9
472462	18.5	21.4	406905	18.5	20.6	162432	18.6	19.4	420184	18.7	20.7	393349	18.8	20.0	428480	18.8	20.3
399301	18.5	20.5	54968	18.5	18.9	82238	18.6	19.2	433084	18.7	20.0	369302	18.8	21.4	264777	18.8	19.6
426402	18.5	21.9	108698	18.5	18.1	395315	18.6	20.8	235620	18.7	21.1	205449	18.8	20.1	382729	18.8	19.3
84500	18.5	19.9	73027	18.5	19.4	132288	18.6	19.0	320545	18.7	19.7	18229	18.8	18.5	12160	18.8	18.5
187890	18.5	20.4	295107	18.5	20.6	253142	18.6	19.0	514150	18.7	22.3	278494	18.8	21.1	456973	18.8	20.9
287695	18.5	20.0	5430	18.6	16.3	463301	18.6	20.9	48565	18.7	17.6	188629	18.8	18.3	186522	18.9	18.7
382273	18.5	20.7	459234	18.6	20.6	59666	18.6	18.9	31751	18.7	17.7	241723	18.8	20.2	204277	18.9	19.2
109911	18.5	20.2	31599	18.6	17.7	223665	18.6	20.0	216262	18.7	20.3	420665	18.8	21.6	8786	18.9	17.7
332656	18.5	20.7	428140	18.6	20.9	96006	18.6	21.6	269323	18.7	20.7	456606	18.8	21.0	81386	18.9	18.9
365341	18.5	20.6	240389	18.6	21.0	217448	18.6	21.5									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
294044	18.9	20.3	59923	18.9	19.9	117602	18.9	20.1	428432	19.1	20.5	44573	19.1	17.6	4958	19.2	15.4
6689	18.9	18.4	333710	18.9	20.1	359900	18.9	21.0	61022	19.1	18.5	382875	19.1	21.6	130569	19.2	18.4
47881	18.9	17.6	418678	18.9	21.2	285914	18.9	20.9	289722	19.1	19.8	60694	19.1	17.3	152881	19.2	19.1
160759	18.9	18.3	137051	18.9	19.6	72120	19.0	17.8	323992	19.1	20.1	443891	19.1	20.4	118302	19.2	19.3
165784	18.9	19.3	197804	18.9	20.2	165035	19.0	19.6	233431	19.1	20.4	162850	19.1	18.3	417071	19.2	20.0
246369	18.9	19.4	235057	18.9	18.8	131	19.0	13.2	178960	19.1	19.5	267453	19.1	20.0	475932	19.2	20.6
426404	18.9	20.1	98084	18.9	19.7	135251	19.0	19.4	183787	19.1	19.4	429924	19.1	21.2	69083	19.2	18.1
64428	18.9	18.7	493906	18.9	21.2	192295	19.0	20.4	146723	19.1	18.4	377179	19.1	20.3	194207	19.2	19.8
134367	18.9	19.5	110875	18.9	20.4	331087	19.0	21.0	415240	19.1	20.0	221287	19.1	20.7	360449	19.2	21.1
95380	18.9	18.8	18183	18.9	17.8	208511	19.0	20.4	7388	19.1	16.8	500517	19.1	21.6	335992	19.2	21.1
214827	18.9	20.3	12096	18.9	19.1	241076	19.0	19.9	492091	19.1	21.5	494727	19.1	20.4	462637	19.2	21.0
320386	18.9	19.2	48597	18.9	17.7	16269	19.0	19.0	320759	19.1	20.0	29157	19.1	16.6	291041	19.2	19.7
240815	18.9	20.4	146421	18.9	19.3	239794	19.0	19.6	37089	19.1	18.9	205351	19.1	19.8	248930	19.2	19.5
231265	18.9	20.3	167930	18.9	20.2	110976	19.0	19.7	494776	19.1	20.4	289284	19.1	19.5	275948	19.2	21.1
113641	18.9	19.6	403710	18.9	20.7	280220	19.0	20.8	58437	19.1	18.2	372133	19.2	20.9	93376	19.2	18.4
348733	18.9	19.7	144805	18.9	20.2	5580	19.0	16.0	334912	19.1	19.8	26303	19.2	18.1	221126	19.2	20.4
427703	18.9	18.7	60770	18.9	18.7	373646	19.0	20.2	125652	19.1	19.3	334229	19.2	20.2	275945	19.2	21.6
256246	18.9	20.1	16742	18.9	19.3	411443	19.0	19.2	522457	19.1	21.8	294207	19.2	19.8	375753	19.2	20.3
3934	18.9	16.9	460130	18.9	20.4	97899	19.0	20.2	264441	19.1	20.0	188530	19.2	19.6	356321	19.2	20.9
502928	18.9	20.6	443046	18.9	20.5	507618	19.0	21.1	155400	19.1	20.1	471176	19.2	21.2	121998	19.2	19.1
383738	18.9	20.3	197144	18.9	19.9	6886	19.0	14.9	65876	19.1	18.8	199941	19.2	19.6	439239	19.2	21.5
427243	18.9	20.9	371719	18.9	20.7	239635	19.0	19.6	92804	19.1	18.7	241578	19.2	20.3	244818	19.2	19.8
493215	18.9	21.0	348441	18.9	20.8	81912	19.0	19.7	358630	19.1	20.6	453343	19.2	20.3	176929	19.2	20.0
322340	18.9	20.9	442728	18.9	20.7	125543	19.0	19.4	432241	19.1	21.0	424685	19.2	21.3	520812	19.2	20.0
454634	18.9	20.6	381324	18.9	21.2	380420	19.0	19.3	373948	19.1	20.2	27994	19.2	17.3	472029	19.2	20.8
315674	18.9	19.6	306802	18.9	20.6	417428	19.0	20.3	134377	19.1	20.0	414852	19.2	19.8	363143	19.2	21.5
157331	18.9	19.6	99039	18.9	18.5	154063	19.0	19.8	469086	19.1	20.2	156461	19.2	19.0	14749	19.2	18.3
31112	18.9	18.3	249033	18.9	19.4	249837	19.0	19.8	82222	19.1	20.2	183976	19.2	19.7	375440	19.2	20.7
467137	18.9	20.4	286549	18.9	19.7	394935	19.0	20.7	411918	19.1	19.9	278592	19.2	20.7	370557	19.2	19.2
424239	18.9	20.7	52719	18.9	19.1	467331	19.0	19.4	269497	19.1	20.8	264047	19.2	20.4	389635	19.2	21.8
372452	18.9	20.9	117636	18.9	19.5	327429	19.0	20.1	432468	19.1	20.4	168911	19.2	20.2	258919	19.2	21.1
98685	18.9	18.3	143116	18.9	19.6	30351	19.0	18.7	382275	19.1	20.4	290037	19.2	21.7	436343	19.2	20.9
221093	18.9	20.1	125266	18.9	19.3	87	19.0	12.3	404237	19.1	21.5	465681	19.2	21.4	257818	19.2	20.1
22616	18.9	18.0	260032	18.9	20.2	410007	19.0	19.8	49250	19.1	18.8	194019	19.2	19.5	205289	19.2	19.6
205696	18.9	19.8	206275	18.9	19.0	404934	19.0	20.9	205564	19.1	19.7	250204	19.2	21.7	168065	19.2	20.0
88773	18.9	18.2	76788	18.9	19.1	243980	19.0	19.6	16383	19.1	18.4	492932	19.2	21.3	122195	19.2	20.4
409967	18.9	20.6	119659	18.9	19.4	51139	19.0	18.6	235014	19.1	20.2	90029	19.2	19.1	151998	19.2	19.9
331238	18.9	20.7	489113	18.9	21.4	74241	19.0	18.6	469049	19.1	20.1	369306	19.2	21.1	269062	19.2	20.0
495550	18.9	21.3	292289	18.9	20.2	34510	19.0	17.5	2835	19.1	16.0	417853	19.2	21.0	464592	19.2	21.2
318105	18.9	20.3	197418	18.9	18.7	449095	19.0	20.4	519535	19.1	22.0	496865	19.2	21.2	186560	19.2	18.3
241583	18.9	20.3	378397	18.9	20.3	467573	19.0	20.8	181261	19.1	19.6	235697	19.2	21.0	10623	19.2	17.9
121363	18.9	19.7	235032	18.9	20.5	240894	19.0	19.4	338161	19.1	20.2	411348	19.2	19.6	188775	19.2	20.0
156394	18.9	18.8	462702	18.9	21.5	210456	19.0	20.0	11041	19.1	18.1	18932	19.2	18.7	250214	19.2	19.7
466671	18.9	20.7	348474	18.9	20.6	367567	19.0	20.8	37418	19.1	19.5	335909	19.2	20.3	502576	19.2	20.7
425460	18.9	21.1	322868	18.9	20.1	375544	19.0	19.9	278477	19.1	20.5	317445	19.2	20.1	345250	19.2	20.1
82438	18.9	19.7	35449	18.9	18.3	90824	19.0	19.7	344824	19.1	19.7	338876	19.2	19.3	128631	19.2	19.3
428143	18.9	20.4	87052	18.9	18.7	135280	19.0	20.1	451722	19.1	20.0	455779	19.2	21.3	460035	19.2	20.3
29704	18.9	19.3	237806	18.9	19.6	116828	19.0	19.4	369588	19.1	20.7	279899	19.2	19.6	388175	19.2	20.6
297425	18.9	20.7	167655	18.9	19.1	158548	19.0	19.6	122705	19.1	19.8	333708	19.2	19.8	169351	19.2	19.7
99587	18.9	19.5	166958	18.9	20.4	420634	19.0	20.7	373386	19.1	20.6	488066	19.2	20.7	18605	19.2	18.7
104209	18.9	19.8	220428	18.9	21.6	208487	19.0	19.4	494752	19.1	21.5	258354	19.2	19.4	130473	19.2	18.6
249167	18.9	19.5	329348	18.9	20.9	76487	19.0	18.4	26113	19.1	19.1	174232	19.2	20.3	272172	19.2	21.3
3373	18.9	15.5	75321	18.9	18.9	6829	19.0	17.3	432575	19.1	19.9	273011	19.2	20.0	362050	19.2	20.5
418316	18.9	20.7	248626	18.9	20.6	303335	19.0	20.2	145698	19.1	19.3	48085	19.2	19.2	236144	19.2	19.8
247473	18.9	20.3	402684	18.9	20.2	492939	19.0	21.0	245966	19.1	21.2	121173	19.2	19.6	468360	19.2	19.4
506217	18.9	21.2	330474	18.9	20.6	344204	19.0	19.9	413573	19.1	19.7	377072	19.2	19.9	103939	19.3	19.0
258267	18.9	20.3	285305	18.9	21.6	165782	19.0	19.8	328542	19.1	21.3	131544	19.2	20.9	219440	19.3	20.0
206158	18.9	19.0	284457	18.9	20.9	379472	19.1	20.6	145299	19.1	20.2	400998	19.2	20.1	70190	19.3	19.9
417752	18.9	20.3	119629	18.9	20.5	500324	19.1	22.0	208663	19.1	19.8	441861	19.2	20.8	471723	19.3	21.4
148966	18.9	20.0	385518	18.9	20.9	494968	19.1	22.1	87874	19.1	18.9	488138	19.2	21.0	122991	19.3	19.5
403535	18.9	20.5	69218	18.9	19.6	427505	19.1	19.8	168002	19.1	19.4	81020	19.2	18.1	256273	19.3	19.8
294158	18.9	21.3	40325	18.9	18.5	108203	19.1	18.9	360832	19.1	20.9	348579	19.2	21.3	105431	19.3	19.4
402227	18.9	20.0	331237	18.9	20.5	420910	19.1	21.1	176899	19.1	19.8	417609	19.2	21.0	169200	19.3	19.7
116667	18.9	17.9	93178	18.9	18.2	148702	19.1	18.7	407607	19.1	19.8	2933	19.2	15.4	119565	19.3	21.4
179001	18.9	19.7	110376	18.9	18.6	465438	19.1	20.5	432900	19.1	21.4	383653	19.2	20.3	65230	19.3	19.5
295971	18.9	20.4	455609	18.9	20.7	141197	19.1	19.7	283054	19.1	20.6	455472	19.2	20.1	492629	19.3	21.2
503482	18.9	20.3	179081	18.9	19.7	66290	19.1	19.8	414857	19.1	20.5	135310	19.2	20.2	336547	19.3	20.1
461727	18.9	21.3	279253	18.9	20.2	167026	19.1	20.9	339585	19.1	20.3	406145	19.2	21.1	200443	19.3	19.2
186868	18.9	21.4	318045	18.9	19.3	466851	19.1	20.7									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
224798	19.3	19.5	16262	19.3	18.8	341314	19.4	21.3	428150	19.5	21.6	451438	19.6	20.1	341465	19.6	22.0
224979	19.3	20.9	354970	19.3	20.0	149501	19.4	19.6	473261	19.5	21.9	278816	19.6	20.1	227554	19.6	20.5
422390	19.3	21.2	52772	19.3	19.3	16750	19.4	16.8	166717	19.5	19.7	242869	19.6	21.0	246155	19.6	20.5
62464	19.3	18.4	244065	19.3	19.4	41107	19.4	19.7	236671	19.5	20.3	209902	19.6	20.7	90816	19.6	18.5
310208	19.3	21.1	380410	19.3	18.4	199870	19.4	19.7	15156	19.5	18.5	455785	19.6	21.5	136285	19.6	19.5
319707	19.3	20.6	233598	19.3	20.2	153444	19.4	20.7	459174	19.5	20.6	309215	19.6	20.5	316441	19.6	20.2
414524	19.3	21.2	197354	19.3	18.4	456287	19.4	20.7	463306	19.5	21.6	82543	19.6	18.8	314899	19.6	20.5
202436	19.3	21.1	425157	19.3	21.6	179859	19.4	20.4	241693	19.5	20.0	256138	19.6	20.4	287135	19.6	21.1
493284	19.3	21.5	324421	19.3	19.9	316373	19.4	19.9	317588	19.5	20.3	189276	19.6	19.7	523742	19.6	22.2
168153	19.3	20.7	508618	19.3	21.5	132150	19.4	19.1	464947	19.5	21.3	453800	19.6	21.0	396868	19.6	20.8
417789	19.3	20.8	433019	19.3	20.9	226753	19.4	20.4	283645	19.5	19.6	186837	19.6	20.7	221878	19.6	20.6
5951	19.3	15.8	104100	19.3	19.4	488104	19.4	19.7	158676	19.5	20.6	390578	19.6	21.5	463772	19.6	19.3
252600	19.3	19.1	331597	19.3	21.3	403832	19.4	21.8	459351	19.5	21.0	322154	19.6	20.5	138901	19.6	19.1
104252	19.3	19.8	162005	19.4	19.3	398220	19.4	20.7	281459	19.5	21.6	140988	19.6	18.8	451416	19.6	21.5
411218	19.3	20.0	148348	19.4	19.7	298940	19.4	20.6	502609	19.5	21.1	5756	19.6	18.4	55402	19.6	18.2
348432	19.3	21.7	113802	19.4	19.5	462930	19.4	20.3	244192	19.5	19.5	231937	19.6	22.8	419550	19.6	20.7
225969	19.3	20.1	213650	19.4	20.0	297725	19.4	19.6	309830	19.5	20.2	493141	19.6	21.5	214332	19.6	20.7
129814	19.3	19.5	178982	19.4	20.4	473836	19.4	21.1	38580	19.5	18.7	245117	19.6	20.5	164463	19.7	19.9
372590	19.3	20.6	64803	19.4	18.8	340794	19.4	20.9	449173	19.5	20.4	260453	19.6	20.3	394361	19.7	19.5
204219	19.3	19.5	272116	19.4	20.7	406479	19.4	21.2	287684	19.5	21.0	187123	19.6	20.6	345535	19.7	20.8
350134	19.3	21.0	163570	19.4	18.7	467964	19.4	21.2	20749	19.5	16.9	278650	19.6	20.8	244341	19.7	21.0
240532	19.3	19.7	245222	19.4	19.7	205359	19.4	19.2	285441	19.5	19.9	480100	19.6	20.8	176319	19.7	19.2
441859	19.3	21.1	461938	19.4	22.1	219406	19.4	20.7	367839	19.5	20.8	112568	19.6	19.8	217119	19.7	19.8
90969	19.3	18.4	148765	19.4	19.0	44185	19.4	18.5	279939	19.5	20.7	372982	19.6	21.0	160421	19.7	19.5
159554	19.3	20.4	41093	19.4	19.1	289731	19.4	21.6	30580	19.5	18.0	90946	19.6	20.0	130861	19.7	19.1
206276	19.3	19.3	295733	19.4	20.1	389615	19.4	22.0	87784	19.5	20.0	122532	19.6	18.6	453295	19.7	21.4
460951	19.3	21.0	199407	19.4	17.7	30798	19.4	17.0	365712	19.5	21.0	338167	19.6	21.0	165768	19.7	20.0
417060	19.3	20.3	158550	19.4	20.0	354545	19.4	19.8	146499	19.5	18.1	15037	19.6	17.7	400540	19.7	19.8
392034	19.3	20.5	111544	19.4	18.8	393638	19.4	21.4	483536	19.5	21.3	310881	19.6	20.7	148327	19.7	20.1
6619	19.3	15.4	291159	19.4	21.1	292041	19.4	20.9	384117	19.5	20.0	237150	19.6	19.7	416264	19.7	20.3
412511	19.3	21.1	400159	19.4	20.4	198648	19.4	20.3	380488	19.5	20.0	178386	19.6	20.6	331206	19.7	20.6
203855	19.3	19.8	240346	19.4	21.3	494761	19.4	21.5	48262	19.5	18.6	113929	19.6	18.6	516373	19.7	21.0
322400	19.3	21.1	406502	19.4	19.8	204860	19.4	20.8	351741	19.5	20.1	264118	19.6	19.8	308717	19.7	20.1
224914	19.3	20.7	328374	19.4	21.7	232761	19.5	21.2	113214	19.5	20.1	285551	19.6	21.5	105297	19.7	18.9
278493	19.3	20.9	19629	19.4	17.7	95752	19.5	19.1	89976	19.5	19.0	424743	19.6	20.0	254745	19.7	20.1
56141	19.3	18.4	270631	19.4	21.2	410813	19.5	19.6	95017	19.5	17.6	359652	19.6	20.5	81402	19.7	18.9
5644	19.3	16.3	86934	19.4	20.3	180554	19.5	19.3	420690	19.5	20.7	67955	19.6	19.4	192533	19.7	20.1
454124	19.3	21.0	102182	19.4	19.7	56088	19.5	16.8	388700	19.5	20.4	421921	19.6	21.0	421905	19.7	20.8
51484	19.3	18.4	10327	19.4	18.3	241536	19.5	21.4	206902	19.5	19.2	112720	19.6	19.2	73707	19.7	18.4
522282	19.3	19.7	233556	19.4	20.7	52975	19.5	23.9	372607	19.5	20.8	252340	19.6	19.7	82338	19.7	19.6
154792	19.3	20.2	259042	19.4	20.4	155673	19.5	20.1	212400	19.5	21.2	104689	19.6	19.7	428095	19.7	21.7
239915	19.3	20.6	16652	19.4	18.3	400530	19.5	21.2	458956	19.5	20.7	50367	19.6	19.5	321196	19.7	18.2
119723	19.3	19.5	461784	19.4	19.8	496278	19.5	21.5	337208	19.5	20.0	77963	19.6	20.6	419978	19.7	20.1
216629	19.3	19.6	449654	19.4	21.3	463478	19.5	21.9	331184	19.5	20.3	255927	19.6	19.4	502517	19.7	21.2
492758	19.3	20.9	212550	19.4	20.6	36185	19.5	18.6	153186	19.5	20.0	231966	19.6	20.6	43859	19.7	17.8
124488	19.3	19.5	238418	19.4	19.1	314683	19.5	20.1	96962	19.5	19.5	36007	19.6	19.5	318003	19.7	19.8
268170	19.3	20.5	384595	19.4	20.3	135731	19.5	20.1	399531	19.5	20.9	43103	19.6	18.8	399051	19.7	20.0
68968	19.3	18.5	156610	19.4	20.6	159055	19.5	19.9	306856	19.5	19.9	523655	19.6	21.0	42837	19.7	17.8
39174	19.3	18.9	219330	19.4	21.6	443860	19.5	20.9	435370	19.5	20.3	239339	19.6	20.0	73155	19.7	19.4
224457	19.3	19.8	174932	19.4	19.5	463054	19.5	21.3	284848	19.5	20.8	272208	19.6	20.8	58953	19.7	19.1
42121	19.3	18.9	45265	19.4	18.7	83473	19.5	19.4	198413	19.5	19.2	458431	19.6	20.6	96312	19.7	18.8
227328	19.3	19.8	179874	19.4	20.1	453040	19.5	21.3	465544	19.5	21.3	329248	19.6	20.4	8209	19.7	17.5
126380	19.3	19.7	419328	19.4	20.8	68929	19.5	17.5	154708	19.5	21.4	294274	19.6	20.3	89887	19.7	18.6
157972	19.3	20.7	200783	19.4	18.6	197398	19.5	18.3	258470	19.5	20.0	241379	19.6	20.3	280776	19.7	19.5
58592	19.3	18.9	450442	19.4	20.5	127809	19.5	19.3	256920	19.5	20.5	387167	19.6	21.4	416605	19.7	21.5
400535	19.3	19.6	176785	19.4	19.3	494005	19.5	20.2	84344	19.5	17.9	357405	19.6	21.1	202410	19.7	20.8
4786	19.3	16.5	383698	19.4	20.7	233616	19.5	20.0	237980	19.5	20.1	354868	19.6	20.7	78458	19.7	18.7
13925	19.3	17.5	304118	19.4	21.0	326997	19.5	20.5	185752	19.5	19.3	502944	19.6	21.1	350643	19.7	20.5
408762	19.3	21.0	284389	19.4	20.4	99912	19.5	18.5	223670	19.5	20.1	181076	19.6	20.4	36134	19.7	19.3
255818	19.3	19.4	31045	19.4	18.8	231652	19.5	19.7	405427	19.5	21.9	238809	19.6	20.4	458187	19.7	21.7
6173	19.3	15.4	327843	19.4	18.6	414555	19.5	19.8	323788	19.5	21.1	380671	19.6	20.7	81782	19.7	18.8
494027	19.3	21.1	250178	19.4	17.9	178516	19.5	20.3	486063	19.5	20.5	422684	19.6	21.0	461865	19.7	21.8
85474	19.3	19.7	413926	19.4	20.0	75966	19.5	18.4	491760	19.5	20.2	46968	19.6	18.8	237737	19.7	19.1
42810	19.3	18.1	430308	19.4	20.2	271016	19.5	18.7	372565	19.5	20.6	39713	19.6	19.3	296956	19.7	20.6
427007	19.3	21.6	239222	19.4	20.5	307213	19.5	20.3	172789	19.5	19.2	198488	19.6	20.2	415442	19.7	20.7
339553	19.3	20.7	60646	19.4	18.5	42676	19.5	19.1	421418	19.5	20.1	478389	19.6	19.2	432139	19.7	19.7
493901	19.3	20.6	222289	19.4	20.3	399521	19.5	20.0	430237	19.5	20.4	402590	19.6	21.6	174884	19.7	19.3
423379	19.3	21.4	254622	19.4	21.0	258019	19.5	19.6	12670	19.6	17.8	319653	19.6	19.7	49697	19.7	17.5
15744	19.3	17.4	8082	19.4	17.3	124267	19.5										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
279169	19.7	20.3	3357	19.8	16.1	416777	19.8	20.0	50641	19.9	18.1	467531	19.9	21.1	229909	20.1	21.0
102501	19.7	18.8	284742	19.8	20.4	268080	19.8	20.8	62568	19.9	19.7	74654	19.9	19.1	319673	20.1	19.7
329406	19.7	19.3	56699	19.8	19.5	256291	19.8	21.0	81996	19.9	20.4	376594	19.9	20.7	139623	20.1	19.2
289660	19.7	21.1	371174	19.8	19.5	362197	19.8	20.7	230948	19.9	19.5	170833	19.9	19.7	396680	20.1	19.7
375539	19.7	19.6	400010	19.8	21.5	349094	19.8	20.8	281299	19.9	20.8	362083	19.9	20.6	57779	20.1	18.6
285435	19.7	20.5	321394	19.8	21.2	457622	19.8	20.4	363856	19.9	21.0	466213	19.9	21.0	522433	20.1	20.7
58622	19.7	18.4	327465	19.8	20.9	30434	19.8	18.0	522363	19.9	21.8	321888	19.9	20.9	87774	20.1	19.5
282764	19.7	20.3	154886	19.8	20.1	10164	19.8	16.0	260525	19.9	20.3	399681	19.9	22.0	142397	20.1	20.6
484963	19.7	19.8	266409	19.8	20.1	292876	19.8	22.2	473803	19.9	20.1	57240	19.9	18.7	446943	20.1	20.0
284236	19.7	20.7	206207	19.8	19.4	155791	19.8	18.7	315498	19.9	20.7	223709	19.9	20.3	426865	20.1	20.3
490649	19.7	20.4	85389	19.8	20.0	356605	19.8	20.7	63948	19.9	18.5	284823	19.9	20.7	226929	20.1	20.2
205046	19.7	19.7	28648	19.8	18.3	360203	19.8	20.2	500631	19.9	20.9	25004	19.9	18.5	81370	20.1	19.0
315342	19.7	21.0	32830	19.8	17.9	117393	19.8	18.7	87259	19.9	19.4	249407	19.9	19.7	401136	20.1	21.7
268764	19.7	21.3	364255	19.8	22.0	263851	19.8	20.1	331403	19.9	19.0	30073	19.9	18.5	27753	20.1	17.8
493104	19.7	20.5	285239	19.8	20.7	498937	19.8	20.9	20415	19.9	18.0	296026	19.9	20.8	345152	20.1	20.5
51839	19.7	18.5	442790	19.8	19.6	210115	19.9	20.4	426419	19.9	21.6	269701	19.9	20.5	357595	20.1	19.6
213896	19.7	20.4	56580	19.8	18.6	319614	19.9	20.4	365989	19.9	20.8	122232	19.9	19.4	83748	20.1	20.1
488585	19.7	22.0	316862	19.8	20.8	469430	19.9	19.6	298824	19.9	21.4	61988	19.9	18.5	422429	20.1	20.6
488600	19.7	20.8	491290	19.8	20.8	343337	19.9	20.5	29491	19.9	18.5	484283	19.9	21.4	89749	20.1	19.0
119012	19.7	17.7	68034	19.8	18.4	289673	19.9	21.7	463974	19.9	21.2	14926	20.0	18.3	291076	20.1	20.9
92616	19.7	18.7	255939	19.8	20.1	331018	19.9	19.9	7103	19.9	17.6	31880	20.0	19.5	492498	20.1	21.8
500156	19.7	20.5	219924	19.8	18.9	456702	19.9	21.2	314278	19.9	19.8	451707	20.0	21.1	83394	20.1	19.4
327881	19.7	20.0	424194	19.8	20.7	407904	19.9	20.5	51949	19.9	18.4	417835	20.0	20.6	143520	20.1	18.4
57553	19.7	19.6	460255	19.8	21.1	502489	19.9	21.4	93082	19.9	17.7	522490	20.0	21.1	446432	20.1	20.9
143665	19.7	19.5	137025	19.8	19.2	341426	19.9	20.1	199034	19.9	19.4	140074	20.0	19.0	466822	20.1	20.8
449148	19.7	19.9	202011	19.8	19.6	260128	19.9	20.0	172895	19.9	19.7	268237	20.0	20.9	248773	20.1	20.2
166835	19.7	19.0	486748	19.8	20.9	187714	19.9	19.9	11032	19.9	18.5	44721	20.0	17.2	377937	20.1	20.0
339590	19.7	20.6	343221	19.8	21.0	491563	19.9	21.4	148067	19.9	18.8	7242	20.0	17.3	258440	20.1	19.8
378685	19.7	20.4	372974	19.8	20.7	325221	19.9	20.5	300361	19.9	21.0	507751	20.0	20.4	306390	20.1	20.5
78136	19.7	19.6	244284	19.8	20.8	175291	19.9	20.7	64301	19.9	17.9	108744	20.0	19.8	462093	20.1	21.4
162177	19.7	20.0	426240	19.8	21.9	113959	19.9	19.6	188481	19.9	20.6	131468	20.0	20.8	217446	20.1	20.5
416877	19.7	21.8	94121	19.8	18.2	56282	19.9	17.8	197510	19.9	19.7	238469	20.0	20.7	96371	20.1	18.5
82966	19.7	18.6	91309	19.8	19.2	522421	19.9	21.4	408649	19.9	21.1	350745	20.0	19.8	332728	20.1	20.7
126243	19.7	17.8	395304	19.8	21.1	170025	19.9	19.9	84387	19.9	17.8	164532	20.0	19.8	708	20.1	14.1
175922	19.7	20.0	12991	19.8	18.2	402720	19.9	20.6	87829	19.9	18.2	301736	20.0	21.0	37313	20.1	18.5
356548	19.7	21.5	161782	19.8	20.1	350687	19.9	19.2	411868	19.9	19.7	424672	20.0	19.9	217451	20.1	19.8
101784	19.7	20.0	419548	19.8	21.0	212705	19.9	19.8	462937	19.9	20.9	179299	20.0	20.2	149871	20.1	20.1
468348	19.7	20.2	67540	19.8	19.1	268566	19.9	19.9	232034	19.9	19.7	268581	20.0	20.4	452531	20.1	21.8
269103	19.7	19.9	108247	19.8	20.5	160122	19.9	19.5	167137	19.9	20.6	229036	20.0	19.8	379097	20.1	19.6
239507	19.7	20.2	11839	19.8	17.0	20331	19.9	17.6	248707	19.9	20.3	506361	20.0	21.7	245046	20.1	19.8
216748	19.7	20.1	402670	19.8	21.3	212026	19.9	19.2	53281	19.9	17.7	189791	20.0	20.7	212561	20.1	20.1
58720	19.7	18.7	244929	19.8	18.9	489650	19.9	22.1	250104	19.9	20.9	16771	20.0	17.8	263121	20.1	20.5
22333	19.7	17.8	181421	19.8	20.3	60823	19.9	19.6	35009	19.9	18.4	81091	20.0	17.7	26529	20.1	17.0
427101	19.7	20.0	185429	19.8	19.9	205474	19.9	19.4	56172	19.9	18.2	369591	20.0	20.2	110972	20.1	19.0
43786	19.7	19.2	463935	19.8	21.1	32970	19.9	19.2	248106	19.9	19.4	495505	20.0	21.2	153919	20.1	19.2
317495	19.7	20.9	456481	19.8	21.2	402575	19.9	21.4	489140	19.9	20.8	114971	20.0	19.2	327760	20.1	19.5
102034	19.7	19.2	458171	19.8	20.8	205246	19.9	20.6	445916	19.9	21.2	309198	20.0	19.6	277450	20.1	20.7
116647	19.7	19.7	146419	19.8	18.7	253237	19.9	17.9	138220	19.9	19.3	461059	20.0	20.8	286144	20.1	21.6
50963	19.8	19.3	473741	19.8	21.2	175089	19.9	18.9	340630	19.9	20.5	419110	20.0	21.3	138149	20.1	20.0
419668	19.8	21.4	433852	19.8	20.7	98192	19.9	18.2	267544	19.9	20.6	176889	20.0	20.3	304992	20.1	20.0
325471	19.8	21.1	295510	19.8	21.4	309387	19.9	20.8	152339	19.9	19.9	450833	20.0	20.0	495982	20.1	21.7
392247	19.8	21.1	440419	19.8	21.1	359575	19.9	21.4	334646	19.9	20.3	324596	20.0	19.1	324510	20.1	20.2
458425	19.8	20.4	87905	19.8	18.4	132768	19.9	19.3	320669	19.9	20.1	396549	20.0	20.8	286944	20.1	21.1
409458	19.8	19.4	158180	19.8	19.3	161000	19.9	20.4	296599	19.9	20.8	306547	20.0	18.8	133433	20.1	19.9
277964	19.8	19.5	109794	19.8	19.0	404739	19.9	20.8	187336	19.9	20.4	520662	20.0	20.3	296080	20.1	20.2
218993	19.8	20.6	184429	19.8	21.1	376449	19.9	21.2	460521	19.9	20.3	281390	20.0	21.6	123459	20.1	18.9
57773	19.8	18.1	277934	19.8	20.5	27469	19.9	18.3	88286	19.9	19.3	383685	20.0	20.0	135156	20.1	20.4
309446	19.8	20.3	52952	19.8	17.3	458495	19.9	19.9	203648	19.9	18.9	239467	20.0	20.9	185311	20.1	19.9
107521	19.8	19.1	239216	19.8	20.3	419814	19.9	20.8	188661	19.9	19.6	116854	20.0	20.3	11559	20.1	18.7
236039	19.8	20.6	34921	19.8	19.6	304804	19.9	20.6	373938	19.9	20.7	522662	20.0	22.2	156749	20.1	19.2
171068	19.8	20.2	90574	19.8	19.8	219381	19.9	19.7	339526	19.9	21.5	487712	20.0	20.4	459317	20.1	19.9
27277	19.8	18.7	126925	19.8	20.2	357231	19.9	20.3	12296	19.9	18.7	352837	20.0	20.5	41846	20.1	18.0
455486	19.8	21.4	163585	19.8	19.9	278016	19.9	20.1	169587	19.9	20.3	406860	20.0	20.6	254012	20.1	18.9
298922	19.8	21.4	114232	19.8	19.8	98079	19.9	19.1	207385	19.9	18.9	7117	20.0	17.1	416918	20.1	21.5
312867	19.8	20.4	428357	19.8	19.7	384102	19.9	19.9	464822	19.9	21.5	368128	20.0	20.6	453816	20.1	19.8
96921	19.8	18.1	266449	19.8	19.0	319456	19.9	20.8	368986	19.9	20.9	213704	20.0	20.5	263505	20.1	20.3
396814	19.8	19.8	67498	19.8	17.4	111146	19.9	18.0	455822	19.9	20.8	335861	20.0	20.1	158503	20.1	20.1
24121	19.8	18.5	521134	19.8	21.7	426934	19.9	20.9	227593	19.9	19.4	492730	20.0	22.2	240839	20.1	20.7
140876	19.8	19.3	322257	19.8	20.2	405130	19.9	21									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
313200	20.1	21.2	304814	20.2	21.8	119627	20.2	19.0	48172	20.3	19.9	114942	20.4	19.5	377032	20.5	20.3
327408	20.1	18.6	170039	20.2	18.1	15315	20.2	18.7	204670	20.3	20.3	161002	20.4	20.0	8284	20.5	16.4
178867	20.1	19.2	154083	20.2	20.4	456588	20.2	20.3	281068	20.3	20.0	158491	20.4	19.8	457037	20.5	20.6
246747	20.1	20.6	236999	20.2	20.0	495052	20.2	21.5	204632	20.3	21.1	225765	20.4	21.9	29591	20.5	19.2
27926	20.1	19.2	84878	20.2	17.8	427248	20.2	21.0	233381	20.3	20.9	363184	20.4	20.2	280899	20.5	20.6
380703	20.1	20.3	304393	20.2	20.3	406912	20.3	20.5	219352	20.3	20.3	178613	20.4	20.3	303238	20.5	21.2
242334	20.1	19.2	34234	20.2	18.0	7286	20.3	16.7	366271	20.3	20.8	51675	20.4	19.6	416944	20.5	20.9
300007	20.1	20.4	304926	20.2	20.1	305043	20.3	20.3	28675	20.3	19.5	464306	20.4	20.6	38465	20.5	17.8
300452	20.1	19.4	341281	20.2	21.1	14028	20.3	17.5	494958	20.3	21.9	522230	20.4	21.6	275839	20.5	21.3
520992	20.1	19.8	169517	20.2	19.2	430555	20.3	20.3	402244	20.3	19.7	256781	20.4	20.5	39479	20.5	18.0
414477	20.1	19.2	60315	20.2	19.1	365124	20.3	20.0	428702	20.3	19.9	215908	20.4	20.3	227857	20.5	20.7
88027	20.1	19.3	52974	20.2	19.1	123449	20.3	19.4	332384	20.3	21.0	255846	20.4	19.7	460919	20.5	20.3
330887	20.1	20.0	430197	20.2	19.7	452536	20.3	22.2	87241	20.3	19.0	83795	20.4	19.8	49192	20.5	19.8
418994	20.1	20.0	77877	20.2	19.0	238430	20.3	19.2	242184	20.3	20.4	224860	20.4	20.7	354095	20.5	19.6
61474	20.1	17.7	235478	20.2	20.5	103600	20.3	19.1	82954	20.3	18.5	106653	20.4	19.9	505704	20.5	20.8
127640	20.1	19.1	305648	20.2	20.7	256228	20.3	20.6	382247	20.3	20.5	166998	20.4	19.4	230813	20.5	21.2
282610	20.1	20.0	409491	20.2	21.1	338072	20.3	21.8	480755	20.3	21.5	487990	20.4	20.4	30987	20.5	19.1
506371	20.1	20.5	354108	20.2	19.2	174256	20.3	19.9	352809	20.3	20.5	34428	20.4	18.7	506385	20.5	21.5
5449	20.1	16.8	327287	20.2	20.4	114486	20.3	19.4	520911	20.3	21.1	70272	20.4	18.0	458311	20.5	21.4
502513	20.1	21.5	318018	20.2	19.7	122934	20.3	19.3	350703	20.3	20.0	415877	20.4	21.1	109637	20.5	19.4
358601	20.1	20.9	413964	20.2	20.5	523680	20.3	21.9	53212	20.3	17.5	490900	20.4	20.2	176227	20.5	19.6
104124	20.1	19.0	423185	20.2	20.1	49458	20.3	17.7	295992	20.3	20.2	111668	20.4	18.2	245775	20.5	19.9
110460	20.1	19.4	430325	20.2	20.6	262386	20.3	20.2	255897	20.3	19.9	352828	20.4	20.6	12194	20.5	18.0
372545	20.1	19.9	222520	20.2	21.3	341599	20.3	20.9	3890	20.3	17.2	365653	20.4	21.2	274	20.5	14.3
123885	20.1	19.4	301792	20.2	20.4	164845	20.3	19.4	492401	20.3	21.5	112430	20.4	19.5	65872	20.5	18.8
16199	20.1	18.1	90301	20.2	20.4	186986	20.3	20.2	422799	20.4	19.7	282177	20.4	20.5	767	20.5	15.1
142262	20.1	19.9	76524	20.2	18.7	491879	20.3	20.8	172376	20.4	19.0	137016	20.4	18.1	470703	20.5	19.8
69774	20.1	18.2	247617	20.2	19.2	339030	20.3	19.5	338875	20.4	19.6	180541	20.4	19.6	135454	20.5	18.5
375373	20.1	20.2	492440	20.2	21.3	236069	20.3	20.2	503161	20.4	21.0	453267	20.4	22.1	100157	20.5	18.8
455564	20.1	19.8	118705	20.2	19.4	54681	20.3	18.8	264711	20.4	19.7	460718	20.4	21.1	450132	20.5	20.8
335627	20.1	20.9	413644	20.2	20.7	306580	20.3	19.6	195278	20.4	20.4	89966	20.4	18.1	464975	20.5	20.7
162462	20.1	19.6	107887	20.2	18.9	282828	20.3	21.2	239930	20.4	19.8	464142	20.4	20.5	432486	20.5	20.7
454334	20.1	21.5	265731	20.2	20.4	4773	20.3	15.9	109955	20.4	20.4	458354	20.4	21.0	329928	20.5	21.4
283025	20.1	20.7	209440	20.2	20.2	27485	20.3	18.2	15732	20.4	17.3	450978	20.4	21.2	109215	20.5	18.3
118285	20.1	19.0	315761	20.2	19.6	34052	20.3	17.0	401582	20.4	20.8	484773	20.4	21.1	85247	20.5	18.8
261160	20.1	19.6	27560	20.2	19.1	101813	20.3	18.6	423342	20.4	19.9	207681	20.4	18.4	84640	20.5	18.8
61581	20.1	19.7	426840	20.2	20.7	183421	20.3	18.7	233304	20.4	20.3	429938	20.4	20.0	319737	20.5	20.2
12085	20.1	17.8	276261	20.2	21.2	323778	20.3	20.5	238755	20.4	19.8	495495	20.4	21.3	410605	20.5	19.6
335694	20.1	20.8	91262	20.2	18.7	127769	20.3	19.6	331457	20.4	21.4	459841	20.4	21.8	33618	20.5	17.7
449133	20.1	20.3	26577	20.2	17.4	330966	20.3	21.2	52988	20.4	18.0	195861	20.4	19.8	397960	20.5	20.9
273051	20.1	20.1	265739	20.2	19.9	180036	20.3	19.7	165799	20.4	19.1	331036	20.4	21.0	133039	20.5	18.5
213638	20.1	20.4	298971	20.2	19.7	14155	20.3	16.7	132229	20.4	19.2	388030	20.4	20.5	473513	20.5	20.5
120835	20.1	19.0	95063	20.2	17.4	173394	20.3	20.7	87974	20.4	19.9	47627	20.4	18.4	465163	20.5	20.2
440515	20.1	20.8	272898	20.2	20.4	463800	20.3	21.3	302481	20.4	19.9	299515	20.4	21.2	71536	20.5	17.9
348812	20.2	21.4	147754	20.2	20.4	400203	20.3	19.9	30551	20.4	19.5	279909	20.4	19.7	160297	20.5	19.3
135265	20.2	19.5	325240	20.2	20.7	271739	20.3	20.6	368961	20.4	20.1	204604	20.4	20.3	182761	20.5	19.3
117011	20.2	20.5	236230	20.2	19.6	363929	20.3	21.5	421941	20.4	20.4	345597	20.4	20.8	230512	20.5	19.8
284174	20.2	19.3	421881	20.2	21.1	112461	20.3	17.2	381275	20.4	20.6	135226	20.4	20.2	39545	20.5	18.8
448258	20.2	19.7	112465	20.2	18.4	430040	20.3	20.1	182619	20.4	20.7	44341	20.4	19.0	132236	20.5	19.5
98526	20.2	18.1	214090	20.2	20.6	254683	20.3	21.2	273403	20.4	20.4	360439	20.4	20.2	288383	20.5	20.1
40287	20.2	18.3	457199	20.2	21.8	282467	20.3	20.2	413049	20.4	20.7	56936	20.4	18.3	92381	20.5	20.1
278679	20.2	20.6	145244	20.2	19.8	148083	20.3	17.6	239337	20.4	19.7	64156	20.4	17.6	193977	20.5	19.8
459348	20.2	19.6	28762	20.2	18.2	37836	20.3	17.5	60925	20.4	19.7	431389	20.4	19.8	28568	20.5	18.9
491159	20.2	21.0	8930	20.2	16.9	188295	20.3	19.2	405165	20.4	20.6	354366	20.4	21.2	31429	20.5	18.1
411252	20.2	20.9	419037	20.2	21.6	57093	20.3	18.9	455120	20.4	21.0	126101	20.4	19.1	150251	20.5	19.8
351255	20.2	21.2	445894	20.2	20.1	348226	20.3	21.1	105027	20.4	20.1	219409	20.4	19.3	189278	20.5	20.1
162999	20.2	18.7	204250	20.2	20.6	61900	20.3	18.2	451006	20.4	20.5	380377	20.4	20.6	156585	20.5	19.3
225939	20.2	19.9	30250	20.2	19.1	40605	20.3	18.4	186023	20.4	18.8	72873	20.4	19.0	57370	20.5	19.1
433139	20.2	21.0	376472	20.2	20.5	244996	20.3	20.0	391839	20.4	21.5	267677	20.4	19.6	294121	20.5	22.1
