

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
7986	1.0	17.6	228817	1.1	19.4	273468	1.1	20.2	436967	1.2	21.3	92740	1.3	19.5	229936	1.3	20.2
367157	1.0	20.3	527528	1.1	21.5	505268	1.1	20.4	335717	1.2	20.0	146531	1.3	20.1	505697	1.3	20.1
303031	1.0	20.5	152776	1.1	19.4	375618	1.1	20.7	327936	1.2	20.2	81648	1.3	18.3	322141	1.3	21.1
335872	1.0	21.2	325489	1.1	20.0	225404	1.1	19.9	166059	1.2	18.9	405037	1.3	19.5	352846	1.3	21.5
138323	1.0	18.3	279943	1.1	21.0	382449	1.1	20.9	175042	1.2	19.7	208196	1.3	20.3	65904	1.3	18.3
48827	1.0	19.4	262755	1.1	20.1	536682	1.1	21.0	543230	1.2	20.8	284078	1.3	19.2	303985	1.3	20.2
153950	1.0	20.7	105216	1.1	19.2	289736	1.1	20.6	459133	1.2	21.3	6456	1.3	18.3	140915	1.3	19.6
193342	1.0	20.7	323880	1.1	21.0	528496	1.1	21.6	399033	1.2	19.2	465702	1.3	21.5	14600	1.3	18.5
175852	1.0	19.6	332315	1.1	21.4	52924	1.1	19.4	318083	1.2	19.6	184043	1.3	19.6	11004	1.3	17.1
373646	1.0	20.4	461238	1.1	19.4	239337	1.1	20.5	500586	1.2	21.6	454795	1.3	21.0	424845	1.3	21.5
116408	1.0	19.6	295031	1.1	20.9	57878	1.1	19.5	389383	1.2	20.2	94995	1.3	18.4	328668	1.3	20.8
334562	1.0	20.9	280883	1.1	21.1	284095	1.1	20.4	83894	1.2	19.4	55071	1.3	18.9	112038	1.3	18.6
473823	1.0	20.2	202734	1.1	19.6	111152	1.1	19.8	381273	1.2	21.8	409611	1.3	21.1	213200	1.3	19.9
136874	1.0	19.6	19633	1.1	17.8	47012	1.1	19.5	421081	1.2	21.0	48119	1.3	18.8	496667	1.3	20.7
145144	1.0	19.6	374061	1.1	20.2	455564	1.1	20.9	234451	1.2	18.5	484674	1.3	20.1	53824	1.3	18.2
129084	1.0	18.4	340661	1.1	20.7	397482	1.1	21.7	291991	1.2	20.1	402063	1.3	21.1	203884	1.3	19.6
137112	1.0	20.6	364054	1.1	21.1	133274	1.1	19.2	217119	1.2	20.8	104922	1.3	21.3	299058	1.3	20.6
251724	1.0	19.8	451920	1.1	20.7	431507	1.1	21.5	453837	1.2	21.6	53065	1.3	17.4	120654	1.3	19.2
85629	1.0	19.5	213590	1.1	20.1	124181	1.1	19.5	398945	1.2	20.7	102776	1.3	19.0	15975	1.3	18.7
189983	1.0	20.0	258119	1.1	21.4	248037	1.1	19.2	385936	1.2	21.1	135873	1.3	19.5	274215	1.3	20.1
80169	1.0	18.9	231061	1.1	20.1	194700	1.1	20.8	69030	1.2	19.3	92607	1.3	20.1	146382	1.3	19.7
30755	1.0	19.1	305621	1.1	19.8	195271	1.1	20.1	409944	1.2	21.2	466405	1.3	21.5	138328	1.3	18.8
445904	1.0	22.1	99344	1.1	18.9	482005	1.1	21.3	193712	1.2	19.8	3143	1.3	16.8	525209	1.3	20.6
74187	1.0	19.1	207582	1.1	20.1	98739	1.1	19.0	5689	1.2	17.6	493904	1.3	21.2	94841	1.3	20.6
383720	1.0	21.0	410567	1.1	20.3	495457	1.1	20.2	448792	1.2	20.3	113498	1.3	20.0	506217	1.3	20.4
455985	1.0	21.9	292711	1.1	20.9	195661	1.1	20.7	98436	1.2	19.2	453045	1.3	20.7	406066	1.3	21.1
385138	1.0	20.6	542964	1.1	21.2	502609	1.1	20.0	289891	1.2	20.8	531558	1.3	22.5	492104	1.3	20.3
288438	1.0	19.0	233616	1.1	19.9	451580	1.2	20.7	192188	1.2	18.6	429003	1.3	21.4	76372	1.3	18.8
469041	1.0	20.8	241082	1.1	20.8	418428	1.2	20.6	223489	1.2	19.5	317173	1.3	20.5	332303	1.3	20.9
142993	1.0	19.7	256334	1.1	21.0	104728	1.2	18.8	299041	1.2	19.1	308265	1.3	19.9	455460	1.3	21.7
401460	1.0	20.5	11267	1.1	18.0	107503	1.2	19.2	508603	1.2	21.5	459543	1.3	20.6	206714	1.3	20.3
116866	1.0	19.3	282834	1.1	20.7	405657	1.2	21.3	96532	1.2	19.9	483819	1.3	21.5	373876	1.3	21.4
49353	1.0	18.6	466499	1.1	21.3	53066	1.2	17.9	136000	1.2	20.0	360239	1.3	19.4	401973	1.3	21.3
456548	1.0	20.3	424739	1.1	20.7	167967	1.2	19.9	422511	1.2	21.4	406696	1.3	21.0	374236	1.3	20.6
259724	1.0	19.4	424911	1.1	21.3	283416	1.2	21.3	251590	1.2	18.7	510994	1.3	20.9	319565	1.3	21.3
376055	1.0	20.2	471755	1.1	21.3	502923	1.2	20.4	23071	1.2	19.2	459961	1.3	22.4	206357	1.3	19.9
363325	1.0	21.3	40529	1.1	17.9	455384	1.2	22.2	198862	1.2	19.3	278408	1.3	20.3	28575	1.3	19.4
62736	1.0	19.8	407512	1.1	21.5	70287	1.2	19.6	308417	1.2	21.0	59024	1.3	18.8	163518	1.3	19.9
492759	1.0	21.5	52444	1.1	19.4	492093	1.2	20.6	543747	1.2	21.1	240022	1.3	19.7	233574	1.3	20.7
274964	1.0	21.1	154077	1.1	19.6	191596	1.2	19.4	6206	1.2	17.0	489684	1.3	21.8	286357	1.3	21.4
55558	1.0	18.2	456527	1.1	20.6	233139	1.2	19.6	145153	1.2	19.0	220608	1.3	21.2	2758	1.3	18.2
125393	1.0	20.2	57486	1.1	16.6	14758	1.2	16.9	493397	1.2	20.6	451419	1.3	21.8	502364	1.3	19.5
84763	1.0	18.2	340703	1.1	21.0	447100	1.2	22.4	403033	1.2	20.7	10970	1.3	17.8	483696	1.3	19.9
222289	1.0	19.6	160460	1.1	18.9	150718	1.2	19.3	76880	1.2	18.4	519363	1.3	20.0	543799	1.3	19.9
379778	1.0	20.2	458366	1.1	21.2	461415	1.2	21.7	75674	1.2	19.4	381935	1.3	20.3	215276	1.3	21.4
302906	1.0	19.8	50206	1.1	18.0	247043	1.2	19.0	253122	1.2	20.9	444047	1.3	22.0	387562	1.3	20.4
201521	1.0	19.7	124357	1.1	19.2	520717	1.2	21.6	405093	1.2	20.8	416289	1.3	20.3	99605	1.3	19.0
135470	1.0	20.3	295322	1.1	20.6	259113	1.2	20.6	340701	1.2	20.5	258351	1.3	20.5	163429	1.3	20.4
89587	1.0	19.5	280482	1.1	20.9	372218	1.2	22.1	245939	1.2	20.7	141298	1.3	19.5	243603	1.3	21.2
508111	1.0	20.3	253121	1.1	20.0	471723	1.2	21.0	310142	1.2	21.1	492426	1.3	20.8	290154	1.3	20.1
263677	1.0	19.5	521942	1.1	21.6	394121	1.2	21.2	341402	1.2	19.9	278973	1.3	20.6	98344	1.3	18.5
111732	1.0	18.0	451946	1.1	19.8	487798	1.2	20.0	268572	1.2	20.5	522647	1.3	20.9	103413	1.4	20.9
340054	1.0	20.4	235524	1.1	19.9	459974	1.2	21.5	79679	1.2	18.8	325340	1.3	19.9	543456	1.4	21.0
340589	1.0	20.1	109934	1.1	19.9	343673	1.2	19.6	335958	1.2	20.1	90827	1.3	20.0	184567	1.4	20.1
81523	1.0	19.0	375082	1.1	19.8	115546	1.2	19.1	92723	1.2	19.6	233155	1.3	20.4	204142	1.4	19.5
178444	1.0	18.7	483644	1.1	20.5	20328	1.2	16.9	32135	1.2	18.1	337637	1.3	21.2	395327	1.4	21.3
8742	1.0	16.7	378403	1.1	21.0	128777	1.2	19.4	520079	1.2	21.3	77346	1.3	19.1	256284	1.4	20.3
76442	1.0	18.1	110969	1.1	20.3	431147	1.2	21.4	370483	1.2	21.1	425491	1.3	19.7	37199	1.4	18.3
423400	1.0	20.3	113123	1.1	20.4	258121	1.2	20.9	337258	1.2	21.1	493307	1.3	21.7	120633	1.4	19.7
6459	1.0	17.2	455857	1.1	20.8	53791	1.2	18.1	189444	1.2	20.0	398631	1.3	20.4	413368	1.4	20.2
413924	1.0	20.6	19213	1.1	18.3	244996	1.2	20.0	165085	1.2	19.5	217125	1.3	21.2	203049	1.4	20.3
276542	1.0	20.0	120295	1.1	19.8	256963	1.2	18.3	371736	1.2	20.9	484752	1.3	20.2	494856	1.4	19.5
317549	1.0	21.5	284359	1.1	20.8	255785	1.2	20.2	179830	1.2	21.0	196421	1.3	19.5	311019	1.4	19.7
377530	1.0	20.3	493284	1.1	20.8	232007	1.2	21.2	47195	1.2	17.7	453136	1.3	21.7	28330	1.4	18.3
309489	1.0	20.5	71134	1.1	18.4	159034	1.2	20.0	252260	1.2	20.7	420755	1.3	20.1	296956	1.4	19.1
317621	1.0	19.9	445774	1.1	20.5	105146	1.2	18.0	235592	1.2	21.2	403018	1.3	20.6	416907	1.4	21.8
404640	1.0	20.3	44470	1.1	19.3	413546	1.2	21.1	251057	1.2	19.7	120830	1.3	18.8	3115	1.4	15.2
445146	1.1	22.2	384948	1.1	21.6	215671	1.2	19.7	6591	1.2	17.8	322885	1.3	20.6	375302	1.4	22.0
207598	1.1	20.5	19437	1.1	18.7	399498	1.2	22.5	84670	1.2	18.9	134253	1.3	19.4	194646	1.4	20.4
319102	1.1	20.3	350848	1.1	19.2	343657	1.2	19.9	375323	1.2	20.6	255839	1.3	21.1	27100	1.4	19.1
197655	1.1	20.6	88607	1.1	19.6	251458	1.2	20.3	295880	1.2	21.1	419210	1.3	21.3	388532	1.4	19.2

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
458242	1.4	22.4	231700	1.4	20.3	200380	1.5	20.0	290185	1.6	20.1	24053	1.6	18.8	411871	1.7	21.1
317409	1.4	22.3	426907	1.4	22.0	1196	1.5	15.0	155960	1.6	19.5	261025	1.6	20.5	373109	1.7	21.1
1768	1.4	16.5	92678	1.4	18.9	465492	1.5	21.3	365581	1.6	21.5	317432	1.6	21.2	365635	1.7	20.7
113132	1.4	19.1	355944	1.4	19.3	166668	1.5	19.6	282793	1.6	21.7	456059	1.6	20.8	15127	1.7	17.8
103486	1.4	18.9	428476	1.4	21.1	318932	1.5	20.7	56014	1.6	19.7	373965	1.6	22.0	162322	1.7	19.8
495790	1.4	20.3	411310	1.4	22.2	310792	1.5	21.2	279985	1.6	21.6	486865	1.6	19.6	321125	1.7	20.6
370793	1.4	20.6	20367	1.4	17.9	135207	1.5	19.5	527667	1.6	21.2	278062	1.6	20.2	409457	1.7	21.3
200173	1.4	20.2	194054	1.4	19.2	195865	1.5	20.0	27485	1.6	18.1	13693	1.6	17.4	374231	1.7	20.4
11174	1.4	17.0	219900	1.4	19.8	83277	1.5	18.7	345114	1.6	20.4	236830	1.6	20.1	484616	1.7	21.5
535442	1.4	22.2	121151	1.4	18.5	110390	1.5	19.1	29133	1.6	17.3	350392	1.6	20.8	328923	1.7	20.1
227223	1.4	20.1	413887	1.4	20.2	297012	1.5	19.4	182595	1.6	20.5	262829	1.6	20.1	185891	1.7	20.3
382001	1.4	20.5	516475	1.4	20.6	203879	1.5	20.1	158918	1.6	19.6	306545	1.6	19.6	206901	1.7	19.6
263252	1.4	19.6	535370	1.4	21.2	11841	1.5	17.6	151240	1.6	19.6	55152	1.7	18.2	154880	1.7	19.0
473911	1.4	21.0	340714	1.4	21.6	400783	1.5	19.0	61227	1.6	18.2	89231	1.7	19.5	362796	1.7	19.5
396022	1.4	20.5	135479	1.4	19.6	85318	1.5	19.1	319679	1.6	20.4	541961	1.7	20.5	430689	1.7	21.8
398544	1.4	21.8	226104	1.4	20.1	541938	1.5	21.1	401339	1.6	20.9	61471	1.7	18.5	534799	1.7	22.8
218644	1.4	20.0	440703	1.4	21.0	395353	1.5	21.1	541788	1.6	19.7	526418	1.7	21.3	234245	1.7	20.3
327360	1.4	19.3	418975	1.4	20.8	88480	1.5	19.3	237609	1.6	20.2	207665	1.7	20.5	282927	1.7	20.7
5535	1.4	16.1	369589	1.4	21.4	491386	1.5	20.4	193096	1.6	19.7	275340	1.7	20.5	236377	1.7	19.7
241192	1.4	20.4	238615	1.4	20.0	532267	1.5	21.7	531816	1.6	21.2	86857	1.7	19.0	399465	1.7	22.0
524983	1.4	21.0	135468	1.4	20.7	279068	1.5	20.8	513826	1.6	20.6	254667	1.7	20.6	252443	1.7	19.4
110357	1.4	19.7	469501	1.4	20.7	428186	1.5	21.4	64897	1.6	19.2	164178	1.7	19.8	493522	1.7	21.2
243164	1.4	20.7	348812	1.4	21.7	447857	1.5	22.2	82643	1.6	19.3	317077	1.7	20.5	293606	1.7	20.4
249089	1.4	19.6	282481	1.4	19.6	505100	1.5	21.1	122782	1.6	20.7	165808	1.7	19.1	517180	1.7	21.9
114344	1.4	19.3	496525	1.4	21.2	536156	1.5	20.2	165851	1.6	20.1	544366	1.7	20.6	32188	1.7	18.1
83673	1.4	19.2	235445	1.5	19.9	281284	1.5	19.9	193903	1.6	20.7	162708	1.7	19.8	531296	1.7	22.7
143515	1.4	19.3	201959	1.5	20.7	415486	1.5	21.7	82312	1.6	17.8	385209	1.7	20.6	277934	1.7	20.1
349730	1.4	20.8	90074	1.5	18.2	69257	1.5	18.4	455908	1.6	21.2	57474	1.7	19.1	129857	1.7	19.7
542793	1.4	20.6	162914	1.5	19.7	314694	1.5	20.1	95831	1.6	19.1	394096	1.7	20.6	111262	1.7	18.1
317455	1.4	20.0	203245	1.5	20.1	217601	1.5	20.2	131861	1.6	18.1	252454	1.7	20.7	494952	1.7	21.4
451411	1.4	21.9	151082	1.5	20.0	319573	1.5	21.6	158908	1.6	19.6	235407	1.7	20.9	327926	1.7	19.5
182690	1.4	20.8	436903	1.5	21.9	409506	1.5	20.8	448206	1.6	21.1	437843	1.7	21.9	148365	1.7	18.8
194553	1.4	19.3	80791	1.5	19.1	174369	1.5	19.6	752	1.6	13.4	370261	1.7	20.7	20829	1.7	18.4
262798	1.4	19.5	340688	1.5	20.7	59412	1.5	18.2	206678	1.6	18.9	419465	1.7	20.1	176682	1.7	21.7
376622	1.4	20.2	517189	1.5	21.1	135284	1.5	20.0	459445	1.6	21.5	81373	1.7	18.5	156739	1.7	20.1
29423	1.4	18.5	363133	1.5	20.3	493092	1.5	21.2	203123	1.6	20.6	80221	1.7	18.4	375601	1.7	20.9
390590	1.4	21.3	91409	1.5	19.1	400287	1.5	21.0	200980	1.6	19.4	15404	1.7	17.9	460539	1.7	20.7
342891	1.4	21.1	108572	1.5	18.9	291544	1.5	19.8	306559	1.6	20.5	245435	1.7	21.0	185273	1.7	20.0
520455	1.4	20.9	430098	1.5	21.1	142771	1.5	19.4	386885	1.6	19.5	483824	1.7	21.7	18782	1.7	18.5
433571	1.4	21.3	18086	1.5	18.3	484694	1.5	21.3	182990	1.6	19.4	494805	1.7	20.6	105798	1.7	19.6
179956	1.4	19.1	82502	1.5	19.8	146454	1.5	20.3	78759	1.6	19.0	347392	1.7	21.3	408558	1.7	20.0
405542	1.4	20.5	395996	1.5	20.6	177772	1.5	20.0	373889	1.6	21.1	409928	1.7	21.4	411346	1.7	20.6
189225	1.4	20.0	21311	1.5	18.0	18678	1.5	17.1	163629	1.6	19.6	33173	1.7	17.5	155487	1.7	19.9
444019	1.4	19.6	57119	1.5	19.3	433547	1.5	21.2	426929	1.6	21.1	42268	1.7	18.3	258919	1.7	21.2
148857	1.4	20.4	297106	1.5	19.8	462297	1.5	20.4	309215	1.6	19.7	116880	1.7	19.1	14190	1.7	17.2
167656	1.4	20.2	41693	1.5	17.4	236281	1.6	20.0	129847	1.6	19.4	461096	1.7	20.5	426126	1.7	19.7
3132	1.4	16.7	421419	1.5	20.5	332665	1.6	20.6	165782	1.6	19.9	105208	1.7	20.7	12703	1.7	17.6
282914	1.4	21.1	156619	1.5	19.4	339703	1.6	20.8	524095	1.6	22.1	316895	1.7	20.5	58210	1.7	19.4
215480	1.4	20.9	143275	1.5	19.6	183088	1.6	20.9	336943	1.6	19.8	383718	1.7	21.7	154555	1.7	19.4
133695	1.4	19.6	448208	1.5	20.9	415582	1.6	21.6	71500	1.6	19.4	171470	1.7	21.9	223709	1.7	20.3
396648	1.4	20.7	500579	1.5	21.2	140384	1.6	18.1	115582	1.6	19.7	49889	1.7	17.6	321569	1.7	20.5
226162	1.4	19.8	208473	1.5	19.5	171679	1.6	20.0	92384	1.6	18.5	492847	1.7	21.4	258	1.7	12.9
268758	1.4	20.3	249248	1.5	20.6	420745	1.6	20.6	419004	1.6	21.2	103389	1.7	19.8	529494	1.7	24.1
75380	1.4	18.9	322341	1.5	20.3	414483	1.6	20.8	4273	1.6	17.7	339681	1.7	19.9	260079	1.7	19.6
18391	1.4	18.9	460518	1.5	21.0	335878	1.6	20.3	171941	1.6	20.1	57378	1.7	18.0	136988	1.7	19.0
252241	1.4	20.1	81480	1.5	18.3	42571	1.6	17.8	15393	1.6	17.7	152213	1.7	20.8	259082	1.8	20.7
257114	1.4	20.3	321421	1.5	20.2	320930	1.6	19.7	253301	1.6	19.0	234788	1.7	20.6	44429	1.8	18.8
402602	1.4	21.8	128479	1.5	19.3	402648	1.6	21.9	412738	1.6	21.1	240184	1.7	20.3	59006	1.8	19.8
488428	1.4	21.1	246273	1.5	19.6	284848	1.6	20.3	166839	1.6	20.3	212893	1.7	20.8	413639	1.8	21.0
344372	1.4	20.2	42260	1.5	17.4	184377	1.6	19.9	224976	1.6	19.7	430263	1.7	21.4	267072	1.8	19.4
245740	1.4	19.2	339028	1.5	19.2	207893	1.6	20.6	32231	1.6	18.3	439832	1.7	22.2	203795	1.8	21.7
137636	1.4	19.5	492930	1.5	21.2	413518	1.6	21.4	109393	1.6	19.5	136372	1.7	19.0	424382	1.8	20.7
37358	1.4	18.7	117831	1.5	19.8	265865	1.6	20.2	95270	1.6	20.7	17726	1.7	17.5	25872	1.8	21.1
103754	1.4	19.1	27528	1.5	17.9	54383	1.6	18.6	304857	1.6	20.6	240214	1.7	20.2	510650	1.8	21.1
468928	1.4	19.9	328544	1.5	21.4	293269	1.6	20.3	528591	1.6	21.5	290061	1.7	20.4	81861	1.8	19.7
399370	1.4	21.5	328588	1.5	19.2	13007	1.6	16.8	154078	1.6	19.5	491104	1.7	20.6	221883	1.8	20.3
428358	1.4	20.6	62727	1.5	19.3	180203	1.6	20.4	28488	1.6	17.2	282156	1.7	19.5	543855	1.8	22.1
544784	1.4	21.2	189364	1.5	19.3	58194	1.6	18.8	55211	1.6	19.4	262376	1.7	20.3	271844	1.8	20.8
98667	1.4	18.7	450153	1.5	21.1	212742	1.6	20.2	542740	1.6	20.7	3365	1.7	16.2	486857	1.8	20.6
170132	1.4	20.0	424868	1.5	20.8	310850	1.6	19.3	122402	1.6	19.7	493732	1.7	21.8	348768	1.8	19.7
37089	1.4	18.7	193992	1.5	19.4	326311	1.6	20.9	535880	1.6	20.6	543941	1.7	21.7	340685	1.8	20.5

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
229696	1.8	19.5	174006	1.8	19.6	39542	1.9	19.6	148985	1.9	20.0	14295	2.0	17.3	24738	2.1	18.6
378984	1.8	21.0	442640	1.8	20.9	466315	1.9	21.0	413917	1.9	20.2	542128	2.0	22.2	194272	2.1	19.6
158894	1.8	19.8	202203	1.8	20.1	424736	1.9	21.3	343492	1.9	20.0	338209	2.0	20.9	430282	2.1	20.2
495349	1.8	21.8	323921	1.8	20.4	323505	1.9	20.8	111564	1.9	18.3	429723	2.0	20.3	157210	2.1	19.9
50874	1.8	19.1	432093	1.8	20.8	347198	1.9	20.5	282824	1.9	20.2	272971	2.0	21.1	5425	2.1	16.9
74208	1.8	19.2	73280	1.8	19.4	369587	1.9	20.8	93688	1.9	19.1	188679	2.0	19.9	16698	2.1	17.6
30428	1.8	17.1	110297	1.8	20.3	151824	1.9	18.7	203281	1.9	20.5	163442	2.0	20.4	389406	2.1	21.5
426268	1.8	21.3	47855	1.8	19.5	340042	1.9	20.6	128751	1.9	20.5	275474	2.0	20.4	527675	2.1	20.8
154066	1.8	19.9	323493	1.8	20.0	75751	1.9	19.4	23629	1.9	18.9	335326	2.0	21.0	138189	2.1	19.7
142715	1.8	19.3	457216	1.8	21.1	464929	1.9	21.5	235465	1.9	20.1	537997	2.0	20.8	50549	2.1	17.8
445964	1.8	19.7	122653	1.8	19.5	119456	1.9	19.5	238376	1.9	19.6	386871	2.0	20.3	103215	2.1	19.9
467588	1.8	21.2	432873	1.8	21.3	542158	1.9	20.1	222841	1.9	19.8	493685	2.0	21.6	58405	2.1	19.4
356042	1.8	19.3	158155	1.9	19.3	49468	1.9	19.1	85710	1.9	19.9	542951	2.0	21.2	450000	2.1	21.3
327931	1.8	20.9	462655	1.9	20.9	460590	1.9	20.8	345833	1.9	19.6	526754	2.0	21.2	122710	2.1	19.5
288173	1.8	20.9	334125	1.9	21.5	349537	1.9	20.2	155015	1.9	19.6	75304	2.0	17.8	238016	2.1	20.7
503644	1.8	21.1	385952	1.9	20.4	93788	1.9	19.7	238036	1.9	21.0	525776	2.0	21.8	312284	2.1	20.6
80244	1.8	19.4	165823	1.9	20.4	120665	1.9	20.1	295244	1.9	20.7	116042	2.0	18.4	349567	2.1	20.9
391831	1.8	20.3	226191	1.9	21.0	135994	1.9	19.3	203427	1.9	20.7	459705	2.1	20.7	119161	2.1	20.6
179951	1.8	20.5	522237	1.9	21.6	275379	1.9	20.8	252243	1.9	20.5	86011	2.1	19.5	189977	2.1	20.0
84370	1.8	18.0	45661	1.9	18.5	8691	1.9	17.7	237521	1.9	20.4	446830	2.1	20.8	414957	2.1	20.9
237795	1.8	19.5	152343	1.9	19.9	36841	1.9	19.1	142161	1.9	20.0	296685	2.1	20.6	44175	2.1	17.7
232483	1.8	17.5	77910	1.9	18.3	405141	1.9	20.9	384145	1.9	20.1	341599	2.1	20.7	241130	2.1	21.2
141219	1.8	19.3	456614	1.9	20.6	183963	1.9	22.9	460137	1.9	20.4	279801	2.1	19.8	400265	2.1	21.6
2326	1.8	15.4	523795	1.9	22.8	458271	1.9	22.4	113829	1.9	19.8	205962	2.1	19.2	243702	2.1	20.5
302524	1.8	19.5	112871	1.9	19.1	26316	1.9	18.1	343206	1.9	19.5	215322	2.1	19.0	169701	2.1	19.0
14549	1.8	17.7	493	1.9	16.0	525745	1.9	21.1	371852	1.9	19.5	498890	2.1	21.0	215496	2.1	20.3
233136	1.8	19.6	528758	1.9	22.4	255218	1.9	19.0	542703	1.9	20.3	328689	2.1	21.0	48720	2.1	19.4
12702	1.8	18.0	2583	1.9	16.6	191950	1.9	19.0	258588	1.9	19.4	4790	2.1	16.3	183939	2.1	19.0
140952	1.8	19.7	543502	1.9	20.5	284914	1.9	20.2	162989	1.9	20.0	345358	2.1	21.0	488078	2.1	20.4
201928	1.8	20.3	283032	1.9	19.9	202077	1.9	19.4	388501	1.9	20.5	67840	2.1	17.9	1668	2.1	16.9
44774	1.8	19.0	107699	1.9	19.2	278389	1.9	20.0	287094	1.9	21.1	493228	2.1	21.5	360278	2.1	21.4
343485	1.8	19.5	523788	1.9	21.3	11173	1.9	18.6	262421	1.9	21.5	490744	2.1	21.2	376461	2.1	20.7
210067	1.8	20.2	289436	1.9	20.1	423331	1.9	20.7	124264	1.9	20.2	34740	2.1	18.7	217131	2.1	20.4
25537	1.8	17.2	53545	1.9	19.3	302005	1.9	20.7	506861	1.9	21.1	89798	2.1	19.5	68482	2.1	19.2
128964	1.8	18.6	242971	1.9	20.6	254087	1.9	18.5	542130	1.9	20.4	165736	2.1	19.6	193807	2.1	20.4
81640	1.8	19.1	278903	1.9	20.4	490122	1.9	21.7	107565	1.9	18.8	110638	2.1	18.8	481428	2.1	21.4
414812	1.8	20.5	459092	1.9	22.0	415443	1.9	21.0	532734	1.9	21.7	187567	2.1	20.0	380364	2.1	21.0
327290	1.8	20.2	508369	1.9	21.5	494539	1.9	19.1	227770	1.9	21.0	529672	2.1	21.1	319730	2.1	20.6
194321	1.8	19.8	368839	1.9	20.7	412105	1.9	20.0	318693	1.9	20.1	340679	2.1	20.3	284099	2.1	20.2
119721	1.8	19.4	413510	1.9	20.5	227492	1.9	21.4	256150	1.9	19.5	452041	2.1	20.9	536936	2.1	21.2
284076	1.8	19.6	107141	1.9	19.8	385035	1.9	21.1	215051	1.9	19.0	415334	2.1	21.7	447333	2.1	20.9
23975	1.8	18.2	65456	1.9	19.5	494468	1.9	20.7	453802	1.9	19.7	498904	2.1	20.4	272377	2.1	21.2
3017	1.8	15.3	467546	1.9	20.0	376294	1.9	20.0	164190	1.9	19.4	101778	2.1	18.3	88362	2.1	18.6
227622	1.8	20.9	336388	1.9	20.7	485401	1.9	20.5	494858	2.0	20.4	78730	2.1	18.5	266527	2.1	20.8
184701	1.8	19.7	325915	1.9	21.1	171375	1.9	20.6	298712	2.0	18.6	414560	2.1	21.0	138929	2.1	19.2
448309	1.8	21.3	428429	1.9	21.1	274917	1.9	21.3	341516	2.0	21.1	458580	2.1	20.0	239471	2.1	20.8
314695	1.8	20.4	84981	1.9	19.2	414000	1.9	20.9	410576	2.0	20.5	453165	2.1	20.1	392283	2.1	20.6
25860	1.8	17.7	326489	1.9	20.4	363793	1.9	19.7	430597	2.0	21.1	528528	2.1	21.4	33908	2.1	17.7
462328	1.8	20.5	405976	1.9	21.9	522404	1.9	20.8	462968	2.0	19.5	270957	2.1	20.4	343533	2.1	19.8
541544	1.8	21.8	219745	1.9	20.1	166194	1.9	19.5	20439	2.0	17.6	411470	2.1	20.4	207336	2.1	19.9
405567	1.8	20.9	169830	1.9	20.2	124645	1.9	19.4	502772	2.0	20.7	31941	2.1	17.9	528432	2.1	21.5
158859	1.8	19.9	276995	1.9	20.1	217099	1.9	20.8	190851	2.0	19.7	322908	2.1	20.6	502179	2.1	20.7
370644	1.8	20.5	268124	1.9	20.4	332160	1.9	19.8	45194	2.0	18.3	430257	2.1	20.3	138550	2.1	20.2
108759	1.8	20.2	388425	1.9	20.3	428114	1.9	20.3	421810	2.0	21.4	214361	2.1	20.2	544732	2.1	21.9
109265	1.8	18.9	111534	1.9	18.3	464871	1.9	21.3	220637	2.0	20.3	489538	2.1	21.5	201904	2.1	19.6
86051	1.8	18.8	61760	1.9	18.8	432175	1.9	19.9	401899	2.0	20.6	374029	2.1	21.2	351945	2.1	21.0
531326	1.8	21.8	219174	1.9	20.0	343375	1.9	20.4	495522	2.0	21.7	455327	2.1	20.8	352743	2.1	21.3
438355	1.8	21.2	149776	1.9	19.4	304862	1.9	21.0	424755	2.0	20.9	364303	2.1	20.3	155765	2.1	20.1
227424	1.8	20.3	328937	1.9	20.3	242944	1.9	21.3	319955	2.0	20.0	264446	2.1	20.5	544523	2.1	21.8
154060	1.8	20.2	99442	1.9	18.2	385039	1.9	21.5	117138	2.0	19.6	322143	2.1	20.6	154953	2.1	19.3
226922	1.8	21.0	112570	1.9	20.3	156099	1.9	19.2	383441	2.0	21.3	123020	2.1	20.1	536289	2.1	21.0
113821	1.8	18.5	397908	1.9	19.0	150678	1.9	19.5	273550	2.0	20.3	44902	2.1	18.8	284322	2.1	20.3
320772	1.8	21.1	543761	1.9	20.6	297404	1.9	21.2	248769	2.0	20.0	166810	2.1	19.9	239317	2.1	19.5
447836	1.8	21.5	527217	1.9	21.1	543843	1.9	20.5	103528	2.0	19.8	87893	2.1	19.0	483017	2.1	20.7
339615	1.8	21.3	408568	1.9	19.6	271991	1.9	20.1	274883	2.0	20.9	527025	2.1	21.7	124197	2.1	19.6
348457	1.8	21.8	306039	1.9	20.0	54920	1.9	20.0	274652	2.0	20.7	468715	2.1	20.8	88565	2.1	18.9
113268	1.8	19.0	290720	1.9	20.9	314921	1.9	19.6	141495	2.0	20.2	352188	2.1	19.0	189296	2.1	19.9
381188	1.8	20.3	59234	1.9	18.3	275367	1.9	19.9	354867	2.0	21.4	174384	2.1	19.3	180252	2.1	20.1
152495	1.8	20.1	265816	1.9	21.3	238403	1.9	19.2	169189	2.0	19.8	348596	2.1	21.2	372713	2.1	20.3
427869	1.8	20.6	381281	1.9	21.6	397952	1.9	20.5	153204	2.0	20.1	460370	2.1	21.5	48375	2.2	18.7
60744	1.8	18.8	462929	1.9	21.5	242576	1.9	19.1	265563	2.0	20.8	455910	2.1	21.2	444412	2	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
221082	2.2	19.9	385249	2.2	19.4	482076	2.3	20.7	265776	2.3	20.1	364430	2.4	20.9	421360	2.5	20.1
114054	2.2	18.9	268570	2.2	20.6	83505	2.3	19.7	253258	2.3	19.3	136181	2.4	19.8	535628	2.5	21.1
87406	2.2	19.5	197146	2.2	20.6	502392	2.3	20.7	490825	2.3	21.7	247513	2.4	21.4	537929	2.5	20.2
182775	2.2	19.2	15465	2.2	18.3	535841	2.3	20.6	424239	2.3	20.7	351923	2.4	20.7	249691	2.5	19.1
322532	2.2	20.9	4699	2.2	18.4	59175	2.3	18.3	195969	2.3	20.7	498878	2.4	21.2	536263	2.5	20.7
417045	2.2	20.6	359249	2.2	20.8	105355	2.3	19.3	95234	2.3	19.4	57000	2.4	18.5	510490	2.5	20.9
234510	2.2	19.6	276572	2.2	19.7	244706	2.3	21.0	428454	2.3	19.9	135744	2.4	19.8	80159	2.5	19.4
459831	2.2	20.4	31281	2.2	18.3	4349	2.3	16.5	145330	2.3	20.3	290646	2.4	20.6	443086	2.5	20.3
539985	2.2	21.4	369311	2.2	21.4	306813	2.3	20.4	242439	2.3	20.7	482011	2.4	21.1	376380	2.5	19.9
111726	2.2	19.3	180589	2.2	18.5	213965	2.3	20.2	321957	2.4	20.9	425370	2.4	20.9	500433	2.5	22.4
151573	2.2	19.8	48853	2.2	17.6	69490	2.3	18.8	384152	2.4	20.5	230606	2.4	19.2	483817	2.5	21.6
492939	2.2	21.4	374609	2.2	20.8	255914	2.3	20.9	542108	2.4	21.3	139122	2.4	18.7	146683	2.5	18.8
235973	2.2	19.6	175771	2.2	20.3	46652	2.3	20.3	192185	2.4	19.7	258921	2.4	21.5	192598	2.5	18.5
282988	2.2	20.4	307691	2.2	21.6	182478	2.3	20.3	306558	2.4	19.5	199482	2.4	20.8	286605	2.5	20.4
117836	2.2	19.0	2376	2.2	15.9	153696	2.3	21.0	289738	2.4	20.9	3803	2.4	15.5	143209	2.5	19.8
501916	2.2	19.7	391830	2.2	20.3	150774	2.3	19.5	280234	2.4	21.0	517617	2.4	20.6	404761	2.5	20.8
189639	2.2	19.9	58800	2.2	17.7	440569	2.3	21.1	502328	2.4	20.2	6533	2.4	16.9	402753	2.5	21.6
296107	2.2	20.1	543706	2.2	21.7	196997	2.3	19.6	47696	2.4	18.9	142318	2.4	21.2	48253	2.5	17.9
375990	2.2	20.2	15951	2.2	16.8	483511	2.3	19.7	234952	2.4	20.3	423591	2.4	21.8	351240	2.5	21.9
114333	2.2	19.9	330937	2.2	20.8	484663	2.3	21.3	131961	2.4	18.0	14357	2.4	18.5	338233	2.5	21.4
25241	2.2	17.9	58612	2.2	19.1	166712	2.3	20.0	606	2.4	14.9	461871	2.4	20.3	170958	2.5	18.9
31338	2.2	18.7	63500	2.2	20.2	340232	2.3	20.0	31481	2.4	18.3	355966	2.4	19.6	465667	2.5	21.5
56288	2.2	18.3	86299	2.2	18.8	20028	2.3	18.5	235651	2.4	20.3	458259	2.4	21.9	299381	2.5	19.3
144698	2.2	19.5	332859	2.2	20.1	408031	2.3	20.9	134153	2.4	19.5	166562	2.4	19.1	213046	2.5	20.8
325780	2.2	21.0	339603	2.2	20.2	427558	2.3	20.7	431157	2.4	21.4	167828	2.4	19.3	152894	2.5	20.7
83088	2.2	18.2	453317	2.2	21.4	227352	2.3	20.4	281068	2.4	20.3	468952	2.4	21.5	206878	2.5	18.8
232249	2.2	20.1	280476	2.2	19.6	194026	2.3	21.0	272246	2.4	19.2	382175	2.4	20.3	341392	2.5	21.0
316958	2.2	19.7	186921	2.2	20.3	496272	2.3	22.0	541226	2.4	20.3	502640	2.4	19.7	184327	2.5	19.9
364971	2.2	19.0	232516	2.2	20.4	120812	2.3	18.4	343820	2.4	20.7	433927	2.4	20.3	428935	2.5	19.0
85485	2.2	19.6	481441	2.2	21.9	279039	2.3	19.9	257306	2.4	20.2	434176	2.4	22.2	349869	2.5	20.3
221255	2.2	20.0	32238	2.2	19.2	240481	2.3	18.9	363575	2.4	20.3	414204	2.4	20.0	397311	2.5	21.7
84874	2.2	19.4	163943	2.2	19.6	529251	2.3	22.0	224865	2.4	20.8	151258	2.4	20.2	381976	2.5	20.7
161782	2.2	19.9	451066	2.2	21.3	444462	2.3	21.5	221681	2.4	19.5	27847	2.4	18.6	349614	2.5	19.7
182457	2.2	21.2	252690	2.2	20.0	367948	2.3	20.4	263956	2.4	20.2	352808	2.4	21.0	446430	2.5	20.6
410068	2.2	20.5	307861	2.2	19.3	118011	2.3	20.0	285324	2.4	20.3	138400	2.4	18.8	84093	2.5	19.8
143277	2.2	20.5	183898	2.2	20.0	420590	2.3	20.8	351725	2.4	21.3	326014	2.4	19.6	15413	2.5	18.6
409241	2.2	19.2	5154	2.2	17.1	318750	2.3	19.5	526972	2.4	21.2	528368	2.4	22.5	276859	2.5	21.7
231397	2.2	19.9	418883	2.2	20.1	72697	2.3	19.0	381691	2.4	22.1	74497	2.4	18.9	118685	2.5	19.7
135178	2.2	19.5	144329	2.3	18.9	374091	2.3	20.4	313535	2.4	20.7	351309	2.4	20.9	54990	2.5	19.5
328924	2.2	20.4	508576	2.3	21.6	266476	2.3	19.4	314819	2.4	20.3	112464	2.4	21.0	377029	2.5	20.2
363831	2.2	23.1	390987	2.3	19.4	179934	2.3	21.1	414203	2.4	19.6	206226	2.4	20.4	167434	2.5	18.9
11747	2.2	17.6	464727	2.3	21.7	359309	2.3	18.9	205368	2.4	20.2	319634	2.4	21.6	394922	2.5	21.1
483744	2.2	21.6	377955	2.3	20.3	443896	2.3	21.6	51244	2.4	17.6	345734	2.4	20.7	297429	2.5	21.2
420812	2.2	20.8	53025	2.3	18.8	172274	2.3	20.2	398404	2.4	20.7	151857	2.4	20.1	425096	2.5	21.5
446979	2.2	21.3	152324	2.3	20.3	325183	2.3	20.3	452943	2.4	20.2	427704	2.4	19.5	508622	2.5	21.1
121306	2.2	20.1	466898	2.3	19.7	327030	2.3	20.2	393460	2.4	20.1	271216	2.4	20.6	229886	2.5	20.5
212342	2.2	20.7	150488	2.3	20.1	381251	2.3	20.3	399458	2.4	21.4	461497	2.4	20.0	496179	2.5	21.5
211865	2.2	19.7	271687	2.3	21.2	241263	2.3	19.7	457118	2.4	19.9	60474	2.4	19.2	505359	2.5	20.4
229328	2.2	20.7	167453	2.3	18.9	217309	2.3	21.2	86010	2.4	18.9	170818	2.5	19.9	221354	2.5	21.1
481318	2.2	20.0	336002	2.3	21.8	16317	2.3	17.3	421462	2.4	22.0	543766	2.5	21.5	424351	2.5	20.5
129707	2.2	19.5	486700	2.3	21.6	281361	2.3	21.3	289516	2.4	19.5	171428	2.5	20.1	528800	2.5	21.1
466233	2.2	20.4	368043	2.3	20.3	223664	2.3	19.9	429264	2.4	20.2	501453	2.5	20.8	441852	2.5	21.6
354519	2.2	21.7	410035	2.3	21.9	235421	2.3	19.6	498149	2.4	21.5	251243	2.5	20.6	421482	2.5	20.1
453034	2.2	22.4	350694	2.3	21.5	103694	2.3	19.1	222766	2.4	19.9	194213	2.5	19.9	349937	2.5	20.0
87846	2.2	19.6	234851	2.3	19.3	543379	2.3	21.2	131830	2.4	18.8	339744	2.5	20.6	8079	2.5	17.7
542724	2.2	20.7	182014	2.3	20.3	167621	2.3	19.3	236253	2.4	19.6	112907	2.5	21.0	328534	2.5	20.5
532540	2.2	21.2	245418	2.3	20.2	348727	2.3	21.4	178281	2.4	20.6	526655	2.5	21.3	356590	2.5	20.9
486194	2.2	19.9	340678	2.3	20.6	486089	2.3	20.3	174929	2.4	19.2	64689	2.5	18.8	317039	2.5	21.2
86539	2.2	18.9	289592	2.3	19.4	264237	2.3	19.6	52486	2.4	19.2	33349	2.5	16.4	26573	2.5	17.5
120447	2.2	18.3	167800	2.3	20.4	441857	2.3	22.4	327349	2.4	20.6	387695	2.5	20.9	85715	2.5	19.1
311682	2.2	20.6	362799	2.3	20.4	258469	2.3	19.5	46986	2.4	20.6	112710	2.5	19.7	426594	2.5	20.6
127168	2.2	18.8	535745	2.3	20.8	448839	2.3	20.3	292699	2.4	19.2	104783	2.5	17.9	15732	2.5	17.3
366913	2.2	19.4	166710	2.3	19.4	290764	2.3	20.3	399434	2.4	21.4	223977	2.5	20.3	427044	2.5	21.4
143512	2.2	20.0	58136	2.3	18.4	465049	2.3	20.0	377054	2.4	21.8	258215	2.5	20.9	19474	2.5	18.7
105148	2.2	19.2	501707	2.3	20.6	301830	2.3	21.7	441598	2.4	21.4	535643	2.5	22.8	542810	2.5	20.2
238379	2.2	18.7	292596	2.3	20.6	297938	2.3	19.3	8453	2.4	17.0	8468	2.5	18.9	163764	2.5	19.7
485094	2.2	20.1	364300	2.3	21.3	79794	2.3	19.0	285888	2.4	21.3	241597	2.5	20.5	176763	2.5	20.9
452969	2.2	18.7	287767	2.3	20.6	10609	2.3	19.3	495053	2.4	20.7	405700	2.5	21.2	46649	2.5	17.9
423395	2.2	20.5	483395	2.3	20.4	339999	2.3	20.4	411014	2.4	22.1	194159	2.5	20.0	395125	2.5	19.7
388070	2.2	19.5	487059	2.3	20.4	507895	2.3	20.9	194683	2.4	19.3	273257	2.5	20.4	323914	2.5	20.3
96393	2.2	19.6	453811	2.3	22.3	114225	2.3	20.2	455392	2.4	22.2	328532	2.5	20.7	132245	2.	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
5792	2.5	17.3	73752	2.6	18.6	402590	2.6	22.3	323137	2.7	20.3	319478	2.8	22.1	219045	2.8	20.2
64715	2.5	18.4	226107	2.6	20.5	71598	2.6	19.1	189192	2.7	18.8	489263	2.8	21.5	313502	2.8	20.7
207675	2.5	20.7	181520	2.6	18.9	63855	2.6	19.2	47988	2.7	19.1	532573	2.8	21.7	132859	2.8	19.4
46893	2.5	18.7	245759	2.6	19.5	44546	2.6	18.9	328184	2.7	19.3	228689	2.8	20.5	467675	2.8	20.6
364363	2.5	21.7	101398	2.6	19.8	465012	2.6	21.0	142549	2.7	19.3	105516	2.8	19.1	118292	2.8	18.8
367375	2.5	20.4	301920	2.6	22.1	77903	2.6	18.0	486224	2.7	20.5	253889	2.8	19.7	82290	2.8	18.7
202311	2.5	19.4	151791	2.6	20.1	430811	2.6	20.8	143587	2.7	18.8	295359	2.8	20.3	442751	2.8	21.3
403557	2.5	21.4	366200	2.6	20.5	189635	2.6	20.0	454960	2.7	21.6	418261	2.8	20.3	336041	2.8	21.0
531421	2.5	21.5	531342	2.6	21.4	541512	2.6	20.0	363173	2.7	21.4	203165	2.8	20.3	24462	2.8	18.5
54877	2.5	17.5	104785	2.6	19.7	256191	2.6	20.7	529086	2.7	21.9	201345	2.8	20.7	194896	2.8	20.0
320925	2.5	19.0	323919	2.6	21.4	372242	2.6	20.4	318142	2.7	20.9	455322	2.8	22.9	527102	2.8	21.5
113022	2.5	19.0	319521	2.6	20.3	249039	2.6	20.6	254490	2.7	19.6	268769	2.8	20.1	128513	2.8	20.1
416662	2.5	21.4	290666	2.6	20.3	319351	2.6	20.6	81155	2.7	18.1	256135	2.8	20.2	448761	2.8	19.9
394894	2.5	21.3	464182	2.6	21.4	90633	2.6	19.5	417166	2.7	21.1	391464	2.8	20.8	119987	2.8	17.3
258057	2.5	20.8	427256	2.6	21.5	417331	2.6	21.1	458788	2.7	21.4	239299	2.8	19.6	144480	2.8	19.6
135711	2.5	20.2	31207	2.6	18.3	414223	2.6	20.5	116548	2.7	20.4	82871	2.8	19.0	194651	2.8	20.6
188195	2.5	20.4	2101	2.6	22.5	339746	2.6	21.4	47970	2.7	18.8	13532	2.8	17.9	70325	2.8	20.5
111003	2.5	19.7	425229	2.6	21.2	120969	2.6	19.6	204269	2.7	19.6	51196	2.8	18.9	498204	2.8	21.1
518860	2.5	20.5	265340	2.6	20.5	217757	2.6	21.3	502192	2.7	20.3	258150	2.8	20.1	437031	2.8	20.6
33714	2.5	17.3	344335	2.6	21.8	35151	2.7	18.4	338410	2.7	21.3	249933	2.8	20.5	465297	2.8	21.6
134063	2.5	19.9	378515	2.6	19.8	434882	2.7	21.6	165706	2.7	20.7	87597	2.8	19.0	8520	2.8	17.8
458327	2.5	20.7	52682	2.6	18.9	230614	2.7	19.0	188253	2.7	19.4	166717	2.8	20.1	22949	2.9	18.2
464192	2.5	21.1	237182	2.6	20.8	110436	2.7	19.3	360142	2.7	20.8	36520	2.8	18.5	234878	2.9	20.0
503128	2.5	20.4	527249	2.6	21.1	55240	2.7	18.1	250486	2.7	19.7	47345	2.8	18.4	106056	2.9	19.0
186490	2.5	19.8	133903	2.6	20.9	427590	2.7	22.2	417706	2.7	20.6	528354	2.8	21.1	310311	2.9	21.3
15774	2.5	17.8	534750	2.6	22.6	134848	2.7	18.9	368183	2.7	21.0	324673	2.8	20.7	134896	2.9	20.4
456555	2.5	19.5	151603	2.6	19.1	450937	2.7	20.4	505056	2.7	21.3	83612	2.8	18.7	146799	2.9	19.4
418858	2.5	19.5	364000	2.6	21.1	172004	2.7	19.3	518130	2.7	21.2	8049	2.8	16.9	121149	2.9	18.3
281138	2.5	20.2	263215	2.6	20.8	345146	2.7	20.8	413050	2.7	20.4	18468	2.8	17.5	538509	2.9	20.8
353448	2.5	19.6	135683	2.6	19.4	12582	2.7	15.8	451245	2.7	20.4	399613	2.8	21.7	82157	2.9	22.7
296914	2.5	20.1	281192	2.6	19.4	175085	2.7	19.7	241208	2.7	19.6	158875	2.8	21.1	307874	2.9	20.6
186699	2.5	19.3	115596	2.6	18.9	375526	2.7	20.8	516843	2.7	20.7	359608	2.8	20.0	322895	2.9	19.2
432528	2.5	20.8	281325	2.6	20.4	212453	2.7	20.3	116392	2.7	18.7	412543	2.8	21.6	336691	2.9	19.9
467573	2.5	20.7	463424	2.6	21.2	373746	2.7	20.4	184526	2.7	20.0	411416	2.8	20.9	48732	2.9	18.9
236115	2.5	20.8	260744	2.6	21.3	292532	2.7	21.4	301143	2.7	20.5	441556	2.8	21.3	73120	2.9	19.3
373079	2.5	20.8	242374	2.6	20.5	175254	2.7	20.4	34589	2.7	18.9	446399	2.8	20.7	194629	2.9	19.0
442616	2.5	21.3	13412	2.6	18.0	373762	2.7	20.1	141264	2.7	19.5	10426	2.8	16.3	84810	2.9	19.2
29946	2.5	18.0	448734	2.6	19.6	257423	2.7	19.5	277398	2.7	20.3	109759	2.8	20.0	426177	2.9	20.4
341183	2.5	21.2	31967	2.6	16.9	232379	2.7	20.2	542302	2.7	22.4	483455	2.8	20.4	102119	2.9	20.6
187496	2.5	19.9	358482	2.6	21.3	467543	2.7	21.6	251304	2.7	21.1	9449	2.8	16.8	187800	2.9	19.6
82955	2.5	18.3	62132	2.6	19.2	363820	2.7	20.0	368031	2.7	20.5	483130	2.8	20.7	204616	2.9	19.7
212937	2.5	19.7	433758	2.6	19.9	202101	2.7	20.7	375647	2.7	20.0	143198	2.8	20.3	44307	2.9	17.1
197896	2.5	20.0	194881	2.6	20.5	352795	2.7	21.4	82323	2.7	19.5	153560	2.8	19.4	328920	2.9	19.9
89670	2.5	19.3	264178	2.6	19.0	319865	2.7	21.0	9177	2.7	18.3	340587	2.8	20.3	289564	2.9	19.9
196964	2.5	19.3	262680	2.6	20.4	65102	2.7	18.7	466354	2.7	20.6	419217	2.8	20.6	326292	2.9	19.9
212150	2.5	20.1	289096	2.6	20.0	460516	2.7	20.9	28595	2.7	18.1	100075	2.8	19.3	431616	2.9	21.0
23608	2.5	16.7	131593	2.6	19.0	175305	2.7	20.1	137082	2.7	19.5	150382	2.8	19.5	494586	2.9	21.5
232167	2.5	18.4	290669	2.6	20.8	324544	2.7	20.8	503080	2.7	20.7	235656	2.8	20.2	80247	2.9	18.4
317586	2.5	20.4	375483	2.6	20.1	235099	2.7	19.4	29526	2.7	18.0	58139	2.8	19.7	536118	2.9	21.3
284796	2.5	20.1	337431	2.6	20.8	407379	2.7	20.6	226258	2.7	19.6	36660	2.8	19.9	483775	2.9	21.7
483933	2.5	20.5	428373	2.6	21.2	341338	2.7	20.5	500392	2.7	22.1	145823	2.8	19.3	382220	2.9	20.4
360372	2.5	19.8	426840	2.6	21.3	543684	2.7	19.8	544913	2.7	20.3	419107	2.8	21.4	2929	2.9	16.0
444089	2.5	21.1	382130	2.6	20.1	357571	2.7	20.8	44612	2.7	18.6	290754	2.8	19.8	458393	2.9	21.3
421385	2.5	19.9	222185	2.6	21.0	231977	2.7	19.3	234402	2.7	20.2	113229	2.8	19.6	364763	2.9	20.4
273329	2.5	19.7	323792	2.6	20.9	459265	2.7	20.8	409557	2.7	20.4	341285	2.8	21.1	290090	2.9	20.7
175496	2.5	21.0	114540	2.6	18.5	456475	2.7	21.6	378897	2.7	20.9	453238	2.8	21.8	333030	2.9	21.6
467287	2.5	20.2	3607	2.6	16.5	446775	2.7	19.5	405028	2.7	21.5	257821	2.8	19.8	360234	2.9	21.3
317527	2.5	21.4	492136	2.6	20.9	336014	2.7	21.0	538225	2.7	20.2	454390	2.8	20.6	524481	2.9	23.0
389339	2.6	21.2	455358	2.6	21.9	39401	2.7	18.3	398677	2.8	20.1	13756	2.8	18.9	348821	2.9	20.7
445158	2.6	20.5	258282	2.6	20.0	74447	2.7	18.8	270942	2.8	19.8	517662	2.8	20.9	142551	2.9	20.2
25331	2.6	18.5	194598	2.6	19.1	213937	2.7	19.7	87508	2.8	19.1	441546	2.8	22.0	147130	2.9	19.3
118025	2.6	20.0	377096	2.6	20.8	162083	2.7	19.2	183369	2.8	19.7	237668	2.8	20.6	415469	2.9	21.4
181373	2.6	19.7	175475	2.6	20.0	536574	2.7	20.0	458294	2.8	21.3	28167	2.8	17.0	104886	2.9	18.4
270972	2.6	21.4	274168	2.6	20.1	325300	2.7	20.4	412231	2.8	20.3	209913	2.8	20.3	351233	2.9	21.3
222128	2.6	20.8	118217	2.6	19.8	297422	2.7	21.6	292100	2.8	20.9	50171	2.8	18.0	73103	2.9	19.5
390412	2.6	19.7	220920	2.6	20.0	166664	2.7	19.9	400067	2.8	20.5	454282	2.8	19.8	435375	2.9	21.0
331688	2.6	20.7	177460	2.6	18.8	544226	2.7	21.3	185905	2.8	19.9	35164	2.8	17.4	238760	2.9	20.5
542686	2.6	19.9	44784	2.6	18.8	266083	2.7	20.8	458398	2.8	21.9	276200	2.8	20.1	273195	2.9	20.1
83706	2.6	19.3	419246	2.6	20.8	109898	2.7	18.5	109206	2.8	19.6	112745	2.8	19.8	532921	2.9	22.0
519100	2.6	20.8	4222	2.6	15.8	104235	2.7	19.4	175754	2.8	21.4	343326	2.8	20.5	54482	2.9	17.9
493807	2.6	22.0	238996	2.6	20.4	400162	2.7	21.5	284395	2.8	21.3	405144	2.8	21.0	173394	2.9	2

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
149572	2.9	19.3	463937	2.9	20.3	290468	3.0	19.5	30226	3.1	17.9	81206	3.2	17.9	447848	3.2	21.2
403093	2.9	20.4	175292	2.9	20.6	81566	3.0	18.8	459952	3.1	22.3	332423	3.2	21.4	765	3.2	16.9
373313	2.9	21.2	32991	2.9	17.3	80996	3.0	19.6	292811	3.1	20.8	145889	3.2	20.6	433772	3.2	20.7
423292	2.9	20.4	264451	2.9	20.8	462794	3.0	21.5	161115	3.1	19.2	416675	3.2	23.8	425460	3.2	20.4
132468	2.9	19.2	227956	2.9	20.3	406090	3.0	21.1	426150	3.1	20.6	81135	3.2	19.3	51675	3.2	19.2
110171	2.9	18.0	203087	2.9	20.1	420910	3.0	21.0	233835	3.1	20.3	243045	3.2	19.6	406567	3.2	20.7
151226	2.9	19.3	227340	2.9	20.2	63848	3.0	19.9	416884	3.1	21.0	120939	3.2	20.0	17775	3.2	18.9
289899	2.9	20.1	334588	2.9	20.1	502452	3.0	20.7	23690	3.1	17.4	417144	3.2	22.0	326436	3.2	20.1
252634	2.9	20.3	355883	2.9	21.2	306030	3.1	20.3	499705	3.1	20.1	541170	3.2	21.4	153085	3.2	20.3
45831	2.9	18.5	407028	2.9	20.1	49915	3.1	18.5	527986	3.1	21.1	156163	3.2	19.4	292612	3.2	20.1
210119	2.9	20.8	275997	2.9	20.5	341723	3.1	20.9	149033	3.1	19.6	194248	3.2	19.1	229294	3.2	19.4
210759	2.9	20.1	528715	2.9	21.2	170328	3.1	19.4	417314	3.1	19.9	295823	3.2	20.1	286028	3.2	20.4
85666	2.9	18.9	388459	2.9	20.0	523693	3.1	21.8	236328	3.1	18.9	522483	3.2	21.0	459227	3.2	20.5
95248	2.9	19.4	334619	2.9	21.0	544908	3.1	21.6	163257	3.1	19.9	230717	3.2	19.7	404955	3.2	21.8
107644	2.9	20.5	495255	2.9	20.4	460675	3.1	20.6	33684	3.1	17.8	417231	3.2	21.9	20784	3.2	18.1
68747	2.9	19.4	525026	2.9	23.0	208330	3.1	20.4	5628	3.1	17.0	237542	3.2	19.6	542307	3.2	20.9
335891	2.9	20.4	251032	2.9	21.2	234544	3.1	19.5	255980	3.1	21.5	292575	3.2	20.4	13835	3.2	17.5
538554	2.9	20.4	225347	2.9	21.0	68056	3.1	19.9	25884	3.1	17.1	323150	3.2	19.7	56373	3.2	17.6
340727	2.9	20.7	509237	2.9	20.9	483841	3.1	22.1	459955	3.1	20.7	1509	3.2	15.1	265840	3.2	20.1
543881	2.9	22.2	319707	2.9	21.4	306481	3.1	21.1	47411	3.1	19.3	155984	3.2	20.0	188904	3.2	19.5
351850	2.9	21.5	52307	2.9	18.9	453061	3.1	21.7	428938	3.1	20.2	401168	3.2	20.6	381640	3.2	21.5
87887	2.9	19.1	79515	2.9	18.5	170381	3.1	19.8	94519	3.1	18.6	239279	3.2	20.8	84498	3.2	17.3
10861	2.9	18.4	75788	2.9	20.1	112763	3.1	19.5	447097	3.1	21.8	500471	3.2	21.7	237424	3.2	19.3
264445	2.9	20.6	347671	2.9	21.2	415871	3.1	22.1	172698	3.1	20.5	206813	3.2	20.5	538267	3.2	21.0
34047	2.9	18.6	403861	2.9	19.9	274312	3.1	21.0	534375	3.1	22.5	185380	3.2	20.8	7449	3.2	18.0
53776	2.9	18.6	522509	2.9	20.2	25321	3.1	17.4	367376	3.1	19.7	417823	3.2	20.9	33120	3.2	18.7
320947	2.9	19.0	241152	2.9	20.2	365239	3.1	21.3	451506	3.1	21.7	18376	3.2	19.4	498974	3.2	21.0
447350	2.9	20.1	542134	2.9	21.5	307879	3.1	20.8	82581	3.1	19.4	499980	3.2	21.1	300239	3.2	19.5
77527	2.9	19.1	87585	2.9	19.5	4815	3.1	17.4	174247	3.1	20.0	323080	3.2	20.9	155124	3.2	19.7
418847	2.9	20.9	483954	2.9	19.9	433697	3.1	19.7	17137	3.1	17.5	507909	3.2	21.5	116460	3.2	19.4
248735	2.9	20.8	541874	2.9	22.2	363536	3.1	20.6	193880	3.1	20.7	64262	3.2	18.0	340643	3.2	21.2
398323	2.9	20.8	125784	2.9	20.0	189447	3.1	18.3	341339	3.1	20.1	461715	3.2	21.5	250190	3.2	20.9
62007	2.9	19.2	145256	2.9	19.9	237431	3.1	19.2	134449	3.1	20.2	541437	3.2	21.0	486038	3.3	21.5
294135	2.9	21.0	355290	2.9	21.0	499389	3.1	20.6	443875	3.1	22.0	354424	3.2	20.7	216527	3.3	19.9
483742	2.9	21.1	538830	3.0	20.5	38618	3.1	17.6	166836	3.1	19.6	534797	3.2	22.2	74606	3.3	19.2
208351	2.9	20.5	242097	3.0	20.7	334650	3.1	20.4	483707	3.1	21.2	459080	3.2	20.0	437321	3.3	20.9
196864	2.9	19.8	259890	3.0	19.4	156772	3.1	20.1	26679	3.1	17.8	538635	3.2	21.1	340881	3.3	19.5
355920	2.9	18.8	382263	3.0	20.8	493475	3.1	20.4	461437	3.1	21.2	412347	3.2	20.7	245798	3.3	21.3
458756	2.9	22.1	8702	3.0	16.9	33177	3.1	18.9	155637	3.1	20.0	188229	3.2	20.4	251601	3.3	21.4
319362	2.9	20.9	14538	3.0	17.7	274948	3.1	21.3	83743	3.1	19.6	446854	3.2	21.8	185484	3.3	19.8
492061	2.9	21.1	378400	3.0	20.7	160467	3.1	19.7	8604	3.1	17.9	183378	3.2	20.4	120490	3.3	19.2
145600	2.9	20.3	54851	3.0	19.3	43575	3.1	18.4	483926	3.1	22.2	115166	3.2	20.2	231501	3.3	19.9
202822	2.9	20.9	120607	3.0	19.2	318692	3.1	20.2	521133	3.1	20.7	238525	3.2	19.8	427804	3.3	19.3
436958	2.9	20.7	467321	3.0	21.4	441653	3.1	21.6	408879	3.1	20.5	105168	3.2	19.5	47219	3.3	16.4
161120	2.9	19.5	214270	3.0	19.4	219825	3.1	19.5	90694	3.1	19.2	219003	3.2	19.4	31252	3.3	18.4
32034	2.9	17.9	185743	3.0	19.9	242387	3.1	19.8	501907	3.1	20.3	467329	3.2	21.4	455946	3.3	21.1
166684	2.9	18.6	242456	3.0	21.5	465605	3.1	20.8	306801	3.1	20.8	274201	3.2	19.5	274662	3.3	20.3
3147795	2.9	21.7	500289	3.0	21.2	405592	3.1	21.5	284941	3.1	19.8	405959	3.2	22.1	109172	3.3	19.6
471773	2.9	19.9	485433	3.0	21.4	56575	3.1	18.2	445081	3.1	19.9	238451	3.2	20.1	320799	3.3	21.0
132807	2.9	19.7	337094	3.0	21.0	74567	3.1	19.6	49544	3.1	18.2	190756	3.2	19.9	296061	3.3	20.7
128915	2.9	19.8	542087	3.0	21.1	29036	3.1	18.1	136340	3.1	19.6	303041	3.2	20.6	385488	3.3	20.6
135226	2.9	19.5	182991	3.0	20.2	289446	3.1	19.2	247280	3.1	20.1	344503	3.2	21.6	178965	3.3	20.2
401186	2.9	20.7	168041	3.0	19.9	143173	3.1	19.7	406731	3.1	19.2	487701	3.2	20.3	189439	3.3	19.4
429256	2.9	20.5	295902	3.0	19.7	229675	3.1	19.0	241546	3.1	20.0	188214	3.2	19.1	488689	3.3	21.5
89846	2.9	20.3	164201	3.0	17.0	544257	3.1	21.2	408537	3.1	20.8	348928	3.2	21.0	138254	3.3	19.4
430086	2.9	21.4	229234	3.0	20.7	354964	3.1	20.0	324104	3.1	20.3	241675	3.2	21.6	169107	3.3	20.1
403710	2.9	21.5	527037	3.0	22.0	234503	3.1	20.8	319596	3.1	21.1	47325	3.2	18.9	476377	3.3	19.9
8166	2.9	16.9	193852	3.0	20.4	174411	3.1	19.7	334234	3.1	21.5	257463	3.2	21.1	137039	3.3	19.8
120228	2.9	19.6	346985	3.0	20.6	486078	3.1	21.9	236041	3.1	19.9	457235	3.2	20.5	365242	3.3	20.5
402547	2.9	20.1	55313	3.0	18.8	68309	3.1	18.9	278042	3.1	19.9	460996	3.2	20.8	275295	3.3	20.5
207047	2.9	20.3	363134	3.0	20.7	427563	3.1	21.7	265901	3.2	19.9	151094	3.2	20.1	532458	3.3	21.6
366776	2.9	21.5	292208	3.0	20.6	35587	3.1	18.5	139361	3.2	18.6	202594	3.2	20.8	460075	3.3	22.0
365236	2.9	21.0	285652	3.0	20.5	153443	3.1	19.5	195071	3.2	19.4	126380	3.2	19.6	31738	3.3	17.9
111890	2.9	19.6	162159	3.0	20.1	362803	3.1	20.9	532765	3.2	21.4	312385	3.2	19.8	27341	3.3	18.1
113191	2.9	20.0	27949	3.0	18.7	186401	3.1	20.6	101798	3.2	20.0	333710	3.2	21.0	176845	3.3	20.5
464324	2.9	20.9	233197	3.0	20.1	55256	3.1	18.8	6331	3.2	16.6	89691	3.2	19.7	535354	3.3	20.5
206342	2.9	19.4	412176	3.0	19.4	415779	3.1	21.5	180788	3.2	20.0	41940	3.2	18.9	409511	3.3	21.6
8600	2.9	16.9	184155	3.0	19.3	525692	3.1	21.1	407425	3.2	20.1	406006	3.2	21.0	439313	3.3	21.3
160010	2.9	19.6	526557	3.0	22.2	529218	3.1	21.9	113668	3.2	18.9	339793	3.2	21.5	488075	3.3	21.1
84799	2.9	18.5	409494	3.0	20.9	240767	3.1	21.1	420908	3.2	21.1	333079	3.2	19.9	248920	3.3	21.4
35179	2.9	18.1	147615	3.0	19.4	322734	3.1	21.5	453073	3.2	21.2	463584	3.2	20.8	329878	3.3	20.1