433104	20.2	20.9	447252	20.2	20.2	287606	20.3	19.6	397885	20.4	21.5	486246	20.5	21.2	378512	20.5	20.6
284020	20.2	19.0	62519	20.2	19.5	331706	20.3	21.7	229707	20.4	20.4	79808	20.5	19.9	462877	20.5	20.9
228763	20.2	19.2	368029	20.2	20.0	247444	20.3	20.2	500339	20.4	21.0	331967	20.5	20.2	203832	20.5	21.0
298846	20.2	20.2	5455	20.2	16.5	111186	20.3	19.8	316588	20.4	19.6	81220	20.5	19.5	288173	20.5	20.8
16315	20.2	18.7	199872	20.2	21.0	373862	20.3	20.4	177020	20.4	19.3	40341	20.5	18.8	391480	20.5	20.2
56042	20.2	17.8	519109	20.2	21.6	411590	20.3	19.5	163629	20.4	19.3	335955	20.5	20.1	27144	20.5	17.6
128513	20.2	18.8	22930	20.2	19.2	492628	20.3	20.4	190200	20.4	20.5	522431	20.5	20.2	496596	20.5	21.3
186089	20.2	18.9	12555	20.2	17.0	466462	20.3	21.3	458787	20.4	20.7	30635	20.5	19.7	145256	20.5	20.0
443656	20.2	20.4	109403	20.2	19.4	424298	20.3	20.2	408134	20.4	21.1	404176	20.5	21.6	306356	20.5	19.7
246516	20.2	20.5	519383	20.2	21.7	270607	20.3	20.2	439928								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
471450	20.5	19.7	296483	20.6	20.7	206906	20.7	19.4	277962	20.8	20.7	376692	20.8	21.0	108790	20.9	19.7
465218	20.5	21.3	390575	20.6	21.2	427002	20.7	20.9	79584	20.8	19.1	493902	20.8	20.3	176792	20.9	19.4
422027	20.5	20.7	15878	20.6	18.0	375896	20.7	20.7	131402	20.8	19.9	56764	20.8	18.7	281293	20.9	20.2
503815	20.5	21.0	85517	20.6	17.4	140718	20.7	19.2	321563	20.8	20.6	141377	20.8	19.2	456494	20.9	19.4
265563	20.5	20.9	467368	20.6	20.3	458880	20.7	20.7	125360	20.8	18.6	418376	20.8	20.6	451740	20.9	19.9
88554	20.5	19.2	113223	20.6	19.1	233172	20.7	20.3	110289	20.8	19.0	18389	20.8	18.3	393446	20.9	21.4
155978	20.5	20.4	457011	20.6	20.1	231536	20.7	20.4	110358	20.8	19.2	234218	20.8	20.6	376856	20.9	20.0
498935	20.5	21.0	347144	20.6	21.9	358006	20.7	20.2	207619	20.8	20.4	344549	20.8	21.0	152204	20.9	20.1
182174	20.5	20.6	46606	20.6	18.1	157989	20.7	20.1	408299	20.8	21.2	383696	20.8	20.6	12159	20.9	17.2
436033	20.5	20.9	321924	20.6	19.3	183828	20.7	18.9	120009	20.8	18.6	459182	20.8	20.6	129055	20.9	19.4
522496	20.5	20.9	216733	20.6	19.7	199790	20.7	19.5	284986	20.8	20.0	84259	20.8	19.0	321491	20.9	21.1
335847	20.5	21.2	178165	20.6	20.6	5280	20.7	17.6	387650	20.8	20.9	411339	20.8	20.5	280254	20.9	19.6
363567	20.5	18.7	461366	20.6	20.7	312133	20.7	21.2	235061	20.8	20.3	454761	20.8	20.8	127872	20.9	20.1
10690	20.5	18.6	414826	20.6	21.5	341487	20.7	20.6	163089	20.8	19.6	341516	20.8	20.6	154797	20.9	20.0
65273	20.5	19.6	354560	20.6	21.1	181715	20.7	20.0	224593	20.8	19.4	234184	20.8	20.8	218743	20.9	19.9
330480	20.5	20.7	360295	20.6	20.5	9198	20.7	16.4	343511	20.8	20.8	427828	20.8	20.4	502943	20.9	20.9
249071	20.5	20.9	235485	20.6	19.8	328935	20.7	20.1	152020	20.8	19.5	455047	20.8	19.8	340653	20.9	21.2
463527	20.5	21.8	15898	20.6	16.8	110580	20.7	19.1	271492	20.8	20.0	367194	20.8	19.7	273915	20.9	20.3
217461	20.5	20.0	243600	20.6	19.8	335636	20.7	22.0	334390	20.8	20.1	31585	20.8	18.5	359089	20.9	20.3
500441	20.5	21.9	98209	20.6	19.2	18072	20.7	17.9	209059	20.8	21.3	74530	20.8	17.6	27651	20.9	18.2
519096	20.5	20.3	198855	20.6	20.2	244611	20.7	19.3	253895	20.8	19.4	426839	20.8	20.0	409958	20.9	20.3
421206	20.5	20.1	470412	20.6	20.7	185783	20.7	20.7	34912	20.8	18.6	197184	20.8	19.4	405147	20.9	21.6
463881	20.5	20.7	89108	20.6	20.7	99493	20.7	19.2	307675	20.8	21.2	231058	20.8	20.2	184987	20.9	20.6
328024	20.5	21.1	192547	20.6	22.0	51952	20.7	18.1	155401	20.8	20.7	126119	20.8	19.1	498927	20.9	21.3
128868	20.5	19.7	458846	20.6	20.3	122806	20.7	19.3	248566	20.8	19.3	466020	20.8	20.0	133846	20.9	19.1
285534	20.5	21.7	243002	20.6	21.1	304494	20.7	21.1	93873	20.8	19.2	166818	20.8	18.7	501883	20.9	19.9
305759	20.5	19.6	426494	20.6	20.7	500454	20.7	22.0	59578	20.8	18.4	131953	20.8	19.1	416843	20.9	22.2
77649	20.6	20.0	473887	20.6	21.3	387038	20.7	21.0	393700	20.8	21.7	356298	20.8	21.9	169252	20.9	20.0
5298	20.6	17.5	58428	20.6	20.5	80007	20.7	19.0	161609	20.8	19.3	456872	20.8	21.0	494675	20.9	21.8
147599	20.6	18.8	398741	20.6	20.2	115265	20.7	19.9	301263	20.8	19.6	28357	20.9	17.4	256851	20.9	20.0
256646	20.6	21.3	286003	20.6	20.7	55949	20.7	17.8	230458	20.8	20.7	11771	20.9	18.9	373663	20.9	19.9
311046	20.6	19.5	70170	20.6	19.7	58044	20.7	17.7	457840	20.8	21.2	63115	20.9	18.2	43727	20.9	18.6
215986	20.6	20.0	90023	20.6	17.8	331246	20.7	21.4	63082	20.8	17.8	246912	20.9	20.1	303555	20.9	20.4
345545	20.6	20.3	373022	20.6	20.8	144642	20.7	19.0	255971	20.8	21.0	286973	20.9	22.0	276529	20.9	20.5
371987	20.6	21.3	417994	20.6	20.1	202314	20.7	20.1	166162	20.8	20.3	230431	20.9	20.3	37381	20.9	18.5
55362	20.6	18.7	66182	20.6	19.1	274944	20.7	19.7	203831	20.8	19.0	406048	20.9	20.1	364386	20.9	21.3
379063	20.6	20.9	95401	20.7	19.8	356310	20.7	20.7	28387	20.8	16.4	235016	20.9	20.2	88844	20.9	19.5
416954	20.6	21.5	492455	20.7	22.0	191100	20.7	19.8	390815	20.8	20.4	55614	20.9	18.6	43403	20.9	17.3
118713	20.6	19.8	464237	20.7	19.9	231417	20.7	20.2	454321	20.8	21.5	58631	20.9	17.8	402850	20.9	20.3
238355	20.6	19.6	110388	20.7	19.6	14089	20.7	18.2	451062	20.8	19.9	24737	20.9	17.8	370846	20.9	20.3
306332	20.6	20.8	25251	20.7	19.1	448155	20.7	21.5	148358	20.8	20.3	242786	20.9	20.7	155446	20.9	19.7
456436	20.6	21.3	249432	20.7	21.0	360230	20.7	20.4	129533	20.8	20.2	362059	20.9	20.7	397091	20.9	20.2
212616	20.6	20.1	10217	20.7	16.4	109582	20.7	18.3	145900	20.8	19.9	369541	20.9	19.8	495261	20.9	22.0
73319	20.6	19.4	179563	20.7	19.8	400855	20.7	21.2	166325	20.8	20.4	433783	20.9	20.5	96368	20.9	18.0
186586	20.6	18.8	313700	20.7	20.2	428806	20.7	20.7	109184	20.8	19.8	451658	20.9	18.6	279161	20.9	20.3
271877	20.6	20.4	119568	20.7	18.5	154325	20.7	19.7	151272	20.8	20.0	121896	20.9	19.9	402878	20.9	20.7
117226	20.6	19.2	357203	20.7	20.4	38345	20.7	18.3	396839	20.8	21.1	381256	20.9	20.3	319050	20.9	21.0
329815	20.6	21.4	408356	20.7	20.5	113321	20.7	19.6	373288	20.8	21.0	121039	20.9	17.4	288514	20.9	20.5
57838	20.6	18.1	104883	20.7	19.6	241403	20.7	19.2	354168	20.8	20.0	287530	20.9	18.9	274594	20.9	20.6
100022	20.6	19.0	317321	20.7	19.5	94523	20.7	19.2	399176	20.8	20.7	296094	20.9	20.3	142542	20.9	19.8
77903	20.6	18.5	370658	20.7	19.3	128946	20.7	20.6	27301	20.8	18.3	30285	20.9	18.5	362361	20.9	21.5
63570	20.6	18.6	111083	20.7	19.7	301238	20.7	20.7	148044	20.8	19.8	10053	20.9	17.5	464270	20.9	19.9
173900	20.6	19.9	340792	20.7	20.2	317592	20.7	17.7	14266	20.8	17.8	231087	20.9	21.0	293539	20.9	21.4
198932	20.6	20.5	182390	20.7	19.6	136302	20.7	18.9	211481	20.8	20.5	68991	20.9	18.8	977	20.9	14.1
82579	20.6	18.7	5	20.7	9.2	34646	20.7	18.7	463858	20.8	20.9	291466	20.9	19.9	423568	20.9	21.2
340606	20.6	21.7	49615	20.7	18.1	470874	20.7	21.3	468268	20.8	21.1	424952	20.9	20.3	340757	20.9	21.8
128048	20.6	20.2	121983	20.7	19.6	24865	20.7	18.5	61696	20.8	19.1	330662	20.9	21.6	424320	20.9	20.6
492616	20.6	21.4	462914	20.7	20.3	170984	20.7	19.3	66926	20.8	18.0	448125	20.9	20.9	309856	20.9	20.4
143849	20.6	19.5	347916	20.7	18.8	148	20.7	11.4	304780	20.8	21.2	75279	20.9	18.5	502405	20.9	20.2
425984	20.6	20.0	429849	20.7	20.9	156263	20.7	20.1	38742	20.8	17.7	341282	20.9	19.9	286326	20.9	19.8
110165	20.6	18.2	264306	20.7	20.9	130453	20.7	20.2	5379	20.8	16.2	287452	20.9	20.1	411415	20.9	21.2
502974	20.6	20.7	369085	20.7	21.5	127641	20.7	18.4	89619	20.8	19.7	397119	20.9	19.9	152064	20.9	20.6
232669	20.6	19.4	199207	20.7	19.1	378248	20.7	20.4	377257	20.8	19.0	496511	20.9	20.5	40800	20.9	19.7
462251	20.6	20.5	5031	20.7	17.4	322656	20.7	20.5	21404	20.8	17.1	415223	20.9	19.7	267786	20.9	19.8
153891	20.6	19.2	231405	20.7	20.3	85631	20.7	19.4	473911	20.8	21.3	263507	20.9	21.0	313586	20.9	20.5
19884	20.6	18.4	486861	20.7	22.0	118431	20.7	18.5	168110	20.8	20.0	166867	20.9	18.8	353317	20.9	21.1
117425	20.6	19.1	270633	20.7	20.5	219324	20.7	20.8	338075	20.8	20.7	36013	20.9	19.1	266746	20.9	20.8
236945	20.6	20.0	245773	20.7	21.3	423007	20.7	21.4	160086	20.8	20.1	290460	20.9	20.1	155995	20.9	20.4
414278	20.6	20.3	375479	20.7	20.9	301364	20.7	20.4	569								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
19289	20.9	18.5	489063	21.0	20.8	335978	21.1	19.1	284121	21.2	20.3	466221	21.2	21.9	76608	21.3	17.7
97921	20.9	19.6	10674	21.0	18.5	109393	21.1	20.1	392824	21.2	20.4	9290	21.2	18.3	65565	21.3	19.8
460281	20.9	21.0	10387	21.0	18.0	163063	21.1	19.3	116059	21.2	20.4	260915	21.2	20.0	450450	21.3	20.9
226796	20.9	19.7	148552	21.0	18.9	98769	21.1	18.4	286309	21.2	20.1	77625	21.2	19.3	323821	21.3	21.1
518131	20.9	20.7	55623	21.0	18.6	183967	21.1	20.1	232361	21.2	18.8	3963	21.2	16.3	47359	21.3	18.2
486902	20.9	20.8	66305	21.0	19.0	240477	21.1	19.3	445032	21.2	20.9	495958	21.2	21.9	242186	21.3	20.2
13976	20.9	18.9	376166	21.0	21.2	362144	21.1	19.4	522232	21.2	20.8	104369	21.2	19.1	94413	21.3	19.2
456987	20.9	20.9	440633	21.0	21.0	408239	21.1	20.9	295958	21.2	19.9	467989	21.2	20.8	207716	21.3	21.0
259975	20.9	19.7	359141	21.0	19.6	166209	21.1	19.8	496172	21.2	21.9	60857	21.2	18.2	431479	21.3	21.3
230	20.9	10.5	236874	21.0	20.9	45950	21.1	17.4	40577	21.2	19.0	278932	21.2	21.2	185788	21.3	20.4
131791	20.9	19.1	124243	21.0	19.7	95843	21.1	19.5	449594	21.2	21.4	154655	21.2	20.5	132429	21.3	20.2
344544	20.9	20.6	329820	21.0	21.1	503063	21.1	20.3	325871	21.2	20.3	267087	21.2	19.7	7313	21.3	18.7
284877	20.9	21.5	83398	21.0	19.0	161228	21.1	19.5	382190	21.2	21.6	340721	21.2	20.9	449098	21.3	20.3
62865	20.9	19.9	430829	21.0	20.7	114943	21.1	20.0	62260	21.2	18.1	421230	21.2	20.3	464967	21.3	19.6
292314	20.9	21.4	83505	21.0	18.7	105051	21.1	19.4	315967	21.2	19.8	191040	21.2	19.2	35573	21.3	17.1
182509	20.9	20.5	108260	21.0	19.8	498301	21.1	20.4	440904	21.2	22.8	165773	21.2	19.5	217973	21.3	20.4
280428	20.9	19.3	167192	21.0	21.1	61090	21.1	18.9	243122	21.2	19.6	486891	21.2	20.7	282791	21.3	20.8
146322	20.9	19.5	212893	21.0	20.5	70575	21.1	17.4	333384	21.2	20.1	55278	21.2	19.4	447394	21.3	20.7
378975	20.9	20.0	41010	21.0	18.5	209163	21.1	20.9	331428	21.2	20.4	447290	21.2	21.3	333802	21.3	19.9
424611	20.9	21.3	382406	21.0	20.8	115030	21.1	19.4	75751	21.2	19.3	432192	21.2	20.0	369383	21.3	20.5
203851	20.9	19.7	367773	21.0	21.1	537	21.1	14.1	450729	21.2	21.2	106592	21.2	19.8	252041	21.3	20.5
468533	20.9	20.0	36249	21.1	18.8	239301	21.1	21.1	269367	21.2	20.2	98103	21.2	18.5	38337	21.3	17.4
296047	20.9	19.7	145137	21.1	19.1	275068	21.1	20.4	358107	21.2	20.1	196709	21.2	19.9	64599	21.3	18.5
298919	20.9	19.9	368571	21.1	21.2	451023	21.1	20.1	128483	21.2	20.0	367823	21.2	20.5	182989	21.3	20.5
381640	20.9	20.7	194489	21.1	19.6	499131	21.1	22.4	462946	21.2	21.2	478380	21.2	19.7	14996	21.3	18.3
465895	20.9	19.7	293111	21.1	19.5	302388	21.1	19.8	109912	21.2	19.5	280271	21.2	21.0	56813	21.3	19.0
138596	20.9	20.9	234903	21.1	19.7	18934	21.1	18.7	213245	21.2	18.2	406031	21.2	21.0	171970	21.3	18.5
2164	20.9	17.1	460716	21.1	19.9	397204	21.1	21.5	406869	21.2	20.4	363836	21.2	21.6	286645	21.3	20.1
455788	20.9	21.6	265732	21.1	19.8	46573	21.1	16.9	258546	21.2	19.4	332973	21.2	20.9	25331	21.3	19.4
365239	20.9	21.4	455937	21.1	20.1	221649	21.1	20.2	236066	21.2	21.5	184305	21.2	20.4	432053	21.3	20.1
255266	20.9	19.0	235538	21.1	18.7	282649	21.1	21.1	175938	21.2	19.5	291200	21.2	20.3	293377	21.3	20.7
203064	20.9	19.0	11563	21.1	18.3	498534	21.1	21.1	274522	21.2	20.5	364438	21.3	21.3	304870	21.3	21.5
518782	20.9	21.0	20808	21.1	18.4	136513	21.1	19.3	242840	21.2	20.7	462616	21.3	20.8	124202	21.3	19.5
425514	20.9	20.6	417123	21.1	21.5	182766	21.1	19.8	19679	21.2	16.8	124231	21.3	19.0	503737	21.3	21.0
305081	20.9	20.2	89553	21.1	18.6	107494	21.1	19.7	327285	21.2	20.2	467759	21.3	20.9	206860	21.3	19.9
25341	20.9	17.3	243412	21.1	20.0	198967	21.1	20.3	466899	21.2	20.3	318692	21.3	19.8	292064	21.3	21.4
419108	20.9	20.7	234451	21.1	20.4	337746	21.1	21.1	330711	21.2	20.6	496600	21.3	20.9	451432	21.3	20.9
19081	20.9	16.8	347604	21.1	20.3	494068	21.1	21.0	494717	21.2	21.3	178364	21.3	19.4	223757	21.3	21.0
105424	20.9	20.5	226821	21.1	20.4	6624	21.1	16.7	290250	21.2	20.6	289058	21.3	20.6	289668	21.3	21.4
364360	21.0	20.4	260506	21.1	20.2	15870	21.1	19.0	455410	21.2	20.7	110410	21.3	20.0	224237	21.3	19.6
48803	21.0	18.0	96089	21.1	19.5	507083	21.1	21.3	350722	21.2	19.0	489616	21.3	21.7	372403	21.3	21.3
362356	21.0	20.3	8546	21.1	16.5	93417	21.1	17.5	64053	21.2	19.2	251227	21.3	18.4	234231	21.3	21.0
62469	21.0	19.2	30607	21.1	17.9	360779	21.1	20.7	77347	21.2	20.3	501942	21.3	19.8	488459	21.3	22.1
401003	21.0	21.6	79523	21.1	20.4	277552	21.1	21.0	278422	21.2	20.5	139372	21.3	19.9	61978	21.3	19.0
273387	21.0	19.9	401065	21.1	21.2	488968	21.1	20.9	448143	21.2	21.8	88985	21.3	18.1	12976	21.3	18.3
328544	21.0	20.6	39464	21.1	18.7	484213	21.1	20.2	323534	21.2	21.0	129504	21.3	21.0	209905	21.3	21.2
21566	21.0	18.3	460708	21.1	21.0	192977	21.1	19.7	12120	21.2	17.4	322814	21.3	20.8	496671	21.3	21.1
98863	21.0	17.2	273731	21.1	20.6	427687	21.1	20.6	495272	21.2	22.1	2887	21.3	16.3	74079	21.3	19.3
45444	21.0	17.9	357567	21.1	20.0	18279	21.1	17.3	267438	21.2	19.5	214905	21.3	19.4	338302	21.3	22.2
378831	21.0	20.2	371143	21.1	20.0	116886	21.1	19.4	82768	21.2	18.9	492185	21.3	21.2	1535	21.3	16.9
37605	21.0	18.2	202900	21.1	20.3	453900	21.1	20.2	95012	21.2	18.3	239435	21.3	20.3	413566	21.3	20.8
228172	21.0	20.5	132624	21.1	18.6	359810	21.1	21.3	309219	21.2	19.6	179865	21.3	19.1	178136	21.3	19.3
416064	21.0	19.1	269074	21.1	21.4	281378	21.1	21.5	62245	21.2	19.3	241593	21.3	20.0	243474	21.3	20.8
50698	21.0	18.4	269037	21.1	20.3	358079	21.1	21.7	110801	21.2	20.2	131982	21.3	19.0	398120	21.3	20.3
457119	21.0	20.4	241370	21.1	20.0	338219	21.1	20.0	90239	21.2	18.6	49436	21.3	18.4	493201	21.3	21.3
227957	21.0	20.5	353236	21.1	20.1	64244	21.1	19.4	419983	21.2	20.7	330807	21.3	18.9	83048	21.3	19.2
242851	21.0	21.6	378939	21.1	20.5	151560	21.1	20.7	451460	21.2	20.6	306287	21.3	19.6	249559	21.3	20.7
369673	21.0	21.3	39954	21.1	18.1	301739	21.1	21.1	32546	21.2	18.0	129296	21.3	19.6	411247	21.3	21.6
420611	21.0	20.1	186079	21.1	20.1	140458	21.1	20.0	258141	21.2	21.0	304972	21.3	19.1	445954	21.3	20.3
105939	21.0	19.5	261706	21.1	19.5	418881	21.1	19.0	453579	21.2	21.1	336612	21.3	20.6	463992	21.3	21.0
518482	21.0	21.4	223575	21.1	21.2	522353	21.1	20.4	371773	21.2	20.5	424375	21.3	20.1	351666	21.3	20.5
49618	21.0	18.1	217439	21.1	20.7	113956	21.1	19.1	13397	21.2	18.1	85572	21.3	18.9	285337	21.3	20.4
372653	21.0	21.0	61759	21.1	18.2	375820	21.1	21.0	210195	21.2	20.0	329643	21.3	21.0	80900	21.3	18.8
327543	21.0	21.2	229636	21.1	20.2	488751	21.2	21.9	455376	21.2	19.8	159487	21.3	19.6	283501	21.3	20.8
152743	21.0	19.0	422623	21.1	20.7	419100	21.2	21.6	231095	21.2	20.5	456589	21.3	20.2	164588	21.3	20.9
288447	21.0	19.8	129439	21.1	19.7	91366	21.2	19.9	495857	21.2	25.4	469612	21.3	23.0	50511	21.3	18.4
296930	21.0	20.9	242823	21.1	21.2	248683	21.2	20.0	284131	21.2	20.1	492925	21.3	21.1	6277	21.3	17.4
421503	21.0	22.1	401152	21.1	21.7	373876	21.2	20.8	495521	21.2	21.4	202446	21.3	20.0	247938	21.3	19.4
520706	21.0	20.1	17581	21.1	17.5	138013	21.2	18.5	51500	21.							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
176611	21.4	20.4	238472	21.4	19.9	36499	21.5	19.3	8913	21.5	18.0	238495	21.6	19.7	162706	21.7	18.6
15137	21.4	16.8	494743	21.4	20.4	198882	21.5	20.3	104398	21.6	19.6	465451	21.6	21.6	238906	21.7	20.3
375413	21.4	20.9	5205	21.4	16.9	59016	21.5	18.8	323177	21.6	20.8	506214	21.6	22.1	227755	21.7	20.9
44969	21.4	18.3	5251	21.4	18.4	489056	21.5	19.0	249291	21.6	20.3	93106	21.6	19.6	120820	21.7	18.7
492571	21.4	22.3	195664	21.4	19.4	522320	21.5	19.5	367191	21.6	18.4	102896	21.6	19.3	235013	21.7	19.0
199363	21.4	21.1	252236	21.4	20.8	493062	21.5	21.3	76227	21.6	19.8	117144	21.6	19.8	335872	21.7	20.3
138451	21.4	21.0	147669	21.4	19.3	461042	21.5	20.8	345804	21.6	20.3	116916	21.6	20.2	299353	21.7	20.0
269624	21.4	20.9	91351	21.4	18.5	67874	21.5	19.7	109747	21.6	18.6	190121	21.6	20.2	259812	21.7	18.5
26789	21.4	17.7	377116	21.4	20.0	366924	21.5	21.6	415134	21.6	20.5	23542	21.6	19.4	406332	21.7	21.7
166906	21.4	19.2	113120	21.4	18.9	427447	21.5	20.5	16908	21.6	16.0	234851	21.6	19.4	386130	21.7	21.2
313399	21.4	19.9	65162	21.4	19.1	111164	21.5	19.1	355961	21.6	20.4	450741	21.6	21.6	29414	21.7	18.4
229511	21.4	20.4	417236	21.4	20.9	18927	21.5	17.7	363814	21.6	20.6	281327	21.6	21.0	321850	21.7	19.3
257054	21.4	20.0	222356	21.4	20.0	863	21.5	13.6	261457	21.6	21.2	369102	21.6	21.5	243228	21.7	19.5
216762	21.4	20.3	340588	21.4	21.3	451728	21.5	20.0	372112	21.6	20.9	10321	21.6	17.7	23465	21.7	17.3
53376	21.4	17.6	354060	21.4	19.6	520923	21.5	20.3	6270	21.6	16.8	510929	21.6	21.5	287563	21.7	20.0
73016	21.4	20.4	87893	21.4	18.6	140054	21.5	19.6	44806	21.6	18.0	144405	21.6	19.7	336716	21.7	20.5
105602	21.4	18.7	489895	21.4	21.6	250994	21.5	21.2	307690	21.6	21.6	223814	21.6	20.0	541112	21.7	19.0
414838	21.4	20.4	494745	21.4	21.8	335984	21.5	19.8	250166	21.6	19.4	289688	21.6	20.3	16286	21.7	17.9
186044	21.4	19.6	408127	21.4	20.3	294811	21.5	20.9	84185	21.6	17.4	415816	21.6	21.8	453859	21.7	22.3
250603	21.4	20.4	64482	21.4	18.8	264706	21.5	19.3	275708	21.6	20.1	80088	21.6	18.5	464823	21.7	20.2
65853	21.4	18.5	27484	21.4	17.1	334172	21.5	20.4	288896	21.6	19.5	207565	21.6	19.8	171009	21.7	19.6
110454	21.4	18.3	281295	21.4	20.6	111068	21.5	18.8	61226	21.6	16.8	492795	21.6	22.4	90633	21.7	20.1
307849	21.4	18.9	462846	21.4	20.3	77722	21.5	17.9	280231	21.6	20.1	325701	21.6	20.2	447435	21.7	20.3
500334	21.4	21.4	444294	21.4	21.0	261105	21.5	20.1	248833	21.6	19.4	94407	21.6	18.9	155268	21.7	19.9
201880	21.4	19.7	442655	21.4	21.3	33497	21.5	18.2	279751	21.6	20.5	303322	21.6	19.9	375290	21.7	20.9
130855	21.4	19.1	467004	21.4	21.0	204561	21.5	20.3	361721	21.6	20.5	14418	21.6	18.7	89395	21.7	19.1
333133	21.4	21.0	278408	21.4	20.1	241207	21.5	19.8	389144	21.6	20.2	505916	21.6	21.2	280664	21.7	20.3
90137	21.4	18.6	125657	21.4	19.1	215060	21.5	20.4	376677	21.6	21.0	463926	21.6	21.1	121065	21.7	20.3
366755	21.4	21.4	8795	21.4	17.5	126216	21.5	19.7	43621	21.6	18.5	421979	21.6	22.3	79646	21.7	19.7
334130	21.4	21.3	374769	21.4	21.8	456950	21.5	20.7	435242	21.6	20.2	94571	21.6	17.6	327027	21.7	21.2
321801	21.4	20.0	331948	21.4	21.0	128882	21.5	20.7	82078	21.6	16.7	146477	21.6	19.2	390872	21.7	22.0
109566	21.4	19.7	40515	21.4	19.3	305868	21.5	20.1	424240	21.6	21.0	219397	21.6	20.4	239366	21.7	20.8
19891	21.4	19.7	167069	21.4	19.0	357205	21.5	19.6	522534	21.6	22.7	154189	21.6	20.7	1636	21.7	14.6
278424	21.4	21.1	494874	21.4	21.8	334589	21.5	19.9	379072	21.6	20.1	182232	21.6	19.0	237497	21.7	20.7
71499	21.4	19.1	205244	21.4	19.4	428421	21.5	20.9	495329	21.6	21.3	210611	21.6	20.0	453339	21.7	19.9
317578	21.4	20.3	54616	21.4	18.2	458256	21.5	20.6	466745	21.6	21.1	45757	21.6	18.9	136396	21.7	19.5
80067	21.4	19.3	266792	21.4	20.2	309237	21.5	20.7	166625	21.6	20.9	100486	21.6	19.6	349219	21.7	21.7
220344	21.4	20.0	404196	21.4	20.1	32124	21.5	18.5	163612	21.6	19.4	373706	21.6	21.1	89257	21.7	19.1
453574	21.4	20.7	246270	21.4	20.4	103905	21.5	19.0	452407	21.6	18.9	505174	21.6	21.5	284416	21.7	21.4
136124	21.4	19.8	426919	21.4	20.6	489602	21.5	19.6	381579	21.6	17.4	324636	21.6	20.6	295193	21.7	20.2
354880	21.4	20.8	263560	21.4	20.3	127706	21.5	19.3	462924	21.6	20.8	216338	21.6	20.0	233743	21.7	19.9
206196	21.4	19.3	522405	21.4	20.7	522312	21.5	20.5	451512	21.6	21.6	282824	21.6	20.3	212651	21.7	20.5
415121	21.4	20.7	377332	21.4	21.5	420705	21.5	19.6	96172	21.6	19.3	283146	21.6	20.7	79220	21.7	19.6
82794	21.4	19.9	167859	21.4	18.6	214220	21.5	20.1	368764	21.6	21.2	337928	21.6	19.9	322847	21.7	20.8
461985	21.4	20.4	451912	21.4	21.1	292862	21.5	21.2	223830	21.6	19.3	212155	21.6	19.7	29494	21.7	17.0
472528	21.4	19.7	247513	21.4	20.8	166199	21.5	21.0	459762	21.6	20.9	165686	21.6	20.5	153434	21.7	19.3
452791	21.4	20.8	489643	21.4	21.5	28660	21.5	19.1	283166	21.6	19.9	414471	21.6	20.3	468673	21.7	21.0
318094	21.4	19.9	431143	21.4	21.2	401141	21.5	20.6	291264	21.6	20.6	176174	21.6	20.2	432158	21.7	20.3
118854	21.4	18.9	165756	21.4	19.4	314764	21.5	19.8	144671	21.6	19.2	319600	21.6	20.2	277849	21.7	19.9
153985	21.4	19.8	523745	21.4	21.8	119554	21.5	19.7	221330	21.6	20.5	422819	21.6	19.7	43678	21.7	19.7
4258	21.4	16.6	495455	21.4	21.3	103887	21.5	19.9	399419	21.6	20.7	46300	21.6	18.3	309347	21.7	21.0
47119	21.4	17.3	117044	21.4	19.1	136842	21.5	18.7	47861	21.6	17.9	480036	21.7	21.5	211207	21.7	21.1
25015	21.4	18.4	455248	21.5	21.7	78201	21.5	19.4	99300	21.6	19.2	414268	21.7	20.4	372922	21.7	20.6
495585	21.4	21.4	198735	21.5	19.6	241667	21.5	21.3	338910	21.6	20.1	334244	21.7	19.4	46952	21.7	19.6
320738	21.4	20.0	462034	21.5	19.7	368974	21.5	19.4	26149	21.6	18.3	295600	21.7	21.0	357175	21.7	21.4
397481	21.4	21.7	325171	21.5	19.8	69023	21.5	18.7	359119	21.6	20.1	219356	21.7	19.8	373779	21.7	19.9
26612	21.4	18.2	179832	21.5	19.4	95124	21.5	20.2	228260	21.6	20.8	288573	21.7	20.9	53020	21.7	19.2
463315	21.4	20.6	375151	21.5	21.6	341490	21.5	20.3	34395	21.6	17.8	489638	21.7	19.8	405151	21.7	21.2
304879	21.4	21.8	429377	21.5	20.6	327061	21.5	21.0	467570	21.6	21.4	79817	21.7	19.2	163744	21.7	20.5
283896	21.4	20.2	104199	21.5	19.7	52262	21.5	19.3	403676	21.6	20.5	416925	21.7	20.7	335851	21.7	20.1
271159	21.4	19.9	324377	21.5	19.3	222707	21.5	20.2	74972	21.6	18.8	169123	21.7	19.8	115871	21.7	19.0
339472	21.4	21.1	464654	21.5	21.4	284405	21.5	21.2	262627	21.6	20.0	505720	21.7	21.4	335232	21.7	20.6
46286	21.4	18.5	189267	21.5	19.5	48329	21.5	19.0	459816	21.6	20.6	256932	21.7	19.8	262699	21.7	19.9
489628	21.4	20.7	222450	21.5	21.3	347509	21.5	22.7	89587	21.6	20.1	212904	21.7	19.4	365458	21.7	19.7
48622	21.4	19.1	18351	21.5	17.1	394407	21.5	22.1	116280	21.6	19.1	465224	21.7	22.1	204790	21.7	19.6
154662	21.4	19.5	261579	21.5	20.2	246581	21.5	20.7	381690	21.6	20.9	458953	21.7	21.4	278784	21.7	19.9
71924	21.4	18.1	76705	21.5	19.2	226715	21.5	20.6	417292	21.6	20.6	521100	21.7	20.5	261531	21.7	20.0
247535	21.4	20.6	177819	21.5	20.4	27588	21.5	18.8	97963	21.6	19.6	317051	21.7	21.0	145020	21.7	19.6
119217	21.4	17.5	339627	21.5	19.7	82475	21.5	19.0									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
282663	21.7	21.5	266899	21.8	20.1	819	21.9	15.2	125973	21.9	20.1	174794	22.0	18.6	93973	22.1	16.8
11247	21.7	18.6	363178	21.8	21.0	39963	21.9	17.5	243130	21.9	19.6	364182	22.0	21.0	82727	22.1	18.5
231089	21.7	20.4	129712	21.8	20.0	492008	21.9	20.3	97764	21.9	20.1	469023	22.0	20.3	430407	22.1	20.8
462911	21.7	19.7	433322	21.8	21.0	318795	21.9	21.6	179843	21.9	20.3	147331	22.0	19.4	169307	22.1	19.9
316522	21.7	21.1	134823	21.8	18.9	502559	21.9	21.3	100725	21.9	17.6	48500	22.0	17.9	156194	22.1	20.4
474535	21.7	20.0	15699	21.8	17.7	58337	21.9	18.8	205394	21.9	20.5	394403	22.0	21.1	95584	22.1	18.8
89032	21.7	17.7	467052	21.8	20.4	236302	21.9	20.4	56372	21.9	19.1	386166	22.0	20.5	11030	22.1	18.6
334098	21.7	20.5	116911	21.8	19.4	300291	21.9	20.7	415078	21.9	20.5	418326	22.0	20.8	110658	22.1	19.8
133397	21.7	19.8	491961	21.8	21.4	219420	21.9	18.7	351212	21.9	21.8	99444	22.0	19.3	371214	22.1	19.2
42626	21.7	18.6	169315	21.8	18.8	344018	21.9	20.5	367884	21.9	20.0	53769	22.0	19.1	32168	22.1	17.3
249372	21.7	19.2	397128	21.8	20.4	183383	21.9	19.3	117563	21.9	19.3	95004	22.0	19.3	493298	22.1	21.4
194217	21.7	20.1	371234	21.8	20.6	336044	21.9	20.5	7398	21.9	16.7	185056	22.0	19.3	274610	22.1	20.1
263596	21.7	19.2	31771	21.8	19.5	135227	21.9	19.7	10455	21.9	18.3	27431	22.0	17.5	93827	22.1	19.6
416567	21.7	22.9	114190	21.8	18.2	241060	21.9	20.1	146089	21.9	19.4	83931	22.0	18.7	30636	22.1	18.6
269976	21.8	20.6	78689	21.8	19.1	205851	21.9	19.5	110235	21.9	19.8	236804	22.0	20.5	30900	22.1	19.4
52201	21.8	18.8	79490	21.8	20.0	460123	21.9	20.9	231897	21.9	19.2	199519	22.0	19.8	466231	22.1	19.9
459210	21.8	21.4	232516	21.8	19.9	3166	21.9	14.7	400549	21.9	20.3	454369	22.0	21.4	430723	22.1	20.4
466210	21.8	21.4	14937	21.8	19.9	372507	21.9	20.5	456867	21.9	20.3	205937	22.0	19.5	148832	22.1	19.7
259120	21.8	18.4	298372	21.8	20.0	138485	21.9	18.9	285112	21.9	22.1	58375	22.0	19.2	83413	22.1	19.1
464082	21.8	20.6	145455	21.8	19.6	163362	21.9	19.1	232749	21.9	20.2	27334	22.0	17.7	501447	22.1	20.3
459961	21.8	20.8	343816	21.8	21.8	83823	21.9	19.0	302894	21.9	20.1	167873	22.0	19.7	119556	22.1	19.8
207331	21.8	20.4	212968	21.8	20.4	94122	21.9	19.2	366175	21.9	18.5	313515	22.0	20.1	230842	22.1	19.8
453066	21.8	20.7	207506	21.8	20.8	378451	21.9	21.0	122582	21.9	18.8	433066	22.0	21.0	324764	22.1	20.7
203871	21.8	19.4	401015	21.8	21.3	69742	21.9	18.1	423139	21.9	20.4	502992	22.0	20.6	11796	22.1	17.6
189297	21.8	20.0	6425	21.8	16.7	388051	21.9	22.2	154022	21.9	19.0	241839	22.0	20.2	291034	22.1	20.3
161982	21.8	20.6	98076	21.8	18.0	198870	21.9	19.2	301108	21.9	20.9	327369	22.0	20.8	28302	22.1	18.9
78794	21.8	18.4	148891	21.8	20.1	274926	21.9	20.8	337074	21.9	21.7	110139	22.0	20.7	174079	22.1	20.1
256184	21.8	19.8	288650	21.8	21.8	313837	21.9	19.2	119161	21.9	20.6	55804	22.0	19.1	478266	22.1	19.0
359060	21.8	20.1	240930	21.8	20.8	369863	21.9	21.4	63367	21.9	20.3	414270	22.0	19.7	349521	22.1	19.1
80952	21.8	18.8	145701	21.8	19.7	285304	21.9	20.1	238789	21.9	20.6	180014	22.0	19.3	2844	22.1	16.4
467546	21.8	21.3	224499	21.8	20.6	212294	21.9	21.1	409879	21.9	22.2	59694	22.0	18.8	460706	22.1	21.0
138883	21.8	19.6	30909	21.8	19.4	38289	21.9	19.4	11356	21.9	17.2	494670	22.0	22.6	327900	22.1	20.0
13624	21.8	16.9	101449	21.8	18.6	146500	21.9	20.0	265853	21.9	20.3	313850	22.0	20.6	462632	22.1	21.1
59353	21.8	18.4	399528	21.8	20.2	25860	21.9	17.9	35765	21.9	19.1	269425	22.0	19.8	8645	22.1	16.7
127712	21.8	19.4	72965	21.8	20.2	466863	21.9	20.1	395338	21.9	21.0	234846	22.0	19.4	459840	22.1	21.1
171865	21.8	19.7	148051	21.8	20.1	156459	21.9	19.2	484285	21.9	21.4	31789	22.0	17.9	81594	22.1	19.4
113656	21.8	18.7	388646	21.8	20.6	498926	21.9	21.2	25325	21.9	17.1	465264	22.0	21.5	314763	22.1	19.5
341173	21.8	20.2	248568	21.8	19.9	426800	21.9	20.7	313523	21.9	19.0	222632	22.0	19.3	93868	22.1	18.1
24942	21.8	18.7	262645	21.8	20.9	351582	21.9	20.8	186196	21.9	18.9	327830	22.0	19.9	411737	22.1	20.9
310947	21.8	20.8	356558	21.8	20.2	96394	21.9	18.9	24896	21.9	18.7	375836	22.0	20.7	465314	22.1	21.3
243062	21.8	21.2	499067	21.8	21.3	274936	21.9	20.8	244616	21.9	19.4	258106	22.0	19.8	495210	22.1	20.1
210510	21.8	20.6	179813	21.8	19.5	502980	21.9	21.1	56840	21.9	18.9	490675	22.0	22.3	252303	22.1	19.6
340604	21.8	20.9	422930	21.8	21.0	256159	21.9	19.8	518421	21.9	21.1	122793	22.0	19.3	19716	22.1	16.5
126155	21.8	21.9	187901	21.8	20.2	433475	21.9	19.5	334573	21.9	21.5	330378	22.0	19.3	298848	22.1	20.7
452798	21.8	21.0	339851	21.8	19.6	194350	21.9	20.3	458259	21.9	21.4	496233	22.0	20.4	170247	22.1	20.8
237298	21.8	19.6	335996	21.8	20.2	381944	21.9	20.9	417262	21.9	20.5	238898	22.0	19.4	492920	22.1	20.9
33435	21.8	19.4	158246	21.8	19.0	92484	21.9	20.2	144080	21.9	19.8	360843	22.0	21.3	277890	22.1	20.2
240464	21.8	19.0	337900	21.8	20.0	232721	21.9	19.7	115144	21.9	19.6	258561	22.0	19.1	68625	22.1	19.1
458483	21.8	20.6	90564	21.8	18.3	149752	21.9	19.9	419473	21.9	20.3	187426	22.0	19.9	400829	22.1	21.7
238500	21.8	21.1	89027	21.8	18.4	319493	21.9	20.7	116598	21.9	18.6	60726	22.0	19.1	268527	22.1	19.7
456478	21.8	20.6	295816	21.9	19.2	30326	21.9	18.0	132129	21.9	19.4	389888	22.0	21.0	289018	22.1	20.9
276719	21.8	19.9	202759	21.9	20.2	307950	21.9	21.0	102276	21.9	20.3	326980	22.0	20.2	11667	22.1	18.5
275045	21.8	20.9	349105	21.9	21.7	370372	21.9	20.3	367539	21.9	21.1	265400	22.0	20.2	298963	22.1	19.8
212733	21.8	19.2	82558	21.9	19.8	406004	21.9	21.6	170525	21.9	18.7	293879	22.0	19.8	468257	22.1	20.4
464903	21.8	20.1	171640	21.9	18.3	61150	21.9	19.1	245898	21.9	19.9	448278	22.0	20.2	256085	22.1	21.0
407285	21.8	21.8	152604	21.9	20.0	416871	21.9	20.2	122722	21.9	19.4	122778	22.0	19.7	117609	22.1	19.8
493130	21.8	21.4	422585	21.9	20.5	327335	21.9	19.8	427623	21.9	21.2	364306	22.0	21.0	283224	22.1	19.6
47729	21.8	19.4	427445	21.9	21.1	503022	21.9	20.4	291562	21.9	19.7	361746	22.0	19.3	372900	22.1	20.0
117589	21.8	20.4	428971	21.9	21.3	45341	21.9	18.9	169171	21.9	20.0	407456	22.0	21.0	444322	22.1	21.4