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
160170	3.3	19.5	108543	3.4	18.2	222812	3.4	20.6	464497	3.5	20.9	362220	3.6	20.2	458312	3.6	22.1
363565	3.3	19.4	132088	3.4	18.8	226852	3.4	20.5	425872	3.5	20.9	350458	3.6	21.5	407360	3.6	20.0
294664	3.3	20.6	218321	3.4	19.9	176894	3.4	19.8	393681	3.5	21.5	148984	3.6	19.7	325244	3.6	20.4
83632	3.3	19.7	27486	3.4	17.8	357657	3.4	20.1	232721	3.5	20.3	301952	3.6	20.5	193918	3.6	20.5
126121	3.3	19.5	322735	3.4	20.1	209212	3.4	20.3	194129	3.5	19.1	417149	3.6	21.7	242470	3.6	20.9
320064	3.3	19.8	176073	3.4	19.4	424375	3.4	20.2	234834	3.5	20.3	415729	3.6	22.5	171658	3.6	18.0
136497	3.3	19.7	293575	3.4	20.3	415790	3.4	21.7	460920	3.5	20.8	207756	3.6	21.2	400177	3.6	22.1
455089	3.3	20.9	345086	3.4	20.3	110662	3.4	19.0	98281	3.5	19.5	425504	3.6	20.6	453794	3.6	22.5
500504	3.3	20.5	155022	3.4	19.2	238396	3.4	18.8	425434	3.5	20.1	112568	3.6	19.9	529279	3.6	22.0
25488	3.3	18.5	527427	3.4	21.1	543646	3.4	22.5	492106	3.5	20.4	197889	3.6	20.6	350594	3.6	22.3
18351	3.3	18.0	165815	3.4	19.7	313202	3.4	20.6	14935	3.5	18.7	317445	3.6	20.9	482493	3.6	21.4
401976	3.3	21.2	165873	3.4	20.3	318004	3.4	19.2	121181	3.5	18.6	349498	3.6	20.9	464362	3.6	19.9
379079	3.3	20.4	34525	3.4	16.9	202646	3.4	20.4	173513	3.5	19.8	28869	3.6	18.1	305019	3.6	20.4
132759	3.3	18.7	337651	3.4	20.5	345113	3.4	20.5	297460	3.5	20.7	83742	3.6	18.9	323175	3.6	19.3
227801	3.3	20.2	233621	3.4	19.6	423564	3.4	22.2	140861	3.5	20.0	355934	3.6	20.7	443712	3.6	19.8
394051	3.3	21.2	407456	3.4	22.1	339908	3.4	20.5	433802	3.5	20.7	486626	3.6	19.9	301179	3.6	21.0
429953	3.3	20.8	307795	3.4	19.6	321977	3.4	19.7	135474	3.5	20.5	543295	3.6	21.9	544423	3.6	22.0
76028	3.3	19.1	203871	3.4	20.4	409422	3.4	20.3	497635	3.5	21.6	256177	3.6	19.8	18950	3.6	18.8
82603	3.3	18.5	541957	3.4	20.9	118647	3.4	17.3	500548	3.5	21.6	341569	3.6	21.0	270917	3.6	20.8
493772	3.3	20.0	347714	3.4	20.9	188194	3.4	19.8	483920	3.5	20.5	67405	3.6	18.3	472674	3.6	20.4
205334	3.3	20.3	237055	3.4	20.8	293222	3.4	20.3	325051	3.5	20.5	345136	3.6	20.1	432078	3.6	21.6
92410	3.3	18.6	92578	3.4	19.9	368018	3.4	20.0	314919	3.5	19.7	61889	3.6	19.0	27289	3.6	17.1
244870	3.3	19.3	225263	3.4	20.2	81433	3.4	18.0	531396	3.5	22.0	191477	3.6	19.9	539007	3.7	20.9
319731	3.3	19.7	506148	3.4	19.3	225053	3.4	20.3	543260	3.5	20.9	169278	3.6	20.5	297905	3.7	19.9
174669	3.3	20.1	325526	3.4	21.2	432441	3.4	19.8	543256	3.5	21.5	165769	3.6	19.6	428438	3.7	21.2
345211	3.3	20.5	251187	3.4	20.7	367555	3.4	21.2	468712	3.5	20.8	202754	3.6	20.0	242474	3.7	19.7
528666	3.3	22.1	201214	3.4	20.4	44060	3.4	18.1	344416	3.5	19.8	51577	3.6	17.8	401027	3.7	20.1
331489	3.3	20.7	229304	3.4	18.8	144481	3.4	19.0	338399	3.5	20.6	527152	3.6	20.7	323348	3.7	20.2
215090	3.3	20.6	4965	3.4	18.2	352770	3.4	21.4	420994	3.5	20.5	433824	3.6	20.5	147819	3.7	19.2
335987	3.3	22.2	243812	3.4	20.4	199453	3.4	19.9	126399	3.5	18.6	461745	3.6	21.2	84571	3.7	19.1
541209	3.3	21.5	406695	3.4	19.5	340119	3.4	20.7	47426	3.5	18.0	218751	3.6	20.7	258336	3.7	20.6
58264	3.3	20.0	273312	3.4	20.3	277897	3.4	20.2	378812	3.5	19.6	21166	3.6	18.2	503394	3.7	19.7
276389	3.3	20.9	445895	3.4	20.1	398379	3.5	21.8	459	3.5	14.5	242467	3.6	19.9	40569	3.7	19.3
382505	3.3	21.5	48871	3.4	18.3	207621	3.5	20.4	245956	3.5	19.7	355274	3.6	20.8	445983	3.7	20.5
11561	3.3	18.6	202809	3.4	20.6	56107	3.5	18.4	332092	3.5	19.7	292081	3.6	20.9	229027	3.7	19.7
221945	3.3	19.8	290758	3.4	20.0	419385	3.5	20.6	364374	3.5	20.9	406584	3.6	20.3	499459	3.7	20.1
210227	3.3	20.9	103732	3.4	19.7	178456	3.5	19.6	324661	3.5	20.0	184708	3.6	20.5	486855	3.7	20.7
32082	3.3	19.7	350250	3.4	21.7	383423	3.5	20.1	41652	3.5	19.2	88050	3.6	19.6	431599	3.7	20.8
61404	3.3	19.3	530092	3.4	22.5	158334	3.5	20.6	441425	3.5	20.4	117173	3.6	19.7	166827	3.7	20.3
427658	3.3	21.3	123085	3.4	20.1	204308	3.5	21.0	164383	3.5	20.8	28943	3.6	18.4	146554	3.7	18.7
142254	3.3	20.0	194508	3.4	21.0	466879	3.5	19.8	65831	3.5	19.3	313814	3.6	19.0	81547	3.7	18.7
201890	3.3	20.0	544627	3.4	21.7	192058	3.5	20.7	495324	3.5	20.5	415859	3.6	20.2	426965	3.7	21.0
5768	3.3	15.9	505773	3.4	20.2	456262	3.5	22.0	65603	3.5	20.4	67306	3.6	18.5	306067	3.7	19.6
95987	3.3	20.2	71053	3.4	19.3	58504	3.5	18.6	296145	3.5	21.3	241060	3.6	19.8	496285	3.7	21.1
142775	3.3	19.4	55569	3.4	18.9	282330	3.5	19.9	411339	3.5	21.5	445953	3.6	20.1	298914	3.7	19.7
238280	3.3	18.6	300327	3.4	21.4	243820	3.5	20.1	493028	3.5	21.7	1561	3.6	15.8	59367	3.7	18.4
166559	3.3	19.0	407569	3.4	21.9	343173	3.5	21.4	148697	3.5	20.7	303850	3.6	20.6	409983	3.7	20.5
362639	3.3	20.8	269369	3.4	20.4	446505	3.5	20.5	456664	3.5	21.7	245081	3.6	19.9	180838	3.7	18.9
39609	3.3	16.8	419986	3.4	20.8	523536	3.5	20.7	377111	3.5	20.6	432072	3.6	21.3	40264	3.7	17.5
403000	3.3	20.6	154501	3.4	19.2	460038	3.5	21.8	73775	3.5	19.6	113638	3.6	19.4	231963	3.7	20.4
473706	3.3	20.1	344620	3.4	19.1	124499	3.5	19.9	315720	3.5	20.1	284323	3.6	21.0	376005	3.7	21.1
342958	3.3	20.2	151134	3.4	18.9	1089	3.5	14.6	5273	3.5	17.0	68900	3.6	18.8	21433	3.7	17.3
528548	3.3	21.0	452111	3.4	20.7	73942	3.5	19.0	22691	3.5	17.4	5457	3.6	16.7	242137	3.7	21.1
205046	3.3	20.4	325592	3.4	19.8	152239	3.5	19.5	118865	3.5	19.0	354573	3.6	21.1	127861	3.7	18.9
298797	3.3	20.2	416906	3.4	21.5	34875	3.5	18.4	110732	3.5	19.9	101411	3.6	20.0	222138	3.7	20.8
542099	3.3	20.3	406705	3.4	20.4	393262	3.5	20.5	368515	3.5	21.5	201801	3.6	20.3	364432	3.7	20.5
310086	3.3	21.0	194023	3.4	20.2	75956	3.5	18.6	411394	3.5	21.9	252012	3.6	19.7	373417	3.7	21.2
406856	3.3	20.2	103350	3.4	19.1	42767	3.5	18.5	451063	3.5	21.9	55742	3.6	18.6	47610	3.7	19.6
176174	3.3	19.2	362798	3.4	20.7	103336	3.5	19.2	387509	3.5	21.0	138888	3.6	18.1	362739	3.7	20.2
89762	3.3	19.7	52807	3.4	18.6	234474	3.5	20.4	441650	3.5	21.6	490255	3.6	21.5	140827	3.7	19.9
542241	3.3	20.5	517718	3.4	19.9	186903	3.5	19.6	176903	3.5	21.2	298449	3.6	20.0	531328	3.7	21.8
444041	3.3	22.2	55099	3.4	18.7	154336	3.5	20.4	384782	3.5	20.8	381313	3.6	20.5	373318	3.7	19.8
108802	3.3	19.1	201973	3.4	20.9	2874	3.5	16.1	486215	3.5	21.9	207526	3.6	19.4	528275	3.7	21.8
118269	3.3	17.1	341611	3.4	20.0	223684	3.5	20.3	192529	3.5	19.6	99401	3.6	17.9	19738	3.7	17.8
53442	3.3	17.5	134684	3.4	19.0	80597	3.5	18.3	34135	3.5	19.4	500585	3.6	21.2	335908	3.7	20.6
467712	3.3	20.5	427685	3.4	19.4	325306	3.5	20.9	544902	3.5	20.8	405147	3.6	22.6	269762	3.7	20.2
338097	3.3	20.4	277433	3.4	20.7	312827	3.5	20.2	108126	3.6	18.2	319032	3.6	20.2	182610	3.7	18.7
284332	3.3	20.2	237746	3.4	19.3	137896	3.5	18.0	207006	3.6	19.9	432198	3.6	21.7	434188	3.7	22.5
537853	3.3	20.9	443892	3.4	22.1	320824	3.5	20.3	192868	3.6	20.9	500556	3.6	22.0	464709	3.7	21.7
210790	3.3	20.4	245005	3.4	20.1	46300	3.5	19.2	399759	3.6	21.4	80898	3.6	19.2	347224	3.7	19.7
500339	3.3	21.1	194412	3.4	19.1	377030	3.5	21.0	113920	3.6	18.6	378952	3.6	21.5	230618	3.7	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
271874	3.7	20.5	343677	3.8	19.2	138711	3.8	20.2	179940	3.9	20.2	87784	3.9	19.5	88946	4.0	19.3
240366	3.7	20.3	427053	3.8	21.1	334511	3.8	21.5	315787	3.9	19.7	238103	3.9	19.7	392293	4.0	20.9
4272	3.7	16.9	544449	3.8	21.3	81673	3.8	19.9	535576	3.9	20.5	282838	3.9	21.1	191975	4.0	20.7
319851	3.7	20.2	67507	3.8	18.7	61285	3.8	19.3	54840	3.9	19.5	190836	3.9	20.4	286845	4.0	20.9
500643	3.7	20.5	15871	3.8	18.0	34335	3.8	18.5	243752	3.9	20.9	196590	3.9	19.9	20065	4.0	18.3
124456	3.7	19.8	467535	3.8	21.6	412617	3.8	21.4	520640	3.9	21.7	314852	3.9	20.9	229220	4.0	20.5
177494	3.7	19.7	430479	3.8	21.2	532766	3.8	21.3	215316	3.9	20.0	289876	3.9	20.8	435370	4.0	20.9
116824	3.7	19.0	323949	3.8	19.6	25057	3.8	17.0	124951	3.9	18.8	246676	3.9	20.1	484700	4.0	20.7
366295	3.7	21.5	453116	3.8	21.3	164567	3.8	20.0	452182	3.9	21.1	415319	3.9	20.0	468951	4.0	20.4
182761	3.7	20.5	332413	3.8	21.5	215548	3.8	21.0	502085	3.9	20.4	194444	3.9	19.6	191939	4.0	20.4
400780	3.7	20.2	51213	3.8	18.5	499388	3.8	20.2	235430	3.9	19.9	207009	3.9	20.6	301813	4.0	21.1
145155	3.7	18.7	56003	3.8	19.9	429267	3.8	20.9	228771	3.9	19.7	503295	3.9	20.4	334565	4.0	20.6
289208	3.7	19.5	399527	3.8	21.0	369333	3.8	21.5	299356	3.9	20.5	501699	3.9	21.0	257886	4.0	20.4
98885	3.7	19.0	306534	3.8	19.6	467306	3.8	21.0	461100	3.9	21.0	469052	3.9	20.7	258438	4.0	20.9
163755	3.7	21.0	47726	3.8	19.1	316872	3.8	20.5	205357	3.9	19.8	252542	3.9	20.3	344068	4.0	21.5
146423	3.7	19.1	281756	3.8	20.9	366456	3.8	19.7	529595	3.9	20.4	336007	3.9	20.2	113274	4.0	19.4
45200	3.7	18.3	148445	3.8	20.5	266960	3.8	21.0	440612	3.9	21.1	207686	3.9	21.0	409929	4.0	21.6
243173	3.7	20.3	90029	3.8	20.2	190270	3.8	20.1	280192	3.9	21.2	27484	3.9	17.2	311043	4.0	18.8
123536	3.7	19.8	449473	3.8	20.2	142865	3.8	19.3	434194	3.9	23.1	326162	3.9	20.4	199830	4.0	19.0
397191	3.7	20.4	534607	3.8	22.3	217258	3.8	20.5	338115	3.9	22.3	32139	3.9	18.5	544767	4.0	21.8
101616	3.7	17.5	179538	3.8	19.2	208249	3.8	21.1	234077	3.9	20.8	204322	3.9	20.8	120563	4.0	19.5
451859	3.7	19.7	309530	3.8	19.8	396504	3.8	20.1	379689	3.9	20.8	202043	3.9	20.3	290004	4.0	19.8
19425	3.7	17.8	240606	3.8	20.7	135488	3.8	20.2	408901	3.9	20.8	171107	3.9	19.2	193969	4.0	19.8
197127	3.7	20.0	76051	3.8	19.9	375574	3.8	20.8	264306	3.9	19.8	132768	3.9	20.0	34191	4.0	18.1
358613	3.7	20.1	266944	3.8	21.0	109681	3.8	19.7	429732	3.9	21.7	283078	3.9	20.7	455517	4.0	21.9
81540	3.7	19.3	428444	3.8	21.4	518434	3.8	21.8	502413	3.9	20.5	33055	3.9	18.0	359266	4.0	21.1
317625	3.7	19.9	469130	3.8	20.7	27305	3.9	16.7	176143	3.9	20.6	495237	3.9	21.0	66278	4.1	19.0
397174	3.7	20.1	341528	3.8	20.8	442787	3.9	22.2	496405	3.9	21.7	86537	3.9	18.9	535799	4.1	21.2
409959	3.7	22.9	243757	3.8	21.0	256077	3.9	18.8	271301	3.9	20.5	392269	3.9	19.9	332174	4.1	20.9
40349	3.7	18.1	106049	3.8	19.3	124182	3.9	20.3	52811	3.9	19.2	80197	3.9	19.8	239304	4.1	20.3
285901	3.7	21.2	253900	3.8	19.8	333577	3.9	20.4	27440	3.9	18.5	464134	3.9	21.4	258614	4.1	20.2
41993	3.7	18.8	273349	3.8	20.1	355955	3.9	20.2	531075	3.9	22.7	97603	3.9	18.5	542797	4.1	20.4
52993	3.7	19.4	6357	3.8	16.7	136831	3.9	20.4	223916	3.9	20.4	426961	3.9	21.2	28795	4.1	17.7
409439	3.7	21.6	483429	3.8	19.2	177757	3.9	20.0	391860	3.9	20.0	544573	3.9	21.6	353245	4.1	20.1
524064	3.7	19.8	538459	3.8	21.0	386255	3.9	19.9	237407	3.9	20.9	344177	3.9	20.0	343578	4.1	20.4
25183	3.7	18.7	354523	3.8	22.0	31834	3.9	17.5	473843	3.9	21.2	196672	3.9	19.9	91313	4.1	17.8
280190	3.7	20.2	335932	3.8	21.3	424656	3.9	22.8	205314	3.9	20.9	14452	3.9	18.3	38021	4.1	18.8
413077	3.7	20.2	468719	3.8	20.4	457091	3.9	22.2	426489	3.9	22.2	148988	3.9	19.6	59266	4.1	17.8
499007	3.7	21.1	391872	3.8	20.3	46640	3.9	18.1	145887	3.9	19.8	62810	3.9	19.0	397896	4.1	20.2
7491	3.7	17.7	68637	3.8	19.1	45576	3.9	18.2	108391	3.9	18.7	59016	3.9	20.4	153473	4.1	19.3
404651	3.7	19.3	542240	3.8	21.2	202916	3.9	20.3	339546	3.9	21.0	411856	3.9	20.9	29577	4.1	18.0
61029	3.7	19.4	31673	3.8	17.3	34620	3.9	18.3	421992	3.9	20.8	366041	3.9	20.5	294098	4.1	20.6
434667	3.7	20.7	94510	3.8	18.0	458348	3.9	22.5	89417	3.9	19.5	233982	3.9	20.9	457101	4.1	20.7
361234	3.7	20.1	339488	3.8	20.0	526928	3.9	20.8	281734	3.9	20.3	310759	3.9	21.2	352582	4.1	19.7
45710	3.7	18.4	363166	3.8	20.4	47626	3.9	18.9	309969	3.9	19.9	403628	3.9	21.1	489871	4.1	20.3
461082	3.7	20.9	256375	3.8	19.9	25276	3.9	18.7	6460	3.9	16.2	111121	3.9	18.1	81377	4.1	17.8
15583	3.7	19.0	4529	3.8	16.5	214379	3.9	19.5	235070	3.9	19.7	276701	3.9	20.3	287228	4.1	21.2
210196	3.7	20.8	280250	3.8	20.3	424792	3.9	22.2	242913	3.9	20.8	206352	3.9	19.9	34085	4.1	18.8
536302	3.7	20.8	34962	3.8	19.8	113325	3.9	19.1	318868	3.9	20.6	231656	3.9	20.3	465816	4.1	19.9
211394	3.7	19.9	464021	3.8	21.1	272204	3.9	20.0	207448	3.9	20.6	55243	3.9	18.7	96032	4.1	20.2
153996	3.7	18.9	353271	3.8	20.1	502943	3.9	20.8	28406	3.9	17.5	239577	3.9	20.2	370557	4.1	21.2
77347	3.7	19.2	459301	3.8	19.4	373893	3.9	21.5	502265	3.9	20.7	415500	3.9	20.3	279075	4.1	20.7
190737	3.7	20.7	220456	3.8	19.8	21851	3.9	19.1	496822	3.9	21.5	18943	3.9	18.5	46342	4.1	18.5
352758	3.7	20.1	161544	3.8	20.0	326078	3.9	20.9	543131	3.9	21.6	283398	3.9	20.6	192992	4.1	19.4
49409	3.7	19.1	55429	3.8	18.4	187683	3.9	19.1	283583	3.9	20.4	200582	3.9	21.8	135452	4.1	20.2
148891	3.7	20.5	217422	3.8	19.6	473683	3.9	21.3	419060	3.9	20.8	185413	4.0	20.9	116568	4.1	18.9
75899	3.7	19.7	411447	3.8	21.0	103078	3.9	19.1	311312	3.9	19.1	109091	4.0	19.8	197338	4.1	20.8
404878	3.7	19.5	368619	3.8	20.6	163672	3.9	20.2	460660	3.9	21.6	487684	4.0	21.0	455378	4.1	21.8
1987	3.7	16.1	16385	3.8	18.8	490401	3.9	22.0	461737	3.9	21.6	376634	4.0	19.3	532591	4.1	21.8
499429	3.8	20.7	545045	3.8	20.5	296068	3.9	20.4	494873	3.9	20.6	330124	4.0	20.9	207016	4.1	20.3
162042	3.8	21.6	256037	3.8	20.6	342920	3.9	20.2	250194	3.9	21.4	406652	4.0	20.5	104381	4.1	19.1
236271	3.8	20.3	384868	3.8	22.4	174210	3.9	20.5	417201	3.9	21.6	311869	4.0	19.8	274719	4.1	20.2
26542	3.8	18.1	225192	3.8	19.3	269701	3.9	20.0	301627	3.9	20.3	152977	4.0	18.6	86275	4.1	19.5
326001	3.8	20.0	461057	3.8	20.9	283733	3.9	18.0	513542	3.9	20.5	360124	4.0	22.0	426273	4.1	20.8
350624	3.8	19.8	278650	3.8	20.9	163478	3.9	19.6	47729	3.9	19.8	100315	4.0	20.2	48506	4.1	18.2
57765	3.8	18.2	503678	3.8	21.3	290290	3.9	21.1	441458	3.9	21.4	280441	4.0	19.8	495589	4.1	20.5
50443	3.8	19.3	9319	3.8	17.4	8535	3.9	18.1	249562	3.9	20.4	251302	4.0	20.8	156721	4.1	19.7
479403	3.8	20.5	125960	3.8	19.7	79638	3.9	19.1	277865	3.9	20.6	87766	4.0	18.7	81346	4.1	19.0
117494	3.8	19.5	538555	3.8	21.2	114445	3.9	20.2	232267	3.9	20.4	136628	4.0	20.1	230420	4.1	22.8
16623	3.8	17.2	53624	3.8	19.4	14874	3.9	16.8	232272	3.9	19.9	107900	4.0	19.1	123666	4.1	19.9
244775	3.8	21.0	196211	3.8	20.1	334553	3.9	20.6	160150	3.9	19.3	311008	4.0	20.6	93770	4.1	20.0
34																	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
406685	4.1	20.7	55551	4.1	18.8	543589	4.2	20.7	347396	4.3	20.1	205605	4.3	21.2	417181	4.4	21.4
383386	4.1	20.8	16506	4.1	18.1	238371	4.2	19.8	334587	4.3	20.7	524673	4.3	21.8	194442	4.4	20.4
214515	4.1	20.8	148828	4.1	19.1	315522	4.2	19.7	337442	4.3	21.2	395399	4.3	21.4	459863	4.4	19.9
412524	4.1	20.8	536067	4.1	20.8	360805	4.2	19.6	381262	4.3	20.6	465964	4.3	21.1	438893	4.4	21.5
402993	4.1	19.9	207826	4.1	19.8	93639	4.2	19.2	224316	4.3	20.7	544759	4.3	21.2	246666	4.4	20.4
146390	4.1	19.4	403551	4.1	21.9	498107	4.2	21.4	249314	4.3	20.4	416980	4.3	22.0	78303	4.4	19.6
271927	4.1	20.5	135254	4.2	18.4	402564	4.2	22.1	85592	4.3	19.1	128552	4.3	19.8	155356	4.4	20.7
422259	4.1	20.6	100024	4.2	19.9	228230	4.2	19.7	372934	4.3	21.1	45122	4.3	17.3	271337	4.4	20.9
201764	4.1	20.2	288749	4.2	20.3	327894	4.2	20.0	335756	4.3	21.4	104761	4.3	19.8	19173	4.4	16.9
224860	4.1	20.9	310778	4.2	20.2	403624	4.2	21.5	190492	4.3	19.2	305000	4.3	19.0	78966	4.4	20.0
83374	4.1	18.6	324602	4.2	20.9	492535	4.2	20.4	285622	4.3	21.6	252251	4.3	20.2	295986	4.4	20.4
226946	4.1	20.2	25762	4.2	17.9	36068	4.2	18.9	201371	4.3	20.9	390705	4.3	20.3	261510	4.4	19.9
542601	4.1	20.9	144613	4.2	19.6	232829	4.2	20.8	67320	4.3	18.9	141220	4.3	19.4	29893	4.4	18.2
355893	4.1	21.0	252946	4.2	20.7	288132	4.2	20.2	201880	4.3	19.8	132265	4.3	19.7	492583	4.4	21.7
527283	4.1	21.8	332778	4.2	20.8	352539	4.2	19.8	118514	4.3	18.9	83896	4.3	19.5	392240	4.4	19.2
407813	4.1	20.5	33379	4.2	18.8	495958	4.2	21.1	390595	4.3	21.2	226578	4.3	19.8	45373	4.4	18.0
39801	4.1	18.7	83425	4.2	18.7	196370	4.2	19.0	398327	4.3	20.7	310189	4.3	19.9	370792	4.4	21.3
338385	4.1	20.6	399532	4.2	20.1	450264	4.2	21.1	345331	4.3	20.8	543900	4.3	21.2	47848	4.4	18.5
433728	4.1	20.7	536013	4.2	21.5	203108	4.2	20.7	326352	4.3	20.6	246343	4.3	20.3	199417	4.4	20.8
193789	4.1	21.1	109124	4.2	19.3	317013	4.2	20.8	43081	4.3	18.1	383780	4.3	21.2	32633	4.4	18.2
61181	4.1	19.2	312266	4.2	20.8	138044	4.2	18.7	137115	4.3	19.4	420880	4.3	21.3	77624	4.4	19.6
163620	4.1	19.3	532701	4.2	21.5	402694	4.2	21.8	165749	4.3	19.4	302477	4.3	19.2	239507	4.4	19.8
57769	4.1	19.1	155941	4.2	20.6	961	4.2	15.4	148912	4.3	19.4	414879	4.3	21.3	81694	4.4	19.1
377416	4.1	21.3	529127	4.2	21.5	283284	4.2	19.6	536702	4.3	20.4	72902	4.3	19.5	33355	4.4	20.0
417068	4.1	21.7	293503	4.2	20.7	291340	4.2	19.6	225246	4.3	20.4	107718	4.4	18.4	197398	4.4	20.2
27285	4.1	17.4	382227	4.2	20.4	451662	4.2	20.1	340094	4.3	20.9	493809	4.4	21.4	297432	4.4	20.4
191458	4.1	20.5	339973	4.2	20.5	49011	4.2	18.1	488772	4.3	22.7	25014	4.4	16.7	48596	4.4	20.3
400203	4.1	22.0	27196	4.2	17.7	77598	4.2	19.3	191951	4.3	19.1	425041	4.4	20.8	15011	4.4	19.0
205481	4.1	20.9	161986	4.2	19.0	221193	4.2	20.2	529730	4.3	20.4	424875	4.4	21.1	524192	4.4	21.8
186668	4.1	19.8	543644	4.2	19.9	104994	4.2	19.7	135736	4.3	20.7	37194	4.4	17.2	512294	4.4	19.9
90317	4.1	19.3	23374	4.2	19.2	6238	4.2	16.6	194178	4.3	20.5	431228	4.4	20.5	222089	4.4	20.5
422400	4.1	20.9	544777	4.2	20.4	402623	4.2	21.6	309376	4.3	20.7	83276	4.4	19.0	87259	4.4	19.7
413550	4.1	20.1	476468	4.2	20.6	55675	4.2	18.3	142709	4.3	20.1	447035	4.4	21.9	520869	4.4	20.2
445048	4.1	22.0	100009	4.2	20.2	115896	4.2	18.9	29880	4.3	18.9	190158	4.4	20.1	118548	4.4	18.9
39139	4.1	18.1	269443	4.2	19.7	212941	4.2	21.3	319533	4.3	21.6	142702	4.4	20.6	66748	4.4	18.0
285709	4.1	21.1	217999	4.2	20.6	204169	4.2	19.8	315593	4.3	19.6	407378	4.4	20.8	49608	4.4	18.5
205559	4.1	20.4	159539	4.2	20.6	287037	4.2	20.7	344188	4.3	19.5	375455	4.4	21.4	175348	4.4	19.3
445843	4.1	20.5	112588	4.2	20.0	226218	4.2	20.5	281855	4.3	20.4	246581	4.4	20.9	427413	4.4	23.1
110719	4.1	18.8	403560	4.2	21.2	167164	4.2	20.7	79294	4.3	19.8	64671	4.4	19.0	405525	4.4	19.3
218373	4.1	20.5	262302	4.2	21.3	34727	4.2	19.0	186396	4.3	20.2	267849	4.4	20.8	402100	4.4	20.6
375003	4.1	20.5	213894	4.2	20.8	151676	4.2	19.3	12208	4.3	18.9	109826	4.4	20.5	146460	4.4	19.4
6109	4.1	17.1	62034	4.2	19.5	165863	4.2	20.7	235539	4.3	19.8	37917	4.4	17.7	26905	4.4	18.3
529955	4.1	21.4	468993	4.2	20.7	57330	4.2	18.2	75176	4.3	20.0	465562	4.4	21.4	122502	4.4	19.5
143639	4.1	19.1	190741	4.2	21.3	252358	4.2	21.0	488849	4.3	21.7	144310	4.4	19.2	97375	4.4	18.4
54745	4.1	19.8	379528	4.2	20.1	276283	4.2	21.1	347638	4.3	21.0	535806	4.4	20.8	325853	4.4	20.9
80453	4.1	18.3	409252	4.2	20.2	544438	4.2	21.9	226210	4.3	20.3	195692	4.4	21.0	32712	4.4	17.9
428987	4.1	20.8	492597	4.2	21.1	275093	4.2	20.1	63709	4.3	18.9	197466	4.4	19.6	151577	4.4	20.2
496352	4.1	21.2	431201	4.2	21.2	167515	4.2	19.8	464040	4.3	22.0	405554	4.4	21.4	462340	4.4	21.0
76530	4.1	18.9	354551	4.2	21.3	69174	4.2	19.6	40231	4.3	17.8	61458	4.4	19.5	419416	4.4	19.9
483762	4.1	21.2	462653	4.2	20.9	387000	4.2	21.7	457088	4.3	20.1	3082	4.4	16.7	216981	4.4	21.2
522257	4.1	21.2	207557	4.2	20.3	136844	4.2	19.6	241072	4.3	20.2	410438	4.4	20.7	495692	4.4	20.8
280249	4.1	20.0	25460	4.2	18.4	40032	4.2	18.5	265675	4.3	21.3	353419	4.4	19.8	398340	4.4	22.1
413852	4.1	22.4	234435	4.2	21.0	344235	4.2	21.4	353431	4.3	20.3	514087	4.4	21.0	135664	4.4	19.4
138039	4.1	19.4	165896	4.2	19.8	425964	4.2	20.2	462637	4.3	21.7	143513	4.4	19.2	405985	4.4	19.9
237741	4.1	20.6	245870	4.2	21.3	128502	4.3	20.5	485407	4.3	21.5	337496	4.4	20.5	358610	4.4	19.6
275003	4.1	21.4	325595	4.2	19.5	263487	4.3	19.3	493737	4.3	21.8	43786	4.4	20.3	246552	4.4	20.0
204285	4.1	21.0	282227	4.2	19.7	231452	4.3	19.1	4542	4.3	15.8	138354	4.4	19.5	137030	4.4	17.6
455216	4.1	21.2	440261	4.2	21.6	217683	4.3	23.2	519800	4.3	20.8	242125	4.4	21.1	59721	4.4	18.8
327246	4.1	21.0	12087	4.2	18.7	192925	4.3	20.4	493408	4.3	20.8	328601	4.4	20.7	402119	4.4	19.8
502730	4.1	20.6	208380	4.2	20.5	242122	4.3	20.0	406130	4.3	21.6	328956	4.4	20.4	231478	4.4	19.7
460409	4.1	20.6	242589	4.2	19.4	38011	4.3	17.7	247223	4.3	20.2	146624	4.4	20.2	383374	4.4	21.5
417801	4.1	21.0	529001	4.2	20.8	264439	4.3	20.9	76657	4.3	17.9	187077	4.4	20.1	545053	4.4	21.2
237302	4.1	20.5	87858	4.2	20.4	351645	4.3	20.9	123239	4.3	20.4	427834	4.4	20.5	50710	4.4	18.7
202044	4.1	20.6	460401	4.2	20.6	52933	4.3	19.3	522076	4.3	20.6	406122	4.4	21.3	70772	4.4	19.1
54969	4.1	18.8	138269	4.2	19.3	494891	4.3	22.0	450552	4.3	20.2	30773	4.4	18.5	250175	4.4	20.3
45074	4.1	19.1	379447	4.2	20.2	293884	4.3	20.4	461865	4.3	20.9	24095	4.4	18.5	543832	4.4	21.3
232697	4.1	20.1	424123	4.2	20.4	350802	4.3	19.8	194462	4.3	21.0	152896	4.4	18.7	397903	4.4	21.3
87676	4.1	19.2	159926	4.2	19.9	243815	4.3	20.4	43707	4.3	18.7	410544	4.4	20.8	206289	4.4	20.4
236895	4.1	20.8	332309	4.2	20.7	498699	4.3	21.1	175770	4.3	19.3	47009	4.4	19.5	381670	4.4	21.8
343764	4.1	19.7	110860	4.2	19.5	150571	4.3	19.8	63250	4.3	19.9	382210	4.4	20.8	265841	4.4	20.0
146091	4.1	19.6	445905	4.2	21.5	502285	4.3	21.0	459163	4.3	20.5	345700	4.4	20.6	115598	4.4	19.5

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
360794	4.5	20.1	223801	4.5	20.9	497714	4.6	22.5	529188	4.6	20.9	166767	4.7	20.0	132077	4.8	19.9
541236	4.5	21.0	410081	4.5	21.2	445922	4.6	19.6	167567	4.6	19.2	544157	4.7	21.4	242872	4.8	19.8
430486	4.5	21.2	348435	4.5	21.0	237603	4.6	20.6	154045	4.6	19.0	414841	4.7	21.1	30082	4.8	17.3
43626	4.5	19.2	450758	4.5	21.4	445123	4.6	21.9	93827	4.7	20.2	533209	4.7	22.6	467474	4.8	21.5
20783	4.5	18.3	116936	4.5	19.3	430380	4.6	19.5	366941	4.7	21.3	404597	4.7	20.9	53383	4.8	18.3
195885	4.5	20.0	378944	4.5	21.6	117838	4.6	19.9	48077	4.7	18.2	366768	4.7	21.1	106869	4.8	20.0
246160	4.5	20.5	397484	4.5	21.1	453876	4.6	21.4	33008	4.7	18.0	266852	4.7	21.1	273344	4.8	20.7
284005	4.5	21.8	463871	4.5	21.8	455669	4.6	20.0	180860	4.7	19.6	445051	4.7	22.0	166672	4.8	20.7
25308	4.5	18.0	489906	4.5	20.7	145696	4.6	20.4	450298	4.7	21.2	242253	4.7	20.4	79598	4.8	18.6
188362	4.5	20.0	298381	4.5	19.5	160604	4.6	19.3	433003	4.7	21.0	63667	4.7	19.5	466475	4.8	20.8
323872	4.5	19.5	28150	4.5	18.6	469061	4.6	20.3	41458	4.7	19.7	401945	4.7	20.1	195861	4.8	19.8
222839	4.5	20.1	422251	4.5	21.1	35069	4.6	18.6	337362	4.7	21.3	407334	4.7	22.2	176839	4.8	20.3
204380	4.5	20.5	227437	4.5	20.2	135786	4.6	20.5	543153	4.7	21.8	27029	4.7	17.6	319513	4.8	21.5
409894	4.5	22.0	230900	4.5	20.4	208720	4.6	19.4	460044	4.7	21.3	82741	4.7	20.7	109540	4.8	20.4
413053	4.5	20.7	272200	4.5	19.8	428410	4.6	21.4	186467	4.7	19.7	527700	4.7	21.7	333833	4.8	19.1
168002	4.5	20.0	406645	4.5	20.3	482928	4.6	20.2	227897	4.7	19.8	431917	4.7	22.3	92616	4.8	18.8
466054	4.5	21.3	448764	4.5	18.9	279546	4.6	20.6	387675	4.7	21.2	422343	4.7	21.3	481177	4.8	20.2
345132	4.5	21.0	111951	4.5	20.3	529035	4.6	22.1	500488	4.7	21.8	283379	4.7	21.3	94834	4.8	19.1
182510	4.5	19.6	113700	4.5	19.4	143101	4.6	19.0	467652	4.7	20.7	376723	4.7	21.1	424673	4.8	21.1
87991	4.5	19.9	534503	4.5	21.9	373649	4.6	21.4	49439	4.7	18.9	85515	4.7	20.3	109945	4.8	17.7
486259	4.5	20.9	413840	4.5	21.2	244009	4.6	20.6	135251	4.7	19.1	257030	4.7	20.0	236968	4.8	20.1
22539	4.5	17.4	467885	4.5	20.1	148873	4.6	20.1	450299	4.7	22.1	427079	4.7	20.7	153445	4.8	20.3
5251	4.5	18.0	441103	4.5	23.0	410536	4.6	20.7	27397	4.7	18.5	38780	4.7	19.2	239294	4.8	20.0
186471	4.5	19.4	55741	4.5	18.8	318808	4.6	20.2	428430	4.7	20.4	312571	4.7	20.1	385862	4.8	21.1
179072	4.5	20.0	390981	4.5	20.9	106890	4.6	19.8	378815	4.7	21.6	335715	4.7	21.2	205259	4.8	21.1
225888	4.5	20.5	19538	4.5	16.9	193971	4.6	20.6	337219	4.7	20.3	477790	4.8	20.8	362453	4.8	21.5
543987	4.5	20.9	413685	4.5	21.3	371241	4.6	21.4	383339	4.7	20.7	108506	4.8	19.0	99443	4.8	17.9
242963	4.5	20.9	52752	4.5	18.1	314804	4.6	20.8	148735	4.7	19.8	172814	4.8	20.9	403041	4.8	19.8
100609	4.5	19.8	90479	4.5	19.0	293225	4.6	20.1	51785	4.7	18.8	101869	4.8	22.7	230948	4.8	20.4
529207	4.5	21.7	328737	4.5	20.7	22338	4.6	17.3	455172	4.7	22.5	314866	4.8	20.6	411313	4.8	21.7
228062	4.5	20.2	366370	4.5	20.9	382364	4.6	20.6	29650	4.7	19.4	217775	4.8	20.3	75970	4.8	18.0
426546	4.5	20.5	309409	4.5	21.0	65188	4.6	19.9	458914	4.7	23.0	56476	4.8	18.6	145432	4.8	20.6
49786	4.5	19.2	486731	4.5	20.9	232031	4.6	20.4	538282	4.7	20.7	124354	4.8	19.9	95437	4.8	19.3
8667	4.5	17.4	207538	4.6	19.6	302974	4.6	20.1	413625	4.7	21.0	231603	4.8	20.8	422291	4.8	21.1
532827	4.5	21.5	330480	4.6	20.7	143688	4.6	21.0	232394	4.7	19.6	338085	4.8	21.1	62094	4.8	18.6
43745	4.5	18.4	171257	4.6	19.9	198783	4.6	19.3	538893	4.7	20.8	170790	4.8	18.8	485184	4.8	20.0
500436	4.5	21.2	285023	4.6	20.1	241519	4.6	20.4	518818	4.7	20.0	65041	4.8	18.8	458545	4.8	20.6
223791	4.5	20.1	535619	4.6	21.4	391129	4.6	21.0	84718	4.7	19.4	172044	4.8	19.9	220654	4.8	20.2
458286	4.5	21.4	198885	4.6	19.1	138629	4.6	19.6	337669	4.7	20.0	528513	4.8	22.4	291043	4.8	19.8
18723	4.5	17.7	351242	4.6	21.7	165942	4.6	19.2	39760	4.7	18.6	192576	4.8	18.9	226096	4.8	19.5
241141	4.5	19.7	85452	4.6	19.1	369659	4.6	21.1	177441	4.7	19.8	486079	4.8	21.2	460927	4.8	21.0
309246	4.5	21.1	72907	4.6	17.3	483827	4.6	21.2	165283	4.7	19.8	451071	4.8	21.4	167006	4.8	20.0
212561	4.5	19.5	46403	4.6	18.5	157525	4.6	20.2	368991	4.7	20.6	376349	4.8	20.9	450836	4.8	19.4
383684	4.5	20.5	146358	4.6	19.6	44819	4.6	18.6	113448	4.7	19.4	375349	4.8	21.6	495667	4.8	20.7
531329	4.5	21.1	93031	4.6	18.8	39934	4.6	17.8	381337	4.7	19.9	206800	4.8	20.4	331036	4.8	21.0
204176	4.5	19.3	47819	4.6	18.0	427078	4.6	20.7	6356	4.7	17.1	235477	4.8	20.1	204251	4.8	21.0
261597	4.5	20.2	190475	4.6	19.3	291972	4.6	21.4	256111	4.7	20.1	542658	4.8	20.8	379402	4.8	20.6
79347	4.5	19.5	188440	4.6	20.1	449102	4.6	21.0	109092	4.7	19.3	369934	4.8	19.1	383759	4.8	22.3
264739	4.5	20.0	347695	4.6	21.0	302901	4.6	21.2	159057	4.7	19.9	306212	4.8	21.4	496324	4.8	22.2
391440	4.5	20.5	142929	4.6	19.5	355855	4.6	21.4	50042	4.7	18.3	22755	4.8	18.1	482834	4.8	20.8
440709	4.5	21.7	158636	4.6	19.5	124720	4.6	20.2	280209	4.7	20.3	83948	4.8	19.2	307717	4.8	20.5
24614	4.5	19.0	325673	4.6	18.7	145244	4.6	19.6	256724	4.7	20.6	98698	4.8	19.8	292434	4.8	19.8
466041	4.5	21.1	194577	4.6	19.6	125254	4.6	19.3	164588	4.7	21.2	30928	4.8	17.1	187789	4.8	19.6
81239	4.5	18.7	416664	4.6	21.7	158916	4.6	20.8	200949	4.7	19.4	258555	4.8	20.2	26948	4.8	18.8
538927	4.5	21.0	169397	4.6	20.8	468268	4.6	21.4	520833	4.7	20.9	172280	4.8	19.3	306608	4.8	20.2
174368	4.5	19.5	419122	4.6	20.8	95140	4.6	20.3	285698	4.7	20.1	169292	4.8	20.6	158433	4.8	19.8
456388	4.5	22.5	452186	4.6	22.0	316241	4.6	20.7	120638	4.7	19.4	427453	4.8	20.8	290628	4.8	21.5
68486	4.5	19.0	34774	4.6	18.1	394392	4.6	19.9	469247	4.7	20.6	463443	4.8	21.2	381229	4.8	21.2
392889	4.5	20.1	290630	4.6	20.8	529769	4.6	20.6	314672	4.7	22.5	429938	4.8	20.1	146742	4.8	19.3
490108	4.5	21.8	96187	4.6	18.9	483715	4.6	21.5	18962	4.7	17.4	289037	4.8	20.3	460257	4.8	21.8
68652	4.5	18.6	157726	4.6	19.6	517577	4.6	21.9	285758	4.7	20.4	74525	4.8	18.0	251222	4.8	20.6
389368	4.5	21.3	414477	4.6	20.9	392550	4.6	21.0	166835	4.7	19.9	240906	4.8	19.5	84305	4.8	18.4
122889	4.5	20.5	68052	4.6	19.8	136952	4.6	20.1	35148	4.7	18.5	428111	4.8	21.2	282232	4.8	20.8
484685	4.5	21.4	230672	4.6	20.6	332680	4.6	20.4	104427	4.7	18.9	45259	4.8	18.9	532913	4.8	21.5
201879	4.5	18.7	118313	4.6	19.6	378452	4.6	20.9	25436	4.7	16.3	207852	4.8	20.4	528231	4.8	21.2
138606	4.5	19.9	69066	4.6	20.1	542500	4.6	21.5	49370	4.7	18.6	121669	4.8	19.5	419199	4.8	20.0
31791	4.5	18.5	60978	4.6	19.4	450862	4.6	20.4	321581	4.7	20.4	406597	4.8	20.2	390604	4.8	20.3
175725	4.5	20.5	541954	4.6	20.9	53752	4.6	19.1	98425	4.7	18.5	80476	4.8	19.0	495604	4.8	20.1
198963	4.5	19.2	310767	4.6	21.3	527039	4.6	22.0	413687	4.7	21.4	440645	4.8	21.2	413908	4.8	20.8
88619	4.5	19.1	445977	4.6	21.1	240885	4.6	20.5	93106	4.7	18.5	366966	4.8	20.9	536395	4.8	21.1
496673	4.5	20.6	170389	4.6	20.2	117921	4.6	20.6	82492	4.7	19.5	39533	4.8	19.2	466469	4.8	21.2</

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
74062	4.8	17.7	321448	4.9	20.4	104975	4.9	18.2	134400	5.0	19.5	7394	5.1	16.9	265874	5.2	20.0
461835	4.8	20.8	77143	4.9	18.8	270727	4.9	21.0	204320	5.0	21.2	17291	5.1	19.4	162462	5.2	19.6
84800	4.8	19.3	13368	4.9	18.4	463324	4.9	21.1	389641	5.0	19.9	393393	5.1	20.5	30981	5.2	18.6
14662	4.8	16.9	540080	4.9	19.9	152682	4.9	18.8	343992	5.0	20.8	203078	5.1	20.9	309490	5.2	20.8
207098	4.9	19.1	277875	4.9	19.3	471192	4.9	20.7	482863	5.0	21.2	351214	5.1	21.1	436285	5.2	19.9
181403	4.9	21.0	408295	4.9	20.1	380334	4.9	21.6	541155	5.0	20.5	146965	5.1	19.1	461732	5.2	21.6
502460	4.9	20.3	380399	4.9	20.8	108987	4.9	18.9	237642	5.0	19.7	215919	5.1	19.1	78152	5.2	18.4
51652	4.9	18.9	98329	4.9	19.4	313462	4.9	20.2	56682	5.0	17.4	68432	5.1	18.7	389601	5.2	20.3
282842	4.9	20.9	59522	4.9	17.7	83791	4.9	19.0	166540	5.0	19.6	384822	5.1	21.6	401819	5.2	21.4
232653	4.9	20.5	456280	4.9	20.9	315375	4.9	21.1	480920	5.0	20.4	134457	5.1	20.3	373247	5.2	20.9
365095	4.9	21.7	247602	4.9	20.0	54941	4.9	17.4	202749	5.0	19.9	92617	5.1	19.8	543619	5.2	21.6
37507	4.9	19.1	85610	4.9	19.4	400822	4.9	20.5	462066	5.0	21.1	81816	5.1	19.8	455058	5.2	21.9
427086	4.9	21.1	395337	4.9	20.7	53199	4.9	17.6	82793	5.0	19.4	116754	5.1	19.5	375416	5.2	21.3
533609	4.9	21.0	321792	4.9	20.4	14676	4.9	18.5	118597	5.0	18.7	287695	5.1	20.9	459272	5.2	19.9
113477	4.9	20.7	60610	4.9	19.6	485512	4.9	18.9	225414	5.1	19.5	530021	5.1	21.5	228782	5.2	21.4
535447	4.9	20.5	54725	4.9	19.2	531316	4.9	20.9	9388	5.1	17.6	356260	5.1	19.7	497145	5.2	19.6
341513	4.9	20.6	325871	4.9	20.6	496675	4.9	20.8	84621	5.1	18.5	167666	5.1	20.2	124242	5.2	19.3
465034	4.9	21.7	79425	4.9	19.0	455986	4.9	20.4	230606	5.1	19.5	532880	5.1	21.7	161854	5.2	19.3
179142	4.9	20.1	544688	4.9	20.8	266412	4.9	20.7	494965	5.1	21.8	493357	5.1	20.6	23225	5.2	18.8
140363	4.9	19.5	399099	4.9	19.8	313846	4.9	18.3	404121	5.1	20.1	117018	5.1	19.0	204196	5.2	19.8
334581	4.9	20.5	278605	4.9	21.1	253939	4.9	19.6	199090	5.1	19.8	402734	5.1	21.8	14024	5.2	19.8
434163	4.9	21.2	244968	4.9	19.3	208708	4.9	20.0	255965	5.1	20.0	288675	5.1	20.4	445945	5.2	22.1
186590	4.9	18.9	365867	4.9	19.9	384231	4.9	20.7	13126	5.1	18.2	126436	5.1	18.6	406047	5.2	22.0
140876	4.9	19.5	258255	4.9	19.4	194347	4.9	21.3	163569	5.1	19.1	213583	5.1	21.0	37098	5.2	18.7
365777	4.9	20.3	95982	4.9	20.0	525166	4.9	21.7	149690	5.1	18.9	329276	5.1	21.9	292373	5.2	20.8
118543	4.9	18.7	272869	4.9	19.7	369656	5.0	20.4	171907	5.1	21.0	347040	5.1	20.4	451705	5.2	20.6
242789	4.9	19.9	399927	4.9	20.8	62087	5.0	18.4	388457	5.1	20.7	6271	5.1	16.5	544088	5.2	21.7
265503	4.9	19.7	169370	4.9	19.7	378501	5.0	19.4	411932	5.1	20.6	113211	5.1	18.6	442218	5.2	20.7
183758	4.9	20.7	430407	4.9	20.6	245452	5.0	20.2	60866	5.1	18.9	459547	5.1	20.6	444177	5.2	21.0
423128	4.9	20.4	183788	4.9	19.9	495261	5.0	21.6	515735	5.1	21.4	524505	5.1	21.7	428957	5.2	20.3
416875	4.9	21.4	155032	4.9	20.4	129894	5.0	19.9	321013	5.1	20.5	84685	5.1	18.7	250193	5.2	21.4
429377	4.9	20.3	411370	4.9	21.2	129450	5.0	19.2	347504	5.1	20.5	327443	5.1	20.3	157330	5.2	21.0
73091	4.9	19.2	25553	4.9	17.9	125896	5.0	19.5	31033	5.1	19.0	177252	5.1	20.4	359042	5.2	20.8
46399	4.9	19.3	340718	4.9	20.5	281583	5.0	20.4	285776	5.1	20.8	217050	5.1	19.6	194915	5.2	19.8
194552	4.9	21.1	336680	4.9	21.4	200976	5.0	19.2	345199	5.1	21.5	135181	5.1	19.5	518894	5.2	19.6
459337	4.9	19.7	222324	4.9	20.8	26422	5.0	17.7	499431	5.1	20.2	543217	5.1	21.8	434822	5.2	21.4
104964	4.9	18.7	450569	4.9	20.2	333039	5.0	20.8	14512	5.1	17.1	120649	5.1	19.8	274179	5.2	19.8
542454	4.9	20.2	243166	4.9	20.5	53516	5.0	17.0	109955	5.1	19.6	256199	5.2	20.8	84995	5.2	19.6
364037	4.9	20.2	206851	4.9	19.8	343091	5.0	21.0	177766	5.1	20.0	43083	5.2	16.9	65801	5.2	19.6
110413	4.9	20.0	373918	4.9	21.5	52331	5.0	17.5	146376	5.1	20.0	317511	5.2	20.8	77861	5.2	18.5
467992	4.9	22.2	286944	4.9	21.6	483773	5.0	21.9	508916	5.1	20.8	513849	5.2	20.5	379030	5.2	20.1
100677	4.9	19.7	502910	4.9	20.1	60633	5.0	19.0	114639	5.1	19.7	192430	5.2	21.7	4552	5.2	16.4
381237	4.9	20.7	110926	4.9	20.1	88017	5.0	18.5	90933	5.1	19.8	318740	5.2	21.2	199263	5.2	19.4
281105	4.9	19.9	123038	4.9	19.6	322024	5.0	19.6	78504	5.1	18.7	413098	5.2	20.7	286022	5.2	20.8
408850	4.9	21.3	473445	4.9	19.6	375510	5.0	20.5	261072	5.1	20.4	423318	5.2	19.8	528754	5.2	21.8
235929	4.9	19.4	167094	4.9	20.7	500409	5.0	21.9	334484	5.1	21.5	240342	5.2	19.5	58069	5.2	17.8
166863	4.9	19.4	397480	4.9	21.6	67743	5.0	18.1	250174	5.1	21.3	425361	5.2	20.7	123557	5.2	20.3
447703	4.9	20.9	56619	4.9	18.4	438247	5.0	21.0	544270	5.1	21.3	278441	5.2	20.1	34954	5.2	18.8
426789	4.9	20.8	468201	4.9	20.5	79139	5.0	19.2	405078	5.1	22.2	128659	5.2	20.2	466758	5.2	21.1
118821	4.9	19.4	421668	4.9	20.8	149275	5.0	19.6	459888	5.1	21.3	495405	5.2	21.1	11073	5.2	16.8
151968	4.9	19.7	267786	4.9	19.7	317569	5.0	21.7	505225	5.1	20.2	118845	5.2	19.7	5942	5.2	16.7
258456	4.9	19.6	417308	4.9	21.8	202388	5.0	20.3	429004	5.1	20.7	204714	5.2	21.0	130022	5.2	20.1
128527	4.9	20.8	111599	4.9	20.1	52899	5.0	18.4	194332	5.1	20.6	20558	5.2	18.2	206353	5.2	19.9
104164	4.9	19.2	40274	4.9	18.3	365636	5.0	21.5	327400	5.1	20.8	37895	5.2	18.6	490391	5.2	21.2
231168	4.9	20.2	63471	4.9	19.4	190087	5.0	19.2	15397	5.1	18.4	296051	5.2	20.7	451434	5.2	20.7
90303	4.9	19.5	542029	4.9	19.7	338327	5.0	19.2	262510	5.1	18.1	434197	5.2	21.1	486806	5.2	20.9
27090	4.9	17.7	338335	4.9	20.9	173008	5.0	21.2	448173	5.1	21.3	229191	5.2	20.6	461370	5.2	22.0
83209	4.9	19.1	81738	4.9	18.8	213588	5.0	20.8	243539	5.1	19.8	459997	5.2	21.7	79467	5.2	18.2
111371	4.9	19.1	288817	4.9	20.5	179861	5.0	20.7	332582	5.1	20.4	244027	5.2	20.7	169324	5.2	20.3
355266	4.9	20.7	482495	4.9	21.5	119659	5.0	19.2	417978	5.1	20.7	251185	5.2	20.5	26073	5.2	17.9
408636	4.9	20.6	397811	4.9	20.5	40414	5.0	18.3	16203	5.1	18.2	413043	5.2	20.9	233027	5.2	19.0
358083	4.9	20.4	150777	4.9	21.0	401924	5.0	21.5	373979	5.1	20.2	453843	5.2	21.2	486042	5.2	20.7
256215	4.9	20.4	360448	4.9	19.3	315513	5.0	20.9	368169	5.1	21.0	56200	5.2	16.7	373674	5.2	21.7
1669	4.9	14.7	165693	4.9	20.1	293931	5.0	21.1	19882	5.1	18.4	75785	5.2	19.1	467562	5.2	21.1
419780	4.9	22.0	530318	4.9	20.9	51920	5.0	18.0	334289	5.1	21.0	187426	5.2	20.1	59220	5.2	18.2
46811	4.9	17.2	408942	4.9	20.0	424327	5.0	20.9	234559	5.1	20.6	176892	5.2	19.3	76228	5.2	17.8
38138	4.9	19.0	229845	4.9	20.7	254009	5.0	19.9	57340	5.1	18.7	458355	5.2	21.4	274522	5.2	21.1
212165	4.9	19.6	206882	4.9	19.4	178960	5.0	19.2	135416	5.1	19.8	473996	5.2	20.1	218370	5.2	19.9
283445	4.9	22.1	391828	4.9	20.0	160989	5.0	19.2	532192	5.1	21.8	338124	5.2	20.3	103920	5.2	19.3
144242	4.9	19.0	414823	4.9	20.9	527107	5.0	21.9	376006	5.1	20.2	199929	5.2	20.2	249194	5.2	20.2
114326	4.9	19.1	193707	4.9	19.1	348433	5.0	21.1	36364	5.1	19.4	49340	5.2	19.5	155260	5.2	20.4

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
452743	5.2	20.2	543029	5.3	21.8	428140	5.4	20.4	110976	5.5	19.2	73245	5.5	18.6	267069	5.6	19.9
456598	5.2	21.2	266769	5.3	20.8	265729	5.4	21.2	25859	5.5	17.9	50968	5.5	18.8	231797	5.6	20.9
219843	5.3	20.0	13281	5.3	17.4	211678	5.4	20.4	270730	5.5	21.1	397845	5.5	21.0	147601	5.6	19.6
117805	5.3	19.2	446989	5.3	21.6	85562	5.4	19.9	234946	5.5	20.4	124318	5.5	19.8	538955	5.6	20.8
97906	5.3	19.9	232246	5.3	20.0	206470	5.4	21.1	409923	5.5	22.0	111454	5.5	19.9	175976	5.6	21.0
52574	5.3	19.2	78689	5.3	18.9	460583	5.4	20.6	223835	5.5	20.8	253221	5.5	20.4	144501	5.6	19.8
427337	5.3	22.2	499024	5.3	20.9	395344	5.4	20.7	334367	5.5	20.5	235655	5.5	19.3	167641	5.6	19.2
283410	5.3	20.8	461476	5.3	20.3	124594	5.4	18.5	456486	5.5	21.6	373288	5.5	20.6	255968	5.6	20.7
335920	5.3	20.5	417687	5.3	21.0	333689	5.4	20.0	327019	5.5	21.2	2688	5.5	16.2	240719	5.6	20.7
395433	5.3	21.5	232633	5.3	20.2	544803	5.4	20.6	414227	5.5	20.8	192	5.5	11.5	464880	5.6	21.5
9099	5.3	18.3	523689	5.3	22.0	210451	5.4	20.6	235039	5.5	19.3	417775	5.5	20.8	52737	5.6	18.8
289713	5.3	19.5	206326	5.3	20.6	467058	5.4	20.7	508931	5.5	19.7	27825	5.5	17.7	219409	5.6	20.5
534409	5.3	20.5	203914	5.3	19.8	220614	5.4	19.6	37453	5.5	19.5	316700	5.5	20.6	442188	5.6	20.1
58363	5.3	19.1	160191	5.3	20.1	77835	5.4	18.9	272095	5.5	20.9	9935	5.5	16.4	335206	5.6	20.2
457057	5.3	19.9	224576	5.3	20.7	223564	5.4	20.0	86913	5.5	18.6	364267	5.5	20.2	157412	5.6	20.0
388188	5.3	22.4	258887	5.3	21.0	340645	5.4	18.3	460378	5.5	21.4	454099	5.5	20.1	134889	5.6	20.2
536284	5.3	20.9	84162	5.3	19.5	79671	5.4	19.6	184858	5.5	19.4	301126	5.5	20.2	485044	5.6	21.8
149900	5.3	19.8	140901	5.3	19.8	174425	5.4	19.6	165470	5.5	18.5	14988	5.5	19.2	52003	5.6	16.5
466765	5.3	20.6	496099	5.3	20.8	381226	5.4	21.9	246751	5.5	21.0	112780	5.5	20.8	391438	5.6	20.8
17428	5.3	16.6	455806	5.3	21.2	301756	5.4	19.8	373851	5.5	20.3	189121	5.5	18.9	56979	5.6	18.7
502625	5.3	20.8	529969	5.3	21.4	427237	5.4	20.4	16886	5.5	17.1	385930	5.5	21.7	473603	5.6	20.9
41698	5.3	19.4	501467	5.3	21.3	486191	5.4	20.1	85877	5.5	19.3	369293	5.5	21.1	26329	5.6	18.3
323799	5.3	21.1	172921	5.3	19.7	32516	5.4	18.7	200072	5.5	19.5	375469	5.5	19.9	32546	5.6	19.1
468308	5.3	20.2	149710	5.3	19.4	27622	5.4	19.1	401229	5.5	21.4	391827	5.5	20.6	152943	5.6	18.3
418827	5.3	20.0	430852	5.3	20.4	340258	5.4	20.2	26270	5.5	17.2	313423	5.5	21.5	352724	5.6	21.2
245044	5.3	20.0	141031	5.3	19.8	529049	5.4	21.5	231205	5.5	21.1	188323	5.5	19.4	84472	5.6	19.4
340040	5.3	20.0	454563	5.3	20.3	311611	5.4	20.6	285636	5.5	21.2	24136	5.5	18.0	39959	5.6	18.4
170724	5.3	19.9	253119	5.3	21.0	216262	5.4	19.8	267087	5.5	20.1	602	5.5	14.2	320420	5.6	20.4
275151	5.3	21.0	197454	5.3	19.8	113805	5.4	19.6	152052	5.5	19.0	24054	5.5	18.5	163234	5.6	19.7
57135	5.3	19.3	150492	5.3	21.0	484589	5.4	20.2	543730	5.5	21.6	117001	5.5	19.6	312167	5.6	21.8
249386	5.3	20.5	543258	5.3	21.4	384724	5.4	20.5	526881	5.5	20.7	153632	5.5	20.5	201320	5.6	19.9
180661	5.3	19.5	285777	5.3	20.7	151133	5.4	18.6	473675	5.5	20.9	277176	5.5	20.9	163596	5.6	19.7
164390	5.3	19.7	256014	5.3	21.2	150350	5.4	19.9	194445	5.5	20.3	494949	5.5	21.7	537908	5.6	20.9
189529	5.3	18.9	447308	5.3	21.5	311029	5.4	19.8	461914	5.5	20.9	276191	5.5	18.9	434380	5.6	19.4
12746	5.3	17.3	184150	5.3	19.6	64728	5.4	18.7	432121	5.5	20.5	467555	5.5	21.5	43032	5.6	18.7
445913	5.3	21.8	101187	5.4	20.6	83974	5.4	19.5	411406	5.5	21.5	188084	5.5	19.5	375638	5.6	21.1
31371	5.3	17.4	79652	5.4	19.1	46070	5.4	18.6	128336	5.5	19.3	165900	5.5	19.7	492920	5.6	21.6
82918	5.3	18.8	435836	5.4	20.3	43352	5.4	18.8	236097	5.5	20.9	440643	5.5	21.6	341347	5.6	20.5
149678	5.3	19.7	18234	5.4	17.1	173450	5.4	18.7	138032	5.5	19.9	139375	5.5	19.7	543933	5.6	22.4
146697	5.3	20.0	158205	5.4	19.5	130851	5.4	20.2	283426	5.5	20.7	34263	5.5	18.7	229454	5.6	19.3
327006	5.3	21.1	218816	5.4	19.7	271275	5.4	21.2	543953	5.5	20.1	269059	5.5	20.8	84818	5.6	19.6
519562	5.3	21.6	524898	5.4	19.5	542298	5.4	20.6	185890	5.5	20.9	349213	5.5	21.4	459652	5.6	20.0
526134	5.3	21.9	194234	5.4	20.2	429006	5.4	21.3	21568	5.5	17.7	376360	5.5	20.4	159495	5.6	21.3
208481	5.3	20.1	473764	5.4	20.7	281726	5.4	20.3	194539	5.5	20.9	268699	5.5	20.2	316862	5.6	20.0
64103	5.3	17.5	238504	5.4	20.3	135118	5.4	20.4	19030	5.5	18.7	97020	5.5	18.7	502417	5.6	20.4
433823	5.3	20.3	82605	5.4	20.2	334577	5.4	20.4	464889	5.5	21.2	152660	5.5	20.2	315755	5.6	20.2
201402	5.3	19.7	213646	5.4	19.8	417143	5.4	21.0	330087	5.5	20.5	341468	5.5	20.9	94939	5.6	19.3
181023	5.3	20.9	431530	5.4	21.7	233088	5.4	20.8	337518	5.5	20.9	285750	5.5	20.4	415630	5.6	21.0
30555	5.3	18.5	14900	5.4	18.9	180051	5.4	20.1	338956	5.5	20.1	100816	5.5	18.9	396462	5.6	19.6
233547	5.3	19.6	84776	5.4	19.2	162698	5.4	22.5	329281	5.5	20.6	151131	5.5	20.5	152779	5.6	19.1
91059	5.3	18.2	89477	5.4	19.5	347475	5.4	20.1	529388	5.5	24.2	405922	5.5	20.9	399036	5.6	20.7
286041	5.3	21.2	131572	5.4	20.3	184108	5.4	19.7	132797	5.5	20.0	277366	5.5	20.4	426305	5.6	21.0
61524	5.3	18.3	455242	5.4	21.7	340807	5.4	20.7	474091	5.5	20.7	269254	5.5	20.1	243059	5.6	20.6
99528	5.3	19.5	62294	5.4	18.9	491884	5.4	20.9	267677	5.5	20.3	447762	5.5	20.4	18688	5.6	18.3
334810	5.3	22.1	70368	5.4	19.8	231645	5.4	20.3	99991	5.5	18.7	133479	5.5	20.4	323143	5.6	19.1
262777	5.3	20.1	115014	5.4	20.0	318286	5.4	20.5	512326	5.5	19.9	285578	5.5	20.5	34249	5.6	19.3
222358	5.3	20.9	174439	5.4	19.3	319736	5.4	20.6	333806	5.5	19.6	464260	5.5	20.1	51139	5.6	18.8
494852	5.3	20.2	80896	5.4	19.8	65320	5.4	18.9	539804	5.5	19.9	180206	5.5	20.9	11053	5.6	17.0
345169	5.3	21.1	292862	5.4	20.2	464639	5.4	21.4	61993	5.5	18.6	276548	5.5	21.3	34381	5.6	19.0
220127	5.3	20.7	13517	5.4	18.6	419247	5.4	20.9	471625	5.5	20.5	8452	5.5	18.5	11651	5.6	17.6
140855	5.3	19.4	290728	5.4	20.6	312650	5.4	19.9	451479	5.5	20.4	503803	5.5	20.7	446086	5.6	20.6
441643	5.3	21.8	238919	5.4	20.0	110821	5.4	19.6	333378	5.5	20.2	92879	5.5	20.1	217427	5.6	20.3
245960	5.3	20.4	424143	5.4	20.7	230993	5.4	19.6	194155	5.5	20.6	246164	5.5	19.3	181619	5.6	20.3
266479	5.3	20.5	216327	5.4	20.4	494861	5.4	20.2	429031	5.5	21.3	271760	5.5	21.3	74390	5.6	19.5
396867	5.3	21.7	116349	5.4	20.1	273820	5.4	20.3	402234	5.5	20.8	286146	5.5	20.9	318414	5.6	21.3
315673	5.3	20.5	369571	5.4	21.7	238604	5.4	19.8	500458	5.5	21.5	500324	5.5	20.7	129837	5.6	19.8
234183	5.3	20.3	483491	5.4	21.6	64531	5.4	18.7	318753	5.5	19.8	343082	5.5	20.5	187752	5.6	20.8
527160	5.3	21.0	467717	5.4	21.2	22729	5.4	18.0	32337	5.5	18.2	227418	5.5	19.1	239427	5.6	19.8
391133	5.3	20.4	454892	5.4	21.1	447917	5.5	22.0	157123	5.5	20.1	68949	5.5	18.3	528802	5.6	21.3
493640	5.3	21.0	536108	5.4	21.1	405375	5.5	19.3	284097	5.5	20.1	224672	5.5	20.5	286245	5.6	20.2
146434	5.3	20.8	427058	5.4	20.4	268631	5.5	21.2	359172	5.5	20.2	510018	5.5	20.5	293285	5.6	19.7

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
94827	5.7	20.0	94431	5.7	18.9	48637	5.8	19.2	178386	5.9	20.6	462953	5.9	21.4	227065	5.9	19.7
543729	5.7	21.0	148982	5.7	20.0	460883	5.8	21.2	204327	5.9	20.4	430843	5.9	21.1	532764	5.9	21.5
456794	5.7	22.3	335635	5.7	21.3	65342	5.8	19.8	544089	5.9	21.7	319582	5.9	20.7	172595	5.9	21.2
262701	5.7	21.0	226902	5.7	20.1	175091	5.8	19.6	100300	5.9	19.5	314719	5.9	20.3	389639	5.9	20.2
532802	5.7	20.9	416918	5.7	21.5	68220	5.8	18.7	142999	5.9	18.3	261560	5.9	20.9	529168	5.9	22.3
63130	5.7	18.8	500383	5.7	21.8	373917	5.8	20.9	166028	5.9	19.7	199286	5.9	20.2	44316	5.9	18.7
288546	5.7	19.4	46170	5.7	16.6	249560	5.8	20.1	215521	5.9	20.4	364863	5.9	19.8	368586	5.9	21.2
194886	5.7	20.2	31898	5.7	18.0	419399	5.8	19.6	88357	5.9	20.2	483779	5.9	22.0	18897	5.9	16.5
422616	5.7	20.5	2816	5.7	16.7	202369	5.8	20.3	157982	5.9	19.8	63386	5.9	18.5	30756	5.9	19.2
171867	5.7	20.3	376350	5.7	20.1	287415	5.8	20.4	310745	5.9	20.0	20183	5.9	18.5	471710	5.9	20.6
338160	5.7	20.5	316373	5.7	20.4	110410	5.8	19.7	116075	5.9	19.4	465259	5.9	21.1	432501	5.9	20.4
188192	5.7	20.2	156049	5.7	19.6	532226	5.8	21.2	157122	5.9	20.6	441566	5.9	21.4	350614	5.9	21.8
335910	5.7	20.5	499137	5.7	21.6	296151	5.8	20.7	51812	5.9	18.2	167145	5.9	19.6	363861	5.9	20.8
280689	5.7	19.7	391482	5.7	19.9	538359	5.8	21.3	541925	5.9	20.5	454003	5.9	20.0	177389	5.9	19.2
302911	5.7	21.0	291912	5.7	20.6	7776	5.8	16.7	445080	5.9	21.1	42528	5.9	18.5	168023	5.9	20.1
228776	5.7	20.5	171939	5.7	19.8	340664	5.8	21.5	79521	5.9	19.3	462801	5.9	22.0	325351	5.9	20.2
299275	5.7	20.6	262552	5.7	20.8	411163	5.8	20.9	147263	5.9	19.1	176751	5.9	20.3	105365	5.9	18.7
17898	5.7	17.2	490776	5.7	21.8	419108	5.8	21.4	232751	5.9	20.0	284875	5.9	19.9	101537	5.9	20.0
541794	5.7	22.2	334087	5.7	20.9	190200	5.8	20.3	206778	5.9	19.7	540447	5.9	21.6	198799	5.9	20.1
319914	5.7	20.1	99493	5.7	18.5	364281	5.8	21.1	319818	5.9	21.2	424290	5.9	20.5	338163	5.9	19.8
378846	5.7	20.9	350835	5.7	21.1	327403	5.8	21.1	347065	5.9	19.0	166902	5.9	19.7	105688	5.9	19.3
533674	5.7	20.5	222034	5.7	20.1	282578	5.8	20.0	225381	5.9	20.8	149749	5.9	19.6	36427	5.9	18.9
159872	5.7	20.8	165725	5.7	20.1	484606	5.8	21.5	447882	5.9	21.0	180598	5.9	19.2	247349	5.9	20.5
388484	5.7	20.1	165778	5.7	20.0	48456	5.8	18.3	161743	5.9	19.9	88792	5.9	19.2	500385	5.9	22.4
337552	5.7	21.5	16400	5.7	17.0	498410	5.8	22.1	535737	5.9	20.7	377226	5.9	20.0	165744	5.9	20.4
508580	5.7	22.0	527345	5.7	21.5	61173	5.8	18.8	423118	5.9	20.1	209496	5.9	19.5	32814	5.9	17.1
171445	5.7	20.7	145537	5.7	20.8	128057	5.8	19.3	122238	5.9	19.3	356995	5.9	20.7	186182	5.9	19.8
413854	5.7	22.3	17021	5.7	16.9	335242	5.8	20.4	72954	5.9	18.3	222279	5.9	20.0	541125	5.9	21.4
426057	5.7	21.8	11097	5.7	19.6	60176	5.8	18.9	379472	5.9	21.1	348923	5.9	20.4	535877	5.9	21.5
410110	5.7	21.3	359084	5.7	21.9	55264	5.8	18.4	465791	5.9	21.3	85320	5.9	17.6	133326	5.9	19.9
63875	5.7	18.9	219731	5.7	20.2	159232	5.8	19.5	544833	5.9	20.9	506371	5.9	19.5	178121	5.9	20.7
483106	5.7	19.8	319913	5.7	20.6	441654	5.8	21.6	417177	5.9	20.1	17734	5.9	19.1	409586	5.9	21.0
223647	5.7	20.2	278126	5.7	20.4	460867	5.8	20.9	355450	5.9	20.8	327302	5.9	20.5	353950	5.9	19.4
445196	5.7	21.8	5267	5.7	16.1	114607	5.8	19.3	536692	5.9	20.9	409539	5.9	21.5	194808	5.9	19.2
65627	5.7	18.3	316299	5.7	20.9	188269	5.8	18.7	282837	5.9	20.2	80981	5.9	18.4	185362	5.9	20.7
264485	5.7	21.4	219372	5.7	20.5	318662	5.8	20.5	263247	5.9	20.8	11248	5.9	17.7	194077	5.9	20.1
234894	5.7	20.2	460439	5.7	21.3	75908	5.8	18.8	194715	5.9	19.8	455920	5.9	21.2	249120	5.9	19.9
17213	5.7	17.4	310812	5.7	21.2	251267	5.8	20.5	252366	5.9	18.6	451862	5.9	21.2	345332	5.9	20.9
14307	5.7	17.5	274714	5.8	20.4	143187	5.8	19.8	464265	5.9	19.6	443993	5.9	20.7	335665	5.9	20.8
202000	5.7	21.2	221724	5.8	20.5	498939	5.8	21.4	266613	5.9	20.4	225123	5.9	19.6	341503	5.9	20.8
493968	5.7	20.9	346164	5.8	20.6	411552	5.8	20.3	258242	5.9	20.3	84532	5.9	18.8	372763	5.9	20.9
691	5.7	14.2	458227	5.8	21.7	156776	5.8	19.6	456335	5.9	21.9	82595	5.9	19.8	379517	5.9	20.1
16225	5.7	18.8	50276	5.8	17.6	250140	5.8	20.9	538600	5.9	20.6	146859	5.9	18.4	228814	5.9	19.0
222999	5.7	20.9	319845	5.8	19.9	426609	5.8	20.2	182274	5.9	19.8	235094	5.9	19.6	528213	5.9	21.4
541673	5.7	22.7	242437	5.8	21.0	76369	5.8	18.8	81504	5.9	18.8	153469	5.9	19.4	218265	5.9	19.8
449689	5.7	20.2	283387	5.8	21.2	360106	5.8	20.6	199411	5.9	19.8	519571	5.9	21.2	27348	5.9	18.1
454817	5.7	21.8	246010	5.8	20.3	4652	5.8	18.6	165852	5.9	19.3	352842	5.9	20.2	275927	5.9	21.1
271763	5.7	21.0	461890	5.8	20.3	456566	5.8	19.6	209641	5.9	20.1	166687	5.9	19.7	194769	5.9	20.1
83244	5.7	19.1	395329	5.8	20.9	240432	5.8	21.0	66390	5.9	18.6	492615	5.9	20.6	43980	5.9	19.4
541538	5.7	21.4	63737	5.8	19.6	240619	5.8	20.7	17234	5.9	19.2	433455	5.9	21.2	73249	5.9	19.1
16923	5.7	18.7	337616	5.8	19.5	182770	5.8	20.3	465790	5.9	20.6	133705	5.9	20.3	40187	5.9	19.0
466578	5.7	21.3	353240	5.8	19.9	290547	5.8	18.9	171493	5.9	21.2	157271	5.9	20.4	538074	5.9	20.5
27704	5.7	17.5	259291	5.8	19.9	128335	5.8	20.1	540073	5.9	21.7	100303	5.9	19.3	273028	5.9	20.7
313558	5.7	19.2	21280	5.8	18.1	143174	5.8	20.3	390578	5.9	21.8	179801	5.9	19.9	125361	5.9	19.7
522370	5.7	20.9	182537	5.8	19.5	100945	5.8	18.9	376594	5.9	21.3	529583	5.9	20.8	196364	5.9	19.8
325795	5.7	20.6	302874	5.8	20.3	415873	5.8	21.2	57157	5.9	19.0	152593	5.9	20.3	279432	5.9	20.6
128391	5.7	18.2	467701	5.8	20.8	1920	5.8	17.0	159233	5.9	19.3	237540	5.9	19.0	388897	5.9	19.9
296007	5.7	20.9	288422	5.8	20.1	361847	5.8	20.7	120253	5.9	19.7	279384	5.9	19.7	194031	5.9	20.3
490239	5.7	21.6	417026	5.8	22.0	193367	5.8	20.6	385206	5.9	21.3	496823	5.9	22.0	431462	6.0	21.2
351620	5.7	21.6	143537	5.8	19.4	284839	5.8	20.2	508062	5.9	20.8	143461	5.9	20.0	363586	6.0	19.4
34149	5.7	18.1	277968	5.8	19.7	324062	5.8	21.0	237274	5.9	19.2	221241	5.9	19.7	212576	6.0	20.6
171418	5.7	19.8	534363	5.8	22.2	72588	5.8	18.5	302002	5.9	21.3	159955	5.9	19.5	71004	6.0	18.2
383792	5.7	22.7	404858	5.8	20.0	276188	5.8	20.9	379825	5.9	20.4	124743	5.9	19.8	95491	6.0	18.4
337245	5.7	19.5	62487	5.8	20.1	29508	5.8	19.3	48595	5.9	17.5	501342	5.9	21.4	278422	6.0	19.9
497119	5.7	21.1	96605	5.8	19.6	451903	5.8	21.2	370556	5.9	21.4	64446	5.9	19.4	445089	6.0	20.8
307881	5.7	19.3	148012	5.8	19.9	182621	5.8	21.1	81313	5.9	18.1	456991	5.9	19.6	493509	6.0	20.7
312586	5.7	19.2	256101	5.8	21.8	483743	5.8	21.9	484702	5.9	21.1	281654	5.9	20.3	639	6.0	13.1
7526	5.7	18.6	231536	5.8	21.4	279563	5.8	20.4	201352	5.9	19.8	527118	5.9	20.7	174862	6.0	19.8
52925	5.7	18.0	130820	5.8	19.4	484024	5.8	21.3	495441	5.9	20.4	208982	5.9	19.1	142752	6.0	19.6
422310	5.7	22.0	536190	5.8	21.0	302928	5.8	21.4	292306	5.9	20.8	79941	5.9	18.6	285740	6.0	21.1
467986	5.7	20.4	323884	5.8	20.2	153043	5.8	19.9	531390	5.9	21.2	384031	5.9	20.2	502898	6.0	20.0</

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
53474	6.0	18.5	354048	6.1	19.1	325889	6.1	21.1	406534	6.2	20.7	422595	6.3	20.0	483802	6.3	21.2
117744	6.0	19.2	8082	6.1	17.5	176914	6.1	20.0	543281	6.2	20.9	177970	6.3	19.5	346823	6.3	20.2
343124	6.0	20.3	271268	6.1	19.8	191673	6.1	20.0	466782	6.2	20.0	297207	6.3	19.9	143640	6.3	18.9
332706	6.0	20.6	418431	6.1	20.3	45601	6.1	18.8	356956	6.2	20.8	381259	6.3	19.7	222316	6.3	20.3
227004	6.0	20.0	375475	6.1	20.5	424962	6.1	20.6	32130	6.2	17.9	214385	6.3	20.3	221300	6.3	20.7
464854	6.0	19.3	146964	6.1	19.4	190218	6.1	20.3	165890	6.2	19.7	469193	6.3	19.7	335911	6.3	20.7
72242	6.0	18.4	19556	6.1	17.7	394835	6.1	20.9	280446	6.2	20.4	333024	6.3	20.9	339517	6.3	19.5
48696	6.0	17.8	158646	6.1	18.7	205614	6.1	20.2	227938	6.2	19.7	197196	6.3	20.1	126044	6.3	20.1
169823	6.0	20.5	413417	6.1	19.7	420923	6.1	21.9	330443	6.2	20.4	90371	6.3	18.8	218882	6.3	20.0
527479	6.0	21.5	221692	6.1	19.6	244237	6.1	20.2	385914	6.2	21.2	385894	6.3	21.3	367188	6.3	19.8
364306	6.0	21.2	491204	6.1	20.9	440637	6.1	21.2	401809	6.2	20.9	180553	6.3	19.0	78659	6.3	19.1
129238	6.0	19.8	194609	6.1	20.4	161563	6.1	20.0	430264	6.2	20.9	326365	6.3	20.4	74678	6.3	19.0
413644	6.0	20.6	273502	6.1	19.8	237108	6.1	18.9	538859	6.2	20.8	453975	6.3	21.7	5275	6.3	17.2
317578	6.0	21.0	285644	6.1	21.1	405102	6.1	21.1	367155	6.2	19.6	85757	6.3	18.9	245315	6.3	19.8
505023	6.0	20.2	231542	6.1	20.0	377056	6.1	20.5	82853	6.2	19.6	401880	6.3	20.7	265130	6.3	20.2
205499	6.0	20.0	244501	6.1	20.6	126317	6.1	19.4	47561	6.2	17.2	379005	6.3	20.9	447926	6.3	22.2
147458	6.0	19.4	508430	6.1	21.2	447990	6.1	20.8	58213	6.2	18.8	266929	6.3	19.9	460229	6.3	20.9
169015	6.0	19.0	57058	6.1	19.8	416559	6.1	20.3	123107	6.2	20.0	223674	6.3	20.2	257215	6.3	20.2
41874	6.0	17.0	454227	6.1	19.4	321491	6.1	20.3	419282	6.2	19.6	47868	6.3	17.2	80571	6.3	18.5
406149	6.0	20.2	252550	6.1	20.2	211876	6.1	19.3	433760	6.2	19.9	542406	6.3	20.2	373890	6.3	21.2
134423	6.0	19.7	486767	6.1	19.7	308072	6.1	19.3	244999	6.2	20.3	428897	6.3	21.2	487738	6.3	20.8
429339	6.0	20.2	167937	6.1	19.5	145269	6.1	20.6	349177	6.2	19.6	81712	6.3	18.6	387213	6.3	21.2
26549	6.0	18.7	331039	6.1	20.5	328757	6.2	20.4	18246	6.2	19.6	130899	6.3	20.1	419849	6.3	21.1
114363	6.0	19.2	451423	6.1	21.8	462808	6.2	21.2	495446	6.2	20.9	105112	6.3	17.7	473663	6.3	19.6
165071	6.0	18.3	180021	6.1	19.8	322496	6.2	20.0	246270	6.2	20.0	232407	6.3	18.2	100418	6.4	20.5
398492	6.0	21.9	124363	6.1	19.7	344392	6.2	20.6	68075	6.2	18.3	243383	6.3	19.6	215696	6.4	19.3
520511	6.0	20.2	531513	6.1	21.7	85177	6.2	19.4	125223	6.2	19.6	287503	6.3	20.5	395608	6.4	20.5
256136	6.0	20.7	229980	6.1	20.5	294606	6.2	20.5	84511	6.2	19.1	367522	6.3	20.6	262666	6.4	20.6
252318	6.0	21.1	118754	6.1	18.5	197292	6.2	18.8	431481	6.2	20.8	64508	6.3	18.8	528879	6.4	21.1
318748	6.0	20.6	16957	6.1	17.1	337659	6.2	21.7	195067	6.2	20.1	327362	6.3	20.6	130522	6.4	19.7
543144	6.0	20.8	240929	6.1	19.3	170291	6.2	20.0	433167	6.2	20.7	246045	6.3	20.5	503513	6.4	20.1
4746	6.0	17.3	242116	6.1	21.4	345234	6.2	20.5	210235	6.2	20.3	281763	6.3	20.1	226790	6.4	20.0
110508	6.0	18.4	217540	6.1	20.3	119182	6.2	19.0	170284	6.2	21.0	241050	6.3	20.0	161821	6.4	18.3
138429	6.0	18.8	4996	6.1	17.7	40325	6.2	18.7	148044	6.2	20.1	275755	6.3	21.3	217251	6.4	19.0
410001	6.0	21.5	346161	6.1	20.8	146561	6.2	20.3	443718	6.2	19.5	466741	6.3	20.3	284202	6.4	20.6
87993	6.0	20.1	238148	6.1	20.0	444738	6.2	19.7	446704	6.2	20.8	410551	6.3	20.8	301115	6.4	19.5
276379	6.0	19.0	301255	6.1	21.5	226842	6.2	19.8	304788	6.2	20.7	538483	6.3	20.7	168674	6.4	19.9
35252	6.0	20.0	396755	6.1	22.0	89395	6.2	18.7	208055	6.2	19.9	335954	6.3	20.5	195139	6.4	20.9
64213	6.0	18.6	486531	6.1	20.0	201062	6.2	19.1	202893	6.2	20.7	173713	6.3	21.1	524852	6.4	21.7
201994	6.0	20.3	157206	6.1	20.3	403691	6.2	21.3	403575	6.2	21.3	64117	6.3	18.5	158261	6.4	19.6
508578	6.0	21.1	366895	6.1	20.3	301290	6.2	20.4	445986	6.2	21.1	219377	6.3	20.5	32200	6.4	18.9
4140	6.0	16.2	132047	6.1	19.2	271190	6.2	21.4	266827	6.2	19.7	218994	6.3	20.5	235605	6.4	20.4
460866	6.0	21.0	206287	6.1	20.3	438132	6.2	22.1	113859	6.2	19.9	146308	6.3	20.1	14160	6.4	19.4
428971	6.0	20.7	175660	6.1	20.7	309275	6.2	19.4	82413	6.2	19.2	485388	6.3	21.0	146494	6.4	19.9
193264	6.0	20.3	236922	6.1	19.3	107333	6.2	19.3	221562	6.2	20.1	170871	6.3	19.2	143382	6.4	20.2
320818	6.0	20.2	31607	6.1	17.6	330433	6.2	20.2	201321	6.2	19.1	339806	6.3	20.4	452447	6.4	21.8
212906	6.0	19.4	258095	6.1	21.2	377049	6.2	20.5	409245	6.3	19.8	151992	6.3	19.6	47521	6.4	18.3
31858	6.1	18.6	456355	6.1	21.8	190348	6.2	19.8	199400	6.3	20.5	85830	6.3	19.8	165683	6.4	20.5
55830	6.1	19.1	123308	6.1	19.0	342000	6.2	19.7	323160	6.3	19.7	188041	6.3	19.7	399278	6.4	20.8
50054	6.1	18.7	427046	6.1	21.0	82663	6.2	19.4	378825	6.3	20.7	429904	6.3	20.6	294740	6.4	20.6
300303	6.1	20.7	456413	6.1	19.7	143948	6.2	20.3	402997	6.3	20.8	149019	6.3	18.9	302979	6.4	19.0
142611	6.1	18.9	209440	6.1	19.6	27555	6.2	18.1	456293	6.3	21.3	46917	6.3	18.1	33964	6.4	18.3
431467	6.1	21.4	343030	6.1	19.6	366915	6.2	21.0	535535	6.3	20.5	430002	6.3	21.7	265889	6.4	19.8
379080	6.1	21.0	343016	6.1	20.5	527347	6.2	21.6	493355	6.3	21.7	204258	6.3	20.1	223497	6.4	19.4
520794	6.1	20.5	213112	6.1	19.8	423473	6.2	21.7	412323	6.3	19.3	226726	6.3	20.4	197923	6.4	19.5
390612	6.1	20.7	34564	6.1	17.3	130610	6.2	20.3	447879	6.3	20.2	16441	6.3	17.4	221282	6.4	19.9
453036	6.1	20.3	435392	6.1	20.7	472468	6.2	21.0	221308	6.3	20.4	184900	6.3	18.6	105245	6.4	18.2
29545	6.1	18.5	375542	6.1	20.5	331948	6.2	20.2	501946	6.3	20.4	452321	6.3	20.1	467572	6.4	21.5
82839	6.1	19.3	423114	6.1	20.3	399996	6.2	19.9	141165	6.3	19.8	95517	6.3	19.8	233517	6.4	19.6
493931	6.1	21.0	302946	6.1	21.3	345355	6.2	19.2	11113	6.3	18.5	283955	6.3	20.8	332605	6.4	20.1
228274	6.1	21.2	280793	6.1	19.8	433843	6.2	20.4	269385	6.3	21.4	347058	6.3	20.1	176737	6.4	20.4
254049	6.1	19.1	111317	6.1	19.2	4532	6.2	15.8	375854	6.3	20.8	365881	6.3	21.2	126785	6.4	19.5
97718	6.1	18.3	375384	6.1	20.8	452469	6.2	19.7	393391	6.3	21.2	286563	6.3	20.0	208440	6.4	21.1
20832	6.1	18.9	283962	6.1	21.6	143177	6.2	20.0	471062	6.3	20.1	81724	6.3	18.6	46584	6.4	18.7
460216	6.1	20.3	160959	6.1	19.1	411252	6.2	21.8	443180	6.3	20.1	328358	6.3	20.5	82816	6.4	20.4
271715	6.1	20.8	438249	6.1	21.0	56064	6.2	18.4	139555	6.3	19.8	441526	6.3	21.7	483771	6.4	21.4
134818	6.1	19.2	283981	6.1	20.5	311071	6.2	19.2	371828	6.3	20.1	199225	6.3	19.3	199746	6.4	19.2
275097	6.1	20.2	282791	6.1	19.9	126342	6.2	18.3	408036	6.3	20.6	132145	6.3	20.3	514103	6.4	20.9
166912	6.1	19.8	251123	6.1	20.5	141299	6.2	19.9	258613	6.3	20.2	309492	6.3	21.2	281395	6.4	20.0
532519	6.1	21.7	86778	6.1	18.1	160450	6.2	19.7	173203	6.3	20.7	204941	6.3	20.2	228444	6.4	19.0
2044	6.1	15.8	408280	6.1	20.0	214332	6.2	20.5	408021	6.3	21.0	351694	6.3	21.3	34355		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
247692	6.4	20.4	269473	6.5	20.2	55659	6.5	19.7	51952	6.6	17.6	329191	6.6	18.9	304772	6.7	19.6
378954	6.4	20.9	51011	6.5	18.8	152064	6.5	19.8	455831	6.6	20.7	518210	6.6	19.7	297483	6.7	20.4
465336	6.4	20.6	347397	6.5	21.3	304810	6.5	21.3	324469	6.6	20.3	44198	6.6	19.1	526984	6.7	21.2
218960	6.4	19.3	502305	6.5	20.5	500510	6.5	20.9	335995	6.6	20.9	201923	6.6	20.3	544169	6.7	22.1
154295	6.4	19.7	282335	6.5	20.2	113997	6.5	19.8	444449	6.6	20.9	460000	6.6	21.3	523884	6.7	21.5
319909	6.4	20.2	473544	6.5	21.2	218918	6.5	20.3	109747	6.6	19.0	319463	6.6	20.2	457153	6.7	20.3
4258	6.4	16.5	395130	6.5	20.3	222262	6.5	21.0	440418	6.6	21.0	138284	6.6	18.7	122558	6.7	20.1
462132	6.4	21.0	69201	6.5	19.2	126665	6.5	19.9	58947	6.6	20.7	318683	6.7	20.3	340792	6.7	19.9
244793	6.4	20.9	325208	6.5	20.6	237165	6.5	20.6	450644	6.6	20.8	532126	6.7	19.9	50816	6.7	18.5
16165	6.4	17.5	449893	6.5	21.2	3322	6.5	16.0	524600	6.6	21.2	241205	6.7	20.0	239247	6.7	20.6
388842	6.4	20.3	101563	6.5	19.7	314751	6.5	21.2	210450	6.6	19.4	416914	6.7	20.0	38860	6.7	19.5
90611	6.4	19.2	417116	6.5	21.5	490254	6.5	22.2	3943	6.6	17.3	94717	6.7	19.3	44715	6.7	17.4
334467	6.4	20.9	375293	6.5	20.5	426862	6.5	20.5	312294	6.6	19.9	379111	6.7	20.9	231374	6.7	20.1
38770	6.4	18.8	5922	6.5	16.6	308077	6.5	20.7	77151	6.6	18.1	222359	6.7	21.1	413547	6.7	20.9
219344	6.4	20.0	134218	6.5	19.5	325792	6.5	21.2	486840	6.6	20.0	8111	6.7	17.7	341426	6.7	19.5
233403	6.4	19.4	532212	6.5	22.0	402670	6.5	22.1	415202	6.6	20.4	32159	6.7	18.4	309478	6.7	20.7
13528	6.4	17.7	254668	6.5	20.3	145012	6.5	18.7	331967	6.6	21.0	179078	6.7	19.1	201870	6.7	19.3
173209	6.4	20.6	437336	6.5	21.4	190816	6.5	20.9	536422	6.6	20.7	59213	6.7	18.0	124564	6.7	20.3
431195	6.4	21.0	183341	6.5	20.6	334950	6.5	20.2	175977	6.6	18.0	389144	6.7	20.8	30050	6.7	17.8
209410	6.4	19.7	280816	6.5	20.5	214888	6.5	19.9	54385	6.6	18.5	259997	6.7	19.5	137750	6.7	18.3
14721	6.4	17.8	535572	6.5	20.9	468295	6.5	21.2	206976	6.6	21.3	65091	6.7	18.4	45265	6.7	18.6
111552	6.4	20.0	378806	6.5	21.2	208426	6.5	20.4	318022	6.6	20.6	215274	6.7	20.1	372571	6.7	20.6
62529	6.4	19.3	143096	6.5	18.3	274611	6.5	20.5	460477	6.6	21.2	311775	6.7	21.1	141455	6.7	18.9
92862	6.4	19.2	502804	6.5	20.9	193052	6.5	19.0	140109	6.6	18.0	3858	6.7	16.7	441628	6.7	21.0
307754	6.4	19.1	372185	6.5	20.4	514080	6.5	20.7	63583	6.6	19.1	463789	6.7	20.0	242894	6.7	19.9
153163	6.4	19.9	165733	6.5	19.7	135354	6.5	20.0	232637	6.6	20.7	112088	6.7	19.1	492418	6.7	20.5
36244	6.4	17.5	151605	6.5	19.9	135750	6.5	19.3	302494	6.6	18.9	285953	6.7	20.5	349610	6.7	20.5
34649	6.4	17.9	130879	6.5	19.3	281839	6.5	19.7	459699	6.6	20.7	498935	6.7	20.9	268119	6.7	20.8
84823	6.4	18.5	188072	6.5	20.6	140382	6.5	19.7	28837	6.6	18.8	426307	6.7	20.1	365623	6.7	20.0
427103	6.4	21.4	60632	6.5	18.6	374769	6.5	22.0	523995	6.6	20.5	528765	6.7	20.8	233629	6.7	19.4
147560	6.4	19.2	345103	6.5	20.6	285764	6.5	20.6	340632	6.6	20.1	197673	6.7	20.4	271738	6.7	20.0
165876	6.4	19.9	163556	6.5	19.5	17057	6.5	16.7	417943	6.6	20.4	539966	6.7	21.2	257214	6.7	19.8
164489	6.4	19.9	414465	6.5	19.4	431584	6.5	20.8	452510	6.6	21.3	274881	6.7	20.7	397975	6.7	22.0
429745	6.4	20.8	467690	6.5	21.0	440664	6.5	21.4	1017	6.6	14.2	281576	6.7	19.8	104774	6.7	18.8
35498	6.4	18.4	50333	6.5	17.5	35408	6.5	17.2	401357	6.6	19.1	149633	6.7	19.4	363376	6.7	20.4
237377	6.4	20.7	136951	6.5	19.4	209896	6.5	20.5	411347	6.6	21.3	519474	6.7	20.8	252400	6.7	19.5
332162	6.4	20.4	501455	6.5	21.1	112902	6.5	19.2	80905	6.6	18.6	296784	6.7	19.0	486211	6.7	20.3
524069	6.4	20.2	399483	6.5	22.2	493502	6.5	21.2	71174	6.6	18.1	369638	6.7	19.6	274636	6.7	20.7
450856	6.4	21.2	465071	6.5	21.1	122294	6.5	19.5	188048	6.6	18.7	367384	6.7	21.2	146379	6.7	19.5
32225	6.4	18.0	542175	6.5	20.4	427625	6.5	22.2	407504	6.6	21.2	262861	6.7	19.5	135823	6.7	20.4
239360	6.4	18.6	413124	6.5	19.6	204582	6.5	19.3	349500	6.6	20.1	284986	6.7	19.7	30038	6.7	17.2
168582	6.4	19.7	425716	6.5	22.3	251175	6.5	21.0	371315	6.6	20.2	402784	6.7	21.0	415590	6.7	20.4
84500	6.4	18.9	426627	6.5	20.6	171482	6.5	19.9	460463	6.6	21.4	109850	6.7	18.8	138855	6.7	19.7
189437	6.4	19.5	544651	6.5	21.2	289826	6.5	19.3	489557	6.6	20.1	65565	6.7	20.2	33645	6.7	17.8
120637	6.4	20.7	493930	6.5	21.0	495916	6.5	20.3	522407	6.6	20.9	528595	6.7	22.4	465528	6.7	20.5
126719	6.4	22.4	379829	6.5	20.4	91241	6.5	18.3	32207	6.6	18.2	413674	6.7	20.4	459248	6.7	20.8
248847	6.4	21.3	265727	6.5	20.1	57022	6.5	19.2	197396	6.6	19.5	94598	6.7	18.1	240507	6.7	18.7
278938	6.4	20.5	179098	6.5	20.5	397808	6.5	21.0	390974	6.6	20.8	427761	6.7	21.5	490739	6.7	21.1
539897	6.4	19.9	236923	6.5	20.0	150358	6.5	18.9	186868	6.6	19.7	19457	6.7	18.5	58615	6.7	18.3
324042	6.4	19.5	326487	6.5	20.7	460303	6.5	21.5	166842	6.6	19.8	433484	6.7	21.3	471137	6.7	21.1
348805	6.4	21.3	354593	6.5	20.7	203546	6.5	19.5	525230	6.6	21.8	258235	6.7	20.5	486182	6.7	21.1
431158	6.4	20.5	174991	6.5	19.8	507559	6.6	21.2	375274	6.6	20.2	2150	6.7	14.9	87074	6.7	19.4
408755	6.4	22.6	288889	6.5	20.5	341646	6.6	20.0	135799	6.6	20.0	422312	6.7	21.1	35389	6.7	18.3
62031	6.4	18.9	318606	6.5	20.3	311639	6.6	20.9	207809	6.6	20.0	439953	6.7	22.2	25770	6.7	18.1
376040	6.4	20.7	65840	6.5	19.5	83140	6.6	19.2	486807	6.6	20.3	467664	6.7	20.4	35538	6.7	18.4
439014	6.4	19.5	430482	6.5	21.2	214369	6.6	20.1	264079	6.6	19.8	102122	6.7	19.7	504818	6.7	21.1
427827	6.4	20.3	334048	6.5	20.2	402968	6.6	21.9	11318	6.6	21.4	353764	6.7	20.1	29789	6.7	18.3
464332	6.4	20.9	9226	6.5	17.3	112676	6.6	19.1	146086	6.6	20.3	186919	6.7	19.4	206547	6.7	20.0
163411	6.4	19.6	242621	6.5	19.7	190865	6.6	20.5	285292	6.6	21.5	363570	6.7	20.0	294164	6.7	20.7
434792	6.4	21.3	322893	6.5	20.2	520848	6.6	21.1	83093	6.6	19.4	528707	6.7	22.0	176833	6.8	20.7
129234	6.4	19.4	411492	6.5	20.1	483810	6.6	21.8	444094	6.6	19.9	528331	6.7	21.4	285550	6.8	20.0
138699	6.4	20.2	481113	6.5	21.4	284823	6.6	20.5	376299	6.6	20.9	114486	6.7	19.0	35913	6.8	18.8
209431	6.4	19.8	164186	6.5	20.4	26580	6.6	16.7	161223	6.6	18.7	49521	6.7	19.3	166688	6.8	19.0
444060	6.4	21.5	433149	6.5	20.2	152920	6.6	19.8	496923	6.6	21.1	94278	6.7	19.4	343530	6.8	19.6
42505	6.4	18.1	545105	6.5	21.0	467823	6.6	21.3	203279	6.6	19.4	155186	6.7	20.6	532626	6.8	21.8
41806	6.4	19.7	248683	6.5	19.7	312352	6.6	20.5	399614	6.6	19.9	19227	6.7	18.5	37644	6.8	18.2
228258	6.4	20.3	126356	6.5	19.3	6744	6.6	16.3	520880	6.6	20.8	38217	6.7	19.4	265609	6.8	20.0
543877	6.4	22.0	291634	6.5	19.9	112877	6.6	20.1	498216	6.6	21.8	422458	6.7	21.2	169949	6.8	20.0
243214	6.4	19.2	428433	6.5	20.8	49661	6.6	17.0	280847	6.6	20.2	465171	6.7	19.8	401208	6.8	20.6
204443	6.4	18.6	134790	6.5	18.5	158032	6.6	19.7	367185	6.6	19.8	315798	6.7	19.4	101740	6.8	18.3
500306	6.4	21.0	20273	6.5	18.1	30090	6.6	18.4	294177	6.6	19.8	386638	6.7	19.5	248742	6.8	20.7