49806	21.8	17.3	242219	21.9	21.1	28704	21.9	17.2	484291	21.9	21.9	178862	22.0	20.0	108352	22.1	19.3
16944	21.8	18.9	395321	21.9	21.2	165838	21.9	19.7	157370	21.9	20.1	420977	22.0	20.4	420800	22.1	20.6
64441	21.8	18.8	458367	21.9	20.2	10560	21.9	16.8	184080	21.9	20.7	363821	22.0	21.6	116517	22.1	18.8
23189	21.8	18.8	452446	21.9	20.1	285575	21.9	20.1	462362	21.9	22.1	85516	22.0	19.4	396547	22.1	21.4
138325	21.8	19.9	153034	21.9	20.2	426965	21.9	21.0	383737	21.9	20.2	115920	22.0	19.1	72933	22.1	18.0
170064	21.8	19.2	223711	21.9	19.9	83773	21.9	18.8	280752	21.9	20.2	49854	22.1	17.3	178385	22.1	21.0
99656	21.8	19.0	210911	21.9	19.9	332670	21.9	21.2	447352	21.9	19.6	72653	22.1	18.0	399539	22.1	20.9
92447	21.8	19.8	469071	21.9	20.8	251630	21.9	20.7	247294	21.9	19.7	182409	22.1	19.1	190445	22.1	19.6
277051	21.8	20.7	325456	21.9	21.6	246883	21.9	20.5	502804	21.9	21.2	142250	22.1	19.1	88052	22.1	19.3
161681	21.8	19.7	154070	21.9	20.1	51023	21.9	18.1	13								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
429244	22.1	19.9	32444	22.2	17.3	34620	22.3	18.1	463584	22.3	21.7	133856	22.4	19.2	86480	22.5	18.9
221124	22.1	19.6	224410	22.2	20.1	419926	22.3	20.5	400587	22.3	20.0	133311	22.4	19.4	25714	22.5	18.8
254619	22.1	20.2	141428	22.2	18.1	62557	22.3	19.5	323549	22.3	20.9	109059	22.4	18.3	18732	22.5	18.2
75672	22.1	18.1	468532	22.2	19.6	456708	22.3	20.4	239016	22.3	20.1	492938	22.4	21.9	15724	22.5	16.5
336017	22.1	20.4	335880	22.2	19.4	82824	22.3	17.3	261474	22.3	20.5	170260	22.4	20.5	368104	22.5	20.1
155096	22.1	19.4	504836	22.2	20.8	343194	22.3	19.6	440660	22.3	20.1	519900	22.4	21.2	22906	22.5	18.1
98716	22.1	17.8	54990	22.2	19.4	494216	22.3	21.6	360192	22.3	21.7	1683	22.4	16.1	210416	22.5	21.0
315704	22.1	20.5	460615	22.2	20.7	451448	22.3	20.0	235002	22.3	19.0	28983	22.4	18.9	334197	22.5	21.3
386348	22.1	20.4	125203	22.2	18.5	339022	22.3	19.5	128904	22.3	19.7	232375	22.4	19.2	130466	22.5	19.8
139868	22.1	19.6	413570	22.2	20.4	91031	22.3	19.7	250122	22.3	20.1	183992	22.4	19.9	144732	22.5	19.2
201233	22.1	20.0	496176	22.2	20.9	46451	22.3	17.9	282075	22.3	20.8	256207	22.4	20.1	459141	22.5	20.0
427467	22.1	20.6	56443	22.2	18.0	285540	22.3	23.6	15952	22.3	17.3	274951	22.4	20.0	422454	22.5	21.6
59006	22.1	19.6	493351	22.2	21.6	109840	22.3	19.0	156625	22.3	19.3	472108	22.4	20.0	335986	22.5	19.8
461603	22.1	20.6	45571	22.2	18.7	400539	22.3	20.4	200667	22.3	19.9	294079	22.4	21.7	488931	22.5	21.9
333319	22.1	19.1	276332	22.2	19.5	245435	22.3	19.9	176178	22.3	20.3	87991	22.4	19.7	322840	22.5	20.8
439650	22.1	21.6	313820	22.2	19.1	229603	22.3	18.5	416994	22.3	20.1	24671	22.4	17.1	375908	22.5	20.6
107250	22.1	18.4	76927	22.2	17.6	123020	22.3	20.0	19991	22.3	17.9	226869	22.4	20.4	502683	22.5	19.9
393576	22.1	20.9	230527	22.2	18.8	271170	22.3	19.9	207711	22.3	18.6	202921	22.4	20.2	12895	22.5	16.6
434283	22.1	18.8	24077	22.2	17.5	133464	22.3	19.9	376019	22.3	20.1	203569	22.4	19.4	258149	22.5	19.9
169297	22.1	20.1	194163	22.2	20.1	221190	22.3	20.1	10681	22.3	16.7	267595	22.4	20.4	454271	22.5	21.7
243125	22.1	21.3	265813	22.2	19.4	23974	22.3	16.3	405952	22.3	21.3	304809	22.4	19.6	370523	22.5	21.4
314220	22.1	20.2	33576	22.2	18.2	26775	22.3	17.1	29256	22.3	18.5	209913	22.4	20.1	314949	22.5	20.7
354388	22.1	20.7	308028	22.2	20.0	217790	22.3	18.8	331290	22.3	20.0	431200	22.4	21.6	344029	22.5	20.6
166096	22.1	19.5	341424	22.2	20.7	369869	22.3	20.4	202879	22.3	20.2	466982	22.4	20.2	6760	22.5	17.6
491772	22.1	19.3	381889	22.2	20.3	15177	22.3	16.8	101973	22.3	20.1	293842	22.4	20.3	29251	22.5	17.3
460499	22.1	21.0	133705	22.2	19.9	358099	22.3	21.1	53545	22.3	19.4	33047	22.4	17.0	369548	22.5	19.6
246465	22.1	19.2	400244	22.2	20.2	110732	22.3	19.9	407297	22.3	20.8	64265	22.4	18.2	221134	22.5	19.7
26098	22.1	16.2	371943	22.2	21.5	144193	22.3	19.4	358574	22.3	19.6	144613	22.4	20.4	446903	22.5	22.0
475266	22.1	20.0	444198	22.2	21.3	158860	22.3	19.7	423180	22.3	20.3	432066	22.4	20.3	246203	22.5	19.4
11313	22.2	16.8	413850	22.2	20.8	208204	22.3	19.9	73513	22.4	18.7	279896	22.4	20.4	64343	22.5	18.0
400565	22.2	20.8	466315	22.2	20.9	234997	22.3	19.0	317097	22.4	20.8	9880	22.4	16.9	313406	22.5	19.2
167878	22.2	18.9	258315	22.2	20.6	433167	22.3	20.5	323093	22.4	20.9	317530	22.4	19.6	205898	22.5	18.4
104800	22.2	19.3	362061	22.2	20.1	415431	22.3	20.4	494195	22.4	22.1	174244	22.4	21.3	374157	22.5	20.6
348514	22.2	19.8	180074	22.2	18.0	307162	22.3	19.9	329137	22.4	20.0	172938	22.4	20.2	157856	22.5	19.4
199030	22.2	20.0	136308	22.2	19.3	85131	22.3	18.6	467981	22.4	21.0	413575	22.4	20.7	334650	22.5	19.7
244337	22.2	20.8	60976	22.2	18.2	251303	22.3	18.7	463355	22.4	22.1	467107	22.4	19.8	456053	22.5	20.3
67454	22.2	18.4	27325	22.2	16.7	92337	22.3	19.1	282126	22.4	20.8	368575	22.4	20.2	212422	22.5	19.6
319840	22.2	19.2	254732	22.2	19.4	371230	22.3	20.2	353609	22.4	20.5	260679	22.4	20.4	236098	22.5	20.2
88311	22.2	19.0	150528	22.2	19.3	456322	22.3	20.6	320659	22.4	20.7	494993	22.4	21.1	428991	22.5	20.5
417057	22.2	20.7	368734	22.2	20.9	142952	22.3	19.3	73966	22.4	18.3	151288	22.4	19.4	392266	22.5	20.3
172274	22.2	20.7	135357	22.2	20.4	31098	22.3	19.0	316730	22.4	21.2	47819	22.4	18.2	90972	22.5	17.6
161521	22.2	19.7	328733	22.2	20.6	39667	22.3	18.0	27886	22.4	18.4	411292	22.4	21.4	98525	22.5	18.6
104427	22.2	19.0	58063	22.2	18.4	370461	22.3	19.3	506158	22.4	21.2	246774	22.4	19.8	315529	22.5	20.8
462130	22.2	21.4	32135	22.2	17.2	59237	22.3	18.2	503740	22.4	20.8	174257	22.4	20.4	490272	22.5	20.5
56011	22.2	16.5	469007	22.2	19.7	424312	22.3	20.4	232400	22.4	19.3	115424	22.4	19.9	10777	22.5	17.4
130509	22.2	19.7	453572	22.2	20.7	103476	22.3	18.8	47848	22.4	17.9	240305	22.4	19.9	304844	22.5	20.0
106540	22.2	18.3	519422	22.2	20.7	224424	22.3	19.5	126050	22.4	19.2	222253	22.4	20.7	347423	22.5	20.5
256156	22.2	20.8	302902	22.2	19.5	80733	22.3	18.8	19358	22.4	18.5	81973	22.4	19.2	228611	22.5	19.5
153348	22.2	20.7	178877	22.2	20.5	371950	22.3	20.2	188495	22.4	21.0	341511	22.4	20.8	85076	22.5	19.4
75334	22.2	18.8	260911	22.2	19.8	5873	22.3	17.2	66356	22.4	19.3	313095	22.4	19.3	203275	22.5	19.2
124180	22.2	19.1	503489	22.2	21.0	246460	22.3	21.3	486402	22.4	21.6	145763	22.4	19.4	258247	22.5	18.7
522552	22.2	22.4	225383	22.2	19.7	167845	22.3	18.9	331422	22.4	19.9	394873	22.4	20.9	284107	22.5	20.1
433845	22.2	20.5	165087	22.2	19.5	331319	22.3	20.1	431293	22.4	20.9	260928	22.4	19.0	461716	22.5	21.0
491142	22.2	21.6	466552	22.2	19.9	339552	22.3	20.7	372295	22.4	19.7	138652	22.4	19.5	110635	22.5	19.3
133213	22.2	19.5	417019	22.2	21.3	334453	22.3	20.3	209489	22.4	20.0	98231	22.4	18.6	214152	22.5	19.0
185889	22.2	20.3	394438	22.2	21.2	51388	22.3	19.6	173023	22.4	20.4	38648	22.4	19.2	495895	22.5	21.1
204421	22.2	19.6	506362	22.2	19.8	170688	22.3	19.7	384962	22.4	20.6	99895	22.4	18.2	424327	22.5	20.8
113340	22.2	19.2	39960	22.2	19.6	205057	22.3	19.8	149160	22.4	19.0	271216	22.4	20.1	112040	22.5	19.4
49340	22.2	19.4	489338	22.2	20.9	265773	22.3	19.9	55006	22.4	18.0	414825	22.4	21.0	458790	22.5	21.0
186558	22.2	19.4	39115	22.2	18.6	102053	22.3	19.6	424275	22.4	21.4	430273	22.4	20.0	364716	22.5	19.9
167099	22.2	18.8	114225	22.2	19.3	405554	22.3	21.2	219453	22.4	20.0	133824	22.4	18.8	50947	22.5	19.0
205844	22.2	19.6	128526	22.2	19.2	327906	22.3	19.8	519168	22.4	20.3	110936	22.4	19.2	19613	22.5	16.9
454303	22.2	20.9	419147	22.2	21.3	345096	22.3	21.8	429009	22.4	20.5	434181	22.4	19.7	259318	22.5	19.5
231270	22.2	19.9	133322	22.2	19.0	463907	22.3	20.8	221201	22.4	19.7	185890	22.4	19.9	245469	22.5	21.3
135101	22.2	18.3	451698	22.2	20.8	12843	22.3	17.0	19683	22.4	17.3	309315	22.4	20.7	162444	22.5	19.5
297106	22.2	20.2	408881	22.2	20.8	95240	22.3	19.0	76648	22.4	18.3	439879	22.4	20.5	11365	22.5	15.9
61078	22.2	19.4	311598	22.2	21.3	167650	22.3	19.2	242075	22.4	20.1	241152	22.4	20.1	192743	22.5	21.0
318798	22.2	21.3	158181	22.3	18.5	290671	22.3	20.3	489529	22.4	22.2	431613	22.4	19.8	341614	22.5	20.3
154310	22.2	19.4	149311	22.3	20.0	413499	22.3	20.7									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
463295	22.5	20.3	209144	22.6	19.7	245876	22.7	20.3	187895	22.7	19.4	15783	22.8	18.6	390392	22.9	19.7
2718	22.5	16.8	309388	22.6	20.9	238412	22.7	19.4	344061	22.7	21.3	271144	22.8	21.2	400231	22.9	20.9
292701	22.5	20.0	140382	22.6	20.0	188283	22.7	20.1	199144	22.7	19.6	129687	22.8	20.2	86517	22.9	18.6
455101	22.5	20.8	186205	22.6	19.3	57444	22.7	17.9	367615	22.7	20.9	59210	22.8	17.3	400060	22.9	20.7
428813	22.5	21.2	428128	22.6	19.6	349534	22.7	21.0	419549	22.7	20.4	180629	22.8	19.5	138717	22.9	19.7
2343	22.5	16.1	81030	22.6	18.0	60561	22.7	19.3	74257	22.7	19.4	419616	22.8	20.4	359122	22.9	20.1
464736	22.5	19.8	282613	22.6	21.5	460355	22.7	21.0	492193	22.7	20.9	325327	22.8	20.1	141976	22.9	17.6
35630	22.5	18.3	370582	22.6	20.7	464824	22.7	20.7	232998	22.7	19.9	355909	22.8	19.5	367210	22.9	20.4
221160	22.5	20.7	207582	22.6	19.7	380537	22.7	19.7	235632	22.7	20.4	219146	22.8	19.3	165762	22.9	20.2
185795	22.5	20.7	258793	22.6	19.1	38804	22.7	17.9	51934	22.7	17.7	216169	22.8	20.3	414779	22.9	22.1
449649	22.5	20.8	380484	22.6	20.1	494698	22.7	21.7	423591	22.7	20.9	522488	22.8	21.6	180646	22.9	20.6
356512	22.5	20.7	186867	22.6	20.8	315578	22.7	20.0	230078	22.7	19.3	465518	22.8	21.2	390584	22.9	21.4
209900	22.5	20.2	166839	22.6	20.0	61044	22.7	18.4	81047	22.7	19.4	487702	22.8	19.6	467068	22.9	20.9
221347	22.5	20.3	275088	22.6	20.4	218629	22.7	19.5	410709	22.7	18.3	232644	22.8	19.6	104358	22.9	18.3
138288	22.5	20.0	130774	22.6	18.5	126433	22.7	18.3	503450	22.7	20.0	187154	22.8	19.8	23089	22.9	18.6
383662	22.5	20.0	194726	22.6	19.2	425504	22.7	20.4	174495	22.7	19.1	219832	22.8	19.2	136273	22.9	20.0
436090	22.5	21.5	132802	22.6	18.7	503132	22.7	20.7	87045	22.7	18.8	194148	22.8	20.7	303257	22.9	20.6
404124	22.5	20.3	276701	22.6	19.7	301441	22.7	20.7	429335	22.7	20.4	267499	22.8	19.5	57084	22.9	18.5
103759	22.5	18.7	413642	22.6	20.2	306333	22.7	20.7	336917	22.8	20.9	235960	22.8	20.1	491154	22.9	19.8
256870	22.5	21.0	136497	22.6	20.1	147637	22.7	19.3	203492	22.8	19.3	415334	22.8	22.0	264756	22.9	19.7
276193	22.5	20.5	51315	22.6	17.3	110594	22.7	19.1	78841	22.8	18.4	121850	22.8	18.6	98057	22.9	18.8
297742	22.5	19.2	311221	22.6	19.5	219731	22.7	20.3	506323	22.8	21.3	24085	22.8	18.7	167059	22.9	20.0
140078	22.5	19.3	257024	22.6	19.6	13725	22.7	17.4	62079	22.8	17.9	176813	22.8	19.6	17274	22.9	21.9
208684	22.5	19.7	60891	22.6	19.1	131425	22.7	19.7	281412	22.8	19.5	66003	22.8	17.2	146967	22.9	19.1
228135	22.5	20.5	29642	22.6	17.5	54489	22.7	18.3	221354	22.8	20.6	243052	22.8	19.3	324608	22.9	19.7
187404	22.5	20.0	237130	22.6	20.0	167703	22.7	18.9	312334	22.8	19.3	496285	22.8	20.7	296364	22.9	20.4
194265	22.5	19.6	95109	22.6	18.2	131517	22.7	19.5	457132	22.8	21.4	265393	22.8	21.2	97965	22.9	19.4
389871	22.5	20.6	431157	22.6	20.6	318855	22.7	20.4	301789	22.8	20.5	468278	22.8	20.9	256205	22.9	19.5
47845	22.5	18.9	423494	22.6	20.9	247759	22.7	20.3	381629	22.8	19.4	102668	22.8	19.4	118020	22.9	19.6
87211	22.5	18.6	455559	22.6	21.6	462348	22.7	22.0	212137	22.8	19.8	43534	22.8	16.7	55552	22.9	18.7
160753	22.5	19.8	313391	22.6	20.2	153447	22.7	19.6	30988	22.8	19.6	285327	22.8	20.3	184548	22.9	20.6
413524	22.5	20.5	266961	22.6	19.4	235908	22.7	20.1	356290	22.8	21.0	436681	22.8	21.0	277225	22.9	20.4
124499	22.6	19.7	347906	22.6	20.7	37243	22.7	18.3	12127	22.8	17.3	348560	22.8	19.8	322813	22.9	20.2
341597	22.6	20.7	465756	22.6	20.4	441580	22.7	20.3	421952	22.8	21.3	493355	22.8	21.3	11062	22.9	17.0
187519	22.6	19.0	179329	22.6	19.6	318044	22.7	18.1	303782	22.8	21.7	383403	22.8	21.2	148729	22.9	19.7
178965	22.6	20.7	462862	22.6	21.1	30661	22.7	18.8	163786	22.8	19.7	132331	22.8	20.0	400790	22.9	21.4
393858	22.6	20.4	408997	22.6	20.2	229026	22.7	19.9	89451	22.8	18.8	325795	22.8	20.0	490387	22.9	21.8
324568	22.6	19.8	417788	22.6	19.7	289539	22.7	19.7	455358	22.8	20.2	205284	22.8	21.2	381276	22.9	19.6
320790	22.6	19.9	206778	22.6	19.5	206356	22.7	20.7	217979	22.8	17.9	16556	22.8	16.5	136516	22.9	18.8
19463	22.6	18.3	179002	22.6	20.1	210516	22.7	20.5	454789	22.8	20.3	360462	22.8	20.1	16927	22.9	18.4
432199	22.6	20.1	9491	22.6	17.9	76103	22.7	18.4	328330	22.8	21.7	245892	22.8	20.7	167049	22.9	20.7
355876	22.6	20.6	400257	22.6	22.2	202899	22.7	20.6	473982	22.8	19.7	494971	22.8	21.1	467001	22.9	20.1
4373	22.6	15.7	393391	22.6	21.5	505896	22.7	19.8	26885	22.8	17.7	250242	22.8	19.5	164390	22.9	19.6
275210	22.6	20.5	332798	22.6	21.1	351672	22.7	20.5	85859	22.8	20.4	330916	22.8	20.4	314749	22.9	20.2
5088	22.6	15.9	202915	22.6	20.7	496557	22.7	20.3	104408	22.8	19.7	463693	22.8	21.5	456283	22.9	21.1
114327	22.6	19.4	244353	22.6	20.4	404928	22.7	21.1	140363	22.8	19.1	5562	22.8	16.1	30998	22.9	19.2
172874	22.6	21.4	391775	22.6	19.3	365657	22.7	20.4	232271	22.8	18.4	173384	22.8	18.7	159501	22.9	20.2
372455	22.6	20.0	461382	22.6	20.7	384219	22.7	19.0	121851	22.8	19.0	400607	22.8	19.5	269122	22.9	21.2
178290	22.6	19.9	242205	22.6	20.7	16253	22.7	17.9	244657	22.8	19.2	439677	22.8	21.0	262421	22.9	20.4
4976	22.6	16.3	456387	22.6	21.2	229171	22.7	19.3	3187	22.8	15.5	360323	22.8	21.9	91389	22.9	19.8
81919	22.6	18.4	206739	22.6	18.4	49308	22.7	18.3	162664	22.8	19.8	352124	22.8	20.1	425124	22.9	20.7
158533	22.6	19.7	402558	22.6	21.5	429249	22.7	20.6	335677	22.8	21.0	331627	22.8	20.1	292508	22.9	21.1
321636	22.6	20.8	180724	22.6	19.8	194437	22.7	19.4	202737	22.8	20.1	420734	22.8	20.3	133479	22.9	20.2
261468	22.6	19.5	329120	22.6	20.9	119310	22.7	19.9	99926	22.8	18.6	451742	22.8	19.8	461932	22.9	20.9
131816	22.6	18.1	121916	22.6	18.6	197009	22.7	20.2	373666	22.8	20.7	409471	22.8	19.9	154018	22.9	18.6
87066	22.6	18.7	119582	22.6	18.9	215248	22.7	20.7	292460	22.8	21.1	279102	22.8	20.8	50905	22.9	18.0
212808	22.6	19.4	288939	22.6	21.9	414896	22.7	20.9	61742	22.8	18.8	376556	22.8	20.4	115785	22.9	18.9
429904	22.6	21.4	53716	22.6	19.1	364343	22.7	21.1	426539	22.8	20.0	507119	22.8	23.9	459956	22.9	20.1
212799	22.6	19.1	423174	22.6	20.6	400273	22.7	20.7	316861	22.8	20.5	169247	22.8	18.8	425434	22.9	21.2
278603	22.6	20.4	153043	22.6	19.7	336339	22.7	19.4	412108	22.8	20.9	460914	22.8	20.5	481790	22.9	23.0
379843	22.6	20.1	462622	22.6	21.3	430908	22.7	20.4	463240	22.8	21.8	243191	22.8	20.1	83611	22.9	18.6
204292	22.6	20.8	54145	22.6	17.9	395456	22.7	21.6	371695	22.8	20.4	109696	22.9	19.1	5614	22.9	18.5
157864	22.6	19.4	309433	22.6	21.1	418431	22.7	20.8	296469	22.8	21.1	23583	22.9	17.4	462890	22.9	21.1
187311	22.6	20.5	473453	22.6	20.5	288607	22.7	20.7	244118	22.8	21.2	41993	22.9	18.3	219377	22.9	20.6
235665	22.6	20.8	463865	22.7	20.3	210976	22.7	19.7	258066	22.8	19.9	71322	22.9	18.3	170386	22.9	19.7
424326	22.6	21.2	428917	22.7	20.7	179857	22.7	18.1	367644	22.8	19.4	366938	22.9	19.9	250182	22.9	20.9
280466	22.6	19.5	408958	22.7	21.5	256133	22.7	20.1	76776	22.8	19.0	189476	22.9	20.2	343326	22.9	20.0
221205	22.6	18.8	58138	22.7	18.3	295718	22.7	21.2	420393	22.8	19.9	282895	22.9	19.4	31060	22.9	17.3
208268	22.6	19.4	165873	22.7	18.9	191941	2										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
315628	22.9	19.8	169321	22.9	20.7	53595	23.1	18.2	371777	23.1	20.2	51244	23.2	17.8	158606	23.3	18.3
209179	22.9	20.1	465470	22.9	21.6	204070	23.1	20.3	11926	23.1	17.2	411310	23.2	22.5	451080	23.3	19.9
254507	22.9	19.6	411914	22.9	20.5	277554	23.1	20.7	47226	23.1	16.6	307605	23.2	19.8	396997	23.3	20.4
502122	22.9	20.0	61460	22.9	19.4	384137	23.1	20.1	235612	23.1	19.9	131487	23.2	18.8	44936	23.3	18.1
473940	22.9	21.0	337848	22.9	20.1	2307	23.1	15.6	181779	23.1	19.8	71604	23.2	18.8	131796	23.3	18.5
153504	22.9	19.9	416267	23.0	19.9	246219	23.1	20.0	348619	23.1	19.5	29918	23.2	16.3	327006	23.3	20.8
44529	22.9	18.1	39172	23.0	18.8	469078	23.1	19.2	269064	23.1	20.0	34497	23.2	18.6	194090	23.3	19.1
193787	22.9	20.4	444339	23.0	19.7	308171	23.1	20.1	451889	23.1	21.5	455546	23.2	21.8	490273	23.3	20.3
151214	22.9	18.9	374541	23.0	19.9	153085	23.1	19.3	124363	23.1	19.0	90465	23.2	19.6	39388	23.3	19.4
249395	22.9	19.9	83632	23.0	18.9	518825	23.1	21.0	159462	23.1	20.6	244992	23.2	18.3	467772	23.3	19.5
245965	22.9	20.5	29561	23.0	17.9	233746	23.1	20.6	364281	23.1	20.9	378952	23.2	21.0	402810	23.3	20.7
258075	22.9	20.5	179092	23.0	20.1	8184	23.1	16.5	77295	23.1	18.3	8071	23.2	16.6	167651	23.3	18.9
470928	22.9	20.2	766	23.0	14.1	154766	23.1	19.9	394125	23.1	21.3	208994	23.2	18.7	253974	23.3	20.6
54732	22.9	19.3	289129	23.0	19.7	29666	23.1	17.4	69849	23.1	20.8	236050	23.2	19.6	47242	23.3	17.2
90563	22.9	19.7	416938	23.0	21.5	369079	23.1	21.8	343182	23.1	20.3	428461	23.2	20.8	69093	23.3	18.9
331792	22.9	19.7	370401	23.0	20.7	375554	23.1	20.3	82872	23.1	18.1	375649	23.2	19.0	350630	23.3	19.9
77152	22.9	18.4	111281	23.0	18.3	169241	23.1	19.2	371260	23.1	20.1	354041	23.2	20.6	396081	23.3	21.2
194099	22.9	19.8	494205	23.0	20.9	2038	23.1	15.5	171320	23.1	21.0	203841	23.2	19.2	412119	23.3	20.9
200725	22.9	18.5	2939	23.0	15.7	459039	23.1	20.1	205946	23.1	19.3	428151	23.2	21.8	306562	23.3	19.9
351533	22.9	20.0	135786	23.0	19.2	367675	23.1	20.0	493818	23.1	20.2	88734	23.2	18.9	276294	23.3	19.6
103897	22.9	19.7	56459	23.0	18.8	351654	23.1	18.5	89139	23.1	20.1	364415	23.2	20.2	411370	23.3	21.1
162178	22.9	20.1	333378	23.0	20.8	184997	23.1	19.5	48493	23.1	17.8	140253	23.2	19.6	428965	23.3	20.5
36973	22.9	18.8	40378	23.0	18.8	219395	23.1	20.0	180650	23.1	20.1	79027	23.2	19.4	94614	23.3	18.4
206451	22.9	20.9	523744	23.0	22.0	170963	23.1	19.4	117831	23.1	19.1	200741	23.2	20.5	503749	23.3	21.7
150931	22.9	19.5	36857	23.0	19.2	337625	23.1	20.9	372495	23.1	21.1	75997	23.2	17.4	467128	23.3	20.2
427697	22.9	18.7	26618	23.0	18.6	9599	23.1	16.9	196715	23.1	18.8	22581	23.2	17.1	170468	23.3	19.8
339485	22.9	20.8	448113	23.0	20.7	304835	23.1	19.8	297103	23.1	19.6	218731	23.2	20.2	35766	23.3	17.8
183423	22.9	19.4	296350	23.0	20.9	65953	23.1	20.2	6210	23.1	16.2	105695	23.2	19.8	428479	23.3	20.9
373902	22.9	19.8	456407	23.0	20.7	293129	23.1	18.3	119651	23.2	19.2	378871	23.2	20.9	350709	23.3	19.3
425121	22.9	20.8	49545	23.0	18.1	448240	23.1	20.6	491815	23.2	20.6	255951	23.2	19.4	433897	23.3	20.5
38608	22.9	18.5	343535	23.0	20.6	458858	23.1	21.8	237304	23.2	20.5	51213	23.2	18.6	3819	23.3	15.8
31589	22.9	18.4	426877	23.0	20.5	288276	23.1	19.3	454212	23.2	19.8	136494	23.2	20.4	432912	23.3	21.3
340465	22.9	22.1	259874	23.0	20.3	6005	23.1	16.0	461285	23.2	20.5	123613	23.2	18.7	343625	23.3	19.7
502531	22.9	21.0	317602	23.0	19.9	233484	23.1	20.0	336530	23.2	19.0	245056	23.2	20.0	359233	23.3	20.3
3575	22.9	16.0	404359	23.0	20.2	393421	23.1	20.9	323446	23.2	20.0	166255	23.2	18.9	191886	23.3	19.3
103163	22.9	19.2	522344	23.0	21.1	397875	23.1	20.4	322740	23.2	20.9	314363	23.2	19.7	391436	23.3	21.0
301163	22.9	20.7	496155	23.0	19.9	193968	23.1	20.0	377941	23.2	20.5	205299	23.2	20.1	456249	23.3	21.5
398133	22.9	19.5	244407	23.0	20.7	325173	23.1	20.4	320953	23.2	21.3	260103	23.2	20.5	496352	23.3	21.2
335911	22.9	20.2	66912	23.0	18.5	455545	23.1	20.9	338861	23.2	19.3	463944	23.2	20.3	214279	23.3	20.3
98321	22.9	17.9	184404	23.0	20.2	107408	23.1	18.3	455315	23.2	20.2	371144	23.2	20.8	333616	23.3	21.0
317861	22.9	20.9	174969	23.0	19.3	94898	23.1	19.6	172004	23.2	19.7	239988	23.2	20.6	146672	23.3	20.2
486148	22.9	19.9	203610	23.0	19.3	46568	23.1	17.2	146727	23.2	18.3	198664	23.2	20.0	162748	23.3	19.0
374659	22.9	20.5	84348	23.0	18.0	258578	23.1	19.8	373959	23.2	19.2	237693	23.2	21.0	442630	23.3	21.5
322789	22.9	20.3	193101	23.0	20.6	253374	23.1	19.9	238359	23.2	20.4	414869	23.2	21.5	155069	23.3	19.5
39448	22.9	18.8	154550	23.0	19.9	521098	23.1	20.9	79155	23.2	18.6	343552	23.2	20.6	327041	23.3	20.8
236965	22.9	20.6	143947	23.0	18.7	408841	23.1	21.0	202749	23.2	18.9	85482	23.2	20.0	464373	23.3	20.7
14494	22.9	16.4	357637	23.0	21.5	88133	23.1	18.8	294892	23.2	20.0	107371	23.2	19.2	2857	23.3	14.8
350022	22.9	20.6	28070	23.0	17.8	333868	23.1	20.3	491426	23.2	19.5	44624	23.2	19.2	205312	23.3	21.0
65188	22.9	19.4	323499	23.0	21.1	399003	23.1	19.5	384895	23.2	21.2	375788	23.2	21.1	34276	23.3	18.8
301093	22.9	20.3	109133	23.0	19.4	68842	23.1	19.1	167783	23.2	19.1	350595	23.2	20.6	134818	23.3	18.8
235527	22.9	19.0	55987	23.0	17.9	412284	23.1	20.0	222789	23.2	19.7	485985	23.2	19.9	493813	23.3	20.4
373936	22.9	20.9	407492	23.0	19.5	142649	23.1	19.4	159454	23.2	17.8	461177	23.2	20.7	429001	23.3	20.5
202033	22.9	20.2	493191	23.0	20.9	247474	23.1	20.1	143030	23.2	17.9	34106	23.2	18.1	190122	23.3	19.2
499993	22.9	21.6	350243	23.0	20.7	486664	23.1	20.7	445902	23.2	19.9	74427	23.2	16.7	11195	23.3	16.1
83513	22.9	19.7	157098	23.0	20.8	244690	23.1	19.8	175100	23.2	19.4	6357	23.2	17.1	496026	23.3	21.5
369857	22.9	20.7	35531	23.0	17.7	246442	23.1	19.7	466882	23.2	20.2	113782	23.2	19.5	7920	23.3	16.3
262685	22.9	20.4	331429	23.0	20.1	471710	23.1	20.9	337028	23.2	20.8	61232	23.2	19.3	523795	23.3	24.8
51785	22.9	18.4	268614	23.0	20.4	465212	23.1	21.2	387467	23.2	19.8	158539	23.2	20.0	416924	23.3	21.7
124969	22.9	18.3	307618	23.0	19.7	155638	23.1	19.9	399469	23.2	21.0	428464	23.2	21.0	413043	23.3	21.4
343647	22.9	20.0	197576	23.0	20.8	428995	23.1	19.7	406352	23.2	21.0	232709	23.2	19.0	413852	23.3	22.7
429937	22.9	21.0	383687	23.0	21.2	300903	23.1	19.6	282176	23.2	19.9	358063	23.2	21.9	464441	23.3	20.3
8974	22.9	16.6	371908	23.0	20.2	496336	23.1	21.2	50287	23.2	18.6	193944	23.2	20.3	343984	23.3	21.0
61904	22.9	19.5	82918	23.0	19.5	225483	23.1	20.5	368633	23.2	19.3	417263	23.2	19.6	488731	23.3	22.2
46506	22.9	19.5	81532	23.1	18.4	282623	23.1	20.1	459913	23.2	21.2	268508	23.2	19.7	390882	23.3	20.3
394822	22.9	21.4	120740	23.1	21.0	81993	23.1	18.3	369111	23.2	21.0	165743	23.3	19.2	342982	23.3	19.5
222473	22.9	20.7	147899	23.1	21.1	325261	23.1	19.6	466952	23.2	20.0	511703	23.3	20.5	274653	23.3	20.3
59725	22.9	19.4	19329	23.1	16.9	110192	23.1	19.5	69137	23.2	18.8	319988	23.3	21.4	145858	23.3	20.0
453916	22.9	20.4	63956	23.1	18.6	190720	23.1	20.2	93575	23.2	18.8	461799	23.3	20.2	327023	23.3	20.8
453826	22.9	20.0	409923	23.1	22.1	372445	23.1	20.4	195536	23.							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
18688	23.3	18.8	147827	23.4	18.6	213583	23.5	20.5	131969	23.6	18.0	408859	23.6	20.8	81086	23.7	18.8
456277	23.3	20.9	93655	23.4	19.1	10711	23.5	17.6	385522	23.6	20.5	285613	23.6	20.5	228698	23.7	19.9
221412	23.3	19.3	77915	23.4	18.6	286541	23.5	19.7	405942	23.6	21.4	276398	23.6	20.2	458820	23.7	20.7
493258	23.3	20.4	397832	23.4	21.1	180546	23.5	18.6	35882	23.6	19.1	465993	23.6	20.7	405159	23.7	22.0
73174	23.3	19.3	396963	23.4	21.0	427399	23.5	20.6	195246	23.6	19.2	152710	23.6	18.9	411422	23.7	20.0
87793	23.3	19.6	169109	23.4	19.4	499058	23.5	20.5	307814	23.6	21.0	117262	23.6	19.6	16352	23.7	17.3
377549	23.3	19.9	180532	23.4	20.2	279897	23.5	20.2	342920	23.6	20.0	140500	23.6	19.9	45944	23.7	17.0
312329	23.3	19.7	63895	23.4	18.6	431137	23.5	21.2	335843	23.6	20.5	3023	23.6	16.0	460725	23.7	21.1
350746	23.3	18.9	81840	23.4	19.6	171798	23.5	19.0	298828	23.6	20.1	59445	23.6	19.3	297030	23.7	20.2
209072	23.3	19.2	116192	23.4	18.6	343560	23.5	20.4	134438	23.6	18.6	492723	23.6	21.9	191997	23.7	19.0
127788	23.3	19.8	295778	23.4	19.9	203756	23.5	19.3	31077	23.6	17.1	413064	23.6	21.4	451749	23.7	19.6
212044	23.3	18.9	207688	23.4	20.4	228720	23.5	20.3	266642	23.6	20.7	485402	23.6	21.1	87086	23.7	18.7
177554	23.3	19.6	53247	23.4	16.3	354093	23.5	19.5	255784	23.6	20.0	162727	23.6	20.2	338926	23.7	19.1
314262	23.3	20.4	89944	23.4	18.8	154593	23.5	20.2	186893	23.6	20.2	490667	23.6	21.1	296637	23.7	20.3
266944	23.3	20.5	79274	23.4	19.5	242470	23.5	20.4	39097	23.6	19.3	345074	23.6	21.0	55472	23.7	18.4
324669	23.3	20.2	500062	23.4	21.0	498149	23.5	21.4	292355	23.6	20.8	368580	23.7	21.0	416629	23.7	21.3
224833	23.3	21.2	127781	23.4	19.4	209210	23.5	19.8	190355	23.6	19.0	374322	23.7	21.9	485549	23.7	21.2
463724	23.3	19.4	429741	23.4	21.5	227564	23.5	19.9	267022	23.6	19.3	431599	23.7	20.2	148865	23.7	19.6
309285	23.3	20.9	304802	23.4	20.5	959	23.5	15.0	39184	23.6	18.9	47914	23.7	17.4	244741	23.7	21.0
495405	23.3	20.8	7512	23.4	16.3	366064	23.5	19.7	90862	23.6	18.3	294098	23.7	20.6	63467	23.7	19.9
232763	23.3	20.1	92758	23.4	17.5	163741	23.5	19.5	135514	23.6	19.8	457066	23.7	21.0	360750	23.7	19.7
314781	23.3	20.5	82383	23.4	19.4	152378	23.5	19.6	293662	23.6	21.0	371185	23.7	20.0	274102	23.7	20.7
183126	23.3	19.9	368548	23.4	19.1	379219	23.5	20.7	338251	23.6	21.0	417132	23.7	21.2	119208	23.7	20.7
309414	23.3	20.0	165832	23.4	18.7	335965	23.5	21.6	235407	23.6	19.7	266538	23.7	18.7	105526	23.7	18.7
18810	23.4	16.6	118538	23.4	18.3	306159	23.5	20.3	264694	23.6	19.0	305652	23.7	19.3	29455	23.7	16.7
219515	23.4	19.6	83212	23.4	19.1	327273	23.5	20.8	519567	23.6	20.5	502180	23.7	20.6	10609	23.7	19.2
469184	23.4	21.0	466800	23.4	20.9	154754	23.5	20.4	46529	23.6	17.5	504654	23.7	20.7	57726	23.7	18.1
95351	23.4	18.8	518804	23.4	21.2	255774	23.5	19.2	426154	23.6	20.7	51725	23.7	19.2	205332	23.7	19.9
200721	23.4	19.6	322793	23.4	20.4	359242	23.5	22.4	11506	23.6	17.9	373889	23.7	20.8	95737	23.7	19.3
126298	23.4	18.8	230621	23.4	20.2	419038	23.5	20.7	155397	23.6	20.8	485833	23.7	20.4	342876	23.7	20.5
368011	23.4	19.0	102514	23.4	19.6	223656	23.5	19.5	496582	23.6	20.2	310182	23.7	21.6	367339	23.7	20.7
492643	23.4	21.5	465333	23.4	21.1	369071	23.5	21.4	236713	23.6	19.7	67535	23.7	19.0	412869	23.7	21.4
268599	23.4	20.3	461606	23.4	21.3	465787	23.5	20.5	114785	23.6	18.8	79189	23.7	19.5	356311	23.7	20.0
132924	23.4	19.5	319764	23.4	19.8	111176	23.5	18.3	405955	23.6	20.3	62571	23.7	18.9	460477	23.7	21.1
47120	23.4	17.9	428968	23.4	20.3	517138	23.5	21.2	239651	23.6	19.9	495028	23.7	21.1	8671	23.7	18.7
32191	23.4	17.8	501641	23.4	20.1	334923	23.5	19.5	413119	23.6	20.8	2816	23.7	16.0	78514	23.7	18.6
104929	23.4	20.6	508043	23.4	20.8	217247	23.5	20.8	410730	23.6	20.2	212452	23.7	20.1	280673	23.7	22.2
275803	23.4	21.3	204888	23.4	19.6	238534	23.5	21.0	501792	23.6	21.7	205315	23.7	20.4	162797	23.7	18.8
456474	23.4	19.9	170220	23.4	20.4	416901	23.5	21.6	246685	23.6	19.9	146514	23.7	20.0	246171	23.7	19.6
76774	23.4	18.6	306352	23.4	20.7	143512	23.5	19.0	411341	23.6	20.6	175726	23.7	20.3	403664	23.7	19.3
79612	23.4	19.3	492693	23.4	21.5	428433	23.5	20.9	498343	23.6	21.0	406081	23.7	21.1	470847	23.7	20.0
246610	23.4	19.6	226782	23.4	20.3	226704	23.5	19.9	522624	23.6	20.9	410016	23.7	20.6	439889	23.7	24.2
235040	23.4	20.1	395448	23.4	21.3	347460	23.5	20.3	245454	23.6	20.5	133032	23.7	19.9	363133	23.7	20.5
232150	23.4	19.7	284210	23.4	19.5	134153	23.5	19.8	138604	23.6	20.4	397448	23.7	20.8	409460	23.7	19.5
292903	23.4	19.8	38782	23.4	18.7	161004	23.5	18.7	398349	23.6	21.0	59730	23.7	18.7	512311	23.7	20.8
245693	23.4	20.9	319708	23.4	20.2	374590	23.5	20.6	100691	23.6	18.1	508111	23.7	20.3	116063	23.7	19.6
290560	23.4	20.1	300321	23.4	20.6	26784	23.5	17.9	121098	23.6	18.2	117638	23.7	20.3	54478	23.7	19.0
305632	23.4	19.3	235988	23.4	19.4	330808	23.5	18.9	204243	23.6	19.3	26006	23.7	19.4	105383	23.7	18.3
77740	23.4	17.4	173238	23.4	20.6	66689	23.5	18.1	171854	23.6	19.2	306070	23.7	20.5	403711	23.7	20.4
331256	23.4	20.0	488956	23.4	21.4	9968	23.5	16.9	496615	23.6	20.4	76014	23.7	19.1	87993	23.7	18.3
225246	23.4	21.5	226726	23.4	20.0	120486	23.5	19.6	138189	23.6	19.9	171853	23.7	18.5	138130	23.7	18.6
204612	23.4	19.8	171994	23.5	19.7	76498	23.5	18.5	459490	23.6	20.4	430597	23.7	20.8	66096	23.7	18.7
118763	23.4	17.9	284093	23.5	20.5	308235	23.5	20.3	30236	23.6	18.1	427691	23.7	19.8	98237	23.7	18.5
322386	23.4	19.3	420133	23.5	20.7	52808	23.5	18.8	149322	23.6	19.6	473983	23.7	21.2	10069	23.7	16.9
256014	23.4	20.5	231977	23.5	20.0	79904	23.5	18.5	44656	23.6	18.2	486933	23.7	20.3	367558	23.7	21.1
429386	23.4	20.9	226527	23.5	19.8	396136	23.5	21.5	462949	23.6	20.6	327932	23.7	19.7	227947	23.7	20.2
131247	23.4	19.3	31436	23.5	18.2	245089	23.5	20.7	219702	23.6	20.5	427834	23.7	21.7	298938	23.7	19.9
67398	23.4	18.7	121887	23.5	19.5	144259	23.5	19.7	456804	23.6	21.5	72501	23.7	18.7	213046	23.7	19.9
167539	23.4	19.1	340734	23.5	21.0	412519	23.5	19.9	313534	23.6	19.7	328533	23.7	20.4	351203	23.7	20.3
258198	23.4	20.4	269579	23.5	20.5	237325	23.5	20.6	201452	23.6	19.1	343375	23.7	20.6	208546	23.8	19.8
69015	23.4	18.4	406680	23.5	20.6	520890	23.5	20.8	452300	23.6	21.9	366737	23.7	21.2	29259	23.8	18.5
233621	23.4	20.4	458203	23.5	20.5	323162	23.5	20.4	1227	23.6	16.4	134238	23.7	19.0	27940	23.8	19.2
277170	23.4	19.9	336023	23.5	20.6	462052	23.5	20.6	354183	23.6	18.7	104601	23.7	19.5	138761	23.8	20.6
427390	23.4	20.2	459684	23.5	21.1	163389	23.5	18.9	125670	23.6	19.3	466396	23.7	20.6	454292	23.8	21.5
279601	23.4	19.9	58102	23.5	17.5	120890	23.5	19.4	405902	23.6	20.0	451237	23.7	19.9	428502	23.8	21.0
462450	23.4	21.0	281755	23.5	19.8	244729	23.5	19.6	457791	23.6	21.4	83155	23.7	17.4	457621	23.8	20.6
332550	23.4	20.1	146526	23.5	19.5	6814	23.5	17.0	399420	23.6	20.3	398382	23.7	21.5	335896	23.8	20.8
435392	23.4	20.0	56938	23.5	17.5	302462	23.5	19.3	223729	23.6	20.5	17981	23.7	17.2	319811	23.8	20.8
420629	23.4	20.4	307206	23.5	19.3	39223	23.5	1									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
415475	23.8	20.0	269375	23.8	19.5	19036	23.9	19.9	293580	23.9	20.1	123246	24.0	19.0	453870	24.1	21.8
31014	23.8	17.7	28620	23.8	17.5	76177	23.9	18.7	327864	23.9	19.7	168966	24.0	18.9	19061	24.1	17.2
91375	23.8	17.7	19590	23.8	17.0	205928	23.9	20.1	463987	23.9	20.8	90833	24.0	19.6	298864	24.1	20.5
168173	23.8	19.3	150497	23.8	19.5	168506	23.9	21.1	252163	23.9	20.7	300325	24.0	20.2	208424	24.1	20.0
122021	23.8	18.7	493451	23.8	20.5	313829	23.9	19.8	155411	23.9	20.0	145813	24.0	20.1	122881	24.1	20.2
199833	23.8	20.3	400776	23.8	21.6	209908	23.9	20.4	117185	23.9	19.0	417589	24.0	21.6	389161	24.1	20.3
422529	23.8	20.4	411881	23.8	19.6	467991	23.9	21.3	169189	23.9	20.3	245044	24.0	19.9	349504	24.1	20.8
145851	23.8	19.0	249870	23.8	18.9	522190	23.9	21.1	14578	23.9	16.4	343665	24.0	20.2	94897	24.1	18.1
153183	23.8	19.6	293642	23.8	21.5	178949	23.9	19.6	294605	23.9	20.2	357013	24.0	20.5	469170	24.1	21.3
214338	23.8	19.6	296937	23.8	20.5	205516	23.9	19.6	293591	23.9	20.4	50642	24.0	18.1	419026	24.1	21.3
109676	23.8	18.9	149432	23.8	18.7	456982	23.9	18.8	329234	23.9	20.9	287599	24.0	20.6	164141	24.1	18.7
78145	23.8	19.3	320430	23.9	20.0	220608	23.9	20.0	409834	23.9	20.1	83395	24.0	18.9	335942	24.1	20.7
96347	23.8	19.6	118010	23.9	18.4	2497	23.9	17.3	91229	23.9	17.6	327375	24.1	20.4	148811	24.1	19.7
469024	23.8	20.4	15869	23.9	19.5	9025	23.9	19.0	277818	23.9	20.4	25871	24.1	16.7	196513	24.1	20.2
500003	23.8	22.5	293365	23.9	20.1	190339	23.9	20.8	461696	23.9	20.9	16500	24.1	16.5	475012	24.1	23.1
11272	23.8	17.4	192068	23.9	20.0	194006	23.9	22.3	480076	23.9	20.7	408205	24.1	20.9	338188	24.1	21.1
413517	23.8	21.4	74612	23.9	19.2	250455	23.9	19.4	436288	23.9	20.8	194209	24.1	19.1	119483	24.1	19.2
78007	23.8	19.0	104049	23.9	19.3	417055	23.9	20.7	200803	23.9	20.4	109517	24.1	19.5	425364	24.1	20.7
35907	23.8	19.3	460080	23.9	21.3	30890	23.9	18.7	456293	23.9	19.9	363771	24.1	21.6	168130	24.1	20.6
491939	23.8	21.3	466884	23.9	20.8	141123	23.9	19.5	456576	23.9	21.4	255990	24.1	21.2	212442	24.1	20.6
77755	23.8	18.6	1916	23.9	19.5	293425	23.9	20.5	160867	23.9	20.0	412392	24.1	20.1	496657	24.1	20.1
296958	23.8	20.3	412549	23.9	20.3	294094	23.9	20.0	412829	23.9	20.7	101995	24.1	20.0	360763	24.1	19.3
101795	23.8	21.5	264765	23.9	19.1	31269	23.9	16.8	470888	23.9	20.3	204568	24.1	20.5	170201	24.1	20.3
338083	23.8	20.9	143373	23.9	19.2	451000	23.9	20.5	166149	23.9	19.4	201830	24.1	19.5	166786	24.1	19.1
365196	23.8	20.4	493455	23.9	20.9	500254	23.9	21.1	499402	23.9	20.7	242985	24.1	19.6	411331	24.1	20.1
166985	23.8	20.0	63510	23.9	17.1	378944	23.9	20.7	118661	23.9	20.5	206834	24.1	19.4	104412	24.1	19.9
280234	23.8	20.2	169314	23.9	19.7	256256	23.9	19.8	464590	23.9	21.0	163676	24.1	19.3	284435	24.1	20.4
112433	23.8	19.2	52852	23.9	17.4	347510	23.9	21.3	70036	23.9	17.5	426977	24.1	20.3	125782	24.1	20.3
490391	23.8	22.3	336697	23.9	19.4	109530	23.9	18.9	207865	23.9	20.2	414588	24.1	20.0	397820	24.1	21.2
467535	23.8	21.1	246025	23.9	20.6	219784	23.9	19.1	54728	23.9	18.8	242953	24.1	21.5	449582	24.1	20.0
333686	23.8	19.7	18204	23.9	18.9	320879	23.9	20.1	429292	23.9	20.5	297201	24.1	20.4	110297	24.1	19.0
427719	23.8	20.5	396875	23.9	20.0	273450	23.9	19.7	288312	23.9	20.2	28003	24.1	17.7	325606	24.1	19.9
260764	23.8	20.4	359072	23.9	20.2	261357	23.9	20.2	102440	24.0	20.4	320722	24.1	21.3	456590	24.1	19.6
329385	23.8	19.1	264703	23.9	19.4	68220	23.9	17.2	67254	24.0	17.4	345669	24.1	21.1	214361	24.1	20.3
201440	23.8	19.2	11748	23.9	18.8	157261	23.9	19.3	210067	24.0	20.0	335644	24.1	21.3	341264	24.1	19.9
120184	23.8	18.6	227934	23.9	20.3	33605	23.9	17.9	166676	24.0	20.1	522453	24.1	20.7	83922	24.2	19.1
78635	23.8	19.1	400778	23.9	20.0	426199	23.9	20.4	278451	24.0	20.6	180973	24.1	20.8	166111	24.2	19.8
201854	23.8	18.7	359160	23.9	20.1	252458	23.9	18.7	52672	24.0	18.0	338989	24.1	20.3	366680	24.2	19.5
246293	23.8	19.3	205925	23.9	19.1	125302	23.9	18.5	159470	24.0	19.7	309328	24.1	19.8	237359	24.2	20.4
144573	23.8	19.1	431524	23.9	20.6	430492	23.9	20.6	165257	24.0	19.7	139932	24.1	19.3	180673	24.2	19.5
344483	23.8	21.6	505812	23.9	20.8	74387	23.9	19.4	27921	24.0	18.5	309278	24.1	21.2	455940	24.2	21.2
143459	23.8	18.3	334903	23.9	19.8	277952	23.9	20.9	492469	24.0	20.7	259464	24.1	21.3	237524	24.2	20.2
261278	23.8	20.4	309297	23.9	21.2	423391	23.9	21.4	92443	24.0	19.7	427616	24.1	20.4	88105	24.2	18.9
322733	23.8	20.0	379084	23.9	19.4	258709	23.9	21.1	346958	24.0	20.8	352774	24.1	19.7	227088	24.2	20.0
79734	23.8	19.4	456947	23.9	19.9	234523	23.9	19.3	218689	24.0	19.6	13513	24.1	18.2	199511	24.2	19.9
492395	23.8	21.1	74390	23.9	18.1	188683	23.9	19.8	269385	24.0	20.5	301062	24.1	21.1	109742	24.2	19.3
334551	23.8	20.6	183119	23.9	19.8	404819	23.9	21.1	293314	24.0	20.5	117167	24.1	20.0	381206	24.2	20.8
85966	23.8	17.6	466224	23.9	22.0	376054	23.9	19.4	205531	24.0	20.5	175746	24.1	20.5	197594	24.2	21.3
104254	23.8	18.5	204253	23.9	18.6	203281	23.9	20.5	459359	24.0	20.4	194546	24.1	18.5	423376	24.2	20.6
350982	23.8	20.6	193349	23.9	17.8	232653	23.9	19.2	444173	24.0	21.9	367384	24.1	21.1	77872	24.2	18.3
350651	23.8	19.9	14362	23.9	16.6	244557	23.9	19.9	181357	24.0	20.0	72213	24.1	18.3	467996	24.2	21.6
97481	23.8	18.4	244514	23.9	19.5	145144	23.9	20.2	6612	24.0	16.8	381680	24.1	19.7	381294	24.2	20.2
196344	23.8	19.6	242457	23.9	21.0	300256	23.9	20.7	22497	24.0	17.8	48921	24.1	17.6	245160	24.2	19.8
156207	23.8	20.0	277228	23.9	20.5	499408	23.9	20.6	428930	24.0	20.7	229566	24.1	20.5	279002	24.2	21.0
48631	23.8	18.6	243156	23.9	21.5	502898	23.9	20.0	334061	24.0	20.0	155630	24.1	19.9	14164	24.2	17.8
76635	23.8	18.1	430725	23.9	19.9	97381	23.9	18.5	377027	24.0	20.4	429251	24.1	21.1	350043	24.2	19.8
212435	23.8	20.2	495685	23.9	21.2	254603	23.9	19.9	42798	24.0	16.7	314833	24.1	20.3	395807	24.2	19.6
338158	23.8	20.1	266804	23.9	20.4	186614	23.9	19.6	318074	24.0	20.2	473950	24.1	21.1	162696	24.2	20.1
400997	23.8	21.4	97478	23.9	17.9	196229	23.9	19.2	178606	24.0	19.3	420579	24.1	20.3	354540	24.2	21.4
184030	23.8	20.3	158530	23.9	19.8	175441	23.9	20.1	362683	24.0	20.3	115564	24.1	18.7	242328	24.2	19.5
361699	23.8	20.7	37530	23.9	19.2	86426	23.9	17.6	34101	24.0	18.3	29187	24.1	18.0	448294	24.2	20.3
122830	23.8	19.5	223661	23.9	20.3	49569	23.9	18.2	350988	24.0	21.1	413626	24.1	19.9	162639	24.2	18.9
341810	23.8	20.1	30435	23.9	19.8	373848	23.9	21.2	46556	24.0	17.1	191259	24.1	18.5	353260	24.2	20.3
472300	23.8	20.1	200876	23.9	18.6	381212	23.9	19.9	296017	24.0	19.8	346817	24.1	19.9	492781	24.2	22.1
268126	23.8	20.9	93849	23.9	18.9	17139	23.9	18.0	83462	24.0	19.5	360104	24.1	19.5	502544	24.2	20.7
327372	23.8	20.1	467487	23.9	21.6	275774	23.9	20.4	500458	24.0	21.4	466868	24.1	20.8	285506	24.2	20.5
242447	23.8	20.7	394813	23.9	20.8	373868	23.9	21.5	34368	24.0	17.8	163609	24.1	19.6	436967	24.2	21.0
123320	23.8	19.6	85537	23.9	18.6	500353	23.9	22.1	107618	24.0	18.9	239725	24.1	20.5	521019	24.2	21.2
89256	23.8	19.4	424827	23.9	20.0	495219											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
304825	24.2	20.0	165374	24.3	18.5	367356	24.3	20.9	301688	24.4	20.4	76811	24.5	18.8	79113	24.5	19.9
351606	24.2	20.5	170215	24.3	20.7	46389	24.3	18.5	95103	24.4	19.3	309259	24.5	20.4	23980	24.5	17.5
30700	24.2	17.7	395406	24.3	21.6	460329	24.3	21.1	250148	24.4	19.6	502882	24.5	20.4	8735	24.5	17.2
351706	24.2	20.1	272849	24.3	20.0	205791	24.3	19.9	207609	24.4	19.8	173851	24.5	19.5	274662	24.5	20.4
161778	24.2	19.6	321795	24.3	20.1	295943	24.3	20.0	282350	24.4	18.9	44016	24.5	16.8	518937	24.5	20.1
258371	24.2	19.7	170268	24.3	20.3	325236	24.3	21.3	36207	24.4	18.5	366896	24.5	20.7	10467	24.5	18.7
350960	24.2	19.6	100585	24.3	19.7	469121	24.3	20.8	131910	24.4	19.1	54969	24.5	19.1	108526	24.5	19.6
203262	24.2	20.7	264700	24.3	19.8	120939	24.3	19.6	366567	24.4	19.7	89302	24.5	18.9	354915	24.5	20.0
283125	24.2	20.1	199582	24.3	19.8	162468	24.3	19.4	409849	24.4	21.1	100463	24.5	19.2	181248	24.5	20.0
472666	24.2	20.6	208536	24.3	19.4	184799	24.3	20.7	393633	24.4	22.4	87150	24.5	19.1	166062	24.5	19.3
520997	24.2	20.2	493184	24.3	21.1	318117	24.3	20.5	37003	24.4	18.6	148341	24.5	19.8	416878	24.5	20.8
8147	24.2	18.1	28044	24.3	17.7	350347	24.3	20.0	47170	24.4	18.1	431493	24.5	20.4	426307	24.5	21.0
414846	24.2	21.1	258174	24.3	21.4	232733	24.3	18.2	148717	24.4	18.7	165275	24.5	20.3	449104	24.5	20.1
198722	24.2	20.7	464813	24.3	21.1	241519	24.3	20.0	301980	24.4	20.8	264160	24.5	19.9	115359	24.5	19.0
326459	24.2	19.9	429345	24.3	20.6	281230	24.3	20.0	180692	24.4	19.3	522292	24.5	20.8	418359	24.5	20.9
431598	24.2	20.9	903	24.3	14.6	297008	24.3	20.9	93668	24.4	16.9	493994	24.5	21.0	248118	24.5	19.8
429003	24.2	20.5	166690	24.3	19.8	372575	24.3	20.8	393666	24.4	21.3	306140	24.5	20.5	79737	24.5	19.6
160769	24.2	20.6	317560	24.3	19.8	53849	24.3	17.7	462943	24.4	21.0	197161	24.5	19.9	140855	24.5	19.2
333577	24.2	20.1	224345	24.3	19.8	201922	24.3	18.9	141863	24.4	20.2	216438	24.5	20.3	251750	24.5	19.6
423310	24.2	19.9	196974	24.3	19.4	367924	24.3	20.5	424655	24.4	20.2	192039	24.5	20.3	420675	24.5	20.7
90225	24.2	19.2	323466	24.3	21.4	245549	24.3	20.4	127716	24.4	19.6	330908	24.5	20.2	113200	24.5	19.8
242130	24.2	20.3	229069	24.3	20.1	38726	24.3	17.7	457112	24.4	21.6	416980	24.5	21.2	145565	24.5	20.0
104761	24.2	20.9	143002	24.3	18.7	77133	24.3	19.1	214099	24.4	19.9	13429	24.5	18.0	171205	24.5	19.1
495385	24.2	21.4	318872	24.3	21.5	465791	24.3	20.3	309258	24.4	20.2	432211	24.5	21.0	275540	24.5	20.3
333561	24.2	19.1	284777	24.3	19.7	291813	24.3	21.0	363862	24.4	20.9	54620	24.5	18.8	147288	24.5	19.1
194438	24.2	20.3	12923	24.3	19.6	472394	24.3	20.1	293772	24.4	21.3	33835	24.5	19.0	33898	24.5	19.3
289512	24.2	19.8	411366	24.3	20.5	23535	24.3	18.6	256178	24.4	18.9	418695	24.5	21.1	465174	24.6	20.7
238110	24.2	20.8	293725	24.3	20.4	499983	24.3	22.0	375029	24.4	20.8	126095	24.5	18.8	285059	24.6	19.8
60505	24.2	18.3	444261	24.3	21.1	380375	24.3	20.8	4780	24.4	16.4	35772	24.5	18.2	503296	24.6	20.5
78950	24.2	19.2	159302	24.3	19.9	269024	24.3	20.3	457113	24.4	21.2	200805	24.5	19.1	281055	24.6	20.3
470867	24.2	20.4	238828	24.3	19.6	25918	24.4	18.4	129473	24.4	20.4	467821	24.5	20.4	57223	24.6	18.9
38237	24.2	18.5	182959	24.3	20.5	99482	24.4	18.5	129976	24.4	21.3	333194	24.5	20.0	402582	24.6	20.4
124562	24.2	19.3	281756	24.3	19.4	114560	24.4	18.9	129792	24.4	20.2	355956	24.5	20.3	101534	24.6	18.8
346831	24.2	20.8	100296	24.3	19.4	490179	24.4	20.8	250653	24.4	20.5	35000	24.5	18.8	272746	24.6	19.9
183993	24.2	20.3	414473	24.3	21.6	51146	24.4	19.0	279075	24.4	20.1	142833	24.5	19.9	135589	24.6	19.2
410751	24.2	21.2	144216	24.3	20.1	340679	24.4	20.8	95091	24.4	19.1	383722	24.5	20.3	120197	24.6	19.3
5324	24.2	21.9	439833	24.3	21.3	124375	24.4	19.9	82729	24.4	18.0	212456	24.5	20.5	415602	24.6	19.8
207557	24.2	19.9	419899	24.3	20.3	175419	24.4	20.7	9913	24.4	17.0	59530	24.5	17.3	167865	24.6	19.0
511684	24.2	18.4	269610	24.3	19.7	331328	24.4	20.6	246919	24.4	20.6	517113	24.5	20.9	368628	24.6	21.1
322873	24.2	20.2	34896	24.3	19.0	193837	24.4	20.5	452238	24.4	21.1	286479	24.5	19.7	10042	24.6	17.0
246447	24.2	20.0	444413	24.3	20.7	186845	24.4	19.5	44565	24.4	17.9	186921	24.5	20.8	294560	24.6	20.6
225535	24.2	20.3	47101	24.3	17.1	453311	24.4	19.6	458005	24.4	21.6	303265	24.5	20.1	202345	24.6	20.4
111025	24.2	19.5	93487	24.3	19.4	343989	24.4	20.7	389990	24.4	20.3	410524	24.5	20.4	304849	24.6	19.9
363826	24.2	20.4	391080	24.3	20.6	369093	24.4	20.4	397139	24.4	19.2	129573	24.5	19.7	21067	24.6	18.5
20082	24.2	17.4	170267	24.3	20.8	223992	24.4	19.7	118877	24.4	19.0	113404	24.5	17.4	88971	24.6	18.9
13743	24.2	18.4	306516	24.3	20.6	456338	24.4	20.3	25371	24.4	18.9	119663	24.5	18.5	128863	24.6	19.4
511130	24.2	20.2	155356	24.3	20.3	164176	24.4	18.9	465442	24.4	21.5	457218	24.5	20.6	234499	24.6	20.4
406033	24.2	21.4	463814	24.3	20.6	304832	24.4	20.1	182530	24.4	19.9	375998	24.5	20.6	151200	24.6	19.1
449227	24.2	18.5	503619	24.3	21.6	493861	24.4	20.9	87768	24.4	19.6	359162	24.5	20.3	68556	24.6	19.2
412579	24.2	22.1	462853	24.3	20.3	205562	24.4	20.3	501905	24.4	19.7	82643	24.5	18.5	26782	24.6	19.1
497966	24.2	20.3	15097	24.3	16.8	266407	24.4	20.0	341342	24.4	20.1	365803	24.5	21.1	250657	24.6	19.9
89485	24.2	18.9	415953	24.3	18.9	378330	24.4	20.9	246044	24.4	20.7	268488	24.5	20.1	277536	24.6	20.7
356519	24.2	20.5	17487	24.3	17.4	411165	24.4	23.5	220593	24.4	20.9	293655	24.5	20.5	200739	24.6	20.6
333703	24.2	20.3	467993	24.3	21.6	39930	24.4	18.3	245018	24.4	19.9	95587	24.5	19.1	494184	24.6	20.4
284357	24.2	21.0	188457	24.3	20.2	131491	24.4	19.4	518128	24.4	20.3	85623	24.5	18.0	30519	24.6	18.7
323919	24.2	20.9	356301	24.3	20.5	34205	24.4	18.6	74385	24.4	18.5	321781	24.5	20.7	203067	24.6	20.3
235007	24.2	20.0	407468	24.3	21.0	152641	24.4	20.5	105086	24.4	20.6	212620	24.5	19.5	366093	24.6	19.8
450979	24.2	21.7	275552	24.3	21.4	243431	24.4	19.9	228733	24.4	19.5	256350	24.5	19.8	403004	24.6	21.4
168719	24.2	19.8	26643	24.3	17.6	200588	24.4	19.2	416870	24.4	21.2	283203	24.5	20.7	122003	24.6	19.8
172007	24.2	20.1	142109	24.3	20.4	290611	24.4	19.8	143115	24.4	18.5	190133	24.5	19.6	312499	24.6	20.6
456076	24.2	20.8	412342	24.3	20.6	353950	24.4	20.3	309345	24.4	19.8	502429	24.5	20.1	247317	24.6	20.1
243521	24.2	20.0	199858	24.3	19.2	161107	24.4	19.8	471755	24.4	21.6	203873	24.5	19.9	40827	24.6	19.0
520962	24.2	21.2	206813	24.3	19.6	194471	24.4	18.5	385088	24.4	20.0	196672	24.5	19.0	109927	24.6	20.6
284092	24.2	20.8	500436	24.3	21.3	298702	24.4	19.5	17946	24.4	18.7	68467	24.5	18.7	433055	24.6	21.0
80190	24.2	18.4	111843	24.3	19.5	166848	24.4	20.0	166961	24.4	20.3	519971	24.5	21.1	323864	24.6	21.1
105522	24.2	20.0	450726	24.3	21.2	256113	24.4	20.0	392520	24.4	21.7	410774	24.5	21.1	429922	24.6	20.4
227482	24.2	20.7	417002	24.3	20.8	446851	24.4	21.3	256948	24.4	19.7	49579	24.5	18.0	50827	24.6	18.6
160535	24.3	19.5	433805	24.3	20.0	334553	24.4	20.4	297385	24.4	20.4	33098	24.5	17.7	395312	24.6	21.0
150265	24.3	20.1	116158	24.3	18.6	406565	24.4	2									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
115106	24.6	19.1	274294	24.7	21.5	363682	24.7	21.4	372599	24.8	20.8	220589	24.9	20.4	100683	24.9	17.4
260461	24.6	19.4	283892	24.7	20.4	85663	24.7	19.0	27923	24.8	17.7	469281	24.9	21.6	451929	24.9	20.0
202394	24.6	19.5	120293	24.7	19.7	168917	24.7	18.4	346191	24.8	19.8	370470	24.9	19.4	209611	24.9	18.8
283935	24.6	20.9	430619	24.7	19.6	20231	24.7	16.5	23402	24.8	17.2	44227	24.9	17.0	416906	24.9	20.1
259021	24.6	19.9	58083	24.7	17.9	428135	24.7	20.7	86421	24.8	18.3	467194	24.9	20.0	323477	24.9	19.6
8287	24.6	17.5	239514	24.7	18.7	238382	24.7	19.8	462644	24.8	21.0	412870	24.9	21.7	248008	24.9	20.0
142862	24.6	20.2	217096	24.7	18.9	266646	24.7	20.5	89609	24.8	19.5	250221	24.9	20.6	320823	24.9	19.7
187579	24.6	19.6	380219	24.7	20.7	170568	24.7	19.5	47786	24.8	16.9	297015	24.9	21.1	60729	24.9	18.6
436261	24.6	20.0	419085	24.7	20.6	241522	24.7	18.9	27451	24.8	18.6	170293	24.9	20.7	406123	24.9	21.2
432993	24.6	20.5	413053	24.7	20.5	331798	24.7	21.3	162159	24.8	19.9	109149	24.9	18.2	376759	24.9	20.5
149889	24.6	19.6	96605	24.7	19.3	24209	24.7	18.6	51764	24.8	17.3	259208	24.9	19.1	281307	24.9	20.5
432144	24.6	20.5	292851	24.7	21.7	155378	24.7	20.2	238643	24.8	20.1	455219	24.9	20.3	86514	24.9	18.8
187871	24.6	18.5	195379	24.7	19.8	298861	24.7	20.2	109826	24.8	21.0	118517	24.9	19.0	225323	24.9	19.9
160824	24.6	19.7	205637	24.7	20.8	127165	24.7	19.9	426296	24.8	21.6	21697	24.9	18.8	125773	24.9	18.7
415976	24.6	20.5	164429	24.7	20.3	492687	24.7	21.9	209065	24.8	20.2	61843	24.9	19.4	367515	24.9	21.0
203939	24.6	20.2	265770	24.7	19.8	486835	24.7	20.9	385627	24.8	21.1	145158	24.9	19.5	491915	24.9	20.6
179829	24.6	20.5	5154	24.7	17.3	295222	24.7	20.1	304830	24.8	20.4	459519	24.9	20.4	133273	24.9	20.8
102050	24.6	19.0	423160	24.7	20.5	251748	24.7	17.3	466017	24.8	20.2	144652	24.9	20.0	213933	24.9	19.0
461715	24.6	21.3	278230	24.7	20.0	457162	24.7	20.7	46921	24.8	19.4	465731	24.9	20.9	363348	24.9	20.4
49261	24.6	19.7	326122	24.7	19.4	104068	24.7	19.1	87816	24.8	19.6	303930	24.9	19.8	453833	24.9	21.5
320863	24.6	20.0	415354	24.7	20.4	131916	24.7	19.4	105102	24.8	19.5	167128	24.9	19.1	399979	24.9	20.5
393878	24.6	20.9	324573	24.7	20.2	232716	24.7	19.2	333120	24.8	21.3	322357	24.9	20.0	451084	24.9	19.7
467571	24.6	20.4	147652	24.7	18.6	277865	24.7	20.5	208519	24.8	19.5	235279	24.9	18.0	467512	24.9	20.2
204315	24.6	20.1	325624	24.7	20.4	459400	24.7	20.4	466469	24.8	19.8	54635	24.9	18.1	330436	24.9	19.6
253141	24.6	19.4	104091	24.7	19.4	47188	24.7	18.8	36849	24.8	18.2	189416	24.9	20.1	405914	24.9	21.5
496996	24.6	21.3	196648	24.7	19.5	54948	24.7	19.0	492079	24.8	20.9	5942	24.9	16.1	82331	24.9	19.3
355871	24.6	20.0	475500	24.7	21.0	189337	24.8	19.6	359120	24.8	20.8	277549	24.9	20.9	412019	24.9	19.8
270408	24.6	19.5	201085	24.7	18.8	19727	24.8	16.3	364380	24.8	20.3	177377	24.9	19.5	285053	24.9	20.3
448283	24.6	20.7	234946	24.7	19.9	136000	24.8	20.1	476638	24.8	20.9	338187	24.9	21.2	258057	24.9	20.2
153841	24.6	18.6	372615	24.7	20.8	128005	24.8	19.1	458945	24.8	21.2	28192	24.9	16.3	275386	24.9	19.8
165179	24.6	20.0	83518	24.7	19.6	402613	24.8	19.8	208468	24.8	20.0	5532	24.9	16.5	123063	24.9	19.4
166681	24.6	19.9	204822	24.7	20.3	241817	24.8	20.0	217290	24.8	21.0	406132	24.9	20.4	403537	24.9	20.8
17997	24.6	16.7	52444	24.7	19.5	302073	24.8	19.6	502772	24.8	21.5	128009	24.9	19.4	281320	24.9	20.7
173045	24.6	19.8	109758	24.7	18.8	341730	24.8	20.5	430101	24.8	19.4	51121	24.9	18.3	127201	24.9	19.0
156117	24.6	19.3	230806	24.7	19.8	32035	24.8	19.0	83643	24.8	18.6	138613	24.9	19.5	75881	24.9	19.0
313174	24.6	20.6	344047	24.7	20.9	76526	24.8	18.5	289957	24.8	21.1	372620	24.9	20.1	105197	24.9	18.8
244554	24.6	20.5	100231	24.7	19.8	236873	24.8	19.7	24811	24.8	18.8	331943	24.9	20.6	260715	24.9	20.7
302909	24.6	20.5	114028	24.7	19.2	425422	24.8	20.1	203263	24.8	19.9	32982	24.9	18.6	104843	24.9	20.8
50751	24.6	18.7	518769	24.7	20.7	120294	24.8	19.7	465298	24.8	20.8	143499	24.9	19.4	53892	24.9	17.7
192530	24.6	19.9	177566	24.7	20.0	109689	24.8	19.2	41678	24.8	17.6	23852	24.9	18.3	473637	24.9	21.0
125366	24.6	19.3	457002	24.7	19.9	327934	24.8	19.8	31792	24.8	18.7	458888	24.9	20.6	243973	24.9	19.5
298952	24.6	19.4	337250	24.7	20.5	408850	24.8	20.9	151586	24.8	19.1	412627	24.9	21.5	503026	24.9	20.2
464805	24.6	20.9	473210	24.7	21.9	204538	24.8	19.7	406891	24.8	21.0	334178	24.9	20.7	67892	24.9	17.6
239308	24.6	20.7	409001	24.7	19.7	5992	24.8	17.4	397372	24.8	20.7	276683	24.9	19.9	404510	24.9	20.7
452517	24.6	20.8	397077	24.7	19.6	241277	24.8	20.7	350361	24.8	19.6	236674	24.9	21.0	239349	24.9	19.8
18515	24.6	17.7	293950	24.7	21.0	336717	24.8	20.0	103309	24.8	17.8	11234	24.9	16.1	448175	24.9	20.6
31677	24.6	17.8	429055	24.7	19.7	345064	24.8	20.9	310207	24.8	20.8	399295	24.9	21.5	343188	24.9	20.9
257809	24.6	21.0	218726	24.7	20.5	351530	24.8	21.0	222336	24.8	19.0	164221	24.9	21.0	306080	24.9	21.0
166992	24.6	20.7	109308	24.7	19.3	287922	24.8	19.1	463708	24.8	20.9	332152	24.9	19.9	456638	24.9	21.1
61469	24.6	18.6	244707	24.7	21.0	413254	24.8	19.9	419232	24.8	19.1	367585	24.9	20.8	347346	24.9	20.6
331409	24.6	21.0	48619	24.7	19.8	354896	24.8	20.7	350658	24.8	20.3	378847	24.9	21.2	397959	24.9	20.4
409034	24.6	22.3	334474	24.7	21.1	104002	24.8	18.2	460311	24.8	20.8	206608	24.9	19.8	114849	24.9	20.2
429952	24.6	21.0	180583	24.7	18.5	196639	24.8	19.4	205321	24.8	19.3	245936	24.9	20.9	299827	24.9	20.1
502285	24.6	20.8	150066	24.7	19.4	416932	24.8	21.0	120762	24.8	19.2	449158	24.9	20.3	35966	24.9	18.0
267423	24.6	19.6	195971	24.7	20.2	370738	24.8	21.6	27868	24.8	19.2	364425	24.9	21.2	337401	24.9	20.3
27520	24.6	18.2	34865	24.7	17.9	318016	24.8	19.6	503427	24.8	21.6	367973	24.9	20.1	179007	24.9	20.9
236794	24.6	20.9	14421	24.7	18.6	402589	24.8	21.7	33000	24.9	17.7	157100	24.9	20.3	327073	24.9	21.0
87856	24.6	20.3	394792	24.7	21.4	96244	24.8	18.7	318078	24.9	19.7	142486	24.9	19.9	136429	24.9	19.8
277195	24.6	20.9	200126	24.7	19.7	158679	24.8	19.2	178958	24.9	19.5	282479	24.9	20.6	70196	24.9	20.1
149259	24.6	19.3	508062	24.7	20.8	465056	24.8	22.2	144983	24.9	20.5	379502	24.9	19.6	247266	24.9	21.7
22533	24.6	18.5	458287	24.7	20.8	14900	24.8	18.4	42279	24.9	18.4	431521	24.9	20.5	100028	24.9	20.2
104584	24.6	18.6	282338	24.7	19.7	460347	24.8	20.8	109688	24.9	18.3	519158	24.9	19.7	394429	24.9	21.0
815	24.7	14.2	485078	24.7	21.4	70335	24.8	19.4	249330	24.9	19.7	128679	24.9	18.9	297496	24.9	19.8
170389	24.7	20.5	87621	24.7	20.0	157097	24.8	19.4	139499	24.9	18.0	120932	24.9	19.7	275074	24.9	19.9
450310	24.7	21.4	422111	24.7	21.9	142678	24.8	19.6	433339	24.9	20.2	340974	24.9	18.5	57091	24.9	19.1
194433	24.7	19.3	37965	24.7	19.0	431460	24.8	20.6	220926	24.9	20.2	117429	24.9	18.9	190057	24.9	20.4
316873	24.7	20.3	122745	24.7	19.2	372635	24.8	20.5	832	24.9	15.1	459140	24.9	19.8	208381	24.9	19.2
14751	24.7	19.5	226733	24.7	21.2	495630	24.8	20.5	254094	24.9	19.6	401992	24.9	19.8	178878	24.9	20.0
221158	24.7	19.6	53015	24.7	19.0	176718	24.										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
145571	24.9	20.6	280783	25.1	21.0	332333	25.1	20.1	492751	25.2	20.9	116251	25.3	19.2	61543	25.3	17.6
54588	24.9	18.4	208275	25.1	19.2	79995	25.1	19.8	523522	25.2	21.6	273408	25.3	19.1	126388	25.3	19.4
90263	24.9	19.5	384817	25.1	20.7	463481	25.1	21.0	489988	25.2	21.3	193853	25.3	19.7	407830	25.3	20.5
396803	24.9	20.6	125965	25.1	19.6	83894	25.1	19.9	318848	25.2	20.6	449219	25.3	20.8	132152	25.3	19.9
162798	24.9	18.4	336691	25.1	20.1	376876	25.1	20.8	147598	25.2	19.8	369853	25.3	20.5	247592	25.3	20.6
451451	24.9	20.1	234474	25.1	20.0	79517	25.1	19.0	468218	25.2	20.6	503322	25.3	20.9	498956	25.3	20.7
60292	24.9	16.9	164418	25.1	18.9	192815	25.1	20.2	90681	25.2	18.8	111156	25.3	19.4	209390	25.3	19.7
346930	25.0	19.7	271759	25.1	20.4	32373	25.1	19.3	402623	25.2	21.7	305015	25.3	20.0	464255	25.3	19.9
278783	25.0	20.7	460723	25.1	20.4	64945	25.1	19.1	218710	25.2	19.9	90115	25.3	18.4	375538	25.3	19.9
241803	25.0	20.5	268530	25.1	19.6	288410	25.1	20.4	404188	25.2	20.6	290526	25.3	19.8	189431	25.3	20.3
432049	25.0	20.7	222248	25.1	21.2	216344	25.1	19.4	136596	25.2	20.4	1996	25.3	15.5	463938	25.3	19.8
108301	25.0	19.2	182588	25.1	19.5	406072	25.1	21.2	341569	25.2	20.4	265885	25.3	19.6	251256	25.3	19.7
487958	25.0	20.9	234421	25.1	19.9	323482	25.1	21.6	438452	25.2	18.6	458771	25.3	21.0	417251	25.3	20.6
405076	25.0	19.8	186561	25.1	19.6	332940	25.1	21.0	285959	25.2	20.5	154299	25.3	19.5	238060	25.3	18.9
489581	25.0	21.2	402265	25.1	20.0	26225	25.1	18.2	76775	25.2	18.4	109417	25.3	19.0	396970	25.3	19.8
285585	25.0	20.3	225996	25.1	19.4	367886	25.1	19.1	48427	25.2	18.2	246214	25.3	19.3	226914	25.3	20.1
125861	25.0	19.0	314771	25.1	19.2	393645	25.1	21.7	158993	25.2	19.8	327902	25.3	20.1	497649	25.3	21.6
321962	25.0	20.7	294314	25.1	19.8	384724	25.2	20.8	245009	25.2	19.7	440402	25.3	20.9	224503	25.3	20.1
11277	25.0	17.6	102065	25.1	19.9	290758	25.2	20.7	200892	25.2	18.9	310948	25.3	20.8	136373	25.3	19.1
65293	25.0	19.8	517198	25.1	19.8	235645	25.2	20.6	425992	25.2	20.8	376008	25.3	20.0	153331	25.3	19.9
229691	25.0	19.5	403278	25.1	20.9	340668	25.2	21.3	437817	25.2	20.1	247012	25.3	18.9	211984	25.3	19.5
90581	25.0	19.4	258223	25.1	19.6	167013	25.2	19.1	467698	25.2	21.3	64076	25.3	17.9	296151	25.3	20.3
325068	25.0	20.6	465433	25.1	21.0	298911	25.2	20.7	185484	25.2	19.9	111353	25.3	18.0	399434	25.3	19.9
489891	25.0	23.0	302978	25.1	20.9	184159	25.2	21.1	202594	25.2	20.7	11206	25.3	16.9	197102	25.3	19.9
177631	25.0	19.5	31639	25.1	17.3	425341	25.2	20.5	287485	25.2	19.3	296049	25.3	20.3	197555	25.3	20.7
333000	25.0	19.9	344130	25.1	20.1	111789	25.2	18.3	454044	25.2	20.2	288176	25.3	20.7	441610	25.4	20.1
193415	25.0	19.6	274683	25.1	20.6	116213	25.2	19.4	463644	25.2	21.5	188193	25.3	20.8	58926	25.4	18.7
428411	25.0	20.7	297406	25.1	21.1	284919	25.2	20.0	122054	25.2	19.5	283143	25.3	19.2	340678	25.4	21.0
92445	25.0	19.8	273434	25.1	20.9	197135	25.2	19.4	377230	25.2	19.0	176682	25.3	20.3	459526	25.4	20.3
415105	25.0	19.9	405548	25.1	20.2	159229	25.2	18.7	79538	25.2	18.5	371708	25.3	18.7	325295	25.4	19.7
215901	25.0	19.6	293389	25.1	20.1	151981	25.2	20.4	337599	25.2	21.0	39900	25.3	18.1	19796	25.4	18.8
205578	25.0	20.5	404168	25.1	20.4	456960	25.2	20.4	519007	25.2	20.9	3625	25.3	16.2	238432	25.4	19.2
278873	25.0	20.7	188142	25.1	19.1	32128	25.2	17.8	62265	25.2	18.9	217770	25.3	18.9	1169	25.4	14.9
127831	25.0	19.4	499650	25.1	21.0	256364	25.2	20.8	289804	25.2	22.0	316996	25.3	20.6	108924	25.4	19.7
258113	25.0	21.0	393657	25.1	22.4	126945	25.2	19.2	410719	25.2	21.1	291732	25.3	21.2	209903	25.4	20.9
415752	25.0	21.5	50937	25.1	18.0	269561	25.2	20.4	204297	25.2	19.7	56909	25.3	19.3	12313	25.4	18.4
28610	25.0	17.4	373654	25.1	20.8	105293	25.2	19.5	10794	25.2	18.3	184129	25.3	20.3	456390	25.4	21.1
466226	25.0	21.4	343240	25.1	20.8	248814	25.2	21.5	19474	25.2	19.1	403251	25.3	19.5	350739	25.4	20.6
467804	25.0	20.4	237726	25.1	20.4	327866	25.2	19.9	380709	25.2	20.4	272774	25.3	20.4	393837	25.4	21.0
103067	25.0	15.8	296199	25.1	20.1	293337	25.2	20.6	10867	25.2	17.5	202026	25.3	19.5	372508	25.4	20.4
33430	25.0	17.4	245813	25.1	20.3	266399	25.2	19.9	373154	25.2	20.6	16241	25.3	17.4	20000	25.4	20.0
328585	25.0	20.6	6832	25.1	17.6	492407	25.2	21.9	35508	25.2	19.1	167090	25.3	20.6	262568	25.4	19.9
329705	25.0	20.8	106623	25.1	17.7	175313	25.2	20.4	124376	25.2	18.4	313437	25.3	20.9	166741	25.4	20.0
351513	25.0	20.2	319825	25.1	20.6	329612	25.2	20.5	298896	25.2	20.5	422287	25.3	20.5	116563	25.4	17.4
206241	25.0	19.5	252018	25.1	19.5	417164	25.2	21.3	428434	25.2	20.1	377668	25.3	20.2	390572	25.4	21.5
358626	25.0	21.3	228145	25.1	19.6	331383	25.2	19.8	22791	25.2	18.6	463280	25.3	21.9	421953	25.4	21.0
99918	25.0	19.1	213888	25.1	20.4	5155	25.2	17.4	239241	25.2	20.8	337206	25.3	19.5	417069	25.4	21.1
126220	25.0	19.4	472474	25.1	20.6	31836	25.2	18.6	132857	25.2	19.7	359026	25.3	19.9	226813	25.4	19.8
269384	25.0	20.3	424984	25.1	20.6	366751	25.2	20.0	260006	25.2	19.9	109681	25.3	19.4	319072	25.4	20.7
235717	25.0	21.2	497095	25.1	20.2	449176	25.2	20.4	503400	25.2	21.1	8404	25.3	15.6	3185	25.4	17.2
452326	25.0	20.9	495454	25.1	21.0	447266	25.2	20.0	60530	25.2	18.3	343585	25.3	21.4	218614	25.4	20.1
417285	25.0	19.7	41816	25.1	19.0	367529	25.2	20.3	424956	25.2	21.0	196217	25.3	19.4	22899	25.4	17.9
392212	25.0	21.0	420928	25.1	21.1	381976	25.2	20.4	154312	25.2	19.3	423147	25.3	19.8	334414	25.4	20.9
31025	25.0	17.2	306285	25.1	20.1	346857	25.2	20.6	267459	25.2	19.9	109024	25.3	18.7	317128	25.4	20.5
377538	25.0	19.8	30446	25.1	18.0	88413	25.2	18.0	81459	25.2	19.0	236092	25.3	20.6	156186	25.4	20.0
40642	25.0	18.5	445310	25.1	20.5	46917	25.2	18.8	197366	25.2	19.1	457799	25.3	21.8	325087	25.4	21.5
455108	25.0	21.3	110076	25.1	19.4	281357	25.2	19.9	214480	25.2	20.2	250223	25.3	20.5	376508	25.4	20.8
349185	25.0	21.6	104421	25.1	18.9	193961	25.2	18.5	316872	25.2	20.1	216935	25.3	20.3	381888	25.4	19.8