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
61783	6.8	18.8	217107	6.8	20.4	449610	6.9	19.9	400031	6.9	21.7	340649	7.0	21.0	188912	7.1	19.9
494727	6.8	21.2	433082	6.8	20.7	250214	6.9	21.1	39241	6.9	18.7	383420	7.0	19.7	300331	7.1	20.5
315407	6.8	20.8	29251	6.8	17.6	182528	6.9	20.1	459892	6.9	21.5	244832	7.0	20.9	131944	7.1	19.1
142539	6.8	20.4	97506	6.8	19.4	166218	6.9	19.7	156191	6.9	19.2	540273	7.0	20.3	440273	7.1	21.4
424685	6.8	21.1	329035	6.8	21.1	36013	6.9	18.4	442631	6.9	20.0	368429	7.0	20.3	421193	7.1	21.0
204365	6.8	19.9	348226	6.8	19.9	206796	6.9	19.9	274370	6.9	20.5	544501	7.0	21.1	231001	7.1	19.2
425482	6.8	20.6	376265	6.8	20.8	285596	6.9	21.0	55717	6.9	18.8	79509	7.0	18.7	142595	7.1	19.2
338365	6.8	20.2	7933	6.8	16.7	138739	6.9	21.1	2878	6.9	16.6	345256	7.0	21.0	353994	7.1	20.5
524494	6.8	23.7	394113	6.8	20.7	234064	6.9	18.7	148348	6.9	19.2	429266	7.0	21.3	439975	7.1	21.7
226133	6.8	21.5	405098	6.8	20.5	123429	6.9	19.9	196381	6.9	18.6	503737	7.0	21.3	35193	7.1	17.2
186149	6.8	19.1	241061	6.9	20.3	42112	6.9	18.0	171097	6.9	19.5	505896	7.0	20.5	164623	7.1	19.1
416667	6.8	20.9	297824	6.9	19.5	121034	6.9	19.7	496264	6.9	22.1	363204	7.0	21.3	493660	7.1	21.7
186139	6.8	20.5	463895	6.9	20.3	281291	6.9	20.7	99937	6.9	19.1	122555	7.0	18.6	147751	7.1	19.5
277113	6.8	19.6	535994	6.9	22.2	103782	6.9	17.2	391116	6.9	19.1	35225	7.0	19.3	466489	7.1	20.6
472232	6.8	22.1	520057	6.9	20.6	24737	6.9	17.9	419754	6.9	20.5	188992	7.0	19.0	494027	7.1	20.5
279901	6.8	20.6	71604	6.9	18.9	91116	6.9	19.6	243225	6.9	20.4	364380	7.0	21.0	372979	7.1	19.9
27901	6.8	19.0	148805	6.9	18.4	466868	6.9	20.8	135945	6.9	21.0	177815	7.0	19.7	527218	7.1	23.0
196690	6.8	20.8	243794	6.9	20.3	233480	6.9	19.6	54428	6.9	17.3	149992	7.0	19.1	405680	7.1	21.0
544002	6.8	22.3	196873	6.9	19.8	43359	6.9	17.3	158159	6.9	20.0	132779	7.0	19.2	457124	7.1	21.0
418684	6.8	20.8	486953	6.9	20.7	30155	6.9	17.4	209932	6.9	19.4	159009	7.0	20.4	450187	7.1	21.6
350437	6.8	21.0	383737	6.9	20.5	174897	6.9	20.5	424698	6.9	21.5	89685	7.0	18.9	534768	7.1	21.0
277381	6.8	19.8	366974	6.9	20.6	429961	6.9	20.4	522662	6.9	20.9	267946	7.0	18.6	501917	7.1	19.5
277565	6.8	21.3	492942	6.9	21.1	466884	6.9	21.2	369100	6.9	19.3	373663	7.0	21.3	89398	7.1	19.2
291860	6.8	20.8	144429	6.9	19.9	236238	6.9	19.5	495802	6.9	19.3	237363	7.0	19.9	347603	7.1	21.0
247070	6.8	20.5	266110	6.9	20.0	197164	6.9	19.3	434288	6.9	20.6	185641	7.0	19.7	119702	7.1	19.0
110753	6.8	20.2	231833	6.9	20.3	116925	6.9	19.2	55552	6.9	19.2	240635	7.0	20.7	521299	7.1	20.8
41431	6.8	18.8	442815	6.9	21.5	322176	6.9	20.6	379120	6.9	21.7	205320	7.0	20.7	427321	7.1	20.0
399469	6.8	21.8	234406	6.9	20.0	464481	6.9	19.8	339604	6.9	20.6	310092	7.0	19.1	14283	7.1	17.6
184429	6.8	21.0	89377	6.9	18.8	494753	6.9	21.3	85457	6.9	18.8	83966	7.0	18.7	133142	7.1	20.1
67634	6.8	19.3	453350	6.9	21.8	4154	6.9	15.4	429719	6.9	20.1	363843	7.0	20.3	15755	7.1	19.1
240541	6.8	19.0	536412	6.9	20.9	169978	6.9	18.8	234635	6.9	18.9	322825	7.0	19.5	199872	7.1	20.4
500320	6.8	21.1	516530	6.9	20.6	204229	6.9	20.5	5300	6.9	17.2	310298	7.0	20.0	328399	7.1	19.6
282146	6.8	20.4	488712	6.9	20.5	22127	6.9	19.0	144313	6.9	19.3	319931	7.0	20.9	246197	7.1	20.7
271373	6.8	19.6	452210	6.9	20.8	496826	6.9	21.8	85355	6.9	20.1	135509	7.0	20.3	120451	7.1	20.8
430067	6.8	20.6	200904	6.9	19.1	6684	6.9	17.0	289539	7.0	19.6	274936	7.1	20.7	1027	7.1	14.5
293655	6.8	20.7	49052	6.9	17.4	334453	6.9	20.9	441614	7.0	20.3	62913	7.1	18.8	71450	7.1	18.8
336566	6.8	20.5	535288	6.9	21.2	204924	6.9	20.6	49414	7.0	19.4	373940	7.1	20.4	218655	7.1	19.9
202679	6.8	20.5	155412	6.9	19.8	126593	6.9	19.5	61376	7.0	18.9	154669	7.1	19.6	298502	7.1	19.1
189298	6.8	20.2	383715	6.9	21.3	406181	6.9	20.0	419211	7.0	21.2	47789	7.1	19.4	166726	7.1	20.3
234914	6.8	20.5	65303	6.9	18.5	493107	6.9	21.1	185110	7.0	20.4	433178	7.1	20.0	225526	7.1	21.0
391996	6.8	19.3	332834	6.9	20.2	414538	6.9	21.1	245922	7.0	21.1	423190	7.1	21.9	117848	7.1	19.7
23193	6.8	18.1	145542	6.9	19.7	334280	6.9	21.4	189384	7.0	19.1	301141	7.1	21.6	207746	7.1	19.8
246106	6.8	19.6	135099	6.9	19.7	210323	6.9	20.7	286302	7.0	20.1	531133	7.1	21.2	421402	7.1	20.9
32003	6.8	18.3	244721	6.9	20.4	411882	6.9	21.1	416871	7.0	21.6	20280	7.1	17.6	138798	7.1	19.4
249407	6.8	19.5	16837	6.9	18.1	381210	6.9	21.2	454419	7.0	20.8	14089	7.1	18.1	483826	7.1	20.9
456283	6.8	22.6	34687	6.9	17.6	90182	6.9	18.4	79348	7.0	19.2	288457	7.1	20.0	518155	7.1	21.0
415844	6.8	21.4	187895	6.9	19.8	24942	6.9	18.9	419034	7.0	20.7	415877	7.1	19.8	312937	7.1	19.9
403517	6.8	19.5	327905	6.9	21.4	341770	6.9	21.5	91438	7.0	19.3	80603	7.1	19.1	11498	7.1	17.2
243123	6.8	19.5	348696	6.9	21.4	161887	6.9	19.7	532335	7.0	21.1	337877	7.1	20.5	176791	7.1	19.4
521089	6.8	20.6	265711	6.9	21.1	518646	6.9	22.7	154070	7.0	20.0	246162	7.1	20.0	256187	7.1	18.9
244400	6.8	21.3	284358	6.9	20.8	312243	6.9	20.4	407304	7.0	21.4	281307	7.1	20.1	120994	7.1	18.9
237380	6.8	20.8	164286	6.9	19.5	352680	6.9	21.2	196218	7.0	18.9	144597	7.1	19.0	115920	7.1	19.6
251072	6.8	20.1	487719	6.9	20.2	79382	6.9	17.9	169257	7.0	19.8	486173	7.1	20.1	484180	7.1	21.3
460374	6.8	21.1	236888	6.9	19.7	341173	6.9	20.5	499065	7.0	21.1	338257	7.1	20.6	385975	7.1	21.6
424976	6.8	21.3	323996	6.9	20.1	200964	6.9	20.1	284929	7.0	19.3	507910	7.1	19.2	140568	7.1	19.4
67351	6.8	18.7	357037	6.9	21.2	483830	6.9	21.6	103200	7.0	19.5	343382	7.1	19.3	230757	7.1	19.4
42324	6.8	17.9	487298	6.9	20.7	521358	6.9	21.2	9	7.0	9.5	166333	7.1	18.7	7802	7.1	17.9
338919	6.8	19.4	172655	6.9	19.6	433714	6.9	19.9	232467	7.0	19.6	314677	7.1	20.4	28852	7.1	16.9
393450	6.8	21.4	333703	6.9	20.5	153183	6.9	19.7	538512	7.0	19.8	46153	7.1	18.4	420494	7.1	20.1
334127	6.8	21.4	543641	6.9	21.8	536675	6.9	20.7	166890	7.0	20.4	293697	7.1	19.9	190751	7.1	20.1
497680	6.8	22.4	210992	6.9	20.3	109312	6.9	18.0	464083	7.0	20.0	104291	7.1	19.0	467564	7.1	21.9
68425	6.8	19.0	210404	6.9	19.4	92787	6.9	19.2	457867	7.0	21.2	531637	7.1	21.7	182356	7.1	20.5
256882	6.8	19.4	151574	6.9	20.0	26417	6.9	17.2	396260	7.0	19.6	14859	7.1	18.0	481998	7.1	21.0
323898	6.8	19.9	236225	6.9	20.6	384600	6.9	20.1	28094	7.0	16.9	200424	7.1	19.8	441652	7.1	21.7
460266	6.8	22.3	217779	6.9	20.0	299505	6.9	18.7	423138	7.0	19.6	440613	7.1	21.5	187631	7.1	20.2
420517	6.8	20.9	66976	6.9	19.4	7837	6.9	18.1	485083	7.0	20.0	32230	7.1	17.9	421241	7.1	20.6
105616	6.8	18.9	119790	6.9	19.1	442638	6.9	21.3	463027	7.0	20.6	391111	7.1	19.6	383783	7.1	20.5
489808	6.8	19.7	11864	6.9	16.7	417030	6.9	21.5	148589	7.0	19.9	76877	7.1	18.8	535062	7.1	21.2
88836	6.8	19.0	298615	6.9	21.6	55624	6.9	18.5	94817	7.0	19.4	116368	7.1	19.9	258533	7.1	20.2
87801	6.8	19.6	205472	6.9	20.3	165285	6.9	19.9	541107	7.0	21.5	255759	7.1	22.6	374555	7.1	20.9
272613	6.8	22.0	176863	6.9	20.1	301605	6.9	19.9	152339	7.0	20.0	84185	7.1	18.7	252394	7.1	19.2

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
126038	7.1	18.7	306204	7.2	20.4	425311	7.3	20.2	275230	7.3	19.8	17809	7.4	17.8	222253	7.5	20.0
415528	7.1	21.0	20432	7.2	17.1	141252	7.3	20.0	464589	7.4	20.9	270287	7.4	21.5	420815	7.5	19.4
306250	7.1	20.9	319832	7.2	20.1	137198	7.3	18.6	51333	7.4	17.9	496915	7.4	21.8	467810	7.5	21.4
484638	7.1	21.2	134451	7.2	19.8	88538	7.3	18.7	278409	7.4	20.2	99039	7.4	19.1	50679	7.5	18.3
78732	7.1	19.7	194100	7.2	20.7	223806	7.3	20.2	431465	7.4	21.3	36468	7.4	19.3	297046	7.5	20.6
517679	7.1	20.9	536326	7.2	21.1	378996	7.3	20.1	345246	7.4	20.7	431550	7.4	21.9	263026	7.5	20.4
440532	7.1	21.5	279424	7.2	20.0	27517	7.3	17.5	282521	7.4	20.7	21982	7.4	16.9	265677	7.5	21.1
10131	7.1	19.0	339599	7.2	20.6	544251	7.3	21.6	541932	7.4	21.1	272619	7.4	21.9	533073	7.5	22.5
274804	7.2	20.3	120801	7.2	19.6	110691	7.3	19.5	544179	7.4	22.5	236314	7.4	18.9	232961	7.5	18.6
32751	7.2	18.4	76613	7.2	17.9	519322	7.3	20.4	152533	7.4	19.1	225113	7.4	19.2	28106	7.5	17.8
279903	7.2	19.7	194638	7.2	19.8	326997	7.3	20.7	57142	7.4	19.2	541142	7.4	19.8	80819	7.5	19.4
54258	7.2	17.8	80687	7.2	17.9	149618	7.3	19.1	408307	7.4	20.1	191409	7.4	20.3	291180	7.5	19.8
496793	7.2	20.3	135344	7.2	19.2	117055	7.3	19.1	225937	7.4	19.0	206260	7.4	20.3	84745	7.5	18.5
174812	7.2	19.4	79548	7.2	18.6	382283	7.3	19.2	483955	7.4	20.4	1077	7.4	16.1	19016	7.5	17.9
284236	7.2	20.5	383774	7.2	21.1	436634	7.3	20.6	425372	7.4	20.2	89697	7.4	20.0	105244	7.5	19.2
543808	7.2	22.0	268597	7.2	20.2	27362	7.3	18.5	38282	7.4	19.0	236770	7.4	19.5	490684	7.5	21.8
525007	7.2	21.4	519046	7.2	20.6	258132	7.3	20.3	459840	7.4	20.0	164211	7.4	21.3	262753	7.5	20.9
404617	7.2	19.0	486142	7.2	21.4	210231	7.3	20.8	285959	7.4	20.7	89967	7.4	18.9	382647	7.5	22.0
365221	7.2	20.0	69141	7.2	17.6	68847	7.3	19.1	295664	7.4	20.7	222922	7.4	19.5	154408	7.5	19.5
538916	7.2	20.1	59276	7.2	17.8	234068	7.3	19.8	119750	7.4	19.8	127871	7.4	22.3	366917	7.5	20.7
380025	7.2	20.2	166801	7.2	19.7	424132	7.3	20.9	410054	7.4	20.8	258662	7.4	19.2	283556	7.5	19.6
209418	7.2	19.6	163549	7.2	20.4	541928	7.3	20.8	468710	7.4	20.0	367583	7.4	21.2	186747	7.5	20.4
474117	7.2	20.8	294811	7.2	20.5	134107	7.3	20.2	135886	7.4	19.8	403036	7.4	21.3	171871	7.5	19.8
358372	7.2	19.8	521983	7.2	19.9	307808	7.3	20.4	490816	7.4	20.2	424913	7.4	21.3	459283	7.5	20.4
315898	7.2	22.0	164156	7.2	19.8	242594	7.3	19.5	284067	7.4	19.4	338221	7.4	21.4	401812	7.5	21.5
202557	7.2	19.1	379793	7.2	19.6	339605	7.3	20.9	8516	7.4	17.7	256978	7.4	19.8	118694	7.5	19.5
21450	7.2	17.7	128649	7.2	19.6	201030	7.3	20.1	280963	7.4	21.0	8172	7.4	17.8	384134	7.5	20.8
498319	7.2	21.5	489709	7.2	21.7	74541	7.3	18.2	308185	7.4	20.7	425956	7.4	20.4	424949	7.5	21.1
327979	7.2	19.9	450860	7.2	21.2	197153	7.3	19.8	464824	7.4	21.1	534443	7.4	21.8	266954	7.5	21.4
148341	7.2	19.4	258516	7.2	19.0	276225	7.3	19.8	543666	7.4	21.0	400050	7.4	20.9	26259	7.5	17.7
231434	7.2	19.7	456710	7.2	22.5	348189	7.3	20.9	300284	7.4	20.6	543975	7.4	21.2	322870	7.5	21.1
194381	7.2	18.7	445159	7.2	21.6	354575	7.3	21.6	599	7.4	13.5	155156	7.4	19.2	157218	7.5	20.5
192067	7.2	20.3	334474	7.2	20.3	71632	7.3	17.7	232014	7.4	20.5	178619	7.5	18.8	276601	7.5	20.6
2402	7.2	15.8	252014	7.2	18.8	277422	7.3	20.6	493703	7.4	22.3	313807	7.5	20.6	516747	7.5	20.9
103187	7.2	18.7	409238	7.2	19.5	462887	7.3	21.8	523820	7.4	21.5	237711	7.5	20.2	140270	7.5	19.6
153070	7.2	20.2	116052	7.2	18.6	157082	7.3	19.4	276862	7.4	21.4	300429	7.5	20.8	467567	7.5	21.0
76831	7.2	17.7	351257	7.2	21.0	237040	7.3	20.4	336527	7.4	20.4	155802	7.5	19.3	247924	7.5	20.2
49595	7.2	17.8	143469	7.2	18.6	185175	7.3	20.6	467446	7.4	20.4	528272	7.5	20.8	222261	7.5	19.9
272021	7.2	20.2	327954	7.2	20.7	6425	7.3	16.3	440730	7.4	21.5	529346	7.5	22.2	166798	7.5	20.1
194431	7.2	19.3	327027	7.2	21.1	224809	7.3	20.4	219167	7.4	19.9	59433	7.5	17.4	452291	7.5	22.5
534621	7.2	21.5	532296	7.2	22.4	140766	7.3	19.7	424670	7.4	21.3	283422	7.5	21.8	243429	7.5	19.7
373679	7.2	21.1	183810	7.2	20.6	28001	7.3	17.8	541805	7.4	20.8	392748	7.5	20.3	429922	7.5	20.5
492886	7.2	20.2	523770	7.2	20.5	28530	7.3	18.0	81689	7.4	18.4	57214	7.5	20.0	162701	7.5	19.8
100486	7.2	19.5	273214	7.2	19.8	230659	7.3	20.4	529794	7.4	20.9	156484	7.5	19.5	247842	7.5	20.2
204568	7.2	20.6	315503	7.2	21.1	104143	7.3	19.0	158864	7.4	20.3	298428	7.5	18.7	203907	7.5	18.5
95530	7.2	19.1	235931	7.2	19.7	375096	7.3	20.6	414429	7.4	18.4	48407	7.5	18.6	467716	7.5	21.4
279253	7.2	20.4	194092	7.3	20.2	218376	7.3	19.1	53727	7.4	17.7	344210	7.5	20.2	9575	7.5	17.0
141427	7.2	19.5	481260	7.3	20.6	70131	7.3	19.9	903	7.4	14.9	43770	7.5	17.7	132569	7.5	19.2
35270	7.2	18.7	469045	7.3	19.5	52997	7.3	19.1	140461	7.4	18.7	24874	7.5	18.9	496677	7.5	20.2
458260	7.2	21.0	6339	7.3	18.0	1327	7.3	16.3	18064	7.4	16.4	131601	7.5	20.2	6859	7.5	15.9
497653	7.2	21.7	345773	7.3	20.8	28257	7.3	16.3	256228	7.4	20.3	273421	7.5	21.1	463693	7.5	21.7
87758	7.2	19.6	53187	7.3	17.2	351318	7.3	21.0	392549	7.4	20.8	278932	7.5	20.9	51287	7.5	19.1
395848	7.2	20.7	92625	7.3	20.4	391812	7.3	19.6	197283	7.4	19.8	147715	7.5	19.3	355255	7.5	20.3
176906	7.2	20.2	408922	7.3	19.5	113986	7.3	19.1	483853	7.4	19.7	404760	7.5	19.0	47416	7.5	19.0
244216	7.2	19.7	500360	7.3	21.9	111631	7.3	20.0	386635	7.4	20.7	257876	7.5	20.7	410558	7.5	20.7
187396	7.2	20.5	88978	7.3	18.9	332724	7.3	20.8	414893	7.4	20.7	282546	7.5	20.1	337447	7.5	20.3
116257	7.2	18.9	469013	7.3	20.6	450979	7.3	21.1	238341	7.4	19.9	464245	7.5	20.5	356033	7.5	21.3
190892	7.2	20.4	456332	7.3	21.1	115566	7.3	19.3	109637	7.4	19.0	384789	7.5	21.2	101651	7.5	19.0
437427	7.2	19.8	318952	7.3	19.8	441400	7.3	20.1	486545	7.4	20.1	328885	7.5	20.8	239763	7.5	19.4
452540	7.2	21.4	118175	7.3	20.2	73607	7.3	20.1	364700	7.4	21.2	378978	7.5	20.7	248918	7.5	21.7
134175	7.2	19.3	381225	7.3	21.7	78584	7.3	19.7	30904	7.4	18.7	235454	7.5	19.5	417596	7.5	21.5
222011	7.2	19.6	420802	7.3	20.4	337530	7.3	19.9	462923	7.4	21.1	421927	7.5	20.9	218372	7.5	19.9
169142	7.2	20.0	228752	7.3	20.4	408810	7.3	21.2	305656	7.4	19.1	425527	7.5	18.9	528870	7.5	20.9
406084	7.2	19.8	184657	7.3	19.3	403051	7.3	20.8	142899	7.4	19.5	81871	7.5	18.0	62868	7.5	19.0
83893	7.2	18.4	64331	7.3	18.2	215030	7.3	21.1	392474	7.4	19.8	206264	7.5	20.2	307641	7.5	20.8
202126	7.2	20.3	461042	7.3	21.2	223521	7.3	19.1	68991	7.4	19.1	235474	7.5	19.1	288818	7.5	19.3
166676	7.2	19.6	377101	7.3	20.4	414890	7.3	20.6	104155	7.4	18.4	172954	7.5	19.0	334586	7.5	21.3
30289	7.2	17.8	144265	7.3	19.0	196433	7.3	18.3	308249	7.4	19.8	530034	7.5	21.6	141132	7.5	19.9
484096	7.2	21.6	242985	7.3	19.7	104349	7.3	18.4	73659	7.4	18.4	204153	7.5	20.0	13211	7.5	18.0
78145	7.2	19.2	249501	7.3	20.4	543355	7.3	20.9	529869	7.4	23.3	412982	7.5	20.8	63455	7.5	18.9
541976	7.2	19.7	325159	7.3	19.9	447828	7.3	20.2	451422	7.4	21.6	495689	7.5	20.6	537995	7.5	20.9

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
508128	7.6	20.9	55719	7.6	18.7	322425	7.7	20.6	51890	7.8	18.5	203930	7.8	19.1	142386	7.9	18.2
108883	7.6	19.5	221232	7.6	19.8	375061	7.7	20.6	167038	7.8	20.3	124793	7.8	19.9	223878	7.9	20.0
381288	7.6	20.3	355860	7.6	21.4	134446	7.7	20.1	4655	7.8	16.8	12334	7.8	17.1	108062	7.9	18.1
142554	7.6	18.7	56557	7.6	18.3	536646	7.7	21.8	387838	7.8	19.2	329399	7.8	19.5	155018	7.9	20.5
84354	7.6	19.2	501418	7.6	20.9	20320	7.7	17.7	57524	7.8	17.8	174923	7.8	21.1	235051	7.9	18.9
288476	7.6	19.3	220075	7.6	20.8	152090	7.7	19.6	238820	7.8	19.0	459419	7.8	20.3	130664	7.9	20.2
428381	7.6	20.8	455741	7.6	19.7	148094	7.7	19.2	341636	7.8	20.7	529284	7.8	21.9	10642	7.9	17.1
138198	7.6	18.9	535896	7.6	20.5	144587	7.7	18.0	419056	7.8	20.7	304275	7.8	19.2	487496	7.9	23.2
83479	7.6	19.8	502944	7.6	20.9	180016	7.7	20.2	140955	7.8	19.7	176784	7.8	21.2	21580	7.9	17.3
54122	7.6	18.0	119046	7.6	18.8	164191	7.7	19.1	306555	7.8	21.1	265894	7.8	19.9	77023	7.9	17.5
51279	7.6	18.5	190076	7.6	20.2	291671	7.7	20.6	53995	7.8	18.3	426026	7.8	20.8	262704	7.9	21.1
417038	7.6	22.0	281745	7.6	20.5	306303	7.7	20.1	142501	7.8	19.3	494785	7.8	21.9	92484	7.9	19.3
62440	7.6	19.0	122629	7.6	19.4	286533	7.7	19.0	36615	7.8	17.8	460564	7.8	20.2	498356	7.9	21.5
375539	7.6	20.4	198228	7.6	18.4	524598	7.7	21.2	108393	7.8	18.2	13017	7.8	16.0	230523	7.9	20.7
265800	7.6	20.6	542092	7.6	21.2	265342	7.7	19.2	241878	7.8	20.8	130604	7.8	18.7	162175	7.9	19.2
142764	7.6	19.9	67604	7.6	17.2	364298	7.7	19.7	266928	7.8	19.8	47035	7.8	15.8	466899	7.9	20.8
339678	7.6	19.8	396638	7.6	21.4	187492	7.7	19.9	53271	7.8	17.0	394369	7.8	20.4	347591	7.9	20.5
143749	7.6	20.5	39239	7.6	18.6	130115	7.7	19.7	134473	7.8	19.6	81075	7.8	19.3	462928	7.9	20.6
170477	7.6	20.8	531056	7.6	20.6	246885	7.7	20.6	154853	7.8	19.1	541950	7.8	20.6	109643	7.9	18.5
372926	7.6	20.9	141201	7.6	20.1	407556	7.7	20.6	61919	7.8	18.1	189682	7.8	19.3	323896	7.9	19.7
388451	7.6	21.1	6641	7.6	17.9	118146	7.7	19.6	357054	7.8	20.8	462090	7.8	20.6	544341	7.9	21.8
206297	7.6	19.4	538796	7.6	21.1	272564	7.7	19.5	345903	7.8	21.3	368254	7.8	20.2	206206	7.9	20.6
254823	7.6	19.9	110325	7.6	18.5	215247	7.7	18.6	532788	7.8	22.0	446096	7.8	19.9	532097	7.9	21.0
85330	7.6	21.0	542465	7.6	20.3	321455	7.7	19.6	74446	7.8	19.0	403059	7.8	21.5	430101	7.9	21.2
493742	7.6	21.4	148158	7.6	19.7	382247	7.7	20.1	194607	7.8	19.2	486203	7.8	19.6	223677	7.9	21.0
226796	7.6	19.3	54604	7.6	18.0	168325	7.7	19.4	55663	7.8	18.9	134459	7.8	19.7	133368	7.9	20.0
363789	7.6	19.9	354112	7.6	21.2	339705	7.7	21.4	433636	7.8	20.7	162176	7.8	18.7	197504	7.9	20.6
182450	7.6	19.9	452972	7.6	19.6	274078	7.7	20.8	538610	7.8	20.5	545123	7.8	21.9	155141	7.9	20.0
236296	7.6	19.9	466730	7.6	20.3	335909	7.7	20.3	356327	7.8	20.0	62717	7.8	19.6	426480	7.9	21.3
54575	7.6	19.3	102889	7.6	19.5	199010	7.7	18.9	397571	7.8	20.4	507276	7.8	19.7	532712	7.9	20.7
16275	7.6	16.9	233145	7.6	19.5	288828	7.7	20.2	195399	7.8	19.2	15744	7.8	18.0	113169	7.9	19.6
344295	7.6	20.2	148744	7.6	19.1	532304	7.7	21.3	461831	7.8	21.0	334923	7.8	20.2	367574	7.9	22.1
5420	7.6	18.3	372960	7.6	21.1	425505	7.7	20.1	164305	7.8	19.5	135700	7.8	20.7	419512	7.9	19.7
157971	7.6	19.2	532505	7.6	21.1	269774	7.7	21.7	351756	7.8	20.1	277296	7.8	20.8	317657	7.9	19.0
47207	7.6	18.7	32012	7.6	17.9	465747	7.7	21.5	116951	7.8	19.3	319766	7.8	21.6	189023	7.9	18.0
190735	7.6	20.6	131247	7.6	19.3	411295	7.7	22.3	256401	7.8	19.2	243186	7.8	20.3	260949	7.9	20.5
406076	7.6	20.3	51705	7.6	18.6	249599	7.7	20.8	466156	7.8	20.6	196655	7.8	20.0	50917	7.9	17.6
341816	7.6	20.9	429799	7.6	20.0	201770	7.7	19.4	114921	7.8	18.9	230434	7.8	20.2	112565	7.9	20.4
521498	7.6	21.2	407777	7.6	20.0	374201	7.7	19.2	527352	7.8	22.1	377247	7.8	20.1	83484	7.9	19.2
389975	7.6	20.0	259837	7.6	19.5	432937	7.7	20.8	66847	7.8	20.1	17087	7.8	18.1	140018	7.9	19.5
101622	7.6	18.3	269976	7.6	21.4	488236	7.7	21.8	284022	7.8	20.9	377107	7.8	21.2	345584	7.9	20.8
303609	7.6	20.1	7615	7.7	17.7	124810	7.7	19.3	327425	7.8	20.2	522027	7.8	21.1	531556	7.9	22.1
189666	7.6	19.4	125486	7.7	18.7	9067	7.7	16.2	345870	7.8	21.3	122019	7.8	18.9	338231	7.9	20.3
535849	7.6	21.4	31860	7.7	18.6	457167	7.7	20.3	283264	7.8	19.1	252474	7.8	20.5	502524	7.9	20.5
317558	7.6	21.5	322789	7.7	20.9	328418	7.7	20.3	248561	7.8	19.6	373263	7.8	20.5	34127	7.9	19.5
303007	7.6	20.6	77951	7.7	18.9	361696	7.7	20.4	375316	7.8	20.7	80048	7.8	18.4	69912	7.9	19.1
123661	7.6	19.5	536181	7.7	21.5	108203	7.7	18.6	268034	7.8	21.3	125088	7.8	19.1	245280	7.9	20.4
337329	7.6	19.9	19819	7.7	18.7	499432	7.7	20.7	313021	7.8	20.6	290019	7.8	19.1	312277	7.9	21.4
268152	7.6	20.0	126071	7.7	18.3	323871	7.7	20.7	16320	7.8	18.7	532768	7.8	21.0	50091	7.9	17.3
364266	7.6	20.9	136290	7.7	19.4	126925	7.7	19.7	88278	7.8	18.4	442698	7.8	20.7	544020	7.9	21.9
156064	7.6	20.0	136399	7.7	18.8	234436	7.7	20.4	333333	7.8	21.0	469038	7.8	20.8	420268	7.9	20.0
264418	7.6	20.8	538064	7.7	21.6	272381	7.7	19.6	432438	7.8	20.8	368064	7.8	19.8	148781	7.9	19.7
119729	7.6	19.6	340623	7.7	20.3	163609	7.7	20.4	336536	7.8	21.0	473840	7.8	20.9	456321	7.9	21.5
235415	7.6	19.0	145354	7.7	20.1	206143	7.7	20.1	349719	7.8	19.4	4578	7.8	16.6	538881	7.9	20.7
190849	7.6	19.6	305142	7.7	20.2	145162	7.7	19.9	138514	7.8	18.8	30583	7.8	19.0	326002	7.9	20.4
394048	7.6	20.7	218368	7.7	19.4	239999	7.7	21.1	492088	7.8	20.7	82701	7.8	19.1	323958	7.9	20.5
419915	7.6	20.9	506336	7.7	21.5	48652	7.7	18.1	258433	7.8	19.6	71776	7.9	18.1	381490	7.9	21.0
172233	7.6	19.3	467802	7.7	20.8	176689	7.7	20.6	230590	7.8	19.7	401791	7.9	19.3	246913	7.9	21.0
237610	7.6	20.8	527527	7.7	21.5	95814	7.7	19.0	46943	7.8	17.4	468460	7.9	20.0	105440	7.9	18.2
296274	7.6	20.1	110082	7.7	19.2	468411	7.7	20.4	447374	7.8	19.8	306293	7.9	21.1	330469	7.9	20.8
16383	7.6	18.7	238966	7.7	20.9	543971	7.7	19.2	102779	7.8	18.6	238714	7.9	19.6	428508	7.9	20.7
206801	7.6	19.5	543898	7.7	22.2	166253	7.7	19.0	455370	7.8	22.5	188213	7.9	19.1	222296	7.9	20.7
21630	7.6	16.8	222998	7.7	20.1	446928	7.7	20.5	152513	7.8	19.3	148659	7.9	20.8	183364	7.9	19.6
346380	7.6	19.3	110518	7.7	20.2	519007	7.7	21.0	14393	7.8	18.2	443915	7.9	20.7	315596	7.9	19.9
203275	7.6	19.6	194516	7.7	20.7	496545	7.7	20.9	527308	7.8	20.5	23136	7.9	18.1	239234	7.9	19.1
302921	7.6	21.2	544776	7.7	20.9	464300	7.7	20.4	459841	7.8	20.7	50675	7.9	18.3	465491	7.9	21.5
101528	7.6	20.0	51703	7.7	18.6	35989	7.7	19.6	364210	7.8	20.2	241057	7.9	20.6	15475	7.9	18.5
373776	7.6	20.0	542697	7.7	20.6	314878	7.7	19.9	492778	7.8	20.2	390369	7.9	20.0	180289	7.9	20.4
262553	7.6	19.8	71349	7.7	18.1	543541	7.7	20.9	63759	7.8	19.2	97945	7.9	18.8	239630	7.9	19.4
419550	7.6	21.8	490743	7.7	19.9	97863	7.8	19.4	258269	7.8	20.6	460442	7.9	20.5	453118	7.9	21.1
83677	7.6	20.0	495508	7.7	20.8	525830	7.8	21.6	119813	7.8	19.9	490412	7.9	20.8	1340	7.9	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
65499	7.9	20.3	68679	7.9	18.1	159989	8.0	19.3	82971	8.1	19.2	487673	8.2	21.6	413603	8.2	21.1
56448	7.9	17.5	31509	7.9	19.1	369316	8.0	21.0	314217	8.1	19.9	458363	8.2	21.1	217794	8.2	20.2
349941	7.9	19.6	85295	7.9	19.1	276417	8.0	20.6	527054	8.1	21.6	428143	8.2	20.5	415860	8.2	21.3
544669	7.9	21.2	341858	7.9	20.7	227929	8.0	19.6	184056	8.1	19.4	297892	8.2	20.6	400107	8.2	21.9
283518	7.9	19.9	192458	7.9	20.1	463666	8.0	19.6	152624	8.1	19.7	296570	8.2	22.0	315546	8.2	19.8
406726	7.9	20.7	534432	7.9	22.2	71796	8.0	19.4	427024	8.1	20.9	114559	8.2	18.7	47849	8.2	18.8
370821	7.9	21.7	258302	7.9	21.1	229948	8.0	20.5	243550	8.1	20.6	237512	8.2	19.3	232762	8.2	19.6
527139	7.9	21.3	306525	7.9	19.9	273420	8.0	20.6	363121	8.1	21.4	448247	8.2	21.9	488780	8.2	22.4
57843	7.9	17.8	161113	7.9	19.9	29261	8.0	17.4	502513	8.1	20.9	97086	8.2	18.1	349557	8.2	20.3
99232	7.9	18.5	415314	7.9	20.7	54574	8.0	19.0	346982	8.1	20.1	413633	8.2	20.4	332095	8.2	20.5
347295	7.9	20.5	324700	7.9	19.1	296505	8.0	18.7	338981	8.1	19.4	144697	8.2	19.4	231054	8.2	19.3
500444	7.9	21.1	460329	7.9	22.0	337553	8.0	21.7	8042	8.1	16.7	438768	8.2	20.7	420791	8.2	20.4
168773	7.9	20.2	198740	7.9	19.4	206806	8.0	19.6	88430	8.1	19.3	376603	8.2	20.6	464958	8.2	21.7
202474	7.9	20.7	327461	7.9	20.9	184711	8.0	20.7	81060	8.1	18.7	153668	8.2	20.6	379048	8.2	21.3
529982	7.9	21.8	283945	7.9	21.0	183470	8.0	19.0	47917	8.1	17.6	224637	8.2	20.2	440525	8.2	20.8
193998	7.9	19.3	188726	7.9	20.2	241088	8.0	20.2	233481	8.1	19.7	465435	8.2	20.9	179585	8.2	19.6
497876	7.9	21.3	377075	7.9	20.7	506325	8.0	20.7	129277	8.1	19.9	50386	8.2	18.1	316774	8.2	20.2
396782	7.9	21.4	237141	7.9	21.3	12239	8.0	16.9	396644	8.1	21.2	28285	8.2	17.6	528536	8.2	21.2
144601	7.9	20.2	236188	7.9	20.5	85731	8.0	19.3	383628	8.1	22.1	281741	8.2	21.0	294142	8.2	21.2
217772	7.9	20.9	182778	7.9	19.7	176776	8.0	20.6	279187	8.1	21.1	11420	8.2	17.2	81957	8.2	20.2
543241	7.9	21.7	44780	7.9	18.9	328289	8.0	19.7	406648	8.1	20.1	139367	8.2	19.2	544447	8.2	21.4
13814	7.9	17.5	446416	7.9	20.3	111376	8.0	19.0	490707	8.1	21.4	348219	8.2	19.7	30786	8.2	22.4
159485	7.9	19.8	116938	7.9	18.1	177626	8.0	20.7	286177	8.1	20.4	306183	8.2	19.2	166716	8.2	20.1
26843	7.9	18.1	318051	7.9	19.6	214697	8.0	20.5	8935	8.1	17.6	165878	8.2	20.0	462890	8.2	20.0
527399	7.9	21.8	293894	7.9	21.6	463706	8.0	21.6	493168	8.1	21.0	460596	8.2	20.7	373989	8.2	20.0
529187	7.9	21.6	239321	7.9	20.1	241304	8.0	20.4	276178	8.1	20.7	145703	8.2	18.8	455428	8.2	21.0
237723	7.9	20.0	366738	7.9	19.9	536859	8.0	20.2	285670	8.1	20.7	491597	8.2	21.5	139657	8.2	20.5
268515	7.9	20.7	419171	7.9	21.3	55554	8.0	18.0	541779	8.1	21.8	138220	8.2	19.1	535476	8.2	20.4
9593	7.9	17.5	410072	7.9	19.5	134802	8.0	18.5	251092	8.1	20.8	432085	8.2	21.4	378412	8.2	21.5
415942	7.9	20.9	455866	7.9	20.6	543331	8.0	20.4	284820	8.1	19.7	161123	8.2	19.8	338168	8.2	20.8
335690	7.9	21.2	239356	7.9	20.0	297015	8.0	20.2	65659	8.1	18.0	468261	8.2	20.6	423736	8.2	21.0
242170	7.9	19.0	502853	7.9	20.3	40232	8.1	18.1	416566	8.1	20.7	243389	8.2	20.0	52031	8.2	20.3
7002	7.9	18.5	308275	7.9	19.4	492880	8.1	21.1	390488	8.1	19.5	492985	8.2	20.9	277603	8.2	20.9
178451	7.9	20.1	496279	7.9	21.3	443835	8.1	21.1	233743	8.1	20.3	306343	8.2	20.7	432147	8.2	20.3
146647	7.9	20.8	231047	7.9	19.1	536264	8.1	20.8	296899	8.1	19.3	310113	8.2	20.1	401965	8.2	22.3
65069	7.9	19.5	208487	7.9	19.8	383738	8.1	19.4	532804	8.1	21.2	22269	8.2	17.4	339996	8.2	20.6
423387	7.9	19.3	433020	7.9	20.9	253120	8.1	20.7	535951	8.1	20.7	462059	8.2	20.1	64825	8.2	18.6
387690	7.9	20.6	323482	7.9	20.2	237147	8.1	18.3	170326	8.1	20.8	138780	8.2	19.5	442760	8.3	21.7
58178	7.9	18.4	64182	7.9	18.8	186153	8.1	18.8	438238	8.1	22.0	91309	8.2	18.8	346831	8.3	20.8
205342	7.9	20.2	489902	8.0	20.5	378512	8.1	21.1	343937	8.1	19.8	287564	8.2	20.1	29748	8.3	18.7
434994	7.9	21.6	78703	8.0	19.1	535184	8.1	21.2	471176	8.1	20.3	464298	8.2	20.3	100874	8.3	18.9
361772	7.9	20.1	467407	8.0	20.8	163184	8.1	19.1	236166	8.1	19.7	363567	8.2	21.5	456986	8.3	20.0
398341	7.9	21.2	201906	8.0	19.1	246580	8.1	19.6	62042	8.1	17.2	89780	8.2	19.6	345993	8.3	20.5
148033	7.9	19.2	189366	8.0	19.3	531565	8.1	21.6	5886	8.1	16.3	6192	8.2	15.6	349045	8.3	21.4
339689	7.9	21.9	282595	8.0	20.2	529088	8.1	21.9	284638	8.1	19.7	544262	8.2	22.0	448277	8.3	21.4
89980	7.9	19.5	117714	8.0	19.3	258113	8.1	20.2	341427	8.1	20.7	105490	8.2	19.7	126503	8.3	18.4
499508	7.9	21.2	422473	8.0	21.6	65501	8.1	18.5	446326	8.1	19.8	215941	8.2	18.9	443803	8.3	21.2
428472	7.9	21.1	174970	8.0	20.7	433169	8.1	21.1	266390	8.1	20.5	32209	8.2	18.1	521098	8.3	20.8
84435	7.9	19.5	327248	8.0	20.7	179971	8.1	20.5	364313	8.1	21.0	494688	8.2	20.1	409857	8.3	19.6
419816	7.9	21.3	376443	8.0	20.5	469001	8.1	20.1	98080	8.1	20.2	334644	8.2	21.1	459647	8.3	19.1
409873	7.9	21.2	63418	8.0	18.6	48687	8.1	19.4	418894	8.1	21.5	462649	8.2	21.2	482025	8.3	20.9
88098	7.9	19.1	297387	8.0	21.5	503749	8.1	20.8	2926	8.1	15.4	245033	8.2	19.1	272286	8.3	20.1
467990	7.9	20.9	197009	8.0	19.2	495054	8.1	21.2	450025	8.1	22.0	413358	8.2	20.7	377928	8.3	19.9
460062	7.9	21.0	9285	8.0	17.8	328590	8.1	20.4	497466	8.1	21.1	194255	8.2	20.2	210352	8.3	21.0
390609	7.9	20.2	265337	8.0	20.8	286284	8.1	20.2	174092	8.1	19.2	343560	8.2	19.8	258197	8.3	20.7
206202	7.9	20.8	529080	8.0	21.3	93329	8.1	19.1	168029	8.1	20.1	49627	8.2	16.4	327053	8.3	20.6
79003	7.9	19.1	425233	8.0	21.7	94701	8.1	18.7	232925	8.1	18.9	19519	8.2	15.9	40322	8.3	17.6
193849	7.9	20.9	300318	8.0	21.0	279214	8.1	20.4	347752	8.1	19.9	125566	8.2	19.9	14303	8.3	18.5
162051	7.9	19.2	188973	8.0	19.4	544464	8.1	21.6	175726	8.1	19.9	33937	8.2	18.4	210666	8.3	20.6
243600	7.9	21.2	323824	8.0	20.9	190855	8.1	20.7	231148	8.1	19.4	245604	8.2	20.1	217446	8.3	20.9
513415	7.9	20.7	419745	8.0	19.8	298346	8.1	19.6	145580	8.1	19.8	468892	8.2	21.3	327543	8.3	21.1
378485	7.9	21.3	240538	8.0	20.3	173985	8.1	19.8	238385	8.1	19.6	88975	8.2	19.4	337463	8.3	21.0
227927	7.9	19.0	418688	8.0	21.4	466020	8.1	20.8	292455	8.1	21.1	447026	8.2	20.8	522453	8.3	21.2
288788	7.9	19.7	55385	8.0	17.5	406033	8.1	21.8	445963	8.1	20.6	9953	8.2	16.8	270015	8.3	18.8
190622	7.9	18.2	9301	8.0	18.0	165723	8.1	20.4	330457	8.1	19.2	388407	8.2	20.7	422485	8.3	20.3
199197	7.9	18.3	520931	8.0	21.1	246442	8.1	20.1	18353	8.1	17.0	50063	8.2	18.0	151236	8.3	19.5
159781	7.9	20.2	294279	8.0	20.8	79274	8.1	19.9	377092	8.2	20.6	320858	8.2	20.6	451437	8.3	19.6
342876	7.9	20.4	183780	8.0	19.5	33166	8.1	17.1	96241	8.2	20.4	63665	8.2	19.5	204243	8.3	19.4
63490	7.9	19.2	321548	8.0	20.7	355797	8.1	21.6	211226	8.2	19.9	493201	8.2	20.9	222355	8.3	20.3
29615	7.9	17.0	205770	8.0	19.8	71679	8.1	18.4	432162	8.2	20.9	44341	8.2	18.8	51949	8.3	18.8
297971	7.9	18.8	210811	8.0	19.0	229566	8.1	20.1	282350	8.2	19.8	196702	8.2	20.1	369601	8.3	20.7

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
3162	8.3	16.3	260045	8.3	19.5	277868	8.4	20.9	70305	8.5	18.6	370021	8.5	20.8	246158	8.6	20.4
440474	8.3	21.1	138660	8.3	19.5	449626	8.4	19.9	415816	8.5	21.3	299316	8.5	20.8	74501	8.6	19.4
121142	8.3	18.6	134873	8.3	18.9	133877	8.4	19.8	246883	8.5	19.8	321745	8.5	20.5	484194	8.6	21.2
78530	8.3	18.7	165474	8.3	20.4	494839	8.4	21.7	375301	8.5	20.6	495333	8.5	20.6	241925	8.6	18.4
413576	8.3	20.7	322807	8.3	20.1	229214	8.4	20.4	425326	8.5	20.4	337110	8.5	20.7	480915	8.6	20.8
295903	8.3	20.1	64022	8.3	18.8	314969	8.4	20.8	170054	8.5	19.9	281791	8.5	19.7	502507	8.6	20.3
411397	8.3	20.8	412546	8.3	21.0	404739	8.4	21.2	118761	8.5	20.7	497095	8.5	20.4	104009	8.6	19.4
433494	8.3	20.0	445102	8.3	21.2	490827	8.4	20.3	386232	8.5	21.2	405633	8.5	20.4	350443	8.6	21.4
377116	8.3	20.9	530069	8.3	21.7	396548	8.4	20.7	541551	8.5	21.1	296798	8.5	20.6	194007	8.6	19.1
459196	8.3	19.7	85831	8.3	19.0	159764	8.4	19.0	445090	8.5	22.0	230736	8.5	20.2	45320	8.6	18.8
61844	8.3	19.6	322813	8.3	20.4	404024	8.4	20.0	238120	8.5	20.0	58637	8.5	18.6	237049	8.6	19.9
24748	8.3	18.2	416684	8.3	20.7	165793	8.4	19.5	205273	8.5	21.1	428968	8.5	21.5	544214	8.6	21.3
542924	8.3	21.2	473407	8.4	20.9	419921	8.4	21.2	255917	8.5	20.4	10943	8.5	18.0	26328	8.6	17.3
14978	8.3	17.5	294504	8.4	19.8	421028	8.4	21.2	228406	8.5	19.9	88705	8.5	18.1	435485	8.6	20.9
301938	8.3	18.5	537023	8.4	20.9	428922	8.4	21.4	129087	8.5	19.5	154053	8.5	19.6	180963	8.6	19.8
334602	8.3	21.3	275961	8.4	19.5	492703	8.4	21.2	524349	8.5	21.8	146516	8.5	19.5	380416	8.6	22.3
220612	8.3	20.6	420023	8.4	20.7	355360	8.4	19.7	485111	8.5	20.6	384993	8.5	20.9	425252	8.6	21.8
32538	8.3	19.8	345260	8.4	20.8	502928	8.4	21.2	456292	8.5	21.0	332849	8.5	20.9	6676	8.6	17.0
176984	8.3	19.5	150894	8.4	18.8	235386	8.4	19.7	95116	8.5	19.0	176758	8.5	20.9	432123	8.6	21.5
543197	8.3	19.8	172723	8.4	20.0	135551	8.4	18.9	160444	8.5	20.1	345168	8.5	20.8	327497	8.6	19.9
306524	8.3	21.6	134302	8.4	20.9	498901	8.4	22.2	161286	8.5	19.4	280734	8.5	20.3	319368	8.6	19.6
311781	8.3	19.1	466210	8.4	20.9	98578	8.4	19.4	329300	8.5	20.6	344378	8.5	21.0	470090	8.6	20.6
204397	8.3	20.6	50560	8.4	19.1	422648	8.4	21.3	322008	8.5	21.0	251043	8.5	20.2	463931	8.6	20.9
219831	8.3	19.5	447798	8.4	19.3	180537	8.4	19.5	492055	8.5	19.4	81122	8.5	18.2	243780	8.6	19.9
10047	8.3	17.0	174826	8.4	19.3	124398	8.4	19.4	63805	8.5	18.2	206170	8.5	20.0	350675	8.6	21.8
461992	8.3	21.2	198871	8.4	19.1	274990	8.4	20.3	415446	8.5	20.2	500462	8.5	21.7	461822	8.6	20.9
203066	8.3	20.5	5853	8.4	15.8	57338	8.4	19.5	70264	8.5	18.8	430319	8.5	20.0	238049	8.6	20.4
249291	8.3	21.1	343314	8.4	20.2	299345	8.4	20.7	341700	8.5	21.0	222992	8.5	20.4	522190	8.6	20.6
404267	8.3	20.6	271625	8.4	21.2	135941	8.4	19.7	261561	8.5	20.1	418336	8.5	20.6	240211	8.6	20.0
378814	8.3	21.6	375364	8.4	21.5	9947	8.4	18.8	400060	8.5	22.1	494719	8.5	21.3	131455	8.6	19.9
332568	8.3	20.8	383665	8.4	20.9	189468	8.4	20.0	358129	8.5	19.9	289345	8.5	20.2	140945	8.6	20.0
468239	8.3	21.0	469635	8.4	21.0	318073	8.4	19.5	413369	8.5	19.9	73255	8.5	18.1	29190	8.6	18.2
25229	8.3	18.3	253974	8.4	17.5	60715	8.4	18.6	228792	8.5	19.9	326450	8.6	21.4	140458	8.6	19.4
330981	8.3	20.1	407550	8.4	20.5	124306	8.4	19.3	487043	8.5	19.9	229303	8.6	18.9	327938	8.6	20.1
424827	8.3	20.7	105618	8.4	19.4	507475	8.4	21.6	18712	8.5	16.8	544450	8.6	22.1	345389	8.6	20.2
259356	8.3	19.8	258574	8.4	20.3	247017	8.4	19.9	412343	8.5	20.9	525235	8.6	21.9	462852	8.6	21.9
441483	8.3	21.6	315637	8.4	19.2	248195	8.4	20.0	463062	8.5	20.8	289299	8.6	20.5	394935	8.6	20.5
234049	8.3	19.7	230797	8.4	18.6	431450	8.4	21.3	534564	8.5	22.1	455165	8.6	22.1	138279	8.6	19.7
443849	8.3	21.1	258504	8.4	19.3	360779	8.4	20.3	401061	8.5	21.0	51902	8.6	19.2	177560	8.6	18.9
220703	8.3	19.4	278832	8.4	19.0	349152	8.4	19.9	152674	8.5	19.3	69029	8.6	18.7	88806	8.6	19.3
538935	8.3	21.0	342905	8.4	20.2	535204	8.4	21.3	317639	8.5	18.8	130856	8.6	19.3	309361	8.6	21.8
523600	8.3	21.1	405942	8.4	21.9	110699	8.4	19.9	428447	8.5	20.5	258075	8.6	20.9	206462	8.6	18.9
184702	8.3	18.9	190329	8.4	20.2	74409	8.4	18.4	268812	8.5	20.0	466500	8.6	20.0	544734	8.6	20.9
181457	8.3	20.3	239349	8.4	20.5	123158	8.4	19.6	380488	8.5	20.5	282597	8.6	19.4	358172	8.6	19.1
430076	8.3	21.5	26267	8.4	17.6	119391	8.4	19.9	446393	8.5	20.0	108444	8.6	19.7	250258	8.6	21.3
257923	8.3	20.1	382783	8.4	22.5	334714	8.4	18.7	422548	8.5	20.6	61992	8.6	19.2	498344	8.6	23.5
321583	8.3	19.5	491909	8.4	20.3	222969	8.4	20.5	163505	8.5	19.5	9278	8.6	17.5	142862	8.6	21.2
204674	8.3	20.1	254692	8.4	19.7	532466	8.4	22.0	532885	8.5	21.7	72981	8.6	19.1	382502	8.6	21.5
380388	8.3	21.2	84516	8.4	20.1	184093	8.4	19.7	316775	8.5	20.7	227782	8.6	20.4	142886	8.6	19.4
494896	8.3	21.5	401878	8.4	21.2	128025	8.4	19.1	170038	8.5	20.1	337570	8.6	20.5	51611	8.6	18.6
456717	8.3	20.8	399542	8.4	21.3	276586	8.4	20.3	295861	8.5	19.5	281382	8.6	19.7	32803	8.6	18.5
25444	8.3	17.0	51706	8.4	17.4	239713	8.5	20.0	112331	8.5	18.9	149316	8.6	19.6	71418	8.6	18.1
119348	8.3	19.0	434631	8.4	21.2	485042	8.5	21.9	145720	8.5	20.8	444382	8.6	20.0	63788	8.6	19.2
241590	8.3	20.5	243492	8.4	19.9	427262	8.5	20.5	473970	8.5	19.6	44510	8.6	17.5	436373	8.6	20.5
101027	8.3	19.4	226317	8.4	20.0	470903	8.5	20.5	423561	8.5	21.1	227550	8.6	19.7	196247	8.6	18.5
43875	8.3	20.0	348220	8.4	21.0	376632	8.5	21.3	425475	8.5	19.8	330904	8.6	21.2	352661	8.6	20.7
353611	8.3	20.0	454353	8.4	20.5	489436	8.5	19.8	380328	8.5	20.8	240374	8.6	19.7	538616	8.6	21.5
256057	8.3	21.0	428365	8.4	20.8	186591	8.5	19.3	350247	8.5	21.6	393461	8.6	19.9	55445	8.7	18.8
223592	8.3	18.8	397966	8.4	21.1	429254	8.5	20.6	393238	8.5	20.2	490330	8.6	21.3	522557	8.7	21.0
165804	8.3	19.6	535274	8.4	20.9	240588	8.5	21.0	10615	8.5	18.1	484651	8.6	21.0	478271	8.7	20.0
230222	8.3	20.2	492160	8.4	21.6	152345	8.5	20.4	58179	8.5	19.7	13773	8.6	16.6	538988	8.7	20.9
171911	8.3	19.8	339862	8.4	20.1	297003	8.5	20.4	240517	8.5	20.2	142689	8.6	19.6	192915	8.7	20.7
427450	8.3	20.7	370381	8.4	20.3	191238	8.5	19.2	366446	8.5	20.2	430311	8.6	20.8	131522	8.7	19.5
366928	8.3	20.3	46991	8.4	20.7	221263	8.5	20.1	26627	8.5	18.5	212677	8.6	20.0	456259	8.7	22.5
148327	8.3	19.5	32556	8.4	17.9	241102	8.5	19.1	521005	8.5	20.8	52104	8.6	18.8	149484	8.7	19.5
35822	8.3	17.4	397475	8.4	21.3	64647	8.5	18.1	431483	8.5	20.5	431524	8.6	21.5	277557	8.7	19.9
27878	8.3	17.8	197086	8.4	19.7	464480	8.5	21.3	338989	8.5	19.9	268647	8.6	20.1	47936	8.7	18.3
305600	8.3	20.5	272302	8.4	19.8	467554	8.5	20.8	266878	8.5	21.2	31260	8.6	18.2	239370	8.7	20.3
457178	8.3	19.7	23330	8.4	18.7	311027	8.5	20.7	205902	8.5	18.7	178388	8.6	20.5	313452	8.7	21.6
493743	8.3	21.9	231065	8.4	20.6	531344	8.5	22.0	354972	8.5	19.8	443691	8.6	19.7	310763	8.7	21.2
84344	8.3	19.6	414496	8.4	20.6	314758	8.5	21.2	514096	8.5	20.0	240930	8.6	20.4	80410		

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
388458	8.7	20.3	406137	8.7	21.2	43867	8.8	19.5	206648	8.8	18.7	36185	8.9	17.1	313550	8.9	19.5
416840	8.7	20.6	264115	8.7	20.1	428973	8.8	20.7	144027	8.9	19.4	392845	8.9	20.6	140860	8.9	20.2
530001	8.7	21.4	498011	8.7	20.1	440633	8.8	21.9	493993	8.9	20.6	383658	8.9	21.4	165919	8.9	20.2
496960	8.7	19.7	289975	8.7	21.2	545024	8.8	21.8	390138	8.9	21.0	111382	8.9	19.6	98161	8.9	18.1
79117	8.7	18.8	56582	8.7	17.9	269122	8.8	19.9	110042	8.9	19.8	359237	8.9	19.4	236063	8.9	19.3
161222	8.7	20.9	74054	8.7	18.2	17948	8.8	17.2	445544	8.9	20.2	337612	8.9	21.3	15315	8.9	17.2
486043	8.7	21.1	364419	8.7	21.1	504672	8.8	21.6	413541	8.9	20.9	187901	8.9	19.5	124349	8.9	19.8
273072	8.7	20.6	527112	8.7	21.6	464780	8.8	20.3	204895	8.9	19.1	135455	8.9	19.1	452120	8.9	19.9
276282	8.7	20.6	217787	8.7	21.2	256212	8.8	19.8	541586	8.9	20.6	18230	8.9	17.3	351442	8.9	19.3
387055	8.7	21.8	429320	8.7	21.1	104355	8.8	18.7	228280	8.9	20.4	54291	8.9	18.3	395179	8.9	20.4
533208	8.7	22.5	541534	8.7	21.7	488462	8.8	19.9	538888	8.9	21.1	27940	8.9	18.7	456638	8.9	21.8
144913	8.7	19.4	356532	8.7	20.7	54377	8.8	18.5	123226	8.9	19.2	333038	8.9	21.6	532027	8.9	22.4
194306	8.7	20.9	4759	8.7	17.5	268319	8.8	20.1	147348	8.9	20.1	278485	8.9	20.2	463306	8.9	20.3
331813	8.7	20.1	523611	8.7	21.5	469177	8.8	20.5	347669	8.9	21.0	225630	8.9	21.0	43595	8.9	17.3
421972	8.7	21.8	282621	8.7	21.2	258108	8.8	20.7	308238	8.9	19.6	417161	8.9	21.2	336744	8.9	20.5
450123	8.7	20.1	347421	8.7	21.1	392992	8.8	20.8	182174	8.9	19.7	325167	8.9	20.6	311297	8.9	19.1
519393	8.7	20.1	112974	8.7	20.2	100651	8.8	19.9	67398	8.9	19.3	369704	8.9	19.6	82217	8.9	18.4
315648	8.7	20.0	230996	8.7	19.9	251228	8.8	20.0	322869	8.9	21.6	102153	8.9	18.8	62805	8.9	18.8
242147	8.7	18.2	105195	8.7	20.0	367551	8.8	20.8	130760	8.9	18.1	273451	8.9	20.1	508410	8.9	21.7
59188	8.7	18.4	57862	8.7	18.6	161107	8.8	19.6	424721	8.9	20.6	494862	8.9	20.3	483500	8.9	21.2
337384	8.7	21.3	256307	8.7	21.0	492590	8.8	21.9	200836	8.9	20.0	345302	8.9	20.6	137178	8.9	18.8
26839	8.7	18.3	405154	8.7	22.2	432480	8.8	20.0	247583	8.9	20.9	147012	8.9	19.7	148719	8.9	20.0
369307	8.7	21.0	382409	8.7	22.2	433058	8.8	21.0	126191	8.9	20.3	11559	8.9	18.7	450072	8.9	20.8
541801	8.7	22.5	222413	8.7	19.3	270715	8.8	19.9	79181	8.9	19.3	341059	8.9	20.0	419123	8.9	21.3
372446	8.7	20.0	443427	8.7	21.2	403562	8.8	20.9	337820	8.9	21.1	366958	8.9	21.6	178876	8.9	19.9
195319	8.7	20.2	390725	8.7	19.8	424122	8.8	20.9	327427	8.9	20.7	526104	8.9	21.9	532273	8.9	21.1
144321	8.7	19.2	495906	8.7	20.8	541273	8.8	20.5	307350	8.9	20.8	85018	8.9	18.8	328666	9.0	20.3
285986	8.7	20.8	364341	8.8	19.1	468913	8.8	19.5	423556	8.9	20.3	141561	8.9	18.6	390655	9.0	21.2
32474	8.7	17.6	142898	8.8	19.6	412632	8.8	20.4	340009	8.9	21.3	468403	8.9	20.3	347393	9.0	21.7
27451	8.7	18.4	172024	8.8	20.0	108400	8.8	18.8	281831	8.9	20.4	194653	8.9	20.8	323931	9.0	20.1
297496	8.7	20.5	437369	8.8	21.3	532489	8.8	20.9	170605	8.9	17.2	383710	8.9	21.4	56915	9.0	17.6
469790	8.7	20.4	521434	8.8	20.2	486900	8.8	20.4	505175	8.9	20.4	25417	8.9	17.4	319761	9.0	21.3
347054	8.7	18.7	472666	8.8	20.4	434831	8.8	21.5	239029	8.9	19.9	84411	8.9	20.4	177455	9.0	19.9
197304	8.7	18.9	518593	8.8	21.6	226866	8.8	20.3	134858	8.9	20.6	304020	8.9	19.2	252493	9.0	20.2
419147	8.7	21.0	204310	8.8	21.3	124365	8.8	19.3	85785	8.9	20.1	35392	8.9	17.8	279532	9.0	19.9
417180	8.7	21.8	498923	8.8	21.4	222866	8.8	19.7	318479	8.9	20.1	20808	8.9	17.7	60323	9.0	18.8
58913	8.7	19.0	265051	8.8	19.9	237140	8.8	20.0	449229	8.9	21.0	172757	8.9	18.7	283168	9.0	20.0
495805	8.7	20.3	102150	8.8	17.9	246536	8.8	20.8	94874	8.9	19.6	258648	8.9	19.7	429020	9.0	21.1
204370	8.7	20.6	463530	8.8	21.2	390848	8.8	20.8	250176	8.9	19.7	413254	8.9	21.1	446610	9.0	20.2
519104	8.7	20.7	4262	8.8	15.9	52966	8.8	19.4	239512	8.9	19.9	111883	8.9	19.1	269352	9.0	20.1
527407	8.7	21.4	467704	8.8	20.3	273709	8.8	20.4	4846	8.9	17.3	340640	8.9	20.9	538265	9.0	20.7
90841	8.7	19.5	348490	8.8	20.9	302985	8.8	21.1	433011	8.9	20.8	79552	8.9	19.3	125684	9.0	19.7
234557	8.7	19.6	391078	8.8	20.6	520106	8.8	21.4	456436	8.9	22.3	103418	8.9	19.5	247881	9.0	20.9
502652	8.7	20.8	57222	8.8	18.5	339581	8.8	20.5	439220	8.9	21.1	538296	8.9	21.2	146525	9.0	19.4
62315	8.7	18.5	8239	8.8	17.2	458377	8.8	21.7	430610	8.9	21.3	341239	8.9	21.5	29397	9.0	18.6
148128	8.7	19.8	187452	8.8	20.3	134166	8.8	19.4	155987	8.9	19.9	386879	8.9	19.5	3440	9.0	16.5
262679	8.7	20.9	316451	8.8	20.5	379503	8.8	19.5	183456	8.9	18.8	543774	8.9	21.3	284758	9.0	20.6
223763	8.7	20.3	182088	8.8	18.9	364240	8.8	20.7	2155	8.9	16.6	208064	8.9	20.4	177480	9.0	19.5
212799	8.7	20.1	62837	8.8	19.0	119625	8.8	19.4	538037	8.9	21.3	532966	8.9	20.5	295812	9.0	19.1
168481	8.7	20.1	365596	8.8	20.8	444760	8.8	21.2	64858	8.9	18.1	327429	8.9	21.1	302507	9.0	19.4
441583	8.7	20.5	266338	8.8	20.2	422025	8.8	20.6	198905	8.9	19.8	343760	8.9	19.3	256207	9.0	21.2
391055	8.7	19.6	465515	8.8	20.6	80851	8.8	19.0	193898	8.9	19.6	109183	8.9	19.3	229427	9.0	19.1
152403	8.7	20.0	439983	8.8	21.5	182370	8.8	20.5	55029	8.9	18.5	151565	8.9	19.7	500315	9.0	20.4
408910	8.7	22.1	494039	8.8	21.1	277502	8.8	19.9	246585	8.9	19.8	238302	8.9	20.0	246346	9.0	19.8
453704	8.7	21.4	526496	8.8	21.4	92351	8.8	20.0	337020	8.9	20.5	6162	8.9	17.1	442758	9.0	20.9
376673	8.7	21.1	402114	8.8	19.8	206263	8.8	20.4	514074	8.9	21.0	515190	8.9	20.8	45868	9.0	18.8
22911	8.7	17.3	448793	8.8	20.5	186175	8.8	20.6	58674	8.9	19.9	363914	8.9	21.2	465957	9.0	20.2
167606	8.7	19.8	448207	8.8	20.2	326098	8.8	20.4	149403	8.9	20.6	14575	8.9	18.0	146061	9.0	19.7
464341	8.7	20.9	152526	8.8	18.2	392738	8.8	20.9	117002	8.9	18.9	181779	8.9	20.3	63367	9.0	19.5
334646	8.7	20.9	455970	8.8	19.6	152465	8.8	19.7	41651	8.9	19.9	102967	8.9	18.4	69083	9.0	18.5
65617	8.7	19.6	169270	8.8	19.8	131045	8.8	20.1	414958	8.9	21.2	270644	8.9	20.5	405145	9.0	21.4
431605	8.7	20.4	428965	8.8	20.9	490829	8.8	21.2	369414	8.9	21.1	212184	8.9	19.9	249839	9.0	20.5
290521	8.7	20.7	194322	8.8	20.7	163676	8.8	19.9	201945	8.9	19.4	43687	8.9	18.8	182679	9.0	20.2
416316	8.7	20.5	18907	8.8	18.0	460584	8.8	21.1	354538	8.9	21.1	196972	8.9	19.5	197006	9.0	19.9
55188	8.7	19.0	483795	8.8	21.2	427181	8.8	20.4	468264	8.9	21.1	207734	8.9	20.7	462362	9.0	20.7
334601	8.7	21.1	519923	8.8	21.4	411221	8.8	21.2	235527	8.9	20.5	11172	8.9	16.9	105869	9.0	19.2
292742	8.7	20.0	542230	8.8	21.4	49307	8.8	19.1	119392	8.9	18.5	337800	8.9	20.4	151065	9.0	20.1
46286	8.7	18.4	244574	8.8	19.5	233493	8.8	19.2	50347	8.9	18.1	241360	8.9	20.5	120133	9.0	18.4
187231	8.7	20.2	209200	8.8	20.0	15292	8.8	18.1	32093	8.9	18.2	304840	8.9	19.8	488573	9.0	20.4
306279	8.7	20.6	529746	8.8	19.9	433835	8.8	21.4	510825	8.9	20.7	424347	8.9	20.4	518340	9.0	20.8
165390	8.7	19.8	141686	8.8	20.3	142452	8.8	20.1	64987	8.9	18.9	11062	8.9	17.2	277045	9.0	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
543809	9.0	22.5	401152	9.1	21.1	290601	9.2	20.9	444669	9.2	20.2	232004	9.3	19.2	116313	9.4	19.6
88067	9.0	20.8	455873	9.1	20.5	51371	9.2	17.1	76195	9.2	17.9	418263	9.3	19.6	142542	9.4	20.6
403895	9.0	20.5	269944	9.1	20.5	518782	9.2	21.4	17494	9.2	18.5	350206	9.3	20.4	344241	9.4	20.8
459138	9.0	19.8	524299	9.1	21.9	425768	9.2	21.4	227904	9.2	20.2	9481	9.3	16.2	424890	9.4	21.6
371223	9.0	21.0	393703	9.1	21.0	452063	9.2	19.8	331384	9.2	19.6	85340	9.3	18.9	284073	9.4	19.6
502649	9.0	20.6	401959	9.1	21.3	295771	9.2	19.8	316659	9.2	20.3	428480	9.3	20.9	429252	9.4	20.5
389595	9.0	20.2	460357	9.1	21.6	493370	9.2	21.1	273039	9.2	20.9	27616	9.3	18.5	187896	9.4	19.7
13939	9.0	17.6	211018	9.1	20.8	272583	9.2	20.6	419037	9.2	21.2	486744	9.3	20.3	440629	9.4	22.0
500494	9.0	21.7	413502	9.1	20.7	430322	9.2	21.2	290153	9.2	19.8	142522	9.3	19.9	427771	9.4	20.9
136472	9.1	17.2	141469	9.1	19.3	295815	9.2	20.7	79189	9.2	19.7	408902	9.3	21.3	285441	9.4	20.5
111428	9.1	19.7	188994	9.1	19.4	457041	9.2	20.0	348800	9.2	20.6	170049	9.3	19.9	238389	9.4	20.6
412287	9.1	20.2	79808	9.1	19.5	30963	9.2	19.0	199353	9.2	20.3	395162	9.3	20.7	543279	9.4	21.3
379459	9.1	20.8	497726	9.1	21.1	147796	9.2	20.1	138838	9.2	20.2	160819	9.3	20.3	71697	9.4	18.8
137012	9.1	21.0	171663	9.1	19.6	536486	9.2	21.0	209129	9.2	20.7	46436	9.3	17.9	175920	9.4	20.7
55668	9.1	18.9	141848	9.1	20.2	50128	9.2	19.0	271457	9.2	19.3	83755	9.3	18.7	218852	9.4	19.9
205240	9.1	21.5	256739	9.1	19.6	151146	9.2	19.8	176531	9.2	21.3	18877	9.3	17.1	99265	9.4	19.7
202682	9.1	19.5	431217	9.1	20.6	335712	9.2	21.0	159501	9.2	19.8	235426	9.3	19.5	529248	9.4	21.7
20303	9.1	18.2	315459	9.1	20.4	492409	9.2	20.9	316282	9.2	20.6	200728	9.3	20.2	126440	9.4	18.4
143332	9.1	20.6	212644	9.1	20.2	63170	9.2	18.7	522156	9.2	21.0	435242	9.3	20.7	54968	9.4	18.8
84433	9.1	19.7	293690	9.1	19.6	129812	9.2	18.5	134706	9.2	18.8	452484	9.3	19.0	128339	9.4	18.6
273446	9.1	21.1	199393	9.1	20.3	374659	9.2	21.1	174	9.3	12.0	11669	9.3	18.0	118709	9.4	19.7
180922	9.1	20.1	283114	9.1	19.6	111276	9.2	18.6	452906	9.3	20.5	105176	9.3	18.6	37760	9.4	18.3
416870	9.1	21.4	416550	9.1	19.9	417994	9.2	20.6	375613	9.3	21.3	244529	9.3	20.1	156033	9.4	19.4
439222	9.1	21.4	295424	9.1	20.5	362207	9.2	19.7	246050	9.3	20.6	318070	9.3	19.6	461389	9.4	22.0
544717	9.1	20.7	63415	9.1	19.1	446530	9.2	19.7	305680	9.3	20.0	232725	9.3	19.4	188361	9.4	20.1
207688	9.1	20.5	276070	9.1	20.0	224669	9.2	20.0	193211	9.3	20.7	973	9.3	15.1	438117	9.4	21.1
62581	9.1	18.9	97548	9.1	18.8	252468	9.2	20.1	277682	9.3	19.0	395739	9.3	19.2	445130	9.4	20.4
202205	9.1	20.3	141502	9.1	19.1	419126	9.2	20.6	97137	9.3	19.5	17236	9.3	16.6	300274	9.4	20.5
15914	9.1	17.8	345155	9.1	21.1	405021	9.2	21.5	247294	9.3	19.9	280266	9.3	20.7	285716	9.4	20.5
270643	9.1	20.2	398413	9.1	20.8	455881	9.2	20.5	109240	9.3	19.4	207874	9.3	19.5	259872	9.4	19.1
402628	9.1	22.9	282151	9.1	21.1	313487	9.2	20.8	495497	9.3	21.2	125950	9.3	19.4	281861	9.4	19.7
321394	9.1	20.4	294227	9.1	20.9	222302	9.2	20.2	424907	9.3	20.0	52011	9.3	18.3	108847	9.4	19.5
367841	9.1	21.0	39217	9.1	17.1	290664	9.2	20.2	457072	9.3	21.8	101119	9.3	19.8	379119	9.4	21.3
274869	9.1	21.0	141377	9.1	18.5	233852	9.2	20.2	372560	9.3	20.5	199773	9.3	20.4	76242	9.4	18.2
25598	9.1	17.6	543228	9.1	22.2	104600	9.2	18.2	483953	9.3	20.3	78451	9.3	18.0	286046	9.4	21.7
534614	9.1	22.0	329956	9.1	21.0	13777	9.2	18.7	273791	9.3	19.4	141765	9.3	21.2	142837	9.4	19.3
209972	9.1	20.3	408413	9.1	20.5	291976	9.2	20.7	88880	9.3	18.4	42255	9.3	19.1	112933	9.4	19.5
125707	9.1	19.1	35100	9.1	17.6	376166	9.2	20.9	544221	9.3	21.5	541930	9.3	20.0	5229	9.4	17.8
34990	9.1	18.5	27732	9.1	19.5	522658	9.2	21.0	270970	9.3	19.4	101721	9.3	18.4	379956	9.4	19.2
401612	9.1	19.8	433148	9.1	20.7	96585	9.2	18.6	96360	9.3	19.3	219593	9.3	19.0	6829	9.4	17.3
153289	9.1	19.4	196974	9.1	19.5	209511	9.2	20.2	468817	9.3	20.9	78527	9.3	18.7	431540	9.4	20.6
415442	9.1	20.9	239438	9.1	20.5	494964	9.2	21.5	276860	9.3	20.1	297397	9.3	19.5	82895	9.4	18.5
529247	9.1	21.0	319659	9.1	20.5	79059	9.2	19.7	450830	9.3	20.2	544429	9.3	21.2	81544	9.4	18.3
187903	9.1	20.8	217985	9.1	20.0	494694	9.2	20.9	431216	9.3	21.4	538772	9.3	20.9	149286	9.4	20.0
235482	9.1	19.5	232396	9.1	19.6	363826	9.2	21.2	430231	9.3	20.4	156319	9.3	20.4	251091	9.4	20.7
145315	9.1	18.9	482019	9.1	20.7	356047	9.2	19.9	157369	9.3	19.9	134444	9.3	20.4	354409	9.4	20.6
415976	9.1	21.2	89746	9.1	19.6	225122	9.2	19.5	452181	9.3	21.4	240882	9.3	19.3	524942	9.4	19.8
474263	9.1	20.3	500675	9.1	21.2	160421	9.2	19.8	251658	9.3	20.0	312900	9.3	20.4	413688	9.4	20.6
114971	9.1	19.5	335929	9.1	21.4	467536	9.2	21.6	362251	9.3	19.7	540205	9.3	22.7	243476	9.4	20.4
181505	9.1	19.6	381236	9.1	20.4	231726	9.2	19.4	176815	9.3	20.5	287757	9.3	21.1	366379	9.4	20.9
81	9.1	13.3	226120	9.1	21.0	203088	9.2	19.9	24811	9.3	18.5	317182	9.3	20.6	306920	9.4	20.9
369576	9.1	20.5	244554	9.1	20.2	325621	9.2	20.4	418695	9.3	21.2	228693	9.3	21.2	185877	9.4	19.6
448296	9.1	20.6	30466	9.1	18.7	101494	9.2	19.9	462091	9.3	20.2	187002	9.4	19.4	416931	9.4	21.1
82487	9.1	18.7	332813	9.1	19.3	200772	9.2	19.9	275358	9.3	20.1	292423	9.4	20.7	313437	9.4	21.0
80097	9.1	19.1	441599	9.1	21.7	502858	9.2	21.0	206833	9.3	20.2	327412	9.4	21.1	23623	9.4	18.6
341443	9.1	20.4	495397	9.1	21.1	240499	9.2	19.5	6018	9.3	15.3	202300	9.4	18.8	431438	9.4	21.3
238958	9.1	19.5	543325	9.1	21.2	285682	9.2	21.6	429867	9.3	20.7	322390	9.4	20.4	243160	9.4	20.2
272617	9.1	20.5	143261	9.1	19.5	416586	9.2	19.5	320398	9.3	20.4	208390	9.4	20.6	45007	9.4	19.3
341736	9.1	21.1	439990	9.1	21.6	436246	9.2	21.0	523848	9.3	21.2	534272	9.4	21.1	319879	9.4	20.7
393924	9.1	20.8	245948	9.1	20.5	142406	9.2	19.7	380093	9.3	21.1	258322	9.4	19.5	113425	9.4	19.2
423371	9.1	20.2	51411	9.1	18.7	453636	9.2	21.1	258069	9.3	20.8	335896	9.4	20.9	87992	9.4	19.2
295789	9.1	19.9	331698	9.1	21.0	376611	9.2	21.1	122334	9.3	20.4	114263	9.4	19.9	33841	9.4	19.1
417744	9.1	20.8	363145	9.1	20.8	26348	9.2	17.5	74956	9.3	17.8	87744	9.4	18.9	385990	9.4	19.6
401169	9.1	20.3	153112	9.1	19.0	217269	9.2	19.7	493130	9.3	21.1	345916	9.4	22.1	144354	9.4	18.5
460462	9.1	20.7	415853	9.1	22.0	261474	9.2	20.2	40606	9.3	19.5	256118	9.4	19.6	136323	9.4	19.9
81710	9.1	18.7	391007	9.1	20.7	421707	9.2	20.0	262822	9.3	19.4	415819	9.4	21.1	432080	9.4	21.1
335196	9.1	19.2	104937	9.1	19.0	70043	9.2	18.6	134232	9.3	20.0	110963	9.4	18.2	234593	9.4	19.2
152272	9.1	18.0	34186	9.1	19.2	111675	9.2	18.3	152446	9.3	18.3	355896	9.4	20.9	524593	9.4	21.5
483799	9.1	21.5	148909	9.2	19.8	405996	9.2	20.2	27055	9.3	18.6	50227	9.4	18.1	414005	9.4	19.8
293712	9.1	20.1	532940	9.2	21.6	532709	9.2	21.4	424861	9.3	21.9	145914	9.4	20.6	123211	9.4	18.2
334681	9.1	20.1	244214	9.2	20.4	208361	9.2	20.6	99887	9.3	19.6	490770	9.4	20.5	146637	9.4	20