400239	25.0	21.3	304115	25.1	20.0	30821	25.2	18.1	393112	25.2	21.0	182670	25.3	20.1	15660	25.4	18.0
101432	25.0	19.5	113603	25.1	19.1	506321	25.2	21.2	314759	25.2	20.2	182505	25.3	20.3	424698	25.4	21.2
90070	25.0	17.8	28081	25.1	18.8	414465	25.2	21.6	328455	25.2	20.7	359142	25.3	20.3	191857	25.4	19.6
500235	25.0	22.0	114559	25.1	18.9	357373	25.2	21.4	160682	25.2	19.3	226847	25.3	19.8	118391	25.4	19.2
456440	25.0	20.6	450523	25.1	20.1	461730	25.2	21.8	57386	25.2	18.3	490072	25.3	21.2	30109	25.4	18.5
406093	25.1	21.2	404273	25.1	20.8	469241	25.2	19.9	236922	25.3	19.7	266111	25.3	20.6	120289	25.4	20.3
118827	25.1	19.9	320161	25.1	21.1	35962	25.2	18.5	176903	25.3	20.7	50360	25.3	18.3	427823	25.4	20.6
62422	25.1	19.4	11287	25.1	17.6	460946	25.2	20.9	468092	25.3	20.0	301230	25.3	20.4	235977	25.4	20.0
138798	25.1	19.6	76833	25.1	19.0	127536	25.2	19.6	60465	25.3	19.4	19808	25.3	18.0	422154	25.4	21.1
154052	25.1	19.2	6978	25.1	17.5	285252	25.2	19.2	108740	25.3	20.5	424609	25.3	21.1	258488	25.4	19.7
399515	25.1	20.0	142767	25.1	19.8	281726											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
424911	25.4	20.4	456949	25.5	20.6	468241	25.6	20.9	10918	25.6	17.4	124676	25.7	19.1	81749	25.8	19.7
77787	25.4	18.7	140985	25.5	19.3	257168	25.6	19.6	491839	25.6	20.1	188197	25.7	20.3	367552	25.8	20.5
318740	25.4	20.5	61267	25.5	18.4	387556	25.6	20.1	209055	25.6	20.9	317432	25.7	20.7	165665	25.8	20.1
2495	25.4	18.1	489594	25.5	20.3	6274	25.6	16.4	284712	25.6	21.1	134094	25.7	19.9	109639	25.8	18.4
400200	25.4	19.8	235927	25.5	20.3	93700	25.6	18.3	417540	25.6	20.5	196523	25.7	21.6	105168	25.8	19.7
327253	25.4	20.5	252276	25.5	20.5	194639	25.6	19.0	230814	25.6	19.6	130747	25.7	18.6	508589	25.8	21.1
412838	25.4	20.9	378259	25.5	21.3	161904	25.6	20.6	114090	25.6	20.0	447735	25.7	20.4	109195	25.8	19.0
167515	25.4	19.8	361166	25.5	20.9	337699	25.6	20.9	410030	25.6	20.8	502276	25.7	20.8	467033	25.8	20.7
257744	25.4	20.2	176275	25.5	20.1	264751	25.6	19.8	198659	25.6	19.7	492468	25.7	20.7	81155	25.8	19.4
31916	25.4	19.5	495303	25.5	20.2	518545	25.6	21.2	283912	25.6	18.9	202024	25.7	21.1	37444	25.8	19.5
451855	25.4	21.1	258700	25.5	20.2	466382	25.6	21.1	210191	25.6	19.6	359136	25.7	20.9	441837	25.8	21.0
142578	25.4	19.7	94796	25.5	18.6	328275	25.6	20.7	92731	25.6	17.8	74410	25.7	17.0	489513	25.8	20.8
412715	25.4	21.4	71617	25.5	17.6	5940	25.6	16.8	323583	25.6	21.7	194048	25.7	21.2	284850	25.8	20.7
76998	25.4	19.1	396155	25.5	21.1	57802	25.6	18.7	41757	25.6	18.3	236888	25.7	19.8	71845	25.8	18.1
66433	25.4	17.9	33091	25.5	18.3	357018	25.6	19.7	489648	25.6	21.4	18655	25.7	17.9	22146	25.8	18.9
417858	25.4	19.9	143485	25.5	19.8	459887	25.6	21.6	56175	25.6	18.8	371996	25.7	20.9	84176	25.8	18.9
461718	25.4	21.0	247688	25.5	21.5	236854	25.6	19.6	363092	25.6	21.2	506506	25.7	20.8	463255	25.8	20.8
470429	25.4	20.9	391411	25.5	21.2	55716	25.6	19.0	430276	25.6	20.1	497719	25.7	22.3	322654	25.8	20.9
424330	25.4	20.9	243166	25.5	19.9	146649	25.6	20.0	459443	25.6	22.3	95980	25.7	19.5	178249	25.8	19.7
152559	25.4	19.8	167792	25.5	19.1	124287	25.6	19.2	363098	25.6	20.8	194175	25.7	21.1	523527	25.8	21.5
196598	25.4	19.5	128439	25.5	20.0	127132	25.6	19.7	91298	25.6	19.6	421184	25.7	20.3	197584	25.8	19.8
203098	25.4	20.7	415729	25.5	20.1	363835	25.6	20.6	15728	25.6	18.0	126188	25.7	15.7	387836	25.8	20.0
165890	25.4	20.4	397891	25.5	20.5	19075	25.6	18.1	51826	25.6	18.3	175945	25.7	18.9	371772	25.8	19.5
338222	25.4	20.2	155954	25.5	20.3	461067	25.6	19.9	51249	25.6	17.8	426399	25.7	21.1	404405	25.8	20.7
477330	25.4	20.4	242123	25.5	20.1	451712	25.6	20.0	460170	25.6	21.6	368023	25.7	19.4	413898	25.8	20.7
60848	25.4	18.1	50135	25.5	18.4	519072	25.6	21.0	417131	25.6	21.0	205268	25.7	20.9	6183	25.8	16.5
53131	25.4	18.1	370753	25.5	21.5	357953	25.6	20.5	167159	25.6	20.8	57205	25.7	18.5	193692	25.8	19.4
347904	25.4	20.9	215547	25.5	19.6	500557	25.6	21.7	208712	25.6	19.7	410062	25.7	20.7	282541	25.8	20.2
29948	25.4	17.0	5339	25.5	16.4	252534	25.6	19.8	291095	25.6	20.3	285360	25.7	20.5	237306	25.8	20.1
253037	25.4	20.5	424890	25.5	20.1	218920	25.6	19.7	472428	25.6	20.5	118799	25.7	18.7	323485	25.8	20.6
146370	25.4	19.9	296975	25.5	19.9	355815	25.6	20.1	204248	25.6	19.7	64566	25.7	18.0	96273	25.8	19.7
194603	25.4	20.1	144529	25.5	19.4	349097	25.6	20.1	178283	25.6	19.9	209039	25.7	20.8	316720	25.8	16.9
33187	25.4	18.4	488512	25.5	21.1	9855	25.6	16.5	408857	25.6	20.8	293104	25.7	19.8	318720	25.8	20.1
339461	25.4	20.1	335964	25.5	21.5	462305	25.6	21.3	445589	25.6	20.4	275505	25.7	21.2	13961	25.8	19.1
353793	25.4	20.4	6114	25.5	17.3	18878	25.6	17.3	243173	25.6	19.3	447249	25.7	20.5	402251	25.8	21.1
221274	25.4	20.5	33029	25.5	18.5	282498	25.6	21.1	377049	25.6	20.0	478407	25.7	19.8	99111	25.8	19.1
443102	25.4	20.4	191181	25.5	20.1	253995	25.6	19.5	285656	25.6	22.0	264740	25.7	19.8	505306	25.8	20.8
129553	25.4	20.0	417772	25.5	20.3	496260	25.6	20.8	65365	25.6	20.0	227915	25.7	20.2	253249	25.8	18.8
357314	25.4	19.3	20320	25.5	17.7	329566	25.6	20.7	458131	25.6	21.6	118068	25.7	19.4	171378	25.8	19.9
266969	25.4	19.9	184082	25.5	19.8	132417	25.6	20.4	325967	25.6	20.5	11986	25.7	17.0	393394	25.8	21.3
449093	25.4	21.9	218714	25.5	21.0	276335	25.6	20.5	415822	25.6	20.5	165465	25.7	18.3	248714	25.8	19.4
266388	25.4	20.3	431464	25.5	20.5	384182	25.6	20.4	177773	25.6	20.6	231983	25.7	19.7	190322	25.8	20.1
462696	25.4	20.3	5390	25.5	15.7	63485	25.6	19.4	417112	25.6	20.4	287582	25.7	20.6	109166	25.8	19.1
80231	25.4	19.1	462697	25.5	19.4	255948	25.6	20.5	83011	25.7	19.0	419864	25.7	19.9	166727	25.8	18.3
345149	25.4	19.3	495438	25.5	20.5	375822	25.6	22.2	437135	25.7	20.5	363831	25.7	21.7	277532	25.8	20.8
497124	25.4	19.8	456581	25.5	20.4	325312	25.6	18.9	197533	25.7	20.3	26578	25.7	18.1	84859	25.8	18.6
106424	25.4	18.7	287521	25.5	19.2	296768	25.6	20.3	493113	25.7	20.7	406094	25.7	20.3	302983	25.8	19.9
130914	25.4	19.1	257432	25.5	19.7	122889	25.6	19.7	376615	25.7	20.8	72961	25.7	18.7	53864	25.8	19.0
336974	25.4	20.1	293231	25.5	19.5	496197	25.6	21.0	75108	25.7	18.0	156753	25.7	18.4	116936	25.8	19.2
199903	25.4	21.1	42107	25.5	17.7	144792	25.6	20.4	437964	25.7	20.2	5176	25.7	16.2	302086	25.8	19.9
291824	25.4	20.0	160956	25.5	18.8	413497	25.6	20.4	341528	25.7	20.9	95354	25.7	19.4	140368	25.8	19.8
373424	25.4	21.3	21813	25.5	17.7	376134	25.6	20.8	414916	25.7	20.4	4393	25.7	17.1	268092	25.8	20.8
245043	25.4	20.4	469027	25.5	20.5	264674	25.6	19.9	162950	25.7	19.1	221948	25.7	19.5	207775	25.8	19.7
301878	25.4	21.6	431228	25.5	21.0	397201	25.6	20.0	169163	25.7	20.5	162423	25.7	19.2	344764	25.8	19.9
242192	25.4	20.2	325049	25.5	21.4	430822	25.6	21.5	248021	25.7	20.1	249009	25.7	20.4	337413	25.8	19.4
128945	25.4	19.1	412862	25.5	21.6	144630	25.6	18.8	417574	25.7	21.2	195848	25.7	20.2	284834	25.8	19.9
182370	25.4	20.3	413854	25.5	22.4	492402	25.6	21.5	186259	25.7	20.3	322245	25.7	19.6	219851	25.8	19.3
308895	25.4	19.9	416607	25.5	20.4	14794	25.6	17.6	318959	25.7	20.1	239328	25.8	20.2	356281	25.8	20.5
279095	25.4	19.3	426285	25.5	21.0	26015	25.6	17.6	133485	25.7	20.5	498914	25.8	20.4	269065	25.8	19.8
327315	25.5	20.6	233595	25.5	19.6	172388	25.6	18.9	153873	25.7	19.5	313220	25.8	21.5	337239	25.8	21.4
207086	25.5	19.2	489419	25.5	21.7	288605	25.6	21.1	469841	25.7	19.9	395796	25.8	20.3	274714	25.8	20.8
383715	25.5	20.1	359405	25.5	20.1	511702	25.6	20.7	302888	25.7	20.7	270646	25.8	20.3	145362	25.8	19.7
405655	25.5	20.8	86503	25.5	19.0	293622	25.6	20.0	378331	25.7	21.1	29757	25.8	17.0	302065	25.8	19.9
492914	25.5	21.4	460392	25.5	20.8	8844	25.6	17.0	521139	25.7	20.2	135058	25.8	17.7	14549	25.8	18.1
283280	25.5	19.7	58505	25.5	19.7	199217	25.6	19.1	7904	25.7	17.5	129587	25.8	19.4	203849	25.8	19.5
425487	25.5	20.1	144687	25.5	18.8	408835	25.6	19.6	32541	25.7	17.1	412664	25.8	21.0	285596	25.8	20.5
39948	25.5	17.9	88434	25.5	19.6	511786	25.6	20.9	151204	25.7	19.2	216208	25.8	20.8	12523	25.8	16.9
190821	25.5	20.7	416916	25.5	20.3	408291	25.6	21.3	462317	25.7	21.2	461965	25.8	19.1	451429	25.8	20.2
42363	25.5	19.3	408129	25.5	19.8	454786	25.6	20									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
424853	25.8	20.6	519285	25.9	21.1	108802	25.9	19.2	61992	26.0	18.5	207599	26.1	20.5	241161	26.2	20.7
357210	25.8	20.5	166892	25.9	18.5	305027	25.9	19.7	277960	26.0	20.4	417083	26.1	20.8	415625	26.2	21.1
93459	25.8	18.5	19698	25.9	16.9	369351	25.9	20.3	387422	26.0	19.9	408842	26.1	19.7	122810	26.2	18.7
443866	25.8	21.8	432894	25.9	21.4	82516	25.9	18.2	247870	26.0	20.2	50333	26.1	18.2	522446	26.2	20.9
507708	25.8	21.4	304968	25.9	19.8	323770	25.9	20.8	330446	26.0	20.5	166716	26.1	20.0	110811	26.2	19.8
456378	25.8	21.5	200946	25.9	18.3	147635	25.9	18.7	421465	26.0	21.6	363166	26.1	20.9	401999	26.2	21.6
433158	25.9	20.6	326989	25.9	21.3	110866	25.9	20.3	294972	26.0	19.9	80267	26.1	18.1	124633	26.2	18.1
495646	25.9	20.3	165264	25.9	18.9	143513	25.9	19.8	3433	26.1	15.0	371975	26.1	21.5	116562	26.2	19.2
327319	25.9	20.4	39385	25.9	18.2	162759	25.9	18.7	400844	26.1	21.4	384127	26.1	20.4	435920	26.2	20.2
424639	25.9	21.1	103308	25.9	18.4	464562	25.9	20.6	176689	26.1	20.3	256809	26.1	20.2	419057	26.2	20.6
282792	25.9	21.3	259037	25.9	19.8	353275	25.9	20.7	427170	26.1	21.5	190152	26.1	19.4	344460	26.2	21.2
303345	25.9	20.2	459772	25.9	21.5	357588	25.9	20.1	44434	26.1	18.0	138414	26.1	18.3	303465	26.2	19.4
246758	25.9	19.8	321683	25.9	20.5	337398	25.9	21.3	42309	26.1	17.7	447303	26.1	21.4	79525	26.2	19.6
40003	25.9	18.5	158940	25.9	19.8	420989	25.9	19.8	334619	26.1	20.5	149678	26.1	20.4	409006	26.2	19.6
116285	25.9	19.2	251059	25.9	19.0	289071	25.9	20.5	90199	26.1	19.3	263790	26.1	20.2	175953	26.2	18.8
37711	25.9	17.9	198991	25.9	19.9	354167	25.9	19.8	266790	26.1	20.3	333867	26.1	20.5	346959	26.2	21.1
175748	25.9	19.2	39552	25.9	18.8	329246	25.9	20.8	64339	26.1	17.4	197686	26.1	20.8	422874	26.2	20.5
408964	25.9	21.2	181771	25.9	19.9	324520	25.9	19.9	80809	26.1	19.1	42492	26.1	19.5	304907	26.2	20.7
42112	25.9	18.5	47088	25.9	18.1	16131	25.9	18.2	11295	26.1	18.2	52031	26.1	20.5	403591	26.2	21.6
247681	25.9	18.7	307903	25.9	19.7	81182	25.9	18.7	454870	26.1	21.1	110282	26.1	19.1	379009	26.2	20.6
144809	25.9	20.9	398377	25.9	22.2	97549	25.9	19.0	508147	26.1	19.5	91289	26.1	17.5	288609	26.2	20.8
372718	25.9	19.8	484276	25.9	20.4	239232	25.9	20.4	120974	26.1	17.7	396874	26.1	20.8	252656	26.2	18.5
427679	25.9	19.4	429961	25.9	21.0	172767	25.9	20.0	86870	26.1	19.7	58014	26.1	17.7	25830	26.2	18.4
1963	25.9	12.8	454278	25.9	20.7	100345	26.0	19.3	448124	26.1	20.7	402110	26.1	18.7	109000	26.2	18.7
413867	25.9	21.5	163301	25.9	17.8	383387	26.0	21.7	406142	26.1	20.1	494180	26.1	19.8	251010	26.2	20.5
39949	25.9	17.1	445867	25.9	20.7	10288	26.0	18.0	306371	26.1	20.3	56483	26.1	18.8	336930	26.2	20.3
56848	25.9	19.1	196256	25.9	20.2	262848	26.0	20.0	280721	26.1	21.5	357224	26.1	20.0	105097	26.2	19.8
388126	25.9	21.1	453813	25.9	20.9	427568	26.0	20.5	72030	26.1	18.5	237511	26.1	21.0	382774	26.2	21.0
19330	25.9	16.6	296107	25.9	20.0	308751	26.0	21.0	428897	26.1	21.1	296231	26.1	20.0	196335	26.2	18.9
203368	25.9	21.1	142785	25.9	19.9	335960	26.0	20.6	254725	26.1	20.0	115782	26.1	18.7	162653	26.2	20.6
52402	25.9	18.8	370585	25.9	21.0	412036	26.0	21.7	134847	26.1	20.1	460258	26.1	19.8	149278	26.2	19.8
276859	25.9	21.1	402454	25.9	20.8	390985	26.0	21.2	24738	26.1	17.9	238760	26.1	20.9	391085	26.2	21.0
324517	25.9	20.5	500298	25.9	20.8	178616	26.0	20.5	348622	26.1	19.9	381671	26.1	19.6	466218	26.2	21.2
506094	25.9	20.0	129832	25.9	20.8	319867	26.0	20.8	234773	26.1	19.2	368966	26.1	20.3	325092	26.2	20.2
522306	25.9	21.3	354938	25.9	20.2	298358	26.0	19.6	397928	26.1	20.5	433909	26.1	20.7	417718	26.2	19.4
491100	25.9	20.8	341791	25.9	20.3	453037	26.0	19.7	331198	26.1	20.1	149478	26.1	19.9	257437	26.2	21.0
49328	25.9	17.6	187135	25.9	20.0	299015	26.0	20.0	463208	26.1	20.5	31415	26.1	18.1	10259	26.2	17.9
31033	25.9	19.7	275940	25.9	21.7	461745	26.0	21.5	148789	26.1	18.6	88772	26.1	18.9	415478	26.2	21.3
32082	25.9	20.2	313882	25.9	19.9	461940	26.0	21.1	20293	26.1	17.9	149776	26.1	19.1	373981	26.2	19.8
510535	25.9	22.3	172211	25.9	18.8	265822	26.0	19.5	16314	26.1	17.3	473931	26.1	20.6	451210	26.2	21.1
234469	25.9	21.0	264927	25.9	19.6	419951	26.0	20.8	432080	26.1	19.6	134415	26.1	19.9	457235	26.2	20.8
55008	25.9	19.0	415297	25.9	20.4	240719	26.0	20.8	275605	26.1	19.3	184346	26.1	19.4	447691	26.2	20.5
11660	25.9	16.6	322735	25.9	20.8	142562	26.0	19.5	282625	26.1	20.5	149867	26.1	20.3	220566	26.2	20.3
523776	25.9	21.9	396804	25.9	21.0	461950	26.0	22.2	175277	26.1	19.6	91233	26.1	18.1	426516	26.2	20.6
201371	25.9	20.4	140482	25.9	19.2	318680	26.0	20.7	351616	26.1	19.7	353296	26.1	20.5	58368	26.2	19.4
332849	25.9	20.3	109778	25.9	20.9	110582	26.0	18.9	104686	26.1	19.1	245002	26.1	19.8	101368	26.2	19.5
98326	25.9	19.0	7018	25.9	16.7	363358	26.0	20.8	174707	26.1	20.8	97562	26.1	19.1	2119	26.2	16.6
290031	25.9	20.6	353987	25.9	21.4	381594	26.0	21.0	58271	26.1	18.9	264730	26.1	20.4	111290	26.2	18.4
266763	25.9	20.7	131263	25.9	18.0	245953	26.0	20.0	31899	26.1	19.7	209664	26.1	20.6	5922	26.2	16.2
230426	25.9	20.5	109843	25.9	20.8	160835	26.0	18.8	254048	26.1	19.6	79576	26.1	19.7	265881	26.2	18.6
240540	25.9	18.9	465085	25.9	20.3	381966	26.0	20.1	319556	26.1	20.9	396845	26.1	21.4	176810	26.2	20.3
522203	25.9	20.9	132421	25.9	20.0	495395	26.0	20.6	193799	26.1	20.5	146364	26.1	20.5	12856	26.2	15.9
489697	25.9	21.9	173844	25.9	19.4	14546	26.0	18.2	127820	26.1	18.9	206839	26.1	19.9	305578	26.2	20.8
195706	25.9	19.1	30832	25.9	16.5	466685	26.0	21.5	419419	26.1	20.2	327476	26.2	21.0	69965	26.2	19.2
226794	25.9	20.1	165823	25.9	19.3	194074	26.0	19.5	233965	26.1	19.2	36384	26.2	18.0	13699	26.2	17.1
254663	25.9	20.3	51034	25.9	17.9	284668	26.0	20.8	422310	26.1	21.3	204384	26.2	20.5	113704	26.2	18.6
51325	25.9	17.7	239900	25.9	20.2	223826	26.0	19.9	67918	26.1	19.0	44588	26.2	17.2	481893	26.2	19.6
1796	25.9	15.0	235693	25.9	19.7	464187	26.0	20.3	412055	26.1	21.1	1125	26.2	14.7	155004	26.2	19.9
173542	25.9	20.2	61328	25.9	18.9	156180	26.0	20.0	225302	26.1	19.6	277584	26.2	20.3	309292	26.2	21.3
120928	25.9	18.8	412777	25.9	21.5	204738	26.0	19.7	196701	26.1	20.0	45155	26.2	17.7	270484	26.2	19.9
370202	25.9	20.3	500138	25.9	19.0	522173	26.0	20.5	379080	26.1	20.3	466499	26.2	20.0	321198	26.2	19.5
179840	25.9	19.5	226060	25.9	19.6	359608	26.0	20.3	328592	26.1	20.7	335920	26.2	19.8	283313	26.2	20.8
218036	25.9	18.9	38578	25.9	18.3	366753	26.0	20.6	294237	26.1	20.2	517682	26.2	20.1	98144	26.2	18.9
460161	25.9	20.9	323875	25.9	19.8	272254	26.0	20.3	378887	26.1	20.9	238536	26.2	20.8	120240	26.2	19.5
463613	25.9	21.6	27406	25.9	18.4	369849	26.0	20.6	492458	26.1	22.6	277928	26.2	21.4	68723	26.2	19.6
451026	25.9	20.2	462887	25.9	21.4	332816	26.0	20.3	139666	26.1	17.1	412195	26.2	20.9	432176	26.2	20.3
197216	25.9	19.0	32182	25.9	18.8	132822	26.0	20.1	349213	26.1	21.0	27077	26.2	18.4	15590	26.2	17.4
401109	25.9	20.3	457048	25.9	21.0	83200	26.0	19.6	198854	26.1	18.8	4250	26.2	16.9	489518	26.2	21.9
468225	25.9	21.1	508363	25.9	21.4	416652	26.0	1									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
48596	26.3	19.2	223675	26.3	19.8	461348	26.4	20.5	372002	26.5	20.1	368418	26.6	19.1	419999	26.6	20.4
340580	26.3	20.1	482795	26.3	20.8	90539	26.4	19.0	89401	26.5	19.5	26791	26.6	17.5	334588	26.6	20.2
258483	26.3	19.6	319726	26.3	20.8	110202	26.4	19.7	234176	26.5	21.0	317082	26.6	21.2	210406	26.6	20.9
432223	26.3	20.0	469275	26.3	21.1	343530	26.4	20.7	2870	26.5	16.2	96038	26.6	19.8	423308	26.6	20.2
190550	26.3	18.7	181723	26.3	20.8	169370	26.4	20.0	463657	26.5	20.9	272569	26.6	20.8	285583	26.6	20.6
463206	26.3	20.7	299606	26.3	19.8	264713	26.4	19.0	184132	26.5	19.3	89233	26.6	19.7	282335	26.6	20.1
30245	26.3	18.0	13702	26.3	17.1	110624	26.4	18.3	58901	26.5	18.6	126321	26.6	19.0	432438	26.6	20.8
17876	26.3	17.4	110001	26.3	19.7	456402	26.4	21.0	118801	26.5	18.6	221225	26.6	19.6	336540	26.6	20.2
359157	26.3	20.7	264090	26.3	20.2	56072	26.4	17.5	148052	26.5	19.1	305585	26.6	19.3	203049	26.6	20.1
449603	26.3	20.3	417553	26.3	21.7	1617	26.4	15.1	246641	26.5	20.0	204215	26.6	20.0	404244	26.6	20.6
229236	26.3	20.2	316781	26.3	21.3	355281	26.4	20.9	30565	26.5	18.9	387717	26.6	21.2	491971	26.6	20.5
157766	26.3	19.6	322075	26.3	19.5	301157	26.4	20.0	447250	26.5	21.2	250194	26.6	21.4	433843	26.6	20.6
34585	26.3	18.0	353386	26.3	21.1	20174	26.4	18.0	212096	26.5	19.4	457324	26.6	21.5	235506	26.6	19.5
340718	26.3	20.7	331817	26.3	21.4	63846	26.4	18.1	400325	26.5	21.5	359076	26.6	20.3	430390	26.6	20.1
176856	26.3	20.4	462790	26.3	20.3	204616	26.4	20.2	445052	26.5	21.3	30441	26.6	19.0	262596	26.6	20.0
114333	26.3	19.5	403624	26.3	20.8	156209	26.4	20.4	43061	26.5	19.6	87807	26.6	18.9	259947	26.6	18.5
297494	26.3	19.2	167141	26.3	19.9	109679	26.4	19.5	22868	26.5	17.4	346181	26.6	21.1	161517	26.6	20.7
139825	26.3	19.7	28172	26.4	16.3	316849	26.4	20.4	423715	26.5	20.3	423418	26.6	21.6	224009	26.6	21.1
257459	26.3	19.1	76866	26.4	17.5	67626	26.4	18.0	135478	26.5	19.9	95452	26.6	18.8	54161	26.6	18.4
83896	26.3	19.9	323982	26.4	20.5	494952	26.4	21.9	169292	26.5	20.3	75909	26.6	17.9	429316	26.6	20.5
390963	26.3	21.2	54721	26.4	19.1	508128	26.4	21.1	109339	26.5	19.7	320774	26.6	21.1	288658	26.6	21.6
463540	26.3	21.1	460997	26.4	20.0	439675	26.4	21.7	88585	26.5	19.6	149494	26.6	19.5	334944	26.6	18.6
250487	26.3	18.5	205443	26.4	20.3	50728	26.4	18.2	431182	26.5	20.6	44705	26.6	17.1	328269	26.6	20.7
87516	26.3	19.5	304125	26.4	20.1	503700	26.4	20.9	331813	26.5	20.5	397838	26.6	21.1	145294	26.6	20.1
397843	26.3	20.6	455914	26.4	20.7	411412	26.4	21.0	41880	26.5	18.2	521034	26.6	21.2	263008	26.6	20.1
331152	26.3	19.6	28808	26.4	18.4	417118	26.4	19.5	147377	26.5	19.0	288670	26.6	20.8	126814	26.6	18.3
179101	26.3	20.2	488858	26.4	19.7	207561	26.4	20.1	378852	26.5	21.0	165452	26.6	18.1	238902	26.6	19.6
74577	26.3	18.6	219338	26.4	20.3	271825	26.4	20.7	169242	26.5	19.5	182641	26.6	20.1	148482	26.6	19.6
43607	26.3	17.8	440907	26.4	21.0	167675	26.4	18.6	465397	26.5	21.3	431462	26.6	21.2	61934	26.6	19.7
400779	26.3	21.3	21565	26.4	18.3	154646	26.4	19.3	465945	26.5	20.5	500312	26.6	21.1	364420	26.6	21.6
409779	26.3	21.6	165384	26.4	19.6	459782	26.4	21.7	286490	26.5	20.6	343622	26.6	20.8	188882	26.6	19.5
51974	26.3	18.1	135253	26.4	19.2	167681	26.4	19.5	82323	26.5	19.7	191590	26.6	19.8	176854	26.6	19.2
130780	26.3	18.9	129014	26.4	19.8	432540	26.4	21.7	344534	26.5	20.9	250174	26.6	21.0	188778	26.6	20.2
12470	26.3	17.6	419252	26.4	19.9	344870	26.4	19.6	35006	26.5	18.6	333238	26.6	20.8	56059	26.6	17.6
14423	26.3	17.1	322512	26.4	20.1	142631	26.4	18.3	384987	26.5	20.6	57173	26.6	18.0	1356	26.6	14.7
310117	26.3	20.3	256155	26.4	20.4	56893	26.4	19.3	12496	26.5	18.5	110150	26.6	19.0	323505	26.6	20.3
126628	26.3	19.1	374008	26.4	19.1	98312	26.4	17.6	234883	26.5	19.5	250143	26.6	20.9	119605	26.6	19.4
358506	26.3	21.0	429046	26.4	20.4	341406	26.4	20.3	122266	26.5	20.3	467054	26.6	19.8	272878	26.6	20.7
115616	26.3	19.8	194153	26.4	20.9	204573	26.4	19.8	416967	26.5	21.3	489455	26.6	20.1	467301	26.7	20.7
327389	26.3	20.2	232829	26.4	20.0	282836	26.4	20.1	401972	26.5	19.1	32198	26.6	18.9	243576	26.7	20.7
304027	26.3	20.2	303526	26.4	19.3	57510	26.4	18.9	432123	26.5	20.7	333229	26.6	20.7	286198	26.7	20.4
445295	26.3	20.1	197557	26.4	20.4	90330	26.4	19.3	238074	26.5	19.8	170238	26.6	20.8	420745	26.7	20.3
50665	26.3	17.6	502674	26.4	21.4	464657	26.4	22.3	150839	26.5	19.5	377611	26.6	20.3	458284	26.7	20.9
417288	26.3	18.9	14082	26.4	18.7	462310	26.4	21.1	52732	26.5	18.6	464345	26.6	20.2	172681	26.7	18.3
350611	26.3	20.9	404227	26.4	20.8	330471	26.4	20.2	144616	26.5	19.9	134434	26.6	18.6	188224	26.7	19.9
241668	26.3	19.8	238410	26.4	19.1	431624	26.4	20.8	282837	26.5	20.5	356302	26.6	20.8	318081	26.7	20.6
218681	26.3	20.5	157619	26.4	19.8	280250	26.4	20.0	14999	26.5	16.5	155324	26.6	19.8	129930	26.7	20.4
249066	26.3	20.0	431639	26.4	20.6	184162	26.4	18.3	92764	26.5	18.5	331100	26.6	20.8	312970	26.7	20.3
109666	26.3	18.7	502645	26.4	20.2	222346	26.4	19.4	448120	26.5	20.5	131732	26.6	19.1	192738	26.7	20.1
310040	26.3	21.6	238104	26.4	20.7	399945	26.4	20.6	115848	26.5	19.0	170316	26.6	20.9	31175	26.7	16.3
187573	26.3	19.1	523788	26.4	24.0	45310	26.5	18.3	237800	26.5	18.9	81187	26.6	19.5	286052	26.7	20.9
345989	26.3	20.7	464093	26.4	20.1	197504	26.5	19.0	370609	26.5	20.0	62775	26.6	19.3	327411	26.7	20.5
172548	26.3	19.7	372019	26.4	21.7	111140	26.5	18.3	371897	26.5	21.3	336033	26.6	20.5	241709	26.7	20.6
467588	26.3	20.9	186545	26.4	19.8	465938	26.5	20.5	334148	26.5	20.3	393661	26.6	21.8	427033	26.7	17.9
283959	26.3	20.5	243926	26.4	19.1	74931	26.5	20.0	48838	26.5	17.3	445267	26.6	23.6	4232	26.7	15.8
61418	26.3	19.5	421279	26.4	20.8	165788	26.5	19.6	170197	26.5	20.7	221366	26.6	18.6	160309	26.7	19.2
462039	26.3	20.0	367535	26.4	21.2	340733	26.5	20.2	416957	26.5	21.1	350231	26.6	20.1	87791	26.7	18.6
249383	26.3	20.0	110082	26.4	21.0	39968	26.5	18.7	223478	26.5	19.6	431297	26.6	21.8	126689	26.7	19.6
143376	26.3	19.3	89528	26.4	19.4	310946	26.5	20.9	81710	26.5	19.6	290923	26.6	21.2	310427	26.7	20.1
14833	26.3	17.7	206761	26.4	19.6	18608	26.5	17.0	357016	26.5	21.0	371229	26.6	20.1	25070	26.7	18.4
365683	26.3	20.9	161679	26.4	19.7	326201	26.5	20.4	265675	26.5	20.5	433105	26.6	21.2	350756	26.7	19.5
285608	26.3	19.1	218649	26.4	20.0	58944	26.5	18.6	210352	26.5	19.3	366901	26.6	21.6	347104	26.7	20.4
372680	26.3	21.1	315686	26.4	18.3	423878	26.5	20.7	322616	26.5	20.7	362184	26.6	21.0	301687	26.7	21.8
519935	26.3	21.6	319911	26.4	19.7	61632	26.5	18.6	187838	26.5	20.3	492609	26.6	20.1	341227	26.7	20.0
283059	26.3	20.4	51810	26.4	18.5	483746	26.5	20.0	160088	26.5	20.1	215526	26.6	19.2	202596	26.7	19.7
384144	26.3	19.6	154791	26.4	20.5	335774	26.5	20.5	156015	26.5	19.3	121877	26.6	18.8	467118	26.7	19.6
2359	26.3	16.5	190399	26.4	20.3	3132	26.5	16.2	429925	26.5	20.7	212793	26.6	18.3	460669	26.7	20.6
207556	26.3	19.7	282599	26.4	20.5	459291	26.5	21.0	211533	26.5	20.3	295415	26.6	19.8	10727	26.7	16.7
420757	26.3	22.1	151107	26.4	19.4	97995	26.5</										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
350263	26.7	19.8	1959	26.8	16.3	59874	26.8	19.8	86916	26.9	19.6	467567	26.9	20.3	391773	27.1	21.4
309465	26.7	18.7	83878	26.8	19.9	11113	26.8	17.2	66314	26.9	19.6	248086	26.9	21.3	490211	27.1	20.5
355945	26.7	19.8	450523	26.8	21.0	203381	26.8	19.2	39729	26.9	18.3	430811	26.9	20.5	492484	27.1	20.9
204247	26.7	20.0	216448	26.8	20.1	5223	26.8	18.1	54694	26.9	18.5	410281	26.9	22.1	494916	27.1	20.3
164167	26.7	19.3	266360	26.8	20.0	145095	26.8	20.0	490412	26.9	22.2	190215	27.0	19.4	35534	27.1	17.2
315588	26.7	19.5	456529	26.8	20.2	359791	26.8	19.5	306602	26.9	19.2	500386	27.0	22.2	272483	27.1	20.1
491181	26.7	21.4	403740	26.8	20.4	225371	26.8	21.6	249401	26.9	20.8	424084	27.0	20.0	105210	27.1	19.5
190184	26.7	18.7	400840	26.8	20.7	34948	26.8	17.9	152663	26.9	18.7	364246	27.0	20.6	346161	27.1	20.1
257307	26.7	20.9	498185	26.8	20.4	389170	26.8	19.5	278441	26.9	20.4	156105	27.0	19.2	69044	27.1	19.0
456270	26.7	20.8	51636	26.8	19.2	347920	26.8	19.8	29574	26.9	18.4	276403	27.0	19.3	128192	27.1	19.4
328843	26.7	20.4	500483	26.8	21.2	459937	26.8	19.9	254490	26.9	19.8	294519	27.0	20.4	41933	27.1	17.8
4280	26.7	16.2	405028	26.8	20.9	114069	26.8	19.4	522067	26.9	20.8	28443	27.0	18.4	422082	27.1	20.1
292278	26.7	20.9	12791	26.8	17.8	128379	26.8	19.5	449188	26.9	19.8	250130	27.0	20.9	31374	27.1	17.6
209585	26.7	19.2	151917	26.8	19.2	205371	26.8	18.6	262570	26.9	20.7	431614	27.0	20.4	503511	27.1	20.7
354392	26.7	21.1	321160	26.8	20.5	34135	26.9	20.0	461187	26.9	20.9	167092	27.0	19.0	395317	27.1	22.0
109852	26.7	19.3	294279	26.8	20.3	14830	26.9	17.8	178098	26.9	19.7	322220	27.0	20.3	243958	27.1	21.2
258180	26.7	19.7	175391	26.8	20.6	493720	26.9	22.0	350600	26.9	21.2	500043	27.0	22.6	3677	27.1	17.2
46383	26.7	18.6	370822	26.8	20.5	277547	26.9	20.6	170101	26.9	19.5	124451	27.0	19.8	317170	27.1	20.9
167052	26.7	20.3	182769	26.8	20.2	359083	26.9	20.3	464895	26.9	20.7	282474	27.0	20.0	203138	27.1	19.8
499963	26.7	21.0	226723	26.8	19.9	366692	26.9	21.1	366372	26.9	21.2	158976	27.0	19.6	199021	27.1	19.9
176984	26.7	19.5	19952	26.8	17.0	347418	26.9	21.0	429324	26.9	20.4	109378	27.0	19.7	495544	27.1	21.6
285381	26.7	20.4	396596	26.8	19.9	455216	26.9	20.4	193070	26.9	20.0	34181	27.0	17.2	77676	27.1	19.4
262393	26.7	21.9	217757	26.8	20.7	246688	26.9	19.5	467998	26.9	21.4	45558	27.0	18.4	456611	27.1	21.8
348880	26.7	22.0	22670	26.8	17.8	53859	26.9	18.4	500280	26.9	20.9	221079	27.0	21.5	27783	27.1	17.4
165736	26.7	19.3	4894	26.8	16.8	227543	26.9	20.7	267504	26.9	21.0	124165	27.0	19.1	18431	27.1	16.7
398525	26.7	20.8	84891	26.8	17.9	448159	26.9	21.4	82866	26.9	19.2	283970	27.0	20.4	72474	27.1	18.6
207890	26.7	19.1	156570	26.8	18.6	34452	26.9	18.3	466871	26.9	21.0	439936	27.0	21.3	373859	27.1	21.3
265640	26.7	19.6	378905	26.8	20.5	156022	26.9	19.6	320035	26.9	20.1	20182	27.0	18.4	334924	27.1	19.5
682	26.7	16.8	294323	26.8	20.5	2105	26.9	14.4	422258	26.9	20.2	371686	27.0	19.4	309429	27.1	19.7
434325	26.7	21.5	81997	26.8	19.7	207076	26.9	19.8	204257	26.9	19.7	213635	27.0	20.7	249682	27.1	19.3
285012	26.7	20.6	199794	26.8	19.2	279519	26.9	20.9	159672	26.9	19.4	465932	27.0	19.5	399702	27.1	22.4
470358	26.7	20.6	467270	26.8	20.3	403689	26.9	20.7	191938	26.9	20.3	284775	27.0	21.0	496060	27.1	21.5
325035	26.7	20.2	309823	26.8	20.5	5886	26.9	16.0	503001	26.9	21.0	110099	27.0	20.0	113166	27.1	19.8
489944	26.7	19.6	361221	26.8	20.9	461169	26.9	20.5	153509	26.9	18.7	89200	27.0	19.2	286845	27.1	20.3
142771	26.7	19.3	472604	26.8	20.7	459862	26.9	20.9	284839	26.9	20.1	174110	27.0	20.2	133488	27.1	19.4
149496	26.7	19.6	432480	26.8	21.4	258393	26.9	19.2	123160	26.9	19.2	325671	27.0	20.9	223667	27.1	20.4
522528	26.7	20.6	17688	26.8	16.6	519571	26.9	21.2	488668	26.9	21.7	243797	27.0	20.9	16945	27.1	16.7
325451	26.7	20.0	495442	26.8	21.0	428974	26.9	20.7	20989	26.9	18.5	369532	27.0	19.8	452501	27.1	21.9
82839	26.7	18.7	327577	26.8	20.5	241949	26.9	19.4	54687	26.9	17.1	378311	27.0	21.0	381631	27.1	20.0
517175	26.7	20.6	232750	26.8	20.3	8818	26.9	17.9	51798	26.9	19.9	136331	27.0	19.0	411344	27.1	21.6
247502	26.7	19.9	450476	26.8	21.2	247333	26.9	20.6	303511	26.9	19.7	499739	27.0	19.9	401834	27.1	20.6
458252	26.7	21.1	453577	26.8	20.9	307575	26.9	20.9	463892	26.9	21.2	39551	27.0	17.7	332162	27.1	20.8
340620	26.7	20.7	503079	26.8	20.2	403882	26.9	20.2	421994	26.9	19.8	151819	27.0	19.3	166756	27.1	18.6
411953	26.7	19.4	108583	26.8	19.4	43275	26.9	17.8	181010	26.9	19.8	456391	27.0	21.1	201299	27.1	20.2
4451	26.7	17.5	265887	26.8	19.4	286247	26.9	20.1	296010	26.9	20.6	18036	27.0	18.9	62108	27.1	18.5
31929	26.7	19.1	137964	26.8	18.2	346164	26.9	21.1	456707	26.9	21.5	26938	27.0	18.8	266670	27.1	20.5
314998	26.7	18.8	426288	26.8	21.6	122235	26.9	20.0	122434	26.9	19.7	66271	27.0	19.0	31910	27.1	18.5
164145	26.7	19.2	253024	26.8	19.5	468115	26.9	19.7	263542	26.9	19.2	398396	27.0	20.8	26240	27.1	18.1
465151	26.7	20.5	203708	26.8	20.4	138847	26.9	18.6	104198	26.9	18.6	194170	27.0	18.1	441755	27.1	20.1
200196	26.7	20.4	503122	26.8	19.9	408878	26.9	20.6	416422	26.9	20.3	496718	27.0	21.5	469017	27.1	20.5
108564	26.7	17.5	404653	26.8	21.9	265751	26.9	19.6	429026	26.9	19.9	104828	27.0	20.1	401965	27.1	20.8
124388	26.7	19.6	272466	26.8	19.7	430823	26.9	20.7	157974	26.9	19.1	502053	27.0	20.9	307219	27.1	20.0
374617	26.7	21.1	32139	26.8	18.5	510650	26.9	21.0	175769	26.9	19.0	399599	27.0	20.7	87000	27.1	20.0
304818	26.7	20.9	266697	26.8	20.1	115768	26.9	18.5	335530	26.9	20.3	502305	27.0	21.5	190534	27.1	19.0
34917	26.7	18.6	239893	26.8	20.6	34613	26.9	18.3	109866	26.9	18.7	150492	27.0	20.7	17016	27.1	17.8
445888	26.7	20.8	373867	26.8	20.9	63415	26.9	19.6	317026	26.9	21.4	353763	27.0	19.9	408235	27.1	20.9
269119	26.7	20.0	492494	26.8	21.4	99048	26.9	19.3	447143	26.9	20.7	514109	27.0	20.1	223254	27.1	21.0
468988	26.7	20.6	502443	26.8	21.4	156612	26.9	19.8	87452	26.9	18.7	167015	27.0	21.3	393659	27.1	21.5