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
19337	9.4	17.9	532790	9.5	20.9	489060	9.6	21.7	214736	9.6	19.2	203305	9.7	20.4	156756	9.8	19.9
433375	9.4	21.3	437415	9.5	20.1	391882	9.6	20.9	496123	9.6	20.7	265859	9.7	19.3	3977	9.8	15.4
228748	9.4	20.8	387301	9.5	20.5	202572	9.6	19.6	350834	9.6	20.0	109264	9.7	19.3	110614	9.8	19.1
184033	9.4	18.7	320662	9.5	20.5	328827	9.6	20.8	114121	9.6	18.9	70500	9.7	19.1	228745	9.8	20.0
453821	9.5	21.6	289170	9.5	19.9	108946	9.6	19.3	426848	9.6	21.5	83611	9.7	18.7	453157	9.8	21.9
229236	9.5	20.2	338973	9.5	20.5	427427	9.6	20.8	281645	9.6	20.5	131936	9.7	19.6	414565	9.8	20.0
334682	9.5	21.0	466621	9.5	20.9	338379	9.6	20.9	340059	9.6	20.2	241185	9.7	19.8	465195	9.8	20.4
543178	9.5	20.5	306286	9.5	21.1	105939	9.6	19.9	74495	9.6	17.8	465704	9.7	21.7	174874	9.8	19.1
14737	9.5	17.3	208385	9.5	20.0	226369	9.6	19.6	244696	9.6	20.6	536	9.7	13.8	57692	9.8	18.9
540332	9.5	20.5	77778	9.5	19.3	316458	9.6	20.0	1266	9.6	14.3	294683	9.7	21.5	384928	9.8	20.2
414915	9.5	20.1	52552	9.5	19.4	114000	9.6	20.2	124362	9.6	18.8	447933	9.7	21.3	364304	9.8	21.4
116123	9.5	19.7	126332	9.5	18.3	362555	9.6	20.0	216665	9.6	19.3	334572	9.7	21.0	78559	9.8	19.0
108965	9.5	18.5	63703	9.5	19.6	232780	9.6	20.9	11030	9.6	18.6	221533	9.7	20.4	345687	9.8	21.3
366924	9.5	21.2	50336	9.5	18.8	140716	9.6	20.1	467571	9.6	21.2	27535	9.7	18.5	240824	9.8	19.1
428481	9.5	21.2	197521	9.5	19.9	298360	9.6	19.4	536577	9.7	21.4	348981	9.7	22.3	109883	9.8	19.7
167022	9.5	19.6	6606	9.5	17.5	18255	9.6	18.4	450029	9.7	22.4	462342	9.7	21.2	297497	9.8	19.6
295614	9.5	20.7	459762	9.5	20.8	116415	9.6	18.8	101719	9.7	18.7	286604	9.7	20.8	42569	9.8	17.2
493167	9.5	20.7	433106	9.5	19.4	1003	9.6	15.2	245040	9.7	19.8	351759	9.7	20.9	368104	9.8	19.7
53877	9.5	18.6	179704	9.5	19.3	394	9.6	14.2	457872	9.7	20.2	148165	9.7	19.7	378982	9.8	20.8
214348	9.5	18.9	63835	9.5	19.8	159149	9.6	20.0	544421	9.7	21.0	190947	9.7	20.6	28605	9.8	18.2
143303	9.5	20.0	462956	9.5	21.2	286490	9.6	20.4	230141	9.7	21.0	527415	9.7	21.1	193872	9.8	20.6
17745	9.5	19.2	252545	9.5	20.2	149630	9.6	18.5	53760	9.7	17.8	3994	9.7	17.2	544690	9.8	22.0
82854	9.5	19.2	363162	9.5	20.6	350966	9.6	20.7	450278	9.7	20.1	544057	9.7	21.6	498219	9.8	21.5
284385	9.5	20.3	52774	9.5	20.4	527657	9.6	22.1	323956	9.7	20.3	311575	9.7	20.5	34938	9.8	19.7
502576	9.5	19.8	532703	9.5	21.9	242785	9.6	20.5	26613	9.7	17.7	335998	9.7	21.8	81866	9.8	18.8
541812	9.5	20.5	245816	9.5	20.0	174499	9.6	20.2	75334	9.7	19.9	158091	9.7	19.7	317587	9.8	21.0
15186	9.5	18.3	495052	9.5	21.7	322358	9.6	20.3	347728	9.7	20.8	167951	9.7	18.3	31868	9.8	16.3
110315	9.5	19.2	522431	9.5	21.3	367585	9.6	21.7	305162	9.7	20.1	237504	9.7	20.4	251256	9.8	20.6
439856	9.5	21.8	312441	9.5	20.7	319962	9.6	20.8	289694	9.7	20.4	165843	9.7	19.6	35312	9.8	19.1
163757	9.5	19.2	404173	9.5	19.7	355911	9.6	21.4	60266	9.7	17.8	269223	9.7	19.8	231070	9.8	20.9
194029	9.5	21.0	355288	9.5	21.1	444441	9.6	20.9	323487	9.7	19.4	392265	9.7	20.0	123287	9.8	20.4
283944	9.5	21.1	252576	9.5	20.9	132656	9.6	19.2	277777	9.7	19.2	233096	9.7	20.0	233477	9.8	19.4
372936	9.5	20.3	239391	9.5	20.3	143116	9.6	19.1	374058	9.7	20.8	340631	9.7	20.9	277292	9.8	20.3
60465	9.5	19.1	267590	9.5	20.9	16391	9.6	19.0	157144	9.7	20.4	522421	9.7	20.9	327459	9.8	20.2
406161	9.5	21.9	176960	9.5	19.6	104484	9.6	18.8	495895	9.7	20.3	518117	9.7	20.3	320943	9.8	19.7
453791	9.5	21.5	10069	9.5	16.6	542765	9.6	20.8	450314	9.7	21.5	415158	9.7	21.2	125616	9.8	19.5
100320	9.5	19.3	543199	9.6	22.3	14407	9.6	18.3	11020	9.7	16.8	348118	9.7	20.3	529246	9.8	19.8
264870	9.5	20.5	122717	9.6	20.4	201280	9.6	20.2	500198	9.7	20.5	251077	9.7	21.0	345191	9.8	20.3
183464	9.5	19.3	267089	9.6	19.3	344595	9.6	19.3	201430	9.7	20.0	455056	9.7	20.5	521134	9.8	21.3
38341	9.5	17.4	320726	9.6	20.5	169166	9.6	20.6	452297	9.7	20.7	8756	9.7	18.7	472498	9.8	20.0
237475	9.5	19.7	239442	9.6	20.2	502448	9.6	20.1	215363	9.7	20.3	2177	9.7	16.6	529311	9.8	20.9
207730	9.5	20.1	70170	9.6	19.9	244540	9.6	20.1	245369	9.7	19.9	110468	9.7	19.7	14794	9.8	18.0
3463	9.5	16.3	523511	9.6	21.0	482013	9.6	21.2	229681	9.7	19.6	237068	9.7	19.7	282472	9.8	19.3
500411	9.5	21.6	264726	9.6	20.0	285966	9.6	20.3	98639	9.7	18.2	532547	9.7	22.0	221383	9.8	21.0
460447	9.5	20.3	327966	9.6	20.9	185578	9.6	20.2	186691	9.7	19.9	541363	9.7	21.1	90177	9.8	17.9
171379	9.5	20.0	154133	9.6	19.6	399521	9.6	21.3	411437	9.7	20.9	467599	9.7	21.1	83779	9.8	19.7
347708	9.5	21.2	282975	9.6	20.5	51656	9.6	18.6	488761	9.7	22.1	110640	9.7	18.1	334130	9.8	20.5
203756	9.5	20.6	55225	9.6	19.0	292726	9.6	20.6	337144	9.7	21.0	456432	9.7	21.7	33341	9.8	17.9
541111	9.5	20.7	229780	9.6	19.9	124427	9.6	19.3	9012	9.7	19.3	69284	9.7	19.4	21411	9.8	17.2
33423	9.5	18.1	87434	9.6	19.3	353314	9.6	20.8	95314	9.7	19.1	424740	9.7	20.9	110759	9.8	19.5
257578	9.5	19.7	544847	9.6	21.0	262676	9.6	19.7	414385	9.7	20.7	377552	9.7	19.6	382862	9.8	18.5
315908	9.5	20.3	125622	9.6	20.0	425422	9.6	20.7	44503	9.7	18.2	544075	9.7	20.9	86503	9.8	19.0
543007	9.5	20.9	331142	9.6	20.4	226089	9.6	20.4	409980	9.7	21.2	466764	9.7	21.2	281302	9.8	20.4
467561	9.5	20.8	456406	9.6	22.1	311041	9.6	21.0	77625	9.7	19.0	224900	9.7	20.3	23270	9.8	19.0
219440	9.5	21.1	151622	9.6	20.2	250223	9.6	21.2	495995	9.7	21.1	10467	9.7	18.5	443869	9.8	21.1
411327	9.5	20.8	429346	9.6	20.0	50819	9.6	18.7	161306	9.7	19.2	250657	9.7	19.6	317374	9.8	21.2
395148	9.5	20.7	43883	9.6	19.9	101091	9.6	19.7	148933	9.7	19.4	93872	9.7	19.2	286435	9.8	19.9
134878	9.5	19.8	525547	9.6	20.5	66425	9.6	18.4	64630	9.7	19.4	111171	9.7	20.0	81789	9.8	19.8
156059	9.5	19.9	229208	9.6	20.7	329928	9.6	21.0	389171	9.7	21.0	187391	9.7	20.2	528782	9.8	22.0
290520	9.5	20.7	489419	9.6	21.6	188776	9.6	20.6	373927	9.7	20.7	15062	9.7	18.0	194446	9.8	21.0
180737	9.5	19.3	142073	9.6	19.9	84512	9.6	19.2	451931	9.7	19.7	453042	9.8	20.8	281388	9.8	20.3
483720	9.5	22.3	329227	9.6	19.7	446755	9.6	20.4	527545	9.7	21.3	85601	9.8	18.9	161211	9.8	19.7
169304	9.5	20.6	179843	9.6	20.7	442612	9.6	20.4	251646	9.7	19.4	85325	9.8	18.6	79969	9.8	22.7
528409	9.5	21.6	27342	9.6	18.5	215190	9.6	19.3	460348	9.7	21.3	163506	9.8	19.8	194114	9.8	19.7
390223	9.5	20.5	284397	9.6	20.4	285773	9.6	21.1	169264	9.7	20.3	308683	9.8	20.1	530611	9.8	21.3
151270	9.5	20.0	275194	9.6	20.5	326989	9.6	20.5	7476	9.7	15.3	307851	9.8	19.9	386842	9.8	20.5
351773	9.5	20.4	84517	9.6	18.9	118580	9.6	18.6	359117	9.7	20.0	531503	9.8	21.4	341914	9.8	20.2
406872	9.5	19.9	117092	9.6	18.6	178072	9.6	20.7	66186	9.7	18.4	49776	9.8	18.2	312283	9.8	19.5
281677	9.5	20.4	402111	9.6	20.8	503026	9.6	20.8	357181	9.7	20.3	494143	9.8	21.2	131058	9.8	19.9
87828	9.5	19.1	57438	9.6	19.5	455376	9.6	22.3	55036	9.7	19.5	35106	9.8	19.2	366228	9.8	21.2
293216	9.5	21.1	174329	9.6	20.1	76816	9.6	18.4	245876	9.7	20.7	14052	9.8	19.1	209943	9.8	19.4
27661																	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
328947	9.8	21.5	334299	9.9	21.4	54052	9.9	18.4	452443	10.0	22.9	173788	10.1	19.2	430615	10.1	21.0
103897	9.8	19.8	497705	9.9	21.1	84193	9.9	19.6	169309	10.0	18.8	372564	10.1	20.8	236903	10.1	19.7
34920	9.8	18.5	224542	9.9	19.9	341785	9.9	21.4	356731	10.0	21.1	269296	10.1	19.5	233726	10.1	20.1
320953	9.8	19.4	181325	9.9	20.7	424991	9.9	20.1	233483	10.0	19.8	56494	10.1	17.9	7103	10.1	16.8
129473	9.8	20.4	109566	9.9	19.8	472359	9.9	20.5	73749	10.0	18.9	337865	10.1	20.3	463796	10.1	20.9
52188	9.8	19.9	98229	9.9	19.7	413602	9.9	20.7	53097	10.0	18.6	517575	10.1	22.1	234508	10.1	18.9
543383	9.9	21.0	125664	9.9	20.8	300325	9.9	21.0	197992	10.0	19.5	500356	10.1	22.1	241592	10.1	19.0
155635	9.9	17.5	233795	9.9	19.3	235459	9.9	20.1	317598	10.0	20.9	190192	10.1	20.8	194756	10.2	20.0
144632	9.9	20.9	496088	9.9	21.8	163389	9.9	20.5	89222	10.0	18.9	278470	10.1	20.2	79293	10.2	19.9
456914	9.9	21.3	142397	9.9	20.9	64991	9.9	19.7	187273	10.0	20.6	337764	10.1	20.9	196393	10.2	18.9
520962	9.9	21.0	58992	9.9	19.4	456346	9.9	22.0	370533	10.0	21.7	297402	10.1	20.8	40341	10.2	19.3
77459	9.9	18.8	422621	9.9	21.3	260088	9.9	19.6	139318	10.0	18.5	30778	10.1	18.2	210041	10.2	21.0
409667	9.9	20.4	163641	9.9	20.3	240833	9.9	20.1	183126	10.0	19.7	95760	10.1	17.9	250232	10.2	21.2
233595	9.9	19.8	254661	9.9	20.2	208453	9.9	19.8	378709	10.0	20.0	57014	10.1	19.3	71654	10.2	18.3
458732	9.9	23.2	521021	9.9	20.8	272837	9.9	20.3	18815	10.0	17.1	294612	10.1	20.1	286183	10.2	20.3
405183	9.9	21.4	80831	9.9	17.6	466283	9.9	21.1	432565	10.0	19.7	428847	10.1	21.0	222293	10.2	20.3
133006	9.9	19.9	32282	9.9	19.1	327393	9.9	20.9	465593	10.0	20.7	362214	10.1	20.0	64776	10.2	19.1
151245	9.9	19.9	247067	9.9	20.6	415992	9.9	20.3	98876	10.0	19.4	206259	10.1	19.5	65516	10.2	19.8
341499	9.9	21.1	38879	9.9	18.7	441542	9.9	22.1	516156	10.0	20.6	347206	10.1	19.8	535909	10.2	21.4
200611	9.9	20.5	121898	9.9	19.6	490219	9.9	21.2	485020	10.0	21.7	222159	10.1	20.5	327023	10.2	19.8
187695	9.9	19.9	219467	9.9	20.3	347092	9.9	20.7	544312	10.0	21.2	271728	10.1	20.0	444189	10.2	20.1
363360	9.9	22.0	428937	9.9	21.3	140685	9.9	19.7	299495	10.0	19.4	411716	10.1	20.6	26792	10.2	16.5
444445	9.9	20.6	262361	9.9	20.0	16640	9.9	18.7	375506	10.0	20.4	193938	10.1	20.8	161016	10.2	19.5
139529	9.9	20.2	489767	9.9	21.1	348459	9.9	20.7	389312	10.0	21.0	457171	10.1	20.4	319584	10.2	21.0
340033	9.9	20.9	423487	9.9	21.7	463682	9.9	21.4	447012	10.0	18.8	134823	10.1	20.1	133560	10.2	19.4
56673	9.9	18.8	338207	9.9	20.9	30565	9.9	17.9	142734	10.0	19.4	109586	10.1	19.0	169137	10.2	20.6
439032	9.9	19.7	329566	9.9	21.9	412038	9.9	20.5	37436	10.0	19.1	363019	10.1	21.4	459830	10.2	20.8
290394	9.9	20.2	171940	9.9	20.6	430243	9.9	20.9	169174	10.0	20.3	7474	10.1	20.0	63570	10.2	18.9
416927	9.9	20.9	264246	9.9	20.5	533775	9.9	21.5	54305	10.0	18.5	222361	10.1	20.7	360605	10.2	20.3
95479	9.9	18.5	27297	9.9	16.8	180600	9.9	20.2	4458	10.0	16.6	354532	10.1	21.7	91327	10.2	17.4
422787	9.9	22.2	425364	9.9	20.3	423539	9.9	21.5	483749	10.0	20.8	92589	10.1	18.9	206710	10.2	20.5
387085	9.9	20.5	170356	9.9	19.6	101296	9.9	20.1	223274	10.1	19.0	13925	10.1	17.2	212999	10.2	20.6
539817	9.9	19.5	407546	9.9	21.5	195013	9.9	19.0	7519	10.1	18.9	148958	10.1	19.2	116987	10.2	18.5
340654	9.9	21.4	121248	9.9	20.8	377291	9.9	20.2	461953	10.1	21.3	132778	10.1	19.5	378953	10.2	20.9
526129	9.9	21.6	205452	9.9	20.6	327878	9.9	19.9	391777	10.1	21.3	151185	10.1	19.2	194647	10.2	19.8
318364	9.9	20.7	483390	9.9	21.8	42177	9.9	19.2	429322	10.1	19.6	233714	10.1	20.5	490232	10.2	22.6
423537	9.9	21.5	365343	9.9	20.8	415830	9.9	21.4	55810	10.1	18.9	47304	10.1	17.4	296913	10.2	20.4
400777	9.9	20.1	277143	9.9	20.6	66003	9.9	17.4	146404	10.1	19.6	258149	10.1	19.7	124337	10.2	19.8
144167	9.9	19.0	91528	9.9	18.1	447981	9.9	20.2	191167	10.1	19.1	296933	10.1	20.3	358471	10.2	21.7
365920	9.9	20.0	8085	9.9	17.2	296013	9.9	20.7	233051	10.1	19.4	5954	10.1	15.8	426714	10.2	20.5
445033	9.9	20.9	132007	9.9	18.5	239244	9.9	19.4	100264	10.1	19.1	77587	10.1	17.8	53833	10.2	18.4
335888	9.9	21.1	26403	9.9	17.7	167586	9.9	18.9	536119	10.1	21.6	226835	10.1	20.4	524276	10.2	22.3
59951	9.9	19.4	540028	9.9	20.4	354584	9.9	20.9	417142	10.1	20.5	346023	10.1	21.0	304999	10.2	19.7
450572	9.9	20.1	243337	9.9	20.5	426902	9.9	20.3	272945	10.1	20.6	109127	10.1	19.3	232982	10.2	19.6
524890	9.9	20.3	38898	9.9	19.2	247642	9.9	19.4	130254	10.1	19.2	423183	10.1	20.3	194483	10.2	20.5
202013	9.9	20.5	439937	9.9	21.6	32373	9.9	18.7	502497	10.1	20.9	486412	10.1	20.9	56297	10.2	18.3
58604	9.9	18.8	54424	9.9	19.1	531318	9.9	21.6	69965	10.1	19.8	427794	10.1	20.1	523534	10.2	21.2
81984	9.9	18.6	238516	9.9	20.8	291683	9.9	20.1	29240	10.1	17.7	225098	10.1	19.3	418319	10.2	20.8
467135	9.9	20.9	364384	9.9	19.4	429248	9.9	20.8	52217	10.1	17.6	374009	10.1	20.0	389792	10.2	20.9
267086	9.9	19.8	463470	9.9	21.5	402685	9.9	22.1	418582	10.1	20.4	226263	10.1	20.0	94140	10.2	19.1
335298	9.9	20.9	376425	9.9	20.6	242111	9.9	19.8	383394	10.1	20.3	481713	10.1	21.1	399999	10.2	20.0
40515	9.9	18.9	317026	9.9	19.9	252041	9.9	19.9	258865	10.1	21.7	174895	10.1	19.8	566600	10.2	21.4
213706	9.9	19.9	169319	9.9	19.8	166869	9.9	19.6	92745	10.1	19.9	201753	10.1	19.7	458804	10.2	21.8
28627	9.9	17.9	67113	9.9	18.8	215915	10.0	20.0	155612	10.1	19.8	496026	10.1	21.1	84520	10.2	19.1
95304	9.9	19.5	138527	9.9	20.1	53784	10.0	18.2	466327	10.1	21.5	424857	10.1	20.4	541412	10.2	20.4
173903	9.9	19.8	463613	9.9	20.5	27468	10.0	18.0	364287	10.1	20.5	142643	10.1	19.9	382665	10.2	21.1
343362	9.9	20.5	255915	9.9	20.5	301819	10.0	20.4	320477	10.1	20.2	404532	10.1	21.5	326035	10.2	20.4
151182	9.9	19.7	544330	9.9	20.8	48436	10.0	19.6	491644	10.1	20.3	519555	10.1	21.3	486097	10.2	20.9
95320	9.9	19.1	208443	9.9	21.0	155480	10.0	19.5	322792	10.1	21.2	210085	10.1	19.9	72903	10.2	19.0
253069	9.9	22.5	105349	9.9	20.6	401975	10.0	22.5	502650	10.1	21.0	47263	10.1	18.0	426540	10.2	20.9
122256	9.9	18.8	136763	9.9	19.1	168369	10.0	19.9	487636	10.1	21.0	89606	10.1	19.8	250183	10.2	20.4
27609	9.9	19.0	461041	9.9	20.8	379126	10.0	20.8	345060	10.1	20.2	502204	10.1	20.4	239413	10.2	20.2
2630	9.9	16.7	176282	9.9	20.0	128361	10.0	19.5	265389	10.1	20.0	453269	10.1	21.8	252567	10.2	18.7
494651	9.9	19.6	439928	9.9	22.5	498980	10.0	21.7	27192	10.1	17.4	453137	10.1	20.4	298425	10.2	18.9
344527	9.9	20.7	84352	9.9	19.1	241960	10.0	19.5	142967	10.1	20.9	309293	10.1	19.9	368533	10.2	20.5
141798	9.9	20.1	459132	9.9	20.6	83541	10.0	18.5	2010	10.1	16.6	144106	10.1	18.1	528789	10.2	21.9
306546	9.9	20.2	363148	9.9	20.9	379015	10.0	21.2	95053	10.1	19.1	313482	10.1	21.1	250195	10.2	20.9
71763	9.9	18.2	206820	9.9	20.1	202231	10.0	20.2	206713	10.1	18.8	396790	10.1	19.4	95520	10.2	19.1
57606	9.9	19.4	8439	9.9	17.7	458241	10.0	21.3	127585	10.1	19.6	80650	10.1	19.6	178317	10.2	19.2
279408	9.9	20.6	233135	9.9	20.2	332566	10.0	20.6	34260	10.1	18.8	329040					

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
180696	10.2	19.9	146532	10.3	19.9	206978	10.3	20.6	107136	10.4	18.2	324377	10.5	20.9	327947	10.5	20.5
146333	10.2	19.9	108809	10.3	19.2	194787	10.3	19.0	164402	10.4	19.5	223719	10.5	20.5	444298	10.5	22.6
485145	10.2	20.1	329815	10.3	21.6	152008	10.3	19.0	403095	10.4	20.4	493020	10.5	21.0	277988	10.5	21.1
497633	10.2	21.7	539012	10.3	20.6	81474	10.3	19.1	194001	10.4	20.2	110937	10.5	19.3	205279	10.5	20.6
370582	10.2	21.0	85378	10.3	18.3	268623	10.3	20.1	9036	10.4	18.9	341263	10.5	20.9	212788	10.5	21.0
381271	10.2	19.7	544422	10.3	21.7	169244	10.3	20.9	466752	10.4	20.7	138259	10.5	18.8	63492	10.5	19.2
536585	10.2	21.3	446992	10.3	21.2	189994	10.3	19.0	412511	10.4	20.7	398666	10.5	19.7	1037	10.5	17.1
116156	10.2	18.3	7757	10.3	16.5	304971	10.3	20.7	330483	10.4	20.0	465807	10.5	20.3	415765	10.5	21.6
467808	10.2	19.9	347691	10.3	20.2	241552	10.3	18.5	467544	10.4	21.6	354989	10.5	19.8	244014	10.5	20.4
304790	10.2	21.1	536738	10.3	21.0	56867	10.3	19.1	26332	10.4	18.6	440343	10.5	21.3	458378	10.5	21.6
50930	10.2	18.7	458364	10.3	21.4	250115	10.3	18.4	144652	10.4	19.3	205909	10.5	19.7	443172	10.5	20.3
495544	10.2	21.7	217980	10.3	19.6	532852	10.3	20.4	474015	10.4	20.2	382342	10.5	20.4	45992	10.5	18.4
275033	10.2	21.0	441495	10.3	22.1	388489	10.3	19.4	82803	10.4	20.2	15223	10.5	19.2	120868	10.5	20.9
243703	10.2	18.6	177139	10.3	20.0	465531	10.3	20.0	309237	10.4	21.0	270608	10.5	20.1	537946	10.5	20.7
428995	10.2	21.5	132234	10.3	19.4	447744	10.3	20.6	82199	10.4	18.6	395317	10.5	21.8	162052	10.5	20.1
164145	10.2	19.8	408245	10.3	20.0	304804	10.3	21.1	426465	10.4	20.6	150907	10.5	19.7	312970	10.5	21.4
399781	10.2	21.8	6630	10.3	16.7	180047	10.3	18.7	318367	10.4	20.9	220584	10.5	19.5	462922	10.5	21.9
495479	10.2	21.2	296802	10.3	20.4	491122	10.3	21.4	56781	10.4	19.1	310881	10.5	20.7	185868	10.5	19.5
88180	10.2	20.0	240880	10.3	19.9	286205	10.3	20.6	331265	10.4	21.7	399509	10.5	21.7	13955	10.6	19.8
92920	10.2	19.5	511623	10.3	21.2	56260	10.3	18.1	116704	10.4	19.2	118784	10.5	18.3	20327	10.6	18.4
388414	10.2	21.1	29377	10.3	18.0	398907	10.4	19.9	114943	10.4	20.1	109852	10.5	18.6	78034	10.6	19.2
90357	10.2	19.6	385001	10.3	20.6	533835	10.4	22.5	161095	10.4	19.8	125886	10.5	19.9	345277	10.6	21.0
337643	10.2	21.1	536941	10.3	21.8	235511	10.4	19.9	350653	10.4	20.1	286275	10.5	19.3	222400	10.6	19.0
171134	10.2	19.1	337708	10.3	20.1	146582	10.4	18.7	104400	10.4	19.1	148765	10.5	19.9	236290	10.6	18.6
410085	10.2	21.6	52604	10.3	19.0	104150	10.4	19.4	320603	10.4	20.6	399432	10.5	19.4	72150	10.6	18.9
82370	10.2	19.4	195090	10.3	18.7	56480	10.4	18.2	27994	10.4	17.9	441681	10.5	21.7	500483	10.6	19.8
461698	10.2	20.8	113815	10.3	20.1	494184	10.4	19.8	397130	10.4	20.4	387803	10.5	21.7	201964	10.6	20.9
25523	10.2	18.6	88222	10.3	19.9	133109	10.4	19.5	234423	10.4	20.3	411271	10.5	21.3	185275	10.6	20.1
307418	10.2	21.2	201200	10.3	20.1	428875	10.4	21.3	135974	10.4	19.6	29293	10.5	18.2	191336	10.6	20.3
453143	10.2	21.2	87083	10.3	19.2	544849	10.4	21.5	240755	10.4	19.7	45484	10.5	18.7	7719	10.6	17.9
407943	10.2	20.9	416211	10.3	21.8	417578	10.4	20.5	508587	10.4	21.4	179988	10.5	19.7	372615	10.6	21.1
503528	10.2	21.2	419841	10.3	21.3	500388	10.4	20.9	232375	10.4	20.1	269784	10.5	20.9	2234	10.6	15.6
472568	10.2	20.6	456944	10.3	22.2	114942	10.4	20.0	332973	10.4	20.2	155393	10.5	20.9	375544	10.6	20.8
521112	10.2	20.5	264168	10.3	21.0	121333	10.4	20.0	68076	10.4	19.2	293855	10.5	19.7	226625	10.6	19.1
106423	10.2	19.2	139388	10.3	17.8	314165	10.4	19.7	312269	10.4	19.6	330841	10.5	21.0	378429	10.6	20.1
151275	10.2	20.1	465407	10.3	20.5	486500	10.4	19.2	84591	10.4	19.2	19908	10.5	18.4	483412	10.6	21.3
116249	10.2	20.3	248838	10.3	20.1	177502	10.4	18.9	89313	10.4	19.4	464110	10.5	21.6	438067	10.6	21.7
351279	10.2	20.1	450852	10.3	21.2	275013	10.4	20.9	542558	10.4	21.9	376056	10.5	19.9	496916	10.6	20.7
54912	10.2	18.9	113755	10.3	19.6	279867	10.4	20.4	491241	10.4	20.4	492751	10.5	21.3	354524	10.6	21.0
447031	10.2	21.9	244074	10.3	20.4	186044	10.4	20.0	155810	10.4	19.4	443450	10.5	19.7	417162	10.6	21.6
489430	10.2	21.7	134454	10.3	20.9	117635	10.4	19.1	464540	10.4	20.0	458993	10.5	21.9	221375	10.6	20.4
69598	10.2	17.7	308443	10.3	19.8	325551	10.4	20.1	202079	10.4	20.9	61653	10.5	19.0	208332	10.6	20.7
380375	10.2	21.2	85912	10.3	18.7	293668	10.4	20.5	502778	10.4	20.6	244603	10.5	20.6	339981	10.6	20.4
383340	10.2	21.1	256193	10.3	21.1	138630	10.4	19.6	169249	10.4	19.7	271803	10.5	20.6	188333	10.6	19.3
292034	10.2	20.8	188298	10.3	18.9	372607	10.4	21.3	296052	10.4	20.5	472660	10.5	20.4	108367	10.6	18.8
258178	10.2	21.7	241459	10.3	19.7	381970	10.4	20.2	38337	10.4	18.4	135894	10.5	19.7	114106	10.6	18.9
48330	10.2	19.8	407900	10.3	21.4	403122	10.4	20.2	169315	10.4	19.8	451005	10.5	21.6	88052	10.6	20.1
443857	10.2	21.2	2974	10.3	16.5	415104	10.4	19.3	416905	10.4	21.7	421696	10.5	22.1	345159	10.6	21.0
189337	10.2	20.2	125715	10.3	19.4	306856	10.4	20.2	327451	10.4	21.0	257885	10.5	20.4	245560	10.6	20.4
242087	10.2	21.0	449686	10.3	20.0	424743	10.4	19.8	161667	10.4	20.0	316720	10.5	20.6	148821	10.6	20.3
425461	10.2	20.5	315555	10.3	20.1	370846	10.4	20.8	248233	10.4	19.3	47737	10.5	19.4	416524	10.6	20.3
446754	10.2	20.9	64288	10.3	18.6	156459	10.4	19.5	133311	10.4	19.9	466052	10.5	20.8	488557	10.6	22.2
359993	10.2	20.6	535553	10.3	20.8	319530	10.4	21.2	104560	10.4	19.3	118273	10.5	19.9	358090	10.6	20.2
312302	10.2	20.9	382842	10.3	20.8	204538	10.4	20.2	217425	10.4	20.1	102059	10.5	20.0	180484	10.6	19.4
58675	10.2	18.7	270490	10.3	20.8	528348	10.4	21.6	25052	10.4	19.1	172617	10.5	19.8	363180	10.6	21.5
26634	10.2	18.9	66645	10.3	19.7	170860	10.4	18.7	394891	10.4	21.9	455559	10.5	20.5	369960	10.6	21.4
154048	10.2	18.9	69085	10.3	19.4	289136	10.4	20.5	448974	10.4	20.1	224813	10.5	20.6	198488	10.6	20.7
169216	10.2	20.6	88721	10.3	18.6	461797	10.4	21.4	424330	10.4	20.0	308724	10.5	19.9	111137	10.6	20.1
350455	10.2	21.3	140842	10.3	19.7	536378	10.4	21.1	197909	10.4	21.1	534000	10.5	21.4	383732	10.6	21.1
493411	10.2	20.4	343622	10.3	20.2	36764	10.4	18.6	201193	10.4	19.8	87598	10.5	19.7	343049	10.6	20.7
76047	10.3	18.8	39619	10.3	17.5	258500	10.4	19.5	129504	10.4	20.3	130168	10.5	18.6	218670	10.6	20.3
154429	10.3	19.7	444197	10.3	21.7	290312	10.4	20.6	334595	10.4	20.7	205242	10.5	19.9	61597	10.6	19.0
500523	10.3	21.2	168174	10.3	19.3	212095	10.4	19.6	376026	10.4	19.9	456477	10.5	22.1	493874	10.6	22.0
135725	10.3	19.6	15901	10.3	17.2	31602	10.4	18.2	379515	10.5	19.8	383657	10.5	21.6	376288	10.6	20.3
343077	10.3	20.6	99224	10.3	19.0	432174	10.4	20.7	391398	10.5	20.2	109378	10.5	19.4	497981	10.6	19.9
412015	10.3	19.7	88763	10.3	19.1	294043	10.4	20.6	2438	10.5	14.8	198764	10.5	20.3	405142	10.6	22.1
464822	10.3	21.3	141501	10.3	19.1	123191	10.4	20.2	535490	10.5	20.8	94749	10.5	19.8	426912	10.6	20.5
87362	10.3	19.8	219400	10.3	19.3	390697	10.4	19.7	57426	10.5	19.5	418391	10.5	19.9	234903	10.6	20.4
161851	10.3	19.1	455219	10.3	21.7	424702	10.4	21.1	2161								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
379453	10.6	20.8	406180	10.7	22.0	274927	10.7	21.0	246610	10.8	20.3	366195	10.8	20.4	500631	10.9	20.6
347423	10.6	20.1	426284	10.7	20.6	423518	10.7	20.5	294634	10.8	20.6	419092	10.8	20.7	375765	10.9	19.6
522348	10.6	20.1	46586	10.7	20.0	236042	10.7	20.3	240890	10.8	20.1	59694	10.8	19.0	319786	10.9	20.4
125806	10.6	19.8	197478	10.7	19.5	419870	10.7	20.4	102747	10.8	19.2	219462	10.8	20.3	196831	10.9	20.6
209163	10.6	20.8	511517	10.7	20.7	172565	10.7	22.1	203064	10.8	20.2	159226	10.8	20.2	377248	10.9	21.2
208467	10.6	21.3	491208	10.7	21.0	369854	10.7	21.0	494745	10.8	21.7	11047	10.8	18.5	406038	10.9	21.4
163622	10.6	19.6	536696	10.7	20.5	27469	10.7	18.2	291264	10.8	20.4	74847	10.8	18.6	3229	10.9	16.2
246912	10.6	20.1	527698	10.7	20.8	422684	10.7	21.3	167547	10.8	19.8	236945	10.9	19.8	467994	10.9	20.4
185643	10.6	20.1	76426	10.7	18.1	378972	10.7	21.0	394110	10.8	20.6	429742	10.9	20.9	365712	10.9	20.6
385268	10.6	22.5	101724	10.7	18.1	425456	10.7	21.2	323978	10.8	19.9	301673	10.9	20.2	40541	10.9	19.0
134470	10.6	20.6	356560	10.7	20.4	331499	10.7	19.3	23888	10.8	18.0	421818	10.9	21.8	319641	10.9	21.0
18742	10.6	15.8	375538	10.7	20.2	534939	10.7	20.5	242018	10.8	20.6	492696	10.9	20.7	165773	10.9	19.9
185695	10.6	20.5	75282	10.7	18.6	30781	10.7	18.0	23186	10.8	16.7	455272	10.9	20.6	50698	10.9	18.5
350725	10.6	20.5	114870	10.7	20.0	314647	10.7	19.8	485448	10.8	20.6	376704	10.9	21.1	128463	10.9	19.3
535744	10.6	20.9	291874	10.7	21.0	489930	10.7	22.4	460010	10.8	21.1	307411	10.9	20.0	467605	10.9	21.5
56799	10.6	18.7	158659	10.7	19.6	219868	10.7	20.3	181652	10.8	20.7	369113	10.9	20.5	456468	10.9	21.9
461801	10.6	21.0	341663	10.7	20.7	540251	10.7	20.8	289101	10.8	20.5	202398	10.9	19.8	34159	10.9	17.7
359673	10.6	20.8	162740	10.7	23.5	83011	10.7	19.2	402660	10.8	21.3	218596	10.9	19.1	269794	10.9	19.9
471106	10.6	21.3	530479	10.7	20.9	413900	10.7	21.3	185191	10.8	20.6	236918	10.9	20.6	534904	10.9	21.7
238795	10.6	19.4	204888	10.7	20.0	29237	10.7	17.8	55906	10.8	18.7	465601	10.9	20.6	135257	10.9	19.3
291473	10.6	20.6	352883	10.7	20.6	260854	10.7	20.4	13969	10.8	18.0	187394	10.9	20.0	502136	10.9	20.7
106505	10.6	19.5	58577	10.7	18.3	227719	10.7	19.5	239254	10.8	20.4	485441	10.9	20.4	312152	10.9	18.9
104187	10.6	20.2	182438	10.7	20.5	402726	10.7	21.6	83021	10.8	19.5	87483	10.9	18.6	169112	10.9	20.2
64133	10.6	19.9	65869	10.7	19.5	32035	10.7	17.9	201977	10.8	20.9	160792	10.9	20.0	393644	10.9	21.5
194391	10.6	19.4	48493	10.7	18.6	401722	10.7	20.2	167048	10.8	20.0	300322	10.9	19.9	235085	10.9	19.3
530504	10.6	20.7	77694	10.7	18.8	20199	10.7	17.9	493780	10.8	21.8	30662	10.9	17.7	183368	10.9	18.8
116997	10.6	18.6	363568	10.7	19.1	299056	10.7	19.8	351295	10.8	21.4	145631	10.9	20.4	206205	10.9	19.9
339701	10.6	20.8	327359	10.7	20.5	118705	10.7	19.7	448082	10.8	20.2	438880	10.9	21.6	238562	10.9	19.4
422111	10.6	22.1	521015	10.7	21.3	183280	10.7	20.6	31585	10.8	17.4	310024	10.9	21.4	324033	10.9	20.3
228403	10.6	19.8	271395	10.7	19.5	466248	10.7	21.2	463708	10.8	22.4	105724	10.9	20.2	5108	10.9	17.3
396549	10.6	20.8	406189	10.7	21.5	117026	10.8	19.6	158308	10.8	19.6	112791	10.9	20.2	323089	10.9	22.2
83462	10.6	19.1	454284	10.7	20.7	52631	10.8	19.1	61725	10.8	17.8	525013	10.9	21.6	7180	10.9	17.9
324650	10.6	19.3	249551	10.7	20.2	253875	10.8	19.0	424269	10.8	20.0	299368	10.9	20.8	242207	10.9	20.8
207658	10.6	20.6	466361	10.7	21.3	166879	10.8	20.5	255957	10.8	20.6	227171	10.9	20.4	458793	10.9	20.6
115655	10.6	19.2	10870	10.7	19.0	264780	10.8	19.3	51769	10.8	19.5	356304	10.9	19.9	355936	10.9	20.0
109626	10.6	20.1	340565	10.7	21.3	71362	10.8	18.9	134886	10.8	19.9	306243	10.9	20.7	57866	10.9	17.9
532844	10.6	20.8	495929	10.7	22.0	503063	10.8	20.2	325951	10.8	21.4	494737	10.9	21.4	433256	10.9	20.5
8446	10.6	18.6	11921	10.7	16.6	495939	10.8	22.0	133433	10.8	20.4	500662	10.9	21.7	265121	10.9	20.8
292103	10.6	20.6	519358	10.7	20.6	369302	10.8	21.5	148941	10.8	20.3	429948	10.9	20.5	456550	10.9	21.5
406205	10.6	21.7	373335	10.7	20.6	328996	10.8	20.5	184798	10.8	19.9	215475	10.9	20.9	278050	10.9	19.8
286309	10.6	20.1	65365	10.7	19.8	496737	10.8	20.5	257233	10.8	20.4	49533	10.9	18.3	110454	10.9	19.3
254623	10.6	20.7	431639	10.7	21.2	399512	10.8	22.2	131284	10.8	19.0	145813	10.9	20.2	494205	10.9	20.7
147155	10.6	19.7	226918	10.7	20.1	148875	10.8	20.3	373872	10.8	20.1	443999	10.9	21.6	172802	10.9	20.2
132232	10.6	18.3	109359	10.7	19.6	377570	10.8	20.2	281212	10.8	18.9	218283	10.9	19.0	120965	10.9	19.9
244104	10.6	19.9	56868	10.7	18.3	304800	10.8	21.0	226795	10.8	20.0	375407	10.9	21.5	328287	10.9	20.3
353687	10.6	20.3	352715	10.7	21.5	19991	10.8	18.4	325827	10.8	21.1	219419	10.9	20.3	144545	10.9	19.2
249843	10.6	20.5	158637	10.7	19.2	99946	10.8	18.7	538019	10.8	20.3	369085	10.9	19.9	414239	10.9	20.1
242644	10.6	19.6	88947	10.7	19.0	172955	10.8	19.6	244876	10.8	20.2	95210	10.9	17.9	407859	10.9	21.6
507597	10.6	20.7	12325	10.7	16.8	541852	10.8	22.3	202922	10.8	18.4	258409	10.9	20.8	344274	10.9	21.2
347364	10.6	21.0	317128	10.7	20.3	534469	10.8	20.9	419290	10.8	20.7	156143	10.9	19.8	187336	10.9	20.0
219378	10.6	19.8	316837	10.7	20.0	393430	10.8	20.8	275535	10.8	20.8	138670	10.9	19.1	221317	10.9	19.6
245890	10.6	20.9	401677	10.7	20.8	440020	10.8	21.8	526993	10.8	21.7	73027	10.9	19.6	215731	10.9	19.3
134094	10.6	20.4	198842	10.7	19.9	306195	10.8	21.6	322927	10.8	20.4	36342	10.9	19.7	108324	10.9	19.8
447763	10.6	21.1	169363	10.7	21.2	377507	10.8	20.8	346959	10.8	20.6	429932	10.9	20.1	54086	10.9	19.2
489607	10.6	21.5	59515	10.7	18.5	7480	10.8	19.3	460366	10.8	21.3	124165	10.9	20.2	194072	10.9	21.0
122703	10.6	20.0	375413	10.7	21.1	125502	10.8	20.1	398465	10.8	20.7	498176	10.9	21.4	205516	10.9	20.7
494874	10.6	20.4	50897	10.7	18.8	409970	10.8	21.5	419549	10.8	20.0	233304	10.9	20.6	462836	10.9	21.5
458262	10.6	22.2	150500	10.7	19.0	187263	10.8	20.5	205636	10.8	20.8	283760	10.9	19.7	227952	10.9	19.7
402582	10.6	22.4	517569	10.7	20.7	58112	10.8	17.9	157970	10.8	19.7	422608	10.9	21.0	241123	10.9	19.6
190722	10.6	20.0	375440	10.7	21.4	16217	10.8	19.4	159368	10.8	21.4	55611	10.9	18.5	106705	10.9	18.8
10098	10.6	17.4	448215	10.7	20.4	79491	10.8	18.9	5551	10.8	16.1	251224	10.9	20.2	321781	10.9	20.6
364321	10.6	21.0	272977	10.7	20.9	419997	10.8	21.5	204860	10.8	20.0	429305	10.9	19.8	75197	10.9	18.9
80744	10.6	19.4	541202	10.7	21.2	235680	10.8	20.6	279659	10.8	19.1	322606	10.9	19.8	204301	10.9	20.7
337809	10.6	20.4	350232	10.7	20.7	336537	10.8	20.7	494529	10.8	20.8	195754	10.9	20.4	486594	10.9	19.2
138834	10.6	19.6	18515	10.7	18.1	55121	10.8	19.1	439487	10.8	21.5	419825	10.9	21.1	7044	10.9	17.6
194185	10.6	20.0	150389	10.7	19.6	314753	10.8	20.5	428184	10.8	20.3	49659	10.9	17.4	83905	10.9	19.3
542880	10.6	20.6	178880	10.7	19.2	425354	10.8	20.2	520625	10.8	20.8	189302	10.9	20.3	288569	10.9	19.6
20728	10.6	18.1	269456	10.7	20.4	87788	10.8	20.5	453825	10.8	21.9	367202	10.9	20.8	27175	10.9	17.8
496500	10.6	21.5	424771	10.7	21.0	526567	10.8	22.4	529299</								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
393638	10.9	21.7	327432	11.0	20.5	194227	11.1	19.9	280898	11.2	20.6	80441	11.2	18.8	448191	11.3	19.9
128557	10.9	20.1	226337	11.0	19.1	216973	11.1	18.9	448188	11.2	20.4	445946	11.2	20.9	3489	11.3	16.5
291159	10.9	20.9	523328	11.0	21.5	295016	11.1	19.5	331389	11.2	20.2	258252	11.2	20.4	465979	11.3	20.5
294486	10.9	19.3	544024	11.1	21.3	6423	11.1	17.7	61078	11.2	18.9	193957	11.3	20.0	69078	11.3	19.5
527273	10.9	21.9	385251	11.1	20.8	2915	11.1	17.4	31478	11.2	17.3	482950	11.3	19.8	120004	11.3	19.4
543680	10.9	21.5	503701	11.1	20.6	4845	11.1	15.9	483753	11.2	21.2	250197	11.3	20.5	236742	11.3	19.5
223808	10.9	19.2	312382	11.1	19.8	417675	11.1	20.5	85572	11.2	18.3	391147	11.3	20.8	411321	11.3	20.8
331335	10.9	20.8	428434	11.1	20.5	456925	11.1	20.4	57674	11.2	18.8	76531	11.3	18.9	250163	11.3	21.3
177396	10.9	18.3	197483	11.1	19.4	403346	11.1	20.5	273915	11.2	20.4	289100	11.3	21.0	31936	11.3	18.0
387532	10.9	19.0	241220	11.1	20.7	44586	11.1	18.5	77171	11.2	18.1	498195	11.3	21.5	360743	11.3	21.2
527445	10.9	22.5	188211	11.1	20.3	443858	11.1	21.6	145759	11.2	19.5	244060	11.3	20.4	284181	11.3	20.8
375922	10.9	20.5	135197	11.1	20.5	472300	11.1	20.4	251189	11.2	21.2	380485	11.3	20.0	495626	11.3	20.7
167132	10.9	20.0	466881	11.1	20.9	391037	11.1	21.3	144081	11.2	19.2	249568	11.3	21.4	113438	11.3	18.6
535575	10.9	21.4	417121	11.1	20.6	538080	11.1	20.4	195097	11.2	20.0	418195	11.3	20.1	235458	11.3	20.7
285912	10.9	20.8	202329	11.1	19.0	239990	11.1	20.0	287271	11.2	19.8	306502	11.3	20.7	15678	11.3	17.3
217793	10.9	20.7	266326	11.1	20.4	85281	11.1	18.7	214016	11.2	19.2	455079	11.3	20.3	453870	11.3	22.3
419006	10.9	19.8	541916	11.1	21.9	353510	11.1	19.9	152786	11.2	19.5	110157	11.3	19.4	99602	11.3	18.3
405188	10.9	20.9	343373	11.1	20.0	278061	11.1	19.3	94744	11.2	19.0	405952	11.3	21.6	67915	11.3	20.0
126210	10.9	19.7	473482	11.1	20.8	409621	11.1	20.6	455270	11.2	21.2	378969	11.3	20.4	306967	11.3	20.0
465496	10.9	20.2	267186	11.1	20.6	340110	11.1	20.7	544035	11.2	20.7	180647	11.3	19.0	525573	11.3	20.3
62568	10.9	19.5	266378	11.1	20.4	158189	11.1	20.0	75360	11.2	19.3	164473	11.3	20.0	139456	11.3	18.0
259323	10.9	19.9	331231	11.1	20.0	495467	11.1	21.8	247535	11.2	21.4	244753	11.3	20.9	286087	11.3	19.7
113290	10.9	18.9	283239	11.1	20.6	526977	11.1	21.3	82764	11.2	19.4	413561	11.3	20.7	51826	11.3	18.7
290778	10.9	20.4	326313	11.1	20.9	217464	11.1	20.7	403574	11.2	21.4	367161	11.3	19.8	451408	11.3	20.6
419112	11.0	21.2	235585	11.1	19.9	96018	11.1	19.5	134430	11.2	20.0	289804	11.3	20.1	415230	11.3	20.4
439927	11.0	22.1	422555	11.1	19.8	247527	11.1	21.0	531076	11.2	23.0	489990	11.3	21.3	307780	11.3	21.0
57675	11.0	18.7	136483	11.1	19.6	258457	11.1	21.7	206468	11.2	20.3	386743	11.3	20.7	68476	11.3	19.4
110394	11.0	19.9	293220	11.1	20.3	409530	11.1	21.0	236056	11.2	20.0	1356	11.3	14.9	144141	11.3	18.8
348558	11.0	21.1	30281	11.1	18.4	457188	11.1	19.9	528265	11.2	21.5	94944	11.3	20.4	437454	11.3	21.2
422267	11.0	21.2	458351	11.1	21.6	535116	11.1	21.5	114063	11.2	19.0	47036	11.3	18.6	405999	11.3	20.5
83644	11.0	18.7	100803	11.1	17.6	321683	11.1	20.5	442708	11.2	20.7	428360	11.3	21.2	398476	11.3	21.1
294274	11.0	20.0	406174	11.1	20.6	111235	11.1	19.0	412145	11.2	19.6	266788	11.3	20.1	99912	11.3	19.1
280655	11.0	20.0	311013	11.1	20.7	259042	11.1	21.8	336928	11.2	20.4	168719	11.3	19.4	426425	11.3	20.7
69997	11.0	19.1	144214	11.1	20.2	67365	11.1	18.8	27424	11.2	19.0	284952	11.3	19.1	317977	11.3	19.6
231073	11.0	20.2	362472	11.1	20.3	139294	11.1	19.3	336684	11.2	20.2	284012	11.3	21.4	325793	11.3	20.6
47765	11.0	18.6	100055	11.1	19.0	155131	11.1	19.5	388337	11.2	19.9	401367	11.3	19.7	79636	11.3	19.5
544358	11.0	21.9	205576	11.1	20.1	153965	11.1	19.3	567	11.2	13.2	281334	11.3	20.9	84788	11.3	19.0
525527	11.0	20.5	235228	11.1	18.9	495678	11.2	20.0	74754	11.2	19.3	541839	11.3	21.2	484698	11.3	20.1
542392	11.0	19.5	238300	11.1	19.4	232479	11.2	18.9	107405	11.2	19.0	188730	11.3	19.1	466979	11.3	21.8
106137	11.0	19.6	221552	11.1	20.4	490300	11.2	21.7	293115	11.2	20.7	428146	11.3	21.1	26552	11.3	17.4
335969	11.0	20.7	247333	11.1	19.9	171860	11.2	19.9	68150	11.2	19.2	429935	11.3	20.8	105431	11.3	20.4
233796	11.0	20.3	289326	11.1	19.8	238948	11.2	20.1	253256	11.2	20.4	407797	11.3	21.0	207844	11.3	20.1
8479	11.0	15.2	194772	11.1	20.2	397166	11.2	20.6	134485	11.2	20.7	113854	11.3	18.9	170785	11.3	20.0
381264	11.0	20.4	39376	11.1	17.9	123	11.2	13.0	204270	11.2	19.2	87823	11.3	19.9	424934	11.3	20.8
490360	11.0	19.8	411287	11.1	21.4	379892	11.2	21.1	250653	11.2	20.1	544747	11.3	21.2	495134	11.3	21.2
180558	11.0	21.3	369944	11.1	19.5	445084	11.2	21.3	388892	11.2	20.1	48535	11.3	19.0	327232	11.3	20.2
204695	11.0	19.9	286932	11.1	21.1	449252	11.2	22.1	87265	11.2	19.1	175733	11.3	18.4	425338	11.3	19.9
538213	11.0	20.6	483969	11.1	20.2	332640	11.2	20.4	399610	11.2	20.3	483700	11.3	21.8	25851	11.3	18.0
33404	11.0	18.0	303473	11.1	19.0	407443	11.2	21.1	377162	11.2	20.5	51850	11.3	18.3	58852	11.3	18.8
147007	11.0	19.4	285844	11.1	20.7	294094	11.2	20.8	458186	11.2	22.1	418308	11.3	21.0	412392	11.3	20.3
491388	11.0	20.5	490315	11.1	21.0	501463	11.2	21.4	543414	11.2	20.1	325354	11.3	20.1	78514	11.3	19.8
149231	11.0	19.6	260689	11.1	19.6	441759	11.2	21.1	135205	11.2	19.5	233173	11.3	20.2	349596	11.3	19.5
241877	11.0	20.4	495731	11.1	20.1	319660	11.2	20.3	301279	11.2	20.2	531798	11.3	21.4	292593	11.3	20.8
201991	11.0	19.7	87874	11.1	19.6	414937	11.2	21.3	387563	11.2	19.7	25072	11.3	18.7	532705	11.3	21.6
363202	11.0	20.9	312222	11.1	21.6	459821	11.2	20.6	467006	11.2	20.5	307824	11.3	20.9	130465	11.4	20.1
68571	11.0	18.6	205456	11.1	20.8	13701	11.2	18.5	394432	11.2	21.1	186566	11.3	19.3	320970	11.4	20.5
534905	11.0	22.3	341649	11.1	20.6	240844	11.2	19.9	354379	11.2	20.5	237520	11.3	20.2	32386	11.4	18.6
122964	11.0	19.7	400200	11.1	21.7	214580	11.2	20.2	132112	11.2	18.3	4470	11.3	17.3	7376	11.4	16.7
256860	11.0	20.5	33736	11.1	16.2	228271	11.2	21.1	201967	11.2	20.3	143522	11.3	19.1	10682	11.4	16.2
388026	11.0	20.4	62334	11.1	18.5	176356	11.2	20.6	62501	11.2	18.9	427239	11.3	21.5	532140	11.4	20.8
399234	11.0	19.6	123247	11.1	18.9	420666	11.2	20.8	522160	11.2	21.5	95072	11.3	18.9	194985	11.4	19.3
85917	11.0	18.7	500554	11.1	20.6	362597	11.2	20.3	116628	11.2	17.8	258595	11.3	19.3	179963	11.4	19.7
40879	11.0	18.1	291058	11.1	21.0	269074	11.2	21.1	78806	11.2	19.4	36465	11.3	19.4	373338	11.4	21.1
359149	11.0	20.6	61871	11.1	18.9	402617	11.2	22.7	191977	11.2	20.0	470847	11.3	20.1	89604	11.4	20.1
140416	11.0	18.7	54442	11.1	17.3	199355	11.2	21.9	492658	11.2	20.9	422381	11.3	20.2	285053	11.4	20.5
100339	11.0	19.7	495028	11.1	21.6	445634	11.2	21.9	388473	11.2	20.4	101236	11.3	19.7	252960	11.4	21.9
28886	11.0	18.5	184493	11.1	19.4	325262	11.2	19.8	186560	11.2	20.2	135396	11.3	20.5	212266	11.4	19.8
57525	11.0	18.7	396496	11.1	19.7	97534	11.2	18.8	429328	11.2	20.4	194267	11.3	20.6	414517	11.4	21.6
185216	11.0	20.5	100365	11.1	19.5	233431	11.2	20.1	113732	11.2							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
105526	11.4	19.7	210217	11.4	20.1	87211	11.5	18.9	496261	11.6	20.9	544570	11.6	21.4	217463	11.7	20.5
181621	11.4	20.1	456264	11.4	22.1	327040	11.5	20.9	328243	11.6	19.8	162432	11.6	19.8	252383	11.7	20.4
415943	11.4	21.0	181531	11.4	19.5	281354	11.5	20.7	381232	11.6	20.5	405949	11.6	20.8	290170	11.7	20.4
500045	11.4	21.0	490635	11.4	21.3	262477	11.5	20.1	28519	11.6	17.1	163564	11.6	19.1	197273	11.7	20.8
162781	11.4	18.4	80105	11.4	19.3	453040	11.5	21.3	201279	11.6	20.9	455830	11.6	21.2	144479	11.7	19.7
211469	11.4	19.9	445564	11.4	21.5	445142	11.5	21.5	128828	11.6	20.5	532130	11.6	20.3	170857	11.7	19.2
285718	11.4	20.2	37026	11.4	19.1	108205	11.5	18.8	527632	11.6	22.1	373641	11.6	20.8	343607	11.7	20.4
429755	11.4	20.4	238666	11.4	20.1	229846	11.5	20.8	416009	11.6	20.8	390993	11.6	20.8	83769	11.7	19.0
528775	11.4	22.5	500699	11.4	21.6	194283	11.5	19.8	19972	11.6	18.9	10251	11.6	18.1	446340	11.7	19.6
131105	11.4	19.6	438685	11.4	20.3	413503	11.5	20.6	7630	11.6	17.5	442674	11.6	19.9	529592	11.7	21.0
465566	11.4	20.9	389937	11.4	20.4	417193	11.5	21.5	341486	11.6	20.1	188080	11.6	19.8	209091	11.7	21.0
14202	11.4	17.9	256157	11.4	20.8	114467	11.5	20.1	37058	11.6	18.8	269798	11.6	21.1	351776	11.7	20.4
99986	11.4	19.1	26405	11.4	17.4	44150	11.5	17.1	336538	11.6	21.2	196351	11.6	19.1	408885	11.7	22.3
222356	11.4	19.3	337645	11.4	20.6	118827	11.5	19.3	290014	11.6	20.2	377275	11.6	19.8	413643	11.7	21.5
306827	11.4	20.4	367834	11.5	21.6	258521	11.5	19.7	124185	11.6	18.6	310073	11.6	20.7	41613	11.7	19.0
232354	11.4	19.4	106554	11.5	19.0	459186	11.5	20.6	244741	11.6	20.4	410585	11.6	20.5	346116	11.7	21.6
495469	11.4	21.1	27225	11.5	15.5	348578	11.5	20.9	378993	11.6	20.5	288621	11.6	19.3	283741	11.7	19.0
265345	11.4	20.5	311261	11.5	19.4	544961	11.5	21.4	531291	11.6	21.0	202345	11.6	20.3	496707	11.7	21.3
346017	11.4	20.7	477719	11.5	29.5	533211	11.5	22.7	227800	11.6	20.3	30886	11.6	18.3	270628	11.7	19.6
452289	11.4	21.6	424901	11.5	20.6	138393	11.5	20.0	76872	11.6	19.0	283960	11.6	20.3	122933	11.7	19.4
46952	11.4	19.6	70873	11.5	19.5	155798	11.5	20.3	38284	11.6	18.6	451579	11.6	20.8	258997	11.7	20.8
367527	11.4	19.4	337717	11.5	21.3	173482	11.5	20.6	27868	11.6	18.9	74601	11.6	18.2	291100	11.7	20.5
483717	11.4	22.3	32385	11.5	16.1	52119	11.5	19.6	99483	11.6	19.1	416215	11.6	20.5	71366	11.7	19.1
2000	11.4	15.8	343615	11.5	21.1	82423	11.5	18.5	169118	11.6	20.3	393394	11.6	21.7	345998	11.7	21.1
127906	11.4	19.0	399482	11.5	20.8	16794	11.5	19.0	169721	11.6	20.7	221084	11.6	20.3	458336	11.7	20.2
236686	11.4	19.8	248833	11.5	20.4	119832	11.5	18.8	363821	11.6	21.0	367566	11.6	21.5	301185	11.7	21.2
362136	11.4	20.4	78388	11.5	20.0	432199	11.5	20.5	213597	11.6	20.6	359968	11.6	19.7	198928	11.7	19.1
518444	11.4	20.4	532516	11.5	21.3	3751	11.5	16.5	482040	11.6	20.6	337662	11.6	20.4	338364	11.7	20.3
56346	11.4	17.9	470358	11.5	21.1	368596	11.5	21.9	366212	11.6	19.9	411275	11.6	19.4	209469	11.7	20.2
333415	11.4	21.7	340060	11.5	20.3	536666	11.5	20.3	262647	11.6	20.4	542457	11.6	21.3	326391	11.7	21.0
155311	11.4	20.2	531456	11.5	21.4	158623	11.5	20.1	296662	11.6	21.4	206230	11.6	21.1	242823	11.7	19.4
190780	11.4	20.0	186101	11.5	20.5	205506	11.5	20.0	459766	11.6	20.9	455801	11.6	21.4	277785	11.7	19.6
465442	11.4	21.5	194169	11.5	19.7	95181	11.5	19.1	36699	11.6	18.6	293074	11.6	20.2	364869	11.7	20.1
157386	11.4	19.5	313418	11.5	20.8	238777	11.5	20.0	535524	11.6	20.8	339693	11.6	20.6	285599	11.7	20.7
80662	11.4	19.3	495303	11.5	20.9	96680	11.5	17.7	235062	11.6	18.8	457117	11.6	20.6	337681	11.7	20.2
393277	11.4	19.8	98991	11.5	19.6	162999	11.5	20.0	339485	11.6	19.2	247202	11.6	19.7	508651	11.7	20.8
183468	11.4	20.1	262771	11.5	20.3	183924	11.5	21.4	541240	11.6	21.5	348431	11.6	19.6	460820	11.7	20.7
192030	11.4	19.2	49650	11.5	16.5	11207	11.5	17.0	76258	11.6	19.4	169182	11.6	20.3	23396	11.7	18.6
181253	11.4	19.8	197376	11.5	20.0	373243	11.5	20.0	301778	11.6	19.8	317608	11.6	21.3	368979	11.7	19.5
215726	11.4	20.0	142730	11.5	19.9	419033	11.5	21.6	370185	11.6	20.0	459114	11.6	20.5	518712	11.7	20.9
89381	11.4	19.6	325937	11.5	21.1	499902	11.5	20.0	417074	11.6	21.0	190783	11.7	18.5	154333	11.7	20.4
447424	11.4	19.8	425391	11.5	20.5	335977	11.5	21.5	304980	11.6	19.2	241127	11.7	20.9	203649	11.7	19.2
530486	11.4	20.7	329137	11.5	21.0	120246	11.5	18.4	104788	11.6	18.3	136302	11.7	19.9	499978	11.7	20.5
215483	11.4	20.4	489264	11.5	21.7	146650	11.5	19.5	248179	11.6	18.7	531602	11.7	21.0	381636	11.7	20.2
334292	11.4	20.7	219445	11.5	20.5	465675	11.5	21.1	527113	11.6	20.5	334492	11.7	20.6	544954	11.7	21.4
76221	11.4	18.6	204122	11.5	20.1	39632	11.5	19.0	217466	11.6	20.5	250229	11.7	20.8	194889	11.7	20.0
183814	11.4	19.6	155753	11.5	21.0	28896	11.5	17.5	59192	11.6	19.4	71766	11.7	19.9	131812	11.7	19.7
160284	11.4	19.3	16375	11.5	18.2	538821	11.5	20.7	177437	11.6	19.3	127312	11.7	19.1	343831	11.7	19.4
399461	11.4	20.4	64082	11.5	18.4	467759	11.5	20.5	66422	11.6	19.8	210911	11.7	21.1	497694	11.7	21.8
63624	11.4	19.0	227798	11.5	20.0	79004	11.5	18.9	544671	11.6	21.2	461771	11.7	21.2	207832	11.7	20.6
234361	11.4	20.0	251718	11.5	21.4	194811	11.5	20.9	532671	11.6	21.8	397878	11.7	20.6	209035	11.7	20.6
55766	11.4	18.8	384989	11.5	20.4	122877	11.5	18.3	418316	11.6	20.7	89485	11.7	19.9	234568	11.7	19.0
95145	11.4	20.0	328313	11.5	20.7	292113	11.5	20.1	456653	11.6	21.9	81190	11.7	19.2	352753	11.7	21.7
461718	11.4	21.8	323827	11.5	20.7	169317	11.5	19.9	204217	11.6	19.3	524356	11.7	21.4	373334	11.7	20.9
527197	11.4	21.8	337368	11.5	21.1	221550	11.5	19.8	529121	11.6	22.3	282620	11.7	20.7	154017	11.7	19.3
433238	11.4	20.7	294839	11.5	19.7	441493	11.5	21.8	450101	11.6	20.8	53951	11.7	17.6	366692	11.7	20.6
262950	11.4	21.5	194401	11.5	20.1	389367	11.5	21.3	494857	11.6	19.7	61023	11.7	18.5	428494	11.7	21.7
440712	11.4	20.9	202186	11.5	19.6	318803	11.5	20.7	541886	11.6	20.8	457168	11.7	20.5	167042	11.7	20.5
175634	11.4	20.2	369809	11.5	19.8	206166	11.5	19.6	400575	11.6	21.7	393672	11.7	21.5	208266	11.7	20.5
455372	11.4	21.5	150498	11.5	20.1	541778	11.5	21.6	337579	11.6	20.9	543297	11.7	21.7	379067	11.7	21.1
213687	11.4	20.7	354595	11.5	20.5	7478	11.5	18.1	124323	11.6	20.2	398706	11.7	19.4	368537	11.7	21.1
278511	11.4	20.5	110170	11.5	18.8	409514	11.5	20.8	493994	11.6	21.5	431514	11.7	20.7	282190	11.7	21.4
117028	11.4	19.4	172009	11.5	19.6	67393	11.5	19.9	271040	11.6	20.0	440448	11.7	21.1	90585	11.7	19.6
59077	11.4	19.2	393673	11.5	21.1	74988	11.5	19.3	458206	11.6	20.9	426800	11.7	20.8	7048	11.7	17.6
370621	11.4	21.6	244142	11.5	20.0	529050	11.5	22.8	448154	11.6	21.4	21800	11.7	17.4	367826	11.7	20.3
30331	11.4	18.4	171197	11.5	20.5	431585	11.5	20.8	492403	11.6	20.3	47092	11.7	17.8	452245	11.7	20.5
80613	11.4	17.7	158684	11.5	19.5	175930	11.5	20.7	119687	11.6	19.6	24999	11.7	18.3	80965	11.7	19.4
486255	11.4	20.6	473886	11.5	20.9	178974	11.5	19.6	197305	11.6	19.8	407316	11.7	21.7	222130	11.7	20.4
338169	11.4	20.6	452286	11.5	21.5	499472	11.5	19.9	258								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
172013	11.7	19.5	258392	11.8	20.9	416824	11.9	21.4	141444	11.9	18.4	151339	11.9	18.2	483496	12.1	21.4
353818	11.7	21.2	400167	11.8	21.4	161828	11.9	20.1	397939	11.9	20.7	534228	11.9	22.6	417122	12.1	20.7
502502	11.7	20.6	420318	11.8	19.6	416957	11.9	21.2	413976	11.9	20.9	137889	11.9	18.1	64343	12.1	19.1
542978	11.7	20.6	378259	11.8	20.0	337568	11.9	20.9	82586	11.9	19.5	35198	11.9	17.3	492745	12.1	20.6
126128	11.7	20.4	145089	11.8	18.9	187687	11.9	19.8	201196	11.9	21.7	214496	11.9	20.7	343337	12.1	19.9
98261	11.7	19.4	280258	11.8	19.8	542986	11.9	20.8	456488	11.9	21.1	4539	12.0	17.0	53203	12.1	19.3
101227	11.7	19.5	358849	11.8	19.3	409835	11.9	22.5	483929	11.9	21.8	169198	12.0	19.6	134368	12.1	20.1
292740	11.7	20.3	229019	11.8	18.4	202352	11.9	19.4	533864	11.9	21.5	210230	12.0	19.7	543988	12.1	21.7
45577	11.7	19.0	5595	11.8	17.0	77348	11.9	18.5	82957	11.9	18.8	135101	12.0	19.5	45560	12.1	19.2
183423	11.7	20.4	381272	11.8	21.1	485046	11.9	19.5	313500	11.9	21.9	171984	12.0	21.1	84693	12.1	19.7
83111	11.7	18.7	36549	11.8	19.3	161559	11.9	20.8	171906	11.9	20.8	416422	12.0	21.0	77886	12.1	17.8
301491	11.7	19.8	319928	11.8	20.0	97788	11.9	19.6	13352	11.9	16.2	500503	12.0	21.8	322268	12.1	20.3
16389	11.7	18.3	282364	11.8	20.2	139761	11.9	19.9	64600	11.9	18.4	415306	12.0	19.1	330713	12.1	19.7
179899	11.7	19.7	359039	11.8	21.9	402109	11.9	20.5	336930	11.9	20.2	98260	12.0	18.5	283149	12.1	20.6
161874	11.8	18.7	352781	11.8	21.5	444893	11.9	20.7	56655	11.9	18.4	170454	12.0	19.3	543649	12.1	22.1
351274	11.8	21.1	456529	11.8	22.4	31824	11.9	22.1	496377	11.9	21.8	147705	12.0	19.7	237547	12.1	20.0
413884	11.8	21.8	256210	11.8	20.4	233154	11.9	20.3	543356	11.9	22.1	457099	12.0	20.2	143302	12.1	18.7
368082	11.8	20.8	72992	11.8	18.5	9811	11.9	18.7	493209	11.9	21.6	208324	12.0	21.1	334897	12.1	20.8
420746	11.8	21.0	352834	11.8	21.5	113970	11.9	19.9	363564	11.9	19.5	98179	12.0	19.5	81499	12.1	18.6
473662	11.8	20.4	57335	11.8	18.6	494951	11.9	21.4	182732	11.9	19.9	459868	12.0	21.7	287253	12.1	19.8
295761	11.8	20.1	47793	11.8	19.1	14996	11.9	18.5	538905	11.9	21.5	395343	12.0	19.8	520973	12.1	20.5
393364	11.8	21.3	74553	11.8	18.0	528821	11.9	21.5	191955	11.9	20.1	411477	12.0	20.8	527155	12.1	21.7
81749	11.8	19.1	327018	11.8	20.4	261589	11.9	20.3	406199	11.9	22.2	120464	12.0	19.8	83674	12.1	18.3
71749	11.8	18.7	16655	11.8	18.2	508650	11.9	20.8	313492	11.9	21.4	496588	12.0	20.4	43803	12.1	18.4
41598	11.8	18.7	242328	11.8	20.2	35861	11.9	17.9	34644	11.9	16.9	160747	12.0	19.2	277051	12.1	21.0
456433	11.8	21.2	15403	11.8	18.2	36330	11.9	18.9	225969	11.9	20.5	352763	12.0	20.0	498533	12.1	20.8
528376	11.8	21.9	104885	11.8	18.7	109972	11.9	18.8	370585	11.9	21.2	397914	12.0	21.5	50123	12.1	19.3
437349	11.8	21.5	528680	11.8	21.3	374627	11.9	20.5	344242	11.9	21.5	330967	12.0	20.0	147575	12.1	19.6
47225	11.8	19.3	468284	11.8	21.1	489747	11.9	19.3	460311	11.9	21.4	140280	12.0	18.7	132106	12.1	20.4
495530	11.8	21.3	57213	11.8	19.7	401922	11.9	22.3	450824	11.9	21.6	186190	12.0	20.9	541506	12.1	21.2
143394	11.8	19.4	79070	11.8	19.4	364277	11.9	19.8	168144	11.9	20.3	55900	12.0	18.1	121319	12.1	20.9
440024	11.8	20.5	540041	11.8	20.4	217805	11.9	20.5	85479	11.9	19.8	532665	12.0	21.6	29634	12.1	18.5
502846	11.8	20.3	54007	11.8	18.4	498175	11.9	22.0	341342	11.9	20.5	416525	12.0	19.2	99386	12.1	19.5
493523	11.8	20.4	242051	11.8	20.2	366882	11.9	20.6	496610	11.9	20.7	277053	12.0	20.2	300007	12.1	19.3
281882	11.8	19.5	104414	11.8	18.4	135110	11.9	19.9	280025	11.9	20.2	175764	12.0	21.2	49618	12.1	18.5
543934	11.8	21.0	528302	11.8	21.6	181879	11.9	20.3	117857	11.9	19.4	373683	12.0	21.3	242407	12.1	19.7
231183	11.8	19.6	80121	11.8	18.3	405155	11.9	20.1	37730	11.9	18.2	31929	12.0	19.2	396900	12.1	22.1
483713	11.8	21.4	175296	11.8	21.0	353999	11.9	20.8	293550	11.9	19.9	425390	12.0	20.2	462930	12.1	21.2
281341	11.8	21.5	88042	11.8	19.8	51942	11.9	18.3	404017	11.9	21.4	542801	12.0	19.5	66907	12.1	18.8
153186	11.8	20.2	420207	11.8	20.4	282920	11.9	19.8	313399	11.9	21.6	283412	12.0	20.7	245195	12.1	20.8
77339	11.8	17.6	351783	11.8	19.0	142443	11.9	19.6	449128	11.9	21.0	27505	12.0	18.8	541482	12.1	20.5
541892	11.8	21.0	54234	11.8	18.0	24800	11.9	18.7	190764	11.9	19.6	458868	12.0	21.2	58816	12.1	18.1
458237	11.8	21.4	4855	11.8	16.3	277190	11.9	20.3	468890	11.9	20.6	413534	12.0	19.5	378987	12.1	21.1
24647	11.8	17.5	26989	11.8	17.5	181353	11.9	21.4	418867	11.9	20.3	344839	12.0	19.4	411357	12.1	20.9
7785	11.8	17.3	111128	11.8	19.6	354913	11.9	20.1	426858	11.9	20.9	181791	12.0	18.8	163163	12.1	19.2
172937	11.8	20.5	442625	11.8	20.3	408908	11.9	20.2	97481	11.9	18.3	88413	12.0	19.5	445055	12.1	20.8
143170	11.8	19.7	54064	11.8	18.9	50979	11.9	18.2	100066	11.9	20.1	256246	12.0	20.7	71678	12.1	20.0
258174	11.8	20.3	307846	11.8	19.0	194704	11.9	19.8	239520	11.9	20.4	428425	12.0	21.6	344297	12.1	19.9
424649	11.8	21.2	367385	11.8	20.6	153061	11.9	19.8	270607	11.9	20.8	314236	12.0	19.5	272547	12.1	20.3
444144	11.8	21.0	55822	11.8	18.8	285787	11.9	20.6	532532	11.9	20.8	345730	12.0	19.2	92909	12.1	19.5
296133	11.8	21.4	490692	11.8	20.8	473651	11.9	21.6	188481	11.9	19.7	422547	12.0	20.8	88316	12.1	18.3
77909	11.8	17.4	182448	11.8	19.8	541773	11.9	20.0	440435	11.9	21.3	524528	12.0	20.8	225421	12.1	19.3
39035	11.8	19.0	522417	11.9	21.1	490699	11.9	20.7	54650	11.9	18.0	409843	12.0	21.9	258497	12.1	20.7
57159	11.8	18.8	241119	11.9	19.8	422362	11.9	19.9	231018	11.9	19.4	406116	12.0	21.7	276735	12.1	18.9
137808	11.8	19.7	390861	11.9	20.6	500192	11.9	19.8	39221	11.9	19.6	525864	12.0	21.6	134948	12.1	19.8
411360	11.8	21.5	237473	11.9	19.5	334537	11.9	21.1	221177	11.9	20.3	381257	12.0	21.3	14132	12.1	18.7
383752	11.8	20.8	520891	11.9	21.5	198114	11.9	19.3	400011	11.9	20.8	263034	12.0	20.7	194152	12.1	20.9
401144	11.8	20.6	474474	11.9	23.0	243191	11.9	20.0	235519	11.9	20.3	216430	12.0	20.1	265838	12.1	20.5
262660	11.8	20.2	194436	11.9	20.9	518843	11.9	21.0	228760	11.9	19.6	307866	12.0	20.4	234964	12.1	18.2
381293	11.8	20.9	137850	11.9	18.4	71636	11.9	18.8	500317	11.9	21.4	31764	12.0	18.9	159262	12.1	19.3
415934	11.8	21.3	114394	11.9	19.8	56703	11.9	17.2	397887	11.9	21.2	196910	12.0	19.1	345291	12.1	21.1
200697	11.8	19.6	460052	11.9	19.4	461345	11.9	21.8	449315	11.9	20.0	8803	12.0	18.8	433874	12.1	20.9
425995	11.8	20.6	10096	11.9	17.0	114946	11.9	20.6	169579	11.9	19.1	166850	12.0	19.3	465914	12.1	21.5
50303	11.8	18.6	284386	11.9	20.9	258073	11.9	20.6	222944	11.9	20.0	483489	12.1	22.3	34156	12.1	18.0
449137	11.8	20.4	238367	11.9	19.6	79212	11.9	19.4	520712	11.9	21.3	10645	12.1	17.1	650	12.1	16.6
46976	11.8	18.4	128647	11.9	20.5	339737	11.9	20.0	526961	11.9	21.8	30939	12.1	17.1	496528	12.1	21.0
82798	11.8	20.3	428200	11.9	20.5	405162	11.9	21.7	492875	11.9	20.2	306313	12.1	21.5	342982	12.1	20.1
458223	11.8	21.0	167650	11.9	19.5	142649	11.9	20.5	66692	11.9	18.4	326447	12.1	21.1	490810	12.1	21.4
38360	11.8	17.6	100296	11.9	19.1	140255	11.9	19.8	409926	11.9	21.9	3					

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
492083	12.1	21.0	329847	12.2	21.2	350266	12.3	19.9	335850	12.3	22.1	493936	12.4	21.3	275409	12.5	19.8
388460	12.1	18.6	451244	12.2	20.2	186672	12.3	19.8	235478	12.3	19.4	250167	12.4	19.4	168721	12.5	19.9
399477	12.1	21.9	354566	12.2	21.2	456611	12.3	19.8	381674	12.3	21.3	179975	12.4	19.7	430218	12.5	21.1
419879	12.1	20.0	347847	12.2	19.5	144422	12.3	19.2	450049	12.3	22.0	514661	12.4	20.2	283892	12.5	20.3
85389	12.1	19.8	233900	12.2	19.8	495645	12.3	20.1	520804	12.3	20.2	105679	12.4	19.1	253049	12.5	22.1
40577	12.1	19.3	3941	12.2	17.1	340612	12.3	20.8	427179	12.3	20.5	95328	12.4	18.9	56833	12.5	18.7
250256	12.1	20.3	19456	12.2	18.3	349762	12.3	19.5	143927	12.3	18.8	95400	12.4	19.9	238017	12.5	20.7
433485	12.1	20.1	169121	12.2	20.4	345538	12.3	20.9	355935	12.3	21.7	205103	12.4	19.6	66039	12.5	18.5
536316	12.1	21.0	360462	12.2	21.0	119712	12.3	19.4	413555	12.3	20.7	58740	12.4	18.4	304814	12.5	20.7
354576	12.1	21.3	167663	12.2	19.4	339648	12.3	20.8	487979	12.3	21.6	226869	12.4	20.6	28933	12.5	18.2
278043	12.1	20.8	286006	12.2	20.9	487090	12.3	21.2	457024	12.3	19.9	401365	12.4	20.9	53143	12.5	18.7
303023	12.1	20.4	399523	12.2	20.6	167564	12.3	19.9	39462	12.3	17.3	304089	12.4	19.9	106198	12.5	19.3
73041	12.1	19.6	150076	12.2	19.8	197110	12.3	20.4	518119	12.3	20.2	273006	12.4	20.3	149821	12.5	19.8
427104	12.1	20.9	191263	12.2	19.5	82001	12.3	19.5	351690	12.3	18.7	32710	12.4	19.4	446281	12.5	20.2
345796	12.1	19.9	41396	12.2	17.9	170763	12.3	19.6	496385	12.3	21.5	55770	12.4	19.3	76298	12.5	19.5
258099	12.1	21.3	64583	12.2	19.6	239033	12.3	20.2	280188	12.3	20.4	357013	12.4	21.1	23183	12.5	19.5
532357	12.1	20.9	223685	12.2	20.0	244629	12.3	20.6	39379	12.3	18.8	8673	12.4	17.4	427399	12.5	21.7
499409	12.1	19.7	152560	12.2	20.6	329169	12.3	19.7	34441	12.3	18.6	358680	12.4	20.4	116617	12.5	19.6
86958	12.1	18.7	505657	12.2	19.7	206772	12.3	19.9	464048	12.3	20.9	82939	12.4	19.2	499995	12.5	21.8
445075	12.1	21.5	236970	12.2	19.8	271893	12.3	20.9	541876	12.3	21.4	224029	12.4	20.3	431581	12.5	20.7
156032	12.1	20.5	193857	12.2	21.3	164089	12.3	19.9	403587	12.3	21.1	424319	12.4	19.6	387140	12.5	20.7
69071	12.1	19.6	172393	12.2	19.7	164801	12.3	19.2	461059	12.3	21.3	4599	12.4	18.3	496084	12.5	21.1
52283	12.1	18.9	383663	12.2	21.2	497693	12.3	21.2	110266	12.3	21.2	362188	12.4	19.8	413565	12.5	21.1
495243	12.1	20.4	158633	12.2	18.6	81655	12.3	19.1	61089	12.3	19.3	312235	12.4	19.6	391781	12.5	20.9
237220	12.1	20.8	224461	12.2	19.4	544533	12.3	22.1	23023	12.3	17.9	306047	12.4	19.9	498051	12.5	20.9
519072	12.1	20.8	269220	12.2	20.6	126601	12.3	18.5	363068	12.3	20.9	14647	12.4	17.6	409878	12.5	20.7
544131	12.1	21.6	295421	12.2	20.2	405923	12.3	19.9	93471	12.3	19.0	455550	12.4	21.5	176810	12.5	20.3
413881	12.1	21.7	219334	12.2	19.5	19347	12.3	19.0	208403	12.3	20.6	412283	12.4	20.9	424194	12.5	20.4
32686	12.2	18.2	81570	12.2	18.2	460725	12.3	21.1	514081	12.3	19.7	280240	12.4	19.9	415894	12.5	20.5
326981	12.2	20.1	264163	12.2	21.1	197354	12.3	19.8	511583	12.3	19.6	309338	12.4	19.1	148713	12.5	18.9
148631	12.2	18.8	138767	12.2	20.1	352816	12.3	21.4	514313	12.3	20.9	219392	12.4	19.7	17638	12.5	18.6
57810	12.2	18.9	493225	12.2	21.6	4820	12.3	16.9	205026	12.3	19.8	97732	12.4	18.2	256071	12.5	22.2
140916	12.2	19.8	268566	12.2	20.1	130782	12.3	19.0	380480	12.3	21.2	382513	12.4	21.3	231006	12.5	19.2
402741	12.2	20.7	215254	12.2	19.3	280457	12.3	19.7	243521	12.4	20.7	419509	12.4	19.7	226888	12.5	20.2
427568	12.2	20.5	415131	12.2	20.2	482884	12.3	19.8	251980	12.4	18.9	535214	12.4	20.9	106032	12.5	19.3
28114	12.2	17.1	327577	12.2	20.1	440742	12.3	21.2	503427	12.4	20.4	540303	12.4	21.1	412324	12.5	20.4
13292	12.2	17.1	420244	12.2	19.9	127536	12.3	19.0	335978	12.4	20.5	90477	12.4	19.3	161622	12.5	20.2
333751	12.2	20.2	359454	12.2	21.1	2841	12.3	15.2	151934	12.4	18.6	423355	12.4	19.9	430504	12.5	21.4
85072	12.2	19.3	213980	12.2	19.0	183718	12.3	19.7	298955	12.4	20.4	56654	12.4	17.4	252955	12.5	19.9
74558	12.2	18.9	86351	12.2	17.7	301190	12.3	21.3	75557	12.4	20.5	265701	12.4	19.8	235984	12.5	20.2
355864	12.2	20.9	8124	12.2	18.0	4384	12.3	17.0	380517	12.4	19.2	151630	12.4	19.3	234942	12.5	20.1
268521	12.2	19.6	463644	12.2	20.2	236966	12.3	20.1	456451	12.4	22.2	84247	12.4	20.5	258971	12.5	21.5
417112	12.2	20.8	265851	12.2	19.9	212612	12.3	20.4	223192	12.4	20.2	146649	12.4	19.8	370518	12.5	22.1
485084	12.2	20.1	279194	12.2	20.5	223491	12.3	20.8	339622	12.4	20.1	7189	12.4	17.1	389330	12.5	21.0
206234	12.2	21.2	109843	12.2	19.6	541780	12.3	22.7	536252	12.4	20.6	375464	12.4	20.1	218358	12.5	19.2
462842	12.2	21.0	543425	12.2	20.3	33479	12.3	18.0	19917	12.4	18.0	149493	12.4	19.3	173115	12.5	19.8
424802	12.2	21.5	221555	12.2	19.4	448305	12.3	20.3	138260	12.4	19.0	369633	12.4	20.2	153180	12.5	20.4
27974	12.2	17.0	325476	12.2	21.3	229206	12.3	20.0	188118	12.4	19.4	502602	12.4	20.3	246171	12.5	20.1
170104	12.2	19.4	473836	12.2	21.1	431982	12.3	21.0	322364	12.4	20.2	419440	12.4	19.5	348576	12.5	21.5
320828	12.2	20.4	245900	12.2	20.8	481358	12.3	19.2	45655	12.4	19.6	540071	12.4	21.4	369321	12.5	20.9
458386	12.2	21.7	217984	12.2	19.9	323972	12.3	19.8	524916	12.4	20.7	353372	12.4	20.7	145495	12.5	20.3
136067	12.2	19.6	202031	12.2	19.9	194822	12.3	20.1	446351	12.4	20.5	453640	12.4	20.8	400563	12.5	21.2
523846	12.2	21.2	292697	12.2	20.9	106300	12.3	20.4	502882	12.4	20.6	286727	12.4	19.5	46898	12.5	19.4
495431	12.2	21.2	299256	12.2	20.2	236897	12.3	19.8	428959	12.4	20.7	489812	12.4	20.7	274043	12.5	19.7
278935	12.2	20.6	159479	12.2	19.8	88625	12.3	18.3	432900	12.4	20.2	227138	12.4	19.2	170791	12.5	19.5
242334	12.2	20.4	57609	12.2	18.7	445069	12.3	21.7	523823	12.4	23.7	214503	12.4	21.0	523529	12.5	20.7
289020	12.2	20.8	59874	12.2	18.9	320945	12.3	19.2	365956	12.4	20.5	258143	12.4	20.7	105311	12.5	18.0
535635	12.2	21.1	107055	12.2	19.9	47178	12.3	17.1	391462	12.4	20.1	350566	12.4	19.7	338256	12.5	20.8
544964	12.2	21.9	205507	12.2	20.7	176360	12.3	21.2	42261	12.4	19.1	468861	12.4	18.9	111021	12.5	19.7
327240	12.2	21.0	104116	12.2	19.5	25954	12.3	18.0	118860	12.4	20.2	295764	12.4	21.0	405990	12.5	22.6
268265	12.2	19.5	95057	12.2	20.0	182967	12.3	19.8	341281	12.4	20.0	282960	12.4	20.0	449086	12.5	21.1
94928	12.2	18.5	483015	12.3	20.8	462077	12.3	20.7	186223	12.4	19.4	179666	12.4	21.0	131785	12.5	19.5
471449	12.2	20.6	262665	12.3	21.1	483533	12.3	18.3	324635	12.4	21.5	128681	12.4	19.7	404943	12.5	21.6
355877	12.2	20.6	280220	12.3	20.7	129029	12.3	19.0	84284	12.4	19.4	424245	12.4	20.9	405164	12.5	22.4
81330	12.2	19.1	10259	12.3	16.1	198819	12.3	19.8	416943	12.4	21.5	491750	12.4	21.8	345714	12.5	21.2
462394	12.2	20.1	398137	12.3	19.3	402684	12.3	22.2	450898	12.4	19.9	128774	12.4	18.2	202760	12.5	20.5
288819	12.2	20.5	31699	12.3	18.0	50497	12.3	18.8	238502	12.4	20.7	436254	12.5	21.4	25227	12.5	18.4
6707	12.2	17.7	175461	12.3	19.0	265331	12.3	20.9	103952	12.4	19.4	172006	12.5	20.0	219869	12.5	20.4
340586	12.2	21.0	395134	12.3	20.0	54059	12.3	18.3	468599								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
213969	12.5	19.8	230686	12.6	19.9	363100	12.7	20.0	37460	12.7	20.0	144113	12.8	19.2	282599	12.8	20.3
445049	12.5	21.3	125571	12.6	18.6	382730	12.7	20.2	95131	12.7	19.8	142119	12.8	21.0	332917	12.8	20.3
62560	12.5	18.2	210788	12.6	19.9	378975	12.7	20.8	27172	12.7	17.1	466267	12.8	20.8	35235	12.8	18.9
10336	12.5	18.4	19859	12.6	18.7	73982	12.7	19.4	316745	12.7	20.6	108030	12.8	18.0	366449	12.8	20.0
486319	12.5	20.4	326484	12.6	20.5	377093	12.7	21.9	428988	12.7	20.7	496154	12.8	22.0	510859	12.9	19.9
317547	12.5	20.4	544288	12.6	21.0	82723	12.7	19.5	38119	12.7	18.4	535966	12.8	21.3	214432	12.9	20.7
322043	12.5	20.8	246369	12.6	19.7	161819	12.7	19.4	237721	12.7	20.5	256184	12.8	20.4	109648	12.9	18.8
117101	12.5	19.7	428813	12.6	21.5	29909	12.7	16.1	336012	12.7	21.6	153211	12.8	18.9	408933	12.9	20.2
532298	12.5	21.9	64176	12.6	19.1	543845	12.7	21.6	435991	12.7	20.2	146101	12.8	19.8	93853	12.9	18.9
542832	12.5	20.8	143255	12.6	20.6	113649	12.7	18.8	55505	12.7	18.3	242940	12.8	19.9	457799	12.9	20.4
111270	12.5	20.5	283241	12.6	20.8	360799	12.7	20.7	89461	12.7	18.9	135949	12.8	20.3	431453	12.9	21.9
1887	12.5	15.9	376430	12.6	19.8	20854	12.7	18.6	387418	12.7	20.3	495521	12.8	20.6	225383	12.9	20.4
202306	12.5	19.3	217104	12.6	20.8	414488	12.7	20.8	76733	12.7	18.4	120189	12.8	18.6	416925	12.9	21.1
95429	12.5	19.8	346152	12.6	20.5	93655	12.7	19.3	374590	12.7	20.7	201941	12.8	18.9	483484	12.9	21.4
82506	12.5	19.2	279081	12.6	20.3	338095	12.7	20.8	496799	12.7	19.3	306284	12.8	20.5	345745	12.9	19.7
102210	12.5	18.9	81459	12.6	19.7	39040	12.7	18.1	44518	12.7	18.8	380094	12.8	19.7	52693	12.9	17.7
277998	12.6	20.9	431519	12.6	21.7	21394	12.7	16.7	474098	12.7	21.1	377032	12.8	20.7	366944	12.9	20.6
54642	12.6	19.2	465072	12.6	20.8	484655	12.7	20.7	502709	12.7	20.1	509240	12.8	20.3	295354	12.9	20.1
74356	12.6	18.7	80426	12.6	18.6	364350	12.7	19.6	369306	12.7	21.6	406200	12.8	21.8	7848	12.9	17.1
347623	12.6	20.7	2835	12.6	16.2	544296	12.7	21.7	258084	12.7	20.7	132259	12.8	19.1	237888	12.9	19.8
416650	12.6	21.5	455921	12.6	21.3	268080	12.7	21.1	260846	12.7	21.0	495142	12.8	19.9	282857	12.9	19.5
372438	12.6	20.4	442734	12.6	21.2	103721	12.7	19.5	343941	12.7	19.4	401946	12.8	20.6	37397	12.9	19.4
338065	12.6	20.3	422261	12.6	21.4	432465	12.7	20.5	327010	12.7	21.3	369286	12.8	20.5	143660	12.9	21.0
379118	12.6	20.8	56794	12.6	19.2	84787	12.7	18.5	243385	12.7	19.7	372565	12.8	20.2	424243	12.9	20.9
424282	12.6	20.5	541567	12.6	20.3	324681	12.7	19.9	427712	12.7	20.2	307659	12.8	21.0	326093	12.9	20.5
84060	12.6	20.4	448865	12.6	21.0	109487	12.7	20.0	508583	12.7	21.4	16576	12.8	17.8	119697	12.9	18.3
524904	12.6	20.5	437627	12.6	20.5	341472	12.7	20.5	385926	12.7	20.8	29839	12.8	17.6	329108	12.9	20.5
416553	12.6	18.9	214732	12.6	20.9	345686	12.7	20.9	494875	12.7	20.2	326467	12.8	20.2	405379	12.9	20.5
180627	12.6	19.0	16262	12.6	18.5	408995	12.7	22.7	206770	12.7	20.2	346051	12.8	21.2	107	12.9	12.0
119065	12.6	19.4	42346	12.6	17.8	351567	12.7	21.0	124465	12.7	19.5	287714	12.8	20.9	105438	12.9	19.3
414862	12.6	20.7	25466	12.6	18.4	64454	12.7	19.4	60372	12.7	18.9	370512	12.8	21.4	495148	12.9	20.8
266419	12.6	20.0	460446	12.6	21.6	34454	12.7	18.4	437937	12.7	21.7	379729	12.8	20.1	411479	12.9	21.4
197718	12.6	20.4	87995	12.6	19.8	438161	12.7	21.6	413714	12.7	21.6	452278	12.8	20.0	120890	12.9	19.4
333973	12.6	20.7	113697	12.6	18.9	230559	12.7	20.8	428826	12.7	20.9	168344	12.8	20.7	89168	12.9	19.5
43683	12.6	19.6	538075	12.6	21.5	339657	12.7	20.8	443402	12.7	20.5	333229	12.8	20.4	540338	12.9	21.0
445901	12.6	21.4	543659	12.6	22.5	419044	12.7	20.6	542751	12.7	20.5	415178	12.8	19.7	526164	12.9	20.9
58375	12.6	19.1	94044	12.6	19.6	74707	12.7	19.4	350652	12.7	21.8	345177	12.8	19.6	319600	12.9	20.2
418033	12.6	20.5	216807	12.6	20.3	425680	12.7	20.8	113310	12.7	18.7	277157	12.8	19.6	420133	12.9	20.1
503257	12.6	20.5	279032	12.6	20.7	317191	12.7	20.0	306611	12.7	21.2	393665	12.8	20.0	500276	12.9	21.6
216563	12.6	19.8	11563	12.6	17.4	140705	12.7	18.2	83027	12.7	18.1	492262	12.8	21.2	31743	12.9	17.8
364429	12.6	20.8	148803	12.6	19.6	381981	12.7	20.2	394809	12.7	19.8	251576	12.8	19.6	116316	12.9	19.0
348708	12.6	18.7	193858	12.6	19.9	543783	12.7	22.4	339652	12.7	21.3	126613	12.8	20.2	235437	12.9	19.6
21566	12.6	18.1	81916	12.6	19.0	4934	12.7	17.0	206195	12.7	20.4	282478	12.8	19.0	397207	12.9	20.2
186731	12.6	20.0	229045	12.6	19.4	381654	12.7	20.2	337478	12.7	21.1	62427	12.8	19.1	318678	12.9	20.3
466882	12.6	20.2	281618	12.6	19.8	224855	12.7	20.1	321956	12.7	20.2	229529	12.8	20.7	341554	12.9	20.2
447401	12.6	21.3	350660	12.6	21.4	26612	12.7	18.4	209009	12.7	21.0	7212	12.8	17.0	534311	12.9	21.1
422274	12.6	21.3	265408	12.6	20.6	252276	12.7	21.5	141169	12.7	20.5	495403	12.8	21.6	81993	12.9	18.0
526531	12.6	21.0	158845	12.6	19.7	181135	12.7	19.5	363507	12.7	20.0	531278	12.8	20.3	459643	12.9	20.5
173891	12.6	20.3	464282	12.6	19.8	219442	12.7	20.5	238399	12.7	20.0	165472	12.8	19.9	205246	12.9	20.3
381998	12.6	20.7	138446	12.6	19.7	364771	12.7	20.1	408940	12.8	20.2	49726	12.8	19.7	427541	12.9	21.2
41093	12.6	18.9	334556	12.6	20.8	401124	12.7	20.4	451065	12.8	21.5	386554	12.8	21.6	222810	12.9	19.7
184069	12.6	19.8	117134	12.6	19.0	290810	12.7	20.0	136732	12.8	20.1	411451	12.8	21.8	293841	12.9	20.6
184640	12.6	19.6	139564	12.6	19.0	103724	12.7	19.0	491873	12.8	20.7	41977	12.8	19.0	47074	12.9	18.1
55331	12.6	18.8	98536	12.6	19.4	132958	12.7	19.1	187221	12.8	19.9	543581	12.8	21.1	186208	12.9	20.2
72556	12.6	19.5	194009	12.6	21.2	35006	12.7	18.9	367538	12.8	22.4	505928	12.8	19.4	179565	12.9	19.8
10578	12.6	18.1	241077	12.6	19.8	32953	12.7	17.8	205597	12.8	20.9	445103	12.8	22.2	322868	12.9	20.9
420332	12.6	19.8	470102	12.6	20.6	53899	12.7	18.3	167148	12.8	21.0	29896	12.8	16.9	201028	12.9	19.6
283425	12.6	21.3	171179	12.6	19.5	451871	12.7	21.0	446859	12.8	21.4	343897	12.8	20.7	268565	12.9	20.7
460653	12.6	20.6	117734	12.6	19.3	148785	12.7	20.4	450203	12.8	22.5	493494	12.8	20.4	165678	12.9	19.7
139449	12.6	18.1	379130	12.6	21.1	306881	12.7	20.7	62614	12.8	20.0	167634	12.8	20.1	543852	12.9	21.6
320703	12.6	19.6	350071	12.6	20.5	455756	12.7	20.9	267068	12.8	20.1	456434	12.8	21.3	187574	12.9	19.8
19265	12.6	18.2	338123	12.6	21.0	497636	12.7	22.0	457840	12.8	20.5	543482	12.8	20.7	130436	12.9	19.5
163524	12.6	20.9	92614	12.6	19.3	146666	12.7	18.8	529975	12.8	22.9	369127	12.8	20.2	178934	12.9	20.1
519456	12.6	19.9	268479	12.6	21.2	527116	12.7	22.1	200705	12.8	20.5	528283	12.8	21.8	541729	12.9	20.6
143804	12.6	19.9	202327	12.6	20.3	459858	12.7	21.3	341545	12.8	20.1	398985	12.8	20.4	174229	12.9	20.1
116241	12.6	18.6	383009	12.6	21.0	190485	12.7	19.3	21249	12.8	17.2	392256	12.8	20.7	187871	12.9	20.4
522513	12.6	20.9	498896	12.6	21.4	164149	12.7	19.3	306800	12.8	20.5	180814	12.8	20.0	79358	12.9	17.7
67971	12.6	19.6	366302	12.6	19.7	73676	12.7	18.9	78201	12.8	19.4	74304	12.8	20.1	532753	12.9	20.9
425407	12.6	20.1	336000	12.6	20.3	459213	12.7	20.4	199469	12.8</							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
242219	12.9	21.2	426580	12.9	21.1	339903	13.0	21.1	339695	13.1	21.2	330109	13.1	20.5	197491	13.2	19.4
411366	12.9	21.3	532891	12.9	21.1	326397	13.0	20.5	527529	13.1	22.0	466854	13.1	20.5	204742	13.2	19.3
333453	12.9	20.1	385502	12.9	18.8	82727	13.0	19.3	340593	13.1	21.5	490294	13.1	21.0	15026	13.2	17.8
329402	12.9	20.6	238949	12.9	19.5	143001	13.0	19.6	244961	13.1	20.1	455853	13.1	21.1	116506	13.2	18.8
416709	12.9	20.6	375408	12.9	20.8	414247	13.0	20.7	465764	13.1	21.4	177186	13.1	20.6	174707	13.2	20.4
378013	12.9	21.7	156015	12.9	20.4	454965	13.0	22.4	350137	13.1	19.6	10681	13.1	18.1	544448	13.2	21.6
498345	12.9	21.5	45775	12.9	17.9	490304	13.0	20.6	85528	13.1	20.8	135212	13.1	19.1	241198	13.2	20.4
90565	12.9	18.3	225112	12.9	19.7	48867	13.0	17.0	61104	13.1	18.9	460939	13.1	21.0	276722	13.2	21.1
100484	12.9	19.3	444012	12.9	21.5	429027	13.0	21.0	163555	13.1	20.0	406094	13.1	20.7	531074	13.2	22.8
264506	12.9	21.0	414825	12.9	21.2	197131	13.0	19.6	175672	13.1	20.9	29371	13.1	18.0	128761	13.2	20.5
522674	12.9	20.7	499434	12.9	20.5	283524	13.0	20.3	82729	13.1	19.6	417017	13.1	21.6	300361	13.2	20.9
142833	12.9	19.7	90984	12.9	20.0	43250	13.0	18.6	67930	13.1	19.6	206777	13.1	20.4	431553	13.2	20.6
268995	12.9	19.5	201052	12.9	19.9	493812	13.0	20.9	403037	13.1	20.7	451690	13.1	21.5	148139	13.2	20.5
203122	12.9	19.8	361577	12.9	21.7	317559	13.0	20.9	279385	13.1	20.2	511703	13.1	19.4	346009	13.2	20.2
287452	12.9	20.5	330702	12.9	19.9	296708	13.0	21.2	292492	13.1	20.8	252390	13.1	19.6	225152	13.2	20.0
226149	12.9	20.3	90387	12.9	19.5	364405	13.0	20.7	400404	13.1	20.8	268599	13.1	20.6	383686	13.2	21.8
320915	12.9	20.5	167049	12.9	19.8	403112	13.0	20.1	301273	13.1	22.0	543910	13.1	21.0	385459	13.2	21.2
346866	12.9	20.1	115265	12.9	20.3	94610	13.0	19.4	51901	13.1	19.0	345156	13.1	20.7	29914	13.2	17.4
275327	12.9	19.9	539936	12.9	21.3	316881	13.0	21.5	129699	13.1	19.4	407830	13.1	21.2	238412	13.2	19.5
127634	12.9	19.6	817	12.9	14.9	143499	13.0	19.4	268167	13.1	21.3	535232	13.2	20.7	13073	13.2	16.9
54635	12.9	18.1	369309	12.9	20.5	401963	13.0	21.6	69535	13.1	17.6	266738	13.2	20.3	408881	13.2	20.7
396545	12.9	19.6	181926	12.9	18.8	5644	13.0	17.0	487864	13.1	21.0	413575	13.2	21.1	114099	13.2	19.6
245683	12.9	19.6	247796	12.9	21.1	502781	13.0	21.0	164317	13.1	19.4	200301	13.2	18.3	13275	13.2	18.3
76382	12.9	18.7	338213	12.9	20.4	136609	13.0	20.0	406125	13.1	22.1	391424	13.2	20.1	375296	13.2	20.8
134774	12.9	20.0	433056	12.9	21.1	254745	13.0	20.7	409237	13.1	19.4	239308	13.2	20.3	159099	13.2	19.8
298358	12.9	21.2	437741	12.9	20.6	404698	13.0	20.7	324660	13.1	19.0	415524	13.2	20.5	48650	13.2	17.5
239258	12.9	19.8	484048	12.9	19.6	441020	13.0	20.4	329120	13.1	21.2	390390	13.2	20.5	266855	13.2	19.9
381689	12.9	20.9	359106	12.9	21.0	296928	13.0	20.9	117534	13.1	19.7	175777	13.2	19.0	544942	13.2	21.9
224582	12.9	20.3	500382	12.9	22.4	335843	13.0	19.5	393819	13.1	21.3	511581	13.2	20.3	70382	13.2	19.3
4128	12.9	17.3	62946	12.9	19.2	213684	13.0	20.6	116852	13.1	19.5	380952	13.2	19.8	84289	13.2	19.3
109979	12.9	19.7	497844	12.9	20.8	340646	13.0	21.2	155568	13.1	19.2	109557	13.2	18.7	539955	13.2	20.4
304868	12.9	20.1	299036	12.9	20.1	456497	13.0	20.7	237494	13.1	20.5	366605	13.2	20.0	280243	13.2	21.1
316945	12.9	20.4	462623	12.9	21.7	201299	13.0	20.7	398136	13.1	20.7	534675	13.2	21.1	416613	13.2	21.0
102104	12.9	20.3	350706	12.9	21.2	340719	13.0	20.7	237683	13.1	19.1	495458	13.2	21.2	544646	13.2	21.4
32020	12.9	18.1	239380	12.9	19.1	213332	13.0	19.6	343179	13.1	21.2	245962	13.2	19.9	189989	13.2	18.9
16965	12.9	17.5	113929	13.0	17.3	466883	13.0	20.6	538372	13.1	20.9	413983	13.2	21.2	35073	13.2	19.5
376257	12.9	20.1	297409	13.0	21.8	125971	13.0	19.7	541849	13.1	20.9	183105	13.2	21.2	58391	13.2	19.2
165830	12.9	21.0	94658	13.0	18.5	92081	13.0	18.0	456294	13.1	20.9	419080	13.2	20.9	39990	13.2	18.1
489610	12.9	22.0	61842	13.0	19.3	179906	13.0	19.4	315482	13.1	21.1	91278	13.2	19.6	332861	13.2	20.0
113603	12.9	20.2	167131	13.0	20.0	31098	13.0	18.6	519542	13.1	21.0	137026	13.2	19.5	25462	13.2	19.1
340015	12.9	19.7	110475	13.0	20.2	187123	13.1	20.5	108701	13.1	19.4	425285	13.2	21.6	385519	13.2	20.1
281653	12.9	20.3	544496	13.0	21.2	28219	13.1	18.5	9686	13.1	18.3	231163	13.2	20.2	89596	13.2	20.3
433708	12.9	20.1	362195	13.0	19.7	310806	13.1	20.5	320868	13.1	19.2	157794	13.2	19.3	233062	13.2	19.5
148651	12.9	19.6	390414	13.0	21.1	330662	13.1	20.4	451094	13.1	20.1	498301	13.2	20.7	451072	13.2	21.5
424923	12.9	20.0	129645	13.0	18.5	303898	13.1	19.4	297358	13.1	20.0	85462	13.2	18.6	406691	13.2	19.6
207744	12.9	20.9	404807	13.0	19.9	488425	13.1	21.6	306140	13.1	19.5	80058	13.2	18.3	293351	13.2	19.7
313466	12.9	21.0	282682	13.0	20.6	295422	13.1	20.5	302058	13.1	19.9	511746	13.2	19.8	83342	13.2	19.9
469195	12.9	20.2	481450	13.0	21.0	339768	13.1	20.9	206192	13.1	20.8	428199	13.2	20.4	10975	13.2	18.5
290496	12.9	20.9	83036	13.0	19.3	5313	13.1	15.5	28762	13.1	18.2	458810	13.2	21.5	184126	13.2	19.4
103822	12.9	19.5	372610	13.0	20.8	28140	13.1	16.8	468398	13.1	20.5	373998	13.2	20.4	242634	13.2	19.5
531559	12.9	21.7	204213	13.0	20.1	406123	13.1	22.0	428251	13.1	21.2	12289	13.2	17.4	445308	13.2	20.3
86566	12.9	18.0	126196	13.0	20.1	124590	13.1	19.5	485602	13.1	20.0	143165	13.2	19.8	177040	13.2	19.8
221190	12.9	20.6	204225	13.0	19.1	411331	13.1	21.2	262006	13.1	20.4	343223	13.2	20.4	104643	13.2	17.9
218896	12.9	19.8	191815	13.0	20.0	128192	13.1	19.8	454091	13.1	22.3	432572	13.2	20.2	484621	13.2	21.6
207522	12.9	19.7	28846	13.0	18.0	535137	13.1	21.9	144188	13.1	19.3	246479	13.2	18.8	15581	13.2	17.5
543642	12.9	22.0	468706	13.0	20.7	88634	13.1	19.3	26825	13.1	18.3	197293	13.2	19.8	374032	13.2	20.3
340772	12.9	20.7	167754	13.0	18.6	166068	13.1	19.0	464926	13.1	22.0	486839	13.2	19.9	39225	13.2	18.9
207346	12.9	20.3	494541	13.0	19.9	241058	13.1	20.4	420651	13.1	20.8	56702	13.2	19.0	518482	13.2	21.0
462075	12.9	20.7	319556	13.0	22.0	424800	13.1	21.2	506870	13.1	21.7	120312	13.2	19.3	110023	13.2	20.2
194119	12.9	20.2	27007	13.0	18.4	463668	13.1	22.3	376874	13.1	22.1	370723	13.2	20.9	235521	13.2	19.9
414749	12.9	18.9	72067	13.0	17.3	186589	13.1	19.6	207056	13.1	19.9	418821	13.2	20.7	421967	13.2	20.1
541813	12.9	20.9	259025	13.0	20.0	310414	13.1	21.3	333896	13.1	20.7	461393	13.2	21.8	461768	13.2	21.1
357383	12.9	21.0	413532	13.0	21.2	110308	13.1	20.4	99179	13.1	19.0	140260	13.2	20.4	167930	13.2	19.4
204455	12.9	19.7	78519	13.0	19.5	538878	13.1	20.8	167087	13.1	20.6	528091	13.2	20.7	37888	13.2	18.6
310194	12.9	21.0	468223	13.0	21.3	464205	13.1	20.7	293187	13.1	20.5	254619	13.2	20.8	406104	13.3	21.7
499996	12.9	21.1	242248	13.0	19.0	89528	13.1	19.8	494574	13.1	19.5	131996	13.2	18.6	120275	13.3	19.1
242204	12.9	19.7	263678	13.0	19.4	428135	13.1	19.4	458362	13.1	21.4	381283	13.2	21.0	290857	13.3	20.0
53922	12.9	19.5	202253	13.0	18.8	132510	13.1	19.3	58785	13.1	18.3	103893	13.2	19.5	336583	13.3	21.4
17749	12.9	18.7	481467	13.0	19.9	270800	13.1	20.1	87								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
46866	13.3	18.9	284504	13.3	19.9	127881	13.4	19.7	527151	13.5	23.1	126004	13.5	18.3	104890	13.6	18.3
241657	13.3	19.6	523417	13.3	20.6	354041	13.4	21.8	65732	13.5	19.5	430272	13.5	20.7	156770	13.6	18.7
210111	13.3	20.4	297425	13.3	21.2	223503	13.4	19.1	504114	13.5	21.5	24671	13.5	18.1	536502	13.6	21.2
447139	13.3	20.5	178506	13.3	19.0	199816	13.4	19.1	440702	13.5	22.0	321457	13.5	20.4	467821	13.6	20.2
336736	13.3	20.8	423037	13.3	20.6	149434	13.4	19.3	491259	13.5	20.8	342921	13.5	21.0	345157	13.6	19.6
98102	13.3	18.9	160531	13.3	20.7	246375	13.4	20.6	180471	13.5	19.8	544800	13.5	22.2	25304	13.6	18.8
459086	13.3	21.9	536938	13.3	20.9	67294	13.4	17.9	60752	13.5	17.6	414775	13.5	21.2	218725	13.6	20.3
299252	13.3	19.7	79804	13.3	20.1	300280	13.4	20.3	30542	13.5	17.5	288221	13.5	20.6	274735	13.6	20.1
157977	13.3	19.6	515743	13.3	20.9	438955	13.4	21.9	495585	13.5	20.8	501432	13.5	20.8	281389	13.6	20.6
84135	13.3	19.0	74894	13.3	18.7	522644	13.4	20.9	19288	13.5	16.5	125544	13.5	19.3	17262	13.6	17.9
25673	13.3	18.5	206102	13.3	20.0	83731	13.4	19.3	154411	13.5	18.8	286627	13.5	20.0	419785	13.6	20.5
114338	13.3	20.0	92562	13.3	18.4	345787	13.4	19.3	456361	13.5	22.1	50072	13.6	17.7	22562	13.6	18.9
330148	13.3	19.7	488241	13.3	20.6	292814	13.4	21.1	286247	13.5	20.3	69182	13.6	19.2	524564	13.6	20.2
165790	13.3	20.2	369290	13.3	20.6	53741	13.4	19.4	252409	13.5	19.8	8255	13.6	17.8	525709	13.6	22.3
421875	13.3	20.0	205529	13.3	20.2	242199	13.4	19.5	363174	13.5	21.1	367752	13.6	21.3	221139	13.6	20.6
276163	13.3	20.6	84448	13.3	19.1	153810	13.4	20.1	494721	13.5	21.0	324678	13.6	20.0	200431	13.6	21.0
424932	13.3	20.2	352812	13.3	20.0	234218	13.4	20.2	239252	13.5	19.9	456343	13.6	21.6	509652	13.6	19.3
85946	13.3	19.3	416591	13.3	23.2	248118	13.4	20.2	431521	13.5	20.4	312184	13.6	19.7	178030	13.6	19.9
167059	13.3	20.8	383756	13.3	20.2	162718	13.4	19.6	30170	13.5	18.9	241174	13.6	19.3	304780	13.6	20.4
347593	13.3	20.9	196255	13.3	18.1	233254	13.4	20.4	304798	13.5	20.1	502921	13.6	20.6	94574	13.6	19.0
341792	13.3	20.8	358252	13.3	20.4	498189	13.4	21.4	502582	13.5	20.1	26339	13.6	18.0	166173	13.6	18.8
173422	13.3	19.0	145299	13.3	19.5	496768	13.4	19.3	77707	13.5	19.5	300074	13.6	20.8	201400	13.6	21.2
535601	13.3	21.0	324065	13.4	20.4	535304	13.4	20.9	411911	13.5	20.9	82779	13.6	19.5	433917	13.6	20.7
109093	13.3	19.8	535421	13.4	20.8	417094	13.4	21.6	225320	13.5	20.0	317420	13.6	20.6	466175	13.6	21.1
532372	13.3	23.0	281285	13.4	21.0	365904	13.4	21.3	538563	13.5	21.5	298354	13.6	20.4	465681	13.6	21.2
467897	13.3	20.8	306239	13.4	20.5	67636	13.4	18.4	441461	13.5	21.7	217755	13.6	20.5	422427	13.6	21.3
83555	13.3	19.2	283967	13.4	21.2	442686	13.4	21.4	403906	13.5	21.0	295075	13.6	20.4	293089	13.7	21.4
527572	13.3	21.6	55539	13.4	18.4	343008	13.4	20.8	300903	13.5	19.8	182641	13.6	19.2	351775	13.7	19.8
334156	13.3	21.7	43461	13.4	18.7	310226	13.4	21.5	133245	13.5	20.0	487511	13.6	19.2	41618	13.7	18.6
246176	13.3	20.5	407818	13.4	20.2	179832	13.4	20.7	453181	13.5	20.4	143194	13.6	19.0	338224	13.7	20.8
238968	13.3	21.0	459642	13.4	20.9	240537	13.4	20.3	31573	13.5	17.6	189693	13.6	19.9	204679	13.7	19.7
263494	13.3	20.1	235506	13.4	20.5	97899	13.4	19.5	325313	13.5	20.5	500377	13.6	21.6	108881	13.7	19.6
246699	13.3	20.1	142742	13.4	19.3	301077	13.4	20.9	530043	13.5	21.1	79918	13.6	18.2	194457	13.7	20.2
84496	13.3	19.0	419291	13.4	20.8	408835	13.4	21.2	377424	13.5	21.5	206761	13.6	19.8	249517	13.7	19.3
327247	13.3	21.2	386751	13.4	20.2	160307	13.4	18.6	483892	13.5	20.8	462627	13.6	21.5	33596	13.7	18.0
458192	13.3	21.4	422256	13.4	20.7	26992	13.4	18.6	532976	13.5	22.7	365278	13.6	20.7	313446	13.7	21.3
94650	13.3	18.5	483987	13.4	19.8	377169	13.4	20.5	427694	13.5	20.7	233043	13.6	19.4	56865	13.7	18.9
343806	13.3	20.1	166675	13.4	20.9	307667	13.4	20.4	393858	13.5	20.9	262393	13.6	21.2	181891	13.7	19.8
82149	13.3	18.8	406095	13.4	21.3	528630	13.4	21.9	186259	13.5	20.6	44897	13.6	18.4	325940	13.7	20.5
182588	13.3	19.8	524751	13.4	20.5	330440	13.4	18.3	255117	13.5	19.5	88133	13.6	19.3	415901	13.7	21.5
132705	13.3	19.3	429253	13.4	20.6	171851	13.4	19.7	504342	13.5	21.4	468673	13.6	21.2	32066	13.7	17.4
377218	13.3	20.0	494793	13.4	20.2	170379	13.4	19.4	487897	13.5	20.8	463849	13.6	20.4	277962	13.7	21.3
125614	13.3	18.7	433891	13.4	20.9	336570	13.4	21.4	643	13.5	14.8	422308	13.6	20.1	354600	13.7	19.5
41742	13.3	17.9	536565	13.4	21.0	60823	13.4	19.3	499885	13.5	19.6	194952	13.6	18.9	404721	13.7	19.3
265814	13.3	20.5	151116	13.4	20.3	310157	13.4	21.1	351704	13.5	21.2	538034	13.6	20.4	263565	13.7	19.5
391481	13.3	19.3	188820	13.4	20.7	278766	13.4	19.8	188659	13.5	19.6	544462	13.6	20.4	498300	13.7	21.5
425014	13.3	20.3	502626	13.4	20.3	414509	13.4	20.6	290006	13.5	22.1	83914	13.6	20.0	116589	13.7	19.6
496668	13.3	21.4	99261	13.4	19.0	218920	13.4	20.3	35823	13.5	18.2	493014	13.6	20.9	240476	13.7	19.6
140365	13.3	19.2	359183	13.4	21.1	383625	13.4	22.1	496208	13.5	21.6	57008	13.6	18.7	227506	13.7	20.1
413498	13.3	21.9	4482	13.4	17.6	456310	13.4	22.5	522145	13.5	20.2	274600	13.6	21.0	238763	13.7	19.7
295146	13.3	19.9	313490	13.4	20.9	411434	13.4	21.3	200365	13.5	19.8	391053	13.6	20.2	418870	13.7	20.3
237975	13.3	21.3	542052	13.4	20.8	425502	13.4	21.1	282809	13.5	19.9	251656	13.6	20.5	375443	13.7	21.0
223750	13.3	20.5	190859	13.4	19.3	52557	13.4	17.8	243129	13.5	21.0	33212	13.6	18.9	172977	13.7	19.7
521092	13.3	20.3	202831	13.4	21.1	497275	13.4	21.6	466204	13.5	21.3	424762	13.6	20.9	97864	13.7	19.9
231622	13.3	20.0	115107	13.4	19.7	452195	13.4	21.4	529199	13.5	21.8	212620	13.6	19.5	529180	13.7	22.1
428485	13.3	21.1	416580	13.4	19.1	49212	13.4	17.7	298738	13.5	19.5	63065	13.6	19.1	281104	13.7	19.2
155079	13.3	20.8	506393	13.4	21.1	455015	13.4	21.7	297453	13.5	21.0	366142	13.6	20.5	541704	13.7	21.2
208956	13.3	21.9	25073	13.4	18.4	164338	13.4	19.5	87687	13.5	19.1	231709	13.6	20.6	148160	13.7	19.3
125024	13.3	19.2	401306	13.4	19.6	51829	13.4	17.6	124636	13.5	19.6	29290	13.6	19.4	460648	13.7	21.1
347466	13.3	21.3	122767	13.4	19.9	123745	13.4	19.5	68588	13.5	17.5	3311	13.6	15.9	460456	13.7	21.4
319456	13.3	20.4	417158	13.4	21.1	159081	13.5	20.7	423291	13.5	20.6	373722	13.6	22.1	451918	13.7	20.1
84259	13.3	19.4	357611	13.4	20.6	227032	13.5	21.1	138291	13.5	19.9	411483	13.6	20.6	137097	13.7	19.6
111925	13.3	19.1	172012	13.4	20.0	137233	13.5	18.8	382704	13.5	20.8	268622	13.6	20.3	443596	13.7	20.4
87777	13.3	19.6	267226	13.4	18.8	409888	13.5	20.9	190720	13.5	20.1	8758	13.6	18.2	96347	13.7	19.4
238397	13.3	19.5	137008	13.4	19.8	276303	13.5	20.0	458771	13.5	21.4	25814	13.6	19.0	407057	13.7	20.5
83569	13.3	18.5	542938	13.4	21.6	325049	13.5	19.7	212392	13.5	20.8	297482	13.6	19.8	122981	13.7	19.6
543066	13.3	21.4	465732	13.4	20.0	273043	13.5	20.8	201349	13.5	19.9	107241	13.6	18.9	258374	13.7	19.7
534651	13.3	21.0	221347	13.4	20.5	500142	13.5	19.0	428479	13.5	20.7	1591	13.6	14.6	397117	13.7	20.4
473067	13.3	20.5	393884	13.4	21.2	403693	13.5	21.0	413572								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
456357	13.7	21.4	63704	13.8	17.9	143520	13.8	19.5	4460	13.9	16.3	494954	13.9	21.5	235710	14.0	20.4
416639	13.7	21.2	54039	13.8	18.6	433171	13.8	20.8	441021	13.9	21.1	242205	13.9	21.1	219862	14.0	19.7
281117	13.7	19.6	293417	13.8	21.2	497815	13.8	22.1	208174	13.9	19.3	419945	13.9	20.5	529152	14.0	21.9
532979	13.7	21.4	23215	13.8	17.6	425413	13.8	20.7	104140	13.9	19.0	436337	13.9	19.9	231713	14.0	19.1
473760	13.7	21.6	160865	13.8	19.9	33597	13.8	17.9	7271	13.9	19.1	343046	13.9	20.5	111960	14.0	19.4
210104	13.7	19.9	238929	13.8	19.6	218766	13.8	20.3	426605	13.9	21.2	80820	13.9	19.4	490261	14.0	21.4
15685	13.7	18.5	485011	13.8	21.4	348693	13.8	20.5	258181	13.9	20.1	145937	13.9	19.4	492932	14.0	21.2
228723	13.7	20.1	468445	13.8	21.5	185418	13.8	19.4	155764	13.9	20.3	115959	13.9	18.8	415692	14.0	21.5
226936	13.7	20.0	339881	13.8	21.0	520651	13.8	21.4	331087	13.9	20.9	426494	13.9	20.3	161446	14.0	19.7
114649	13.7	19.5	126747	13.8	19.8	237985	13.8	20.5	279834	13.9	19.8	29875	13.9	18.6	494193	14.0	20.7
432205	13.7	20.8	85969	13.8	19.7	240920	13.8	19.3	517196	13.9	21.0	279223	13.9	18.9	832	14.0	15.6
204797	13.7	19.4	463442	13.8	20.1	376446	13.8	19.2	399218	13.9	20.6	165040	13.9	20.3	428979	14.0	20.4
229987	13.7	21.6	338917	13.8	20.3	439480	13.8	21.0	113120	13.9	19.7	150066	13.9	19.1	419492	14.0	20.3
392846	13.7	20.3	304568	13.8	20.3	348185	13.8	21.1	81454	13.9	17.3	242446	13.9	19.6	207611	14.0	20.1
238368	13.7	19.0	340713	13.8	20.4	152106	13.8	18.7	337689	13.9	21.3	384588	13.9	20.3	322865	14.0	21.3
181904	13.7	19.5	540195	13.8	20.2	71934	13.8	19.0	524658	13.9	23.1	339836	13.9	20.7	236007	14.0	19.3
125893	13.7	19.8	206931	13.8	20.9	161143	13.8	20.2	345546	13.9	21.2	108583	13.9	19.4	59300	14.0	17.9
149981	13.7	20.4	111366	13.8	19.9	453786	13.8	20.5	339684	13.9	20.4	416654	13.9	21.0	442219	14.0	20.7
14130	13.7	18.0	227025	13.8	20.1	63487	13.8	19.3	96724	13.9	17.3	171928	13.9	19.9	505224	14.0	19.9
351276	13.7	21.5	456685	13.8	21.7	415756	13.8	21.4	432114	13.9	20.4	496250	13.9	19.9	14469	14.0	18.3
98558	13.7	19.2	340617	13.8	20.8	47500	13.8	19.4	109182	13.9	19.5	61112	13.9	18.6	233029	14.0	19.0
219353	13.7	20.3	147833	13.8	19.2	137905	13.8	19.5	5179	13.9	16.3	489282	13.9	19.8	27724	14.0	17.5
541823	13.7	21.0	113172	13.8	20.2	364358	13.8	19.5	73581	13.9	18.1	11157	13.9	18.1	237499	14.0	19.7
459109	13.7	22.3	205227	13.8	20.0	457100	13.8	20.7	245716	13.9	20.0	481320	13.9	20.2	360293	14.0	20.9
4177	13.7	18.9	344262	13.8	21.2	352845	13.8	19.8	527628	13.9	21.7	85335	13.9	19.6	421128	14.0	21.9
416903	13.7	19.7	503568	13.8	20.7	544371	13.8	20.7	364343	13.9	21.3	403061	13.9	21.8	114162	14.1	18.6
8529	13.7	18.1	226813	13.8	20.2	258106	13.8	19.9	176764	13.9	20.3	25218	13.9	17.3	284166	14.1	19.8
445552	13.7	19.7	369610	13.8	20.0	227769	13.8	20.1	315030	13.9	20.6	258615	13.9	19.9	293772	14.1	20.9
359389	13.7	20.3	378520	13.8	21.0	338986	13.8	19.8	98332	13.9	18.5	198867	13.9	20.2	120381	14.1	20.1
469264	13.7	20.0	190250	13.8	19.6	364811	13.8	19.5	182501	13.9	19.9	199306	13.9	19.9	469215	14.1	20.4
244081	13.7	20.7	85183	13.8	19.7	491298	13.8	21.4	284007	13.9	21.3	433805	13.9	20.3	221523	14.1	19.5
314835	13.7	20.8	89761	13.8	19.2	340849	13.8	21.5	420561	13.9	21.0	90836	13.9	19.1	155666	14.1	19.5
427187	13.7	21.6	334564	13.8	20.5	334502	13.8	20.7	366937	13.9	21.0	374195	13.9	20.4	237150	14.1	20.8
413661	13.7	20.9	428879	13.8	21.5	332940	13.8	20.9	126425	13.9	20.9	341386	13.9	20.8	186148	14.1	19.5
496698	13.7	21.1	182720	13.8	20.6	511541	13.8	20.8	4951	13.9	16.5	25400	13.9	16.7	471756	14.1	21.3
100445	13.7	19.0	195103	13.8	19.8	194180	13.8	21.1	242738	13.9	19.2	171882	13.9	20.8	465333	14.1	20.8
219454	13.7	19.8	52723	13.8	17.3	53605	13.8	17.4	205289	13.9	20.0	61620	13.9	19.2	403094	14.1	20.8
188746	13.7	20.4	51974	13.8	18.6	360823	13.8	19.2	83252	13.9	18.7	108687	13.9	19.4	407548	14.1	20.0
201418	13.7	20.2	419172	13.8	21.7	428408	13.8	21.6	348418	13.9	21.5	113745	14.0	20.0	171986	14.1	20.3
241856	13.7	20.1	1112	13.8	15.0	428192	13.9	21.1	154561	13.9	19.5	238500	14.0	20.4	174899	14.1	20.1
29826	13.7	17.4	105844	13.8	18.8	246714	13.9	19.9	532927	13.9	22.1	194362	14.0	19.2	372499	14.1	20.2
522670	13.7	21.6	304875	13.8	21.1	356024	13.9	20.7	108352	13.9	19.6	459062	14.0	21.1	419508	14.1	18.9
226929	13.7	20.1	221578	13.8	20.8	29449	13.9	19.0	41533	13.9	18.8	364370	14.0	21.7	286289	14.1	20.5
22431	13.7	18.1	235423	13.8	19.4	141845	13.9	19.0	453091	13.9	21.6	225386	14.0	20.6	347609	14.1	22.0
279886	13.7	21.3	368602	13.8	21.1	29564	13.9	17.2	55786	13.9	17.7	43930	14.0	18.5	541282	14.1	21.2
496861	13.7	21.8	417104	13.8	21.3	173861	13.9	20.2	339809	13.9	20.3	80085	14.0	18.4	229512	14.1	20.0
189178	13.7	19.7	413668	13.8	21.2	228135	13.9	21.1	103137	13.9	19.7	173468	14.0	20.6	466871	14.1	21.1
500532	13.7	21.0	350788	13.8	21.2	47666	13.9	18.0	525927	13.9	22.4	109595	14.0	20.3	335895	14.1	21.2
393999	13.7	21.1	208542	13.8	19.8	447923	13.9	21.0	343097	13.9	20.5	100284	14.0	20.2	136159	14.1	20.3
163578	13.7	19.5	137701	13.8	19.8	13863	13.9	18.7	385972	13.9	20.6	76771	14.0	18.2	29718	14.1	16.6
86491	13.7	18.5	341859	13.8	21.1	381240	13.9	21.0	241079	13.9	20.6	330915	14.0	21.3	15208	14.1	18.9
126784	13.7	19.8	5990	13.8	15.8	132480	13.9	19.7	127958	13.9	18.9	14404	14.0	18.6	538139	14.1	20.8
406599	13.7	20.1	524921	13.8	20.8	458277	13.9	21.5	70034	13.9	18.6	373972	14.0	20.7	63615	14.1	17.9
65385	13.7	20.4	76624	13.8	19.0	37170	13.9	18.4	12738	13.9	18.1	275418	14.0	19.6	456569	14.1	20.5
77179	13.7	19.4	65912	13.8	17.7	215547	13.9	20.7	520890	13.9	20.8	315733	14.0	19.5	488771	14.1	21.9
322028	13.7	21.0	154042	13.8	19.3	27085	13.9	18.5	187935	13.9	20.0	229888	14.0	20.3	184987	14.1	20.1
522638	13.7	21.0	117454	13.8	19.7	396807	13.9	21.3	432159	13.9	21.6	448210	14.0	20.2	354591	14.1	20.1
102974	13.7	18.1	393452	13.8	20.1	262242	13.9	19.5	322139	13.9	21.1	301270	14.0	21.4	361871	14.1	20.5
396833	13.7	21.8	368007	13.8	20.2	271437	13.9	19.3	277538	13.9	21.8	369346	14.0	21.6	455997	14.1	20.6
343383	13.7	21.3	527555	13.8	21.0	313200	13.9	20.5	536784	13.9	21.3	398731	14.0	20.7	461202	14.1	20.6
214391	13.7	20.3	518830	13.8	20.9	204371	13.9	20.7	296010	13.9	20.4	523956	14.0	22.2	107231	14.1	18.7
12231	13.7	18.4	111026	13.8	19.5	218351	13.9	19.4	320901	13.9	20.6	335986	14.0	20.1	82295	14.1	19.2
406072	13.7	21.6	90942	13.8	19.6	283268	13.9	18.6	412613	13.9	20.2	463885	14.0	20.9	76014	14.1	19.1
544617	13.7	22.1	140986	13.8	20.1	529161	13.9	20.8	175748	13.9	20.5	284377	14.0	20.0	527432	14.1	22.4
379482	13.7	20.8	243888	13.8	20.8	115164	13.9	19.9	190726	13.9	19.2	544370	14.0	20.8	159220	14.1	20.7
410810	13.7	20.3	81572	13.8	18.0	206762	13.9	19.8	202779	13.9	20.3	45522	14.0	18.6	82857	14.1	17.8
420784	13.8	21.7	294097	13.8	20.3	536092	13.9	20.6	252306	13.9	20.1	538565	14.0	21.6	419551	14.1	21.6
532326	13.8	21.6	197812	13.8	21.3	390834	13.9	21.4	194809	13.9	20.9	218709	14.0	21.4	541614	14.1	20.8
534575	13.8	22.1	205490	13.8	20.1	306131	13.9	19.1	136110								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
271391	14.1	19.2	529101	14.1	21.5	63646	14.2	20.0	197373	14.3	20.0	536122	14.3	20.3	528572	14.4	21.9
10310	14.1	17.4	498083	14.1	22.0	430441	14.2	22.1	49289	14.3	19.9	334177	14.3	21.3	370832	14.4	20.4
44529	14.1	19.1	244514	14.1	21.1	89832	14.2	20.5	87088	14.3	20.2	48736	14.3	18.3	12523	14.4	17.4
245680	14.1	20.3	26930	14.1	18.7	38517	14.2	17.9	351664	14.3	21.3	522044	14.3	20.3	245052	14.4	20.0
48807	14.1	18.2	717	14.1	16.5	79995	14.2	18.8	381662	14.3	20.1	418346	14.3	19.8	61899	14.4	19.5
183298	14.1	19.3	429018	14.1	20.9	363824	14.2	20.3	432478	14.3	19.9	7938	14.4	17.1	408859	14.4	20.8
372955	14.1	20.8	130406	14.1	19.3	289249	14.2	20.3	340626	14.3	21.2	407357	14.4	21.2	341483	14.4	20.9
525553	14.1	20.8	538694	14.1	21.3	344860	14.2	19.9	164279	14.3	20.1	341393	14.4	20.4	96068	14.4	18.9
379427	14.1	20.2	189083	14.1	20.5	274294	14.2	20.7	166012	14.3	19.1	363139	14.4	20.8	216208	14.4	20.9
228298	14.1	20.3	432004	14.1	20.1	380126	14.2	21.1	146455	14.3	19.5	433140	14.4	21.6	157988	14.4	18.8
163480	14.1	19.6	415196	14.1	20.7	191030	14.2	19.1	270429	14.3	19.1	117388	14.4	20.8	104902	14.4	18.4
167594	14.1	19.4	444407	14.1	21.4	331664	14.2	21.0	163470	14.3	20.5	75759	14.4	17.8	376372	14.4	21.7
291131	14.1	19.8	337216	14.2	19.8	30983	14.2	19.1	252466	14.3	19.5	152235	14.4	20.3	373299	14.4	20.7
80200	14.1	18.8	162975	14.2	20.8	244690	14.2	20.4	319093	14.3	20.2	415812	14.4	21.2	197776	14.4	19.9
85142	14.1	19.1	206283	14.2	21.2	64044	14.2	19.1	181064	14.3	19.5	70058	14.4	18.5	182769	14.4	19.9
334906	14.1	21.2	280213	14.2	20.0	75881	14.2	19.4	280433	14.3	20.9	385258	14.4	21.8	205546	14.4	21.2
80214	14.1	19.0	91573	14.2	20.4	332156	14.2	20.7	429947	14.3	20.8	414233	14.4	20.5	390597	14.4	20.8
193027	14.1	20.0	415773	14.2	22.0	390872	14.2	20.8	118915	14.3	20.4	400246	14.4	21.5	439969	14.4	22.0
480977	14.1	21.7	431528	14.2	21.6	522565	14.2	21.1	154033	14.3	19.4	532058	14.4	21.0	14470	14.4	17.7
466348	14.1	20.6	354003	14.2	21.2	397902	14.2	21.3	410430	14.3	19.4	197753	14.4	20.3	494533	14.4	20.7
313507	14.1	20.6	149271	14.2	19.6	500389	14.2	21.6	445606	14.3	20.6	85941	14.4	17.6	434800	14.4	21.0
326460	14.1	21.1	283065	14.2	20.8	238832	14.2	20.4	423413	14.3	21.4	411272	14.4	22.4	256324	14.4	19.2
340050	14.1	20.2	206839	14.2	19.7	544778	14.2	20.8	455889	14.3	21.3	297102	14.4	21.1	170227	14.4	20.7
148313	14.1	18.7	537060	14.2	20.7	535616	14.2	21.0	142841	14.3	18.9	496269	14.4	22.1	338107	14.4	20.8
193947	14.1	20.5	254943	14.2	21.7	397941	14.2	21.9	179836	14.3	20.7	343956	14.4	20.4	535044	14.4	20.7
283887	14.1	19.2	458323	14.2	21.5	432066	14.2	20.7	319714	14.3	21.1	141142	14.4	19.1	656	14.4	14.0
425465	14.1	20.1	417348	14.2	19.9	339042	14.2	19.0	419834	14.3	21.3	59324	14.4	18.8	462050	14.4	20.3
67978	14.1	19.4	120757	14.2	18.4	469053	14.2	20.2	120813	14.3	20.1	34500	14.4	19.0	285138	14.4	20.8
80366	14.1	16.8	64401	14.2	17.4	46862	14.2	17.5	203708	14.3	20.9	288387	14.4	19.7	315519	14.4	21.0
219443	14.1	20.3	465373	14.2	20.1	180630	14.2	18.5	314855	14.3	21.2	159575	14.4	19.9	6086	14.4	16.8
88844	14.1	19.5	345201	14.2	20.4	490183	14.2	21.7	527204	14.3	20.5	410453	14.4	20.9	363	14.4	13.2
486533	14.1	20.1	492096	14.2	20.5	255960	14.2	21.0	54797	14.3	19.2	311020	14.4	21.1	502676	14.4	20.9
267194	14.1	20.0	440025	14.2	20.9	165926	14.2	19.9	202737	14.3	20.1	349091	14.4	19.3	413497	14.4	21.4
134709	14.1	20.0	343171	14.2	20.6	282167	14.2	20.5	527227	14.3	21.7	315364	14.4	20.2	89810	14.5	20.6
477764	14.1	21.5	100808	14.2	18.1	395405	14.2	21.1	196955	14.3	19.2	407352	14.4	22.0	169997	14.5	19.9
227577	14.1	20.9	496095	14.2	21.7	241709	14.2	19.3	307229	14.3	19.8	106337	14.4	18.4	110324	14.5	18.6
199794	14.1	19.9	38648	14.2	19.6	310930	14.2	20.3	324584	14.3	20.0	383366	14.4	20.1	274971	14.5	21.3
428379	14.1	20.5	313436	14.2	21.0	345880	14.2	20.8	154795	14.3	19.3	122752	14.4	18.5	69587	14.5	18.7
108301	14.1	18.8	151083	14.2	20.0	131436	14.2	20.0	17942	14.3	17.0	12127	14.4	17.5	131382	14.5	19.4
532162	14.1	20.3	329845	14.2	21.3	440600	14.2	22.1	536802	14.3	21.2	455430	14.4	21.9	333376	14.5	20.8
35216	14.1	19.5	47865	14.2	18.1	545044	14.2	21.2	538293	14.3	20.7	422082	14.4	21.4	366421	14.5	20.9
330485	14.1	20.5	268546	14.2	20.6	4207	14.2	16.0	496280	14.3	21.7	79134	14.4	20.2	54837	14.5	19.1
444187	14.1	20.9	125326	14.2	18.8	364442	14.2	20.9	469024	14.3	21.4	379026	14.4	19.5	109283	14.5	20.7
265858	14.1	20.8	473969	14.2	20.4	464306	14.3	22.4	464429	14.3	20.0	422543	14.4	21.1	304845	14.5	20.3
300319	14.1	20.2	489382	14.2	20.7	301441	14.3	20.3	85816	14.3	19.6	341398	14.4	21.2	382326	14.5	20.6
525803	14.1	21.3	544586	14.2	21.6	205501	14.3	19.8	860	14.3	14.3	392827	14.4	20.3	228048	14.5	20.9
294596	14.1	19.6	61589	14.2	19.7	433695	14.3	21.3	251406	14.3	20.0	137051	14.4	20.3	164324	14.5	21.1
89351	14.1	18.1	421678	14.2	20.7	460284	14.3	21.9	454946	14.3	22.3	456649	14.4	20.8	59055	14.5	18.3
340598	14.1	20.4	226830	14.2	20.5	106359	14.3	19.3	212817	14.3	20.4	463943	14.4	21.0	70036	14.5	18.8
241171	14.1	20.2	460232	14.2	21.2	200859	14.3	20.1	18241	14.3	18.1	51718	14.4	19.3	317607	14.5	19.9
367624	14.1	20.9	377016	14.2	21.8	430087	14.3	21.2	327411	14.3	20.4	128077	14.4	17.5	18703	14.5	18.3
406019	14.1	20.2	530997	14.2	21.4	245734	14.3	20.0	325116	14.3	20.4	430846	14.4	20.9	194616	14.5	20.4
529895	14.1	21.7	27215	14.2	18.7	209680	14.3	19.8	26578	14.3	18.6	109338	14.4	19.5	174884	14.5	19.5
134881	14.1	18.8	208964	14.2	20.9	341337	14.3	20.3	237724	14.3	19.5	367166	14.4	19.3	161474	14.5	19.3
53379	14.1	18.2	1332	14.2	15.5	426399	14.3	22.3	164443	14.3	20.1	542764	14.4	21.3	105188	14.5	19.3
126712	14.1	19.9	142144	14.2	21.2	161681	14.3	19.9	265801	14.3	20.5	11892	14.4	17.9	8671	14.5	18.2
80206	14.1	18.8	384655	14.2	20.0	207876	14.3	19.7	265824	14.3	20.3	13031	14.4	16.2	533629	14.5	20.3
231829	14.1	19.2	118265	14.2	18.9	407750	14.3	20.2	239558	14.3	20.0	209638	14.4	20.0	119564	14.5	20.4
317217	14.1	19.4	129344	14.2	20.3	544124	14.3	21.2	247074	14.3	19.8	151790	14.4	19.5	331406	14.5	19.6
451900	14.1	20.3	527402	14.2	22.1	390391	14.3	21.4	20608	14.3	17.5	282982	14.4	21.1	46555	14.5	18.9
354155	14.1	20.9	337509	14.2	21.2	62049	14.3	19.9	275287	14.3	20.1	505187	14.4	21.6	246252	14.5	20.4
321890	14.1	20.8	231101	14.2	19.9	14611	14.3	19.0	44266	14.3	19.4	176713	14.4	21.0	34100	14.5	18.5
239047	14.1	19.9	393462	14.2	21.2	106246	14.3	19.9	252529	14.3	20.5	406201	14.4	21.1	432906	14.5	21.3
56257	14.1	17.1	261105	14.2	21.3	156027	14.3	19.7	363183	14.3	21.2	190703	14.4	19.2	300316	14.5	20.5
184528	14.1	20.0	333397	14.2	20.6	381341	14.3	20.3	541890	14.3	21.0	455273	14.4	21.3	343652	14.5	20.2
536259	14.1	21.1	395406	14.2	21.0	486762	14.3	20.2	452959	14.3	20.5	129814	14.4	20.3	460209	14.5	20.2
5730	14.1	17.0	340721	14.2	20.6	197393	14.3	18.8	16077	14.3	16.6	459399	14.4	20.2	138633	14.5	19.1
191346	14.1	19.8	139674	14.2	19.7	146059	14.3	18.9	33497	14.3	17.7	65092	14.4	18.6	534980	14.5	22.6
57304	14.1	19.4	225619	14.2	20.0	102130	14.3	19.7	79510	14.3							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
393444	14.5	21.4	283520	14.6	20.1	341786	14.6	20.3	149511	14.7	20.0	234841	14.7	20.4	543519	14.8	21.4
388477	14.5	19.3	409469	14.6	21.6	46145	14.6	19.4	181067	14.7	20.5	222104	14.7	19.9	409620	14.8	21.6
329006	14.5	19.9	311123	14.6	19.2	268594	14.6	19.3	534394	14.7	21.0	474583	14.7	19.4	143376	14.8	19.4
27763	14.5	18.3	64239	14.6	18.7	365568	14.6	20.7	258423	14.7	21.0	424288	14.7	20.6	322250	14.8	18.9
494687	14.5	19.3	258857	14.6	22.3	90736	14.6	18.5	544383	14.7	21.2	503755	14.7	20.4	325813	14.8	21.1
309224	14.5	20.4	382243	14.6	19.9	76488	14.6	19.9	221217	14.7	20.5	198897	14.7	18.7	266225	14.8	20.8
142665	14.5	19.7	383698	14.6	21.0	192229	14.6	21.0	544885	14.7	21.4	150847	14.7	20.5	450684	14.8	19.9
139626	14.5	19.2	142529	14.6	20.2	76663	14.6	18.6	17981	14.7	17.8	77803	14.8	19.1	141211	14.8	20.2
84466	14.5	18.9	400281	14.6	21.2	3358	14.6	17.9	82520	14.7	19.1	182618	14.8	20.2	80092	14.8	19.2
290582	14.5	20.1	417041	14.6	21.7	110186	14.6	20.4	340880	14.7	18.8	310366	14.8	20.2	235724	14.8	20.7
79997	14.5	17.5	247531	14.6	19.3	61254	14.6	18.9	83289	14.7	18.8	93742	14.8	20.5	139434	14.8	19.3
215999	14.5	20.5	303082	14.6	21.0	541799	14.6	19.7	234062	14.7	17.9	147452	14.8	18.7	331999	14.8	20.1
324741	14.5	20.6	219762	14.6	20.3	88585	14.6	18.7	283414	14.7	21.3	108302	14.8	19.0	346026	14.8	21.4
445150	14.5	20.1	136539	14.6	21.4	461056	14.6	20.2	502768	14.7	21.0	151783	14.8	19.1	252458	14.8	20.5
376530	14.5	20.2	527392	14.6	22.4	451731	14.6	20.2	234625	14.7	19.8	419487	14.8	20.9	57396	14.8	18.8
171371	14.5	19.8	284003	14.6	20.8	766	14.6	14.5	321705	14.7	20.5	529146	14.8	21.9	1563	14.8	14.4
246475	14.5	19.6	5485	14.6	16.8	425414	14.6	21.3	350662	14.7	20.8	97879	14.8	20.3	98859	14.8	17.6
433088	14.5	20.6	203809	14.6	20.2	345192	14.6	20.9	445174	14.7	21.9	399925	14.8	20.3	40311	14.8	18.6
81954	14.5	19.5	309312	14.6	21.0	177872	14.6	19.6	377105	14.7	20.8	218619	14.8	19.8	501366	14.8	21.4
510025	14.5	21.1	244555	14.6	19.8	429281	14.6	19.4	101995	14.7	20.1	222798	14.8	20.8	3106	14.8	17.0
545113	14.5	20.9	363153	14.6	21.3	372608	14.6	20.4	449535	14.7	20.8	327970	14.8	20.9	284387	14.8	20.8
52091	14.5	19.7	542772	14.6	20.9	450867	14.6	20.7	429316	14.7	20.1	496824	14.8	20.2	152662	14.8	19.5
403290	14.5	19.7	400339	14.6	20.9	59038	14.6	19.6	340131	14.7	20.8	167790	14.8	20.9	458295	14.8	21.7
496349	14.5	21.5	248714	14.6	21.0	451247	14.6	20.0	319671	14.7	20.1	350548	14.8	20.7	528543	14.8	21.2
496584	14.5	21.1	360824	14.6	20.2	273051	14.6	20.0	221184	14.7	20.3	427195	14.8	20.5	419110	14.8	21.4
194167	14.5	18.4	241665	14.6	19.7	278870	14.6	21.0	310954	14.7	21.3	27280	14.8	17.4	532645	14.8	21.4
257570	14.5	20.9	531563	14.6	21.0	496902	14.6	22.5	45609	14.7	18.4	538135	14.8	20.7	22899	14.8	18.1
223287	14.5	18.9	351288	14.6	21.3	500528	14.6	22.3	271413	14.7	19.8	296958	14.8	19.5	224555	14.8	20.1
164811	14.5	18.6	242615	14.6	19.3	243396	14.6	19.7	208362	14.7	20.8	330121	14.8	19.8	282152	14.8	20.3
473924	14.5	20.6	44994	14.6	18.4	450799	14.6	20.2	357522	14.7	20.9	540138	14.8	20.8	372684	14.8	21.3
187875	14.5	20.9	331040	14.6	20.6	544529	14.6	21.8	544506	14.7	21.5	225382	14.8	20.8	236029	14.8	20.7
183274	14.5	21.0	337427	14.6	20.6	529083	14.6	20.8	376660	14.7	20.8	83403	14.8	19.9	314908	14.8	21.2
274730	14.5	21.1	219459	14.6	21.0	502429	14.6	19.9	243529	14.7	20.1	535640	14.8	20.7	243062	14.8	21.5
496586	14.5	21.0	161982	14.6	20.0	40160	14.6	17.6	354604	14.7	20.4	262931	14.8	20.1	55402	14.8	19.4
136991	14.5	20.4	68968	14.6	20.6	273129	14.6	20.4	401950	14.7	22.0	453993	14.8	20.9	80845	14.8	19.2
389390	14.5	21.4	57239	14.6	18.9	340671	14.6	20.9	203849	14.7	19.9	386716	14.8	21.0	256058	14.8	21.2
49918	14.5	17.4	149465	14.6	19.4	538712	14.6	20.6	519354	14.7	20.8	57143	14.8	18.4	419265	14.8	20.7
297966	14.5	19.8	468109	14.6	20.7	46052	14.6	19.1	368582	14.7	20.7	218614	14.8	19.3	497688	14.8	21.6
172036	14.5	20.3	537771	14.6	21.5	171979	14.6	20.0	508385	14.7	21.2	94738	14.8	18.4	337912	14.8	20.5
91439	14.5	20.0	160028	14.6	18.1	459021	14.6	21.2	543004	14.7	20.8	203816	14.8	20.1	486452	14.8	20.3
486080	14.5	20.6	347215	14.6	20.5	330118	14.6	21.5	155000	14.7	20.5	199026	14.8	20.2	413710	14.8	20.9
173380	14.5	20.2	87967	14.6	19.7	456564	14.6	20.3	145489	14.7	19.4	524251	14.8	22.5	521762	14.8	20.4
460220	14.5	20.1	381213	14.6	21.2	417011	14.6	21.4	470852	14.7	20.2	429061	14.8	20.6	252281	14.8	18.6
488971	14.5	21.2	155695	14.6	20.7	194986	14.6	20.3	544415	14.7	21.2	45135	14.8	18.8	320349	14.8	20.8
413500	14.5	20.8	28111	14.6	19.0	81215	14.6	17.9	367360	14.7	20.0	251053	14.8	20.9	204617	14.8	20.1
421406	14.5	20.3	324605	14.6	20.3	115771	14.6	19.4	99961	14.7	18.3	157647	14.8	20.3	466808	14.8	20.4
53176	14.5	18.3	376490	14.6	21.1	411211	14.7	21.7	234529	14.7	20.6	136249	14.8	19.6	225256	14.8	20.8
227076	14.5	20.9	278150	14.6	20.6	205515	14.7	21.1	39522	14.7	18.9	335707	14.8	20.7	15012	14.8	17.4
310339	14.5	21.6	56182	14.6	18.0	38857	14.7	19.2	223672	14.7	20.5	59736	14.8	18.3	323518	14.8	19.2
151985	14.5	19.6	428997	14.6	21.7	183253	14.7	19.9	541699	14.7	21.5	324718	14.8	20.5	217111	14.8	20.0
4785	14.5	17.4	280686	14.6	20.0	440516	14.7	21.3	532565	14.7	21.4	74234	14.8	19.3	164795	14.8	19.8
428450	14.5	20.6	201050	14.6	19.6	476343	14.7	21.1	236873	14.7	19.6	401972	14.8	20.6	92577	14.8	19.1
460595	14.5	21.4	450306	14.6	22.0	272140	14.7	20.1	492714	14.7	20.9	186660	14.8	19.7	461729	14.8	21.5
51149	14.5	17.8	543758	14.6	22.0	23759	14.7	18.8	405165	14.7	21.6	242300	14.8	20.8	525104	14.8	22.1
337513	14.5	21.8	279002	14.6	20.8	256905	14.7	20.1	37056	14.7	18.1	424882	14.8	20.8	220281	14.8	19.3
540208	14.5	20.8	294658	14.6	20.7	234948	14.7	20.9	427451	14.7	21.8	39898	14.8	18.8	104209	14.8	19.7
431144	14.5	21.6	272122	14.6	20.6	445070	14.7	21.0	360601	14.7	19.7	146500	14.8	20.3	235915	14.8	19.8
464586	14.5	20.4	104094	14.6	19.3	430857	14.7	20.2	533925	14.7	21.5	56318	14.8	18.1	18124	14.8	17.9
34721	14.5	19.3	226969	14.6	21.4	68049	14.7	19.5	212466	14.7	20.5	4960	14.8	18.0	345666	14.8	20.1
35066	14.5	18.3	459675	14.6	20.4	351766	14.7	21.3	397479	14.7	21.1	246194	14.8	19.3	292703	14.8	20.7
56806	14.5	19.3	126261	14.6	19.6	370738	14.7	21.9	397223	14.7	20.2	413870	14.8	19.1	101195	14.8	19.1
544339	14.5	20.5	113993	14.6	19.2	120364	14.7	19.9	425051	14.7	21.7	394023	14.8	21.3	262495	14.8	20.1
359234	14.5	20.1	325648	14.6	21.1	427075	14.7	21.0	61365	14.7	17.9	340959	14.8	21.0	345545	14.9	20.4
421233	14.5	20.6	261528	14.6	19.8	329581	14.7	22.0	52608	14.7	19.7	355960	14.8	21.0	266060	14.9	20.6
173722	14.5	20.8	494734	14.6	21.2	116512	14.7	19.5	423160	14.7	20.6	426274	14.8	20.4	319764	14.9	21.3
529868	14.5	22.5	105343	14.6	19.0	451729	14.7	20.8	3296	14.7	16.9	504968	14.8	20.5	535952	14.9	20.8
461433	14.5	21.2	149422	14.6	19.2	34056	14.7	18.0	275414	14.7	20.3	290696	14.8	20.5	14415	14.9	17.7
348247	14.5	21.2	195379	14.6	19.3	274328	14.7	20.6	256047	14.7	21.1	525818	14.8	20.8	271393	14.9	19.8
389546	14.5	20.5	183415	14.6	20.6	186267	14.7	20.2	221425								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
313494	14.9	20.5	492080	14.9	20.3	264419	15.0	20.1	85631	15.1	18.8	307684	15.1	21.5	197295	15.2	20.0
428136	14.9	20.4	42734	14.9	19.7	473534	15.0	21.6	345780	15.1	19.4	230992	15.1	19.7	218560	15.2	20.4
233140	14.9	20.0	109666	14.9	19.4	64780	15.0	19.1	118766	15.1	19.9	432052	15.1	21.0	310404	15.2	22.2
283306	14.9	20.5	61912	14.9	19.1	77688	15.0	19.4	162962	15.1	19.8	232623	15.1	20.0	315581	15.2	20.3
345617	14.9	21.0	206838	14.9	20.5	535097	15.0	21.3	502980	15.1	20.5	289722	15.1	19.6	145892	15.2	21.1
416958	14.9	21.4	161105	14.9	19.8	165862	15.0	19.3	409615	15.1	20.6	130344	15.1	19.3	523587	15.2	23.7
431560	14.9	21.0	164337	14.9	20.6	160498	15.0	19.0	522344	15.1	20.6	419814	15.1	20.8	122722	15.2	19.9
531530	14.9	21.6	368615	14.9	21.3	152906	15.0	19.3	163663	15.1	20.0	163192	15.1	18.3	365224	15.2	20.6
149245	14.9	19.2	188734	14.9	20.6	244617	15.0	20.0	376667	15.1	21.2	75960	15.1	18.0	204646	15.2	21.2
339593	14.9	21.3	329046	14.9	20.7	95935	15.0	18.6	256409	15.1	21.2	278594	15.1	20.5	53690	15.2	19.2
129434	14.9	20.1	541	14.9	14.0	16387	15.0	18.1	338953	15.1	20.2	505205	15.1	21.4	345251	15.2	20.7
441406	14.9	19.6	34283	14.9	17.6	167673	15.0	19.8	28375	15.1	17.6	312361	15.1	19.4	408016	15.2	19.9
265758	14.9	19.6	544217	14.9	21.4	348660	15.0	20.5	417691	15.1	21.4	427802	15.1	19.1	432055	15.2	21.6
390851	14.9	20.3	350610	14.9	21.0	110875	15.0	19.8	235411	15.1	21.1	348646	15.1	20.7	3031	15.2	15.0
280753	14.9	20.3	530528	14.9	20.2	232390	15.0	19.6	154044	15.1	19.6	459728	15.1	20.9	203927	15.2	19.9
343653	14.9	20.4	194380	14.9	20.6	355995	15.0	20.8	341610	15.1	21.1	72054	15.1	19.3	167554	15.2	19.2
140441	14.9	19.9	409973	14.9	21.1	218732	15.0	20.3	217996	15.1	20.6	353882	15.1	20.1	243491	15.2	19.9
366214	14.9	20.8	493451	14.9	20.6	117514	15.0	19.4	398349	15.1	21.3	132782	15.1	18.9	274655	15.2	20.2
500348	14.9	21.4	519904	14.9	20.8	166976	15.0	19.7	459073	15.1	21.5	194002	15.1	21.0	271937	15.2	20.1
205956	14.9	19.7	543556	14.9	22.5	314929	15.0	20.4	189013	15.1	19.1	175207	15.1	19.5	95846	15.2	19.5
244305	14.9	19.3	124445	14.9	19.7	528431	15.0	21.6	323803	15.1	20.4	293318	15.1	20.4	316888	15.2	19.8
243228	14.9	19.6	337023	14.9	20.1	104280	15.0	18.8	29416	15.1	20.2	409581	15.1	20.5	464114	15.2	20.8
246774	14.9	19.7	273035	14.9	21.1	8047	15.0	17.8	419065	15.1	20.0	412733	15.1	20.6	327039	15.2	20.5
486134	14.9	20.7	133961	14.9	19.9	128294	15.0	19.6	495031	15.1	21.6	502128	15.1	20.2	349292	15.2	20.9
330711	14.9	20.3	263203	14.9	19.9	503700	15.0	20.5	462927	15.1	21.0	59115	15.1	19.0	366710	15.2	21.7
210728	14.9	21.0	357121	14.9	20.1	73116	15.0	19.3	323940	15.1	20.4	39956	15.1	18.8	137094	15.2	19.5
460853	14.9	21.2	344607	14.9	20.6	178283	15.0	20.7	212446	15.1	20.8	56009	15.1	20.0	120762	15.2	19.8
425474	14.9	19.8	408314	14.9	20.2	110193	15.0	19.9	415940	15.1	21.7	409369	15.1	19.9	443868	15.2	22.3
169170	14.9	20.1	52448	14.9	20.4	440100	15.0	21.6	32180	15.1	17.0	319621	15.1	21.1	309353	15.2	21.2
30009	14.9	17.5	423557	14.9	21.3	206807	15.0	20.1	424952	15.1	20.3	319702	15.1	20.7	203525	15.2	18.5
130719	14.9	19.7	422512	14.9	21.2	527048	15.0	22.3	57423	15.1	19.0	326999	15.1	20.8	17581	15.2	18.0
454804	14.9	21.2	205460	14.9	20.4	412699	15.0	21.3	493669	15.1	22.8	480929	15.1	20.0	419952	15.2	21.2
370636	14.9	20.8	100330	14.9	19.6	133164	15.0	19.1	433215	15.1	21.4	246033	15.1	20.4	483751	15.2	21.9
544722	14.9	21.8	63391	14.9	18.7	287521	15.0	19.3	468956	15.1	20.5	469244	15.1	20.1	289780	15.2	19.8
132170	14.9	18.9	50524	14.9	18.3	392022	15.0	19.8	340702	15.1	20.0	207543	15.1	19.9	442217	15.2	20.4
110777	14.9	18.9	115114	14.9	20.1	87467	15.0	19.3	181540	15.1	20.2	316873	15.1	19.5	212081	15.2	19.4
296164	14.9	21.3	72108	14.9	19.3	203242	15.0	20.2	330279	15.1	21.9	300379	15.1	20.2	84640	15.2	19.2
203090	14.9	19.9	378859	14.9	21.4	273383	15.0	20.4	237138	15.1	19.1	492609	15.1	20.8	482830	15.2	21.7
117262	14.9	20.5	194841	14.9	19.3	419329	15.0	21.3	426088	15.1	20.9	421329	15.2	20.4	180981	15.2	20.5
90274	14.9	18.8	22490	14.9	17.1	26606	15.0	18.0	155276	15.1	20.2	493368	15.2	20.9	203112	15.2	20.4
206344	14.9	20.2	89041	14.9	19.3	55278	15.0	18.4	16101	15.1	18.1	446860	15.2	22.5	405020	15.2	19.1
434811	14.9	20.8	345296	14.9	20.4	13006	15.0	16.8	181203	15.1	19.6	456602	15.2	20.2	394850	15.2	20.7
198155	14.9	19.6	456273	14.9	21.9	534604	15.0	21.2	320594	15.1	20.4	467259	15.2	21.4	317043	15.2	19.9
241667	14.9	20.2	466832	14.9	20.8	492800	15.0	21.4	276335	15.1	21.3	483456	15.2	21.1	543311	15.2	20.6
39063	14.9	18.6	492436	14.9	20.6	291138	15.0	21.1	218284	15.1	19.7	18309	15.2	17.7	446511	15.2	20.1
153057	14.9	20.8	19601	14.9	18.9	177236	15.0	19.5	166771	15.1	19.5	534791	15.2	22.1	237692	15.2	19.6
256287	14.9	20.6	309456	14.9	20.7	348822	15.0	21.7	542313	15.1	20.8	534640	15.2	20.4	174495	15.2	19.8
214090	14.9	19.7	237765	14.9	20.0	455527	15.0	19.7	354926	15.1	20.2	419431	15.2	20.0	352871	15.2	21.3
359985	14.9	20.2	411933	14.9	20.5	284178	15.0	21.2	30534	15.1	17.7	529204	15.2	21.7	127547	15.2	18.7
276320	14.9	20.4	375431	14.9	21.1	271123	15.0	20.5	320913	15.1	20.8	344067	15.2	20.4	5710	15.2	17.2
524845	14.9	21.0	156461	14.9	20.1	352818	15.0	21.0	119577	15.1	19.4	115816	15.2	18.1	350733	15.2	21.6
231117	14.9	20.4	67254	14.9	19.5	17822	15.0	18.6	111308	15.1	20.0	237980	15.2	21.2	340707	15.2	21.2
426436	14.9	22.0	467593	14.9	21.4	243970	15.0	20.3	213658	15.1	19.2	223913	15.2	19.5	417582	15.2	21.0
45310	14.9	19.3	495030	14.9	21.1	283903	15.0	19.6	141521	15.1	19.3	203309	15.2	20.3	44024	15.2	18.2
311880	14.9	19.6	273315	14.9	20.5	451414	15.0	20.6	108712	15.1	19.8	56390	15.2	17.6	328843	15.2	20.1
207741	14.9	20.3	437738	14.9	20.7	80422	15.0	19.6	140469	15.1	19.6	292602	15.2	21.0	259842	15.2	19.7
207764	14.9	20.1	77338	14.9	18.1	82219	15.0	18.9	184354	15.1	20.0	257546	15.2	20.8	26114	15.2	20.1
405946	14.9	22.0	135061	14.9	20.8	330137	15.0	20.3	543282	15.1	20.8	103476	15.2	19.7	146401	15.2	20.5
116758	14.9	18.8	217105	14.9	20.6	351648	15.0	20.0	453090	15.1	21.1	540222	15.2	20.7	53247	15.2	18.0
298935	14.9	19.6	158905	14.9	19.5	16753	15.0	18.7	319526	15.1	21.7	457128	15.2	20.3	340650	15.2	20.6
311051	14.9	21.0	299327	14.9	20.0	238997	15.0	20.6	245065	15.1	20.6	377079	15.2	21.0	429853	15.2	21.1
63997	14.9	19.1	461829	14.9	21.0	273065	15.0	20.4	33261	15.1	18.1	320706	15.2	19.7	234954	15.3	20.4
445999	14.9	20.5	191309	14.9	18.7	186260	15.1	20.9	284503	15.1	21.0	250226	15.2	19.8	130667	15.3	20.5
105042	14.9	19.4	207050	14.9	19.4	441615	15.1	22.0	322100	15.1	21.0	443156	15.2	20.1	421998	15.3	21.2
213950	14.9	20.1	144380	14.9	19.8	143408	15.1	19.3	462665	15.1	20.4	261939	15.2	20.2	100463	15.3	19.6
486853	14.9	20.5	10628	14.9	17.1	233210	15.1	20.9	295752	15.1	20.1	538958	15.2	20.5	197036	15.3	19.6
427166	14.9	21.0	219040	14.9	20.6	403740	15.1	22.4	414801	15.1	21.9	440362	15.2	21.1	218706	15.3	20.8
278707	14.9	20.8	306907	14.9	20.0	238866	15.1	21.2	531822	15.1	22.8	238904	15.2	20.9	431493	15.3	20.4
419300	14.9	20.3	535819	14.9	21.3	405127	15.1										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
361260	15.3	20.1	124368	15.3	19.6	146881	15.4	18.6	348442	15.5	21.9	393576	15.5	19.9	422128	15.6	20.4
319493	15.3	21.9	221708	15.3	19.7	175256	15.4	20.1	277102	15.5	19.7	96038	15.5	19.8	449475	15.6	20.0
143191	15.3	20.1	359285	15.3	19.8	508682	15.4	21.3	19794	15.5	16.9	179769	15.5	20.9	301449	15.6	20.5
524623	15.3	21.8	527153	15.3	20.8	105193	15.4	20.1	285394	15.5	19.7	429859	15.5	21.2	237339	15.6	20.6
190235	15.3	19.2	150959	15.3	20.7	139332	15.4	19.6	61836	15.5	18.9	419256	15.5	20.3	59792	15.6	17.5
315977	15.3	20.2	281751	15.3	20.9	227482	15.4	20.6	194999	15.5	20.6	245657	15.5	19.9	500292	15.6	21.7
416587	15.3	20.4	338391	15.3	20.3	333042	15.4	21.1	488768	15.5	21.1	489758	15.5	19.8	458188	15.6	21.3
338270	15.3	21.0	497912	15.3	22.0	381204	15.4	22.3	366604	15.5	20.0	58151	15.5	19.2	206276	15.6	21.1
115789	15.3	19.1	190399	15.3	19.1	203282	15.4	20.9	188110	15.5	20.5	494685	15.5	19.9	85878	15.6	19.3
269695	15.3	21.1	345392	15.3	21.4	284579	15.4	20.1	466478	15.5	20.4	104941	15.5	19.6	468848	15.6	20.5
423379	15.3	20.2	256131	15.3	21.1	285928	15.4	19.8	140263	15.5	20.7	321715	15.5	20.2	80112	15.6	20.1
83413	15.3	19.2	428694	15.3	21.1	525005	15.4	21.7	160840	15.5	20.2	383815	15.5	20.0	201830	15.6	20.0
132161	15.3	19.8	212881	15.3	20.2	203629	15.4	18.9	141376	15.5	19.6	5597	15.5	16.4	462054	15.6	21.2
163479	15.3	20.3	452472	15.3	22.0	330090	15.4	21.4	173921	15.5	19.9	124887	15.5	20.2	4362	15.6	15.1
116403	15.3	19.9	413486	15.3	21.5	122677	15.4	20.6	239348	15.5	20.2	207412	15.5	19.6	202488	15.6	20.7
400081	15.3	21.9	405562	15.3	23.9	58498	15.4	19.3	323177	15.5	19.1	534168	15.5	21.4	446994	15.6	21.3
315566	15.3	20.1	100426	15.3	20.4	38990	15.4	19.6	127769	15.5	20.0	379100	15.5	21.4	472536	15.6	19.5
162179	15.3	19.3	468548	15.3	21.4	111380	15.4	19.8	221817	15.5	19.7	287498	15.5	19.7	289003	15.6	20.1
337688	15.3	21.1	442208	15.3	20.4	236375	15.4	19.0	179921	15.5	20.4	309749	15.5	20.3	185873	15.6	18.6
138382	15.3	18.6	71734	15.4	18.5	490529	15.4	20.1	194547	15.5	20.0	366973	15.5	21.1	291367	15.6	20.1
261525	15.3	20.2	237706	15.4	19.8	436659	15.4	20.5	530119	15.5	20.8	84147	15.5	19.3	493450	15.6	20.8
373938	15.3	21.2	291977	15.4	20.8	282807	15.4	20.7	336584	15.5	21.1	19514	15.5	18.4	456378	15.6	22.1
115785	15.3	19.9	385031	15.4	21.2	400000	15.4	20.2	49498	15.5	17.5	242127	15.5	20.0	52024	15.6	18.7
84934	15.3	20.0	312956	15.4	20.9	201666	15.4	21.3	365693	15.5	20.9	473687	15.5	21.1	60680	15.6	19.1
294692	15.3	19.4	67138	15.4	17.7	540096	15.4	20.6	387667	15.5	21.8	370006	15.5	20.6	62571	15.6	19.0
177877	15.3	20.8	182451	15.4	21.0	193828	15.4	21.1	252388	15.5	20.2	111351	15.5	19.6	352821	15.6	21.7
377027	15.3	20.2	120188	15.4	18.6	176371	15.4	21.1	99568	15.5	19.1	122302	15.5	19.8	223826	15.6	20.3
303074	15.3	19.5	75677	15.4	19.6	51578	15.4	18.8	374157	15.5	21.3	109077	15.5	19.8	465743	15.6	21.4
484649	15.3	21.7	23432	15.4	19.2	419023	15.4	21.4	82589	15.5	18.9	90675	15.5	19.9	68848	15.6	19.2
284979	15.3	20.1	151203	15.4	19.4	198659	15.4	19.6	146824	15.5	18.6	199095	15.5	21.2	134372	15.6	21.5
13813	15.3	17.2	167098	15.4	19.6	140343	15.4	19.3	295666	15.5	20.9	309503	15.5	20.1	14050	15.6	17.6
19340	15.3	16.9	219460	15.4	21.1	119515	15.4	19.7	544181	15.5	22.0	166066	15.5	19.1	31523	15.6	18.7
427197	15.3	21.5	414254	15.4	20.4	333880	15.4	21.0	544142	15.5	19.9	237379	15.5	20.6	460281	15.6	22.2
149897	15.3	19.8	387435	15.4	20.0	293169	15.4	19.5	335997	15.5	21.2	452536	15.5	22.2	369384	15.6	21.1
209076	15.3	20.8	46542	15.4	19.3	280718	15.4	19.7	160422	15.5	19.6	434474	15.6	21.4	282451	15.6	19.6
263790	15.3	19.4	201771	15.4	20.5	133967	15.4	19.5	221563	15.5	20.5	155027	15.6	20.9	460711	15.6	22.1
467807	15.3	20.7	235251	15.4	21.9	293136	15.4	21.2	34180	15.5	18.8	169281	15.6	20.4	446027	15.6	21.9
15863	15.3	18.2	317530	15.4	22.0	164199	15.4	19.5	20282	15.5	18.4	404843	15.6	20.3	393666	15.6	20.9
286067	15.3	20.4	417684	15.4	19.9	360338	15.4	20.7	69423	15.5	17.9	383699	15.6	21.9	401211	15.6	21.2
221980	15.3	20.6	468346	15.4	20.7	431583	15.4	21.2	443969	15.5	21.3	22105	15.6	18.2	250146	15.6	21.1
424781	15.3	20.5	100809	15.4	17.8	20917	15.4	17.2	246915	15.5	21.0	278287	15.6	20.3	128651	15.6	19.9
483449	15.3	21.5	340628	15.4	21.4	317170	15.4	21.2	339575	15.5	20.5	174161	15.6	19.6	228810	15.6	21.0
15480	15.3	17.4	486145	15.4	21.3	433223	15.4	20.9	109430	15.5	19.7	135878	15.6	20.5	222739	15.6	20.2
78718	15.3	19.1	473327	15.4	21.1	206340	15.4	20.0	372295	15.5	21.1	367644	15.6	21.5	541163	15.6	21.2
424676	15.3	21.5	27259	15.4	16.1	244085	15.4	20.9	163673	15.5	19.7	96422	15.6	18.4	240091	15.6	19.4
79778	15.3	20.2	338296	15.4	21.0	301947	15.4	20.0	246919	15.5	21.9	345732	15.6	19.9	37087	15.6	19.1
427324	15.3	20.4	458349	15.4	21.2	161232	15.4	20.0	359146	15.5	21.7	186675	15.6	19.9	59302	15.6	19.2
543613	15.3	22.1	460347	15.4	22.3	142726	15.4	19.9	6160	15.5	16.8	262153	15.6	20.1	393696	15.6	22.0
109787	15.3	20.2	496277	15.4	21.3	526894	15.4	21.2	534576	15.5	22.4	56752	15.6	19.1	207131	15.6	19.4
445107	15.3	22.1	268433	15.4	21.0	544135	15.4	21.8	488988	15.5	21.9	391472	15.6	20.9	167660	15.6	20.0
484599	15.3	21.3	473960	15.4	21.3	369857	15.4	21.0	416624	15.5	20.9	464830	15.6	21.0	142829	15.6	19.8
452221	15.3	21.0	272968	15.4	20.7	65251	15.4	19.3	170308	15.5	19.8	282126	15.6	20.0	407388	15.6	20.0
327238	15.3	19.9	115424	15.4	19.8	460355	15.4	21.6	532899	15.5	21.6	535865	15.6	21.2	333725	15.6	20.5
490766	15.3	19.5	251041	15.4	20.7	104515	15.4	20.0	89645	15.5	19.1	281747	15.6	20.6	469639	15.6	21.0
169138	15.3	20.2	276771	15.4	19.2	287029	15.4	19.7	200953	15.5	20.1	265410	15.6	20.4	158839	15.6	20.6
96564	15.3	19.2	8298	15.4	16.7	454081	15.4	20.0	242106	15.5	19.9	161521	15.6	20.0	375631	15.6	20.9
290990	15.3	19.7	184530	15.4	19.6	341797	15.4	20.7	143274	15.5	19.3	175391	15.6	19.8	60776	15.6	18.6
503734	15.3	20.9	462724	15.4	20.6	241500	15.4	21.2	320675	15.5	19.5	319699	15.6	21.1	432473	15.6	20.1
497734	15.3	21.3	366754	15.4	21.2	327274	15.4	21.0	353640	15.5	21.4	20264	15.6	18.2	286013	15.6	20.9
271647	15.3	19.8	118707	15.4	20.9	464947	15.4	21.3	535860	15.5	20.5	417136	15.6	20.6	204336	15.6	20.3
145630	15.3	20.1	100740	15.4	20.4	166962	15.4	20.1	347457	15.5	22.0	344558	15.6	21.5	242209	15.6	20.0
516451	15.3	20.9	440563	15.4	21.6	306428	15.4	20.7	165035	15.5	19.5	275925	15.6	20.8	179859	15.6	20.0
455778	15.3	20.1	12976	15.4	17.8	373788	15.4	21.7	74979	15.5	18.6	327242	15.6	20.2	196539	15.6	21.6
406659	15.3	21.1	229377	15.4	19.8	66978	15.4	17.0	455826	15.5	20.9	260021	15.6	18.6	150189	15.6	19.4
285905	15.3	20.7	169218	15.4	20.8	350546	15.4	21.2	147669	15.5	19.6	384929	15.6	21.6	406700	15.6	20.6
397493	15.3	20.3	262572	15.4	20.5	531524	15.4	21.6	496080	15.5	22.7	349042	15.6	21.3	407	15.6	13.2
278435	15.3	20.0	419668	15.4	21.0	328523	15.4	21.2	59530	15.5	17.1	341847	15.6	20.2	360547	15.6	19.8
309847	15.3	19.3	543250	15.4	21.6	194047	15.4	21.2	8717	15.5	18.5	373859	15.6	21.4	378286	15.6	20.1
132802	15.3	19.5	522250	15.4	21.3	3853	15.4	17.1									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
199164	15.7	19.7	529634	15.7	20.8	204741	15.8	19.4	186079	15.8	20.7	89970	15.9	20.6	375009	15.9	21.0
326735	15.7	18.8	10346	15.7	15.8	492422	15.8	20.9	238394	15.9	19.4	71738	15.9	20.2	104272	15.9	19.2
357344	15.7	19.9	541461	15.7	20.6	502437	15.8	20.5	148709	15.9	18.7	366356	15.9	22.2	262970	15.9	19.7
21618	15.7	18.1	520732	15.7	21.3	263694	15.8	19.5	157370	15.9	20.7	31317	15.9	18.0	343243	15.9	20.7
53059	15.7	18.0	360815	15.7	20.3	186238	15.8	19.7	49637	15.9	17.4	12848	15.9	17.5	460560	15.9	20.4
330476	15.7	21.0	529305	15.7	22.9	340884	15.8	19.6	54140	15.9	18.3	39719	15.9	19.7	146727	15.9	20.0
359002	15.7	20.1	419750	15.7	22.7	493823	15.8	20.9	60741	15.9	18.7	229171	15.9	20.0	338319	15.9	20.5
188580	15.7	19.6	465451	15.7	20.9	177975	15.8	20.2	429911	15.9	21.5	407849	15.9	19.6	462019	15.9	21.1
398321	15.7	20.9	69053	15.7	18.7	24084	15.8	17.9	51693	15.9	19.1	488336	15.9	20.8	373865	16.0	21.0
459958	15.7	21.1	500479	15.7	21.6	177703	15.8	20.1	89060	15.9	18.9	31322	15.9	19.7	98493	16.0	19.0
531507	15.7	22.5	540101	15.7	21.5	482038	15.8	20.6	19344	15.9	18.6	157964	15.9	18.6	179847	16.0	20.7
367609	15.7	21.3	435887	15.7	21.2	262859	15.8	21.2	427527	15.9	22.0	457122	15.9	20.7	95716	16.0	17.8
83840	15.7	19.5	146353	15.7	20.2	149841	15.8	19.7	275478	15.9	21.2	191857	15.9	20.5	463054	16.0	20.2
543531	15.7	21.6	82951	15.7	19.4	221965	15.8	20.2	124355	15.9	19.9	122793	15.9	19.8	327899	16.0	20.0
3609	15.7	16.8	277862	15.7	19.9	131251	15.8	19.1	82870	15.9	19.2	154875	15.9	20.1	485037	16.0	20.5
175766	15.7	20.1	56992	15.7	18.3	255864	15.8	20.6	93535	15.9	18.8	80814	15.9	18.6	56445	16.0	18.7
13669	15.7	18.7	128904	15.7	19.6	467715	15.8	21.2	364202	15.9	21.5	532865	15.9	20.8	499402	16.0	20.0
77785	15.7	18.9	502927	15.7	20.6	403244	15.8	20.0	201851	15.9	20.1	242927	15.9	20.2	127402	16.0	18.4
79299	15.7	18.8	544875	15.7	21.5	141199	15.8	19.3	352695	15.9	20.6	85750	15.9	19.5	295924	16.0	20.6
91619	15.7	19.1	500368	15.7	21.2	343028	15.8	20.8	493760	15.9	19.8	140262	15.9	19.5	254705	16.0	20.6
300305	15.7	20.6	461832	15.7	21.2	531864	15.8	20.5	368966	15.9	20.4	373285	15.9	20.0	123171	16.0	20.0
141558	15.7	19.0	238349	15.7	19.4	269757	15.8	20.4	116586	15.9	19.2	393424	15.9	21.8	33435	16.0	18.1
541095	15.7	21.4	126311	15.7	19.8	301152	15.8	20.7	529381	15.9	21.8	92586	15.9	19.4	416549	16.0	21.1
317551	15.7	20.5	289018	15.7	20.6	429323	15.8	19.3	282155	15.9	21.6	461603	15.9	21.2	26577	16.0	17.7
226723	15.7	20.0	372411	15.7	20.8	64160	15.8	18.4	312196	15.9	20.1	330990	15.9	20.1	74464	16.0	18.6
30920	15.7	17.8	406026	15.7	22.0	347595	15.8	21.0	464296	15.9	21.9	312945	15.9	20.6	432128	16.0	21.4
364789	15.7	20.1	426581	15.7	20.7	265327	15.8	20.7	437817	15.9	19.8	205678	15.9	18.8	414582	16.0	19.4
149321	15.7	19.7	189472	15.7	20.1	28155	15.8	17.9	537936	15.9	20.3	307634	15.9	20.5	534997	16.0	20.5
159750	15.7	18.8	32206	15.7	19.3	235977	15.8	20.0	124104	15.9	19.1	265114	15.9	20.5	109028	16.0	19.4
98873	15.7	19.1	357425	15.7	20.1	145583	15.8	20.0	33065	15.9	19.4	351693	15.9	20.9	83888	16.0	19.1
307864	15.7	20.8	67150	15.7	19.5	370205	15.8	20.6	377340	15.9	21.5	36140	15.9	19.4	239405	16.0	20.7
440531	15.7	22.0	497713	15.7	21.4	523339	15.8	20.7	538848	15.9	20.7	41664	15.9	18.2	129329	16.0	20.3
3725	15.7	18.6	172056	15.7	20.1	76233	15.8	19.0	530122	15.9	20.2	401334	15.9	20.4	394901	16.0	20.7
240849	15.7	20.6	378871	15.7	20.8	468248	15.8	20.5	9320	15.9	18.0	182329	15.9	20.5	244613	16.0	20.6
202533	15.7	19.7	409598	15.7	21.4	385995	15.8	19.7	211551	15.9	20.8	172945	15.9	19.2	184176	16.0	18.7
458325	15.7	21.0	309737	15.7	23.8	535053	15.8	21.5	23852	15.9	18.4	127664	15.9	19.0	354536	16.0	21.1
371779	15.7	20.1	403546	15.7	21.2	510309	15.8	20.1	52228	15.9	18.9	373761	15.9	20.5	153992	16.0	19.4
485471	15.7	20.9	16787	15.7	18.6	171999	15.8	19.8	431251	15.9	21.2	532652	15.9	21.2	427719	16.0	20.1
363126	15.7	20.6	528325	15.7	21.1	404193	15.8	20.6	530659	15.9	22.0	118331	15.9	19.6	205877	16.0	20.4
84911	15.7	19.3	465447	15.7	21.5	485100	15.8	20.5	158161	15.9	20.3	54885	15.9	19.2	540407	16.0	21.1
247592	15.7	20.5	343317	15.7	20.4	541905	15.8	21.4	154634	15.9	20.0	420844	15.9	19.1	534495	16.0	21.6
268583	15.7	20.2	6865	15.7	17.8	83266	15.8	19.4	136081	15.9	20.0	493779	15.9	21.7	17818	16.0	16.3
449562	15.7	19.7	55955	15.8	18.5	543776	15.8	21.2	306598	15.9	19.8	414859	15.9	22.1	232992	16.0	19.4
42513	15.7	18.8	389658	15.8	19.2	493882	15.8	20.8	531143	15.9	20.7	529465	15.9	23.3	385633	16.0	20.5
9511	15.7	17.6	343239	15.8	20.8	107131	15.8	18.2	104813	15.9	19.3	534470	15.9	21.3	335701	16.0	20.8
368985	15.7	20.6	94754	15.8	19.5	227934	15.8	20.4	309231	15.9	21.0	517593	15.9	21.4	323983	16.0	19.6
34634	15.7	18.0	206277	15.8	19.8	140888	15.8	19.4	55951	15.9	19.3	293185	15.9	20.1	14471	16.0	18.2
309728	15.7	21.1	379097	15.8	21.4	458007	15.8	20.7	33898	15.9	19.1	331184	15.9	20.7	109858	16.0	19.7
145143	15.7	18.9	487642	15.8	21.6	289828	15.8	20.5	526235	15.9	21.9	426561	15.9	21.2	347645	16.0	21.5
486307	15.7	20.0	372675	15.8	21.0	435661	15.8	21.7	7872	15.9	18.1	64128	15.9	18.8	76725	16.0	18.8
215524	15.7	20.7	84580	15.8	18.3	285686	15.8	21.1	104824	15.9	19.2	370842	15.9	21.3	240467	16.0	19.4
76357	15.7	19.3	249011	15.8	21.2	475680	15.8	21.6	308820	15.9	20.1	203074	15.9	20.8	382299	16.0	20.1
87901	15.7	18.4	320904	15.8	19.2	30309	15.8	16.8	345125	15.9	20.3	456290	15.9	21.6	250497	16.0	20.2
84245	15.7	19.6	206251	15.8	20.4	157111	15.8	20.5	131433	15.9	19.7	5879	15.9	17.9	201319	16.0	19.9
49281	15.7	19.1	36614	15.8	18.1	318057	15.8	19.4	408932	15.9	20.5	542460	15.9	20.3	370052	16.0	20.4
20598	15.7	18.3	196639	15.8	20.3	285818	15.8	21.9	80654	15.9	19.4	534385	15.9	21.6	440571	16.0	22.0
372712	15.7	20.0	77489	15.8	18.8	143929	15.8	19.9	183650	15.9	19.4	526014	15.9	21.6	302958	16.0	19.9
539876	15.7	20.9	109959	15.8	19.9	379009	15.8	21.6	498191	15.9	21.1	46381	15.9	18.7	450811	16.0	21.4
251171	15.7	21.0	429337	15.8	20.5	79785	15.8	19.5	89507	15.9	20.0	491866	15.9	20.5	97764	16.0	18.9
307352	15.7	20.5	456942	15.8	21.7	86347	15.8	18.4	361744	15.9	21.2	539960	15.9	20.3	9400	16.0	20.3
170274	15.7	20.2	13397	15.8	19.0	377100	15.8	21.3	323094	15.9	21.5	488498	15.9	21.8	258228	16.0	20.7
178741	15.7	18.4	351700	15.8	20.2	385941	15.8	21.3	87791	15.9	19.8	396797	15.9	21.2	212582	16.0	20.4
94785	15.7	19.1	458905	15.8	22.0	76822	15.8	18.4	82572	15.9	18.3	174244	15.9	21.5	529615	16.0	19.3
534419	15.7	21.7	177020	15.8	19.8	58495	15.8	18.8	104988	15.9	18.7	239635	15.9	20.9	452506	16.0	21.4
322733	15.7	20.1	318720	15.8	21.1	260688	15.8	20.5	200885	15.9	20.6	467672	15.9	20.5	348440	16.1	20.6
213857	15.7	20.3	16673	15.8	18.2	432068	15.8	21.2	132328	15.9	19.3	296679	15.9	21.2	137060	16.1	19.7
431487	15.7	21.2	537342	15.8	21.1	422007	15.8	20.8	534802	15.9	20.0	24171	15.9	17.5	380671	16.1	20.1
367552	15.7	21.0	347140	15.8	20.6	120730	15.8	21.0	443847	15.9	21.7	380340	15.9	20.4	113969	16.1	18.4
265667	15.7	21.2	349490	15.8	20.5	544557	15.8	20.6	347207	15.9	19.7						