315518	26.7	20.5	301531	26.8	21.0	50892	26.9	19.2	79736	26.9	17.7	240112	27.0	19.4	42298	27.1	17.1
57606	26.7	18.7	317011	26.8	20.6	402934	26.9	20.9	494786	26.9	21.2	130890	27.0	19.3	131858	27.1	19.3
142020	26.7	20.5	238275	26.8	19.9	217303	26.9	20.3	439853	26.9	20.7	413643	27.0	21.0	334203	27.1	21.3
42687	26.7	18.4	374091	26.8	21.9	363900	26.9	21.0	88629	26.9	19.5	423024	27.0	20.1	170951	27.1	18.5
302870	26.7	20.7	369848	26.8	20.5	86993	26.9	19.7	366299	26.9	19.7	236669	27.0	20.6	100686	27.1	18.9
282184	26.7	20.3	110063	26.8	17.6	282988	26.9	20.3	354930	26.9	20.8	155391	27.0	19.9	330529	27.1	21.4
207674	26.8	20.0	90312	26.8	19.1	109183	26.9	19.7	304930	26.9	20.5	116925	27.0	19.9	127402	27.1	20.1
443873	26.8	20.6	26920	26.8	18.2	117520	26.9	19.3	468817	26.9	20.8	145329	27.1	18.6	15690	27.1	17.0
42421	26.8	19.0	65955	26.8	18.7	288553	26.9	20.2	116693	26.9	19.6	88939	27.1	18.2	163749	27.1	20.1
405960	26.8	21.3	394373	26.8	21.1	36114	26.9	18.1	220340	26.9	20.3	109626	27.1	19.3	331889	27.1	19.9
401970	26.8	21.3	242782	26.8	19.9	374506	26.9	20.4									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
456449	27.1	20.7	115771	27.2	18.6	427869	27.3	21.9	466881	27.4	21.2	121910	27.4	19.7	281719	27.5	20.8
464109	27.1	20.1	205026	27.2	19.9	343039	27.3	20.2	246966	27.4	21.4	60821	27.4	18.3	127689	27.5	18.9
247583	27.1	20.1	175185	27.2	19.1	19457	27.3	18.0	302469	27.4	20.6	130885	27.4	18.8	90687	27.5	19.9
474107	27.1	21.2	308755	27.2	20.8	453321	27.3	21.8	86772	27.4	19.3	257207	27.4	19.3	122227	27.5	20.1
58674	27.1	19.0	209080	27.2	21.0	335665	27.3	20.6	373276	27.4	20.6	289155	27.4	20.8	73119	27.5	18.9
240602	27.1	20.3	209980	27.2	20.6	245962	27.3	18.9	132097	27.4	20.2	226282	27.4	19.0	488732	27.5	21.7
113901	27.1	19.5	82581	27.2	18.3	178882	27.3	20.5	2720	27.4	17.5	116894	27.4	20.4	17819	27.5	18.3
10628	27.1	17.8	194624	27.2	20.2	312937	27.3	20.8	245907	27.4	20.1	46073	27.4	18.3	138244	27.5	19.4
224961	27.1	20.2	95484	27.2	19.2	13967	27.3	18.3	298782	27.4	20.4	9601	27.4	17.1	42767	27.5	18.8
342891	27.1	20.5	152452	27.2	19.6	452795	27.3	20.2	32032	27.4	18.6	417760	27.4	20.2	14078	27.5	18.5
334056	27.1	20.8	119994	27.2	18.5	172044	27.3	19.5	429280	27.4	20.7	417307	27.4	20.1	314736	27.5	19.7
409453	27.1	20.2	131964	27.2	19.0	158237	27.3	20.2	53621	27.4	17.8	469230	27.4	20.9	189446	27.5	19.3
82703	27.1	18.8	172814	27.2	20.4	366900	27.3	20.9	51127	27.4	18.4	462779	27.4	21.2	492780	27.5	21.2
408912	27.1	20.6	413116	27.2	19.8	492497	27.3	22.1	229140	27.4	21.1	269099	27.4	20.4	108092	27.5	18.5
295379	27.1	19.1	174958	27.2	19.8	468202	27.3	20.4	451716	27.4	20.4	76395	27.4	18.4	166091	27.5	20.0
175300	27.1	20.1	194266	27.2	18.4	201933	27.3	19.4	3157	27.4	16.4	261880	27.4	20.4	70601	27.5	18.2
310149	27.1	20.8	323150	27.2	20.7	234377	27.3	20.4	92600	27.4	19.2	167673	27.4	18.8	488832	27.5	21.4
231282	27.1	20.0	432896	27.2	20.3	186234	27.3	20.1	30298	27.4	18.6	426016	27.4	21.1	241658	27.5	21.1
354536	27.2	20.7	463299	27.2	19.5	104272	27.3	19.1	13147	27.4	17.2	288930	27.4	19.3	111115	27.5	18.8
454518	27.2	21.1	461941	27.2	21.7	473871	27.3	20.2	495456	27.4	20.6	241968	27.4	20.0	194017	27.5	20.7
453353	27.2	20.0	149499	27.2	19.3	57901	27.3	16.6	57589	27.4	18.5	222261	27.4	21.0	219162	27.5	19.7
210400	27.2	19.9	178934	27.2	20.6	494789	27.3	21.2	130691	27.4	18.5	151798	27.4	19.3	26837	27.5	18.8
11674	27.2	16.7	226968	27.2	19.9	412922	27.3	21.9	201067	27.4	19.0	279949	27.4	21.3	373361	27.5	20.8
217787	27.2	20.1	381297	27.2	20.7	285948	27.3	20.2	13806	27.4	18.6	365200	27.4	21.1	256039	27.5	20.0
327352	27.2	20.6	336718	27.2	20.1	187238	27.3	19.8	119657	27.4	18.9	412140	27.4	20.9	27032	27.5	18.1
3571	27.2	17.0	391838	27.2	21.4	57542	27.3	18.9	1981	27.4	19.5	226784	27.4	20.1	459876	27.5	20.5
214496	27.2	20.3	422141	27.2	20.0	29578	27.3	18.1	72917	27.4	18.4	234061	27.4	22.7	306104	27.5	21.5
94806	27.2	19.8	463928	27.2	20.9	146117	27.3	19.4	369082	27.4	20.9	222796	27.4	20.2	180649	27.5	19.2
268995	27.2	21.0	184722	27.2	20.7	221155	27.3	20.9	4074	27.4	16.8	429932	27.4	20.7	55491	27.5	19.3
364054	27.2	21.2	282835	27.2	21.2	380364	27.3	20.2	351223	27.4	21.2	370828	27.5	21.4	315484	27.5	20.9
242387	27.2	20.8	80252	27.2	19.2	414437	27.3	21.2	235594	27.4	20.8	467037	27.5	20.7	107593	27.5	19.3
4078	27.2	16.0	334906	27.2	20.7	160748	27.3	20.2	316614	27.4	20.0	288712	27.5	19.9	135429	27.5	20.4
319022	27.2	20.4	157871	27.2	18.9	327011	27.3	20.6	325951	27.4	20.6	186914	27.5	20.1	471161	27.5	20.0
198958	27.2	20.5	368802	27.2	20.5	456700	27.3	20.8	330682	27.4	20.4	123725	27.5	19.0	460380	27.5	20.7
245720	27.2	19.4	34441	27.2	19.4	426327	27.3	21.0	243617	27.4	19.7	470924	27.5	20.7	152213	27.5	20.8
310414	27.2	20.6	419078	27.2	20.6	438694	27.3	22.0	340651	27.4	20.9	373146	27.5	19.8	341646	27.5	20.2
144495	27.2	18.5	22562	27.2	18.3	82192	27.3	19.6	195262	27.4	18.8	417027	27.5	20.5	452793	27.5	21.3
463709	27.2	20.4	65526	27.2	18.7	148141	27.3	19.0	240513	27.4	20.6	455305	27.5	20.3	331388	27.5	19.7
473440	27.2	20.6	101766	27.2	18.6	245049	27.3	20.6	83673	27.4	18.8	98191	27.5	19.1	29203	27.5	17.8
432076	27.2	20.5	419430	27.2	19.9	493523	27.3	20.6	133118	27.4	20.4	174978	27.5	20.3	419051	27.5	20.2
76293	27.2	18.0	31084	27.2	18.0	29265	27.3	18.6	25324	27.4	17.2	315959	27.5	20.5	462703	27.5	21.3
231348	27.2	20.3	366844	27.2	21.5	135498	27.3	19.4	18900	27.4	18.0	462304	27.5	21.2	63867	27.5	18.8
193404	27.2	19.9	108955	27.2	19.7	105572	27.3	19.1	18848	27.4	17.5	155616	27.5	19.2	462665	27.5	21.4
113999	27.2	18.8	237817	27.2	19.3	426901	27.3	20.3	168974	27.4	18.7	136483	27.5	19.9	417109	27.5	20.8
247238	27.2	18.3	359392	27.2	21.1	411194	27.3	21.2	367551	27.4	20.7	226350	27.5	20.5	167614	27.5	19.2
143393	27.2	18.5	459754	27.2	21.4	10133	27.3	17.1	245487	27.4	20.8	363803	27.5	20.7	138853	27.5	19.9
150309	27.2	20.7	3207	27.2	16.7	362360	27.3	21.4	183438	27.4	18.9	347093	27.5	20.9	172013	27.5	20.1
503065	27.2	20.9	89287	27.2	19.3	493450	27.3	20.9	503473	27.4	21.0	224935	27.5	19.4	366859	27.5	21.6
218248	27.2	19.5	420388	27.2	20.3	237299	27.3	19.8	124841	27.4	19.1	347401	27.5	20.2	502462	27.5	20.4
327310	27.2	20.6	134444	27.2	20.0	248834	27.3	19.9	394827	27.4	21.0	99937	27.5	19.1	288990	27.5	21.4
50240	27.2	17.3	122482	27.2	20.2	57126	27.3	19.2	9802	27.4	18.6	325307	27.5	20.3	340727	27.5	20.3
365821	27.2	20.5	165781	27.2	19.6	95988	27.3	18.9	282812	27.4	22.0	208701	27.5	18.9	203602	27.5	19.2
4010	27.2	17.3	448178	27.3	21.1	412149	27.3	20.9	84289	27.4	18.9	223750	27.5	19.9	315540	27.5	20.1
344840	27.2	20.3	643	27.3	14.4	213613	27.3	19.5	398465	27.4	21.9	82603	27.5	17.9	139437	27.5	18.5
212072	27.2	19.9	225017	27.3	19.9	54612	27.3	18.2	433894	27.4	20.5	27743	27.5	17.2	138549	27.5	20.6
76758	27.2	18.7	236895	27.3	20.7	208220	27.3	20.2	169282	27.4	19.4	368615	27.5	21.6	7588	27.5	16.0
415267	27.2	20.1	229962	27.3	21.2	444995	27.3	21.5	408213	27.4	20.0	235447	27.5	19.5	256030	27.5	19.8
492893	27.2	21.3	426580	27.3	20.5	274930	27.3	20.6	413692	27.4	20.0	175475	27.5	20.4	163747	27.5	20.1
293653	27.2	21.1	432188	27.3	20.7	143230	27.3	18.9	87101	27.4	18.5	422851	27.5	20.3	135234	27.5	19.7
118263	27.2	18.1	186165	27.3	20.1	95714	27.3	19.6	166210	27.4	20.2	92460	27.5	19.0	398380	27.5	20.7
330990	27.2	20.6	123982	27.3	19.2	188483	27.3	20.2	209652	27.4	19.7	242619	27.5	20.2	86008	27.5	19.9
228019	27.2	21.1	330384	27.3	18.7	495509	27.3	20.5	200374	27.4	19.5	48372	27.5	18.4	274018	27.5	20.1
13211	27.2	18.5	135945	27.3	19.6	145584	27.3	20.1	411239	27.4	21.6	414281	27.5	19.5	112780	27.5	20.5
338057	27.2	20.6	296056	27.3	19.6	125277	27.3	19.3	461910	27.4	21.9	62523	27.5	19.4	363083	27.5	21.8
79721	27.2	19.9	16094	27.3	19.0	189832	27.3	18.6	396802	27.4	22.1	154821	27.5	20.8	234195	27.5	20.4
367616	27.2	20.9	170344	27.3	20.4	426069	27.3	20.4	404690	27.4	19.6	169178	27.5	19.0	34855	27.5	18.8
425173	27.2	20.9	428472	27.3	21.0	203619	27.3	19.2	211610	27.4	19.5	453808	27.5	20.4	437790	27.5	20.3
55619	27.2	18.9	89083	27.3	19.8	135500	27.3	19.1	284511	27.4	19.9	246315	27.5	20.7	422693	27.5	20.8
187363	27.2	21.4	421128	27.3	21.1	267753	27.3	20.6	6161								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
409488	27.6	20.0	191331	27.6	20.0	483430	27.7	21.1	463562	27.8	21.5	166219	27.9	19.6	234498	27.9	21.0
496483	27.6	20.9	320398	27.6	20.1	426278	27.7	21.1	412467	27.8	21.1	63761	27.9	18.2	17358	27.9	17.7
315544	27.6	19.6	356639	27.6	20.9	466359	27.7	21.3	466267	27.8	21.3	336972	27.9	21.4	502982	27.9	20.7
357218	27.6	20.9	372785	27.6	20.0	192018	27.7	20.1	21261	27.8	16.8	256943	27.9	19.9	130803	27.9	19.8
496277	27.6	20.9	326445	27.6	18.7	221359	27.7	19.9	145555	27.8	19.3	436956	27.9	20.8	341786	27.9	19.7
450990	27.6	21.1	242207	27.6	21.0	32564	27.7	18.1	101756	27.8	18.6	305681	27.9	19.8	174240	27.9	18.9
363151	27.6	21.9	200132	27.6	19.9	329338	27.7	22.1	479310	27.8	20.2	468223	27.9	21.4	280213	27.9	20.1
184094	27.6	20.6	395371	27.6	21.5	495207	27.7	20.2	336885	27.8	21.2	114607	27.9	19.2	518136	27.9	19.4
237706	27.6	20.2	426006	27.6	20.5	402067	27.7	21.4	3848	27.8	17.1	316745	27.9	20.2	247913	27.9	19.8
411456	27.6	19.3	375407	27.6	20.7	237422	27.7	18.9	443802	27.8	20.0	167546	27.9	19.4	520728	27.9	20.2
321687	27.6	21.0	169168	27.6	19.1	454885	27.7	20.5	426274	27.8	20.7	465194	27.9	21.5	450317	27.9	21.3
463936	27.6	20.5	461761	27.6	20.3	205501	27.7	19.7	289017	27.8	19.8	209047	27.9	20.6	159999	27.9	20.5
243176	27.6	19.1	272475	27.6	20.5	473962	27.7	20.5	428100	27.8	20.7	412962	27.9	20.8	325480	27.9	20.3
122836	27.6	20.7	66890	27.6	17.8	169259	27.7	20.1	104916	27.8	19.7	163411	27.9	19.2	328675	27.9	20.8
234788	27.6	20.2	261269	27.6	20.2	130685	27.7	19.3	258902	27.8	20.7	86954	27.9	19.6	493936	27.9	21.1
207373	27.6	20.2	51920	27.6	17.1	378987	27.7	21.1	194559	27.8	19.6	506194	27.9	22.2	30842	27.9	19.3
432048	27.6	19.9	171197	27.6	20.1	276303	27.7	19.5	179127	27.8	19.4	246780	27.9	19.9	406834	27.9	20.3
97788	27.6	19.2	482824	27.6	20.1	448217	27.7	20.5	208182	27.8	20.5	408301	27.9	20.1	166916	27.9	19.0
453570	27.6	20.2	142509	27.6	20.0	288742	27.7	20.8	431217	27.8	21.4	241375	27.9	19.7	134760	27.9	18.2
193965	27.6	20.8	448150	27.6	20.1	64656	27.7	18.9	336027	27.8	20.8	345060	27.9	21.0	279937	27.9	20.8
372763	27.6	20.4	350705	27.6	20.9	103580	27.7	18.6	185393	27.8	20.2	247691	27.9	19.1	105851	27.9	19.8
341366	27.6	20.4	491232	27.6	20.9	463696	27.7	20.4	199105	27.8	19.7	264046	27.9	20.6	499065	27.9	20.6
462091	27.6	21.4	350266	27.6	20.1	119976	27.7	24.1	251492	27.8	19.4	88766	27.9	18.6	341545	27.9	20.2
473541	27.6	20.0	414232	27.6	20.6	163751	27.7	20.2	56106	27.8	16.8	93983	27.9	18.9	98305	27.9	19.7
125599	27.6	18.7	134473	27.7	18.9	431472	27.7	21.3	203830	27.8	20.6	334682	27.9	19.1	189177	27.9	19.7
14666	27.6	16.8	461757	27.7	21.3	472596	27.7	20.4	1327	27.8	16.6	154124	27.9	19.4	272629	27.9	20.6
389329	27.6	20.2	185502	27.7	19.1	195259	27.7	19.3	425041	27.8	21.5	210310	27.9	20.5	136665	27.9	20.0
468668	27.6	20.9	360227	27.7	20.7	136068	27.7	18.7	44648	27.8	19.8	447687	27.9	20.2	46413	27.9	18.9
492761	27.6	21.3	341452	27.7	20.8	260689	27.7	20.9	465277	27.8	21.8	378445	27.9	19.8	258767	27.9	21.0
417116	27.6	21.2	172995	27.7	20.4	75527	27.7	18.3	178447	27.8	19.9	54387	27.9	18.4	61698	27.9	19.7
88746	27.6	19.2	182632	27.7	20.6	162813	27.7	19.0	334948	27.8	19.5	412124	27.9	20.5	45474	27.9	18.1
194733	27.6	19.7	190423	27.7	19.9	63500	27.7	20.4	58254	27.8	19.5	14826	27.9	18.9	98450	27.9	18.5
283026	27.6	20.1	221753	27.7	19.6	295426	27.7	20.3	333075	27.8	19.4	88632	27.9	20.1	142209	27.9	20.0
221900	27.6	20.5	456627	27.7	21.0	465973	27.7	20.5	15771	27.8	18.4	27486	27.9	17.9	129612	27.9	20.1
29550	27.6	17.0	288568	27.7	20.2	227066	27.7	20.8	309338	27.8	21.7	229477	27.9	19.0	433003	27.9	20.6
456807	27.6	20.4	157962	27.7	20.0	261401	27.7	19.6	50897	27.8	18.3	426060	27.9	20.5	53705	27.9	18.8
85702	27.6	19.0	107033	27.7	19.0	180022	27.7	20.3	469208	27.8	21.7	47451	27.9	18.3	4233	27.9	17.7
295325	27.6	19.7	95481	27.7	18.6	376992	27.7	19.9	94667	27.8	18.4	54932	27.9	19.5	37708	27.9	18.8
26013	27.6	18.9	48855	27.7	17.0	226003	27.7	20.3	242820	27.8	20.7	143394	27.9	19.5	241360	27.9	21.6
379067	27.6	20.2	40261	27.7	17.3	30692	27.7	19.0	205441	27.8	20.2	166172	27.9	19.4	195754	27.9	20.0
348449	27.6	20.6	138144	27.7	18.4	199332	27.7	19.9	382227	27.8	20.5	155804	27.9	19.2	19589	27.9	17.7
125093	27.6	18.5	89041	27.7	18.9	484964	27.7	20.9	15201	27.8	17.5	343208	27.9	19.9	323154	27.9	19.9
15707	27.6	17.9	323491	27.7	20.5	53412	27.7	18.3	136078	27.8	19.0	406182	27.9	20.1	413953	27.9	19.9
153413	27.6	18.4	495928	27.7	20.5	196515	27.7	20.1	450051	27.8	21.5	19466	27.9	19.0	245931	27.9	20.0
218880	27.6	20.0	207377	27.7	20.5	155956	27.8	19.6	202161	27.8	18.9	34454	27.9	18.9	372889	27.9	20.3
93772	27.6	18.4	79459	27.7	18.1	208453	27.8	19.5	263778	27.8	20.2	277128	27.9	20.3	146618	27.9	20.1
492563	27.6	21.6	24885	27.7	16.6	108679	27.8	18.5	270889	27.8	20.6	81953	27.9	18.6	201015	27.9	19.2
289394	27.6	19.8	416256	27.7	19.6	184093	27.8	19.9	57709	27.8	18.5	412911	27.9	20.1	136991	27.9	20.4
376504	27.6	20.4	376201	27.7	20.9	152380	27.8	19.7	134368	27.8	19.3	169208	27.9	19.9	323916	27.9	20.8
219372	27.6	20.3	503755	27.7	21.2	88458	27.8	17.1	318559	27.8	20.3	286365	27.9	19.2	77910	27.9	18.7
483777	27.6	21.4	210347	27.7	19.7	52124	27.8	18.3	156719	27.8	19.2	107	27.9	11.9	337530	27.9	20.1
205255	27.6	19.2	288997	27.7	20.2	89398	27.8	19.6	32326	27.8	17.4	306782	27.9	19.2	240538	27.9	20.7
294192	27.6	20.0	258654	27.7	20.0	520875	27.8	21.0	413368	27.8	20.5	216865	27.9	20.0	298688	27.9	20.6
127639	27.6	18.7	340662	27.7	21.5	118683	27.8	19.6	142615	27.8	18.7	243164	27.9	20.2	451906	27.9	20.6
241077	27.6	19.7	340619	27.7	20.0	222332	27.8	19.7	239592	27.8	20.0	520998	27.9	20.6	8085	27.9	16.6
58296	27.6	19.6	344527	27.7	19.2	424701	27.8	21.5	176763	27.8	20.4	169296	27.9	19.8	416882	27.9	21.2
172921	27.6	20.5	420187	27.7	22.1	442565	27.8	19.8	258209	27.8	20.2	522529	27.9	21.6	445057	27.9	20.9
160805	27.6	19.3	188734	27.7	20.5	78887	27.8	19.3	251080	27.8	19.4	315535	27.9	19.5	243787	27.9	20.2
205594	27.6	20.2	138856	27.7	19.4	104164	27.8	19.3	100687	27.8	18.5	55617	27.9	17.8	498345	27.9	20.2
318082	27.6	20.3	128101	27.7	19.9	309383	27.8	20.4	160436	27.8	19.9	270422	27.9	19.5	381283	27.9	19.7
465186	27.6	20.6	238351	27.7	18.5	503388	27.8	20.4	165733	27.8	19.1	170127	27.9	18.0	98318	27.9	17.9
296899	27.6	21.0	14263	27.7	17.2	287983	27.8	20.9	343533	27.8	20.7	110315	27.9	20.2	419772	27.9	20.5
453878	27.6	21.9	455571	27.7	21.9	279953	27.8	21.0	192454	27.8	19.6	399297	27.9	21.1	2075	27.9	14.2
419068	27.6	21.3	443437	27.7	22.0	216076	27.8	19.3	165514	27.8	18.5	430239	27.9	20.0	366277	27.9	19.8
286001	27.6	20.2	346464	27.7	20.4	6995	27.8	16.8	171663	27.8	20.5	496194	27.9	20.4	207807	27.9	20.1
520079	27.6	20.5	254238	27.7	19.9	191260	27.8	18.8	493225	27.8	20.9	241598	27.9	19.1	112806	27.9	19.6
56182	27.6	18.6	283241	27.7	20.3	349073	27.8	20.1	166055	27.8	19.6	265394	27.9	20.0	402969	27.9	21.4
258177	27.6	20.2	107954	27.7	19.4	151882	27.8	19.1	205552	27.8	20.3	224307	27.9	20.4	319010	27.9	20.5
165901	27.6	19.6	209134	27.7	20.1	362145	2										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
389886	27.9	20.9	232822	28.1	21.3	123605	28.1	18.3	309434	28.2	21.3	192835	28.3	20.0	158158	28.3	20.9
424861	27.9	20.2	375349	28.1	21.6	41464	28.1	18.9	8092	28.2	16.8	496123	28.3	20.7	275287	28.3	20.4
194059	28.0	20.8	432464	28.1	19.8	324477	28.1	19.4	209751	28.2	19.8	125647	28.3	19.2	31572	28.3	17.3
236000	28.0	19.2	502679	28.1	20.7	100433	28.1	20.3	110186	28.2	19.5	414854	28.3	20.4	28780	28.3	18.6
371680	28.0	19.7	68143	28.1	19.0	279143	28.1	20.7	207367	28.2	20.5	69468	28.3	19.3	159131	28.3	20.3
36912	28.0	18.7	420335	28.1	18.7	76731	28.1	18.5	371704	28.2	20.7	169565	28.3	20.1	242442	28.3	20.4
135894	28.0	19.7	462250	28.1	20.9	256946	28.1	19.7	204855	28.2	20.5	521089	28.3	20.6	340688	28.3	21.0
419253	28.0	20.3	14533	28.1	18.7	287785	28.1	21.0	275741	28.2	21.7	50017	28.3	17.8	232942	28.3	20.2
347864	28.0	21.0	261518	28.1	19.4	277538	28.1	20.5	85067	28.2	19.0	258629	28.3	18.2	457848	28.3	20.6
387684	28.0	21.3	454412	28.1	20.9	52552	28.1	18.5	53804	28.2	18.9	308735	28.3	20.2	496116	28.3	21.7
130543	28.0	18.7	334280	28.1	20.5	371953	28.1	21.0	466252	28.2	21.0	98479	28.3	18.7	191144	28.3	20.0
63616	28.0	18.1	465035	28.1	22.0	454280	28.1	20.7	305679	28.2	20.1	304793	28.3	20.5	459374	28.3	21.3
458422	28.0	20.4	362056	28.1	20.1	354561	28.1	21.2	35557	28.2	17.8	409377	28.3	19.3	426561	28.3	20.8
299397	28.0	20.3	273429	28.1	20.7	431438	28.1	20.2	108512	28.2	19.7	269428	28.3	21.4	206801	28.3	19.8
306428	28.0	20.4	263607	28.1	20.5	124212	28.1	20.1	70849	28.2	18.5	11580	28.3	16.9	16368	28.3	16.6
156063	28.0	20.1	24904	28.1	18.0	481458	28.1	19.9	233989	28.2	20.2	520884	28.3	21.0	229918	28.3	19.7
334211	28.0	20.2	420037	28.1	20.1	399328	28.1	20.7	94953	28.2	18.6	351000	28.3	20.6	519961	28.3	21.4
396623	28.0	20.1	12073	28.1	17.6	110819	28.1	19.8	252613	28.2	18.8	46537	28.3	19.8	139845	28.3	17.3
166308	28.0	19.8	340603	28.1	20.6	119393	28.1	18.4	211902	28.2	19.5	331765	28.3	20.5	255865	28.3	20.2
142829	28.0	20.6	41971	28.1	17.5	201607	28.1	20.4	331761	28.2	19.3	266553	28.3	19.7	382250	28.4	19.9
141327	28.0	19.0	186905	28.1	20.1	76258	28.1	19.5	31901	28.2	18.3	29722	28.3	17.4	252357	28.4	20.4
19441	28.0	18.6	20558	28.1	18.1	197147	28.1	20.0	136452	28.2	20.0	257272	28.3	20.0	446287	28.4	20.9
235458	28.0	20.3	459757	28.1	20.5	82460	28.1	18.9	462738	28.2	19.9	144299	28.3	19.6	420931	28.4	19.4
69934	28.0	19.0	235606	28.1	20.7	347927	28.1	20.1	56865	28.2	18.8	100315	28.3	19.0	205813	28.4	19.9
57067	28.0	19.4	243811	28.1	21.3	90282	28.1	19.7	428463	28.2	21.2	47712	28.3	18.5	452565	28.4	20.6
483721	28.0	20.8	304806	28.1	21.3	219467	28.1	19.3	95780	28.2	19.2	273414	28.3	19.4	56643	28.4	18.8
81633	28.0	18.9	1983	28.1	16.9	199239	28.1	21.0	286239	28.2	19.5	297796	28.3	19.1	183463	28.4	19.4
61137	28.0	18.9	414859	28.1	20.8	64077	28.1	17.9	203700	28.2	20.9	336548	28.3	20.8	284722	28.4	21.4
327013	28.0	20.2	500242	28.1	21.4	318307	28.1	20.2	134784	28.2	18.6	55144	28.3	19.3	235488	28.4	19.8
274730	28.0	20.9	464159	28.1	19.6	331260	28.1	20.3	81559	28.2	18.3	362975	28.3	20.2	321956	28.4	20.7
359627	28.0	20.0	170222	28.1	20.2	62874	28.2	18.6	18311	28.2	19.4	81730	28.3	19.2	290377	28.4	20.4
522645	28.0	22.4	466447	28.1	21.4	180748	28.2	19.9	323870	28.2	21.1	363469	28.3	21.1	466283	28.4	21.3
354567	28.0	20.1	204157	28.1	19.0	44518	28.2	18.2	162627	28.2	18.7	253251	28.3	19.3	433102	28.4	21.0
413076	28.0	20.9	500193	28.1	21.4	123351	28.2	18.6	440174	28.2	21.4	428962	28.3	20.2	209019	28.4	19.2
108969	28.0	19.0	14187	28.1	17.8	360331	28.2	20.7	173771	28.2	20.8	47666	28.3	18.3	92843	28.4	18.2
348146	28.0	20.2	258110	28.1	20.3	371173	28.2	20.3	5696	28.2	17.6	427195	28.3	21.2	493558	28.4	19.6
104589	28.0	19.1	65083	28.1	18.5	367160	28.2	20.6	136681	28.2	20.8	74794	28.3	18.0	247966	28.4	19.1
316850	28.0	20.3	149505	28.1	18.9	360588	28.2	20.6	348472	28.2	20.7	16646	28.3	16.5	88966	28.4	19.5
128335	28.0	19.0	390189	28.1	21.0	2457	28.2	16.1	15062	28.2	17.2	496601	28.3	20.2	226792	28.4	20.0
334771	28.0	20.4	237733	28.1	19.8	491657	28.2	20.5	354531	28.2	20.8	221185	28.3	19.3	447342	28.4	19.8
297445	28.0	21.0	313201	28.1	20.6	443889	28.2	21.3	242780	28.2	19.8	14339	28.3	16.7	304946	28.4	21.0
117656	28.0	19.2	302026	28.1	20.4	462859	28.2	21.3	201872	28.2	19.7	205463	28.3	19.3	294385	28.4	19.2
333043	28.0	20.3	158543	28.1	19.3	50256	28.2	17.9	331632	28.2	20.1	496505	28.3	21.1	502756	28.4	21.0
458872	28.0	20.9	495676	28.1	20.8	273616	28.2	21.0	350342	28.2	20.9	274735	28.3	20.4	236686	28.4	21.2
51850	28.0	18.1	201178	28.1	19.6	452797	28.2	19.8	4140	28.2	15.9	246367	28.3	21.4	517578	28.4	21.7
73525	28.0	19.4	299388	28.1	19.5	456326	28.2	20.8	164824	28.2	20.0	501455	28.3	20.6	328340	28.4	20.1
107359	28.0	18.9	244758	28.1	21.4	369379	28.2	21.3	402083	28.2	21.7	87823	28.3	19.3	205218	28.4	19.4
196690	28.0	20.1	97136	28.1	20.4	5325	28.2	15.8	92291	28.2	18.6	273754	28.3	20.6	490159	28.4	20.6
175085	28.0	19.9	419118	28.1	21.3	126861	28.2	19.7	459059	28.2	19.7	142062	28.3	19.9	293308	28.4	20.4
179659	28.0	20.5	221293	28.1	19.6	190296	28.2	19.7	22746	28.2	18.2	30994	28.3	19.4	53648	28.4	19.6
280014	28.0	20.8	420844	28.1	21.0	34327	28.2	18.7	498245	28.2	20.8	290765	28.3	20.7	298883	28.4	20.1
147449	28.0	16.8	433336	28.1	20.7	63591	28.2	18.3	167667	28.2	19.8	116892	28.3	19.6	286061	28.4	20.3
388056	28.0	21.1	283951	28.1	20.8	108806	28.2	19.8	37170	28.2	18.1	130697	28.3	19.4	184463	28.4	19.6
198902	28.0	19.9	382449	28.1	20.6	467048	28.2	21.0	82904	28.2	20.0	495226	28.3	20.4	461247	28.4	19.9
424590	28.0	20.4	54288	28.1	18.8	236056	28.2	20.6	221352	28.2	20.1	504276	28.3	21.3	2366153	28.4	19.3
423681	28.0	19.8	221882	28.1	21.5	402566	28.2	21.1	167660	28.2	19.2	197769	28.3	19.9	121056	28.4	18.7
199677	28.0	19.3	131866	28.1	17.9	90936	28.2	20.7	322859	28.2	20.1	428084	28.3	21.1	355974	28.4	20.6
83093	28.0	19.4	325219	28.1	20.3	354863	28.2	20.7	148012	28.2	19.4	399916	28.3	17.8	420683	28.4	20.2
409549	28.0	19.7	337488	28.1	20.1	322276	28.2	20.6	64079	28.2	18.3	187846	28.3	19.2	238740	28.4	20.0
241621	28.0	18.9	170761	28.1	19.7	290800	28.2	20.3	359217	28.2	19.8	300094	28.3	21.6	429893	28.4	21.3
75139	28.0	20.2	122834	28.1	20.4	297081	28.2	19.8	326016	28.2	20.1	420987	28.3	21.2	443874	28.4	21.2
123171	28.0	19.4	354876	28.1	21.4	231485	28.2	19.8	67425	28.2	18.9	365792	28.3	20.2	291781	28.4	21.0
380701	28.0	19.8	91523	28.1	19.4	94180	28.2	18.3	241022	28.2	21.1	265350	28.3	20.4	216848	28.4	19.3
161123	28.1	19.4	238868	28.1	18.9	246045	28.2	19.5	214235	28.2	20.8	207730	28.3	19.7	425691	28.4	20.6
144605	28.1	19.7	211944	28.1	19.5	380705	28.2	20.1	188324	28.2	19.7	459706	28.3	20.9	219767	28.4	20.3
126423	28.1	19.7	253181	28.1	19.4	30886	28.2	17.6	240145	28.2	19.6	489997	28.3	21.2	522402	28.4	20.5
321638	28.1	20.1	48074	28.1	19.4	139294	28.2	20.4	141666	28.2	19.9	378525	28.3	19.8	133393	28.4	20.2
313500	28.1	20.7	496331	28.1	20.5	355885	28.2	20.0	274719	28.2	20.9	498075	28.3	21.2	131340	28.4	19.6
318978	28.1	19.7	402106	28.1	20.3	799	28.2	13.6									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
426657	28.4	20.3	521138	28.5	19.8	76145	28.5	19.1	427337	28.6	20.9	158283	28.7	20.0	83162	28.7	19.4
336748	28.4	20.5	37238	28.5	19.9	394355	28.5	19.7	146353	28.6	19.2	173145	28.7	20.0	241170	28.7	20.4
16794	28.4	17.9	15208	28.5	18.3	313028	28.5	19.0	348652	28.6	19.6	138084	28.7	18.8	163397	28.7	19.8
109649	28.4	19.6	1787	28.5	15.5	425285	28.5	21.2	315350	28.6	20.2	171571	28.7	19.5	216005	28.7	20.3
518083	28.4	20.1	276757	28.5	21.1	405633	28.5	20.2	238766	28.6	19.8	401512	28.7	19.7	243362	28.7	19.5
171047	28.4	19.4	406082	28.5	20.9	94630	28.5	19.9	54500	28.6	18.4	494941	28.7	19.8	359993	28.7	20.8
477454	28.4	22.5	170198	28.5	19.6	462098	28.5	21.2	57432	28.6	17.6	381240	28.7	19.7	505677	28.7	20.9
294585	28.4	20.9	354138	28.5	18.9	229429	28.5	20.0	173213	28.6	18.3	296071	28.7	20.3	366756	28.7	21.8
331040	28.4	21.1	226447	28.5	19.5	454306	28.5	21.2	81383	28.6	18.7	236001	28.7	19.4	417168	28.7	19.8
318665	28.4	21.4	331951	28.5	20.4	163248	28.5	19.7	68854	28.6	19.5	429053	28.7	20.4	43595	28.7	17.9
291561	28.4	21.5	519022	28.5	21.0	314371	28.5	20.3	172834	28.6	20.2	258127	28.7	20.6	363211	28.7	21.8
157794	28.4	20.2	296890	28.5	19.8	337602	28.5	21.4	408792	28.6	22.0	427166	28.7	21.8	287669	28.7	21.2
274600	28.4	20.8	9067	28.5	16.9	28305	28.5	17.7	430691	28.6	20.3	116999	28.7	19.3	400538	28.7	20.9
440421	28.4	20.3	217048	28.5	19.8	83966	28.5	19.8	993	28.6	15.3	203867	28.7	19.2	206170	28.7	19.7
257225	28.4	20.5	19917	28.5	18.0	179784	28.5	19.8	425004	28.6	20.8	213953	28.7	20.0	212766	28.7	20.3
115733	28.4	19.0	112555	28.5	19.1	41388	28.5	18.4	92582	28.6	18.7	278973	28.7	19.9	319746	28.7	20.5
502996	28.4	20.7	54786	28.5	19.3	400788	28.5	21.7	428695	28.6	20.1	32077	28.7	18.6	175254	28.7	20.6
63089	28.4	18.9	65135	28.5	18.6	494724	28.5	21.5	93740	28.6	18.3	85144	28.7	18.7	79256	28.8	18.3
194674	28.4	18.7	405181	28.5	20.3	253080	28.5	20.8	402040	28.6	21.8	266880	28.7	19.8	371259	28.8	20.8
288925	28.4	20.8	117055	28.5	19.5	15933	28.5	16.7	465770	28.6	20.7	436156	28.7	22.2	273364	28.8	21.3
58173	28.4	18.2	267340	28.5	20.2	330458	28.5	21.6	166720	28.6	18.4	11530	28.7	17.6	490678	28.8	22.0
419421	28.4	20.5	228672	28.5	19.4	256161	28.5	19.5	306060	28.6	19.8	72556	28.7	19.2	143023	28.8	18.5
78659	28.4	19.2	500461	28.5	22.0	77803	28.6	19.0	269562	28.6	20.3	352860	28.7	20.7	289596	28.8	20.0
266428	28.4	20.1	64182	28.5	19.0	467275	28.6	20.4	451400	28.6	21.7	468603	28.7	21.6	166980	28.8	20.3
130181	28.4	19.2	110667	28.5	19.6	402937	28.6	21.6	221194	28.6	19.5	22213	28.7	18.8	80855	28.8	19.2
448121	28.4	21.3	416970	28.5	21.6	53070	28.6	18.0	58405	28.6	19.5	113738	28.7	19.6	126090	28.8	20.3
239250	28.4	21.1	453047	28.5	20.6	411217	28.6	19.8	196831	28.6	20.5	79279	28.7	18.7	205862	28.8	19.3
521993	28.4	21.0	106092	28.5	17.6	455166	28.6	20.3	339440	28.6	20.8	316856	28.7	20.5	239233	28.8	21.1
24782	28.4	18.4	28331	28.5	17.8	423137	28.6	20.2	457842	28.6	20.5	183312	28.7	18.7	111718	28.8	19.1
376723	28.4	20.5	254636	28.5	20.8	242407	28.6	21.5	256942	28.6	20.1	382513	28.7	20.3	325943	28.8	20.5
122879	28.4	20.0	440720	28.5	20.5	90149	28.6	18.9	13680	28.6	19.0	45910	28.7	18.9	18217	28.8	18.5
339528	28.4	20.8	450923	28.5	18.6	378963	28.6	20.0	429054	28.6	21.1	334865	28.7	20.9	184744	28.8	19.8
184442	28.4	21.1	406199	28.5	21.4	188981	28.6	20.2	238733	28.6	21.1	129067	28.7	20.5	127500	28.8	20.1
11271	28.4	16.5	408863	28.5	19.5	334104	28.6	19.8	372624	28.6	19.6	138147	28.7	19.0	90941	28.8	19.9
192269	28.4	20.0	195644	28.5	20.3	396172	28.6	20.5	418166	28.6	21.1	74246	28.7	18.3	48617	28.8	17.8
333275	28.4	18.9	469130	28.5	21.1	433329	28.6	20.7	294292	28.6	20.6	125449	28.7	18.6	291911	28.8	20.0
432503	28.4	21.2	83860	28.5	19.4	352790	28.6	19.9	243761	28.6	20.5	11935	28.7	18.9	456547	28.8	19.9
207800	28.4	19.1	457232	28.5	20.9	100552	28.6	17.5	343652	28.6	20.7	489116	28.7	20.6	499951	28.8	21.4
462332	28.4	21.8	343008	28.5	20.7	362627	28.6	20.2	255843	28.6	20.2	416571	28.7	19.8	511746	28.8	20.9
144074	28.4	19.5	493871	28.5	21.5	313857	28.6	18.6	147267	28.6	18.6	68004	28.7	18.7	409835	28.8	22.2
271760	28.4	20.5	239370	28.5	20.2	274628	28.6	20.1	274612	28.6	20.7	362132	28.7	19.7	289684	28.8	19.5
3634	28.4	16.8	424854	28.5	21.6	522372	28.6	21.5	148604	28.6	18.6	225374	28.7	19.7	339581	28.8	20.9
291793	28.4	19.6	45751	28.5	18.9	365519	28.6	20.7	226880	28.6	19.8	30722	28.7	17.6	243366	28.8	19.6
343362	28.4	21.0	355271	28.5	20.5	211636	28.6	20.4	270917	28.6	21.4	104391	28.7	19.6	428863	28.8	19.9
173326	28.4	20.3	17769	28.5	17.0	343296	28.6	19.2	423151	28.6	19.9	413840	28.7	21.4	28717	28.8	18.8
370489	28.4	20.6	206022	28.5	20.6	242623	28.6	20.7	419701	28.6	20.8	218709	28.7	19.7	68448	28.8	19.1
96645	28.4	18.5	146434	28.5	20.1	243403	28.6	20.1	19260	28.6	17.4	110077	28.7	19.2	70231	28.8	19.4
1579	28.4	15.1	459360	28.5	20.3	338936	28.6	19.9	155935	28.6	19.9	293416	28.7	21.0	245868	28.8	20.1
220348	28.4	19.4	321221	28.5	20.5	313202	28.6	20.2	264870	28.6	20.4	24789	28.7	18.4	45358	28.8	18.3
470432	28.5	20.2	371721	28.5	20.3	256846	28.6	20.4	424792	28.6	21.6	236970	28.7	19.3	143644	28.8	20.3
354506	28.5	21.3	389133	28.5	20.5	202256	28.6	18.7	116799	28.6	19.4	101423	28.7	19.6	73585	28.8	19.1
164195	28.5	19.3	67878	28.5	18.8	21298	28.6	16.8	74383	28.6	19.7	133931	28.7	19.3	456851	28.8	21.3
139720	28.5	20.5	454398	28.5	20.9	208330	28.6	20.0	31400	28.6	17.3	36108	28.7	18.7	518983	28.8	21.4
151579	28.5	19.8	102295	28.5	18.6	100224	28.6	19.3	380252	28.6	20.3	12826	28.7	17.5	229314	28.8	21.2
381689	28.5	19.5	135414	28.5	18.7	138347	28.6	18.5	224416	28.6	20.4	111111	28.7	19.8	225916	28.8	20.0
198948	28.5	20.9	450293	28.5	19.7	264159	28.6	19.3	169586	28.6	20.6	369334	28.7	21.6	85326	28.8	18.9
361871	28.5	20.9	328713	28.5	19.8	18717	28.6	19.3	305559	28.6	20.1	84072	28.7	18.1	130906	28.8	18.7
483036	28.5	20.4	234941	28.5	20.5	95352	28.6	18.8	159779	28.6	19.5	343082	28.7	20.5	52186	28.8	19.9