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
138826	16.1	19.7	227767	16.1	20.7	445030	16.2	21.2	502560	16.3	21.0	137010	16.3	20.8	79423	16.4	20.0
83465	16.1	19.7	192702	16.1	20.2	529496	16.2	21.6	79359	16.3	19.0	280472	16.3	20.1	247972	16.4	20.3
338450	16.1	20.6	468559	16.1	21.5	217993	16.2	20.2	458333	16.3	22.2	182447	16.3	18.6	213031	16.4	20.3
75979	16.1	18.7	154329	16.1	19.3	410023	16.2	22.3	524229	16.3	22.6	387708	16.3	21.6	208399	16.4	20.5
340615	16.1	21.2	228910	16.1	19.7	464695	16.2	21.2	18900	16.3	17.0	94787	16.3	18.3	179639	16.4	20.5
292762	16.1	20.0	322063	16.1	19.8	235969	16.2	20.3	526525	16.3	21.7	58592	16.3	18.7	454158	16.4	20.9
335863	16.1	21.1	302287	16.1	19.7	239657	16.2	20.3	483864	16.3	21.3	367142	16.3	20.7	489566	16.4	21.8
271677	16.1	20.3	20568	16.1	17.7	527508	16.2	21.9	290900	16.3	20.4	356494	16.3	21.0	252456	16.4	20.6
56599	16.1	17.8	347767	16.1	20.4	182594	16.2	19.1	419138	16.3	20.8	188369	16.3	19.8	339556	16.4	20.6
201187	16.1	20.2	408532	16.1	20.5	43982	16.2	18.1	405958	16.3	20.9	120301	16.3	18.3	186395	16.4	20.4
221361	16.1	19.5	483981	16.1	21.1	323779	16.2	20.4	408765	16.3	19.6	258902	16.3	21.8	180561	16.4	18.8
459224	16.1	20.7	204343	16.1	20.1	194640	16.2	20.0	490038	16.3	21.5	302938	16.3	20.7	422012	16.4	21.0
413667	16.1	21.9	231699	16.1	20.3	234378	16.2	20.0	419548	16.3	21.2	301987	16.3	19.6	409253	16.4	18.9
417664	16.1	20.0	76325	16.1	18.1	463611	16.2	20.1	65076	16.3	18.6	277550	16.3	20.7	131932	16.4	18.3
326259	16.1	20.4	467559	16.1	20.5	150528	16.2	19.4	165801	16.3	19.9	506213	16.3	21.3	151831	16.4	18.9
544014	16.1	21.1	95502	16.1	19.1	421759	16.2	20.6	378858	16.3	20.6	42352	16.3	18.9	213072	16.4	19.3
533900	16.1	20.8	84374	16.1	18.7	80053	16.2	18.6	228654	16.3	19.4	262952	16.3	19.1	464257	16.4	20.6
63654	16.1	17.6	343004	16.1	20.3	56885	16.2	18.6	108872	16.3	19.8	122487	16.3	19.4	263374	16.4	20.5
536125	16.1	21.0	154016	16.1	18.3	27214	16.2	18.4	160682	16.3	19.0	501356	16.3	21.4	394847	16.4	20.4
189407	16.1	20.7	525479	16.1	20.4	505071	16.2	20.8	135731	16.3	20.1	133038	16.3	19.9	262348	16.4	19.7
468285	16.1	19.6	440454	16.1	20.7	322649	16.2	20.6	280671	16.3	20.3	296207	16.3	21.0	421079	16.4	21.1
242442	16.1	21.1	389928	16.1	20.7	534028	16.2	19.5	350460	16.3	19.8	448120	16.3	21.7	160797	16.4	20.0
538877	16.1	20.7	182632	16.1	20.9	439268	16.2	20.7	502974	16.3	20.0	258432	16.3	20.6	234194	16.4	19.5
51853	16.1	18.6	525120	16.1	20.3	18204	16.2	18.5	77973	16.3	18.1	439056	16.3	20.4	524524	16.4	21.5
9496	16.1	17.6	159302	16.1	20.2	399492	16.2	22.4	435434	16.3	21.1	498982	16.3	21.1	251717	16.4	19.0
274369	16.1	19.9	33766	16.1	17.8	16661	16.2	18.4	365910	16.3	20.4	256181	16.3	19.8	543604	16.4	21.5
297081	16.1	20.1	201281	16.1	20.4	372612	16.2	20.9	196186	16.3	19.2	427158	16.3	20.3	56172	16.4	18.3
153538	16.1	20.4	339745	16.1	21.7	197548	16.2	19.3	309259	16.3	21.1	208493	16.3	20.0	190173	16.4	20.0
264762	16.1	19.9	342997	16.1	19.9	338099	16.2	20.5	522691	16.3	21.5	96989	16.3	18.9	285083	16.4	18.6
274054	16.1	19.7	165707	16.1	20.4	267852	16.2	20.7	289376	16.3	20.6	49131	16.3	18.9	280238	16.4	20.5
370727	16.1	20.9	436916	16.1	20.2	504229	16.2	21.9	340950	16.3	19.1	393448	16.3	20.9	78496	16.4	18.5
47031	16.1	18.9	430915	16.1	21.0	196189	16.2	19.7	334107	16.3	20.5	19768	16.3	17.8	174375	16.4	19.7
198648	16.1	20.0	124319	16.1	18.8	24086	16.2	18.3	425358	16.3	20.5	531406	16.3	21.8	34917	16.4	19.6
31160	16.1	18.5	71639	16.1	17.7	102896	16.2	18.7	464442	16.3	21.6	473917	16.3	20.4	495454	16.4	20.9
253167	16.1	20.4	158232	16.1	19.8	241028	16.2	20.9	334534	16.3	20.4	348606	16.3	20.3	2803	16.4	16.8
103265	16.1	18.8	77868	16.1	18.8	165880	16.2	20.2	129403	16.3	20.2	264914	16.3	20.4	53450	16.4	17.7
81828	16.1	19.5	49512	16.1	18.7	503001	16.2	21.1	301264	16.3	19.4	161102	16.3	20.4	234561	16.4	20.1
415564	16.1	21.1	170203	16.1	20.7	505037	16.2	21.2	97478	16.3	18.2	494909	16.3	21.5	194422	16.4	20.4
489329	16.1	21.6	346835	16.1	20.7	13481	16.2	17.1	272431	16.3	19.5	124275	16.3	20.2	529126	16.4	21.1
236069	16.1	19.6	401925	16.1	23.1	64824	16.2	18.7	194295	16.3	20.5	406004	16.3	21.1	400564	16.4	20.6
194011	16.1	19.7	278525	16.1	19.4	124676	16.2	19.1	8486	16.3	18.1	528675	16.3	21.2	449589	16.4	20.4
405960	16.1	22.3	246847	16.1	19.1	204326	16.2	19.5	45198	16.3	18.9	452292	16.3	21.3	232669	16.4	20.0
399490	16.1	21.8	37691	16.1	18.7	388875	16.2	19.9	128700	16.3	21.1	219906	16.3	20.0	278784	16.4	19.6
391086	16.1	20.0	388466	16.1	20.6	42914	16.2	18.0	487675	16.3	21.0	327013	16.3	19.6	81917	16.4	19.0
14028	16.1	18.5	420505	16.2	20.8	544382	16.2	19.4	296647	16.3	20.7	347129	16.3	19.5	34702	16.4	16.4
431445	16.1	20.0	372962	16.2	20.5	334657	16.2	20.5	375438	16.3	21.2	238830	16.3	20.1	405017	16.4	20.6
112831	16.1	18.5	66840	16.2	19.5	437819	16.2	19.9	160956	16.3	20.3	269488	16.3	19.6	194604	16.4	19.1
159884	16.1	19.2	443853	16.2	21.0	364352	16.2	20.6	545013	16.3	21.3	129832	16.3	20.5	389450	16.4	19.6
83103	16.1	18.2	495438	16.2	21.1	198605	16.2	20.2	95988	16.3	19.0	12934	16.3	18.2	132709	16.4	20.4
492724	16.1	19.6	532277	16.2	20.6	63405	16.2	19.7	99867	16.3	19.1	129173	16.3	18.7	294780	16.4	20.2
343455	16.1	19.7	86949	16.2	18.6	341529	16.2	20.4	201411	16.3	19.9	349106	16.3	20.2	271644	16.4	20.7
428993	16.1	21.4	498321	16.2	21.7	29402	16.2	19.0	246465	16.3	20.1	531423	16.4	21.3	375597	16.4	20.9
366757	16.1	21.9	239722	16.2	20.6	340985	16.2	20.7	89385	16.3	19.1	116227	16.4	18.9	142633	16.4	21.0
383894	16.1	20.4	7975	16.2	16.6	545011	16.2	21.7	390199	16.3	19.5	395356	16.4	21.2	200740	16.4	20.5
15777	16.1	16.4	446727	16.2	20.9	110716	16.2	19.8	488459	16.3	20.8	283325	16.4	21.1	246028	16.4	20.5
163656	16.1	19.8	460176	16.2	21.8	538295	16.2	20.3	49178	16.3	19.3	497622	16.4	21.9	171643	16.4	18.6
22283	16.1	18.1	182645	16.2	20.3	84891	16.2	19.6	541468	16.3	20.8	281114	16.4	19.7	49226	16.4	18.3
495505	16.1	21.1	116128	16.2	19.2	361608	16.2	20.7	363118	16.3	20.2	241080	16.4	20.4	258393	16.4	19.8
423382	16.1	19.4	395716	16.2	20.9	167935	16.2	20.2	336717	16.3	20.6	341644	16.4	20.7	63012	16.4	18.6
64250	16.1	18.8	32182	16.2	17.7	183410	16.2	20.1	22538	16.3	17.7	484675	16.4	20.6	527430	16.4	20.7
143013	16.1	17.7	540048	16.2	21.0	384864	16.2	20.6	403207	16.3	19.0	471849	16.4	21.2	103761	16.4	20.0
334609	16.1	20.2	336526	16.2	20.0	58802	16.2	18.4	217563	16.3	20.3	375292	16.4	21.1	217451	16.4	19.5
169242	16.1	19.0	282091	16.2	21.4	186508	16.2	19.5	307900	16.3	20.3	486102	16.4	22.2	342989	16.4	20.5
55608	16.1	19.1	456989	16.2	20.3	85421	16.2	19.6	338452	16.3	19.3	207373	16.4	20.1	112712	16.4	19.2
67696	16.1	19.1	31316	16.2	18.1	145645	16.2	20.2	159377	16.3	19.6	62653	16.4	18.8	692	16.4	13.9
327465	16.1	20.7	531386	16.2	21.5	444458	16.2	21.5	484628	16.3	21.1	137053	16.4	19.4	78746	16.4	19.5
493764	16.1	21.2	225579	16.2	20.7	59164	16.2	19.1	412748	16.3	19.9	27138	16.4	18.5	49883	16.4	18.5
408916	16.1	21.0	165087	16.2	19.4	253953	16.2	19.3	29274	16.3	18.1	234184	16.4	19.9	389885	16.4	20.6
335926	16.1	21.4	113573	16.2	19.5	118203	16.2	19.9	495737	16.3							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
178462	16.4	19.0	183383	16.5	19.8	357159	16.6	19.1	500408	16.6	21.7	486053	16.7	21.3	215526	16.8	19.6
110594	16.4	19.0	62075	16.5	17.7	455554	16.6	23.7	262994	16.6	20.1	364773	16.7	19.9	350824	16.8	19.6
51146	16.4	18.9	543222	16.5	21.2	148599	16.6	20.1	462622	16.6	21.5	543270	16.7	21.1	99926	16.8	19.4
434578	16.4	19.9	314606	16.5	20.4	112701	16.6	19.0	207326	16.6	20.7	327017	16.7	20.4	367558	16.8	21.1
433036	16.4	20.3	490813	16.5	21.9	255975	16.6	20.9	269081	16.6	20.4	464551	16.7	20.7	403078	16.8	21.1
482024	16.4	19.9	134887	16.5	20.1	300357	16.6	21.1	296266	16.6	20.6	466039	16.7	20.9	461348	16.8	21.2
465433	16.4	21.3	382297	16.5	19.4	166183	16.6	18.8	48299	16.6	19.2	48528	16.7	18.1	416817	16.8	19.5
122373	16.4	19.2	408841	16.5	20.8	534307	16.6	21.5	357234	16.6	19.8	256148	16.7	19.8	334617	16.8	20.5
430690	16.4	22.2	424756	16.5	20.7	335697	16.6	20.7	15056	16.6	17.7	152858	16.7	19.8	65132	16.8	18.5
243257	16.4	20.1	402040	16.5	21.1	539979	16.6	20.5	276867	16.6	21.0	205574	16.7	19.8	87976	16.8	19.3
281719	16.4	20.6	137204	16.5	19.8	483563	16.6	23.4	504340	16.6	21.7	160854	16.7	20.2	152476	16.8	19.6
85644	16.4	18.1	458039	16.5	21.0	454860	16.6	21.4	464026	16.6	21.0	256133	16.7	20.7	241529	16.8	19.3
329024	16.4	20.5	196992	16.5	20.5	530541	16.6	21.2	154851	16.6	19.6	469168	16.7	20.7	108969	16.8	19.0
16522	16.4	17.8	209368	16.5	18.8	162185	16.6	20.2	155685	16.6	19.5	118794	16.7	19.6	381279	16.8	20.7
313884	16.4	20.2	345765	16.5	20.5	385616	16.6	20.2	205573	16.6	21.3	541945	16.7	20.0	367821	16.8	20.5
529124	16.5	21.9	18938	16.5	19.3	120911	16.6	19.2	163669	16.6	20.6	227670	16.7	20.3	325904	16.8	21.1
188003	16.5	19.1	494516	16.5	19.4	413110	16.6	21.9	30818	16.6	18.5	226333	16.7	18.8	373228	16.8	19.9
135355	16.5	20.2	419901	16.5	21.1	100585	16.6	19.7	222817	16.6	20.5	477781	16.7	20.4	413082	16.8	20.9
211675	16.5	19.0	115396	16.5	19.7	119767	16.6	20.1	319728	16.6	20.2	426406	16.7	21.0	495042	16.8	21.4
186656	16.5	20.1	91003	16.5	18.7	255768	16.6	20.4	529847	16.6	22.5	324558	16.7	21.4	201406	16.8	20.4
187569	16.5	20.2	200893	16.5	19.1	428998	16.6	20.5	320836	16.6	20.3	543496	16.7	20.9	433134	16.8	21.0
399292	16.5	20.4	58337	16.5	19.3	97761	16.6	17.9	428929	16.6	22.0	192738	16.7	18.9	26622	16.8	18.8
195151	16.5	20.4	481686	16.5	21.6	122480	16.6	18.9	203469	16.6	18.7	502758	16.7	21.0	282139	16.8	20.9
431156	16.5	20.9	413690	16.5	20.8	49224	16.6	18.5	59334	16.6	19.3	461034	16.7	21.1	367214	16.8	20.5
427127	16.5	20.7	162802	16.5	19.4	465951	16.6	21.2	421088	16.6	20.3	325624	16.7	19.4	129930	16.8	20.4
62161	16.5	18.0	373863	16.5	20.9	284346	16.6	20.3	324620	16.6	19.5	207747	16.7	19.9	354825	16.8	22.5
238269	16.5	20.2	104198	16.5	18.5	469011	16.6	20.2	405055	16.6	21.5	387120	16.7	21.4	226923	16.8	20.1
453820	16.5	21.3	158167	16.5	19.9	240771	16.6	20.4	379495	16.6	18.9	97681	16.7	19.0	352778	16.8	20.4
130669	16.5	19.1	242613	16.5	19.6	122879	16.6	20.4	460961	16.6	21.4	35689	16.7	17.3	455966	16.8	20.5
492105	16.5	18.6	465761	16.5	21.6	191933	16.6	20.3	472438	16.7	20.8	390713	16.7	18.8	495684	16.8	20.8
467368	16.5	20.6	132822	16.5	20.0	321979	16.6	20.6	138525	16.7	19.2	98084	16.7	19.9	173851	16.8	19.6
330966	16.5	20.7	381505	16.5	21.1	376972	16.6	20.2	142969	16.7	20.7	231265	16.7	20.0	222336	16.8	20.5
390692	16.5	21.4	194696	16.5	20.2	80712	16.6	18.4	88220	16.7	19.9	325948	16.7	20.1	240513	16.8	20.7
76602	16.5	18.0	447202	16.5	21.6	351632	16.6	20.8	44036	16.7	18.3	328713	16.7	19.2	400273	16.8	21.3
495517	16.5	21.2	320283	16.5	20.3	529619	16.6	21.4	505667	16.7	19.9	162727	16.7	19.8	314771	16.8	20.6
545132	16.5	21.2	199421	16.5	20.7	418869	16.6	19.9	91930	16.7	18.4	2768	16.7	15.6	240122	16.8	20.5
402631	16.5	21.9	284316	16.5	20.4	32253	16.6	17.1	482026	16.7	21.0	424935	16.7	20.9	260940	16.8	21.6
309534	16.5	20.0	269155	16.5	19.5	490782	16.6	20.9	31018	16.7	18.2	372905	16.7	20.5	347349	16.8	20.9
467106	16.5	20.2	396634	16.5	20.7	460810	16.6	21.1	519567	16.7	21.3	440318	16.7	21.3	405968	16.8	21.1
192147	16.5	19.9	115439	16.5	19.7	29707	16.6	18.0	114142	16.7	20.1	414867	16.7	20.1	330125	16.8	20.7
315655	16.5	20.5	31438	16.5	17.1	352800	16.6	20.5	127570	16.7	19.9	528464	16.7	21.3	533705	16.8	20.2
479500	16.5	20.9	326317	16.5	21.7	231437	16.6	19.5	43275	16.7	17.0	374617	16.7	20.6	447180	16.8	21.3
18932	16.5	17.5	535526	16.5	20.9	88615	16.6	18.6	67563	16.7	19.4	489574	16.7	21.4	143254	16.8	19.4
366750	16.5	21.5	83711	16.5	19.1	167591	16.6	19.7	224612	16.7	19.7	79342	16.7	19.7	69044	16.8	20.3
364333	16.5	19.9	179936	16.5	20.4	447107	16.6	21.8	279872	16.7	21.0	27668	16.7	19.1	323142	16.8	19.8
312253	16.5	20.3	534378	16.5	23.0	268260	16.6	19.2	159721	16.7	18.3	360571	16.7	20.7	460003	16.8	21.3
340887	16.5	20.4	522211	16.5	21.2	256256	16.6	20.3	58203	16.7	18.7	146322	16.7	19.4	373004	16.8	21.3
247549	16.5	21.1	544801	16.5	21.3	522351	16.6	20.7	519400	16.7	19.7	96478	16.7	18.8	201241	16.8	20.4
365750	16.5	20.7	7642	16.5	17.6	395768	16.6	21.1	341417	16.7	20.7	37490	16.7	19.0	165783	16.8	19.9
288596	16.5	19.5	8943	16.5	17.9	489165	16.6	19.7	165126	16.7	18.8	363127	16.7	20.5	58197	16.8	19.6
130685	16.5	19.2	282830	16.5	21.0	36295	16.6	18.2	10727	16.7	16.9	460270	16.7	20.8	372021	16.8	21.0
239912	16.5	20.1	76103	16.5	18.8	165282	16.6	19.2	10816	16.7	18.4	80312	16.7	17.6	538765	16.8	21.3
90623	16.5	20.1	458359	16.5	21.9	435257	16.6	21.3	522665	16.7	21.3	269466	16.7	18.6	530032	16.8	21.5
510926	16.5	20.1	144673	16.5	18.7	143339	16.6	18.5	538285	16.7	20.1	379393	16.7	21.9	132315	16.8	19.3
219058	16.5	20.2	474428	16.5	19.8	360709	16.6	21.1	410000	16.7	20.9	411388	16.7	22.0	410530	16.8	19.1
174257	16.5	20.0	120926	16.6	19.3	29878	16.6	17.5	531444	16.7	21.9	167960	16.7	19.6	527655	16.8	21.1
314906	16.5	19.4	403150	16.6	21.0	155652	16.6	19.4	149581	16.7	19.4	441635	16.7	21.2	283218	16.8	21.6
2955	16.5	15.0	132386	16.6	19.2	115552	16.6	19.6	488805	16.7	20.3	190122	16.7	20.1	456450	16.8	22.5
170357	16.5	20.6	524121	16.6	22.7	50892	16.6	18.7	523881	16.7	21.2	193025	16.7	19.6	160735	16.8	19.3
168965	16.5	20.0	534464	16.6	21.1	1796	16.6	14.4	319502	16.7	20.5	422637	16.7	24.1	486822	16.8	19.8
95184	16.5	20.2	60392	16.6	19.3	404493	16.6	20.4	313406	16.7	21.2	253100	16.7	20.3	544483	16.8	21.2
124545	16.5	21.2	199451	16.6	20.0	431544	16.6	21.2	337393	16.7	21.0	168299	16.7	19.8	299379	16.8	19.9
536498	16.5	20.7	236785	16.6	20.3	121915	16.6	17.9	403579	16.7	21.6	364239	16.7	19.5	363084	16.8	23.0
328627	16.5	20.7	312343	16.6	20.3	445590	16.6	20.9	449567	16.7	20.8	327369	16.7	20.7	248810	16.8	19.8
315418	16.5	20.5	119174	16.6	18.5	134462	16.6	20.7	511854	16.7	21.5	534608	16.7	21.5	395782	16.8	21.0
278622	16.5	19.5	203859	16.6	20.2	345360	16.6	19.4	226194	16.7	20.3	500235	16.7	20.8	98146	16.8	17.6
412428	16.5	19.5	457932	16.6	20.6	261431	16.6	19.8	84405	16.7	19.5	147520	16.7	18.8	416844	16.8	20.4
167141	16.5	19.7	21421	16.6	18.2	321636	16.6	20.5	529747	16.7	20.4	54753	16.7	18.8	469186	16.8	20.5
15169	16.5	19.1	314777	16.6	20.2	426063	16.6	20.6</									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
526561	16.8	22.1	345176	16.9	21.4	336688	16.9	20.5	55027	16.9	18.6	110253	17.1	20.0	33269	17.1	17.8
27562	16.8	18.2	135414	16.9	19.2	235526	16.9	18.8	497894	17.0	21.4	44689	17.1	18.3	444437	17.1	19.2
303466	16.8	20.9	48845	16.9	18.1	534972	16.9	21.7	98604	17.0	18.4	357625	17.1	20.0	37294	17.1	17.9
296214	16.8	20.8	143422	16.9	19.8	278417	16.9	20.1	65173	17.0	19.2	85180	17.1	19.6	274467	17.1	19.9
445026	16.8	20.1	426125	16.9	19.7	126808	16.9	19.4	140638	17.0	18.5	181676	17.1	21.2	184018	17.1	19.2
341383	16.8	20.6	544882	16.9	20.4	353935	16.9	19.9	348154	17.0	19.7	149098	17.1	17.9	350028	17.1	19.8
301334	16.8	20.9	197135	16.9	19.8	114785	16.9	19.7	265597	17.0	20.7	182390	17.1	19.5	201815	17.1	19.9
23089	16.8	19.3	27129	16.9	19.0	100208	16.9	19.2	30169	17.0	18.3	376039	17.1	20.1	452930	17.1	19.3
5388	16.8	17.9	299043	16.9	20.1	450086	16.9	19.7	311697	17.0	21.3	145666	17.1	21.3	132905	17.1	19.9
194564	16.8	21.3	495641	16.9	20.7	59365	16.9	17.9	541092	17.0	21.4	124317	17.1	19.4	141368	17.1	19.1
68069	16.8	18.6	204070	16.9	20.4	127870	16.9	19.1	327239	17.0	20.6	348848	17.1	21.5	194562	17.1	19.3
233794	16.8	20.8	500674	16.9	21.7	54668	16.9	18.3	450338	17.0	21.6	368652	17.1	20.6	442715	17.1	20.6
465661	16.8	21.3	315610	16.9	20.2	337481	16.9	20.1	430836	17.0	20.4	239894	17.1	19.5	179874	17.1	21.1
163397	16.8	20.0	85792	16.9	19.1	3875	16.9	16.2	203549	17.0	20.5	97960	17.1	19.4	165127	17.1	19.4
235447	16.8	19.9	529043	16.9	20.1	345206	16.9	19.4	538700	17.0	20.5	150402	17.1	18.9	414826	17.1	20.5
12492	16.8	16.9	365762	16.9	20.3	239217	16.9	20.3	523658	17.0	22.0	421353	17.1	20.4	291392	17.2	20.1
145372	16.8	19.1	323491	16.9	20.4	49261	16.9	19.0	169171	17.0	19.2	259021	17.1	20.9	472765	17.2	20.4
364452	16.8	21.3	454691	16.9	21.2	182569	16.9	20.4	470432	17.0	20.8	322798	17.1	20.7	206162	17.2	20.8
375508	16.8	20.9	276325	16.9	20.2	447283	16.9	21.3	67618	17.0	17.9	394900	17.1	19.9	398377	17.2	21.6
384798	16.8	21.4	288471	16.9	19.1	182496	16.9	20.4	127528	17.0	19.0	333413	17.1	21.6	440580	17.2	21.4
283131	16.8	21.2	204129	16.9	18.9	101237	16.9	19.4	528835	17.0	21.9	350625	17.1	20.9	272924	17.2	20.7
102903	16.8	18.8	533535	16.9	21.4	467105	16.9	21.5	359683	17.0	20.5	323784	17.1	20.8	240498	17.2	19.8
219022	16.8	19.4	265632	16.9	21.0	400407	16.9	21.0	423367	17.0	19.5	317071	17.1	20.3	2904	17.2	16.1
221273	16.8	20.7	94709	16.9	20.0	196636	16.9	20.2	139254	17.0	19.0	161140	17.1	19.2	338861	17.2	19.8
396863	16.8	21.5	125567	16.9	19.4	32679	16.9	18.5	296890	17.0	20.4	425101	17.1	22.1	19369	17.2	16.4
426317	16.8	20.2	221207	16.9	20.1	294884	16.9	19.6	484641	17.0	19.9	378803	17.1	20.7	532467	17.2	20.4
282985	16.8	19.5	190779	16.9	19.4	462738	16.9	20.9	389358	17.0	20.7	160535	17.1	20.3	342872	17.2	19.7
426197	16.8	20.6	452471	16.9	21.8	431492	16.9	21.1	455106	17.0	21.1	258309	17.1	20.4	544488	17.2	21.5
292473	16.8	19.7	347614	16.9	21.6	143366	16.9	19.9	166764	17.0	19.8	310299	17.1	19.7	255948	17.2	20.1
325701	16.8	19.4	235927	16.9	19.5	3819	16.9	16.4	428834	17.0	22.0	456291	17.1	22.1	461911	17.2	22.3
292287	16.8	20.5	364360	16.9	20.3	365417	16.9	20.0	243317	17.0	21.1	226821	17.1	20.5	513642	17.2	21.2
489549	16.8	20.6	340798	16.9	19.9	467041	16.9	21.3	105194	17.0	19.6	265349	17.1	20.1	29929	17.2	18.1
333712	16.8	20.8	162767	16.9	18.8	234524	16.9	20.0	83056	17.0	19.1	375602	17.1	21.2	87544	17.2	18.9
450499	16.8	19.2	287789	16.9	19.7	380486	16.9	20.6	302956	17.0	19.4	31483	17.1	17.0	322785	17.2	21.3
522264	16.8	21.1	520923	16.9	20.4	135340	16.9	17.8	398821	17.0	20.7	344828	17.1	19.5	66144	17.2	19.3
441454	16.8	21.3	263352	16.9	20.3	19328	16.9	17.0	253999	17.0	19.0	267842	17.1	19.9	429925	17.2	20.2
528232	16.8	21.4	419063	16.9	21.4	184282	16.9	19.2	292573	17.0	20.3	412985	17.1	20.4	525710	17.2	20.9
270781	16.8	19.8	82766	16.9	18.7	348699	16.9	21.2	330140	17.0	20.9	420487	17.1	20.4	223653	17.2	20.1
384806	16.8	20.5	231978	16.9	18.7	5321	16.9	16.6	271445	17.0	18.7	97639	17.1	19.5	108676	17.2	18.4
249066	16.8	20.1	271425	16.9	19.4	447796	16.9	21.5	542462	17.0	22.2	351294	17.1	19.7	39657	17.2	19.6
355973	16.8	20.0	56924	16.9	18.8	392272	16.9	21.1	218772	17.0	20.8	414900	17.1	21.6	90698	17.2	17.5
350792	16.8	20.2	135417	16.9	19.0	14593	16.9	18.0	323877	17.0	20.9	414473	17.1	20.6	186437	17.2	19.9
81806	16.8	18.6	519596	16.9	20.7	495535	16.9	21.4	419068	17.0	21.3	346941	17.1	19.7	162726	17.2	19.3
463824	16.8	20.4	264096	16.9	20.3	315638	16.9	20.9	454995	17.0	22.3	144216	17.1	19.2	265671	17.2	21.0
210402	16.8	20.7	415890	16.9	21.8	225661	16.9	19.2	213641	17.0	20.0	504276	17.1	19.9	401018	17.2	19.8
345252	16.8	18.8	401475	16.9	19.4	277164	16.9	20.6	367462	17.0	21.3	494578	17.1	20.4	413919	17.2	21.4
350637	16.8	21.2	65769	16.9	17.4	153694	16.9	19.3	532735	17.0	21.4	268074	17.1	21.0	153503	17.2	19.2
432073	16.8	21.0	351682	16.9	19.9	391416	16.9	19.8	327262	17.0	20.4	73511	17.1	18.7	124993	17.2	18.9
258511	16.8	20.5	340739	16.9	20.3	200333	16.9	18.7	187904	17.0	19.4	57324	17.1	19.0	541109	17.2	21.4
484262	16.8	19.9	350526	16.9	20.5	213166	16.9	20.8	98325	17.0	17.1	46968	17.1	17.9	436037	17.2	22.9
294787	16.8	20.4	458731	16.9	21.2	410422	16.9	19.8	192307	17.0	20.9	541899	17.1	21.1	192610	17.2	18.6
465973	16.8	20.5	455813	16.9	20.8	14627	16.9	17.3	467182	17.0	20.4	196900	17.1	19.7	269037	17.2	20.2
432126	16.8	20.7	532833	16.9	22.4	109845	16.9	18.9	166744	17.0	18.9	204254	17.1	18.7	113990	17.2	19.3
159489	16.8	20.0	240335	16.9	19.8	17069	16.9	17.2	350229	17.0	22.2	381944	17.1	20.5	19480	17.2	16.9
191980	16.8	20.4	37396	16.9	19.3	367220	16.9	20.4	340824	17.0	21.1	207169	17.1	20.7	101575	17.2	18.4
445078	16.8	21.8	190183	16.9	20.2	465729	16.9	21.2	432131	17.0	21.0	372452	17.1	20.3	330916	17.2	21.0
72169	16.8	19.1	386220	16.9	21.5	458396	16.9	21.1	139377	17.0	19.3	284668	17.1	20.6	146439	17.2	20.0
187281	16.8	19.5	367780	16.9	20.4	86762	16.9	19.0	492431	17.0	20.6	432181	17.1	21.0	200815	17.2	18.9
492684	16.8	21.0	248784	16.9	20.4	415227	16.9	19.7	113221	17.0	20.2	532742	17.1	21.1	139895	17.2	19.7
410449	16.8	20.3	248952	16.9	19.9	206830	16.9	19.3	467719	17.0	20.7	171924	17.1	20.5	418411	17.2	20.9
433566	16.8	21.0	108502	16.9	18.9	327976	16.9	20.3	115501	17.0	19.3	221588	17.1	20.2	190134	17.2	19.3
145651	16.8	21.0	186606	16.9	19.9	39002	16.9	18.0	218666	17.0	20.7	502598	17.1	19.9	3191	17.2	16.0
393272	16.8	20.7	60492	16.9	18.1	272597	16.9	21.1	313512	17.0	20.5	150169	17.1	20.4	351521	17.2	20.9
128863	16.8	19.9	469093	16.9	20.5	36701	16.9	17.9	452458	17.0	21.3	266361	17.1	20.1	231233	17.2	19.9
76261	16.8	18.1	427016	16.9	20.7	385489	16.9	20.3	146760	17.0	20.6	9802	17.1	17.9	171945	17.2	19.9
429352	16.8	20.8	80258	16.9	19.7	9221	16.9	17.8	525256	17.0	20.7	448139	17.1	20.5	146570	17.2	18.4
7695	16.8	18.5	230816	16.9	18.9	121662	16.9	19.9	497644	17.0	21.5	207676	17.1	19.5	508642	17.2	20.9
97908	16.8	19.9	541101	16.9	21.8	208347	16.9	20.9	94952	17.0	19.7	536019	17.1	20.3	66908	17.2	18.9
186661	16.8	20.0	98316	16.9	18.3	375519	16.9	21.0	45								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
373862	17.2	18.9	260091	17.3	18.8	75850	17.3	19.2	48149	17.4	18.8	223796	17.4	18.2	428145	17.5	20.4
500280	17.2	21.1	452276	17.3	21.9	421049	17.3	21.3	164705	17.4	18.5	45870	17.4	17.9	327395	17.5	20.1
353868	17.2	21.8	406874	17.3	19.8	527493	17.3	21.2	373629	17.4	19.6	81560	17.4	19.4	512286	17.5	21.4
353320	17.2	19.8	536342	17.3	21.0	58261	17.3	18.4	390064	17.4	20.6	20618	17.5	18.5	185421	17.5	19.3
413533	17.2	21.0	13806	17.3	18.2	498448	17.3	21.1	328711	17.4	20.3	495596	17.5	21.5	96133	17.5	19.3
417605	17.2	20.9	288670	17.3	20.5	259012	17.3	20.8	195848	17.4	20.2	283361	17.5	21.1	284087	17.5	20.6
543648	17.2	22.5	204367	17.3	20.9	113157	17.3	19.4	105087	17.4	18.9	542321	17.5	20.1	289081	17.5	20.6
45659	17.2	18.5	501905	17.3	20.6	431237	17.3	20.6	139932	17.4	19.1	29594	17.5	18.5	14926	17.5	18.3
136881	17.2	18.0	159487	17.3	18.1	427084	17.3	20.5	258267	17.4	20.6	62708	17.5	18.8	451760	17.5	20.9
340491	17.2	20.8	492039	17.3	19.8	117214	17.3	19.2	255874	17.4	19.6	426459	17.5	21.3	80503	17.5	17.5
32505	17.2	16.7	14984	17.3	17.4	505868	17.3	20.9	371183	17.4	21.2	386892	17.5	19.0	1153	17.5	14.6
542272	17.2	20.6	14179	17.3	16.2	409844	17.3	21.2	29153	17.4	19.1	74920	17.5	19.0	97904	17.5	19.9
197536	17.2	19.9	466851	17.3	20.2	356770	17.3	19.5	290979	17.4	21.5	53559	17.5	18.2	411332	17.5	20.4
114502	17.2	19.6	537978	17.3	21.0	126513	17.3	19.1	14098	17.4	18.3	11650	17.5	17.2	40955	17.5	19.1
467490	17.2	21.4	323762	17.3	19.8	369608	17.3	20.9	87638	17.4	19.3	137129	17.5	19.5	323126	17.5	19.4
59123	17.2	18.2	429889	17.3	21.4	502559	17.3	20.8	378949	17.4	21.2	57550	17.5	19.0	532575	17.5	21.5
216577	17.2	19.6	397464	17.3	20.4	377200	17.3	20.2	197553	17.4	18.7	536346	17.5	20.6	57379	17.5	18.1
291034	17.2	20.7	171186	17.3	20.1	27634	17.3	18.5	141935	17.4	17.8	64720	17.5	19.5	544218	17.5	21.3
427565	17.2	21.7	83802	17.3	19.6	429871	17.3	20.1	414231	17.4	19.6	201063	17.5	19.5	195021	17.5	19.8
350739	17.2	21.3	60646	17.3	18.2	255866	17.3	21.3	151032	17.4	19.4	543737	17.5	20.6	278082	17.5	19.1
454321	17.2	21.2	10890	17.3	18.4	56312	17.3	17.9	138801	17.4	19.9	122836	17.5	20.0	543444	17.5	20.8
417202	17.2	22.2	116670	17.3	19.4	186143	17.3	20.3	503478	17.4	19.9	447446	17.5	20.8	218668	17.5	20.7
534178	17.2	20.3	201955	17.3	19.2	341849	17.3	20.4	353262	17.4	19.7	459297	17.5	20.2	185915	17.5	19.5
111306	17.2	20.5	440462	17.3	21.6	214363	17.3	19.7	46641	17.4	18.3	344259	17.5	20.7	284084	17.5	19.7
502487	17.2	20.1	301030	17.3	18.9	412627	17.3	20.9	335228	17.4	20.0	406680	17.5	21.4	87024	17.5	17.3
456979	17.2	21.6	538325	17.3	20.3	366904	17.3	20.7	154000	17.4	19.5	288700	17.5	20.5	495140	17.5	20.9
322849	17.2	21.1	100797	17.3	18.9	20293	17.3	17.9	464718	17.4	21.1	79855	17.5	17.4	319625	17.5	21.3
97549	17.2	20.0	321708	17.3	19.6	317650	17.3	19.0	7588	17.4	15.6	117277	17.5	19.5	177411	17.5	19.0
274277	17.2	21.1	505916	17.3	20.2	116917	17.3	19.4	108386	17.4	19.2	503362	17.5	20.5	70522	17.5	17.8
239429	17.2	19.6	152536	17.3	20.5	4061	17.3	16.1	284775	17.4	20.6	391456	17.5	19.8	275210	17.5	20.9
17635	17.2	18.0	462879	17.3	20.7	411185	17.3	20.5	61875	17.4	18.1	182436	17.5	20.4	200331	17.5	20.5
460050	17.2	21.8	196307	17.3	19.1	140145	17.3	19.7	48427	17.4	18.7	344066	17.5	21.7	64256	17.5	19.3
240032	17.2	20.8	494791	17.3	22.4	283417	17.3	20.3	68136	17.4	18.6	430741	17.5	19.1	293372	17.5	19.3
394930	17.2	21.7	251059	17.3	19.9	529385	17.3	21.4	25765	17.4	17.9	69341	17.5	19.4	95206	17.5	18.3
125977	17.2	19.4	139160	17.3	19.2	238400	17.4	18.9	235424	17.4	20.9	502405	17.5	20.4	492076	17.5	19.7
338088	17.2	20.9	293793	17.3	21.0	431267	17.4	20.9	454472	17.4	20.7	413049	17.5	19.2	223998	17.5	19.0
249067	17.2	18.7	317156	17.3	20.0	524310	17.4	22.2	429923	17.4	21.0	225699	17.5	19.1	238930	17.5	18.9
250130	17.2	21.1	254591	17.3	18.8	532727	17.4	20.9	237762	17.4	19.5	64994	17.5	19.4	142533	17.5	20.3
26739	17.2	18.4	239219	17.3	19.5	365846	17.4	20.5	536207	17.4	21.6	466398	17.5	21.0	411325	17.5	21.5
53939	17.2	18.3	108924	17.3	19.4	416910	17.4	20.4	290288	17.4	20.1	228268	17.5	20.6	167873	17.5	19.3
142907	17.2	18.9	363856	17.3	20.2	430022	17.4	20.9	427460	17.4	20.6	376008	17.5	20.8	195155	17.5	20.3
404519	17.2	21.0	423113	17.3	20.7	122155	17.4	19.0	186402	17.4	19.1	28750	17.5	18.9	416908	17.5	21.3
501421	17.2	20.1	245882	17.3	20.7	195278	17.4	19.4	347781	17.4	20.3	18117	17.5	16.9	486049	17.5	21.5
181387	17.2	20.0	69934	17.3	19.5	68704	17.4	18.5	441881	17.4	20.3	544180	17.5	21.6	329841	17.5	20.4
240083	17.2	19.0	86031	17.3	17.5	304948	17.4	21.1	24817	17.4	19.2	355843	17.5	19.7	238426	17.5	19.9
428142	17.2	21.1	412569	17.3	19.6	464731	17.4	21.7	300258	17.4	20.1	98525	17.5	19.4	421570	17.6	20.2
543543	17.2	20.4	466589	17.3	20.5	531265	17.4	21.1	277873	17.4	19.6	192039	17.5	19.8	162032	17.6	19.8
82703	17.2	18.3	262923	17.3	18.6	405927	17.4	22.3	78309	17.4	19.3	497750	17.5	21.6	350693	17.6	20.7
543284	17.2	21.1	129544	17.3	20.1	534572	17.4	20.7	105451	17.4	19.5	341422	17.5	20.4	42639	17.6	21.2
37467	17.2	18.8	523852	17.3	21.7	251665	17.4	20.2	101241	17.4	18.6	220939	17.5	19.7	411562	17.6	21.5
369334	17.2	21.8	101729	17.3	19.9	490083	17.4	21.9	187363	17.4	20.4	499886	17.5	19.7	308257	17.6	20.4
138705	17.2	19.1	251135	17.3	20.2	512344	17.4	20.2	77740	17.4	18.1	85174	17.5	19.6	5817	17.6	17.6
419197	17.2	20.1	183512	17.3	19.5	160082	17.4	18.7	486205	17.4	20.6	456950	17.5	21.8	429224	17.6	21.2
520845	17.2	20.7	98664	17.3	19.0	416781	17.4	19.7	128803	17.4	19.2	25473	17.5	17.2	169204	17.6	19.5
95293	17.2	19.6	351252	17.3	20.6	301506	17.4	20.0	411379	17.4	21.8	486103	17.5	21.2	500323	17.6	21.3
108029	17.2	19.0	96553	17.3	19.3	366766	17.4	21.2	375645	17.4	22.0	538543	17.5	20.7	12521	17.6	16.3
244286	17.2	19.2	119310	17.3	20.0	536679	17.4	20.6	111706	17.4	18.6	350691	17.5	21.7	252236	17.6	19.5
6785	17.2	15.4	146473	17.3	18.8	107242	17.4	19.2	180575	17.4	19.3	349851	17.5	20.3	81327	17.6	19.1
351743	17.2	19.3	524191	17.3	20.9	542098	17.4	21.5	463435	17.4	19.1	543831	17.5	20.9	506385	17.6	20.4
82445	17.2	19.0	359152	17.3	19.6	505007	17.4	21.7	343026	17.4	21.0	40368	17.5	18.3	169147	17.6	20.2
273346	17.2	21.2	51092	17.3	17.3	439553	17.4	20.9	526680	17.4	23.3	152203	17.5	19.7	29189	17.6	18.3
9717	17.2	16.5	7314	17.3	16.9	199405	17.4	19.6	423310	17.4	19.9	156813	17.5	18.5	341189	17.6	19.9
197827	17.2	20.8	283935	17.3	20.8	15952	17.4	17.3	542095	17.4	20.9	534907	17.5	20.9	243787	17.6	20.2
4616	17.2	17.6	431245	17.3	20.1	462074	17.4	20.7	111119	17.4	19.2	525754	17.5	22.3	250185	17.6	21.0
36515	17.2	18.2	381307	17.3	20.0	428115	17.4	20.5	305661	17.4	22.7	234509	17.5	20.2	34140	17.6	19.4
508789	17.2	20.8	205312	17.3	20.2	528576	17.4	21.5	425118	17.4	21.5	399971	17.5	20.1	212616	17.6	20.0
6640	17.2	16.4	315465	17.3	20.0	83716	17.4	18.9	35540	17.4	17.3	179935	17.5	20.1	62525	17.6	19.0
415559	17.2	21.3	538913	17.3	21.4	234883	17.4	19.4	272135	17.4	20.0	427360	17.5	20.8	295888	17.6	20.6
427661	17.2	20.3	129003	17.3	19.7	46182	17.4	18.6	26514	17.4	17.7						