19344	28.5	18.1	495353	28.5	21.1	302053	28.6	21.8	113393	28.6	20.2	425982	28.7	20.4	63212	28.8	18.0
105624	28.5	17.9	334155	28.5	19.2	94888	28.6	19.0	5575	28.7	17.4	128965	28.7	19.5	168101	28.8	20.5
157912	28.5	20.4	412726	28.5	20.4	306564	28.6	19.5	39645	28.7	19.6	28776	28.7	17.0	342915	28.8	20.8
133189	28.5	20.3	259575	28.5	20.1	501635	28.6	20.7	274899	28.7	20.2	417015	28.7	20.9	68833	28.8	19.4
2814	28.5	16.5	83036	28.5	18.5	464990	28.6	20.9	401378	28.7	20.3	142602	28.7	18.4	503126	28.8	20.3
463807	28.5	20.5	367757	28.5	20.2	313849	28.6	19.9	53383	28.7	19.1	421532	28.7	21.5	249516	28.8	20.0
348661	28.5	19.2	55841	28.5	18.3	305651	28.6	19.2	332348	28.7	20.4	209647	28.7	19.5	234967	28.8	20.4
258520	28.5	19.3	431604	28.5	20.0	105343	28.6	19.4	178940	28.7	20.0	422621	28.7	21.5	402617	28.8	22.0
191153	28.5	18.7	428508	28.5	20.5	378806	28.6	21.8	25638	28.7	18.1	335991	28.7	21.8	295361	28.8	21.7
419004	28.5	21.0	156527	28.5	19.4	409436	28.6	20.3	375381	28.7	20.6	320793	28.7	19.8	500585	28.8	21.1
378924	28.5	21.5	239365	28.5	19.7	97864	28.6	20.1									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
145151	28.8	19.7	241050	28.9	20.6	138215	28.9	18.9	432546	29.0	21.3	500053	29.1	22.5	461501	29.2	23.1
135701	28.8	19.1	275546	28.9	20.3	496877	28.9	20.5	331085	29.0	21.1	270644	29.1	19.6	248769	29.2	20.6
450177	28.8	21.6	216702	28.9	19.6	417142	28.9	21.2	298329	29.0	20.2	54851	29.1	19.3	238985	29.2	20.5
354844	28.8	21.1	246604	28.9	19.9	153771	28.9	19.1	234194	29.0	20.4	376739	29.1	22.5	194469	29.2	18.2
29182	28.8	18.8	355903	28.9	20.1	83231	28.9	20.3	166823	29.0	19.3	495915	29.1	20.4	375624	29.2	19.5
212065	28.8	19.9	350639	28.9	19.5	468361	28.9	20.5	330903	29.0	21.4	409973	29.1	21.1	505056	29.2	22.9
322837	28.8	20.9	169357	28.9	20.7	467562	28.9	20.8	255751	29.0	20.7	433571	29.1	21.0	426131	29.2	21.2
427562	28.8	21.2	303404	28.9	18.9	143332	28.9	19.5	392761	29.0	19.8	142937	29.1	18.6	489615	29.2	22.5
191587	28.8	20.6	161307	28.9	19.7	367821	28.9	20.7	288578	29.0	20.2	165843	29.1	19.6	87995	29.2	19.2
53437	28.8	17.7	298712	28.9	20.7	281321	28.9	21.4	492746	29.0	20.8	466476	29.1	21.2	205250	29.2	21.0
429031	28.8	21.0	495539	28.9	21.3	334695	28.9	19.0	427564	29.0	20.0	443815	29.1	22.1	167887	29.2	19.5
140979	28.8	20.9	366775	28.9	21.5	292498	28.9	20.5	332568	29.0	20.7	2461	29.1	16.8	187286	29.2	19.9
333072	28.8	20.9	81643	28.9	19.6	453845	28.9	20.4	175102	29.0	21.1	413052	29.1	21.1	408400	29.2	20.2
495414	28.8	21.8	327419	28.9	21.1	406097	28.9	19.8	450966	29.0	21.6	80970	29.1	18.6	492191	29.2	22.5
59403	28.8	18.6	298642	28.9	19.2	242579	28.9	20.4	335916	29.0	20.7	382998	29.1	20.7	331715	29.2	21.2
328698	28.8	20.2	50866	28.9	16.2	388039	28.9	20.6	245280	29.0	20.6	97857	29.1	20.0	371671	29.2	19.7
47976	28.8	17.9	302884	28.9	20.2	217003	28.9	19.6	257848	29.0	19.3	166664	29.1	19.7	63331	29.2	18.9
194612	28.8	21.0	458813	28.9	21.0	247593	28.9	20.2	353278	29.0	21.1	262440	29.1	21.4	11031	29.2	17.8
480206	28.8	20.6	119534	28.9	18.7	375563	28.9	20.4	417026	29.0	22.0	76382	29.1	17.8	428894	29.2	21.4
210803	28.8	19.5	372612	28.9	21.2	100874	28.9	19.9	429349	29.0	20.7	41692	29.1	18.4	107561	29.2	19.7
405209	28.8	21.3	209155	28.9	19.1	304293	28.9	20.5	227492	29.0	21.0	238940	29.1	19.6	503428	29.2	20.5
243258	28.8	19.4	436287	28.9	20.6	69050	28.9	18.9	443027	29.0	21.5	319805	29.1	20.3	343016	29.2	20.6
54912	28.8	18.8	421625	28.9	20.6	207612	28.9	21.0	337510	29.0	20.3	396805	29.1	21.6	29594	29.2	17.8
268167	28.8	20.9	505100	28.9	21.0	70583	28.9	18.3	408711	29.1	22.5	426591	29.1	21.3	167978	29.2	20.2
168279	28.8	19.8	319864	28.9	19.0	358680	28.9	20.4	188110	29.1	18.5	113614	29.1	19.1	462941	29.2	21.4
120599	28.8	19.4	5912	28.9	16.3	88535	28.9	18.6	282206	29.1	20.2	313826	29.1	19.6	215548	29.2	20.6
8669	28.8	17.5	142918	28.9	18.4	221338	28.9	20.0	263494	29.1	20.1	412619	29.1	20.7	459766	29.2	21.9
250146	28.8	21.2	2688	28.9	16.8	503386	28.9	20.5	20598	29.1	18.3	121388	29.1	19.4	52188	29.2	19.3
242393	28.8	20.8	157792	28.9	19.3	58706	28.9	18.2	125738	29.1	17.9	2234	29.1	17.2	417196	29.2	20.8
82606	28.8	18.7	286489	28.9	19.6	75887	28.9	18.0	336300	29.1	20.7	224815	29.1	20.1	138646	29.2	19.9
179538	28.8	19.7	136952	28.9	19.9	247564	28.9	21.3	209623	29.1	18.8	135093	29.1	19.5	242384	29.2	20.0
372500	28.8	20.7	45609	28.9	18.6	337905	28.9	22.0	434335	29.1	21.2	456487	29.1	21.4	500320	29.2	21.1
74051	28.8	19.5	453287	28.9	21.4	203242	28.9	20.6	327692	29.1	20.1	330483	29.1	21.0	211513	29.2	20.8
406833	28.8	20.8	236892	28.9	19.8	307614	28.9	21.4	340743	29.1	21.8	345179	29.1	20.8	453373	29.2	19.5
249426	28.8	20.3	496606	28.9	20.1	50055	28.9	18.1	260105	29.1	20.2	416841	29.1	21.0	234874	29.2	19.7
357592	28.8	20.3	250118	28.9	19.8	52728	28.9	17.9	57769	29.1	18.8	229614	29.1	20.1	346696	29.2	20.9
334620	28.8	20.4	326719	28.9	19.9	39457	28.9	19.2	108269	29.1	18.8	420363	29.1	21.1	467703	29.2	20.5
86965	28.8	18.4	407711	28.9	21.1	325977	28.9	20.8	320806	29.1	20.1	263481	29.1	20.6	412842	29.2	20.2
170339	28.8	20.6	144689	28.9	19.8	419119	28.9	21.1	20405	29.1	17.9	227996	29.1	20.4	229942	29.2	20.3
197434	28.8	19.0	37309	28.9	18.1	414889	28.9	20.9	263301	29.1	20.5	396885	29.1	21.7	229512	29.2	20.9
491164	28.8	21.4	203384	28.9	19.9	395365	28.9	21.9	152425	29.1	19.4	273725	29.1	20.5	249386	29.2	19.1
5811	28.8	17.9	399021	28.9	20.5	276867	28.9	20.6	444401	29.1	20.7	10693	29.1	18.5	341639	29.2	21.5
105279	28.8	19.2	193881	28.9	20.4	55158	28.9	18.9	199653	29.1	20.4	192197	29.1	20.4	380093	29.2	21.0
171487	28.8	20.2	145292	28.9	19.6	293298	28.9	20.6	280459	29.1	19.2	467245	29.1	20.9	521014	29.2	20.2
522451	28.8	20.3	215055	28.9	19.9	201320	28.9	18.8	46234	29.1	18.8	171679	29.1	20.2	207611	29.2	19.5
51173	28.8	17.5	206835	28.9	19.5	1170	28.9	14.6	369424	29.1	20.6	175779	29.1	19.3	255930	29.2	19.1
419069	28.8	21.1	110908	28.9	20.4	316620	28.9	20.3	422054	29.1	21.6	165429	29.1	20.4	297003	29.2	20.5
302087	28.8	18.9	433567	28.9	20.0	423360	28.9	20.8	330164	29.1	20.3	131931	29.1	19.1	425452	29.2	20.0
77987	28.8	19.3	419166	28.9	21.1	496664	28.9	20.6	304076	29.1	20.7	428879	29.1	20.8	288844	29.2	19.6
462314	28.8	21.6	39033	28.9	19.8	331563	28.9	19.7	503327	29.1	20.8	106839	29.1	18.4	418435	29.2	21.0
330001	28.8	20.3	265360	28.9	20.4	364000	28.9	21.1	137012	29.1	20.3	418894	29.1	20.5	452542	29.2	21.7
427320	28.8	19.6	52283	28.9	19.3	307760	28.9	21.1	113542	29.1	18.9	474007	29.1	20.2	427809	29.2	20.9
240031	28.8	21.1	169257	28.9	20.1	416506	28.9	20.2	451480	29.1	19.6	101552	29.1	18.6	250171	29.2	19.5
502768	28.8	21.1	82833	28.9	18.8	28633	28.9	17.6	33695	29.1	20.0	72229	29.1	18.0	222365	29.2	19.3
400009	28.8	21.5	285071	28.9	19.7	469177	28.9	21.2	79349	29.1	18.6	168367	29.1	20.1	363776	29.2	20.5
434020	28.9	20.5	74438	28.9	18.8	327441	28.9	20.0	351740	29.1	20.7	464634	29.2	21.7	466160	29.2	20.9
204266	28.9	19.8	136539	28.9	19.1	142650	29.0	18.3	278870	29.1	21.0	350615	29.2	20.7	355351	29.2	20.5
83061	28.9	17.8	284133	28.9	20.4	125551	29.0	18.0	473778	29.1	20.1	402464	29.2	20.7	423679	29.2	19.6
176220	28.9	20.0	265772	28.9	20.2	322739	29.0	20.5	109264	29.1	19.3	44546	29.2	18.2	237668	29.2	20.6
370034	28.9	21.8	266937	28.9	21.5	107342	29.0	18.7	80106	29.1	20.1	464545	29.2	20.5	290716	29.2	19.4
367809	28.9	20.1	406358	28.9	21.5	404136	29.0	20.6	226857	29.1	20.2	459151	29.2	20.4	231795	29.2	19.6
9178	28.9	17.7	82682	28.9	19.1	207088	29.0	20.6	285733	29.1	21.4	206899	29.2	19.4	334718	29.2	20.4
425252	28.9	21.6	214537	28.9	20.8	328971	29.0	19.3	57590	29.1	18.0	19853	29.2	18.4	120937	29.2	20.2
128452	28.9	19.9	350258	28.9	20.7	284088	29.0	21.0	453704	29.1	21.0	7281	29.2	17.6	318759	29.2	20.4
93322	28.9	18.5	279958	28.9	20.5	254571	29.0	20.3	100595	29.1	20.3	360554	29.2	20.6	371735	29.2	21.5
174481	28.9	19.6	360376	28.9	19.7	353381	29.0	21.3	494951	29.1	21.4	151143	29.2	18.4	246885	29.2	20.3
123721	28.9	18.9	179732	28.9	17.3	298875	29.0	20.5	121027	29.1	19.4	222758	29.2	19.1	152706	29.2	20.2
390576	28.9	21.4	191247	28.9	18.9	56412	29.0	18.2	437349	29.1	21.2	169755	29.2	19.0	251001	29.2	19.8
54575	28.9	19.1	111160	28.9	20.3	83952</											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
503476	29.2	20.3	144406	29.3	19.1	165804	29.4	19.4	463874	29.5	21.3	164997	29.5	18.4	872	29.6	13.7
279730	29.2	20.4	133147	29.3	19.5	357370	29.4	21.5	149995	29.5	19.8	170367	29.5	20.7	280267	29.6	18.9
101984	29.2	19.6	20373	29.3	18.4	332007	29.4	20.3	198658	29.5	19.4	264417	29.5	20.9	265327	29.6	20.9
376470	29.2	20.4	308202	29.3	19.9	165304	29.4	20.8	140827	29.5	20.2	368618	29.5	21.4	237757	29.6	19.6
426268	29.2	21.4	221784	29.3	19.8	182444	29.4	19.8	495597	29.5	19.9	149981	29.5	21.0	65349	29.6	20.5
404524	29.2	20.2	20312	29.3	17.1	122419	29.4	17.4	459350	29.5	20.2	366852	29.5	21.3	306608	29.6	20.9
234551	29.2	20.1	286651	29.3	19.7	31743	29.4	17.3	323172	29.5	20.2	344475	29.5	20.7	15302	29.6	17.5
105552	29.2	20.2	393689	29.3	21.9	363180	29.4	21.4	86466	29.5	18.1	395770	29.5	20.4	266850	29.6	20.4
112907	29.2	20.7	73288	29.3	19.3	163641	29.4	20.8	167182	29.5	19.9	241348	29.5	20.3	78558	29.6	19.0
213687	29.2	20.8	210387	29.3	20.4	92891	29.4	18.8	334581	29.5	20.1	185883	29.5	20.7	54029	29.6	18.6
334048	29.2	20.3	368623	29.3	20.4	295397	29.4	19.8	364370	29.5	20.6	413111	29.5	19.9	223683	29.6	20.8
321777	29.3	20.3	416578	29.3	20.2	103650	29.4	19.2	257463	29.5	20.7	416556	29.5	19.4	293908	29.6	20.0
336041	29.3	19.8	152779	29.3	19.7	245970	29.4	21.4	96161	29.5	19.2	285240	29.5	20.6	258830	29.6	21.8
190723	29.3	19.7	325122	29.3	21.3	16553	29.4	18.5	241233	29.5	20.7	14905	29.5	17.9	416926	29.6	22.0
453397	29.3	20.6	401997	29.3	20.7	121272	29.4	19.6	468107	29.5	21.1	264096	29.5	21.0	427269	29.6	20.6
322564	29.3	20.0	156051	29.3	19.6	292103	29.4	20.4	460944	29.5	20.3	453775	29.5	20.9	360226	29.6	21.0
301162	29.3	20.2	285115	29.3	20.2	417744	29.4	20.6	259226	29.5	18.6	467988	29.5	21.8	411245	29.6	21.0
396759	29.3	20.1	474413	29.3	19.3	503145	29.4	20.9	49747	29.5	18.2	412667	29.5	21.1	24940	29.6	18.2
279574	29.3	20.9	47886	29.3	18.0	453279	29.4	21.7	464038	29.5	20.0	333947	29.5	19.2	373358	29.6	21.1
252466	29.3	19.7	312218	29.3	20.0	94541	29.4	19.4	238090	29.5	19.8	224360	29.5	21.1	319003	29.6	20.1
343139	29.3	20.1	354549	29.3	21.1	36883	29.4	18.7	404939	29.5	21.4	239045	29.5	20.1	245552	29.6	20.0
301855	29.3	18.2	187205	29.3	20.3	437824	29.4	19.7	411185	29.5	21.6	499980	29.5	22.1	424235	29.6	21.1
276935	29.3	19.8	492736	29.3	21.5	285758	29.4	20.7	177914	29.5	20.9	65898	29.5	18.0	362669	29.6	20.3
256186	29.3	19.4	232365	29.3	20.2	466866	29.4	20.6	43883	29.5	19.8	111902	29.5	19.6	117139	29.6	19.7
351571	29.3	20.9	136225	29.3	19.6	322124	29.4	21.2	28632	29.5	18.5	343303	29.5	20.1	484277	29.6	20.9
122784	29.3	19.9	234924	29.3	19.8	194146	29.4	19.3	219347	29.5	19.7	329798	29.5	20.7	400594	29.6	19.8
105621	29.3	18.7	53684	29.3	18.3	109734	29.4	20.3	523510	29.5	21.4	411211	29.5	20.2	182400	29.6	19.9
296795	29.3	20.4	157807	29.3	19.9	309348	29.4	20.5	467455	29.5	21.5	64867	29.6	19.0	344548	29.6	20.4
472740	29.3	21.7	428993	29.3	20.7	54745	29.4	19.4	79515	29.5	18.9	373682	29.6	20.3	462684	29.6	22.0
266226	29.3	20.3	343607	29.3	20.8	86836	29.4	19.3	195824	29.5	19.5	424676	29.6	20.9	161597	29.6	20.2
133426	29.3	19.3	254623	29.3	21.0	433931	29.4	20.1	227555	29.5	19.5	197110	29.6	19.7	122963	29.6	19.1
362162	29.3	20.5	335653	29.3	20.5	32374	29.4	18.4	315559	29.5	20.4	110127	29.6	18.4	160150	29.6	18.4
243737	29.3	20.4	375274	29.3	21.7	249026	29.4	20.5	208825	29.5	20.5	375312	29.6	21.8	450297	29.6	21.5
218372	29.3	20.0	110789	29.3	18.7	378933	29.4	20.2	10911	29.5	17.8	92642	29.6	18.2	246028	29.6	21.1
370621	29.3	20.0	74978	29.3	19.9	503729	29.4	21.6	283477	29.5	20.2	373847	29.6	20.6	138640	29.6	20.0
169126	29.3	19.9	10507	29.3	16.9	379934	29.4	21.4	166271	29.5	20.4	346204	29.6	20.5	492353	29.6	21.2
449641	29.3	20.9	155334	29.3	21.0	316578	29.4	19.8	57584	29.5	18.8	450481	29.6	22.0	365118	29.6	20.5
370472	29.3	21.1	226790	29.3	20.5	426961	29.4	20.7	256045	29.5	20.6	8178	29.6	18.2	130659	29.6	19.0
487395	29.3	21.3	136023	29.3	17.8	353259	29.4	20.8	166264	29.5	18.6	109382	29.6	19.3	255655	29.6	21.2
166154	29.3	19.0	124418	29.3	19.7	433007	29.4	21.0	89270	29.5	18.2	227864	29.6	20.6	457038	29.6	21.8
39913	29.3	18.6	172130	29.3	19.7	275017	29.4	19.7	350366	29.5	20.9	456359	29.6	21.0	499952	29.6	21.4
414191	29.3	20.6	396855	29.3	22.1	152530	29.4	19.1	473925	29.5	20.8	18376	29.6	18.9	221300	29.6	19.9
241304	29.3	20.1	317547	29.3	19.9	88271	29.4	17.5	468274	29.5	20.7	341529	29.6	19.9	60805	29.6	19.2
253250	29.3	19.0	190249	29.3	20.4	238063	29.4	19.8	499033	29.5	20.4	258207	29.6	20.7	467897	29.6	21.7
59132	29.3	18.0	339546	29.3	20.9	467715	29.4	20.4	315633	29.5	20.5	52626	29.6	17.6	190324	29.6	21.1
399498	29.3	22.3	34168	29.3	18.3	240573	29.4	19.9	103951	29.5	19.4	436374	29.6	19.7	303440	29.6	19.6
134855	29.3	19.5	21475	29.3	17.2	240366	29.4	19.4	277591	29.5	20.7	161140	29.6	19.0	115194	29.6	20.6
275466	29.3	20.1	40825	29.3	18.4	139606	29.4	20.0	286087	29.5	20.3	246126	29.6	19.9	8816	29.6	17.1
425785	29.3	19.8	232151	29.3	20.4	431546	29.4	20.2	283372	29.5	20.7	131423	29.6	20.2	464709	29.6	21.6
345067	29.3	19.9	236442	29.3	19.6	79294	29.4	20.2	378683	29.5	21.9	447268	29.6	20.4	395345	29.6	21.1
204168	29.3	19.5	12210	29.4	18.3	340676	29.4	21.0	195935	29.5	19.4	370755	29.6	20.7	463916	29.6	20.9
502866	29.3	21.2	47535	29.4	18.0	143037	29.4	19.2	194075	29.5	19.9	306787	29.6	19.5	337020	29.6	20.7
495232	29.3	20.8	252530	29.4	20.1	130781	29.4	18.7	27637	29.5	18.9	457078	29.6	20.6	101969	29.6	18.9
156253	29.3	20.7	271709	29.4	20.0	246601	29.4	21.2	87676	29.5	19.1	447173	29.6	21.3	420633	29.6	20.1
352747	29.3	19.8	91078	29.4	19.1	1987	29.4	15.1	457157	29.5	20.5	57465	29.6	17.9	82397	29.6	19.2
222255	29.3	21.7	129016	29.4	20.0	182554	29.4	20.2	453018	29.5	21.2	348457	29.6	20.6	382066	29.6	20.2
122452	29.3	18.4	15089	29.4	17.6	280192	29.4	20.0	154868	29.5	20.1	82801	29.6	19.3	25323	29.6	19.3
152674	29.3	19.8	461710	29.4	21.1	408447	29.4	20.5	312953	29.5	20.1	486811	29.6	21.6	336661	29.6	20.5
431481	29.3	20.7	148172	29.4	18.7	457718	29.4	21.6	428430	29.5	20.6	277999	29.6	19.8	197625	29.6	19.9
29215	29.3	17.4	435907	29.4	19.7	468000	29.4	21.8	496520	29.5	20.0	240280	29.6	19.3	404631	29.6	21.5
502702	29.3	20.9	456530	29.4	19.1	239471	29.4	20.8	154030	29.5	19.0	320665	29.6	20.1	233095	29.6	20.7
335933	29.3	20.2	272736	29.4	18.6	284811	29.4	20.4	317058	29.5	21.7	75236	29.6	17.8	466198	29.6	20.9
206848	29.3	20.0	111018	29.4	18.5	109256	29.4	19.9	144686	29.5	18.3	239231	29.6	21.9	437827	29.6	19.4
370006	29.3	20.5	336551	29.4	19.9	463256	29.4	20.6	411221	29.5	20.2	52768	29.6	15.7	449168	29.6	19.7
109310	29.3	19.7	166540	29.4	19.9	467468	29.4	21.8	231538	29.5	19.7	74852	29.6	17.4	298895	29.6	20.3
461789	29.3	21.5	23501	29.4	17.3	199078	29.4	18.9	263412	29.5	20.8	503395	29.6	20.7	153859	29.6	18.1
340587	29.3	20.7	45956	29.4	18.9	266852	29.4	21.1	359504	29.5	20.8	255988	29.6	18.8	130806	29.6	18.8
435967	29.3	21.1	4413	29.4	16.8	177969	29.4	19.2	400152	29.5	21.2	379467	29.6	20.0	256110	29.6	20.1
206836	29.3	20.3	341539	29.4	20.2	42											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
200837	29.7	19.8	427364	29.7	19.5	221107	29.8	20.6	358563	29.9	21.4	170471	29.9	20.5	147317	29.9	19.2
54861	29.7	19.0	118690	29.7	18.5	123465	29.8	18.3	448185	29.9	20.6	83056	29.9	18.7	142969	29.9	19.9
149786	29.7	19.8	158186	29.7	19.1	275772	29.8	20.0	465071	29.9	21.4	92158	29.9	16.7	466055	29.9	22.2
76531	29.7	18.7	448227	29.7	20.4	217876	29.8	20.4	437031	29.9	21.0	270730	29.9	21.5	523153	29.9	18.9
184193	29.7	19.9	166826	29.7	18.9	493731	29.8	20.5	363350	29.9	20.6	401021	29.9	20.9	483517	29.9	20.7
338891	29.7	19.5	323824	29.7	20.7	428087	29.8	20.9	464974	29.9	20.4	92422	29.9	19.3	426884	29.9	20.0
77664	29.7	19.2	162997	29.7	18.9	421512	29.8	20.8	171249	29.9	19.5	429871	29.9	20.0	205243	29.9	19.7
445868	29.7	22.3	56925	29.7	18.9	219379	29.8	20.2	426912	29.9	20.9	48299	29.9	18.4	68135	29.9	19.3
429953	29.7	20.8	171976	29.7	20.2	327339	29.8	21.0	132311	29.9	20.5	371665	29.9	19.9	333620	29.9	19.8
82651	29.7	17.7	250613	29.7	20.2	473696	29.8	19.3	397311	29.9	20.6	258287	29.9	19.7	203925	29.9	20.6
105244	29.7	20.4	449587	29.7	21.0	495747	29.8	21.2	428481	29.9	20.4	492696	29.9	20.9	372985	29.9	20.6
25813	29.7	18.8	398712	29.7	19.9	241146	29.8	20.8	362171	29.9	21.8	81655	29.9	18.8	257797	29.9	20.8
163373	29.7	16.7	433400	29.7	21.2	53566	29.8	18.2	381505	29.9	21.5	494170	29.9	20.9	373865	29.9	20.9
414188	29.7	20.5	457559	29.7	20.8	145666	29.8	20.1	66276	29.9	19.6	262332	29.9	20.2	363173	29.9	21.0
51066	29.7	18.0	511523	29.7	19.6	341700	29.8	21.0	367517	29.9	20.8	488490	29.9	19.9	362108	30.0	20.2
364369	29.7	20.7	488465	29.7	22.1	124137	29.8	19.5	398346	29.9	22.0	473970	29.9	20.3	327674	30.0	19.8
376443	29.7	21.5	400250	29.7	21.7	8756	29.8	17.9	400013	29.9	21.5	236679	29.9	21.3	32230	30.0	17.2
456416	29.7	20.9	375342	29.7	21.0	61844	29.8	19.3	209736	29.9	20.0	114432	29.9	18.1	468412	30.0	21.1
451029	29.7	21.1	296989	29.7	20.6	500648	29.8	22.4	302516	29.9	19.4	181857	29.9	20.4	427239	30.0	21.5
345666	29.7	20.9	287525	29.7	19.8	131085	29.8	18.9	369113	29.9	19.1	108224	29.9	19.5	165127	30.0	20.5
168887	29.7	19.4	29341	29.7	17.3	265949	29.8	20.2	408234	29.9	20.3	98547	29.9	18.4	420955	30.0	20.1
160130	29.7	18.6	11494	29.7	16.3	284385	29.8	21.8	346505	29.9	20.7	235000	29.9	18.7	16602	30.0	17.6
363969	29.7	20.8	371962	29.7	22.1	419456	29.8	20.0	199780	29.9	19.5	441730	29.9	19.4	314006	30.0	21.2
242625	29.7	19.9	249658	29.7	19.1	277868	29.8	20.7	274037	29.9	21.5	33723	29.9	18.4	323460	30.0	20.3
417079	29.7	20.6	341566	29.7	20.4	500315	29.8	20.1	429874	29.9	20.8	348446	29.9	21.0	335985	30.0	20.2
85884	29.7	18.2	197082	29.7	20.3	246835	29.8	19.5	442653	29.9	21.1	327251	29.9	20.3	431527	30.0	21.0
427518	29.7	20.3	377020	29.7	20.5	157596	29.8	19.3	320619	29.9	20.9	94836	29.9	19.2	377038	30.0	20.7
323178	29.7	20.2	345540	29.7	21.1	190102	29.8	20.9	143426	29.9	19.5	276369	29.9	19.5	461439	30.0	20.0
266696	29.7	19.8	317452	29.7	20.0	429958	29.8	20.9	354578	29.9	19.6	461921	29.9	20.5	83491	30.0	18.9
398875	29.7	20.3	106895	29.7	19.3	64588	29.8	17.7	461978	29.9	20.5	173648	29.9	18.4	242413	30.0	19.0
30679	29.7	17.7	321012	29.7	21.2	128519	29.8	19.8	218623	29.9	20.6	109883	29.9	19.9	126037	30.0	19.1
196502	29.7	19.5	273888	29.7	21.2	25646	29.8	18.0	502318	29.9	21.2	337671	29.9	20.5	53319	30.0	21.3
46660	29.7	17.4	144798	29.7	18.9	406908	29.8	20.0	452699	29.9	21.0	300263	29.9	20.8	201345	30.0	19.4
232430	29.7	19.9	99370	29.7	18.7	85772	29.8	19.9	233007	29.9	19.5	456534	29.9	19.6	70665	30.0	19.0
496203	29.7	20.3	140300	29.7	19.3	323843	29.8	21.3	82968	29.9	20.0	402166	29.9	21.5	391063	30.0	20.7
377499	29.7	20.1	325120	29.7	20.6	502749	29.8	20.1	471192	29.9	21.1	267426	29.9	19.5	479438	30.0	20.4
341486	29.7	20.3	424758	29.7	21.5	117172	29.8	19.9	421669	29.9	20.8	461344	29.9	21.6	372399	30.0	21.1
197590	29.7	20.3	140685	29.7	20.0	231793	29.8	20.1	304819	29.9	20.9	465970	29.9	21.3	66909	30.0	19.4
521033	29.7	21.1	336739	29.7	19.5	154840	29.8	19.8	91432	29.9	18.8	200740	29.9	19.8	497123	30.0	20.2
458027	29.7	21.1	261470	29.7	21.0	143314	29.8	19.3	418412	29.9	21.4	257239	29.9	20.2	384456	30.0	20.0
278771	29.7	19.8	163421	29.7	20.1	219068	29.8	20.9	77757	29.9	19.2	100740	29.9	18.9	138742	30.0	20.3
23276	29.7	17.4	378414	29.7	20.9	330465	29.8	20.8	508337	29.9	21.7	266040	29.9	21.4	165769	30.0	19.7
382210	29.7	20.8	497992	29.7	22.3	265373	29.8	19.9	237716	29.9	19.3	417622	29.9	19.7	266377	30.0	19.9
125603	29.7	19.8	272276	29.7	20.7	345998	29.8	20.2	281685	29.9	20.3	334514	29.9	22.2	458754	30.0	21.8
335954	29.7	20.0	356665	29.7	20.9	376672	29.8	20.8	174929	29.9	19.2	325885	29.9	20.0	82701	30.0	18.5
81680	29.7	18.7	459712	29.7	21.9	286462	29.8	19.6	118694	29.9	20.2	380376	29.9	21.4	56047	30.0	18.7
169249	29.7	20.6	241420	29.8	19.4	108754	29.8	20.1	495464	29.9	20.6	502885	29.9	20.8	506021	30.0	21.6
274764	29.7	20.4	14276	29.8	16.2	492544	29.8	21.5	372816	29.9	19.9	11320	29.9	17.7	466434	30.0	21.0
32254	29.7	17.9	358596	29.8	21.0	358514	29.8	20.6	418358	29.9	21.1	503072	29.9	21.1	420516	30.0	21.4
134195	29.7	20.1	503130	29.8	20.3	29124	29.8	18.7	440403	29.9	21.9	298792	29.9	20.2	34254	30.0	19.3
343615	29.7	21.5	491995	29.8	22.1	363121	29.8	20.6	497726	29.9	21.2	207562	29.9	19.7	32003	30.0	18.8
340750	29.7	20.5	169026	29.8	19.0	161979	29.8	19.6	415269	29.9	21.0	322649	29.9	20.6	191840	30.0	19.9
258116	29.7	20.0	288759	29.8	20.3	19465	29.8	18.4	359207	29.9	20.1	293709	29.9	20.5	362062	30.0	20.1
21133	29.7	18.5	432453	29.8	20.7	371142	29.8	20.7	166140	29.9	19.7	162206	29.9	19.8	198940	30.0	19.5
293775	29.7	20.7	170131	29.8	19.2	343653	29.8	20.1	410441	29.9	20.5	226752	29.9	20.0	468844	30.0	21.6
142627	29.7	18.5	194711	29.8	18.2	32183	29.8	18.6	70032	29.9	17.1	134748	29.9	19.0	137919	30.0	18.5
393909	29.7	20.7	376553	29.8	20.3	232757	29.8	20.6	214929	29.9	19.4	128317	29.9	20.0	242249	30.0	21.8
16790	29.7	17.3	370740	29.8	21.1	242203	29.8	20.5	289369	29.9	19.8	202093	29.9	20.1	429376	30.0	20.3
209588	29.7	19.9	375654	29.8	20.1	85449	29.8	18.9	131948	29.9	19.2	86007	29.9	19.1	95983	30.0	19.6
29301	29.7	19.7	205881	29.8	20.4	304060	29.8	21.4	183580	29.9	20.3	392231	29.9	21.2	407957	30.0	19.2
109895	29.7	19.6	276178	29.8	20.9	266298	29.8	20.4	351207	29.9	20.1	277565	29.9	21.1	458295	30.0	20.3
88466	29.7	18.7	379120	29.8	20.7	298839	29.8	20.2	219694	29.9	18.8	421307	29.9	20.4	500782	30.0	21.8
238026	29.7	19.3	323429	29.8	20.9	265783	29.8	20.0	192095	29.9	20.2	200998	29.9	19.6	483366	30.0	21.4
160123	29.7	20.2	329024	29.8	21.3	199220	29.8	20.3	199139	29.9	19.5	159221	29.9	20.0	102757	30.0	20.6
101906	29.7	19.5	358123	29.8	21.1	6015	29.8	17.2	194510	29.9	21.0	323521	29.9	21.1	77598	30.0	18.9
142518	29.7	20.9	364011	29.8	21.7	154566	29.8	18.8	155661	29.9	20.2	415083	29.9	21.5	309774	30.0	19.8
377401	29.7	22.3	280266	29.8	20.1	268090	29.8	20.3	53238	29.9	18.0	136751	29.9	20.3	66274	30.0	17.4
301995	29.7	20.9	98068	29.8	19.4	197807	29.8	19.3	215465	29.9	19.7	224368	29.9	20.9	85526	30.0	18.6
15292	29.7	17.1	59652	29.8	18.9												

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
363311	30.1	21.1	306904	30.1	21.7	59203	30.2	17.7	122126	30.3	20.1	225579	30.3	19.7	57935	30.4	19.9
433020	30.1	21.0	314431	30.1	19.9	12288	30.2	16.5	4895	30.3	16.6	140783	30.3	19.5	377060	30.4	21.0
77678	30.1	18.6	76850	30.1	19.0	120887	30.2	19.9	465830	30.3	21.6	139761	30.3	18.9	30297	30.4	17.8
426489	30.1	21.8	207772	30.1	20.1	246059	30.2	20.3	265343	30.3	20.3	522397	30.3	21.3	381641	30.4	20.3
6705	30.1	17.3	464273	30.1	19.4	32758	30.2	18.9	248673	30.3	21.4	206273	30.3	19.4	519927	30.4	21.5
143524	30.1	19.2	89042	30.1	17.5	73703	30.2	18.5	15644	30.3	17.0	52682	30.3	19.2	373844	30.4	20.8
236242	30.1	19.3	357133	30.1	19.4	375348	30.2	20.3	207007	30.3	20.0	398684	30.3	21.0	61664	30.4	18.6
243232	30.1	20.4	361179	30.1	21.4	286357	30.2	21.0	79472	30.3	16.8	168281	30.3	20.1	64439	30.4	19.3
432164	30.1	19.1	53601	30.1	19.1	291015	30.2	20.2	41697	30.3	17.9	362927	30.3	20.6	369373	30.4	20.8
259970	30.1	19.7	424737	30.1	20.6	211632	30.2	20.0	247836	30.3	20.8	320851	30.3	20.2	393227	30.4	20.4
55315	30.1	17.3	252960	30.1	21.0	222744	30.2	18.9	68757	30.3	19.7	249351	30.4	19.3	243520	30.4	20.2
416884	30.1	21.0	207809	30.1	19.7	471105	30.2	20.7	154357	30.3	19.5	258197	30.4	19.5	440670	30.4	20.1
130695	30.1	20.2	412311	30.1	20.9	65784	30.2	18.5	361665	30.3	20.0	325904	30.4	20.7	47184	30.4	18.6
441849	30.1	20.2	170785	30.1	19.7	32804	30.2	18.3	277826	30.3	20.1	205917	30.4	20.4	399957	30.4	20.2
433891	30.1	21.0	425492	30.1	20.2	520802	30.2	20.6	296035	30.3	20.2	274912	30.4	20.8	330126	30.4	21.1
98504	30.1	18.2	167122	30.1	20.2	26599	30.2	18.0	92424	30.3	19.4	409430	30.4	20.5	430322	30.4	20.6
1668	30.1	16.8	371762	30.1	20.7	415524	30.2	21.1	358102	30.3	19.7	296362	30.4	20.5	327313	30.4	20.6
157369	30.1	19.4	118761	30.1	19.8	196014	30.2	20.8	354977	30.3	21.8	382229	30.4	21.2	70312	30.4	19.5
12176	30.1	18.3	414017	30.2	19.3	49409	30.2	18.4	335630	30.3	20.5	235566	30.4	20.7	357381	30.4	21.4
378437	30.1	20.2	453300	30.2	20.6	7562	30.2	16.7	140434	30.3	20.1	430166	30.4	20.6	201418	30.4	19.4
321512	30.1	20.4	154028	30.2	18.6	424640	30.2	21.2	328746	30.3	20.9	371078	30.4	20.7	453796	30.4	21.6
465492	30.1	20.7	359121	30.2	20.2	403574	30.2	20.3	446856	30.3	20.8	329841	30.4	20.9	341219	30.4	20.9
343023	30.1	20.0	448300	30.2	20.4	453290	30.2	21.8	152484	30.3	19.4	66760	30.4	18.7	108903	30.4	18.4
358028	30.1	21.1	375444	30.2	20.8	68900	30.2	19.2	231812	30.3	20.2	31104	30.4	18.0	265349	30.4	20.1
424148	30.1	21.5	405951	30.2	20.7	466781	30.2	21.2	298349	30.3	19.6	73526	30.4	20.3	227595	30.4	19.8
174223	30.1	21.0	276164	30.2	20.6	472369	30.2	20.4	385926	30.3	21.2	10975	30.4	19.2	332767	30.4	20.6
152372	30.1	19.6	413995	30.2	20.6	201962	30.2	20.7	90449	30.3	18.9	249562	30.4	20.4	508578	30.4	21.7
491744	30.1	21.0	373927	30.2	20.5	235965	30.2	19.8	493890	30.3	21.1	12018	30.4	18.6	129531	30.4	18.8
166905	30.1	18.8	310849	30.2	19.0	87054	30.2	18.8	53975	30.3	19.5	506334	30.4	21.0	464245	30.4	21.0
285315	30.1	20.5	464937	30.2	21.0	399523	30.2	20.2	367938	30.3	20.5	161224	30.4	19.6	201249	30.4	18.7
273261	30.1	20.7	334577	30.2	19.9	266797	30.2	20.3	437789	30.3	20.3	59757	30.4	19.3	498176	30.4	20.9
10307	30.1	16.8	157144	30.2	20.1	322028	30.2	20.8	419050	30.3	20.1	218749	30.4	20.7	247670	30.4	19.7
168309	30.1	19.1	51805	30.2	18.8	31424	30.2	17.3	429301	30.3	21.2	268550	30.4	20.1	365139	30.4	21.0
140821	30.1	19.1	446442	30.2	20.8	144492	30.2	19.5	241489	30.3	20.7	163802	30.4	19.7	129503	30.4	20.5
81895	30.1	17.9	276330	30.2	20.8	373336	30.2	20.7	44712	30.3	18.5	58355	30.4	18.2	458292	30.4	21.4
421419	30.1	20.7	192911	30.2	19.1	239259	30.2	19.7	269616	30.3	20.4	66645	30.4	18.1	262058	30.5	21.7
499918	30.1	20.2	7975	30.2	17.2	323801	30.2	19.7	77121	30.3	18.3	141864	30.4	20.4	344109	30.5	21.7
171947	30.1	20.0	432465	30.2	20.9	419145	30.2	20.9	362106	30.3	20.9	395402	30.4	22.5	162877	30.5	19.8
420015	30.1	19.6	246700	30.2	20.3	319571	30.2	21.3	461409	30.3	20.4	432113	30.4	19.3	349192	30.5	21.1
5479	30.1	17.9	241852	30.2	19.2	217104	30.2	20.5	323097	30.3	20.9	490289	30.4	20.9	242630	30.5	20.7
422905	30.1	20.5	338909	30.2	20.3	244997	30.2	20.1	162680	30.3	20.5	492416	30.4	21.7	9697	30.5	18.0
110223	30.1	19.1	3999	30.2	15.1	230478	30.2	19.1	102400	30.3	20.6	416039	30.4	19.5	35156	30.5	20.4
184201	30.1	19.6	369104	30.2	21.5	85142	30.2	19.7	165258	30.3	20.2	176745	30.4	20.3	240536	30.5	20.9
197196	30.1	19.8	34121	30.2	18.2	55585	30.2	18.9	284981	30.3	21.5	321130	30.4	19.7	360578	30.5	20.5
144429	30.1	20.6	77207	30.2	19.4	46576	30.2	17.6	511243	30.3	19.8	253056	30.4	19.4	124241	30.5	19.1
198562	30.1	20.8	346180	30.2	20.6	489208	30.2	22.2	260053	30.3	21.0	168261	30.4	19.7	139529	30.5	19.4
323471	30.1	21.5	272312	30.2	21.0	127822	30.2	19.3	148861	30.3	19.2	125460	30.4	18.6	264485	30.5	20.9
421809	30.1	21.4	519552	30.2	21.2	499138	30.2	22.3	269220	30.3	21.0	227989	30.4	20.6	169537	30.5	19.5
134318	30.1	20.8	110967	30.2	19.0	317186	30.2	20.3	87409	30.3	19.9	15829	30.4	16.9	71644	30.5	17.9
65144	30.1	18.8	466048	30.2	21.1	54271	30.2	17.8	96657	30.3	18.4	175450	30.4	20.5	375764	30.5	20.4
168023	30.1	20.2	153076	30.2	18.6	32749	30.2	18.2	502778	30.3	21.4	161896	30.4	20.1	365685	30.5	21.6
90830	30.1	19.6	263564	30.2	19.6	500274	30.2	21.1	335634	30.3	20.9	119131	30.4	19.3	133387	30.5	20.7
11244	30.1	16.9	459812	30.2	21.1	18324	30.2	17.7	405055	30.3	21.4	26842	30.4	17.4	423179	30.5	20.6
490397	30.1	21.6	213430	30.2	19.0	426902	30.2	20.5	261919	30.3	20.6	235396	30.4	19.6	14407	30.5	18.6
54319	30.1	18.7	90156	30.2	18.9	368586	30.2	21.4	150320	30.3	19.2	500323	30.4	20.5	462626	30.5	21.5
456306	30.1	20.9	151192	30.2	19.9	256868	30.2	20.6	466275	30.3	22.1	91438	30.4	18.3	54078	30.5	18.6
301738	30.1	19.7	381225	30.2	20.9	34363	30.2	18.2	446825	30.3	21.9	496543	30.4	21.3	395395	30.5	21.5
134441	30.1	18.8	370694	30.2	21.1	69821	30.2	19.2	163480	30.3	20.0	163610	30.4	18.6	68548	30.5	19.6