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
406651	17.6	20.9	530101	17.6	22.2	111110	17.7	18.8	106592	17.8	20.0	231960	17.9	20.5	214320	17.9	19.8
347477	17.6	21.1	17729	17.6	17.8	347167	17.7	19.2	176028	17.8	20.8	380701	17.9	20.7	488878	17.9	21.8
318950	17.6	19.9	315565	17.7	21.2	128220	17.7	18.8	179904	17.8	20.6	167610	17.9	19.6	261000	17.9	20.4
236039	17.6	19.7	146424	17.7	20.2	482844	17.7	20.4	135389	17.8	19.3	81773	17.9	19.1	381220	17.9	20.8
442775	17.6	21.2	321383	17.7	19.8	508	17.7	12.8	495464	17.8	20.1	431291	17.9	20.9	400111	17.9	21.5
358972	17.6	19.3	504134	17.7	20.9	15340	17.7	18.0	14637	17.8	17.4	111156	17.9	19.0	466562	17.9	20.4
280409	17.6	20.4	46690	17.7	18.3	335943	17.7	21.1	235645	17.8	19.5	403774	17.9	21.1	14299	17.9	17.9
300296	17.6	21.0	428994	17.7	20.7	172025	17.7	18.8	286504	17.8	20.4	529908	17.9	22.9	150697	17.9	18.8
495919	17.6	21.3	199172	17.7	20.2	261553	17.7	18.9	458246	17.8	20.5	453276	17.9	21.6	337491	17.9	20.5
399358	17.6	21.0	469241	17.7	20.0	455822	17.7	21.0	466888	17.8	20.7	410559	17.9	20.5	356605	17.9	20.8
442645	17.6	20.3	422326	17.7	21.1	136371	17.7	19.4	152280	17.8	19.4	33791	17.9	16.9	289258	17.9	19.5
323119	17.6	20.5	319645	17.7	19.8	216629	17.7	19.2	399230	17.8	19.9	25171	17.9	18.7	467702	17.9	20.6
82010	17.6	19.4	138749	17.7	20.4	230842	17.7	19.8	148724	17.8	19.9	544587	17.9	20.4	338262	17.9	20.6
88156	17.6	19.5	145263	17.7	20.6	397472	17.7	21.0	125865	17.8	19.8	220461	17.9	19.9	52495	17.9	19.5
203916	17.6	19.2	134871	17.7	19.9	464772	17.7	20.8	459020	17.8	20.7	258281	17.9	21.4	79901	17.9	19.4
3207	17.6	16.4	29965	17.7	18.2	138632	17.7	19.8	368626	17.8	21.1	409852	17.9	19.4	154740	17.9	20.6
81182	17.6	18.8	358010	17.7	19.9	441579	17.7	21.6	209509	17.8	20.6	339016	17.9	19.0	136124	17.9	20.5
362886	17.6	20.3	444014	17.7	21.0	500303	17.7	21.8	76914	17.8	17.9	237865	17.9	19.1	176856	17.9	20.9
385207	17.6	20.9	301635	17.7	19.0	24965	17.7	18.6	311031	17.8	21.0	299538	17.9	18.7	541221	17.9	21.5
440071	17.6	21.3	409897	17.7	20.9	285783	17.7	20.6	243807	17.8	20.2	83952	17.9	18.7	461728	17.9	21.5
111072	17.6	18.8	542853	17.7	19.9	457182	17.7	19.7	16849	17.8	18.6	283961	17.9	19.7	199332	17.9	20.5
522312	17.6	20.3	289846	17.7	19.8	169214	17.7	20.3	334679	17.8	20.9	324613	17.9	20.3	534329	17.9	21.5
544019	17.6	21.4	125488	17.7	20.9	214407	17.7	20.8	177536	17.8	19.1	461813	17.9	20.0	324499	17.9	20.9
491989	17.6	20.4	296017	17.7	20.1	215906	17.7	19.3	282145	17.8	20.8	307970	17.9	18.4	422628	17.9	20.5
533675	17.6	20.8	319470	17.7	21.7	371962	17.7	19.9	146530	17.8	19.9	105377	17.9	17.7	1579	17.9	15.5
328663	17.6	19.9	143787	17.7	19.4	229135	17.7	19.9	309297	17.8	20.8	352835	17.9	20.9	231590	17.9	20.2
184283	17.6	19.5	242610	17.7	20.0	208182	17.7	19.7	425136	17.8	21.9	137092	17.9	20.3	134476	17.9	21.4
374008	17.6	21.0	356004	17.7	21.4	443225	17.7	20.5	370729	17.8	20.4	24468	17.9	18.2	419939	17.9	21.2
221583	17.6	20.5	395142	17.7	20.3	85901	17.7	18.0	319732	17.8	20.5	323806	17.9	20.6	427617	17.9	20.8
52795	17.6	17.6	428962	17.7	21.4	451457	17.7	21.7	206338	17.8	20.2	413985	17.9	20.3	340931	17.9	18.5
189177	17.6	20.2	302920	17.7	20.7	163522	17.7	19.4	456467	17.8	21.9	262600	17.9	19.7	208445	17.9	20.6
262415	17.6	19.9	448295	17.7	20.1	494189	17.7	20.2	498255	17.8	20.9	204211	17.9	18.9	5479	17.9	16.9
337844	17.6	21.2	448225	17.7	21.8	325896	17.7	21.3	383298	17.8	20.5	367210	17.9	20.4	119716	17.9	19.4
154372	17.6	19.3	120741	17.7	20.6	419305	17.7	20.2	527487	17.8	21.6	502679	17.9	20.9	241168	17.9	20.7
485438	17.6	20.1	89224	17.7	19.7	327365	17.7	20.3	154686	17.8	18.9	448223	17.9	21.4	411270	17.9	20.8
143063	17.6	19.4	137134	17.7	20.0	328526	17.7	20.4	403550	17.8	20.0	227947	17.9	20.7	65581	17.9	19.1
150265	17.6	18.4	532205	17.7	22.1	440653	17.7	20.8	324510	17.8	21.4	223764	17.9	19.9	246059	17.9	20.4
117144	17.6	19.7	120367	17.7	19.6	78553	17.7	19.7	510976	17.8	21.1	309198	17.9	20.3	171937	17.9	20.0
148729	17.6	20.9	335961	17.7	21.6	158940	17.7	20.2	209390	17.8	18.5	24883	17.9	17.7	283629	17.9	21.2
328360	17.6	20.1	409989	17.7	21.5	236282	17.7	19.5	369104	17.8	20.7	196263	17.9	18.5	529310	17.9	22.4
442633	17.6	21.2	347618	17.7	21.0	448813	17.8	20.9	288650	17.8	21.1	397175	17.9	20.3	172034	17.9	18.5
298367	17.6	20.4	27400	17.7	17.5	162696	17.8	20.1	167629	17.8	20.3	189785	17.9	18.5	17867	17.9	17.7
222333	17.6	20.6	179992	17.7	19.6	39592	17.8	18.6	382804	17.8	20.6	223485	17.9	19.6	323166	17.9	18.9
139245	17.6	18.5	122705	17.7	19.9	15192	17.8	17.3	383646	17.8	20.4	326183	17.9	19.6	153841	17.9	19.9
247631	17.6	21.5	257229	17.7	19.9	514319	17.8	21.9	501072	17.8	21.4	39925	17.9	17.7	372455	17.9	21.0
462072	17.6	21.3	283203	17.7	20.1	96006	17.8	19.9	541377	17.8	20.3	435920	17.9	20.4	200150	17.9	18.2
536631	17.6	21.0	235965	17.7	19.9	471320	17.8	20.4	98567	17.8	19.3	337897	17.9	21.0	532235	17.9	21.0
84078	17.6	20.0	258090	17.7	20.3	47893	17.8	18.3	130057	17.8	20.2	208396	17.9	21.3	163199	17.9	19.2
22574	17.6	18.4	232420	17.7	18.5	436606	17.8	20.5	321243	17.8	20.2	14309	17.9	17.1	8540	17.9	18.5
6716	17.6	17.1	344824	17.7	19.8	329068	17.8	19.6	422132	17.8	20.0	185566	17.9	20.6	356641	17.9	20.6
203792	17.6	19.9	522487	17.7	21.2	503106	17.8	20.4	41838	17.8	18.9	241115	17.9	21.2	518946	17.9	20.8
538949	17.6	20.5	432104	17.7	20.5	159200	17.8	20.2	343535	17.8	20.2	245002	17.9	19.7	160133	17.9	20.0
133850	17.6	19.6	529186	17.7	21.5	100659	17.8	19.7	207044	17.8	19.7	234431	17.9	19.6	342963	17.9	20.7
19827	17.6	17.9	104374	17.7	18.6	450895	17.8	21.7	428411	17.8	21.1	373931	17.9	22.3	483825	17.9	21.9
279789	17.6	20.8	424597	17.7	20.9	80334	17.8	17.3	464318	17.8	21.0	203844	17.9	19.9	339570	17.9	20.7
162651	17.6	19.5	484693	17.7	21.7	503043	17.8	20.6	457748	17.8	19.9	529334	17.9	22.7	244551	17.9	20.3
340069	17.6	21.0	520951	17.7	20.8	15201	17.8	18.4	464932	17.8	21.8	335938	17.9	21.0	543660	17.9	22.4
472554	17.6	20.7	504812	17.7	19.3	291425	17.8	20.3	325549	17.9	19.6	322357	17.9	19.1	433209	17.9	21.0
472095	17.6	21.6	544293	17.7	21.5	430519	17.8	21.2	522473	17.9	19.3	325870	17.9	21.0	519552	17.9	21.3
473571	17.6	20.7	192454	17.7	20.6	74457	17.8	18.9	95157	17.9	19.5	213714	17.9	20.7	319632	17.9	20.3
79271	17.6	18.6	448237	17.7	20.6	353459	17.8	20.8	353655	17.9	21.0	421029	17.9	20.2	400341	17.9	20.1
289343	17.6	20.9	423465	17.7	21.2	89426	17.8	20.4	250219	17.9	21.3	528263	17.9	21.6	208165	17.9	19.2
145698	17.6	18.9	485470	17.7	20.4	330901	17.8	20.3	451085	17.9	22.1	170744	17.9	20.2	51922	17.9	18.7
93067	17.6	19.3	376575	17.7	21.2	14273	17.8	18.1	85746	17.9	18.8	528718	17.9	21.4	50687	17.9	18.0
171912	17.6	20.4	379061	17.7	21.4	83622	17.8	20.6	389865	17.9	20.8	369588	17.9	21.2	414186	17.9	20.3
17192	17.6	17.9	320581	17.7	20.7	28070	17.8	18.0	431206	17.9	19.8	526592	17.9	21.8	125313	17.9	19.5
369811	17.6	20.5	451230	17.7	20.3	140971	17.8	19.9	227073	17.9	19.7	208678	17.9	18.8	119565	17.9	19.5
432211	17.6	20.3	17092	17.7	17.5	365624	17.8	20.2	88105	17.9	19.3	283309	17.9	19.9	397912	17.9	21.3
275068	17.6	20.8	30764	17.7	18.6	34316	17.8	17.6									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
27673	17.9	19.2	341627	18.1	21.2	452938	18.1	20.5	91523	18.2	19.2	234522	18.3	20.6	194359	18.3	18.8
317092	17.9	20.7	399525	18.1	21.1	390815	18.1	19.7	309219	18.2	20.3	192743	18.3	19.8	456592	18.3	19.8
544250	17.9	21.0	483858	18.1	20.6	249166	18.1	20.1	473365	18.2	21.3	218032	18.3	20.6	51030	18.3	18.5
76879	18.0	18.3	208994	18.1	20.4	32668	18.1	18.4	35092	18.2	18.2	450866	18.3	20.7	451449	18.3	21.7
190121	18.0	20.2	454722	18.1	20.7	109505	18.2	20.0	230951	18.2	20.4	94985	18.3	19.8	392485	18.3	20.2
175573	18.0	20.9	109195	18.1	18.5	169225	18.2	20.7	14580	18.2	18.5	526091	18.3	21.3	274018	18.3	19.3
146592	18.0	20.2	151515	18.1	19.0	249351	18.2	20.0	3011	18.2	17.7	47120	18.3	17.0	6782	18.3	17.0
56115	18.0	18.6	142799	18.1	19.4	538387	18.2	19.9	539799	18.2	20.1	180902	18.3	20.0	119746	18.3	19.6
393251	18.0	20.7	364309	18.1	20.8	88552	18.2	18.8	113007	18.2	18.7	258339	18.3	19.4	118569	18.3	16.8
248103	18.0	20.4	120132	18.1	20.7	326733	18.2	19.3	406352	18.2	21.3	247711	18.3	19.1	500341	18.3	22.1
166787	18.0	18.1	171896	18.1	20.9	182971	18.2	20.3	171410	18.2	19.8	120504	18.3	20.0	123682	18.3	19.7
468668	18.0	21.0	340590	18.1	20.7	406469	18.2	20.5	292359	18.2	21.1	247617	18.3	20.5	381253	18.3	21.2
461690	18.0	20.9	126596	18.1	19.3	303010	18.2	19.9	352853	18.2	20.3	457138	18.3	20.0	237673	18.3	19.8
103213	18.0	16.7	333049	18.1	20.0	29230	18.2	17.7	465517	18.2	21.6	503519	18.3	19.9	428843	18.3	21.0
66401	18.0	19.2	531709	18.1	21.6	367823	18.2	21.1	112465	18.2	18.8	492484	18.3	20.8	235370	18.3	18.6
496008	18.0	22.0	367535	18.1	21.4	51152	18.2	17.5	363620	18.2	21.1	56120	18.3	17.8	258028	18.3	20.6
435227	18.0	20.3	335906	18.1	20.4	372034	18.2	20.8	44664	18.2	18.2	429840	18.3	21.5	352766	18.3	20.3
440940	18.0	21.9	301531	18.1	20.0	86885	18.2	17.4	102907	18.2	19.3	346990	18.3	19.7	500439	18.3	21.4
471105	18.0	20.9	139949	18.1	19.9	374103	18.2	21.2	357640	18.2	19.7	274882	18.3	19.5	56564	18.3	18.0
165816	18.0	19.3	401982	18.1	22.3	301163	18.2	20.7	201993	18.2	20.1	16920	18.3	17.5	235733	18.3	19.5
158979	18.0	18.9	271759	18.1	20.2	145897	18.2	19.6	120430	18.2	20.0	51311	18.3	19.1	296422	18.4	20.0
281348	18.0	21.1	508994	18.1	19.4	400760	18.2	19.9	116517	18.2	19.4	453695	18.3	19.6	349711	18.4	20.2
58144	18.0	18.8	48372	18.1	18.4	755	18.2	13.3	528781	18.2	21.8	446282	18.3	19.8	147139	18.4	20.4
187101	18.0	19.2	486047	18.1	20.7	123150	18.2	18.4	153741	18.2	19.9	307735	18.3	22.0	133975	18.4	19.6
503133	18.0	21.1	274647	18.1	20.2	412496	18.2	20.1	289532	18.2	20.1	245067	18.3	18.9	36944	18.4	18.7
528713	18.0	21.9	406142	18.1	20.7	163538	18.2	21.0	54324	18.2	18.4	160782	18.3	19.0	78013	18.4	17.9
332159	18.0	20.2	542117	18.1	21.6	522233	18.2	20.6	296030	18.2	21.5	529416	18.3	22.4	399554	18.4	21.3
492091	18.0	20.0	141146	18.1	19.4	306192	18.2	20.0	10288	18.2	18.4	116262	18.3	19.3	456531	18.4	20.5
225564	18.0	20.0	544377	18.1	20.9	15302	18.2	17.3	2875	18.2	15.8	120982	18.3	19.8	62962	18.4	18.4
334237	18.0	20.9	64056	18.1	18.1	26618	18.2	17.8	430040	18.2	21.2	37624	18.3	19.7	463658	18.4	20.9
401926	18.0	21.4	440086	18.1	21.3	394385	18.2	20.8	257267	18.2	19.7	90199	18.3	20.0	282132	18.4	20.6
309187	18.0	20.8	544239	18.1	20.8	148570	18.2	20.6	15227	18.2	17.7	315793	18.3	19.2	241578	18.4	18.8
384117	18.0	20.1	463280	18.1	20.3	392237	18.2	20.4	340897	18.2	20.6	30866	18.3	18.6	466774	18.4	21.0
416609	18.0	21.6	198647	18.1	20.1	284654	18.2	20.3	298945	18.2	20.6	446694	18.3	20.8	272133	18.4	20.3
500316	18.0	22.0	202878	18.1	20.9	257168	18.2	20.9	422693	18.2	20.0	527588	18.3	21.2	301623	18.4	19.1
540061	18.0	20.6	500419	18.1	21.4	498161	18.2	21.5	59791	18.2	19.3	490082	18.3	21.3	48489	18.4	17.4
60956	18.0	18.6	491596	18.1	21.4	524889	18.2	20.9	499400	18.2	19.7	85495	18.3	19.5	435314	18.4	21.1
305579	18.0	19.7	459044	18.1	21.5	527233	18.2	22.4	162713	18.2	19.5	223842	18.3	19.9	242123	18.4	21.5
199488	18.0	20.2	8999	18.1	17.7	209478	18.2	19.4	281597	18.2	20.3	296480	18.3	20.0	26174	18.4	18.1
175761	18.0	21.2	371654	18.1	18.2	258198	18.2	20.0	464975	18.2	21.1	287672	18.3	19.9	509002	18.4	20.3
173	18.0	12.6	483734	18.1	21.2	479288	18.2	18.1	143866	18.2	20.2	166837	18.3	20.1	44649	18.4	18.8
427449	18.0	20.7	362728	18.1	20.2	160889	18.2	19.5	68658	18.2	18.4	440671	18.3	22.0	272475	18.4	19.5
114560	18.0	18.4	417323	18.1	20.3	372430	18.2	20.8	381268	18.2	21.0	178940	18.3	19.7	173032	18.4	20.1
244140	18.0	20.5	45033	18.1	17.8	159558	18.2	19.9	526603	18.2	22.2	247658	18.3	20.6	237649	18.4	20.3
234046	18.0	19.0	419647	18.1	20.9	458388	18.2	21.1	338422	18.2	20.3	15960	18.3	17.3	41731	18.4	18.6
9573	18.0	17.6	371943	18.1	19.2	115144	18.2	20.1	468330	18.2	20.6	440715	18.3	19.8	59557	18.4	18.6
78629	18.0	19.1	366760	18.1	21.7	334281	18.2	21.1	213153	18.2	18.6	172365	18.3	19.5	512190	18.4	21.1
537979	18.0	20.2	373093	18.1	20.2	263311	18.2	20.4	284930	18.2	20.9	53077	18.3	18.0	298369	18.4	19.9
208359	18.0	20.6	543777	18.1	21.7	166737	18.2	20.2	100074	18.2	19.7	256072	18.3	20.7	153727	18.4	20.0
125899	18.0	19.7	527282	18.1	20.9	197418	18.2	20.1	36115	18.2	17.6	151143	18.3	19.7	331398	18.4	20.4
338228	18.0	20.1	371968	18.1	20.4	201178	18.2	20.4	376614	18.2	20.5	439886	18.3	17.6	368628	18.4	21.1
86451	18.0	18.5	38813	18.1	18.5	190428	18.2	20.2	159997	18.2	20.0	274683	18.3	20.1	36499	18.4	18.0
201469	18.0	18.5	542142	18.1	21.3	386664	18.2	20.3	331247	18.2	20.4	135446	18.3	19.3	186206	18.4	20.5
420931	18.0	20.4	483804	18.1	21.5	184039	18.2	19.4	223711	18.2	19.4	494871	18.3	20.2	13710	18.4	18.1
44027	18.0	19.5	83208	18.1	17.3	98178	18.2	18.3	155539	18.2	19.6	77007	18.3	18.5	493811	18.4	19.8
114948	18.0	19.1	499000	18.1	21.2	85516	18.2	20.3	344577	18.2	21.7	397854	18.3	21.6	210287	18.4	21.0
14243	18.0	18.0	144930	18.1	20.3	171657	18.2	18.9	87890	18.2	20.0	456606	18.3	19.9	148738	18.4	19.0
241142	18.0	19.4	385989	18.1	20.9	347597	18.2	20.9	227543	18.2	20.2	208932	18.3	19.2	110071	18.4	18.4
226834	18.0	20.7	232306	18.1	20.7	401014	18.2	20.3	328617	18.2	20.2	433541	18.3	20.7	168181	18.4	20.1
528668	18.1	21.5	226904	18.1	19.6	165853	18.2	19.5	151524	18.2	19.9	383681	18.3	20.8	458342	18.4	21.2
327284	18.1	20.6	544399	18.1	22.1	348942	18.2	21.2	49519	18.2	18.9	459838	18.3	20.4	118539	18.4	18.3
129313	18.1	19.2	432057	18.1	20.2	113937	18.2	18.5	74257	18.2	19.9	134826	18.3	20.1	14653	18.4	16.4
113190	18.1	20.0	142178	18.1	20.2	301750	18.2	20.5	57370	18.2	19.7	460385	18.3	21.3	81550	18.4	18.7
380705	18.1	20.0	256152	18.1	19.8	59787	18.2	18.7	341720	18.2	20.7	272878	18.3	20.4	451886	18.4	20.5
403020	18.1	20.5	519186	18.1	21.2	207890	18.2	19.1	49885	18.2	18.0	136524	18.3	19.1	124937	18.4	19.8
500344	18.1	21.7	362801	18.1	20.2	320802	18.2	19.6	382553	18.2	21.0	424672	18.3	21.0	358587	18.4	20.8
94856	18.1	19.5	217611	18.1	20.3	234541	18.2	19.8	45551	18.2	19.4	193284	18.3	20.0	131263	18.4	18.7
473830	18.1	21.3	246377	18.1	20.3	276332	18.2	20.3	248916	18.3	20.1	110355	18.3	19.9	39464	18.4	19.3
60064	18.1	18.5	238998	18.1	19.0	529200	18.2	21.7	173152	18.							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
508341	18.4	20.4	258065	18.5	21.1	85761	18.5	19.4	326977	18.6	20.2	448468	18.6	19.8	329834	18.7	20.7
206285	18.4	20.0	537558	18.5	20.4	341712	18.5	20.4	154354	18.6	18.3	159026	18.7	20.0	430920	18.7	19.9
2738	18.4	15.5	298882	18.5	19.1	16942	18.5	17.4	151152	18.6	20.2	377549	18.7	20.1	335923	18.7	20.6
455571	18.4	21.7	498861	18.5	20.8	443941	18.5	21.4	105121	18.6	19.5	32215	18.7	18.8	135421	18.7	20.2
73686	18.4	19.6	419742	18.5	21.6	464950	18.5	21.2	424655	18.6	20.2	197527	18.7	19.2	237381	18.7	19.9
404999	18.4	21.2	348644	18.5	20.7	285659	18.5	21.0	417006	18.6	21.7	432461	18.7	20.9	158616	18.7	19.1
74241	18.4	18.8	390392	18.5	19.7	455101	18.5	22.0	343753	18.6	18.8	419021	18.7	21.3	72017	18.7	18.6
233992	18.4	19.6	377946	18.5	20.6	143368	18.5	19.4	138783	18.6	19.6	122957	18.7	19.5	500055	18.7	21.3
206354	18.4	19.9	544765	18.5	21.0	1324	18.5	14.9	6932	18.6	16.2	544821	18.7	21.1	338355	18.7	21.1
194012	18.4	20.1	274594	18.5	20.3	112188	18.5	19.2	103841	18.6	19.7	187043	18.7	19.4	116489	18.7	19.7
6942	18.4	17.2	540065	18.5	21.8	348876	18.5	21.0	2343	18.6	17.2	17651	18.7	16.5	432058	18.7	20.8
61305	18.4	19.7	72052	18.5	18.8	17490	18.5	18.9	510820	18.6	20.7	236681	18.7	20.1	149018	18.7	21.2
541878	18.4	21.6	392732	18.5	21.6	406023	18.5	22.1	173723	18.6	20.6	261579	18.7	20.1	163465	18.7	19.3
396804	18.4	21.4	201276	18.5	20.8	21279	18.5	18.0	210939	18.6	20.6	426830	18.7	20.4	397165	18.7	21.1
11599	18.4	17.4	1408	18.5	15.9	60794	18.5	18.7	381905	18.6	19.9	345641	18.7	21.0	146383	18.7	20.1
499997	18.4	21.0	293082	18.5	21.7	19853	18.5	17.9	455022	18.6	20.7	97921	18.7	19.2	174871	18.7	20.2
420978	18.4	21.4	205855	18.5	19.1	296618	18.5	21.0	534339	18.6	21.6	208322	18.7	20.3	275540	18.7	20.7
183583	18.4	19.9	38984	18.5	20.1	77765	18.5	19.1	98223	18.6	19.5	6687	18.7	17.2	194554	18.7	20.4
140621	18.4	19.8	16407	18.5	17.7	452531	18.5	21.6	260053	18.6	19.5	237538	18.7	20.5	406664	18.7	20.6
495376	18.4	21.1	300569	18.5	20.5	317972	18.5	20.1	447265	18.6	21.2	216542	18.7	19.4	335661	18.7	20.4
241708	18.4	20.5	544376	18.5	21.4	493467	18.5	21.5	150170	18.6	20.2	450972	18.7	22.4	391474	18.7	19.0
295818	18.4	19.8	227761	18.5	19.5	245222	18.5	20.3	220010	18.6	19.6	179092	18.7	19.9	379673	18.7	20.6
545089	18.4	20.6	89027	18.5	18.7	215935	18.5	20.1	532794	18.6	21.3	441858	18.7	20.6	11029	18.7	16.8
427204	18.4	20.1	412339	18.5	20.0	180687	18.5	19.2	529567	18.6	21.1	492593	18.7	20.1	18699	18.7	18.1
148278	18.4	19.4	456500	18.5	20.7	394807	18.5	20.2	361431	18.6	20.3	173416	18.7	20.3	415217	18.7	19.9
298923	18.4	20.5	64306	18.5	19.7	123129	18.5	19.5	350818	18.6	19.6	103574	18.7	19.1	467985	18.7	20.9
359196	18.4	20.8	27879	18.5	16.7	532345	18.5	19.8	455236	18.6	21.6	311739	18.7	20.7	441666	18.7	21.4
502575	18.4	21.1	463562	18.5	21.0	290957	18.5	21.4	204304	18.6	20.7	463841	18.7	20.8	293278	18.7	20.1
294286	18.4	20.8	95347	18.5	19.2	536447	18.5	20.9	161141	18.6	21.1	445104	18.7	21.7	156175	18.7	19.4
433124	18.4	19.8	219767	18.5	19.5	187238	18.5	21.0	195007	18.6	19.5	76577	18.7	19.2	284856	18.7	20.8
355924	18.4	20.5	57985	18.5	19.5	5654	18.5	15.6	97100	18.6	17.9	123480	18.7	20.0	193723	18.7	19.2
17065	18.4	16.4	263994	18.5	21.4	538382	18.5	20.5	30267	18.6	18.3	198153	18.7	19.9	61904	18.7	19.5
256230	18.4	19.5	528612	18.5	23.6	247573	18.5	21.7	231433	18.6	18.7	227797	18.7	20.5	440254	18.7	21.5
387639	18.4	19.9	544068	18.5	22.1	379467	18.5	19.8	90484	18.6	19.0	330889	18.7	19.9	534549	18.7	22.0
76502	18.4	19.0	163254	18.5	19.8	179011	18.5	19.8	13706	18.6	18.3	408872	18.7	22.0	134194	18.7	20.1
327345	18.4	20.3	7582	18.5	17.5	499784	18.5	19.6	466591	18.6	20.1	357548	18.7	21.4	534706	18.7	20.9
289126	18.4	21.1	264757	18.5	19.3	185935	18.5	20.4	13044	18.6	17.6	256003	18.7	20.7	469406	18.7	21.8
456159	18.4	19.1	527289	18.5	21.4	10962	18.5	16.8	48014	18.6	17.8	319650	18.7	20.5	409909	18.7	22.2
420388	18.4	19.8	92842	18.5	19.7	244614	18.5	20.6	180279	18.6	20.0	415124	18.7	20.6	377888	18.7	20.8
75989	18.4	18.4	25186	18.5	16.9	148	18.5	12.6	429361	18.6	19.8	229112	18.7	20.7	362319	18.7	20.9
351750	18.4	21.4	258420	18.5	20.1	490093	18.5	21.8	52043	18.6	19.5	115564	18.7	18.4	456393	18.7	21.7
169301	18.4	20.5	163688	18.5	20.4	540079	18.5	21.0	278783	18.6	20.4	272490	18.7	21.3	345778	18.7	19.6
200588	18.4	20.5	106135	18.5	19.9	64261	18.5	19.1	29091	18.6	18.5	470398	18.7	21.3	27086	18.7	18.8
495490	18.4	21.3	176678	18.5	20.5	491987	18.5	20.3	90053	18.6	19.7	297951	18.7	19.2	537331	18.7	21.1
362611	18.4	21.5	301766	18.5	20.6	518128	18.5	20.8	150527	18.6	19.2	471759	18.7	21.0	429921	18.7	21.3
385864	18.4	21.9	452228	18.5	20.2	54172	18.5	19.4	483768	18.6	20.2	35486	18.7	17.8	303458	18.7	20.1
536260	18.4	21.4	368821	18.5	20.7	162057	18.5	20.3	372635	18.6	20.7	322124	18.7	20.3	331856	18.7	20.6
341264	18.4	19.9	544804	18.5	21.3	296981	18.5	19.8	373334	18.6	20.8	194355	18.7	19.9	313576	18.7	20.1
495145	18.4	21.7	312670	18.5	19.5	400030	18.5	21.8	175487	18.6	19.8	313483	18.7	20.1	268581	18.7	20.7
351263	18.4	21.1	190765	18.5	19.8	343225	18.5	19.6	182553	18.6	20.3	507920	18.7	20.6	108593	18.7	19.5
292224	18.4	21.4	207038	18.5	19.8	525752	18.5	21.6	486210	18.6	19.9	194511	18.7	20.1	244150	18.7	20.1
14126	18.4	17.7	151164	18.5	19.9	524346	18.5	20.7	349098	18.6	20.8	411367	18.7	21.2	424758	18.7	21.2
341605	18.4	20.2	373779	18.5	20.1	275232	18.5	20.3	164791	18.6	19.6	94379	18.7	19.2	284093	18.7	20.1
412487	18.4	19.3	541914	18.5	20.4	238372	18.5	19.5	3392	18.6	16.0	498976	18.7	21.3	323123	18.7	20.6
45603	18.4	18.4	99463	18.5	17.6	522597	18.5	21.0	543255	18.6	21.6	15699	18.7	18.2	151195	18.8	20.4
525296	18.4	21.7	160179	18.5	19.8	337886	18.5	21.6	252267	18.6	19.4	539990	18.7	21.0	544234	18.8	21.4
21210	18.4	18.6	417813	18.5	20.1	358492	18.5	18.8	237719	18.6	20.5	410483	18.7	20.6	351251	18.8	20.8
2975	18.4	15.1	111062	18.5	19.0	88696	18.5	20.8	274871	18.6	21.0	40144	18.7	19.0	151057	18.8	19.7
498130	18.4	21.3	237639	18.5	19.8	242370	18.5	19.4	464791	18.6	20.8	409562	18.7	22.2	101099	18.8	19.3
402574	18.4	21.3	531638	18.5	21.6	233946	18.5	20.2	145652	18.6	19.9	30413	18.7	18.2	372997	18.8	20.5
83086	18.4	19.7	402566	18.5	21.0	281678	18.5	19.8	139926	18.6	19.5	27065	18.7	16.1	379830	18.8	20.2
307043	18.4	20.3	135128	18.5	19.6	110511	18.5	20.1	405977	18.6	21.4	76412	18.7	18.0	36313	18.8	17.6
386869	18.4	20.4	76774	18.5	19.0	240534	18.5	20.7	525730	18.6	21.5	427457	18.7	21.0	348953	18.8	20.8
243660	18.4	20.8	472497	18.5	19.7	155458	18.5	20.7	348973	18.6	20.3	182616	18.7	20.0	487728	18.8	21.3
522113	18.4	20.6	348688	18.5	21.1	349109	18.5	19.3	185152	18.6	20.6	216525	18.7	17.9	341791	18.8	20.6
128971	18.4	18.7	505274	18.5	20.2	461699	18.5	20.8	60338	18.6	19.6	291355	18.7	20.6	196701	18.8	20.9
377332	18.4	19.7	333081	18.5	21.2	47410	18.5	18.5	273052	18.6	20.8	531300	18.7	22.3	133931	18.8	19.8
297284	18.4	19.1	322802	18.5	20.3	155532	18.5	19.2	317125	18.6	20.5	90373	18.7	20.2	463489	18.8	20.8
90435	18.4	19.5	130791	18.5	18.4	277038	18.5	19.9	423275	18.6							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
190880	18.8	20.0	214753	18.8	20.7	190685	18.9	20.1	545042	18.9	21.5	188487	19.0	20.7	430603	19.1	21.0
329077	18.8	19.7	542495	18.8	20.3	109649	18.9	20.3	196975	18.9	19.5	531693	19.0	20.5	59443	19.1	18.2
451032	18.8	20.7	140448	18.8	20.0	215493	18.9	20.2	89995	18.9	19.8	229130	19.0	19.8	543768	19.1	21.4
135747	18.8	20.1	43866	18.8	19.0	320905	18.9	19.2	114427	18.9	19.7	240050	19.0	20.8	345541	19.1	20.4
307865	18.8	19.4	378970	18.8	20.9	33851	18.9	18.6	165732	18.9	19.2	33439	19.0	17.1	126590	19.1	20.1
349011	18.8	21.6	410009	18.8	21.4	177519	18.9	18.8	180636	18.9	20.1	428823	19.0	22.7	90971	19.1	19.3
140072	18.8	18.8	296687	18.8	20.3	231555	18.9	20.2	192998	18.9	20.3	384749	19.0	20.8	466227	19.1	20.9
190081	18.8	20.3	245049	18.8	20.4	324638	18.9	19.9	163451	18.9	19.6	49293	19.0	18.8	423426	19.1	19.2
237630	18.8	20.7	283316	18.8	21.6	422390	18.9	20.9	541882	18.9	21.1	53293	19.0	18.5	419011	19.1	21.4
256050	18.8	19.6	492695	18.8	20.8	543932	18.9	22.1	102072	18.9	18.8	80350	19.0	19.3	142791	19.1	20.2
470429	18.8	20.8	418286	18.9	20.1	219756	18.9	20.1	195910	18.9	19.2	81994	19.0	18.6	190289	19.1	20.6
542434	18.8	21.3	447389	18.9	20.0	280048	18.9	19.7	166793	18.9	19.9	265600	19.0	21.5	422820	19.1	19.9
70905	18.8	18.0	209059	18.9	20.1	302890	18.9	20.3	505543	18.9	20.9	205297	19.0	20.4	105054	19.1	17.3
105786	18.8	19.5	367567	18.9	21.0	448739	18.9	20.0	210676	18.9	20.3	163615	19.0	19.9	270963	19.1	20.4
246600	18.8	19.1	414478	18.9	19.2	92386	18.9	18.8	426124	18.9	20.1	317356	19.0	20.2	29192	19.1	18.2
232963	18.8	18.8	431510	18.9	21.6	347385	18.9	19.7	236790	18.9	19.2	527659	19.0	21.9	532862	19.1	22.3
522149	18.8	19.9	81953	18.9	17.9	402671	18.9	21.3	243355	18.9	20.1	142535	19.0	19.3	503834	19.1	19.3
537103	18.8	20.9	194158	18.9	20.4	343734	18.9	18.7	535654	18.9	21.8	276275	19.0	20.4	235488	19.1	20.3
529032	18.8	22.9	542224	18.9	19.8	259817	18.9	18.6	422921	18.9	21.6	425513	19.0	20.1	68877	19.1	18.9
499512	18.8	20.1	61205	18.9	18.3	460344	18.9	21.9	428982	18.9	21.0	319814	19.0	21.1	456420	19.1	20.2
209055	18.8	20.1	314200	18.9	20.3	39991	18.9	18.1	6490	18.9	18.1	496274	19.0	21.0	98523	19.1	19.0
527685	18.8	21.7	78635	18.9	19.1	425346	18.9	19.8	496273	18.9	21.4	123885	19.0	19.1	528811	19.1	20.7
349104	18.8	20.5	541857	18.9	21.9	50615	18.9	18.2	406114	18.9	21.6	210176	19.0	19.9	245051	19.1	20.7
166774	18.8	19.5	134471	18.9	20.7	486136	18.9	20.8	535577	18.9	20.4	352730	19.0	20.7	345586	19.1	20.2
169120	18.8	19.7	405620	18.9	21.2	297882	18.9	19.6	415857	18.9	21.1	88599	19.0	17.6	419349	19.1	21.7
540083	18.8	20.7	87069	18.9	18.1	225426	18.9	20.9	39311	18.9	18.9	92064	19.0	18.7	496877	19.1	20.8
91491	18.8	19.3	11696	18.9	15.8	420734	18.9	20.1	329055	18.9	20.2	495623	19.0	21.0	375351	19.1	21.1
501395	18.8	20.1	453170	18.9	20.0	291423	18.9	19.7	25122	18.9	18.5	321632	19.0	20.1	324458	19.1	20.2
96402	18.8	18.5	440609	18.9	21.4	173933	18.9	20.2	383654	18.9	20.6	144525	19.0	19.5	369681	19.1	20.3
193374	18.8	20.0	10408	18.9	18.7	287612	18.9	19.1	368629	18.9	21.4	424863	19.0	21.0	292114	19.1	19.6
525109	18.8	21.1	442712	18.9	21.2	325333	18.9	19.9	497104	18.9	20.6	386263	19.0	20.8	385866	19.1	21.3
424304	18.8	21.0	419938	18.9	20.7	363352	18.9	20.9	95278	18.9	19.5	126624	19.0	19.5	501792	19.1	20.7
8818	18.8	17.9	352803	18.9	21.6	366018	18.9	19.9	494068	18.9	20.7	172066	19.0	20.5	151891	19.1	18.4
190102	18.8	19.9	459266	18.9	19.6	13702	18.9	18.7	244335	18.9	19.1	7411	19.0	18.2	433400	19.1	21.6
529544	18.8	20.8	529806	18.9	22.2	468844	18.9	20.5	349533	18.9	21.1	371237	19.0	20.5	459711	19.1	20.0
39092	18.8	19.1	460035	18.9	22.0	426388	18.9	20.9	473403	18.9	21.3	132421	19.0	20.4	32896	19.1	18.3
349504	18.8	21.5	2814	18.9	16.2	118030	18.9	19.2	340947	18.9	21.2	336697	19.1	20.5	394887	19.1	20.2
396571	18.8	18.7	354004	18.9	20.8	160097	18.9	19.8	449151	18.9	20.0	168035	19.1	19.1	141454	19.1	20.5
223661	18.8	19.3	94469	18.9	18.5	267228	18.9	20.1	344855	18.9	19.3	407313	19.1	21.4	460499	19.1	21.4
525938	18.8	21.5	327318	18.9	20.8	527977	18.9	21.6	243785	18.9	19.9	420524	19.1	19.4	453892	19.1	20.9
461237	18.8	18.7	86903	18.9	18.7	27765	18.9	18.2	456947	18.9	22.1	110841	19.1	19.7	283262	19.1	19.7
419452	18.8	20.0	349671	18.9	20.5	168377	18.9	19.7	489317	18.9	20.6	350214	19.1	21.1	55690	19.1	18.5
187936	18.8	19.3	444033	18.9	21.6	91490	18.9	18.4	150024	18.9	19.9	43719	19.1	18.7	354540	19.1	21.2
14831	18.8	17.3	462682	18.9	21.4	344511	18.9	20.1	241048	18.9	20.9	248594	19.1	19.4	440404	19.1	21.9
379485	18.8	20.3	405096	18.9	20.8	461406	18.9	22.6	130615	18.9	19.3	148922	19.1	19.6	538902	19.1	21.1
325832	18.8	21.1	407394	18.9	22.0	30328	18.9	17.1	274385	19.0	20.9	14533	19.1	18.2	237750	19.1	19.8
383768	18.8	21.1	426186	18.9	20.1	495729	18.9	20.7	227921	19.0	19.8	525958	19.1	20.7	292263	19.1	21.0
500688	18.8	21.2	498928	18.9	22.0	53981	18.9	18.4	231122	19.0	19.8	466132	19.1	21.4	409542	19.1	20.7
83563	18.8	18.9	391443	18.9	19.9	421415	18.9	19.5	76887	19.0	18.7	335884	19.1	20.4	169365	19.1	20.3
458279	18.8	21.6	91584	18.9	18.5	204790	18.9	19.7	111772	19.0	18.2	3888	19.1	15.2	542739	19.1	19.9
495110	18.8	19.8	249202	18.9	19.3	319711	18.9	20.0	235601	19.0	20.2	420867	19.1	19.7	320997	19.1	18.7
301367	18.8	19.2	375342	18.9	20.7	28149	18.9	18.9	458367	19.0	21.8	456452	19.1	21.8	428367	19.1	20.8
469347	18.8	20.8	3033	18.9	14.8	114229	18.9	19.0	163680	19.0	19.6	306283	19.1	20.5	158642	19.1	19.5
34906	18.8	18.9	319888	18.9	20.2	494702	18.9	20.5	32115	19.0	17.0	442992	19.1	21.4	30393	19.1	18.4
311053	18.8	21.4	451943	18.9	19.9	318795	18.9	19.9	327875	19.0	21.1	518585	19.1	20.8	52715	19.1	18.6
244541	18.8	20.1	104091	18.9	17.8	15807	18.9	23.8	28517	19.0	16.8	473310	19.1	21.1	248210	19.1	19.4
17176	18.8	16.7	264529	18.9	21.5	434126	18.9	20.3	265825	19.0	20.1	332433	19.1	21.6	343015	19.1	21.3
222365	18.8	20.7	494876	18.9	20.1	188918	18.9	20.5	526518	19.0	22.1	366610	19.1	19.1	363950	19.1	21.1
289520	18.8	20.6	10602	18.9	16.3	473761	18.9	21.4	324437	19.0	20.5	161307	19.1	20.4	357586	19.1	21.5
193989	18.8	20.1	326479	18.9	19.4	464109	18.9	21.6	173498	19.0	19.4	164195	19.1	20.5	322827	19.1	21.7
34749	18.8	18.8	423020	18.9	20.9	150560	18.9	19.2	171858	19.0	20.1	291908	19.1	20.2	175609	19.1	21.1
128721	18.8	19.6	211035	18.9	20.5	393459	18.9	20.6	101760	19.0	18.2	92531	19.1	19.2	334194	19.1	20.5
53626	18.8	18.5	444052	18.9	21.8	416892	18.9	20.8	466325	19.0	21.5	414953	19.1	21.0	415679	19.1	19.7
59680	18.8	18.3	78671	18.9	19.5	205484	18.9	20.1	331018	19.0	20.5	485010	19.1	21.4	285949	19.1	21.6
385634	18.8	19.8	11320	18.9	18.1	532315	18.9	21.5	353585	19.0	21.6	34873	19.1	17.4	239901	19.1	20.7
10540	18.8	18.3	124332	18.9	20.3	536576	18.9	21.2	274308	19.0	19.9	529677	19.1	19.6	222757	19.1	20.1
497733	18.8	21.0	248036	18.9	19.6	343670	18.9	20.2	376334	19.0	20.0	341424	19.1	20.4	409550	19.1	20.7
49343	18.8	18.8	400634	18.9	19.7	150989	18.9	20.7	90991	19.0	19.9	39998	19.1	18.1	304102	19.1	19.9
356300	18.8	20.1	157989	18.9	19.3	491639	18.9	21.9	217439								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
67397	19.1	18.5	424761	19.2	20.6	204890	19.3	19.2	247283	19.3	20.3	234908	19.4	19.9	380674	19.5	20.9
334082	19.1	21.3	68491	19.2	19.1	239895	19.3	20.1	263162	19.3	19.8	506362	19.4	19.7	194424	19.5	19.5
436682	19.2	21.1	439291	19.2	20.1	294119	19.3	20.2	383802	19.3	20.6	404115	19.4	18.3	467900	19.5	20.7
194795	19.2	20.7	173791	19.2	20.7	283240	19.3	20.9	341203	19.3	20.6	209900	19.4	19.6	309278	19.5	20.9
168019	19.2	20.5	128245	19.2	16.8	179137	19.3	19.5	166087	19.3	19.0	376692	19.4	20.9	451060	19.5	21.1
207069	19.2	19.2	490854	19.2	21.6	239236	19.3	20.1	257836	19.3	19.0	278385	19.4	20.7	268092	19.5	20.8
431494	19.2	21.0	221938	19.2	20.5	464915	19.3	21.2	271013	19.3	20.5	327863	19.4	21.4	525461	19.5	23.7
390802	19.2	19.5	464778	19.2	21.2	73800	19.3	19.5	145121	19.3	19.7	156565	19.4	19.1	167677	19.5	18.9
461602	19.2	21.2	242306	19.2	19.9	502815	19.3	19.7	26444	19.3	16.8	314731	19.4	19.7	432567	19.5	21.0
496086	19.2	21.6	85509	19.2	19.9	541178	19.3	21.6	179916	19.3	19.5	113614	19.4	19.1	314949	19.5	20.6
154840	19.2	19.3	165883	19.2	19.7	417842	19.3	19.7	104369	19.3	19.2	178889	19.4	19.6	396574	19.5	20.0
25514	19.2	18.1	490207	19.2	22.1	262627	19.3	19.9	80704	19.3	19.0	341656	19.4	21.0	544721	19.5	20.4
280264	19.2	21.2	502993	19.2	20.6	161275	19.3	20.3	269561	19.3	20.5	318695	19.4	20.1	245692	19.5	19.3
12296	19.2	17.8	14937	19.2	18.7	215008	19.3	20.4	76401	19.3	18.7	542227	19.4	20.7	529717	19.5	20.5
455805	19.2	21.0	378445	19.2	20.6	464924	19.3	21.0	116722	19.3	18.4	414197	19.4	19.3	495409	19.5	21.0
486912	19.2	20.5	435259	19.2	21.0	186181	19.3	19.8	19796	19.3	18.4	329118	19.4	20.5	533874	19.5	20.4
468253	19.2	20.9	89760	19.2	19.8	81051	19.3	19.2	455819	19.3	20.9	496183	19.4	20.5	68367	19.5	19.5
451051	19.2	20.8	499438	19.2	21.3	283166	19.3	20.0	368164	19.3	21.5	494531	19.4	20.4	468605	19.5	20.7
425339	19.2	20.5	354338	19.2	20.0	29323	19.3	18.1	459816	19.3	20.4	390581	19.4	19.8	256993	19.5	19.5
65861	19.2	19.2	327354	19.2	19.8	238507	19.3	19.8	125208	19.3	18.8	296170	19.4	21.6	372575	19.5	21.5
387494	19.2	22.1	129012	19.2	18.9	164532	19.3	20.6	347616	19.3	21.3	150183	19.4	18.5	241150	19.5	20.0
363168	19.2	21.1	147602	19.2	19.0	158610	19.3	19.7	363864	19.3	22.1	279095	19.4	20.4	217797	19.5	20.1
178170	19.2	18.9	6604	19.2	17.1	140852	19.3	18.9	543268	19.3	20.7	219032	19.4	19.7	28207	19.5	18.3
365906	19.2	20.0	255956	19.2	21.3	47881	19.3	18.5	57386	19.3	19.5	363358	19.4	21.4	259945	19.5	20.3
506315	19.2	21.1	48722	19.2	18.3	122497	19.3	20.1	156071	19.3	19.3	520064	19.4	21.1	524749	19.5	20.5
193927	19.2	19.1	226200	19.2	19.7	428359	19.3	21.2	163150	19.3	19.1	343576	19.4	18.4	2296	19.5	15.7
404762	19.2	20.6	207114	19.2	20.0	280443	19.3	20.6	51781	19.3	18.7	173542	19.4	20.2	144198	19.5	19.7
194088	19.2	19.5	341641	19.2	21.0	412205	19.3	19.1	418899	19.3	20.1	494657	19.4	21.8	492929	19.5	21.2
340755	19.2	20.4	499033	19.2	20.3	363558	19.3	20.5	69821	19.3	19.2	453823	19.4	22.2	284453	19.5	20.2
543992	19.2	21.5	534340	19.2	21.7	563	19.3	12.9	400566	19.4	19.9	240062	19.4	20.9	257432	19.5	19.9
322837	19.2	21.1	50841	19.2	18.0	340816	19.3	20.8	283949	19.4	20.2	363576	19.4	19.0	264576	19.5	20.6
411220	19.2	21.4	130207	19.2	19.3	445122	19.3	22.1	376677	19.4	21.4	201929	19.4	19.4	41608	19.5	19.8
64009	19.2	19.0	263569	19.2	21.1	105563	19.3	19.5	156529	19.4	20.2	232442	19.4	19.0	422418	19.5	20.9
156839	19.2	19.1	87240	19.2	18.1	464395	19.3	21.6	113954	19.4	18.9	25236	19.4	18.9	389311	19.5	20.9
502992	19.2	21.2	154318	19.2	21.1	495539	19.3	21.4	385978	19.4	20.4	399570	19.4	21.4	318149	19.5	20.2
224535	19.2	20.5	185295	19.2	19.9	376506	19.3	20.2	253893	19.4	19.1	194432	19.4	19.5	447893	19.5	21.0
483897	19.2	20.6	92443	19.2	19.6	250240	19.3	20.8	363098	19.4	19.3	390982	19.4	20.7	187857	19.5	18.6
430513	19.2	20.9	165806	19.2	19.6	61786	19.3	18.2	345676	19.4	20.4	339876	19.4	20.9	466243	19.5	20.7
52007	19.2	20.4	31737	19.2	17.5	73583	19.3	18.9	271418	19.4	20.5	419040	19.4	20.0	460512	19.5	20.3
159868	19.2	20.0	538291	19.2	20.6	541887	19.3	20.8	346971	19.4	19.6	447138	19.4	21.0	431593	19.5	20.4
93652	19.2	19.5	244241	19.2	19.4	427660	19.3	21.7	513884	19.4	20.3	11638	19.4	18.3	231270	19.5	20.4
116464	19.2	19.2	462790	19.2	22.5	283747	19.3	20.2	137132	19.4	19.4	428129	19.4	20.7	373910	19.5	20.6
283623	19.2	20.2	203507	19.2	19.3	241286	19.3	20.1	472604	19.4	20.5	327306	19.4	20.7	337747	19.5	21.2
328261	19.2	20.2	40243	19.2	18.3	206608	19.3	18.6	542156	19.4	20.1	278458	19.4	19.5	268732	19.5	19.6
89085	19.2	19.0	262626	19.2	20.5	416842	19.3	20.5	156217	19.4	20.1	258402	19.4	19.5	135701	19.5	20.6
49803	19.2	19.1	357338	19.2	20.8	143862	19.3	19.5	374069	19.4	19.6	42316	19.4	19.6	116598	19.5	19.5
2734	19.2	16.1	258180	19.2	21.1	270618	19.3	20.6	101054	19.4	20.5	542208	19.4	21.6	440607	19.5	21.0
176745	19.2	21.1	54804	19.2	18.4	223723	19.3	20.2	322862	19.4	19.8	535333	19.4	21.4	309197	19.5	20.8
490796	19.2	21.4	347808	19.2	20.8	174967	19.3	19.0	309165	19.4	19.8	426804	19.4	21.3	283578	19.5	20.8
290095	19.2	19.6	112518	19.2	19.7	532221	19.3	20.6	59310	19.4	18.8	350255	19.4	20.8	333916	19.5	21.3
535368	19.2	21.5	102540	19.2	19.1	482002	19.3	21.1	55601	19.4	18.7	467467	19.4	21.5	495035	19.5	21.1
83932	19.2	19.3	3896	19.2	15.4	236776	19.3	20.1	322013	19.4	21.0	12871	19.4	17.6	204157	19.5	19.4
125543	19.2	18.0	376445	19.2	20.8	436249	19.3	20.5	179912	19.4	20.5	245968	19.4	20.6	312954	19.5	19.8
67943	19.2	19.6	108790	19.2	18.8	532229	19.3	21.9	423305	19.4	19.2	197411	19.4	19.4	150504	19.5	19.9
462846	19.2	21.9	22844	19.2	18.2	405880	19.3	19.9	532596	19.4	21.7	137152	19.4	18.6	288939	19.5	20.7
191594	19.2	19.1	46661	19.2	18.2	282436	19.3	20.4	111299	19.4	19.7	464142	19.4	20.1	280787	19.5	20.6
4550	19.2	17.4	459103	19.2	20.0	130753	19.3	19.7	126021	19.4	20.0	421793	19.4	21.4	281792	19.5	19.3
151536	19.2	20.0	411611	19.2	21.2	64283	19.3	19.1	441854	19.4	20.6	161245	19.4	19.7	361213	19.5	19.6
135208	19.2	19.5	389247	19.3	21.3	459683	19.3	22.6	486370	19.4	20.0	21165	19.4	18.2	310987	19.5	21.2
353136	19.2	19.2	91264	19.3	18.9	494796	19.3	20.8	499028	19.4	21.3	189864	19.4	19.6	258337	19.5	21.2
543901	19.2	21.7	436355	19.3	20.0	416997	19.3	20.7	210729	19.4	19.3	359432	19.4	20.1	193829	19.5	20.1
331798	19.2	20.6	450064	19.3	19.3	134851	19.3	19.3	16515	19.4	18.1	52771	19.4	19.3	483805	19.5	20.8
468708	19.2	20.7	21228	19.3	21.1	98294	19.3	20.2	271267	19.4	20.5	444440	19.4	20.3	532791	19.5	21.6
61612	19.2	19.3	18214	19.3	19.5	292394	19.3	21.0	249870	19.4	20.8	287095	19.4	21.9	330417	19.5	19.3
190177	19.2	19.8	146201	19.3	20.1	199833	19.3	19.3	520812	19.4	20.5	536477	19.4	20.2	418406	19.5	19.3
110845	19.2	19.1	423056	19.3	21.5	41970	19.3	17.9	81032	19.4	18.8	272299	19.4	19.2	236135	19.5	19.5
419969	19.2	21.0	455548	19.3	19.4	302885	19.3	19.8	307869	19.4	19.1	311688	19.4	20.1	469121	19.5	20.8
363782	19.2	20.3	538782	19.3	21.3	236223	19.3	20.0	328808	19.4	20.9	229184	19.4	20.2	180534	19.5	20.3
447245	19.2	21.7	414846	19.3	20.5	413608	19.3	20.3									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
196156	19.5	20.0	534041	19.6	21.6	483724	19.7	21.1	102440	19.7	19.9	394130	19.8	24.0	461226	19.9	20.7
215391	19.5	20.1	373034	19.6	20.2	78107	19.7	18.9	137500	19.7	17.5	109022	19.8	19.1	109000	19.9	19.1
502125	19.5	20.4	500442	19.6	21.6	193186	19.7	20.6	534279	19.7	21.2	242632	19.8	20.0	322307	19.9	20.3
382275	19.5	20.5	192510	19.6	20.0	244217	19.7	19.7	463945	19.7	19.3	400617	19.8	20.7	322110	19.9	19.6
89619	19.5	20.3	944	19.6	18.8	495951	19.7	21.9	290313	19.7	21.1	528863	19.8	21.5	459691	19.9	20.8
264815	19.5	19.1	242507	19.6	20.5	256903	19.7	20.1	381600	19.7	19.9	155915	19.8	20.0	446851	19.9	21.7
320743	19.5	19.7	265839	19.6	20.1	92363	19.7	18.8	93256	19.7	19.7	83398	19.8	18.7	301628	19.9	19.9
88944	19.5	19.1	160783	19.6	19.0	292494	19.7	19.8	248748	19.7	20.6	544550	19.8	20.1	274350	19.9	20.9
432911	19.5	20.8	109631	19.6	20.2	406219	19.7	20.6	483823	19.7	21.7	341707	19.8	21.0	420979	19.9	21.1
244255	19.5	19.6	544266	19.6	22.0	432913	19.7	19.8	500652	19.7	21.7	432553	19.8	20.9	544513	19.9	21.1
41963	19.5	18.7	419253	19.6	20.7	448233	19.7	19.0	289968	19.7	19.8	977	19.8	14.4	258368	19.9	20.2
378368	19.5	20.5	270477	19.6	20.3	280760	19.7	20.3	427043	19.7	21.0	383635	19.8	21.0	533506	19.9	22.6
462699	19.5	21.5	162947	19.6	19.9	258128	19.7	19.8	47924	19.7	18.3	498382	19.8	21.5	155004	19.9	20.9
527319	19.5	20.5	284744	19.6	20.5	404134	19.7	19.9	471380	19.7	20.7	148628	19.8	18.8	351291	19.9	21.2
187437	19.5	19.0	190867	19.6	18.2	494723	19.7	20.4	80382	19.7	19.2	238421	19.8	19.3	393443	19.9	21.2
277788	19.5	20.3	408235	19.6	20.1	231507	19.7	20.2	422378	19.7	21.1	439851	19.8	21.2	197814	19.9	20.6
334047	19.5	20.4	529233	19.6	21.0	424938	19.7	20.2	305646	19.7	20.3	282086	19.8	21.1	201252	19.9	21.0
346769	19.5	20.6	432049	19.6	21.0	406203	19.7	21.8	357180	19.7	19.9	90608	19.8	19.1	489301	19.9	22.0
203814	19.5	20.1	52894	19.6	17.1	145568	19.7	20.9	160123	19.7	20.8	88148	19.8	19.5	456349	19.9	22.8
432912	19.5	19.6	111301	19.6	20.3	197161	19.7	19.9	532449	19.7	21.3	412215	19.8	19.6	71536	19.9	17.9
96339	19.5	18.7	273024	19.6	19.7	230551	19.7	20.4	39892	19.7	17.4	109395	19.8	19.1	531486	19.9	21.3
167674	19.5	20.1	423624	19.6	21.7	545048	19.7	21.4	109506	19.7	19.5	163749	19.8	19.5	165399	19.9	20.8
342995	19.5	20.9	60709	19.6	18.6	152724	19.7	19.7	523698	19.7	22.0	179252	19.8	19.8	317094	19.9	20.7
194911	19.5	20.0	244547	19.6	20.5	300326	19.7	19.5	155780	19.7	19.2	493328	19.8	20.7	244946	19.9	19.6
69215	19.5	19.1	376475	19.6	21.2	143228	19.7	20.5	311167	19.7	21.1	282337	19.8	20.5	204411	19.9	20.1
76434	19.5	19.3	519112	19.6	20.9	175950	19.7	18.7	237608	19.7	19.6	297392	19.8	21.1	19003	19.9	18.2
500697	19.5	21.7	273353	19.6	19.6	193863	19.7	19.5	383678	19.7	19.8	157912	19.8	20.8	510016	19.9	21.2
433090	19.5	20.8	82315	19.6	19.0	181725	19.7	17.9	287785	19.7	21.4	486111	19.8	21.6	71617	19.9	18.0
156184	19.5	19.0	440400	19.6	20.0	53368	19.7	16.5	313187	19.7	19.9	264500	19.8	20.3	393349	19.9	21.1
288735	19.5	20.3	193816	19.6	19.0	224339	19.7	19.8	393426	19.7	20.7	422027	19.8	21.7	160780	19.9	19.0
352862	19.5	20.4	544246	19.6	21.4	243122	19.7	20.3	532507	19.7	22.0	57248	19.8	19.7	393900	19.9	20.8
409908	19.5	20.7	89752	19.6	19.7	538665	19.7	19.8	222538	19.7	20.4	322453	19.8	18.9	248781	19.9	19.9
181372	19.6	20.0	273049	19.6	20.2	264706	19.7	20.7	338409	19.8	20.7	243347	19.8	19.4	265731	19.9	20.7
202566	19.6	20.0	220526	19.6	19.1	88824	19.7	18.8	545061	19.8	20.4	460083	19.8	21.4	315572	19.9	21.2
161273	19.6	18.1	251106	19.6	20.6	216460	19.7	19.0	393944	19.8	21.0	285575	19.8	21.4	467688	19.9	21.0
394817	19.6	19.8	112944	19.6	19.6	138692	19.7	19.8	540158	19.8	21.1	105017	19.8	19.2	492514	19.9	20.6
240285	19.6	20.9	18537	19.6	18.2	316715	19.7	21.5	18130	19.8	17.8	223593	19.8	19.5	49472	19.9	19.2
111408	19.6	19.4	496104	19.6	21.6	194657	19.7	19.4	308266	19.8	18.8	483298	19.8	19.9	130738	19.9	19.0
56493	19.6	17.8	377259	19.6	20.1	205062	19.7	19.1	181311	19.8	19.8	290232	19.8	20.6	402251	19.9	20.7
279508	19.6	20.5	500301	19.6	21.2	484071	19.7	19.9	461818	19.8	20.5	196899	19.8	19.6	176749	19.9	21.1
330987	19.6	21.5	278001	19.6	20.9	55249	19.7	18.4	528598	19.8	20.8	255655	19.8	21.3	262857	19.9	20.7
377124	19.6	20.5	193915	19.6	20.4	338401	19.7	20.7	378331	19.8	19.5	126586	19.8	20.1	165449	19.9	19.6
56689	19.6	17.5	359671	19.6	21.2	195054	19.7	19.7	148166	19.8	20.3	405983	19.8	20.0	241671	19.9	20.4
299045	19.6	20.2	147381	19.6	19.3	297385	19.7	21.1	283409	19.8	20.9	277580	19.8	21.3	201849	19.9	19.7
352823	19.6	20.8	170046	19.6	19.4	269588	19.7	20.2	401897	19.8	21.0	105053	19.8	19.1	348432	19.9	20.8
64830	19.6	18.8	466434	19.6	21.0	221365	19.7	21.4	496557	19.8	20.6	54379	19.8	18.3	64278	19.9	19.4
95862	19.6	18.5	83121	19.6	19.4	365370	19.7	20.2	282329	19.8	20.8	275325	19.8	20.8	95857	19.9	18.1
384219	19.6	19.9	228668	19.6	19.2	394797	19.7	19.7	191271	19.8	18.3	169241	19.8	19.8	319735	19.9	20.6
529927	19.6	21.0	327285	19.6	20.8	65156	19.7	19.6	435196	19.8	21.0	306854	19.8	20.2	130433	19.9	19.9
518518	19.6	20.8	157637	19.6	18.9	402613	19.7	21.4	375444	19.8	22.4	174761	19.8	20.1	88773	19.9	19.0
178907	19.6	19.6	127688	19.6	20.2	354554	19.7	20.5	306218	19.8	19.7	301082	19.8	19.5	486010	19.9	21.1
354002	19.6	21.2	503659	19.6	21.3	409436	19.7	21.5	26784	19.8	18.1	114736	19.8	18.8	245874	19.9	19.0
47292	19.6	18.1	347036	19.6	20.1	390550	19.7	19.7	392835	19.8	19.5	423105	19.8	20.3	136023	19.9	18.7
538032	19.6	20.2	378899	19.6	20.3	24865	19.7	17.5	496556	19.8	20.6	130023	19.8	19.5	248030	19.9	20.4
92986	19.6	17.9	455374	19.6	22.2	240049	19.7	20.1	532736	19.8	21.8	503072	19.8	20.3	27413	19.9	17.8
229507	19.6	19.9	273393	19.6	20.3	150886	19.7	20.3	91044	19.8	19.6	420635	19.8	20.0	34297	19.9	18.9
224562	19.6	20.7	324410	19.6	20.7	417095	19.7	20.3	532490	19.8	21.4	233381	19.8	21.0	155360	19.9	19.8
223693	19.6	20.5	367370	19.6	20.0	165936	19.7	19.9	312211	19.8	20.3	21316	19.8	18.0	429039	19.9	20.3
181712	19.6	19.4	82475	19.6	18.7	199844	19.7	19.6	183076	19.8	20.4	19958	19.8	19.7	379013	19.9	20.7
368633	19.6	20.7	153969	19.6	19.7	536089	19.7	20.8	34265	19.8	19.5	529236	19.8	20.9	203725	19.9	20.5
136796	19.6	19.1	180008	19.6	20.3	492938	19.7	19.7	268512	19.8	20.3	343595	19.8	20.5	141893	19.9	20.0
40275	19.6	18.2	318680	19.6	20.8	340629	19.7	20.8	160106	19.8	18.3	277536	19.8	20.6	160815	19.9	19.9
367600	19.6	21.8	524066	19.6	21.2	8475	19.7	18.4	17488	19.8	17.5	253344	19.8	19.2	280794	19.9	20.2
247377	19.6	19.9	456299	19.6	20.7	524289	19.7	22.4	8626	19.8	18.6	350288	19.8	21.0	468433	19.9	21.2
468895	19.6	19.9	146618	19.6	19.7	532427	19.7	21.4	493191	19.8	20.9	456421	19.8	21.6	238330	19.9	19.4
114357	19.6	19.6	204999	19.6	21.1	8294	19.7	16.3	382207	19.8	20.4	119216	19.8	19.9	360778	19.9	19.7
332546	19.6	20.9	241138	19.7	20.0	241063	19.7	20.0	42822	19.8	18.8	297512	19.8	20.1	193235	19.9	20.2
417589	19.6	21.6	170119	19.7	19.9	518704	19.7	21.0	48632	19.8	18.6	276728	19.8	20.4	428917	19.9	20.9
460691	19.6	21.6	148035	19.7	20.0	545060	19.7	20.									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
321563	19.9	20.6	246250	19.9	20.2	406158	20.1	21.5	389402	20.1	20.8	20036	20.2	16.9	329801	20.3	20.9
184996	19.9	20.1	302894	19.9	20.9	236167	20.1	20.2	66881	20.1	19.2	166402	20.2	19.9	19995	20.3	17.6
3844	19.9	15.9	363347	19.9	20.6	295245	20.1	20.9	190100	20.1	19.5	35583	20.2	18.3	19540	20.3	17.6
208381	19.9	19.8	543738	19.9	21.9	33158	20.1	18.7	405049	20.1	21.0	446316	20.2	20.4	414246	20.3	20.7
162768	19.9	19.3	212301	19.9	20.6	379124	20.1	21.6	502118	20.1	19.8	13890	20.2	18.3	500318	20.3	21.6
312133	19.9	20.5	365687	19.9	20.8	432516	20.1	20.0	143890	20.1	18.8	493648	20.2	22.3	297100	20.3	19.8
38332	19.9	18.5	450019	19.9	21.6	179052	20.1	20.0	373358	20.1	20.3	140054	20.2	19.4	154868	20.3	19.7
360392	19.9	19.6	453919	19.9	22.1	212491	20.1	20.6	496613	20.1	21.0	233799	20.2	20.0	82968	20.3	19.5
199703	19.9	19.5	60925	19.9	19.1	544489	20.1	21.6	376566	20.1	20.8	272916	20.2	20.0	535334	20.3	21.1
534379	19.9	21.7	397070	19.9	19.9	289492	20.1	18.4	381690	20.1	20.1	194482	20.2	20.4	18183	20.3	18.9
73966	19.9	19.3	138718	19.9	20.2	244277	20.1	19.9	429001	20.1	20.7	170441	20.2	19.2	470095	20.3	21.5
503729	19.9	20.8	322257	19.9	20.3	88787	20.1	19.1	391014	20.1	20.8	390819	20.2	20.0	57463	20.3	18.0
83055	19.9	19.2	448241	19.9	21.2	395369	20.1	20.0	496016	20.1	19.2	375377	20.2	21.6	150845	20.3	20.0
238755	19.9	19.6	246431	20.0	19.8	518767	20.1	21.1	66494	20.1	19.2	335934	20.2	21.7	1485	20.3	16.5
201305	19.9	19.9	237730	20.0	20.6	424916	20.1	20.3	429311	20.1	20.8	406035	20.2	20.7	90521	20.3	19.2
373055	19.9	20.1	312774	20.0	19.5	461778	20.1	20.0	343924	20.1	20.9	543634	20.2	21.9	489643	20.3	20.7
95024	19.9	17.9	317186	20.0	21.3	150813	20.1	20.7	498940	20.1	20.4	408946	20.2	20.1	396206	20.3	20.8
148688	19.9	20.3	246322	20.0	20.2	26317	20.1	18.8	160769	20.1	19.6	73707	20.2	19.4	217963	20.3	20.6
137266	19.9	19.3	532815	20.0	21.1	423117	20.1	19.5	191053	20.1	18.4	413571	20.2	20.6	304870	20.3	20.8
339717	19.9	21.2	389651	20.0	21.6	283436	20.1	20.6	492090	20.1	20.2	320372	20.2	20.4	375312	20.3	20.7
66213	19.9	18.1	68397	20.0	19.2	80542	20.1	18.2	101906	20.1	19.1	287969	20.2	20.9	234652	20.3	20.0
83331	19.9	19.1	123320	20.0	19.2	289909	20.1	19.9	427154	20.1	21.1	465651	20.2	20.4	176792	20.3	20.6
282623	19.9	20.0	219424	20.0	20.7	502884	20.1	20.1	114521	20.1	18.7	110863	20.2	19.2	248017	20.3	19.8
149360	19.9	20.7	368802	20.0	20.5	17463	20.1	17.1	31084	20.1	19.3	387420	20.2	20.1	180679	20.3	20.0
150354	19.9	20.0	409520	20.0	20.4	249394	20.1	20.6	413068	20.1	21.9	94988	20.2	19.4	56636	20.3	18.5
428511	19.9	20.0	269514	20.0	20.3	411855	20.1	20.7	162425	20.1	19.7	544508	20.2	21.1	326308	20.3	20.6
152253	19.9	19.6	499977	20.0	21.2	508411	20.1	19.8	57924	20.1	19.3	378748	20.2	21.4	236937	20.3	19.9
171469	19.9	19.9	176899	20.0	20.2	26782	20.1	19.1	69334	20.1	19.2	271739	20.2	20.1	541099	20.3	20.3
367540	19.9	21.5	373861	20.0	20.7	283000	20.1	19.9	416882	20.1	20.5	222310	20.2	20.2	466949	20.3	20.4
497716	19.9	21.4	542192	20.0	22.5	384941	20.1	19.4	283003	20.1	21.1	170652	20.2	20.2	538952	20.3	21.5
179768	19.9	21.2	396578	20.0	21.6	319898	20.1	21.2	381248	20.1	20.8	16451	20.2	18.7	420184	20.3	20.6
528242	19.9	21.6	216799	20.0	19.4	73462	20.1	19.5	351003	20.1	19.1	132809	20.2	19.5	38706	20.3	17.7
103382	19.9	18.9	15969	20.0	17.3	71712	20.1	18.0	283976	20.1	21.5	390803	20.2	18.9	427665	20.3	20.4
277946	19.9	20.6	381688	20.0	20.3	322817	20.1	21.0	132883	20.1	19.6	483943	20.2	21.0	161855	20.3	19.9
112917	19.9	19.7	151862	20.0	18.1	144548	20.1	19.9	341415	20.1	21.0	399468	20.2	21.3	329274	20.3	21.1
432048	19.9	21.1	8336	20.0	17.7	250206	20.1	22.2	48757	20.1	18.3	208226	20.2	21.0	40474	20.3	18.8
451432	19.9	21.5	351262	20.0	20.7	472316	20.1	20.2	237498	20.1	19.9	189477	20.2	20.4	363825	20.3	20.8
8771	19.9	17.6	81588	20.0	18.4	340616	20.1	21.2	18173	20.1	17.3	401104	20.2	19.6	266670	20.3	20.0
310427	19.9	21.3	502462	20.0	20.6	430410	20.1	22.2	456804	20.1	21.5	412910	20.2	20.1	233487	20.3	19.8
365771	19.9	21.0	166732	20.0	19.2	467997	20.1	21.3	538786	20.1	20.7	528747	20.2	21.3	448204	20.3	21.0
247984	19.9	20.0	124802	20.0	18.9	414939	20.1	20.4	238802	20.1	20.0	232973	20.2	19.2	176955	20.3	20.2
496560	19.9	21.7	16368	20.0	17.5	151555	20.1	19.9	312150	20.2	20.7	424317	20.2	20.5	463936	20.3	21.0
524112	19.9	22.1	245124	20.0	20.2	416762	20.1	19.9	445168	20.2	21.7	407407	20.2	21.5	525455	20.3	20.2
535192	19.9	20.7	178894	20.0	19.8	446094	20.1	19.9	428462	20.2	20.5	45469	20.2	17.4	78947	20.3	19.8
244252	19.9	19.1	197025	20.0	21.4	404312	20.1	20.3	319147	20.2	20.7	181897	20.2	19.4	88998	20.3	18.6
134441	19.9	20.7	536299	20.0	20.8	199653	20.1	20.3	289960	20.2	20.2	204965	20.2	20.3	423498	20.3	21.2
374241	19.9	20.1	415893	20.0	21.1	292759	20.1	20.2	4360	20.2	17.2	426016	20.2	19.9	283280	20.3	19.7
370802	19.9	20.7	288767	20.0	20.4	16827	20.1	17.7	116044	20.2	19.8	335192	20.2	20.7	80979	20.3	18.4
135523	19.9	20.5	150174	20.0	18.6	166852	20.1	20.5	186709	20.2	20.2	194867	20.2	21.2	328372	20.3	20.4
396853	19.9	21.5	290087	20.0	21.1	34415	20.1	17.9	436985	20.2	20.8	96653	20.2	17.0	532340	20.3	20.6
24445	19.9	18.5	233867	20.0	20.1	408857	20.1	21.2	11831	20.2	17.6	464547	20.2	21.3	9261	20.3	17.6
347177	19.9	19.9	334963	20.0	19.8	19952	20.1	18.8	372599	20.2	20.7	395769	20.2	19.4	75890	20.3	18.3
372403	19.9	20.2	14527	20.0	18.5	37169	20.1	17.9	96714	20.2	18.8	386108	20.2	20.6	22674	20.3	17.7
42421	19.9	18.8	306533	20.0	20.0	455609	20.1	20.8	64665	20.2	18.1	121792	20.2	19.8	219383	20.3	20.5
168534	19.9	19.6	488637	20.0	22.2	79974	20.1	20.0	82658	20.2	18.4	336523	20.2	21.0	529576	20.3	22.1
86934	19.9	19.2	6624	20.0	17.0	481352	20.1	19.8	277532	20.2	21.0	252521	20.2	20.0	236203	20.3	20.8
350786	19.9	20.3	381986	20.0	20.4	544857	20.1	21.1	341539	20.2	20.4	534818	20.2	21.7	82245	20.3	19.0
245027	19.9	19.9	383626	20.0	21.0	543750	20.1	22.2	486819	20.2	19.5	340006	20.2	19.7	137726	20.3	19.9
182406	19.9	20.0	235697	20.0	19.9	114522	20.1	19.2	215808	20.2	19.1	338071	20.2	21.2	196277	20.3	18.8
25830	19.9	18.2	373874	20.0	20.8	3498	20.1	17.4	200973	20.2	19.2	243403	20.2	20.3	416976	20.3	21.2
277867	19.9	20.6	90816	20.0	19.5	79288	20.1	19.6	488818	20.2	20.8	210195	20.2	20.7	272355	20.3	21.4
367773	19.9	21.3	527021	20.0	21.0	317588	20.1	21.3	219455	20.2	19.3	335634	20.2	20.5	544658	20.3	21.3
448270	19.9	21.8	181697	20.0	20.7	78981	20.1	20.1	463797	20.2	20.3	296441	20.2	19.9	296611	20.3	20.5
126862	19.9	19.3	133974	20.0	18.4	30345	20.1	18.0	302900	20.2	21.3	525163	20.2	21.9	402022	20.3	21.0
484716	19.9	20.2	120000	20.0	19.8	84469	20.1	19.2	485074	20.2	18.5	250474	20.2	18.9	300862	20.3	19.9
340722	19.9	20.3	195040	20.0	20.4	129279	20.1	19.6	142509	20.2	20.4	15209	20.3	17.4	454763	20.3	20.2
109361	19.9	19.8	434028	20.0	20.9	216500	20.1	19.0	534897	20.2	20.5	369540	20.3	20.4	148512	20.3	20.4
160122	19.9	20.2	484971	20.0	21.8	408710	20.1	20.1	409564	20.2	19.3	545057	20.3	21.2	288444	20.3	20.2
229593	19.9	20.1	367189	20.0	19.9	89910	20.1	19.9	535788	20.							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
194175	20.3	20.1	10527	20.4	17.8	122934	20.5	19.9	123721	20.5	20.1	452431	20.6	21.8	223667	20.7	19.9
94631	20.3	18.0	412848	20.4	21.2	235101	20.5	19.7	250177	20.5	21.1	9955	20.6	17.5	375023	20.7	20.7
76449	20.3	18.1	434960	20.4	20.9	465726	20.5	21.2	421589	20.5	21.1	169311	20.6	19.5	460548	20.7	21.5
134956	20.3	18.5	175198	20.4	19.6	264241	20.5	20.7	179170	20.5	19.9	482839	20.6	20.2	258110	20.7	19.5
222348	20.3	19.7	28500	20.4	18.4	48172	20.5	18.8	73595	20.5	18.8	200956	20.6	21.0	189733	20.7	18.1
76135	20.3	20.0	231348	20.4	19.7	468552	20.5	21.6	375381	20.5	21.7	237298	20.6	19.7	248008	20.7	18.7
306810	20.3	20.6	542364	20.4	22.1	469543	20.5	21.8	36380	20.5	18.9	248141	20.6	19.8	466447	20.7	20.9
372732	20.3	20.8	225939	20.4	20.7	6197	20.5	16.8	145334	20.5	19.6	334636	20.6	19.6	113321	20.7	20.3
190342	20.3	19.7	122072	20.4	20.1	224018	20.5	19.5	36976	20.5	17.7	90811	20.6	19.9	241593	20.7	20.2
458264	20.3	22.1	145867	20.4	19.4	453707	20.5	17.4	284351	20.5	19.7	445148	20.6	21.8	156335	20.7	19.7
344383	20.3	20.8	298759	20.4	20.7	456707	20.5	22.1	536928	20.5	21.1	338127	20.6	20.8	304047	20.7	19.8
1338	20.3	15.7	460663	20.4	21.3	531554	20.5	21.9	42748	20.5	19.1	385067	20.6	20.2	341534	20.7	20.4
100394	20.3	20.0	147612	20.4	19.8	522624	20.5	20.8	176922	20.5	19.1	544163	20.6	20.2	246700	20.7	20.4
335959	20.3	20.8	327034	20.4	20.5	383674	20.5	21.1	462815	20.5	22.3	469022	20.6	20.3	237705	20.7	20.5
188777	20.3	20.3	81889	20.4	18.4	541167	20.5	20.9	165925	20.5	20.3	325716	20.6	18.8	5172	20.7	17.6
139383	20.3	18.3	48803	20.4	18.2	505005	20.5	21.4	415636	20.5	21.1	394905	20.6	20.7	285209	20.7	20.2
153976	20.3	19.6	309473	20.4	21.3	450760	20.5	20.9	50736	20.5	17.8	403040	20.6	21.1	517586	20.7	20.6
413350	20.3	20.6	111460	20.4	20.0	394057	20.5	20.8	81814	20.5	17.7	529511	20.6	20.1	403511	20.7	21.1
340826	20.3	21.2	281057	20.4	20.4	97734	20.5	18.3	206347	20.5	19.4	126237	20.6	17.6	57263	20.7	19.9
2307	20.3	15.3	447405	20.4	20.2	413046	20.5	20.4	317644	20.5	20.2	162674	20.6	20.1	115400	20.7	19.5
246071	20.3	21.0	232383	20.4	19.9	142706	20.5	20.0	273297	20.5	20.4	196648	20.6	20.6	377120	20.7	19.8
138584	20.3	19.4	405174	20.4	21.1	313978	20.5	20.2	463836	20.5	20.1	76912	20.6	18.4	397870	20.7	19.6
473954	20.3	20.8	127615	20.4	18.0	381898	20.5	20.1	255890	20.5	20.7	495974	20.6	21.1	1452	20.7	16.4
385023	20.3	20.3	131473	20.4	18.9	502869	20.5	20.1	76667	20.5	19.0	330900	20.6	20.7	87538	20.7	19.1
296644	20.3	20.6	528698	20.4	21.7	280124	20.5	19.4	346348	20.5	19.2	21010	20.6	18.4	209501	20.7	19.7
259061	20.3	22.1	210675	20.4	20.1	321205	20.5	19.5	207624	20.5	19.4	2668	20.6	16.6	362652	20.7	20.9
34245	20.3	17.6	63921	20.4	18.1	46333	20.5	18.2	284414	20.5	20.6	143111	20.6	20.2	223819	20.7	19.8
519124	20.3	20.9	355986	20.4	21.5	525613	20.5	20.6	367593	20.6	21.2	210452	20.6	20.1	532269	20.7	20.8
534355	20.3	21.4	277128	20.4	19.3	370916	20.5	19.5	15546	20.6	17.1	407321	20.6	20.9	54673	20.7	16.8
451516	20.3	21.9	203576	20.4	21.0	132308	20.5	18.7	223675	20.6	20.0	219812	20.6	20.6	32663	20.7	18.0
105509	20.4	19.3	110866	20.4	19.7	193692	20.5	19.1	472474	20.6	20.3	309387	20.6	20.7	490794	20.7	21.1
335226	20.4	19.8	221592	20.4	20.3	287581	20.5	18.9	483939	20.6	20.0	485445	20.6	20.8	57527	20.7	18.4
56198	20.4	17.1	257166	20.4	19.7	80452	20.5	17.7	320872	20.6	20.6	229636	20.6	20.0	335241	20.7	20.2
275346	20.4	21.1	109539	20.4	19.3	134461	20.5	19.7	430150	20.6	21.8	531383	20.6	20.7	527182	20.7	22.2
191330	20.4	19.9	536121	20.4	20.9	238792	20.5	19.9	490177	20.6	22.2	191337	20.6	20.1	445555	20.7	20.2
7653	20.4	16.0	535718	20.4	20.9	292125	20.5	20.7	17401	20.6	16.9	170143	20.6	21.2	245208	20.7	20.7
541867	20.4	21.1	233901	20.4	20.7	176718	20.5	20.9	403318	20.6	20.5	456391	20.6	22.1	256330	20.7	19.9
35924	20.4	17.7	467769	20.4	19.7	101973	20.5	19.8	488757	20.6	21.3	143156	20.6	20.0	173326	20.7	20.0
378963	20.4	20.6	456255	20.4	20.4	217962	20.5	19.3	281664	20.6	20.0	232065	20.6	19.1	140807	20.7	19.6
340682	20.4	20.6	66635	20.4	18.3	205551	20.5	20.6	91385	20.6	18.2	77601	20.6	18.2	406653	20.7	20.4
39770	20.4	18.9	374588	20.4	20.7	226735	20.5	21.5	496502	20.6	19.5	226857	20.6	20.4	138403	20.7	18.1
366896	20.4	20.8	182459	20.4	20.0	27160	20.5	18.0	270750	20.6	20.1	538315	20.6	20.9	141173	20.7	19.7
132055	20.4	19.7	354391	20.4	20.1	19852	20.5	15.8	210103	20.6	20.0	415127	20.6	20.0	53538	20.7	17.3
495462	20.4	18.9	457007	20.4	20.3	49423	20.5	19.6	112584	20.6	19.5	34844	20.6	18.7	240766	20.7	20.1
448979	20.4	21.0	503705	20.4	21.5	194063	20.5	20.7	391002	20.6	20.4	465666	20.6	22.0	4994	20.7	18.5
231818	20.4	20.0	232271	20.4	20.3	100683	20.5	19.7	430859	20.6	21.3	260835	20.6	20.4	340788	20.7	20.5
81120	20.4	18.3	108799	20.4	19.8	31415	20.5	18.4	339961	20.6	21.7	37954	20.6	18.6	279211	20.7	21.3
467274	20.4	20.6	71164	20.4	19.2	459176	20.5	20.5	522251	20.6	19.7	487193	20.6	19.8	290784	20.7	19.9
116590	20.4	19.6	384985	20.4	20.8	175710	20.5	18.3	109647	20.6	19.4	443415	20.6	20.9	143312	20.7	19.6
3351	20.4	18.2	46846	20.4	18.5	88162	20.5	20.1	45180	20.6	18.0	293209	20.6	20.8	202002	20.7	20.7
110715	20.4	19.8	72501	20.4	18.7	461995	20.5	21.4	64801	20.6	18.3	274610	20.6	19.9	109927	20.7	19.6
80919	20.4	19.4	393236	20.4	20.7	520861	20.5	21.1	151272	20.6	20.0	388342	20.6	20.2	236277	20.7	19.8
323770	20.4	20.9	442192	20.4	19.5	166823	20.5	19.2	246801	20.6	20.0	456521	20.6	19.7	217117	20.7	19.9
30984	20.4	18.3	133426	20.4	19.0	239526	20.5	20.2	359057	20.6	21.4	496006	20.6	21.9	203838	20.7	20.8
542311	20.4	21.6	361398	20.4	19.9	508450	20.5	21.4	168095	20.6	19.1	500549	20.6	22.0	277570	20.7	21.7
399229	20.4	19.6	368053	20.4	20.3	321827	20.5	20.2	453267	20.6	21.4	81484	20.6	18.7	196884	20.7	19.2
449275	20.4	21.6	171959	20.4	20.6	18848	20.5	17.3	56426	20.6	18.3	341694	20.6	20.5	419884	20.7	20.7
531375	20.4	22.0	315564	20.4	21.6	126324	20.5	19.5	10185	20.6	15.9	523687	20.6	21.8	175408	20.7	20.8
359644	20.4	21.1	121488	20.4	19.5	319820	20.5	20.1	81736	20.6	18.9	219421	20.6	20.1	411717	20.7	19.6
339467	20.4	20.5	294192	20.4	19.8	74414	20.5	19.4	79300	20.6	18.5	376508	20.6	20.7	178385	20.7	20.7
429874	20.4	20.5	194506	20.4	20.0	372718	20.5	21.1	147845	20.6	20.0	246385	20.6	20.6	382806	20.7	21.0
85192	20.4	19.7	433114	20.4	20.9	3829	20.5	15.4	5144	20.6	15.4	66909	20.6	19.3	402711	20.7	22.2
82675	20.4	19.0	146493	20.4	19.4	301997	20.5	21.2	61934	20.6	18.6	206739	20.6	19.9	292376	20.7	20.3
414813	20.4	20.3	421816	20.5	20.7	521721	20.5	19.8	242780	20.6	20.9	194800	20.6	20.7	431566	20.7	21.1
448777	20.4	21.3	500366	20.5	21.4	419981	20.5	21.1	116335	20.6	17.9	327253	20.6	21.0	246788	20.7	20.2
25141	20.4	18.5	242063	20.5	21.2	252009	20.5	19.2	458360	20.6	21.2	542151	20.6	20.1	8371	20.7	17.6
99748	20.4	19.0	427454	20.5	21.6	296187	20.5	20.2	135420	20.6	19.9	250122	20.6	20.6	466298	20.7	21.7
484974	20.4	21.0	110388	20.5	20.0	315483	20.5	21.0	256285	20.6	20.6	347302	20.6	20.7	29088	20.7	18.5
125454	20.4	18.9	32377	20.5	18.9	92699	20.5	19.1	118947	20.6	19						