451019	30.1	21.4	489109	30.2	21.4	261189	30.2	19.7	301594	30.3	20.7	107306	30.4	18.8	492566	30.5	21.5
13375	30.1	17.7	239707	30.2	20.4	503175	30.2	19.9	377215	30.3	19.4	317535	30.4	19.6	229157	30.5	20.2
156285	30.1	20.9	100071	30.2	19.5	399326	30.2	21.0	468305	30.3	19.3	434323	30.4	20.8	8414	30.5	17.3
77889	30.1	18.3	462830	30.2	21.1	60978	30.2	18.6	203836	30.3	19.5	338973	30.4	20.8	460050	30.5	20.4
125969	30.1	19.7	279879	30.2	19.8	424515	30.2	21.3	239611	30.3	19.7	340156	30.4	19.7	69737	30.5	19.1
440938	30.1	20.7	71366	30.2	18.9	269811	30.2	20.5	418082	30.3	20.2	467652	30.4	21.3	101606	30.5	18.7
205228	30.1	19.6	39161	30.2	19.0	13414	30.3	18.0	85336	30.3	19.9	245872	30.4	19.4	47858	30.5	17.3
19349	30.1	17.9	291908	30.2	20.0	263146	30.3	20.3	430852	30.3	21.5	403792	30.4	20.9	432178	30.5	20.6
459691	30.1	21.4	455760	30.2	20.5	341347	30.3	20.7	176749	30.3	20.9	523611	30.4	23.1	462662	30.5	21.8
425716	30.1	21.4	486009	30.2	20.7	400309	30.3	21.5	357498	30.3	20.5	16246	30.4	19.3	54798	30.5	18.9
226008	30.1	20.0	419083	30.2	21.0	63707	30.3	18.4	4152								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
89247	30.5	17.5	506310	30.6	21.2	490262	30.6	20.9	421520	30.7	21.6	278622	30.8	21.0	197574	30.8	20.1
136383	30.5	19.4	293791	30.6	21.4	187875	30.6	20.5	174361	30.7	18.2	416931	30.8	21.1	309234	30.8	21.3
466956	30.5	19.7	89537	30.6	18.2	464257	30.6	20.2	307626	30.7	19.9	167634	30.8	19.6	29198	30.8	17.1
229612	30.5	20.1	67978	30.6	18.5	192583	30.6	19.1	125883	30.7	19.3	453801	30.8	20.5	433566	30.8	20.1
89280	30.5	18.9	223693	30.6	20.1	114036	30.6	19.0	307892	30.7	19.9	70342	30.8	19.5	237141	30.8	20.2
369845	30.5	21.0	235577	30.6	20.0	114870	30.6	19.4	170863	30.7	19.9	117788	30.8	19.7	77312	30.8	19.3
434028	30.5	21.6	291319	30.6	20.6	430086	30.6	20.7	191330	30.7	19.7	255249	30.8	20.9	63703	30.8	19.3
85916	30.5	18.4	522559	30.6	21.4	470900	30.6	20.3	464018	30.7	21.3	179961	30.8	19.7	461934	30.8	20.4
407316	30.5	20.7	385138	30.6	21.1	253704	30.6	21.2	179275	30.7	19.0	237538	30.8	20.8	122360	30.8	20.0
95893	30.5	19.5	49794	30.6	18.3	283974	30.6	20.7	296100	30.7	20.1	323953	30.8	19.8	7687	30.8	16.6
197659	30.5	20.3	345533	30.6	21.3	331258	30.6	18.7	87538	30.7	19.0	304966	30.8	19.8	445073	30.8	21.1
290973	30.5	19.5	85620	30.6	18.1	378452	30.6	20.7	415074	30.7	20.8	93351	30.8	18.1	105750	30.8	19.5
259029	30.5	20.5	404232	30.6	20.1	104354	30.6	18.9	379119	30.7	20.2	471163	30.8	20.0	333110	30.8	20.5
18923	30.5	18.1	109020	30.6	19.5	117175	30.6	19.3	233483	30.7	20.0	168721	30.8	20.5	500238	30.8	20.1
104863	30.5	19.7	376346	30.6	20.3	502833	30.6	21.0	322097	30.7	20.3	381982	30.8	20.2	368743	30.8	21.1
129809	30.5	20.0	245760	30.6	21.5	379830	30.6	20.1	285113	30.7	20.2	258139	30.8	21.5	80059	30.8	18.4
130987	30.5	19.2	60600	30.6	18.5	467880	30.6	20.3	52059	30.7	19.6	503843	30.8	21.1	47893	30.8	17.6
204649	30.5	19.2	15855	30.6	18.0	459335	30.6	18.8	245939	30.7	20.5	175651	30.8	20.0	145667	30.8	18.6
247796	30.5	21.3	197559	30.6	20.3	403545	30.6	21.3	289956	30.7	19.3	105067	30.8	19.1	406863	30.8	20.9
284095	30.5	21.2	180604	30.6	19.6	55899	30.6	18.6	55071	30.7	18.5	364304	30.8	21.9	196420	30.8	19.9
247036	30.5	19.3	74044	30.6	19.0	186217	30.6	19.5	8764	30.7	19.0	362310	30.8	23.3	496034	30.8	21.5
371200	30.5	20.7	326019	30.6	20.2	342882	30.6	21.3	56979	30.7	18.8	234391	30.8	19.5	182430	30.8	19.9
335649	30.5	20.9	444326	30.6	21.8	401963	30.6	21.0	399565	30.7	21.0	429248	30.8	20.4	463300	30.8	21.6
386595	30.5	19.5	320617	30.6	20.6	223718	30.6	19.9	417845	30.7	20.0	418315	30.8	20.7	371622	30.8	20.2
95687	30.5	18.6	230900	30.6	21.0	405401	30.6	21.1	164503	30.7	19.8	336550	30.8	20.6	144403	30.8	18.8
117060	30.5	19.6	466832	30.6	20.8	486809	30.6	20.5	113288	30.7	19.0	127036	30.8	18.9	347392	30.8	21.1
383810	30.5	20.8	163213	30.6	20.0	233982	30.6	21.5	287792	30.7	20.9	136435	30.8	19.6	464807	30.8	21.4
475715	30.5	21.2	156115	30.6	20.7	435945	30.6	19.6	309221	30.7	21.5	496908	30.8	21.9	1909	30.8	16.0
245749	30.5	20.5	17286	30.6	18.2	297880	30.6	19.1	205326	30.7	19.2	358996	30.8	20.3	222293	30.8	20.4
345293	30.5	18.8	273875	30.6	21.0	207586	30.6	21.0	110865	30.7	19.3	130714	30.8	18.1	159906	30.8	19.7
506236	30.5	20.7	263327	30.6	20.5	87598	30.6	19.6	295433	30.7	21.7	429719	30.8	21.3	269209	30.8	21.2
84137	30.5	19.0	373003	30.6	20.7	427450	30.6	21.2	116512	30.7	19.4	496019	30.8	21.2	278409	30.8	20.1
226973	30.5	19.3	222077	30.6	19.8	259826	30.6	19.9	55050	30.7	18.9	343578	30.8	20.3	494995	30.9	21.4
164316	30.5	19.7	143174	30.6	19.7	369779	30.6	20.6	163382	30.7	19.9	416890	30.8	20.7	359140	30.9	20.7
137959	30.5	18.6	363100	30.6	20.7	264529	30.6	20.4	104714	30.7	18.8	520041	30.8	20.6	116782	30.9	19.8
341443	30.5	19.6	262855	30.6	19.0	348482	30.6	20.1	196905	30.7	20.1	18762	30.8	17.9	18232	30.9	18.0
327039	30.5	20.6	215274	30.6	20.0	306437	30.6	20.5	458866	30.7	22.4	214323	30.8	20.7	347002	30.9	21.0
174500	30.5	18.7	167629	30.6	19.3	152311	30.6	20.9	243092	30.7	20.0	210248	30.8	20.1	492707	30.9	21.5
462271	30.5	19.4	68054	30.6	18.3	295764	30.6	20.1	197777	30.7	19.8	522658	30.8	21.8	331193	30.9	20.7
412756	30.5	20.4	340787	30.6	20.7	496586	30.6	20.8	402640	30.7	20.8	82250	30.8	20.3	116406	30.9	19.5
365163	30.5	20.3	212724	30.6	19.8	175933	30.6	20.1	341503	30.7	20.8	414955	30.8	20.7	93256	30.9	19.2
404147	30.5	19.7	63405	30.6	19.8	220584	30.6	20.0	81192	30.7	19.9	151545	30.8	19.1	400558	30.9	20.0
64239	30.5	19.0	172955	30.6	20.6	158952	30.6	20.3	287616	30.7	19.9	169014	30.8	19.3	448225	30.9	21.4
224626	30.5	20.3	216560	30.6	18.9	274143	30.6	20.9	334234	30.7	20.4	50979	30.8	18.7	403826	30.9	19.8
171375	30.5	20.1	210477	30.6	21.2	106983	30.6	18.1	142535	30.7	20.3	104785	30.8	19.7	117222	30.9	20.1
185321	30.5	19.0	363139	30.6	20.7	61069	30.7	18.7	284193	30.7	19.5	408734	30.8	20.3	30815	30.9	18.0
384600	30.5	21.1	428187	30.6	20.3	258898	30.7	20.3	41565	30.7	18.8	326689	30.8	19.4	110553	30.9	19.1
395301	30.5	20.8	479311	30.6	21.0	347358	30.7	20.0	317969	30.7	20.8	296062	30.8	21.1	461694	30.9	21.4
4960	30.5	17.5	274245	30.6	20.5	20087	30.7	17.4	468892	30.7	21.0	264419	30.8	20.2	273188	30.9	20.5
326996	30.5	20.3	265789	30.6	20.4	3256	30.7	16.1	371968	30.7	22.1	203393	30.8	19.7	154638	30.9	18.2
226849	30.5	19.8	278417	30.6	20.4	81776	30.7	20.3	282997	30.7	20.7	168304	30.8	18.9	387437	30.9	20.4
500210	30.5	20.1	361861	30.6	23.5	15193	30.7	18.2	330402	30.7	19.8	94642	30.8	18.4	4583	30.9	17.2
448201	30.5	20.5	490664	30.6	22.2	222800	30.7	19.3	128805	30.7	20.8	316577	30.8	20.9	202316	30.9	19.3
451090	30.5	20.0	410529	30.6	20.7	100708	30.7	18.8	109892	30.7	19.4	488531	30.8	22.1	180709	30.9	19.4
419016	30.5	22.0	193828	30.6	21.0	104240	30.7	18.8	23795	30.7	18.5	161118	30.8	19.3	443800	30.9	21.0
327452	30.5	19.8	459170	30.6	20.8	379963	30.7	19.9	243226	30.7	21.0	454386	30.8	20.6	122458	30.9	20.0
133197	30.5	20.1	324522	30.6	19.7	461415	30.7	21.1	187306	30.7	20.0	421583	30.8	21.2	407321	30.9	19.6
489694	30.5	21.4	150566	30.6	19.1	428444	30.7	21.0	30232	30.7	18.7	334562	30.8	20.1	384824	30.9	20.4
262221	30.5	19.9	309458	30.6	20.6	294119	30.7	19.9	130450	30.7	19.5	118658	30.8	19.7	179011	30.9	19.9
452225	30.5	20.7	236027	30.6	19.8	359635	30.7	19.9	337367	30.7	21.7	428511	30.8	20.5	6352	30.9	17.1
124149	30.5	19.7	67987	30.6	19.6	34546	30.7	18.5	401893	30.7	20.2	61943	30.8	18.4	170505	30.9	20.3
330769	30.5	21.3	207981	30.6	20.4	219398	30.7	19.7	456054	30.7	19.9	47645	30.8	18.1	237491	30.9	20.8
148570	30.5	19.2	206928	30.6	19.8	242106	30.7	19.5	162425	30.7	19.8	49429	30.8	18.7	467994	30.9	20.9
496746	30.5	20.7	417119	30.6	21.0	264688	30.7	20.1	488827	30.7	21.6	67414	30.8	18.8	297079	30.9	19.9
115992	30.5	18.7	200590	30.6	21.0	445038	30.7	20.5	109140	30.7	18.9	250252	30.8	19.3	355365	30.9	20.4
522483	30.5	21.3	175411	30.6	19.9	130523	30.7	21.0	955	30.7	15.4	153809	30.8	18.3	522437	30.9	20.7
200654	30.5	20.3	154674	30.6	20.1	283980	30.7	20.1	380688	30.7	20.7	413048	30.8	20.8	234517	30.9	20.5
13652	30.5	18.8	412865	30.6	21.7	491182	30.7	21.7	39341	30.7	18.7	6464	30.8	16.2	414426	30.9	21.5
411798	30.5	20.7	226905	30.6	19.8	373021	3										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
490544	30.9	20.3	262656	30.9	19.7	238400	31.0	20.2	338913	31.1	20.3	72074	31.2	17.4	192025	31.2	19.8
432965	30.9	21.2	87197	30.9	17.6	376628	31.0	22.5	502815	31.1	21.1	408890	31.2	20.1	39355	31.2	18.1
466504	30.9	20.3	61046	30.9	19.2	71983	31.0	18.1	81789	31.1	19.3	340609	31.2	20.8	115727	31.3	19.6
200855	30.9	20.4	40629	30.9	19.0	205656	31.0	20.4	238183	31.1	19.4	283131	31.2	19.9	264779	31.3	19.0
194055	30.9	20.0	456790	30.9	21.3	169084	31.0	18.1	337800	31.1	20.7	240537	31.2	20.2	27608	31.3	18.8
213848	30.9	19.0	498325	30.9	22.8	345993	31.0	20.1	216300	31.1	19.3	429021	31.2	21.2	221518	31.3	20.8
184039	30.9	20.0	19825	30.9	18.2	347800	31.0	20.8	114947	31.1	19.5	166694	31.2	18.7	29389	31.3	18.3
403604	30.9	19.0	466774	30.9	20.5	234392	31.0	19.3	413884	31.1	21.5	232015	31.2	21.2	165693	31.3	19.7
191778	30.9	21.2	410493	30.9	20.3	336003	31.0	20.0	244309	31.1	20.1	361541	31.2	20.4	500388	31.3	21.4
138038	30.9	19.5	297966	30.9	20.0	7246	31.0	16.9	282086	31.1	21.2	205884	31.2	19.0	6207	31.3	16.3
397068	30.9	20.5	253212	30.9	20.9	496684	31.0	20.4	415302	31.1	21.1	201279	31.2	20.7	333772	31.3	20.9
107740	30.9	19.4	117021	30.9	19.2	198313	31.0	20.7	94145	31.1	19.3	431327	31.2	21.6	457019	31.3	20.9
126808	30.9	19.4	29854	30.9	16.8	267762	31.0	21.0	81567	31.1	19.2	140261	31.2	18.4	118749	31.3	19.1
30466	30.9	18.3	86815	30.9	19.4	498319	31.0	21.3	461797	31.1	22.1	281124	31.2	21.0	358088	31.3	21.0
426848	30.9	19.7	46875	30.9	15.8	131145	31.0	19.1	367334	31.1	20.1	425012	31.2	20.2	21244	31.3	18.9
155783	30.9	17.5	74462	30.9	19.1	349524	31.0	21.2	312753	31.1	20.1	421270	31.2	20.8	53268	31.3	18.1
412735	30.9	22.2	306665	30.9	21.2	253163	31.0	19.7	219812	31.1	20.3	245812	31.2	20.7	135416	31.3	19.2
463270	30.9	22.1	466639	30.9	20.8	399683	31.0	21.1	107286	31.1	19.2	449222	31.2	20.6	69208	31.3	19.7
340686	30.9	21.0	90059	30.9	18.9	172802	31.0	20.5	316895	31.1	21.4	128730	31.2	19.2	352829	31.3	19.7
325028	30.9	20.9	93630	30.9	19.4	333113	31.1	21.1	113957	31.1	19.4	495003	31.2	20.5	116757	31.3	19.2
452460	30.9	21.1	187887	30.9	20.5	55426	31.1	17.7	412677	31.1	21.3	207864	31.2	20.0	378688	31.3	22.1
152249	30.9	19.3	84550	30.9	18.2	49438	31.1	17.6	14098	31.1	18.8	204138	31.2	19.2	459686	31.3	20.2
237237	30.9	20.4	414884	30.9	20.9	201696	31.1	19.1	43259	31.1	17.5	324489	31.2	19.5	117626	31.3	20.0
130630	30.9	19.1	140915	30.9	19.9	472426	31.1	21.6	124632	31.1	18.7	31230	31.2	16.7	114699	31.3	20.0
336538	30.9	20.6	7726	30.9	17.6	274567	31.1	20.7	149479	31.1	19.7	429020	31.2	20.4	492499	31.3	21.3
411351	30.9	20.4	409805	30.9	20.4	73800	31.1	19.1	307628	31.1	20.5	168515	31.2	20.8	425203	31.3	20.7
312932	30.9	19.9	394356	30.9	20.4	409550	31.1	20.1	203282	31.1	20.2	489911	31.2	21.2	399536	31.3	22.5
14369	30.9	17.7	500613	30.9	21.0	423942	31.1	21.8	194505	31.1	20.8	502767	31.2	21.5	59527	31.3	17.6
394801	30.9	21.4	468404	30.9	20.5	54060	31.1	18.1	292394	31.1	20.9	377472	31.2	20.6	408259	31.3	20.7
468767	30.9	22.4	194326	30.9	19.1	64341	31.1	18.6	383441	31.1	21.2	453347	31.2	21.6	461338	31.3	19.7
520746	30.9	20.6	324152	30.9	19.5	420880	31.1	21.5	191751	31.1	20.4	340685	31.2	20.4	262647	31.3	20.8
163588	30.9	18.6	104471	30.9	20.5	376406	31.1	20.7	415214	31.1	20.0	152665	31.2	19.8	162198	31.3	20.2
154346	30.9	20.6	241820	31.0	20.6	494965	31.1	21.4	385862	31.1	20.7	152547	31.2	20.1	152892	31.3	19.4
302409	30.9	19.8	260719	31.0	21.6	491856	31.1	20.5	240902	31.1	20.9	252342	31.2	18.3	293162	31.3	20.0
109342	30.9	19.5	351253	31.0	21.1	327951	31.1	20.5	73511	31.1	18.9	236670	31.2	20.2	460691	31.3	21.2
81861	30.9	19.6	235600	31.0	20.7	116490	31.1	19.9	496296	31.1	20.4	76520	31.2	18.2	242759	31.3	19.6
281334	30.9	21.1	244547	31.0	20.1	172985	31.1	22.0	463490	31.1	21.0	68496	31.2	17.5	206327	31.3	21.0
36244	30.9	18.6	88638	31.0	19.4	53627	31.1	19.3	7002	31.1	19.1	399212	31.2	21.0	498459	31.3	19.7
291077	30.9	20.8	17247	31.0	18.8	98006	31.1	20.2	83294	31.1	18.8	235601	31.2	20.9	275463	31.3	19.4
455322	30.9	19.0	393705	31.0	21.4	178654	31.1	19.2	100129	31.1	19.2	49541	31.2	18.1	338443	31.3	19.2
105398	30.9	18.6	284989	31.0	21.6	460387	31.1	21.7	375706	31.1	21.0	411401	31.2	21.2	522214	31.3	21.2
140645	30.9	19.4	465702	31.0	20.7	238404	31.1	20.9	396634	31.1	21.2	212552	31.2	19.7	427497	31.3	19.5
120025	30.9	19.4	90413	31.0	18.5	226878	31.1	20.6	246683	31.1	19.8	421671	31.2	21.0	104080	31.3	17.9
373309	30.9	20.6	239931	31.0	20.8	366407	31.1	20.6	110365	31.1	19.0	110802	31.2	20.7	202052	31.3	20.0
47765	30.9	18.3	132273	31.0	19.2	416443	31.1	20.8	341796	31.1	20.2	63351	31.2	19.8	223754	31.3	19.1
152034	30.9	20.1	104040	31.0	19.2	274029	31.1	21.9	512955	31.1	21.4	488976	31.2	20.2	364313	31.3	21.7
423275	30.9	20.3	337352	31.0	21.3	412591	31.1	21.6	462999	31.1	20.9	83116	31.2	19.0	459236	31.3	20.6
425339	30.9	20.6	225377	31.0	19.7	262701	31.1	21.2	461706	31.2	20.4	29941	31.2	17.9	60794	31.3	19.4
460169	30.9	21.7	328360	31.0	21.2	172046	31.1	19.8	5780	31.2	17.6	230415	31.2	20.2	402916	31.3	21.3
461744	30.9	20.2	157357	31.0	20.1	160865	31.1	19.9	456664	31.2	21.3	285750	31.2	20.1	398356	31.3	21.4
370842	30.9	20.8	219353	31.0	19.6	112	31.1	13.5	313843	31.2	20.2	73523	31.2	19.6	149925	31.3	20.5
55781	30.9	19.0	336750	31.0	20.1	41363	31.1	18.5	281066	31.2	20.8	67041	31.2	19.1	173477	31.3	20.5
217083	30.9	21.3	34727	31.0	18.1	423563	31.1	20.9	421856	31.2	21.8	28515	31.2	18.6	264136	31.3	20.6
462036	30.9	20.7	468186	31.0	20.7	296128	31.1	20.0	256367	31.2	18.9	465883	31.2	20.6	130701	31.3	18.7
67525	30.9	19.4	468506	31.0	22.2	468959	31.1	20.8	432478	31.2	22.0	318010	31.2	19.4	464886	31.3	20.3
430500	30.9	21.1	70544	31.0	18.0	135325	31.1	20.1	63756	31.2	19.0	3230	31.2	17.9	486687	31.3	20.8
73982	30.9	18.2	359651	31.0	21.4	148816	31.1	19.6	402935	31.2	21.7	458955	31.2	21.8	456661	31.3	21.3
89550	30.9	17.7	365512	31.0	21.5	122485	31.1	19.9	20376	31.2	18.0	400373	31.2	20.9	106032	31.3	20.1
460663	30.9	21.0	235570	31.0	19.7	281847	31.1	20.3	301981	31.2	20.4	491765	31.2	20.7	423518	31.3	21.4
290335	30.9	21.5	301074	31.0	20.0	405884	31.1	21.3	116880	31.2	19.8	326172	31.2	21.0	457126	31.3	21.8
184154	30.9	20.4	334965	31.0	20.1	411420	31.1	20.4	34186	31.2	19.8	352421	31.2	21.1	336755	31.3	19.5
145772	30.9	19.4	372387	31.0	22.4	427280	31.1	21.3	311671	31.2	19.9	465533	31.2	21.2	165994	31.3	18.3
365132	30.9	20.1	322358	31.0	20.0	256746	31.1	19.6	428122	31.2	19.8	375560	31.2	20.1	72697	31.3	19.3
40541	30.9	19.0	430497	31.0	20.8	375613	31.1	20.5	31396	31.2	17.8	426907	31.2	21.4	211688	31.3	19.7
408161	30.9	21.3	19347	31.0	18.2	68480	31.1	19.3	286757	31.2	20.7	148731	31.2	19.2	190794	31.3	18.8
275406	30.9	20.8	140099	31.0	18.8	444182	31.1	21.3	257563	31.2	19.4	416956	31.2	20.9	116814	31.3	19.5
462663	30.9	21.2	242456	31.0	20.8	346099	31.1	20.9	502495	31.2	20.1	160810	31.2	19.3	235915	31.3	20.1
118952	30.9	19.5	428407	31.0	20.8	384206	31.1	19.4	145710	31.2	19.9	364802	31.2	19.9	171257	31.3	20.4
308687	30.9	20.5	383732	31.0	20.3	47790	31.1</										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
354158	31.3	19.9	83086	31.4	19.1	411313	31.5	21.0	140262	31.5	18.6	465566	31.6	20.7	417613	31.6	21.6
50800	31.3	19.3	153324	31.4	19.7	33247	31.5	17.5	349108	31.5	20.2	500300	31.6	21.7	85840	31.6	19.1
207621	31.3	21.1	431467	31.4	21.6	162626	31.5	21.0	356269	31.5	21.5	170309	31.6	19.6	522665	31.6	21.9
58246	31.3	18.9	289446	31.4	20.0	198605	31.5	20.1	390390	31.5	20.4	407458	31.6	20.4	426435	31.7	21.2
340649	31.3	21.0	367206	31.4	20.0	381229	31.5	19.9	461988	31.5	20.1	493513	31.6	20.9	381693	31.7	19.6
518585	31.3	20.5	448763	31.4	20.9	254015	31.5	19.8	107132	31.5	18.7	284099	31.6	21.0	228270	31.7	20.4
496561	31.3	19.8	523757	31.4	21.5	468141	31.5	20.2	411453	31.5	20.6	76597	31.6	17.1	183296	31.7	18.9
187572	31.3	18.4	380486	31.4	20.1	273056	31.5	20.6	446115	31.5	20.2	144963	31.6	19.6	492654	31.7	22.3
500510	31.3	21.2	334136	31.4	21.1	70326	31.5	19.8	210980	31.5	19.8	74602	31.6	18.8	413046	31.7	21.6
324590	31.3	20.3	258144	31.4	21.0	109905	31.5	19.0	427716	31.5	20.9	318765	31.6	20.0	355868	31.7	20.0
344509	31.3	20.3	132186	31.4	19.5	47737	31.5	19.5	122302	31.5	19.0	489654	31.6	20.1	263124	31.7	20.6
493964	31.3	20.9	259223	31.4	19.3	374581	31.5	19.7	243564	31.5	21.4	237711	31.6	20.6	271938	31.7	19.9
307673	31.3	21.0	163465	31.4	19.8	88457	31.5	20.1	428186	31.5	21.6	146457	31.6	19.0	465978	31.7	21.0
240324	31.3	19.6	85085	31.4	19.8	56381	31.5	18.7	346121	31.5	19.5	190789	31.6	19.5	112732	31.7	19.1
295357	31.3	20.0	246762	31.4	20.1	434305	31.5	19.5	261438	31.5	19.7	83146	31.6	17.9	281361	31.7	21.1
336387	31.3	20.5	149674	31.4	19.4	456833	31.5	21.6	411764	31.5	20.5	238666	31.6	20.4	196156	31.7	20.0
104414	31.3	18.8	500197	31.4	21.3	417805	31.5	19.4	460336	31.5	21.7	17809	31.6	17.6	344472	31.7	21.1
385025	31.3	20.8	130703	31.4	19.4	231555	31.5	20.2	437772	31.5	20.2	415236	31.6	20.7	61404	31.7	19.5
131793	31.3	19.4	100655	31.4	19.7	27927	31.5	19.5	33112	31.5	17.6	52104	31.6	19.4	433058	31.7	21.3
209451	31.3	19.3	215118	31.4	21.3	228738	31.5	21.0	141165	31.5	19.6	284690	31.6	21.0	448189	31.7	19.9
384148	31.3	20.1	103587	31.4	18.8	258099	31.5	20.7	253270	31.5	18.4	176828	31.6	19.1	70115	31.7	19.4
160179	31.3	21.0	35553	31.4	18.9	105166	31.5	17.5	167960	31.5	19.6	122575	31.6	19.2	459598	31.7	21.1
205490	31.3	19.6	416239	31.4	19.4	243508	31.5	20.5	362115	31.5	20.9	453273	31.6	22.0	460695	31.7	21.3
317787	31.3	21.5	417162	31.4	21.1	203039	31.5	20.5	180016	31.5	19.5	279892	31.6	21.1	344286	31.7	21.8
184107	31.3	20.5	135273	31.4	19.5	493	31.5	15.2	502769	31.5	21.8	510655	31.6	21.1	29634	31.7	18.8
6141	31.3	15.5	423567	31.4	21.4	360444	31.5	21.3	39921	31.5	17.0	122782	31.6	19.5	360529	31.7	20.4
51791	31.3	17.5	97861	31.4	18.8	391079	31.5	21.2	343018	31.5	19.7	451077	31.6	20.1	322821	31.7	20.1
65094	31.3	18.8	274740	31.4	21.3	385854	31.5	20.3	288475	31.5	19.5	256828	31.6	20.0	390263	31.7	21.8
85341	31.3	18.7	45855	31.4	19.1	378795	31.5	20.7	161665	31.5	19.7	519529	31.6	22.1	246801	31.7	19.9
522362	31.3	21.1	212403	31.4	21.2	83082	31.5	18.9	170975	31.5	19.6	396853	31.6	22.2	142955	31.7	19.3
419	31.3	12.8	61246	31.4	19.2	248030	31.5	20.3	272989	31.5	20.6	250459	31.6	19.6	369292	31.7	20.3
292084	31.4	20.8	522659	31.4	20.6	192103	31.5	20.0	427342	31.5	20.4	417202	31.6	21.5	460116	31.7	21.1
327981	31.4	22.0	278170	31.4	19.7	364618	31.5	19.8	400293	31.6	22.0	335192	31.6	20.6	461939	31.7	20.2
213595	31.4	20.9	160094	31.4	19.9	219828	31.5	19.8	195154	31.6	19.9	119771	31.6	19.5	387023	31.7	21.2
41813	31.4	18.2	258788	31.4	21.4	30594	31.5	17.4	330691	31.6	20.3	49293	31.6	18.5	209081	31.7	20.9
298785	31.4	21.9	184640	31.4	19.6	9810	31.5	17.1	12171	31.6	18.8	231054	31.6	19.8	217360	31.7	19.6
117672	31.4	19.3	117026	31.4	19.6	75959	31.5	18.6	251665	31.6	20.6	94958	31.6	19.4	170763	31.7	19.2
451692	31.4	20.3	74195	31.4	17.9	372604	31.5	20.2	24432	31.6	17.2	297193	31.6	20.8	38673	31.7	18.3
185738	31.4	18.1	153592	31.4	21.1	427330	31.5	21.0	404498	31.6	20.2	194286	31.6	20.5	72902	31.7	18.9
117015	31.4	20.2	424954	31.4	20.2	160133	31.5	18.9	209704	31.6	19.9	90075	31.6	18.1	36759	31.7	18.2
396746	31.4	20.3	149239	31.4	18.9	497098	31.5	20.1	314265	31.6	20.2	170986	31.6	19.5	378305	31.7	21.3
128458	31.4	19.1	214239	31.4	19.9	51901	31.5	19.1	132958	31.6	19.4	246322	31.6	19.8	304853	31.7	20.8
59799	31.4	19.0	115400	31.4	19.6	339579	31.5	21.6	413486	31.6	21.2	300324	31.6	20.1	82506	31.7	18.8
284753	31.4	21.0	277983	31.4	20.4	127444	31.5	19.9	431388	31.6	20.3	105017	31.6	19.7	469067	31.7	20.9
328703	31.4	20.8	292762	31.4	20.5	341417	31.5	20.9	204305	31.6	20.9	343077	31.6	20.3	356655	31.7	20.7
321549	31.4	20.9	464096	31.4	20.1	461794	31.5	21.6	325225	31.6	20.6	446836	31.6	22.1	426942	31.7	19.5
335963	31.4	19.9	318198	31.4	20.0	104755	31.5	20.0	239694	31.6	20.0	381980	31.6	19.1	421051	31.7	20.9
69405	31.4	18.3	338232	31.4	20.1	346017	31.5	19.7	241297	31.6	20.7	265671	31.6	20.5	224390	31.7	19.7
227171	31.4	20.1	377178	31.4	21.2	493909	31.5	21.0	424845	31.6	21.8	66883	31.6	19.7	373108	31.7	20.3
288576	31.4	20.2	202760	31.4	20.9	273014	31.5	20.3	198879	31.6	20.3	462845	31.6	19.8	110654	31.7	18.8
142266	31.4	19.9	110747	31.4	19.9	323850	31.5	21.7	308699	31.6	20.9	130057	31.6	20.5	467072	31.7	20.9
413544	31.4	20.6	275822	31.4	21.5	317137	31.5	19.5	304668	31.6	17.3	248557	31.6	20.9	110113	31.7	20.8
165425	31.4	18.4	340691	31.4	19.7	343314	31.5	20.7	384928	31.6	20.3	228265	31.6	20.2	184165	31.7	20.2
247131	31.4	20.0	238118	31.4	21.4	371744	31.5	21.3	246963	31.6	20.9	492507	31.6	22.1	398342	31.7	21.9
87485	31.4	17.6	116919	31.4	20.7	325304	31.5	20.3	228875	31.6	20.6	461393	31.6	21.3	284332	31.7	20.2
32796	31.4	17.9	34219	31.4	18.4	130846	31.5	18.6	300167	31.6	20.4	268500	31.6	20.5	114256	31.7	18.8
357228	31.4	21.3	187104	31.4	20.3	213264	31.5	19.8	34977	31.6	17.1	278366	31.6	20.3	161143	31.7	20.0
289415	31.4	19.9	363368	31.4	21.0	209586	31.5	19.0	343247	31.6	20.6	285202	31.6	20.2	199368	31.7	20.7
369385	31.4	21.2	172502	31.4	20.3	18938	31.5	18.8	248003	31.6	19.9	238896	31.6	20.6	463920	31.7	20.4
37918	31.4	19.0	306330	31.4	20.1	390966	31.5	21.3	87899	31.6	17.8	429928	31.6	21.3	54235	31.7	18.9
269944	31.4	20.2	502921	31.4	21.4	412804	31.5	20.9	148035	31.6	19.7	242940	31.6	21.1	331856	31.7	20.5
330715	31.4	21.1	11624	31.4	17.6	466846	31.5	20.8	53549	31.6	17.7	233505	31.6	19.6	378797	31.7	20.4
354941	31.4	20.0	340577	31.4	21.3	95782	31.5	20.2	155606	31.6	19.7	55211	31.6	19.0	183565	31.7	20.9
275790	31.4	21.8	454248	31.4	21.2	281621	31.5	20.3	301455	31.6	20.9	89065	31.6	20.1	78189	31.7	19.5
184079	31.4	19.9	124415	31.4	17.6	85735	31.5	18.7	226866	31.6	20.4	384203	31.6	20.3	358016	31.7	20.3
144493	31.4	20.4	417833	31.4	20.1	40017	31.5	18.8	247527	31.6	20.9	31107	31.6	18.8	176315	31.7	20.5
135680	31.4	20.2	333973	31.4	20.5	318768	31.5	21.6	202214	31.6	19.4	245024	31.6	18.8	426273	31.7	21.4
335927	31.4	20.1	450502	31.4	20.8	138657	31.5	19.9	454360	31.6	21.6	348545	31.6	20.0	282817	31.7	22.0
185514	31.4	19.6	437801	31.4	20.1	42560											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V	№	O1	V
179174	31.7	20.7	78322	31.8	18.7	427133	31.8	20.8	164611	31.9	19.4	306994	31.9	19.5	335925	31.9	21.2
58291	31.7	18.5	500977	31.8	20.8	478356	31.8	21.5	459958	31.9	21.4	258181	31.9	20.0	268820	31.9	21.2
46342	31.7	19.0	7894	31.8	17.0	338190	31.8	21.7	30469	31.9	18.9	151125	31.9	19.1	79607	31.9	18.2
523666	31.7	25.6	98295	31.8	18.2	56067	31.8	18.0	323474	31.9	19.9	457540	31.9	20.9	185151	31.9	20.3
401540	31.7	20.8	76798	31.8	19.2	66039	31.8	18.4	52836	31.9	18.7	462925	31.9	19.7	360825	31.9	21.5
318068	31.7	19.9	433101	31.8	20.6	301797	31.8	21.4	486780	31.9	20.9	333581	31.9	20.8	198300	31.9	20.4
147763	31.7	20.0	234246	31.8	20.7	141000	31.8	19.7	245070	31.9	20.1	56060	31.9	17.5	283463	31.9	21.4
465182	31.7	21.2	225526	31.8	21.4	389872	31.8	20.8	18826	31.9	16.9	113128	31.9	19.6	85629	31.9	20.4
406062	31.7	20.6	420850	31.8	21.7	465667	31.8	21.2	221050	31.9	20.3	78560	31.9	18.5	159877	31.9	20.5
77726	31.7	19.2	207137	31.8	18.7	5730	31.8	16.9	37156	31.9	19.7	81933	31.9	19.9	145648	31.9	20.6
258351	31.7	20.0	428922	31.8	21.3	182802	31.8	19.7	177000	31.9	18.9	464002	31.9	20.0	224279	31.9	20.3
429283	31.7	20.3	411192	31.8	20.2	428393	31.8	20.5	421866	31.9	21.7	453242	31.9	23.0	393848	31.9	20.8
405820	31.7	20.7	57338	31.8	19.6	110278	31.8	18.9	430923	31.9	21.2	78714	31.9	17.7	408237	31.9	21.1
338128	31.7	21.1	453355	31.8	20.5	469592	31.8	20.7	249568	31.9	19.8	123107	31.9	19.9	371658	31.9	20.0
476560	31.7	22.0	464352	31.8	20.9	314679	31.8	20.3	207852	31.9	19.9	322139	31.9	20.9	375023	31.9	21.2
450527	31.7	20.6	328827	31.8	21.0	220361	31.8	20.1	459143	31.9	20.7	463805	31.9	20.7	197571	31.9	19.5
363822	31.7	21.2	273983	31.8	20.2	111026	31.8	20.7	490825	31.9	21.7	294099	31.9	21.8	83069	31.9	18.4
413075	31.7	21.2	240569	31.8	20.4	371238	31.8	19.8	113970	31.9	19.6	100339	31.9	19.7	160107	31.9	19.7
256955	31.7	20.5	82663	31.8	18.0	32025	31.8	17.9	151777	31.9	19.9	15349	31.9	17.1	340795	31.9	21.8
339499	31.7	20.8	468545	31.8	21.7	142282	31.8	18.3	45671	31.9	17.1	328642	31.9	21.0	110547	31.9	18.4
155236	31.7	19.9	85697	31.8	19.5	412617	31.8	20.3	110612	31.9	19.3	455509	31.9	20.3	463239	31.9	20.4
97702	31.7	18.5	6087	31.8	16.8	127512	31.8	19.1	38760	31.9	18.5	156478	31.9	18.8	209009	31.9	19.5
10145	31.7	18.8	505739	31.8	20.4	295829	31.8	19.8	346862	31.9	20.4	51707	31.9	19.1	101850	31.9	17.4
383815	31.7	20.4	132061	31.8	19.3	431616	31.8	21.3	2395	31.9	17.1	213698	31.9	20.3	30534	31.9	17.0
332342	31.7	19.8	401991	31.8	17.9	384843	31.8	20.6	439465	31.9	20.8	481847	31.9	20.3	341687	31.9	20.6
302882	31.7	20.8	315634	31.8	20.8	467093	31.8	20.3	409975	31.9	19.9	347058	31.9	21.1	281302	31.9	20.5
44878	31.7	18.3	327489	31.8	20.6	240308	31.8	19.8	340703	31.9	20.5	160778	31.9	20.6	323837	31.9	20.8
366097	31.7	19.4	466488	31.8	21.5	110170	31.8	19.1	310032	31.9	21.2	9264	31.9	17.8	435434	31.9	21.4
369048	31.7	20.9	251649	31.8	21.3	503422	31.8	20.7	104637	31.9	20.4	193176	31.9	19.5	284431	31.9	20.3
421497	31.7	20.6	127836	31.8	18.9	358570	31.8	20.6	415628	31.9	20.4	184588	31.9	19.1	32643	31.9	19.6
242063	31.7	20.6	277569	31.8	20.7	320695	31.8	20.7	6799	31.9	19.2	29221	31.9	18.8	246230	31.9	20.1
297656	31.7	20.0	468198	31.8	20.3	107353	31.8	19.2	415894	31.9	21.6	461577	31.9	21.6	409922	31.9	21.3
168029	31.7	20.0	338319	31.8	20.2	288612	31.8	19.4	171482	31.9	20.1	344563	31.9	19.3	461155	31.9	20.9
166956	31.7	20.2	145628	31.8	20.9	472778	31.8	21.0	450337	31.9	21.3	203487	31.9	19.4	84672	31.9	18.8
160254	31.7	19.7	363762	31.8	19.4	459858	31.8	22.0	55416	31.9	17.5	427357	31.9	19.7	299448	31.9	20.5
156522	31.7	19.7	66494	31.8	19.7	74024	31.8	19.4	68645	31.9	17.4	464112	31.9	20.4	490851	31.9	21.0
362070	31.7	19.6	64069	31.8	18.4	33106	31.8	17.4	233527	31.9	20.7	402027	31.9	21.6	468605	31.9	21.4
435904	31.7	19.0	410926	31.8	20.3	518901	31.8	21.4	66403	31.9	19.6	466883	31.9	21.2	428381	31.9	20.5
521031	31.8	20.8	414796	31.8	21.6	44810	31.8	17.8	327912	31.9	19.5	495572	31.9	21.3	142959	31.9	18.7
131430	31.8	18.8	168275	31.8	20.3	141201	31.8	19.4	62292	31.9	19.6	66186	31.9	18.3	422511	31.9	21.4
64767	31.8	19.3	386167	31.8	20.0	343649	31.8	20.8	370807	31.9	20.7	228197	31.9	20.0	101695	31.9	19.1
151257	31.8	18.2	457789	31.8	20.6	306129	31.8	20.7	166152	31.9	20.4	416943	31.9	21.6			
45560	31.8	18.5	178187	31.8	20.0	429036	31.8	20.0	239975	31.9	20.4	99687	31.9	19.5			
377030	31.8	20.3	337570	31.8	20.8	318645	31.8	21.1	428196	31.9	21.8	369001	31.9	20.2			
129403	31.8	20.3	109634	31.8	19.8	466011	31.8	19.4	412225	31.9	21.0	329581	31.9	20.7			
82764	31.8	18.3	133331	31.8	20.9	523529	31.9	21.2	192309	31.9	20.4	122569	31.9	18.8			
22656	31.8	18.0	522112	31.8	20.3	522638	31.9	21.8	211499	31.9	20.8	365750	31.9	20.1			
157996	31.8	20.6	458180	31.8	21.4	465260	31.9	21.4	307632	31.9	20.4	211667	31.9	19.7			
270659	31.8	21.8	35447	31.8	17.8	81770	31.9	18.9	91301	31.9	17.5	408897	31.9	20.7			
423291	31.8	20.2	139	31.8	11.0	298780	31.9	21.3	387676	31.9	21.5	108386	31.9	19.8			
368008	31.8	20.3	147304	31.8	19.6	130254	31.9	20.3	152786	31.9	19.9	522070	31.9	21.0			
496568	31.8	19.9	167601	31.8	19.4	148595	31.9	19.7	193987	31.9	19.6	64626	31.9	19.1			
458315	31.8	21.3	169681	31.8	20.4	177513	31.9	19.4	320777	31.9	21.5	173419	31.9	18.9			
110383	31.8	18.8	304911	31.8	19.8	202944	31.9	19.7	171410	31.9	20.1	160874	31.9	18.9			
211461	31.8	19.3	165935	31.8	20.6	426219	31.9	21.1	23186	31.9	17.0	250129	31.9	20.2			
8401	31.8	18.3	456860	31.8	21.2	390380	31.9	20.1	189858	31.9	20.0	279140	31.9	20.0			
143162	31.8	18.8	462957	31.8	21.2	49435	31.9	18.3	14032	31.9	17.1	46906	31.9	17.7			
189027	31.8	20.2	135436	31.8	19.8	106246	31.9	19.0	511623	31.9	20.8	400803	31.9	21.4			
423465	31.8	21.7	340761	31.8	21.0	117534	31.9	19.6	357521	31.9	21.1	368997	31.9	20.3			
193739	31.8	20.8	197784	31.8	20.2	308190	31.9	20.0	439769	31.9	20.6	422267	31.9	21.0			