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
48754	20.7	18.2	540153	20.8	21.1	442844	20.9	21.7	374585	20.9	20.5	532171	20.9	21.1	7454	21.1	18.0
375554	20.7	20.8	13531	20.8	17.7	11158	20.9	17.1	219420	20.9	20.5	152378	20.9	19.4	180701	21.1	18.5
205056	20.7	18.7	122113	20.8	17.8	345118	20.9	21.1	14480	20.9	18.0	28536	20.9	17.3	298848	21.1	20.9
488066	20.7	20.8	496807	20.8	19.8	196819	20.9	20.8	188728	20.9	21.0	300183	20.9	20.1	16054	21.1	18.0
433462	20.7	21.6	282177	20.8	20.4	28813	20.9	18.8	447290	20.9	21.1	489507	20.9	21.3	408584	21.1	19.8
125612	20.7	19.0	326462	20.8	19.9	142708	20.9	21.2	498188	20.9	21.2	235694	20.9	18.8	208970	21.1	20.7
443217	20.7	20.6	71322	20.8	18.8	103589	20.9	19.1	369863	20.9	21.0	261160	20.9	20.9	543360	21.1	21.3
368543	20.7	21.8	490316	20.8	20.9	329830	20.9	20.9	460301	20.9	21.3	385965	20.9	20.1	206903	21.1	19.1
212904	20.7	19.9	179081	20.8	19.6	255751	20.9	21.0	499051	20.9	21.1	208997	20.9	20.9	443866	21.1	22.7
325187	20.7	20.4	195971	20.8	19.4	385291	20.9	21.6	16824	20.9	17.0	245161	20.9	19.0	37309	21.1	17.1
49656	20.7	18.3	88876	20.8	18.3	93474	20.9	19.7	214973	20.9	19.0	491181	20.9	21.3	449191	21.1	20.4
541846	20.7	21.5	178648	20.8	18.8	409684	20.9	20.8	146365	20.9	20.0	24812	20.9	18.8	326457	21.1	20.0
459143	20.7	21.6	268476	20.8	21.2	325291	20.9	19.9	81531	20.9	17.4	194812	20.9	20.3	240510	21.1	21.2
215557	20.7	20.8	450465	20.8	21.5	434981	20.9	20.8	542963	20.9	21.9	154559	20.9	18.8	47119	21.1	18.5
417050	20.7	21.4	179872	20.8	20.4	542715	20.9	20.2	108903	20.9	19.4	22670	20.9	18.1	53130	21.1	19.0
498476	20.7	22.2	55673	20.8	17.7	431298	20.9	21.1	28723	20.9	18.3	341566	20.9	19.5	370197	21.1	19.9
328058	20.7	18.8	125301	20.8	19.3	445300	20.9	21.2	502180	20.9	20.5	237295	20.9	19.8	538860	21.1	20.6
189245	20.7	19.9	498061	20.8	21.2	445144	20.9	21.5	461762	20.9	22.0	531626	20.9	20.5	109291	21.1	19.3
238374	20.7	19.6	113831	20.8	19.5	175905	20.9	20.4	14944	20.9	18.5	456701	20.9	21.9	496996	21.1	21.3
406093	20.7	22.1	424609	20.8	20.4	193920	20.9	20.0	313178	20.9	19.9	59527	20.9	18.2	304959	21.1	19.6
51810	20.7	18.2	116230	20.8	19.0	364230	20.9	20.9	199964	20.9	19.7	51126	21.0	18.2	344487	21.1	21.4
221287	20.7	20.0	226770	20.8	20.5	178445	20.9	20.0	246256	20.9	20.8	81402	21.0	19.1	489378	21.1	21.2
84781	20.7	19.6	56375	20.8	19.1	282957	20.9	20.8	79700	20.9	19.9	470433	21.0	21.6	131995	21.1	18.5
454422	20.7	19.8	33936	20.8	17.7	379449	20.9	20.7	135419	20.9	20.3	114713	21.0	18.6	252271	21.1	21.1
531548	20.7	21.6	455206	20.8	23.3	421921	20.9	21.2	234819	20.9	20.6	536305	21.0	21.5	182526	21.1	19.8
328941	20.7	20.5	133181	20.8	19.1	392868	20.9	20.9	331457	20.9	20.5	178109	21.0	19.9	117636	21.1	19.3
398319	20.7	20.0	201020	20.8	20.2	505376	20.9	20.7	413659	20.9	21.0	314924	21.0	20.6	234506	21.1	21.0
312645	20.7	20.5	285678	20.8	20.8	134477	20.9	21.0	317381	20.9	22.2	146567	21.0	19.6	386212	21.1	21.2
432144	20.8	20.6	273222	20.8	19.2	466912	20.9	20.3	492578	20.9	20.3	284312	21.0	20.4	84176	21.1	19.1
166892	20.8	20.0	310948	20.8	20.9	377031	20.9	21.4	542370	20.9	21.1	246384	21.0	20.1	127695	21.1	19.5
132434	20.8	18.9	504836	20.8	20.1	467531	20.9	20.3	17396	20.9	18.8	64742	21.0	18.9	544538	21.1	20.8
310728	20.8	20.7	178631	20.8	19.0	395371	20.9	21.2	36048	20.9	18.0	16118	21.0	16.5	390380	21.1	20.9
300167	20.8	19.7	532806	20.8	21.1	400826	20.9	20.0	163590	20.9	19.7	49422	21.0	18.4	68377	21.1	19.8
491721	20.8	21.8	123205	20.8	19.3	397467	20.9	20.1	190168	20.9	20.2	437789	21.0	19.9	429972	21.1	21.0
110005	20.8	19.3	40338	20.8	18.7	311045	20.9	19.9	139372	20.9	18.3	311925	21.0	20.2	483812	21.1	21.4
45830	20.8	17.6	409871	20.8	20.9	538570	20.9	21.1	334771	20.9	20.6	456403	21.0	22.1	384203	21.1	20.6
92549	20.8	19.6	412471	20.8	19.8	506551	20.9	20.3	51824	20.9	19.0	423176	21.0	19.4	449319	21.1	21.3
420216	20.8	20.6	233019	20.8	18.9	317593	20.9	20.6	51700	20.9	18.1	426694	21.0	20.9	908	21.1	14.2
153875	20.8	18.9	308866	20.8	20.0	259067	20.9	20.2	27198	20.9	18.3	56145	21.0	17.6	185888	21.1	20.6
107174	20.8	19.5	170139	20.8	20.5	294069	20.9	20.2	277233	20.9	20.4	462277	21.0	21.1	194196	21.1	20.1
522086	20.8	19.9	27367	20.8	17.2	380420	20.9	20.1	186222	20.9	20.7	525711	21.0	22.0	252343	21.1	21.0
187802	20.8	18.9	82532	20.8	19.7	460714	20.9	21.0	147256	20.9	19.4	489338	21.0	20.7	468492	21.1	20.1
544580	20.8	21.3	194350	20.8	21.0	68451	20.9	18.3	5825	20.9	17.6	124722	21.0	20.9	415945	21.1	20.5
109408	20.8	19.7	248033	20.8	20.0	227708	20.9	19.7	142459	20.9	20.4	50864	21.0	17.3	33165	21.1	18.6
377272	20.8	21.3	240238	20.8	20.2	75140	20.9	18.9	206241	20.9	20.7	111111	21.0	18.9	385277	21.1	21.3
121272	20.8	19.6	373063	20.8	20.9	163734	20.9	19.3	387428	20.9	21.2	150931	21.0	20.2	310175	21.1	21.0
376672	20.8	20.9	397867	20.8	19.9	160107	20.9	19.6	8019	20.9	16.9	230545	21.0	19.9	285381	21.1	20.9
287090	20.8	22.2	544901	20.8	21.1	160767	20.9	19.2	433098	20.9	20.0	301878	21.0	21.1	458225	21.1	22.0
141394	20.8	20.4	122732	20.8	19.4	328939	20.9	20.4	190838	20.9	20.1	499406	21.0	20.7	382250	21.1	20.0
339473	20.8	19.3	218629	20.8	20.2	79878	20.9	19.4	30749	20.9	17.7	370710	21.0	20.8	522214	21.1	20.8
419220	20.8	21.8	533897	20.8	21.6	277485	20.9	21.9	527579	20.9	22.5	105935	21.0	18.4	541552	21.1	20.8
114458	20.8	19.5	168463	20.8	18.1	349018	20.9	21.1	389303	20.9	20.4	17934	21.0	17.3	474030	21.1	21.1
153444	20.8	19.4	487774	20.8	20.9	354619	20.9	19.7	73066	20.9	18.2	247675	21.0	19.5	378835	21.1	20.5
33257	20.8	17.6	322896	20.8	20.8	445153	20.9	20.9	137156	20.9	21.4	333802	21.0	20.2	544414	21.1	22.0
180539	20.8	19.2	445079	20.8	20.9	14284	20.9	17.3	25324	20.9	17.1	159107	21.0	20.0	190413	21.1	19.0
236283	20.8	19.3	234140	20.8	19.5	337763	20.9	21.2	34795	20.9	17.8	28864	21.0	16.8	454459	21.1	20.9
274875	20.8	20.6	270894	20.8	20.5	531449	20.9	20.8	105695	20.9	19.4	420220	21.0	20.0	27504	21.1	18.0
378437	20.8	20.9	153361	20.8	18.2	457166	20.9	20.3	533079	20.9	21.6	449223	21.0	21.0	131315	21.1	20.6
82904	20.8	19.3	498924	20.8	20.5	459302	20.9	20.0	164466	20.9	19.0	495572	21.0	21.4	460668	21.1	18.9
160438	20.8	20.2	419008	20.8	21.6	357601	20.9	21.1	354903	20.9	21.6	408990	21.0	22.5	108215	21.1	19.0
307924	20.8	20.1	60469	20.8	19.5	257842	20.9	20.0	395312	20.9	20.6	493646	21.0	22.3	317729	21.1	20.5
65922	20.8	18.6	323793	20.8	21.1	111645	20.9	19.0	371735	20.9	20.4	421520	21.0	21.7	508577	21.1	20.8
163786	20.8	20.6	140718	20.8	19.0	23122	20.9	17.4	464521	20.9	20.7	537994	21.0	21.0	170114	21.1	20.5
447284	20.8	21.8	408909	20.8	19.9	239378	20.9	19.8	166330	20.9	18.8	413647	21.0	20.0	149794	21.1	20.0
97550	20.8	19.3	344396	20.9	20.9	541584	20.9	21.6	428975	20.9	20.3	219398	21.0	19.6	512318	21.1	20.2
254074	20.8	20.0	350696	20.9	21.4	261487	20.9	20.4	69825	20.9	19.4	130075	21.0	18.4	62637	21.1	18.8
462078	20.8	20.3	223702	20.9	20.1	501883	20.9	20.1	48530	20.9	18.5	525138	21.0	22.0	426350	21.1	20.5
359615	20.8	20.3	234495	20.9	20.1	85985	20.9	18.1	16199	20.9	18.5	65784	21.0	19.2	353516	21.1	20.3
32760	20.8	18.4	51336	20.9	18.0	442756	20.9	20.7	148306								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
385505	21.1	19.3	144671	21.2	18.9	489616	21.3	20.2	37641	21.3	18.2	176567	21.4	21.3	481431	21.4	21.3
544594	21.1	21.3	26934	21.2	17.6	120097	21.3	18.9	149668	21.3	19.3	122269	21.4	19.9	492125	21.4	20.3
416944	21.1	20.8	466911	21.2	20.4	365733	21.3	20.0	250151	21.3	19.6	304890	21.4	20.4	82385	21.4	19.5
440410	21.1	21.5	238026	21.2	19.9	417117	21.3	22.0	469208	21.3	20.5	527247	21.4	20.8	364293	21.4	21.0
65185	21.1	18.5	492361	21.2	21.3	365945	21.3	20.2	337684	21.3	20.1	109703	21.4	19.2	400161	21.4	21.7
447000	21.1	22.3	400257	21.2	21.4	39448	21.3	19.5	310150	21.3	20.6	423648	21.4	22.4	172203	21.5	20.0
325345	21.1	20.6	402542	21.2	20.5	89586	21.3	19.6	137213	21.3	19.6	191919	21.4	18.5	467698	21.5	21.5
153370	21.1	19.9	3197	21.2	16.1	247075	21.3	21.0	281685	21.3	20.3	412608	21.4	21.1	180029	21.5	20.7
28909	21.1	17.2	207374	21.2	20.2	512320	21.3	21.2	430705	21.3	20.6	269582	21.4	20.7	89451	21.5	19.1
461054	21.1	20.2	419723	21.2	21.5	75239	21.3	18.9	311049	21.3	21.3	526554	21.4	21.4	465585	21.5	20.8
485387	21.1	20.6	136638	21.2	20.1	202036	21.3	20.8	509935	21.3	22.5	448920	21.4	20.7	525742	21.5	22.3
544702	21.1	21.1	459803	21.2	20.7	370733	21.3	21.9	469612	21.3	19.7	429834	21.4	20.7	97136	21.5	20.0
201524	21.1	20.0	206848	21.2	20.4	161473	21.3	19.0	215936	21.3	20.3	324001	21.4	20.3	341559	21.5	20.7
241040	21.1	20.9	743	21.2	14.4	306025	21.3	19.6	292317	21.3	20.9	448098	21.4	20.1	151530	21.5	20.1
9602	21.1	17.4	165912	21.2	17.4	401968	21.3	23.7	128377	21.3	19.9	152079	21.4	19.3	320890	21.5	20.5
543485	21.1	21.1	468608	21.2	21.0	363598	21.3	20.1	142253	21.3	20.3	161106	21.4	19.7	507342	21.5	21.0
450062	21.1	20.1	116181	21.2	19.6	405988	21.3	20.6	298384	21.3	20.5	366910	21.4	21.1	306327	21.5	20.5
511522	21.1	20.1	147282	21.2	20.3	63969	21.3	18.0	82072	21.3	18.6	544818	21.4	21.0	64004	21.5	18.3
193890	21.1	20.2	524457	21.2	23.4	458220	21.3	20.8	137884	21.3	19.3	464886	21.4	20.8	294687	21.5	20.3
462684	21.1	20.9	425972	21.2	21.0	130622	21.3	19.4	19314	21.3	18.0	429024	21.4	20.1	408863	21.5	20.9
364369	21.1	21.3	13595	21.2	19.1	423579	21.3	22.6	118560	21.3	18.4	448239	21.4	21.8	541570	21.5	20.6
88160	21.1	18.4	371187	21.2	21.1	244023	21.3	21.0	486793	21.3	19.7	350643	21.4	20.6	64604	21.5	18.9
399888	21.1	20.2	502737	21.2	20.6	377511	21.3	20.5	863	21.3	14.0	27816	21.4	18.8	544411	21.5	21.3
63456	21.1	19.0	50416	21.2	18.0	65162	21.3	18.4	315557	21.3	21.1	170267	21.4	19.6	318799	21.5	20.8
295235	21.1	19.4	334953	21.2	20.2	382538	21.3	21.4	135418	21.3	19.3	369686	21.4	19.2	90656	21.5	18.4
194162	21.1	21.4	11339	21.2	17.1	98974	21.3	19.1	419085	21.3	20.7	113174	21.4	20.3	406168	21.5	21.4
194097	21.1	19.3	495924	21.2	21.3	111083	21.3	20.2	381988	21.3	20.2	244225	21.4	18.6	541736	21.5	21.9
150781	21.1	19.8	2261	21.2	15.4	86563	21.3	19.2	152760	21.3	20.0	351519	21.4	21.1	117567	21.5	19.4
385293	21.1	21.6	16723	21.2	19.2	525679	21.3	20.1	355975	21.3	21.1	136985	21.4	20.1	78322	21.5	19.4
500598	21.1	21.7	501269	21.2	20.9	114706	21.3	17.7	483828	21.3	21.7	472281	21.4	19.9	131474	21.5	19.7
358481	21.1	21.4	5588	21.2	17.1	544753	21.3	21.8	431631	21.3	20.7	209039	21.4	20.3	273439	21.5	19.8
305725	21.1	21.5	326680	21.2	20.3	217944	21.3	19.4	392308	21.3	20.8	170761	21.4	19.4	468965	21.5	20.2
527483	21.1	21.0	384217	21.2	20.6	481445	21.3	21.3	322832	21.3	20.7	134424	21.4	20.7	100457	21.5	19.4
56193	21.1	17.8	413119	21.2	20.5	43656	21.3	17.9	161000	21.3	19.4	202457	21.4	19.7	531482	21.5	21.3
33007	21.1	18.8	27738	21.2	18.7	293879	21.3	19.8	496034	21.3	21.3	428134	21.4	20.6	243565	21.5	20.6
101423	21.1	19.0	331125	21.2	21.6	461716	21.3	21.3	366085	21.3	20.2	466504	21.4	20.6	527000	21.5	21.0
100221	21.1	19.0	405973	21.2	21.3	470277	21.3	19.5	400373	21.4	21.3	256870	21.4	20.6	83537	21.5	18.2
529706	21.1	21.3	237503	21.2	19.5	149339	21.3	19.5	534606	21.4	20.5	281753	21.4	19.8	61590	21.5	18.6
352859	21.1	20.6	234945	21.2	20.7	496411	21.3	21.2	171302	21.4	20.5	540224	21.4	20.5	495495	21.5	21.1
425095	21.2	21.4	429958	21.2	19.6	119588	21.3	19.5	229581	21.4	20.1	108176	21.4	18.4	85575	21.5	19.1
34930	21.2	18.7	433900	21.2	20.8	37334	21.3	19.1	258094	21.4	19.5	165532	21.4	19.4	463309	21.5	19.7
298967	21.2	20.1	432447	21.2	19.5	163610	21.3	19.7	110822	21.4	19.5	13266	21.4	18.2	423857	21.5	20.6
434951	21.2	21.0	122803	21.2	20.1	344018	21.3	20.8	167044	21.4	18.7	500660	21.4	21.9	531317	21.5	21.5
235446	21.2	20.1	69865	21.2	19.2	29550	21.3	18.3	415918	21.4	21.2	31788	21.4	17.5	132963	21.5	19.4
440727	21.2	21.9	344213	21.2	21.0	516978	21.3	20.3	344007	21.4	20.0	131454	21.4	21.1	325157	21.5	20.0
203761	21.2	21.0	294207	21.2	20.8	149160	21.3	19.4	485014	21.4	21.8	64291	21.4	18.9	423188	21.5	21.5
111290	21.2	18.5	461727	21.2	21.8	46769	21.3	18.5	146391	21.4	19.0	540200	21.4	21.4	467901	21.5	20.6
431870	21.2	21.5	232387	21.2	19.0	402761	21.3	21.2	54298	21.4	16.9	35465	21.4	18.1	503065	21.5	20.8
297943	21.2	19.0	46267	21.2	18.4	302082	21.3	21.3	14046	21.4	18.2	442711	21.4	20.7	243362	21.5	20.0
175245	21.2	20.5	88503	21.2	18.7	82697	21.3	18.7	206775	21.4	20.5	259156	21.4	20.1	277584	21.5	19.8
364446	21.2	21.0	448766	21.2	21.9	120278	21.3	18.8	427534	21.4	21.1	240530	21.4	20.0	163514	21.5	20.3
154701	21.2	18.9	312926	21.2	20.4	319830	21.3	21.5	97995	21.4	19.2	116606	21.4	17.7	125358	21.5	19.2
219363	21.2	20.5	149533	21.2	19.3	188008	21.3	19.0	259151	21.4	20.5	113140	21.4	19.0	532501	21.5	21.6
318058	21.2	20.5	320707	21.2	20.3	33064	21.3	18.9	216742	21.4	19.3	85343	21.4	20.1	140446	21.5	19.8
296009	21.2	19.8	172019	21.2	20.0	307614	21.3	21.4	244194	21.4	20.0	401942	21.4	19.8	154593	21.5	19.4
201978	21.2	19.6	255825	21.2	20.7	468669	21.3	20.8	170689	21.4	21.0	129604	21.4	20.7	544299	21.5	21.9
118105	21.2	19.8	5134	21.2	15.7	90582	21.3	19.0	267039	21.4	19.3	472602	21.4	20.1	350569	21.5	18.9
434945	21.2	20.3	95811	21.2	18.6	350375	21.3	19.9	20897	21.4	18.6	234902	21.4	20.2	163114	21.5	18.5
205255	21.2	20.2	277140	21.2	20.2	143986	21.3	19.0	219347	21.4	19.9	9521	21.4	17.1	49295	21.5	17.7
19998	21.2	18.7	39393	21.2	19.6	514902	21.3	20.4	393344	21.4	20.4	156194	21.4	20.1	147596	21.5	19.5
161746	21.2	17.7	295400	21.2	19.6	442719	21.3	21.5	7281	21.4	17.7	128317	21.4	19.1	416200	21.5	20.1
76608	21.2	17.9	239107	21.2	18.8	227552	21.3	21.0	497612	21.4	21.4	379104	21.4	19.5	159885	21.5	19.6
468549	21.2	20.8	526597	21.2	22.1	257568	21.3	19.7	188106	21.4	20.2	5088	21.4	17.2	496178	21.5	21.5
179964	21.2	20.3	483703	21.2	21.0	104008	21.3	19.7	299014	21.4	20.6	467013	21.4	21.3	28310	21.5	18.0
128401	21.2	19.1	205439	21.2	20.6	397905	21.3	21.8	242410	21.4	19.6	511778	21.4	20.4	533004	21.5	20.2
112034	21.2	18.9	320747	21.3	18.4	184442	21.3	20.4	80162	21.4	19.8	347717	21.4	20.7	407458	21.5	21.8
526102	21.2	20.7	392863	21.3	21.0	147776	21.3	19.3	542233	21.4	19.4	443804	21.4	19.8	247901	21.5	19.7
94641	21.2	19.2	343273	21.3	21.3	292460	21.3	20.8	413140	21.4	22.6	61719	21.4	17.9	415993	21.5	20.2
32031	21.2	18.9	241181	21.3	19.0	538997	21.3	21.0	40520	21.							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
261706	21.5	20.8	170835	21.6	20.4	166563	21.6	20.5	330715	21.7	20.7	425010	21.8	20.8	171603	21.8	18.7
65083	21.5	19.4	52157	21.6	19.4	345614	21.6	20.6	243374	21.7	19.0	58932	21.8	18.1	407567	21.8	21.4
148702	21.5	19.8	34202	21.6	18.7	355841	21.6	20.8	502243	21.7	20.4	543390	21.8	21.5	199570	21.8	20.1
182702	21.5	20.4	205284	21.6	19.0	109994	21.6	20.4	285186	21.7	20.2	365456	21.8	20.6	445054	21.8	22.0
37429	21.5	18.3	176054	21.6	18.8	501439	21.6	21.2	513193	21.7	20.2	393923	21.8	21.2	192600	21.8	19.9
377941	21.5	20.9	237395	21.6	20.8	48792	21.6	19.2	399294	21.7	20.4	440145	21.8	21.7	88054	21.8	19.7
203083	21.5	20.5	381639	21.6	21.8	193883	21.6	20.4	160124	21.7	19.2	348530	21.8	20.8	538897	21.8	21.8
261357	21.5	19.6	188962	21.6	19.7	256128	21.6	20.1	225417	21.7	19.4	126241	21.8	19.3	146634	21.8	20.0
286306	21.5	20.5	9978	21.6	18.0	29659	21.6	18.7	495972	21.7	21.5	543327	21.8	20.9	369408	21.8	20.4
29087	21.5	18.6	536547	21.6	20.5	35237	21.6	19.6	229247	21.7	19.9	452158	21.8	21.9	534415	21.8	21.2
243519	21.5	20.5	92599	21.6	18.1	339773	21.6	20.4	144784	21.7	19.2	384824	21.8	20.0	529758	21.8	21.1
109383	21.5	19.3	413678	21.6	21.2	481712	21.6	20.9	519361	21.7	21.0	450568	21.8	20.5	194299	21.8	20.7
502643	21.5	20.1	413953	21.6	20.8	423234	21.6	21.0	529062	21.7	21.6	286036	21.8	20.3	462338	21.8	20.4
351739	21.5	21.2	497862	21.6	21.3	165546	21.6	20.3	109940	21.7	20.4	152745	21.8	19.8	337858	21.8	20.8
456818	21.5	21.8	465883	21.6	21.5	374259	21.6	19.3	526958	21.7	21.5	400869	21.8	21.3	296761	21.8	20.7
364750	21.5	20.7	336052	21.6	21.1	242981	21.6	20.6	220331	21.7	19.6	110740	21.8	19.6	472424	21.8	20.4
21991	21.5	18.9	519093	21.6	20.8	26438	21.6	17.7	16891	21.7	16.9	397819	21.8	20.9	296047	21.8	20.1
383685	21.5	20.4	194453	21.6	21.1	320748	21.6	20.4	330126	21.7	21.0	544845	21.8	21.3	544167	21.8	20.3
129236	21.5	18.7	205580	21.6	20.1	460951	21.6	20.8	360226	21.7	21.3	189460	21.8	20.7	464062	21.8	21.3
452940	21.5	19.7	173980	21.6	20.7	253254	21.6	21.3	541393	21.7	19.5	56980	21.8	17.9	289155	21.8	21.2
325254	21.5	20.4	192317	21.6	20.2	363201	21.6	20.8	140874	21.7	19.5	390794	21.8	20.9	296203	21.8	19.7
102559	21.5	19.2	381218	21.6	20.5	325150	21.6	19.6	401835	21.7	20.1	86515	21.8	18.7	471686	21.8	21.2
487418	21.5	19.3	514088	21.6	20.1	277344	21.6	19.8	380400	21.7	20.2	18005	21.8	18.5	162755	21.8	20.1
297449	21.5	21.5	177568	21.6	20.5	76616	21.6	18.7	332133	21.7	20.1	154063	21.8	19.6	467028	21.8	20.8
77859	21.5	18.2	234412	21.6	20.1	245736	21.7	19.5	446853	21.7	22.4	109140	21.8	19.8	80320	21.8	19.4
180550	21.5	19.3	536627	21.6	21.5	231282	21.7	20.9	497613	21.7	21.7	132300	21.8	18.8	508835	21.8	20.6
407445	21.5	20.9	310155	21.6	20.1	184350	21.7	19.1	461344	21.7	21.6	7246	21.8	17.9	205543	21.8	21.5
455388	21.5	22.1	174848	21.6	19.9	142761	21.7	19.7	82192	21.7	18.0	389153	21.8	22.0	110869	21.8	20.5
493311	21.5	21.0	458867	21.6	21.2	57787	21.7	19.9	327031	21.7	20.6	414797	21.8	21.1	246183	21.9	19.7
383713	21.5	20.7	313188	21.6	20.1	425137	21.7	19.6	482235	21.7	21.9	337507	21.8	20.4	241297	21.9	20.2
70024	21.5	19.3	240798	21.6	19.7	117192	21.7	19.6	472741	21.7	20.7	493010	21.8	20.9	419862	21.9	18.9
17819	21.5	18.1	360796	21.6	20.8	534160	21.7	21.6	201369	21.7	19.8	203256	21.8	20.6	360561	21.9	21.4
433128	21.5	21.5	89009	21.6	19.0	347648	21.7	21.3	289131	21.7	20.2	268090	21.8	20.2	281135	21.9	19.6
246191	21.5	20.5	105635	21.6	19.4	392751	21.7	20.8	35489	21.7	18.9	527540	21.8	21.6	267479	21.9	20.7
543533	21.5	20.8	49611	21.6	18.1	384842	21.7	21.1	390598	21.7	19.6	417443	21.8	20.3	193901	21.9	20.3
81734	21.5	18.9	343023	21.6	19.9	536531	21.7	22.6	527268	21.7	21.3	370751	21.8	21.1	502755	21.9	20.7
528480	21.5	21.7	105480	21.6	19.7	123613	21.7	19.5	148727	21.7	19.8	493801	21.8	21.1	72873	21.9	19.3
209068	21.5	20.8	304369	21.6	20.8	426219	21.7	20.7	433102	21.7	20.7	522528	21.8	21.0	197184	21.9	19.4
274764	21.5	20.4	432154	21.6	21.8	62925	21.7	19.1	347863	21.7	21.0	155324	21.8	20.3	270499	21.9	20.2
378793	21.5	20.6	128895	21.6	19.2	421444	21.7	20.6	184142	21.7	19.1	299329	21.8	19.5	105368	21.9	19.8
538211	21.5	20.5	121247	21.6	20.1	411224	21.7	21.9	276055	21.7	20.8	525648	21.8	19.9	202104	21.9	19.1
421636	21.5	19.6	348465	21.6	21.6	423806	21.7	21.1	441513	21.7	21.4	98141	21.8	20.4	109221	21.9	19.2
342924	21.5	20.6	212459	21.6	20.5	87579	21.7	18.1	179007	21.7	19.7	40949	21.8	19.3	534954	21.9	21.9
310039	21.5	19.6	411737	21.6	21.0	399973	21.7	20.8	181384	21.7	19.9	427706	21.8	21.2	485426	21.9	19.9
333000	21.5	20.4	113704	21.6	19.3	47602	21.7	18.1	183703	21.7	20.0	363205	21.8	21.5	173214	21.9	19.9
238808	21.5	19.3	223488	21.6	20.5	238055	21.7	19.6	281053	21.7	20.5	488710	21.8	19.6	200378	21.9	20.2
305604	21.5	20.8	341614	21.6	20.0	50984	21.7	18.1	93868	21.7	18.5	493095	21.8	20.3	44861	21.9	17.6
84171	21.5	19.2	405146	21.6	21.6	1033	21.7	15.9	145824	21.7	20.2	162813	21.8	20.4	431173	21.9	20.1
86395	21.5	19.0	50722	21.6	18.3	385919	21.7	21.1	369379	21.7	21.2	36383	21.8	18.7	19123	21.9	18.1
425124	21.5	21.3	485442	21.6	20.7	275454	21.7	20.1	297922	21.7	19.3	250228	21.8	20.4	5339	21.9	16.9
497619	21.6	21.5	51934	21.6	17.9	10839	21.7	18.3	327441	21.7	20.9	111384	21.8	19.6	12991	21.9	18.1
424910	21.6	20.5	234380	21.6	21.0	104049	21.7	18.6	88431	21.7	18.4	282508	21.8	20.4	194091	21.9	20.7
89327	21.6	18.9	276529	21.6	21.0	84161	21.7	19.8	25714	21.7	18.3	294627	21.8	20.8	310928	21.9	20.5
381192	21.6	20.7	400372	21.6	21.4	377512	21.7	19.5	373305	21.7	19.3	398365	21.8	20.5	356677	21.9	20.0
200086	21.6	20.7	411954	21.6	19.7	425356	21.7	20.5	142382	21.7	20.9	215060	21.8	19.6	425984	21.9	20.0
46116	21.6	18.4	243263	21.6	20.0	23795	21.7	18.5	220299	21.7	19.5	117710	21.8	19.1	381309	21.9	20.7
122623	21.6	19.4	256173	21.6	20.7	305315	21.7	21.0	495574	21.7	21.8	206896	21.8	20.0	440710	21.9	21.6
210858	21.6	20.8	345627	21.6	21.0	525563	21.7	20.3	145516	21.7	19.9	83573	21.8	20.0	532904	21.9	21.5
313530	21.6	20.0	405944	21.6	22.4	47926	21.7	17.8	299416	21.7	19.6	251771	21.8	19.8	162997	21.9	19.5
493946	21.6	21.3	376033	21.6	18.4	26603	21.7	17.7	497122	21.7	20.2	79096	21.8	19.3	648823	21.9	22.1
213698	21.6	19.7	460086	21.6	21.2	354075	21.7	21.7	531438	21.7	21.9	467234	21.8	21.7	341060	21.9	20.6
31175	21.6	17.8	119593	21.6	19.2	453992	21.7	22.0	525893	21.7	21.5	464063	21.8	21.5	395455	21.9	20.1
452440	21.6	21.4	164085	21.6	19.4	21401	21.7	17.9	422809	21.7	20.6	394829	21.8	21.4	161825	21.9	20.1
142622	21.6	19.6	148966	21.6	19.7	392724	21.7	21.3	220354	21.7	18.9	271385	21.8	20.3	195020	21.9	20.2
444141	21.6	21.6	307462	21.6	21.0	393445	21.7	21.4	39667	21.7	19.1	261410	21.8	20.6	370807	21.9	20.5
400625	21.6	20.3	544773	21.6	21.0	341019	21.7	19.8	268126	21.8	20.6	13725	21.8	17.9	26599	21.9	16.9
144115	21.6	18.9	133848	21.6	19.9	168458	21.7	19.9	61709	21.8	18.2	461409	21.8	21.8	469704	21.9	22.0
379827	21.6	20.4	266790	21.6	20.5	535238	21.7	20.9	45757	21.8	18.7	326448	21.8	19.7	113799	21.9	19.7
447865	21.6	20.7	543530	21.6	21.0	388438	21.7	20.3									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
490290	21.9	21.7	155638	21.9	19.9	244123	22.0	20.0	116436	22.1	19.4	338190	22.2	20.7	72876	22.2	18.8
246083	21.9	20.9	512354	21.9	21.0	92370	22.0	18.6	472501	22.1	20.6	373018	22.2	20.8	461790	22.2	22.0
88631	21.9	19.3	311085	21.9	19.4	401793	22.0	18.8	354579	22.1	21.0	331622	22.2	20.1	541821	22.2	20.8
419047	21.9	22.2	418429	21.9	20.4	156850	22.0	20.1	337037	22.1	21.5	419471	22.2	21.6	483023	22.2	20.8
265589	21.9	20.7	397812	21.9	20.9	182554	22.0	20.3	38735	22.1	18.0	65011	22.2	18.5	538615	22.2	21.1
208331	21.9	20.0	347362	21.9	20.1	8646	22.0	18.0	401984	22.1	21.8	200941	22.2	19.7	457125	22.2	20.4
468558	21.9	21.4	295964	21.9	20.5	457021	22.0	20.2	417515	22.1	19.6	375586	22.2	19.7	205218	22.2	20.1
449165	21.9	20.7	376849	21.9	20.8	269382	22.0	19.9	269182	22.1	18.8	485087	22.2	20.2	427385	22.2	20.6
218036	21.9	20.7	406082	21.9	21.7	238336	22.0	19.0	150082	22.1	20.8	138081	22.2	19.9	246460	22.2	20.9
409460	21.9	21.1	503740	21.9	20.8	277543	22.0	22.1	544467	22.1	21.5	433259	22.2	21.6	94688	22.2	18.4
473494	21.9	20.5	183936	21.9	19.3	304797	22.0	21.4	274612	22.1	20.2	112520	22.2	19.9	82952	22.2	19.1
406008	21.9	21.7	166086	21.9	19.0	248930	22.0	20.7	502996	22.1	20.9	11322	22.2	18.7	157224	22.2	20.0
366764	21.9	21.5	290744	21.9	20.7	82017	22.0	19.1	132688	22.1	19.1	334073	22.2	20.1	370777	22.2	20.8
307833	21.9	20.5	189796	21.9	18.7	144688	22.0	19.0	13414	22.1	17.8	100655	22.2	20.1	307816	22.2	19.7
337710	21.9	20.3	380063	21.9	20.6	11686	22.0	17.4	468225	22.1	21.0	256283	22.2	20.5	177000	22.2	20.3
382262	21.9	18.7	53719	21.9	18.3	80437	22.0	20.1	499058	22.1	21.2	82946	22.2	19.4	397895	22.2	21.7
151106	21.9	18.8	396570	21.9	19.7	369639	22.0	21.3	527494	22.1	22.3	473803	22.2	21.5	496597	22.2	20.8
219403	21.9	21.4	222353	21.9	18.5	507180	22.0	21.3	412217	22.1	19.4	325956	22.2	21.1	290938	22.2	19.5
79633	21.9	19.6	199866	21.9	20.3	197961	22.0	20.8	427051	22.1	22.1	457229	22.2	20.8	238024	22.2	21.2
528366	21.9	21.7	231560	21.9	20.8	173784	22.0	20.1	233520	22.1	20.0	50641	22.2	17.4	62204	22.2	18.8
424371	21.9	21.0	52556	21.9	19.3	439962	22.0	22.5	385496	22.1	19.2	396172	22.2	20.7	289712	22.2	18.8
298706	21.9	19.5	439573	21.9	20.1	362219	22.0	19.1	129686	22.1	20.0	426516	22.2	20.3	3805	22.2	17.5
241513	21.9	19.7	370034	21.9	19.1	3013	22.0	16.9	123064	22.1	19.1	9178	22.2	18.1	477554	22.2	19.6
251305	21.9	20.8	154129	21.9	19.7	237667	22.0	19.3	277612	22.1	21.3	155828	22.2	18.8	424695	22.2	21.1
241233	21.9	20.5	275482	21.9	20.5	493843	22.0	20.4	448161	22.1	21.2	244266	22.2	20.4	250165	22.2	20.8
75733	21.9	17.8	291124	21.9	20.0	39776	22.0	18.9	282764	22.1	19.9	448287	22.2	21.5	251666	22.2	20.0
453110	21.9	21.0	83816	21.9	18.0	50102	22.0	17.2	238911	22.1	19.6	444147	22.2	21.8	252332	22.2	19.9
212043	21.9	20.2	59600	21.9	18.3	354087	22.0	22.3	65752	22.1	18.7	23045	22.2	18.1	217239	22.2	18.7
83962	21.9	19.0	36637	21.9	18.0	527169	22.0	21.6	200732	22.1	20.4	269396	22.2	21.4	221293	22.2	20.4
256092	21.9	21.0	415433	21.9	20.8	55273	22.0	17.7	87104	22.1	19.1	32729	22.2	17.4	473579	22.2	20.8
168625	21.9	20.2	304914	21.9	19.6	196305	22.0	18.7	448140	22.1	20.0	459008	22.2	20.1	483454	22.3	21.0
363089	21.9	20.7	369355	21.9	21.7	494583	22.0	20.7	383810	22.1	20.7	130766	22.2	18.8	166244	22.3	18.6
416652	21.9	21.6	103526	21.9	18.8	229800	22.0	20.5	232401	22.1	20.4	445319	22.2	19.4	41088	22.3	19.1
202052	21.9	19.9	416841	21.9	21.5	317555	22.0	20.5	206175	22.1	19.7	210283	22.2	21.7	194567	22.3	20.4
49750	21.9	18.7	453349	21.9	19.3	35554	22.0	17.7	100997	22.1	20.3	372779	22.2	21.2	258191	22.3	20.8
510655	21.9	20.6	158348	21.9	20.6	468590	22.1	21.6	83200	22.1	18.8	437829	22.2	18.4	518159	22.3	20.9
257016	21.9	20.6	133996	21.9	20.4	515166	22.1	21.8	455500	22.1	22.0	186137	22.2	19.9	371760	22.3	20.2
460336	21.9	21.4	142729	21.9	19.1	498201	22.1	21.8	410584	22.1	20.6	193850	22.2	19.9	82067	22.3	18.5
384560	21.9	20.3	392481	21.9	20.2	363837	22.1	21.1	341747	22.1	22.2	445657	22.2	20.9	141235	22.3	19.9
90394	21.9	18.0	364354	21.9	20.1	377304	22.1	19.4	85518	22.1	20.2	143441	22.2	19.8	346335	22.3	19.7
138563	21.9	19.8	131930	21.9	18.4	421027	22.1	20.5	499140	22.1	21.5	167128	22.2	20.5	21133	22.3	18.8
454478	21.9	21.3	470827	21.9	20.7	99909	22.1	20.2	407893	22.1	21.0	464807	22.2	20.6	29382	22.3	17.2
398785	21.9	20.1	35710	21.9	17.6	496880	22.1	21.0	496579	22.1	20.5	138360	22.2	20.2	86839	22.3	19.2
494842	21.9	21.3	238023	21.9	20.7	494789	22.1	21.6	270694	22.1	20.2	335963	22.2	20.5	50829	22.3	17.3
319759	21.9	20.9	28673	21.9	18.0	105624	22.1	19.3	540225	22.1	20.8	465460	22.2	21.5	538283	22.3	21.1
408944	21.9	20.3	132426	21.9	19.2	381247	22.1	20.3	492482	22.1	20.4	16944	22.2	17.7	265343	22.3	20.1
43868	21.9	19.3	136823	21.9	20.9	285200	22.1	20.3	332550	22.1	20.6	280799	22.2	21.2	491938	22.3	20.6
271396	21.9	20.3	194305	21.9	20.5	289706	22.1	18.6	453845	22.1	21.3	246412	22.2	20.5	73924	22.3	18.3
350031	21.9	20.5	491091	21.9	20.8	277819	22.1	20.8	327352	22.1	21.0	270218	22.2	21.5	421480	22.3	19.9
24293	21.9	18.3	340802	22.0	20.3	402548	22.1	20.3	208346	22.1	20.8	334604	22.2	20.9	258470	22.3	20.4
182866	21.9	20.0	169347	22.0	20.0	82383	22.1	18.2	210062	22.1	20.1	464859	22.2	19.8	543614	22.3	22.0
418435	21.9	19.8	206835	22.0	19.3	280821	22.1	19.9	529065	22.1	22.0	441832	22.2	20.7	101984	22.3	19.5
429073	21.9	23.4	36531	22.0	18.1	261330	22.1	19.8	225775	22.1	19.0	241053	22.2	20.9	52675	22.3	18.1
495644	21.9	20.2	363892	22.0	20.9	52996	22.1	17.9	397915	22.1	21.5	193061	22.2	19.1	428986	22.3	20.6
245954	21.9	20.3	82771	22.0	19.2	213427	22.1	21.4	415247	22.1	20.4	15112	22.2	16.1	408595	22.3	19.8
463965	21.9	20.9	443126	22.0	19.9	466686	22.1	21.4	387437	22.1	20.8	104930	22.2	18.3	38646	22.3	18.8
502109	21.9	20.9	381189	22.0	20.5	339934	22.1	21.1	332002	22.1	20.4	192095	22.2	19.9	22452	22.3	18.9
62847	21.9	19.8	381570	22.0	20.5	90102	22.1	19.4	84280	22.1	19.7	196905	22.2	19.9	89063	22.3	19.3
380109	21.9	21.3	346172	22.0	19.0	420607	22.1	20.2	55158	22.1	19.5	69025	22.2	19.8	52037	22.3	19.0
502683	21.9	21.1	95155	22.0	19.5	307515	22.1	20.0	116406	22.1	19.3	148642	22.2	20.4	121921	22.3	19.8
335880	21.9	20.7	484660	22.0	21.2	532039	22.1	22.7	165938	22.1	19.9	296018	22.2	20.1	163244	22.3	20.0
486783	21.9	19.9	338203	22.0	20.7	368997	22.1	20.5	129846	22.1	20.4	55697	22.2	20.3	388266	22.3	21.8
380658	21.9	19.8	135224	22.0	20.1	323851	22.1	20.9	490322	22.1	20.4	456860	22.2	21.2	544579	22.3	21.0
403676	21.9	21.6	284375	22.0	20.3	28800	22.1	18.0	484653	22.1	21.5	223742	22.2	19.8	397935	22.3	21.1
411344	21.9	21.4	538169	22.0	20.5	495149	22.1	21.0	94921	22.1	18.3	159459	22.2	21.1	524246	22.3	22.2
205631	21.9	20.5	394860	22.0	20.8	7377	22.1	17.9	128125	22.1	19.4	364772	22.2	19.5	133910	22.3	20.3
261527	21.9	19.8	466826	22.0	20.8	190253	22.1	18.5	487102	22.1	20.8	30956	22.2	18.4	144825	22.3	19.1
70335	21.9	19.0	414524	22.0	21.1	179923	22.1	20.2	188220	22.1	19.4	495392	22.2	21.3	29859	22.3	16.6
460188	21.9	21.7	161661	22.0	18.9	340876	22.1	20.7	24527								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
248894	22.3	20.0	327335	22.4	20.8	231480	22.4	19.5	76250	22.5	18.2	205536	22.6	19.8	508829	22.6	20.7
413675	22.3	21.2	369285	22.4	21.0	544548	22.4	21.9	190346	22.5	19.9	495432	22.6	20.7	115542	22.6	19.2
527263	22.3	22.3	455034	22.4	20.4	459313	22.4	20.5	326413	22.5	21.9	302056	22.6	21.5	544805	22.6	21.4
85349	22.3	19.6	85841	22.4	19.8	397960	22.4	21.8	414836	22.5	20.2	423828	22.6	20.5	404107	22.6	21.5
452376	22.3	23.2	183340	22.4	20.9	502443	22.4	21.1	534901	22.5	21.7	223762	22.6	20.1	52339	22.6	18.6
404197	22.3	20.1	95162	22.4	19.9	374604	22.4	19.8	21074	22.5	16.7	301540	22.6	19.5	142978	22.6	20.6
27917	22.3	19.8	226151	22.4	19.6	194648	22.4	19.9	105395	22.5	20.2	121987	22.6	19.9	315679	22.6	20.7
264774	22.3	19.6	81133	22.4	18.8	94799	22.4	18.5	199511	22.5	20.4	525462	22.6	22.5	374189	22.6	20.4
143953	22.3	19.6	338419	22.4	20.4	229157	22.4	20.0	381638	22.5	21.0	539008	22.6	20.8	54362	22.6	18.2
338386	22.3	21.4	528828	22.4	21.1	362208	22.4	20.5	133736	22.5	20.0	2870	22.6	16.8	312315	22.6	19.8
527608	22.3	20.5	169164	22.4	20.0	276164	22.4	20.4	500473	22.5	21.7	317631	22.6	19.7	36668	22.6	18.9
352827	22.3	20.5	419988	22.4	21.8	256223	22.4	21.3	211621	22.5	19.8	100224	22.6	20.0	344352	22.6	20.0
126022	22.3	18.6	468422	22.4	23.8	146348	22.4	20.0	229183	22.5	20.4	497700	22.6	21.8	197345	22.6	19.9
377137	22.3	19.7	290589	22.4	20.4	492538	22.4	20.9	22535	22.5	18.5	287433	22.6	20.2	171973	22.6	20.0
498900	22.3	20.6	279519	22.4	21.2	55300	22.4	20.0	265803	22.5	21.4	4910	22.6	17.0	204540	22.6	21.2
259750	22.3	20.0	298956	22.4	20.4	372652	22.4	20.1	102834	22.5	19.9	96918	22.6	18.4	221711	22.6	21.1
343009	22.3	20.4	285017	22.4	20.5	161118	22.4	19.6	417146	22.5	19.5	176901	22.6	19.6	319359	22.6	23.0
263963	22.3	19.6	456514	22.4	21.5	185425	22.4	20.1	218617	22.5	20.2	117104	22.6	19.2	260676	22.6	19.5
500326	22.3	21.3	75829	22.4	20.2	290567	22.4	20.4	47916	22.5	18.4	334090	22.6	21.4	323992	22.6	20.6
535257	22.3	22.0	168589	22.4	19.3	274145	22.4	19.8	468687	22.5	20.2	401966	22.6	21.2	169227	22.6	20.3
422036	22.3	21.3	124136	22.4	19.0	416263	22.4	20.1	80255	22.5	19.6	243610	22.6	20.0	344042	22.6	20.2
330924	22.3	20.8	241489	22.4	20.4	499952	22.4	21.1	19303	22.5	19.2	492084	22.6	19.2	319854	22.6	19.9
445283	22.3	20.4	243540	22.4	19.4	333384	22.4	20.6	410044	22.5	20.8	432855	22.6	20.7	527303	22.6	21.0
204933	22.3	20.3	449255	22.4	20.6	196244	22.5	18.5	150556	22.5	20.1	266748	22.6	19.9	89297	22.6	19.2
113079	22.3	20.4	324669	22.4	21.0	234445	22.5	19.5	301732	22.5	20.7	411382	22.6	22.1	280223	22.6	20.6
486004	22.3	21.2	494743	22.4	20.4	51200	22.5	18.6	64965	22.5	19.3	543388	22.6	21.1	183384	22.6	20.2
188724	22.3	19.4	203077	22.4	20.8	416636	22.5	21.1	11935	22.5	17.7	372317	22.6	21.3	114294	22.6	18.6
139573	22.3	20.6	403115	22.4	20.4	410528	22.5	19.7	461147	22.5	21.5	201152	22.6	20.0	148720	22.6	19.9
427695	22.3	20.1	413121	22.4	21.7	447120	22.5	21.9	276234	22.5	19.8	79963	22.6	18.0	30133	22.6	18.5
402969	22.3	21.1	85283	22.4	19.8	215248	22.5	19.5	496194	22.5	20.7	78998	22.6	19.3	246017	22.6	20.0
502489	22.3	20.9	535873	22.4	21.2	181793	22.5	18.9	264088	22.5	20.1	14442	22.6	18.3	288844	22.6	19.6
101455	22.3	19.0	530076	22.4	21.1	5869	22.5	18.8	437617	22.5	20.2	95098	22.6	20.4	134438	22.6	20.5
72537	22.3	17.5	32690	22.4	18.5	316744	22.5	21.7	120431	22.5	19.4	407552	22.6	21.4	365237	22.6	19.8
114912	22.3	17.7	343598	22.4	20.4	138674	22.5	19.8	461704	22.5	21.0	89075	22.6	20.1	314683	22.6	21.3
351789	22.3	20.0	248718	22.4	20.9	229401	22.5	21.0	212350	22.5	19.8	166269	22.6	19.4	538524	22.7	20.4
510752	22.3	20.8	186910	22.4	20.5	291508	22.5	20.1	60979	22.5	18.3	417613	22.6	21.3	118783	22.7	19.6
281867	22.3	20.9	30253	22.4	19.2	142873	22.5	20.8	351828	22.5	19.1	210638	22.6	19.5	377300	22.7	20.1
461770	22.3	21.1	401237	22.4	21.0	150375	22.5	19.3	134625	22.5	19.3	403060	22.6	21.4	414002	22.7	20.7
538006	22.3	19.7	244905	22.4	19.6	194593	22.5	20.1	485081	22.5	19.0	494457	22.6	19.9	113876	22.7	19.7
19157	22.3	17.9	65582	22.4	19.0	356568	22.5	20.8	379074	22.5	20.9	136817	22.6	20.1	75194	22.7	19.5
118749	22.3	19.6	178776	22.4	18.9	359096	22.5	21.2	343237	22.5	20.8	158836	22.6	19.1	262805	22.7	20.0
321362	22.3	20.2	2497	22.4	16.2	359199	22.5	20.3	244608	22.5	20.5	10117	22.6	17.8	56694	22.7	18.9
467669	22.3	20.8	65643	22.4	18.3	488645	22.5	23.4	374194	22.5	21.0	260065	22.6	19.0	216529	22.7	19.8
275704	22.3	21.2	283291	22.4	19.2	345248	22.5	20.5	87564	22.5	20.1	58631	22.6	18.6	293555	22.7	19.6
241344	22.3	20.4	465737	22.4	21.3	544911	22.5	21.2	540489	22.5	22.1	63431	22.6	19.4	105920	22.7	19.2
227072	22.3	19.8	189164	22.4	20.6	203805	22.5	20.5	34172	22.5	18.0	193875	22.6	20.6	33855	22.7	19.5
369845	22.3	20.8	116068	22.4	19.4	544999	22.5	20.4	200983	22.5	19.1	474424	22.6	19.8	226169	22.7	20.2
240067	22.3	19.9	466866	22.4	20.5	350112	22.5	20.7	159439	22.5	20.0	179857	22.6	20.1	301171	22.7	19.4
8184	22.3	16.5	493860	22.4	21.4	286181	22.5	20.6	343039	22.5	20.0	357052	22.6	21.6	45474	22.7	18.8
149473	22.3	18.9	325222	22.4	20.3	64473	22.5	19.8	86897	22.5	19.1	53954	22.6	18.5	49347	22.7	18.4
313515	22.3	20.3	339726	22.4	21.5	202795	22.5	20.1	63438	22.5	19.5	146677	22.6	18.9	524614	22.7	21.3
416904	22.3	20.5	98815	22.4	18.7	122277	22.5	19.1	236886	22.5	20.0	340956	22.6	20.4	341725	22.7	20.6
284330	22.3	20.1	395338	22.4	21.4	275365	22.5	20.4	508703	22.5	20.9	427616	22.6	21.0	193921	22.7	19.9
128654	22.3	18.7	186480	22.4	20.3	170037	22.5	19.6	272898	22.5	20.0	135460	22.6	19.8	55489	22.7	17.1
158163	22.3	20.4	294323	22.4	20.9	458858	22.5	21.5	356372	22.5	19.9	327964	22.6	21.3	257456	22.7	19.5
490134	22.3	21.2	518887	22.4	20.8	40751	22.5	19.3	464967	22.5	21.7	126976	22.6	20.7	415935	22.7	22.1
506414	22.3	21.8	39447	22.4	19.1	222299	22.5	20.0	150738	22.5	20.5	154026	22.6	18.9	2820	22.7	16.3
526208	22.3	21.7	175295	22.4	20.6	444886	22.5	21.4	338465	22.5	19.1	430494	22.6	21.3	315595	22.7	21.8
70194	22.3	18.3	419616	22.4	21.7	240488	22.5	19.3	452501	22.5	21.3	438969	22.6	20.6	76526	22.7	19.0
334793	22.3	19.8	296719	22.4	20.7	74643	22.5	20.0	288466	22.5	20.1	146347	22.6	20.8	234492	22.7	20.3
93833	22.3	19.2	462691	22.4	21.5	418359	22.5	21.0	203496	22.5	20.3	541842	22.6	20.4	462069	22.7	20.6
33700	22.3	16.7	285212	22.4	20.8	435332	22.5	21.0	262707	22.5	19.8	152358	22.6	20.3	501451	22.7	21.5
529819	22.3	23.2	242093	22.4	20.6	451860	22.5	19.8	461776	22.5	20.4	382002	22.6	20.6	118315	22.7	19.8
178120	22.3	19.3	340610	22.4	20.6	511	22.5	11.3	383731	22.5	21.0	336040	22.6	21.5	195778	22.7	20.3
245969	22.3	20.1	219448	22.4	20.3	55898	22.5	18.7	502484	22.5	19.4	458820	22.6	21.4	186459	22.7	20.6
134359	22.4	20.9	442654	22.4	20.8	84720	22.5	18.7	240768	22.5	19.5	203841	22.6	20.4	238536	22.7	20.0
525919	22.4	21.6	17016	22.4	16.5	21742	22.5	19.1	170121	22.5	20.3	459706	22.6	20.1	392741	22.7	21.2
344764	22.4	20.6	348640	22.4	21.2	119023	22.5	19.1	469029	22.5	22.0	90824	22.6	19.3	53398	22.7	18.3
28883	22.4	18.4	404256	22.4	20.1	151777	22.5	19.7	235908								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
194015	22.7	20.3	306404	22.7	21.1	457020	22.8	20.1	232857	22.9	20.8	423236	22.9	21.5	175611	23.0	20.6
425247	22.7	22.6	293635	22.7	20.4	117015	22.8	19.0	340769	22.9	20.9	325337	22.9	20.9	534344	23.0	22.5
55210	22.7	18.8	256335	22.7	21.0	128542	22.8	20.0	501382	22.9	21.1	543351	22.9	21.9	404916	23.0	19.4
289700	22.7	20.2	350366	22.7	20.2	527200	22.8	21.9	139953	22.9	19.3	96394	22.9	19.9	524224	23.0	22.2
525503	22.7	20.8	293657	22.7	19.0	285728	22.8	21.4	487896	22.9	20.7	363810	22.9	21.0	191606	23.0	19.3
55718	22.7	18.3	1431	22.7	16.0	469563	22.8	20.6	204387	22.9	19.8	145700	22.9	20.1	244108	23.0	20.3
496072	22.7	21.5	385267	22.7	22.0	126616	22.8	19.7	125783	22.9	19.6	428913	22.9	21.5	78721	23.0	19.5
333626	22.7	21.7	90434	22.7	19.6	80637	22.8	18.1	74045	22.9	18.0	223725	22.9	20.3	535735	23.0	20.6
430669	22.7	20.2	138543	22.7	20.2	291171	22.8	21.2	295522	22.9	20.6	524822	22.9	20.9	314937	23.0	19.7
59101	22.7	20.0	399583	22.7	20.9	411311	22.8	21.7	359170	22.9	22.9	468899	22.9	20.7	42735	23.0	18.5
367595	22.7	20.5	229223	22.7	19.3	219381	22.8	19.8	380057	22.9	20.8	292689	22.9	20.5	423664	23.0	21.1
125317	22.7	20.0	139488	22.8	19.2	153037	22.8	19.7	421024	22.9	19.9	226784	22.9	19.7	309343	23.0	21.3
527948	22.7	21.2	348603	22.8	21.0	64276	22.8	18.0	2395	22.9	16.7	327046	22.9	20.4	391483	23.1	19.3
50981	22.7	18.7	138611	22.8	19.3	201249	22.8	19.6	524968	22.9	21.5	544255	22.9	19.5	10566	23.1	16.8
122806	22.7	20.0	17791	22.8	17.6	538831	22.8	20.4	459729	22.9	20.9	63392	22.9	19.5	488753	23.1	20.9
427613	22.7	21.6	332728	22.8	21.0	226059	22.8	20.0	281305	22.9	20.3	8765	22.9	18.0	419009	23.1	21.2
456575	22.7	21.3	32613	22.8	19.3	544036	22.8	21.9	267078	22.9	21.0	496508	22.9	22.6	544830	23.1	20.8
536560	22.7	20.7	460497	22.8	21.7	304835	22.8	21.0	544886	22.9	20.9	314856	22.9	20.9	423216	23.1	21.9
325676	22.7	19.6	197542	22.8	20.6	7513	22.8	17.9	349499	22.9	20.8	382410	22.9	22.1	541732	23.1	21.4
465475	22.7	21.1	272873	22.8	21.0	352802	22.8	21.2	522269	22.9	20.8	166680	22.9	20.8	20369	23.1	17.9
87419	22.7	19.6	337528	22.8	21.2	204102	22.8	20.5	156413	22.9	18.2	179037	22.9	20.0	394029	23.1	20.7
468111	22.7	20.5	496172	22.8	21.3	323140	22.8	20.6	472308	22.9	20.2	122810	22.9	19.6	137158	23.1	19.4
225299	22.7	21.1	114327	22.8	19.7	10367	22.8	18.4	518545	22.9	21.9	110789	22.9	19.7	532419	23.1	20.5
295361	22.7	20.1	488810	22.8	20.1	331174	22.8	21.4	460130	22.9	21.4	86906	22.9	19.2	239239	23.1	20.2
276075	22.7	19.9	369101	22.8	19.2	5747	22.9	16.7	375981	22.9	20.4	190719	22.9	20.7	240563	23.1	21.0
207946	22.7	20.2	529209	22.8	22.1	544479	22.9	21.6	208505	22.9	20.3	186110	22.9	20.4	18381	23.1	17.2
341562	22.7	21.1	458354	22.8	21.0	319726	22.9	20.5	235076	22.9	19.2	51106	22.9	19.0	2136	23.1	15.4
14749	22.7	17.6	58354	22.8	20.3	532538	22.9	21.3	104910	22.9	19.0	202100	22.9	18.7	320860	23.1	21.0
20342	22.7	18.2	349229	22.8	20.5	191845	22.9	19.6	454445	22.9	21.2	366770	22.9	21.1	337741	23.1	21.5
166914	22.7	20.2	142686	22.8	19.4	109167	22.9	20.6	456370	22.9	21.2	349103	22.9	19.5	292041	23.1	21.6
109509	22.7	20.0	460559	22.8	19.7	524341	22.9	21.5	544454	22.9	21.6	339445	22.9	20.3	50827	23.1	18.1
218248	22.7	20.7	52721	22.8	19.5	280215	22.9	19.8	367514	22.9	20.7	224623	22.9	20.5	487925	23.1	20.8
341512	22.7	20.6	454255	22.8	21.1	123093	22.9	19.7	480004	22.9	20.8	208525	23.0	20.3	469064	23.1	20.1
124395	22.7	19.5	202316	22.8	19.7	136807	22.9	18.2	33641	22.9	17.1	346145	23.0	19.9	527602	23.1	21.9
16945	22.7	18.0	242085	22.8	20.4	26142	22.9	17.8	47181	22.9	19.6	2825	23.0	16.8	469071	23.1	20.7
24121	22.7	18.4	153448	22.8	19.8	256973	22.9	20.1	472659	22.9	19.3	148115	23.0	20.6	383735	23.1	20.8
445019	22.7	20.2	218711	22.8	20.9	347297	22.9	20.0	156582	22.9	18.5	197274	23.0	20.4	18595	23.1	17.6
448253	22.7	22.6	491570	22.8	21.6	448753	22.9	21.3	313428	22.9	21.5	455572	23.0	20.9	364308	23.1	21.0
308028	22.7	21.0	304871	22.8	21.0	202900	22.9	19.5	527143	22.9	21.5	109891	23.0	19.7	413530	23.1	20.5
201848	22.7	20.1	345634	22.8	20.8	367979	22.9	19.9	416981	22.9	20.8	381284	23.0	20.9	532566	23.1	21.3
466671	22.7	20.7	228841	22.8	19.9	426839	22.9	20.0	504044	22.9	21.0	395800	23.0	20.1	269349	23.1	19.5
428432	22.7	21.0	119788	22.8	19.5	151839	22.9	19.7	330716	22.9	20.7	525589	23.0	20.0	269579	23.1	20.6
261020	22.7	20.1	110438	22.8	19.4	207537	22.9	19.5	458289	22.9	21.4	456607	23.0	19.3	525260	23.1	21.1
467245	22.7	20.5	454789	22.8	20.9	78037	22.9	18.9	167530	22.9	19.7	381673	23.0	20.3	45970	23.1	18.6
198213	22.7	19.5	166867	22.8	19.1	171386	22.9	20.3	336466	22.9	20.1	485009	23.0	21.9	367809	23.1	21.4
329037	22.7	20.9	90889	22.8	19.1	268099	22.9	20.4	169265	22.9	19.3	330073	23.0	20.9	199374	23.1	20.9
322791	22.7	20.7	277552	22.8	20.6	64702	22.9	19.1	132725	22.9	20.5	21287	23.0	18.4	482246	23.1	20.3
19591	22.7	18.6	543286	22.8	21.1	109950	22.9	18.9	431545	22.9	21.4	340986	23.0	19.6	6882	23.1	16.4
140622	22.7	19.6	343665	22.8	20.8	353800	22.9	21.1	107088	22.9	19.5	327476	23.0	20.2	76603	23.1	18.9
124176	22.7	19.8	8325	22.8	18.2	126235	22.9	18.5	222290	22.9	21.3	194065	23.0	19.5	39888	23.1	17.8
247643	22.7	20.4	452522	22.8	21.5	472029	22.9	20.4	290262	22.9	19.9	40353	23.0	17.6	156031	23.1	18.6
378895	22.7	20.4	94898	22.8	20.9	304946	22.9	21.3	492122	22.9	20.2	34913	23.0	17.4	255962	23.1	21.0
207144	22.7	19.9	283624	22.8	21.2	391420	22.9	20.1	453836	22.9	22.3	433526	23.0	20.9	425054	23.1	20.8
90981	22.7	20.6	466476	22.8	21.1	431611	22.9	21.9	76797	22.9	17.8	284834	23.0	20.1	158493	23.1	20.0
170316	22.7	19.8	369385	22.8	22.0	13058	22.9	17.9	30936	22.9	16.5	218025	23.0	19.5	946	23.1	15.1
293303	22.7	21.2	459812	22.8	20.9	203614	22.9	19.3	64579	22.9	18.6	106653	23.0	19.7	136800	23.1	20.0
389941	22.7	22.3	441850	22.8	21.3	105293	22.9	19.7	110871	22.9	19.3	535087	23.0	21.7	135519	23.1	20.3
149978	22.7	20.2	443207	22.8	20.5	495597	22.9	20.6	233114	22.9	19.6	202373	23.0	20.4	544184	23.1	22.4
544220	22.7	21.8	259733	22.8	20.0	377257	22.9	20.0	83079	22.9	19.8	244436	23.0	20.1	234560	23.1	19.7
18202	22.7	19.3	492701	22.8	21.4	428776	22.9	20.4	150776	22.9	20.3	421346	23.0	20.5	290364	23.1	22.1
453970	22.7	20.4	423464	22.8	20.9	138696	22.9	19.9	284161	22.9	20.4	193176	23.0	19.8	465151	23.1	21.5
2691	22.7	15.3	450974	22.8	21.0	409976	22.9	21.2	257396	22.9	19.8	445979	23.0	21.2	333007	23.1	19.9
20331	22.7	17.9	506179	22.8	20.5	384148	22.9	21.1	273140	22.9	19.9	251446	23.0	19.9	544416	23.1	19.9
93393	22.7	18.4	149695	22.8	19.8	168515	22.9	20.5	407308	22.9	21.4	465889	23.0	21.9	294935	23.1	20.3
496057	22.7	21.2	173035	22.8	19.5	304825	22.9	21.5	88996	22.9	19.1	368600	23.0	21.6	387482	23.1	20.3
164167	22.7	19.7	499108	22.8	20.4	338294	22.9	20.9	313784	22.9	21.0	192815	23.0	20.2	259177	23.1	20.6
495998	22.7	22.0	420647	22.8	20.7	543408	22.9	21.0	88589	22.9	19.5	170538	23.0	19.2	6625	23.1	18.9
118230	22.7	20.6	541863	22.8	21.6	251085	22.9	20.9	326318	22.9	20.6	240275	23.0	19.5	39905	23.1	18.9
200093	22.7	20.7	133213	22.8	19.6	301240	22.9	21.0	289011								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
402994	23.1	20.9	59282	23.2	17.6	345116	23.2	21.0	145272	23.3	19.8	281314	23.3	19.9	130526	23.4	20.2
240346	23.1	19.8	483729	23.2	22.1	41550	23.2	18.4	405926	23.3	20.5	253151	23.3	21.5	199867	23.4	19.8
448428	23.1	20.9	445077	23.2	22.3	330678	23.2	20.0	402285	23.3	21.1	219828	23.4	20.3	38931	23.4	18.6
19131	23.1	18.7	29184	23.2	17.9	450983	23.2	22.1	538619	23.3	21.2	411279	23.4	20.3	14157	23.4	16.6
238759	23.1	20.0	331278	23.2	20.5	196330	23.2	19.2	338230	23.3	20.0	509367	23.4	21.0	346204	23.4	20.5
64091	23.1	19.0	388274	23.2	21.6	500482	23.2	21.6	151691	23.3	19.4	125836	23.4	18.1	245117	23.4	19.7
226878	23.1	20.5	468192	23.2	20.8	174794	23.2	19.3	201914	23.3	18.9	100649	23.4	20.4	311059	23.4	20.4
392876	23.1	20.6	527058	23.2	21.3	119748	23.2	19.3	239704	23.3	19.8	148538	23.4	20.1	39457	23.4	19.6
1670	23.1	15.5	410529	23.2	20.5	135537	23.2	19.6	427594	23.3	20.7	117197	23.4	18.7	314735	23.4	21.4
240502	23.1	18.6	351637	23.2	21.0	194459	23.2	19.3	111197	23.3	18.8	78518	23.4	18.9	250164	23.4	20.7
453101	23.1	20.9	281430	23.2	20.6	13679	23.2	16.4	349174	23.3	21.7	194309	23.4	21.5	392034	23.4	20.1
63534	23.1	19.8	462688	23.2	20.0	54623	23.2	19.0	499453	23.3	20.5	240397	23.4	20.8	221696	23.4	19.6
79694	23.1	20.0	140269	23.2	20.7	261470	23.2	20.9	522679	23.3	21.1	245035	23.4	20.7	537866	23.4	20.5
532256	23.1	22.0	114282	23.2	19.1	203687	23.2	19.8	212885	23.3	20.6	334471	23.4	20.3	127661	23.4	18.7
498141	23.1	21.6	21461	23.2	16.9	337564	23.2	21.6	529344	23.3	21.4	378414	23.4	21.6	169178	23.4	20.1
270813	23.1	19.6	184384	23.2	19.5	291951	23.2	19.7	427309	23.3	20.5	380014	23.4	20.6	163500	23.4	19.7
47790	23.1	18.6	260051	23.2	19.6	339967	23.2	19.3	397930	23.3	20.3	206391	23.4	19.4	323901	23.4	21.2
448321	23.1	21.7	87461	23.2	20.1	433783	23.2	20.7	490283	23.3	21.6	301803	23.4	20.0	14457	23.4	17.9
130637	23.1	19.9	295711	23.2	21.2	484965	23.2	22.0	285059	23.3	19.9	268048	23.4	19.7	95401	23.4	19.7
382508	23.1	21.4	425098	23.2	22.1	218749	23.2	20.8	30069	23.3	18.7	31574	23.4	17.9	315615	23.4	21.9
421671	23.1	20.7	527567	23.2	21.2	472428	23.2	20.3	27886	23.3	19.0	312910	23.4	20.1	49192	23.4	19.5
122351	23.1	18.5	534107	23.2	21.4	288998	23.2	20.2	466955	23.3	20.8	544151	23.4	21.8	340622	23.4	20.9
210435	23.1	19.8	221182	23.2	20.5	85460	23.2	18.5	373902	23.3	21.2	186133	23.4	19.9	345217	23.4	20.9
532628	23.1	21.8	9814	23.2	19.1	245025	23.2	20.0	411341	23.3	21.0	317969	23.4	21.0	120424	23.4	20.4
335937	23.1	19.4	526549	23.2	22.6	32431	23.2	19.0	393112	23.3	20.5	87428	23.4	18.8	532376	23.4	21.7
187564	23.1	19.9	83903	23.2	19.5	432521	23.2	20.0	226864	23.3	20.0	329005	23.4	19.0	416595	23.4	22.1
19036	23.1	18.8	411278	23.2	22.1	190057	23.2	19.8	114059	23.3	19.2	215495	23.4	20.3	124657	23.4	19.0
11300	23.1	17.8	469515	23.2	20.6	125510	23.2	19.4	490851	23.3	21.2	340747	23.4	21.0	346898	23.4	21.4
500035	23.1	21.6	288077	23.2	19.1	461177	23.2	21.4	147726	23.3	20.4	251035	23.4	20.7	284094	23.4	20.8
30855	23.1	19.6	428263	23.2	20.9	232761	23.2	20.0	525078	23.3	21.7	100546	23.4	17.9	543790	23.4	20.6
360219	23.1	21.2	1542	23.2	15.5	538904	23.2	21.2	69179	23.3	17.2	51363	23.4	19.3	320916	23.4	19.4
456504	23.1	21.7	513631	23.2	21.2	183024	23.2	18.7	178882	23.3	19.6	264927	23.4	21.6	496203	23.4	20.1
46537	23.1	18.8	442643	23.2	20.7	502031	23.2	20.7	79674	23.3	18.9	148134	23.4	19.7	307426	23.4	20.5
24143	23.1	18.6	381889	23.2	20.3	4874	23.2	16.2	423328	23.3	20.9	535850	23.4	21.4	203666	23.4	18.7
484281	23.1	20.3	219143	23.2	19.2	438266	23.2	21.4	65909	23.3	20.0	250235	23.4	20.6	159470	23.4	19.8
130889	23.1	20.3	196804	23.2	19.1	500904	23.2	19.6	360836	23.3	20.6	421348	23.4	20.6	341815	23.4	20.7
244618	23.1	20.4	259869	23.2	20.6	287139	23.2	19.9	39181	23.3	19.1	312329	23.4	21.6	337652	23.4	20.5
350144	23.1	20.3	134885	23.2	19.6	125933	23.2	20.1	28900	23.3	18.0	170131	23.4	20.1	166720	23.4	19.5
430298	23.1	20.8	319978	23.2	20.9	113128	23.2	19.2	310423	23.3	21.3	338268	23.4	21.3	171332	23.4	20.4
356016	23.1	19.5	501447	23.2	21.1	328223	23.2	20.2	194005	23.3	19.7	535048	23.4	21.1	465488	23.4	20.8
18927	23.1	17.9	411409	23.2	21.5	414830	23.2	22.1	464969	23.3	21.4	221835	23.4	19.7	208220	23.4	20.5
246046	23.1	20.4	92442	23.2	17.6	334520	23.2	21.2	26775	23.3	18.0	301156	23.4	20.5	221092	23.4	21.3
85045	23.1	19.5	11954	23.2	16.8	372924	23.2	20.2	154083	23.3	19.1	417119	23.4	20.5	134436	23.4	20.8
396839	23.1	21.0	49259	23.2	17.2	439996	23.2	20.6	74417	23.3	19.8	64359	23.4	18.9	534238	23.4	21.2
273013	23.1	21.0	529163	23.2	20.4	123016	23.2	20.3	242844	23.3	19.2	42462	23.4	19.4	55617	23.4	18.6
174319	23.1	20.6	8700	23.2	16.9	128461	23.2	19.1	151211	23.3	20.3	272146	23.4	19.3	131946	23.5	18.4
286160	23.1	20.6	325555	23.2	19.8	343241	23.2	19.9	52320	23.3	19.1	184092	23.4	18.9	46642	23.5	18.9
131073	23.1	19.5	279477	23.2	19.0	340700	23.2	20.8	417304	23.3	20.6	74150	23.4	19.5	293688	23.5	20.7
462830	23.1	22.1	38897	23.2	18.4	85245	23.2	19.1	233652	23.3	20.4	411912	23.4	20.8	461696	23.5	21.6
412370	23.1	20.3	252479	23.2	20.7	411444	23.2	21.0	27544	23.3	18.8	179946	23.4	20.3	205244	23.5	19.3
319861	23.1	21.1	390246	23.2	21.2	357018	23.3	19.8	14134	23.3	18.4	53069	23.4	18.4	187722	23.5	19.7
355980	23.1	20.8	206199	23.2	19.6	508753	23.3	20.8	12091	23.3	17.1	130139	23.4	19.9	132915	23.5	19.9
425480	23.1	20.5	381957	23.2	20.3	4735	23.3	16.2	245015	23.3	19.8	153819	23.4	20.8	224457	23.5	20.3
286433	23.1	19.6	387521	23.2	20.6	90992	23.3	19.5	67030	23.3	19.6	348415	23.4	20.1	392245	23.5	20.8
90301	23.1	19.0	272161	23.2	19.4	413054	23.3	21.6	205329	23.3	20.4	243258	23.4	19.0	227564	23.5	20.6
32578	23.1	17.8	319770	23.2	21.2	256206	23.3	20.3	532875	23.3	21.6	18650	23.4	18.0	247935	23.5	20.9
544535	23.1	21.3	332384	23.2	19.5	187765	23.3	19.7	415831	23.3	21.3	63333	23.4	18.2	239293	23.5	19.9
138509	23.1	19.6	18125	23.2	18.7	490924	23.3	21.7	32197	23.3	19.2	333197	23.4	20.6	157628	23.5	18.4
363081	23.1	21.5	387196	23.2	22.5	372496	23.3	21.1	207663	23.3	20.4	439957	23.4	20.3	261133	23.5	21.4
154106	23.1	19.5	208410	23.2	20.1	369891	23.3	19.9	424688	23.3	21.5	399494	23.4	22.0	1983	23.5	17.1
134715	23.1	19.6	545027	23.2	21.2	511808	23.3	20.3	258479	23.3	20.0	375610	23.4	21.2	338181	23.5	21.6
247870	23.1	21.0	32765	23.2	19.3	52950	23.3	17.3	317561	23.3	21.0	244339	23.4	19.5	496348	23.5	21.0
183580	23.1	20.6	463369	23.2	19.3	491782	23.3	22.1	473333	23.3	21.4	348808	23.4	21.6	10565	23.5	17.2
519630	23.1	20.3	454453	23.2	20.8	365334	23.3	21.4	462945	23.3	21.5	487799	23.4	20.5	62013	23.5	18.3
495586	23.1	19.7	348890	23.2	21.6	348958	23.3	21.3	61383	23.3	20.0	246184	23.4	20.5	253154	23.5	21.8
458979	23.1	20.6	431227	23.2	21.5	399135	23.3	19.9	193963	23.3	20.2	416037	23.4	19.5	425121	23.5	21.3
12909	23.1	17.6	149563	23.2	18.4	377496	23.3	20.9	122649	23.3	20.2	312588	23.4	19.7	238027	23.5	20.3
221900	23.1	20.7	312971	23.2	21.4	304883	23.3	20.0	409876	23.3	22.5	241149	23.4	19.9	54238	23.5	18.5
458245	23.1	21.6	269428	23.2	21.8	486115	23.3	21.8	202363	23							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
162800	23.5	20.1	193739	23.5	20.3	143432	23.6	18.9	450158	23.7	20.7	136664	23.7	19.7	69679	23.8	18.8
163570	23.5	20.0	243002	23.5	19.7	335989	23.6	20.0	8513	23.7	17.4	280770	23.7	20.6	246477	23.8	20.0
402742	23.5	21.9	502965	23.5	20.5	70991	23.6	17.3	157965	23.7	18.8	8844	23.7	16.8	174994	23.8	18.9
297438	23.5	20.3	208495	23.5	19.8	76432	23.6	18.1	467027	23.7	21.3	532336	23.7	20.5	26777	23.8	19.0
459122	23.5	21.5	444221	23.5	19.9	145701	23.6	20.2	488932	23.7	20.8	306617	23.7	20.1	511045	23.8	21.6
306586	23.5	19.3	283483	23.5	19.6	262853	23.6	19.9	283968	23.7	21.3	163635	23.7	20.0	84949	23.8	18.1
367517	23.5	20.0	214370	23.5	18.9	544310	23.6	21.6	193710	23.7	19.1	250202	23.7	21.7	349534	23.8	21.5
198276	23.5	19.5	354562	23.5	21.4	125654	23.6	19.4	277960	23.7	21.3	459394	23.7	21.0	50291	23.8	17.2
272405	23.5	21.0	531404	23.5	21.1	148177	23.6	19.1	27183	23.7	18.3	197337	23.7	20.7	431473	23.8	21.4
444135	23.5	21.9	239707	23.5	20.5	369541	23.6	20.4	85704	23.7	20.6	142136	23.7	20.8	502899	23.8	20.8
544683	23.5	21.3	61843	23.5	19.9	128252	23.6	19.8	257087	23.7	19.3	203782	23.7	19.8	447780	23.8	21.3
528428	23.5	21.9	118725	23.5	17.9	134577	23.6	18.3	227328	23.7	20.1	90475	23.7	19.1	493905	23.8	19.8
210247	23.5	20.6	179792	23.5	21.3	205564	23.6	19.9	242214	23.7	19.6	113450	23.7	19.2	234933	23.8	18.9
135458	23.5	19.3	231481	23.5	19.1	129709	23.6	20.3	109663	23.7	20.4	83365	23.7	19.2	406202	23.8	21.4
414962	23.5	21.2	456481	23.5	22.5	408829	23.6	21.2	193083	23.7	19.3	522184	23.7	21.6	202023	23.8	21.0
311094	23.5	20.7	135343	23.6	20.3	118127	23.6	19.4	265107	23.7	21.2	231993	23.7	20.0	125639	23.8	19.5
161778	23.5	19.2	132313	23.6	18.7	29863	23.6	16.5	54382	23.7	18.7	129296	23.7	19.6	454345	23.8	20.6
528646	23.5	21.5	245007	23.6	20.1	29062	23.6	17.2	29724	23.7	18.1	271417	23.7	19.2	324532	23.8	21.9
372992	23.5	21.0	206022	23.6	20.9	410030	23.6	21.7	275500	23.7	21.0	28717	23.7	18.2	39622	23.8	18.3
445325	23.5	20.4	49435	23.6	18.4	235594	23.6	20.3	307618	23.7	20.7	535510	23.8	21.8	226731	23.8	19.9
163422	23.5	19.8	494571	23.6	19.5	357645	23.6	18.9	329705	23.7	20.8	504019	23.8	21.7	424341	23.8	20.4
90975	23.5	20.0	6832	23.6	16.9	258078	23.6	20.1	118226	23.7	19.8	434851	23.8	21.3	499088	23.8	20.8
360062	23.5	20.2	392486	23.6	19.9	61126	23.6	18.7	123423	23.7	19.4	162444	23.8	19.6	419148	23.8	20.5
433448	23.5	20.8	421604	23.6	21.2	132092	23.6	20.5	297028	23.7	19.3	538950	23.8	20.6	49351	23.8	17.7
544827	23.5	20.8	337754	23.6	20.3	95738	23.6	18.0	91732	23.7	18.6	85606	23.8	19.2	440447	23.8	21.4
419964	23.5	22.4	443960	23.6	18.8	246196	23.6	19.8	327346	23.7	20.6	318059	23.8	20.0	458189	23.8	22.0
486104	23.5	21.2	186472	23.6	21.2	344562	23.6	20.4	120257	23.7	18.0	324559	23.8	21.2	272298	23.8	20.3
310720	23.5	21.3	490293	23.6	20.4	374148	23.6	21.2	103008	23.7	19.5	495466	23.8	20.1	31642	23.8	18.3
532654	23.5	21.7	199883	23.6	18.9	54886	23.6	19.5	78560	23.7	19.3	277159	23.8	19.8	85035	23.8	20.3
458160	23.5	20.5	508792	23.6	23.6	360830	23.6	19.9	290082	23.7	21.2	498839	23.8	21.4	284081	23.8	20.3
422429	23.5	20.3	407419	23.6	21.9	499448	23.6	19.9	451701	23.7	21.6	163880	23.8	20.6	55929	23.8	18.1
279076	23.5	19.9	522683	23.6	21.3	306437	23.6	20.8	369864	23.7	21.0	194190	23.8	20.6	26361	23.8	17.6
248372	23.5	19.5	544353	23.6	21.4	503022	23.6	20.1	419114	23.7	21.7	154380	23.8	20.7	282079	23.8	18.9
36825	23.5	18.2	134434	23.6	20.7	501379	23.6	20.7	350736	23.7	22.5	218985	23.8	20.4	465714	23.8	21.3
138608	23.5	19.2	385272	23.6	22.5	246494	23.6	21.2	189843	23.7	19.5	116926	23.8	18.8	445201	23.8	20.9
532527	23.5	21.6	341432	23.6	20.4	464131	23.6	20.1	325785	23.7	21.0	171919	23.8	21.6	309434	23.8	21.0
207793	23.5	21.2	182182	23.6	18.6	542837	23.6	20.8	495460	23.7	21.2	152783	23.8	18.8	104993	23.8	20.3
337685	23.5	20.6	329248	23.6	21.5	534652	23.6	21.3	14105	23.7	17.5	544572	23.8	21.9	696399	23.8	18.9
325942	23.5	20.1	118068	23.6	20.1	260772	23.6	19.3	338962	23.7	20.0	452496	23.8	22.1	417165	23.8	21.3
246148	23.5	19.7	489772	23.6	20.4	428853	23.6	21.1	50040	23.7	18.8	411290	23.8	21.2	396586	23.8	20.6
204907	23.5	20.3	490376	23.6	21.1	197594	23.6	20.2	426657	23.7	20.5	56228	23.8	17.5	428475	23.8	20.0
155228	23.5	20.2	264160	23.6	19.6	161634	23.6	20.1	414278	23.7	20.6	18453	23.8	19.0	496176	23.8	21.0
468845	23.5	21.1	76445	23.6	18.3	45390	23.6	17.8	406875	23.7	18.5	7994	23.8	16.7	10215	23.8	19.4
90666	23.5	18.0	345776	23.6	19.5	423843	23.6	20.6	534144	23.7	21.1	89504	23.8	19.8	150951	23.8	20.5
362789	23.5	19.8	149463	23.6	18.5	157900	23.6	20.4	137056	23.7	19.8	503027	23.8	21.0	306516	23.8	21.5
6557	23.5	17.7	287298	23.6	21.0	57821	23.6	19.2	39713	23.7	19.0	367374	23.8	20.7	519196	23.8	20.5
464108	23.5	21.1	120516	23.6	20.0	325788	23.6	21.2	368598	23.7	20.5	167802	23.8	18.5	325172	23.8	20.3
98211	23.5	19.5	352860	23.6	20.9	125973	23.6	20.6	88275	23.7	18.7	529897	23.8	20.9	404405	23.8	21.1
302479	23.5	19.5	163157	23.6	18.9	441621	23.6	21.3	531463	23.7	22.4	179842	23.8	21.1	352772	23.8	21.0
505017	23.5	20.1	335627	23.6	20.5	353430	23.6	20.3	106479	23.7	18.9	343224	23.8	20.7	502101	23.8	20.8
463950	23.5	20.3	127	23.6	12.3	218831	23.6	21.1	322337	23.7	19.6	309460	23.8	21.5	349116	23.8	20.4
486301	23.5	20.9	525232	23.6	19.6	265590	23.6	20.8	445889	23.7	21.3	500467	23.8	21.5	249383	23.8	20.3
98541	23.5	18.8	148845	23.6	19.9	100437	23.6	19.1	287369	23.7	22.2	220340	23.8	20.9	427102	23.8	20.3
38988	23.5	18.7	194612	23.6	21.1	359810	23.6	21.0	393645	23.7	20.9	272162	23.8	20.1	226752	23.8	19.6
106182	23.5	20.2	518542	23.6	21.8	36077	23.6	18.8	235033	23.7	19.0	399935	23.8	20.0	91053	23.8	18.7
256977	23.5	20.3	109734	23.6	19.9	256159	23.6	20.3	231165	23.7	19.8	492672	23.8	20.5	385944	23.8	21.0
15989	23.5	16.3	113836	23.6	19.8	256694	23.6	19.8	143563	23.7	18.2	363142	23.8	21.6	428416	23.8	20.7
410492	23.5	20.0	135411	23.6	19.3	470199	23.6	22.0	9426	23.7	17.9	23319	23.8	16.0	98068	23.9	19.8
324536	23.5	20.0	525454	23.6	20.8	371753	23.6	19.5	269497	23.7	20.5	386512	23.8	20.7	228857	23.9	19.2
127604	23.5	19.0	450910	23.6	21.2	90240	23.6	17.5	473361	23.7	19.7	183967	23.8	19.2	322897	23.9	21.6
368599	23.5	21.7	248003	23.6	20.1	80980	23.6	19.2	187212	23.7	20.1	98127	23.8	19.9	350678	23.9	21.3
417048	23.5	21.4	306054	23.6	19.8	484506	23.6	22.9	3505	23.7	16.8	404722	23.8	20.9	330474	23.9	20.6
369597	23.5	20.9	199826	23.6	20.0	197692	23.6	19.6	110529	23.7	19.2	95893	23.8	18.6	116105	23.9	18.0
267229	23.5	19.8	340712	23.6	20.5	243176	23.6	20.3	418901	23.7	20.5	317069	23.8	20.5	232369	23.9	20.6
317155	23.5	21.3	22050	23.6	17.5	225406	23.6	19.4	456268	23.7	21.8	323497	23.8	20.2	294292	23.9	19.4
364425	23.5	20.7	544465	23.6	21.1	199806	23.6	18.4	218730	23.7	20.2	535060	23.8	20.1	431542	23.9	20.7
221212	23.5	20.7	76758	23.6	18.7	277826	23.6	20.6	371151	23.7	20.5	238052	23.8	20.1	187349	23.9	19.3
169175	23.5	20.6	153303	23.6	18.9	223729	23.6	21.1	447375	23.7	20.0	500398	23.8	20.8	345703	23.9	21.1
455048	23.5	20.1	117175	23.6	19.8	364776	23.6	20.0	26								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
127781	23.9	19.6	531460	23.9	21.8	284354	23.9	20.8	405066	24.1	21.7	307839	24.1	19.2	460255	24.2	21.8
184548	23.9	20.2	256408	23.9	20.9	501423	23.9	21.3	416954	24.1	21.5	245018	24.1	19.4	227457	24.2	20.8
467888	23.9	19.7	82180	23.9	17.9	334585	23.9	20.6	468018	24.1	20.7	26596	24.1	18.2	104330	24.2	19.0
109355	23.9	19.6	251015	23.9	20.7	529176	23.9	22.7	101585	24.1	19.0	340693	24.1	21.2	369853	24.2	20.7
391489	23.9	19.2	111846	23.9	20.6	286030	23.9	20.7	483976	24.1	21.2	456446	24.1	21.3	125534	24.2	18.9
376172	23.9	20.6	377565	23.9	20.2	62027	23.9	18.4	498137	24.1	21.9	235652	24.1	19.8	426006	24.2	20.4
49903	23.9	18.7	3140	23.9	15.8	469218	23.9	19.8	381631	24.1	20.8	430718	24.1	19.9	202015	24.2	20.1
128349	23.9	18.7	264592	23.9	20.7	122508	23.9	19.2	122054	24.1	19.3	436888	24.1	20.7	63867	24.2	18.9
540100	23.9	21.0	420157	23.9	19.5	56578	23.9	17.8	160899	24.1	20.7	439265	24.1	21.0	271883	24.2	19.9
307055	23.9	20.3	490379	23.9	20.4	110150	23.9	19.6	400855	24.1	20.0	419469	24.1	19.4	306352	24.2	21.3
187601	23.9	20.0	333238	23.9	20.3	129423	24.0	21.2	311010	24.1	19.1	462905	24.1	21.5	193200	24.2	20.6
427089	23.9	21.1	503130	23.9	20.7	35009	24.0	19.4	200621	24.1	20.1	151548	24.1	20.4	305043	24.2	21.1
9044	23.9	15.7	172985	23.9	21.7	391083	24.0	20.8	402571	24.1	21.4	194176	24.1	20.7	90830	24.2	19.9
427552	23.9	21.3	38145	23.9	18.0	84944	24.0	19.7	83747	24.1	19.1	167878	24.1	19.6	99361	24.2	19.8
244550	23.9	20.3	529286	23.9	21.4	495144	24.0	20.0	208494	24.1	20.2	313827	24.1	20.2	426384	24.2	21.0
191946	23.9	19.3	166050	23.9	18.2	386253	24.0	21.2	172970	24.1	19.5	74654	24.1	19.7	120740	24.2	19.4
518850	23.9	20.7	522559	23.9	21.1	472235	24.0	21.6	319633	24.1	19.4	347549	24.1	21.0	113957	24.2	19.7
253146	23.9	21.7	374608	23.9	21.2	290869	24.0	20.9	332943	24.1	20.8	208250	24.1	20.4	441392	24.2	20.5
79272	23.9	18.4	473439	23.9	20.5	51967	24.0	17.9	122569	24.1	19.5	201479	24.1	18.9	18163	24.2	18.1
347643	23.9	21.2	538069	23.9	20.7	295697	24.0	20.1	411844	24.1	20.0	390955	24.1	20.8	19465	24.2	18.6
203491	23.9	19.5	54516	23.9	18.5	110936	24.0	19.1	462940	24.1	21.0	132113	24.1	20.2	124560	24.2	18.6
208441	23.9	20.9	362149	23.9	19.9	210460	24.0	19.5	48268	24.1	18.1	212568	24.1	20.8	237634	24.2	20.1
456363	23.9	20.9	117246	23.9	19.9	140035	24.0	20.6	36554	24.1	19.1	14759	24.1	18.5	528780	24.2	21.6
35394	23.9	16.8	46504	23.9	17.9	109149	24.0	18.6	363131	24.1	20.4	261290	24.1	20.4	407476	24.2	22.0
164462	23.9	19.5	18633	23.9	18.6	75377	24.0	19.7	76498	24.1	18.6	49318	24.1	19.8	243972	24.2	20.4
120536	23.9	19.1	119661	23.9	19.8	402704	24.0	21.8	350645	24.1	20.7	456381	24.1	21.9	361582	24.2	21.2
409558	23.9	21.3	440461	23.9	21.1	345129	24.0	20.8	285167	24.1	18.9	262520	24.1	21.1	350005	24.2	20.2
142388	23.9	19.6	11017	23.9	17.2	173155	24.0	17.4	401979	24.1	23.6	88456	24.1	19.7	90831	24.2	19.2
482522	23.9	20.4	519233	23.9	21.8	486062	24.0	21.1	401829	24.1	22.4	216558	24.1	20.4	364403	24.2	21.0
330392	23.9	19.1	144756	23.9	19.7	379019	24.0	20.8	345814	24.1	20.5	341874	24.1	21.0	500553	24.2	21.3
253745	23.9	20.2	496831	23.9	22.1	233636	24.0	20.6	417580	24.1	19.4	248031	24.1	20.0	246758	24.2	19.8
68742	23.9	18.3	48604	23.9	19.3	26978	24.0	18.4	519604	24.1	20.6	433249	24.1	20.9	216256	24.2	19.7
380361	23.9	20.3	484747	23.9	20.3	167052	24.0	21.0	489032	24.1	20.5	421625	24.1	21.4	496543	24.2	21.5
406021	23.9	21.6	19483	23.9	17.1	526098	24.0	21.6	65751	24.1	18.9	418822	24.1	21.1	528490	24.2	21.4
300959	23.9	20.3	241664	23.9	19.8	252605	24.0	20.6	264733	24.1	19.9	379508	24.1	19.9	453833	24.2	21.0
50397	23.9	18.0	142127	23.9	20.6	184090	24.0	19.7	158474	24.1	19.0	14164	24.1	18.4	5365	24.2	16.5
542310	23.9	21.2	494786	23.9	21.4	168231	24.0	19.3	520098	24.1	21.6	264777	24.1	19.6	315815	24.2	20.1
10911	23.9	18.1	185895	23.9	19.0	252382	24.0	20.8	451756	24.1	20.8	201920	24.1	20.8	138177	24.2	18.7
205299	23.9	21.0	174256	23.9	19.7	482851	24.0	21.1	284333	24.1	21.2	69335	24.1	19.8	500574	24.2	21.7
382070	23.9	20.0	527524	23.9	22.4	129673	24.0	19.9	379072	24.1	20.3	344062	24.1	21.4	110486	24.2	20.5
3185	23.9	17.4	453018	23.9	21.3	240898	24.0	19.8	239205	24.1	20.1	310208	24.1	20.2	119684	24.2	19.3
105310	23.9	19.7	299517	23.9	19.7	30559	24.0	19.1	432575	24.1	20.4	314106	24.1	19.3	260082	24.2	18.5
459076	23.9	21.7	105455	23.9	20.7	25888	24.0	18.4	544782	24.1	21.6	445304	24.2	20.4	4557	24.2	16.3
50290	23.9	17.4	252252	23.9	21.0	500213	24.0	19.9	347626	24.1	21.0	144575	24.2	18.7	118009	24.2	20.0
319840	23.9	21.6	359370	23.9	19.4	297499	24.0	21.1	283619	24.1	21.0	498194	24.2	20.9	502765	24.2	20.4
469226	23.9	20.6	337694	23.9	20.1	325967	24.0	21.3	465711	24.1	21.0	209464	24.2	20.3	190949	24.2	20.4
384164	23.9	19.9	383712	23.9	22.1	427559	24.0	21.5	431595	24.1	20.6	498393	24.2	21.8	332390	24.2	20.5
344605	23.9	18.7	202725	23.9	20.9	451102	24.0	20.9	15750	24.1	16.5	543652	24.2	22.1	190172	24.2	20.8
218681	23.9	20.4	411284	23.9	21.6	61020	24.0	18.7	451054	24.1	21.6	165755	24.2	20.7	360292	24.2	19.6
138607	23.9	20.2	452653	23.9	20.1	201035	24.0	20.4	127944	24.1	19.8	343353	24.2	20.2	104028	24.2	19.5
66958	23.9	18.9	155028	23.9	19.8	34542	24.0	18.7	421279	24.1	20.4	158853	24.2	20.4	406039	24.2	22.3
496903	23.9	21.7	98814	23.9	18.8	490737	24.0	20.3	140964	24.1	19.9	428187	24.2	20.3	313523	24.2	20.7
123355	23.9	20.1	424994	23.9	22.3	158919	24.0	18.5	67744	24.1	19.1	177768	24.2	19.2	21032	24.2	16.8
169332	23.9	19.7	275307	23.9	21.4	135199	24.0	20.2	349597	24.1	21.3	330908	24.2	21.0	352647	24.2	21.1
27720	23.9	18.6	238909	23.9	19.2	402325	24.0	20.8	48243	24.1	18.0	39215	24.2	19.0	300132	24.2	20.4
241055	23.9	20.2	399574	23.9	21.2	500432	24.0	22.1	79788	24.1	19.8	221100	24.2	21.1	391031	24.2	20.7
309970	23.9	19.6	26359	23.9	17.1	463390	24.0	21.0	370708	24.1	20.4	287830	24.2	19.3	85846	24.2	19.3
411804	23.9	20.5	266986	23.9	20.8	198081	24.0	20.1	247490	24.1	21.2	43759	24.2	18.3	61799	24.2	19.3
260577	23.9	19.6	493681	23.9	21.0	439403	24.0	20.5	53051	24.1	18.0	505869	24.2	20.1	412744	24.2	21.5
217788	23.9	20.3	208465	23.9	21.4	364297	24.0	20.0	522427	24.1	21.0	402057	24.2	20.7	357534	24.2	21.2
121746	23.9	20.0	433816	23.9	20.1	464985	24.0	21.3	441433	24.1	20.4	132252	24.2	18.4	79965	24.2	18.9
47165	23.9	19.4	496738	23.9	20.9	111452	24.0	19.3	417250	24.1	21.4	483998	24.2	20.4	365833	24.2	18.9
287592	23.9	19.5	473545	23.9	20.7	377442	24.0	20.5	237173	24.1	19.9	259951	24.2	20.5	345081	24.2	20.8
143089	23.9	19.7	64655	23.9	18.8	9943	24.0	18.0	329741	24.1	20.4	493045	24.2	20.7	407802	24.2	21.1
538528	23.9	21.0	114661	23.9	18.7	3108	24.0	17.4	183565	24.1	20.1	408179	24.2	20.5	51079	24.2	19.2
544634	23.9	21.1	521031	23.9	20.5	453313	24.0	20.8	239300	24.1	19.4	51813	24.2	18.6	236305	24.2	20.7
206261	23.9	20.4	508919	23.9	20.1	180728	24.0	19.7	362089	24.1	20.5	206815	24.2	20.3	419052	24.2	21.4
28192	23.9	17.9	227554	23.9	20.3	8211	24.0	17.9	384178	24.1	20.4	450561	24.2	20.9	445570	24.2	22.1
195118	23.9	20.0	61707	23.9	19.3	263813	24.1	21.2	440019								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
382656	24.3	22.3	542780	24.3	20.3	373968	24.4	21.1	155470	24.5	20.7	314176	24.5	19.7	435197	24.6	21.5
83661	24.3	19.3	275680	24.3	21.7	543233	24.4	21.6	239492	24.5	20.6	266924	24.5	20.9	530121	24.6	23.1
79349	24.3	18.9	402636	24.3	21.7	126268	24.4	19.2	55995	24.5	20.2	452383	24.5	19.6	264713	24.6	19.9
427304	24.3	20.1	100823	24.3	19.5	455472	24.4	21.0	66883	24.5	19.9	392302	24.5	21.4	268052	24.6	20.7
198230	24.3	18.8	168279	24.3	20.7	194354	24.4	20.7	265373	24.5	18.8	238542	24.5	18.1	293257	24.6	20.6
97790	24.3	19.1	100189	24.3	19.5	340774	24.4	20.4	522186	24.5	20.1	218647	24.5	20.1	299631	24.6	20.8
300514	24.3	19.4	492896	24.3	20.9	150343	24.4	20.1	218721	24.5	19.7	154966	24.5	20.0	526564	24.6	21.8
261017	24.3	20.7	223780	24.3	21.4	499990	24.4	21.3	226844	24.5	20.1	237111	24.6	20.8	238353	24.6	19.9
166905	24.3	20.3	57998	24.3	19.6	458436	24.4	21.7	125233	24.5	19.4	87774	24.6	19.4	422529	24.6	21.2
498361	24.3	20.7	72184	24.3	18.8	32669	24.4	19.9	337762	24.5	20.7	513860	24.6	19.9	503145	24.6	20.7
425140	24.3	21.3	38608	24.3	18.8	368689	24.4	20.3	205929	24.5	19.4	307606	24.6	21.0	173781	24.6	20.1
482811	24.3	20.9	18691	24.3	17.6	5150	24.4	16.0	154315	24.5	19.7	230577	24.6	19.7	49615	24.6	19.1
287533	24.3	19.9	99520	24.3	19.4	56965	24.4	18.7	173145	24.5	20.9	109020	24.6	19.7	543336	24.6	21.4
145912	24.3	20.2	458880	24.3	21.8	160764	24.4	20.5	389161	24.5	20.4	349538	24.6	20.9	345105	24.6	20.1
222268	24.3	18.9	326027	24.3	21.1	496065	24.4	21.6	347388	24.5	20.6	59226	24.6	18.5	157270	24.6	19.8
102400	24.3	19.9	301769	24.3	19.9	425452	24.4	19.5	82905	24.5	18.9	352684	24.6	19.9	265716	24.6	21.0
301995	24.3	19.9	169326	24.3	19.9	528089	24.4	19.7	53258	24.5	17.1	531471	24.6	19.9	240061	24.6	20.2
291450	24.3	20.1	16253	24.3	18.7	351255	24.4	21.1	106177	24.5	18.7	327489	24.6	20.0	293481	24.6	19.1
403877	24.3	20.7	282816	24.3	20.6	277802	24.4	19.2	224675	24.5	20.1	118034	24.6	20.0	179920	24.6	20.9
39064	24.3	19.0	52699	24.3	18.1	178202	24.4	20.3	150352	24.5	20.2	189323	24.6	19.0	527593	24.6	20.9
237702	24.3	20.9	378766	24.3	21.4	290529	24.4	20.6	94704	24.5	19.3	420928	24.6	21.1	460200	24.6	21.1
530095	24.3	22.2	493399	24.3	20.9	120291	24.4	19.9	367548	24.5	20.4	231897	24.6	20.7	37337	24.6	18.7
167583	24.3	19.6	528478	24.4	21.7	433099	24.4	20.8	498221	24.5	22.2	128593	24.6	20.2	452050	24.6	20.2
288938	24.3	20.9	148717	24.4	19.7	190734	24.4	20.7	494662	24.5	21.4	113819	24.6	19.5	172002	24.6	19.2
519356	24.3	21.2	18107	24.4	18.6	143699	24.4	19.4	109007	24.5	19.6	21756	24.6	17.8	238534	24.6	20.2
301251	24.3	20.2	61788	24.4	18.2	323781	24.4	20.6	162206	24.5	20.6	333029	24.6	20.2	433138	24.6	21.2
136513	24.3	18.3	373359	24.4	20.8	69686	24.4	18.2	69218	24.5	18.3	194523	24.6	19.5	483935	24.6	21.6
272668	24.3	21.3	37380	24.4	19.6	153384	24.4	19.3	439977	24.5	22.0	327928	24.6	18.5	185281	24.6	20.4
274165	24.3	20.4	4984	24.4	17.4	194777	24.4	21.1	10106	24.5	18.4	341560	24.6	20.6	219796	24.6	20.9
453134	24.3	21.5	130509	24.4	19.9	276369	24.4	19.9	57870	24.5	19.2	368614	24.6	21.4	188322	24.6	18.8
334623	24.3	20.6	306349	24.4	21.6	319595	24.4	21.3	519570	24.5	20.4	454975	24.6	20.8	544610	24.6	20.0
299544	24.3	20.2	430335	24.4	20.9	534891	24.4	20.5	235405	24.5	20.3	214323	24.6	19.7	109923	24.6	19.2
403014	24.3	21.6	222344	24.4	19.9	518147	24.4	21.5	203617	24.5	20.6	229612	24.6	20.6	37500	24.6	18.7
119972	24.3	20.3	168702	24.4	19.5	143314	24.4	20.5	444195	24.5	20.3	89435	24.6	18.7	210148	24.6	20.3
266899	24.3	19.6	179819	24.4	20.3	541572	24.4	20.6	340621	24.5	20.5	355875	24.6	21.7	230525	24.6	20.0
543304	24.3	21.3	188054	24.4	20.1	345547	24.4	21.1	52695	24.5	18.2	414955	24.6	21.6	62098	24.6	19.5
236914	24.3	20.7	381698	24.4	21.5	342980	24.4	20.3	79479	24.5	18.5	176785	24.6	21.0	199888	24.6	19.5
317532	24.3	20.0	37103	24.4	18.6	390602	24.4	20.3	6814	24.5	17.0	531349	24.6	21.7	386985	24.6	20.9
241715	24.3	21.3	330450	24.4	20.7	165916	24.4	19.8	405076	24.5	21.1	83775	24.6	18.8	300324	24.6	20.6
257562	24.3	21.3	486076	24.4	21.8	93849	24.4	19.1	339561	24.5	21.0	331409	24.6	18.9	176026	24.6	20.9
377215	24.3	21.1	498245	24.4	20.7	470888	24.4	20.5	490363	24.5	20.7	37413	24.6	18.1	419984	24.6	21.3
393418	24.3	20.3	375304	24.4	21.2	178288	24.4	20.4	446845	24.5	19.5	413524	24.6	20.8	496818	24.6	21.9
544638	24.3	22.3	330095	24.4	20.4	26842	24.4	18.5	433851	24.5	21.5	200944	24.6	21.3	368623	24.6	20.7
488732	24.3	22.2	5499	24.4	17.3	83476	24.4	19.5	410604	24.5	20.8	348617	24.6	21.0	124752	24.6	19.6
30556	24.3	19.0	258152	24.4	21.1	341217	24.4	20.7	496511	24.5	20.8	411412	24.6	21.4	337385	24.6	21.0
334903	24.3	20.6	242649	24.4	19.5	156524	24.4	20.0	239898	24.5	21.3	192103	24.6	19.6	36565	24.6	18.4
194173	24.3	19.7	491826	24.4	21.6	463709	24.4	21.6	118116	24.5	19.5	426725	24.6	21.1	458253	24.7	21.7
279652	24.3	19.1	530716	24.4	21.4	82059	24.4	19.5	229060	24.5	19.6	328642	24.6	20.9	296599	24.7	21.2
75616	24.3	19.0	75918	24.4	17.5	516898	24.4	20.5	59272	24.5	19.1	498178	24.6	21.5	210823	24.7	20.1
318767	24.3	19.8	336755	24.4	19.6	525699	24.4	21.3	60530	24.5	19.1	530189	24.6	21.9	49405	24.7	19.2
523785	24.3	23.5	368575	24.4	19.5	340117	24.4	20.6	337707	24.5	20.6	243557	24.6	19.4	524205	24.7	22.3
295992	24.3	19.7	429021	24.4	21.0	81887	24.4	18.9	439893	24.5	22.2	245623	24.6	19.1	9600	24.7	18.6
406007	24.3	21.9	207558	24.4	21.0	143162	24.4	19.1	52198	24.5	18.4	43308	24.6	19.0	95983	24.7	18.7
531335	24.3	21.3	218649	24.4	19.8	532832	24.4	21.8	364782	24.5	20.9	228410	24.6	18.7	494073	24.7	20.0
85685	24.3	18.8	246702	24.4	20.5	181426	24.4	20.5	432576	24.5	20.7	266955	24.6	20.5	294247	24.7	21.3
496360	24.3	21.5	6183	24.4	18.4	399956	24.5	19.8	411268	24.5	18.5	433577	24.6	20.8	80246	24.7	18.9
523918	24.3	21.2	334620	24.4	20.6	333861	24.5	21.3	10815	24.5	19.0	458203	24.6	22.3	133889	24.7	19.2
299121	24.3	19.6	112860	24.4	19.4	468367	24.5	19.6	454251	24.5	19.8	205228	24.6	20.4	123281	24.7	19.4
135495	24.3	20.4	344339	24.4	20.9	289045	24.5	21.3	8819	24.5	18.0	237299	24.6	19.7	239891	24.7	20.1
39322	24.3	18.2	149395	24.4	20.1	209148	24.5	18.7	528716	24.5	21.0	156229	24.6	19.5	72653	24.7	18.6
415847	24.3	20.8	536466	24.4	21.6	454393	24.5	20.6	80076	24.5	18.5	50801	24.6	18.6	259037	24.7	21.4
364122	24.3	21.3	208373	24.4	20.9	55242	24.5	19.7	11719	24.5	17.6	343555	24.6	20.4	78068	24.7	18.8
22322	24.3	17.7	369335	24.4	21.6	460762	24.5	20.2	275218	24.5	21.2	393959	24.6	19.6	135394	24.7	19.5
210994	24.3	21.2	266111	24.4	20.5	262352	24.5	20.9	496068	24.5	21.8	501427	24.6	21.7	136665	24.7	19.7
163616	24.3	19.7	410048	24.4	20.5	236044	24.5	20.2	286300	24.5	20.9	163933	24.6	20.0	199820	24.7	20.1
68496	24.3	18.7	83317	24.4	19.2	356488	24.5	19.7	282998	24.5	20.5	288573	24.6	20.0	521033	24.7	20.1
318768	24.3	20.3	73523	24.4	18.8	190336	24.5	20.6	525046	24.5	22.6	465572	24.6	20.6	135058	24.7	19.2
115476	24.3	19.2	337821	24.4	21.1	185036	24.5	20.1	337676	24.5	20.3	426193	24.6	21.1	23873	24.7	18.0
347002	24.3	20.9	219329	24.4	21.2	347520	24.5	21.7	98191								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
107801	24.7	18.2	83942	24.8	20.6	529233	24.8	21.5	58310	24.9	20.0	385509	24.9	18.8	540446	25.0	21.5
427809	24.7	20.4	168203	24.8	19.9	333781	24.8	20.1	387592	24.9	21.5	143970	24.9	19.8	525850	25.0	22.3
17505	24.7	17.6	294067	24.8	19.8	89553	24.8	19.9	27347	24.9	17.8	323882	24.9	20.7	400813	25.0	20.3
35433	24.7	17.6	203076	24.8	21.0	403591	24.8	20.8	113557	24.9	19.7	51764	24.9	18.7	482892	25.0	19.7
491018	24.7	22.0	33259	24.8	18.5	340648	24.8	21.0	408737	24.9	20.4	540081	24.9	20.4	215052	25.0	20.9
390404	24.7	20.7	403376	24.8	20.0	204573	24.8	20.1	306371	24.9	20.9	58041	24.9	18.7	273011	25.0	20.2
41487	24.7	19.4	10669	24.8	16.6	210105	24.8	19.6	339847	24.9	20.9	89968	24.9	20.0	354569	25.0	20.7
1866	24.7	16.9	31128	24.8	20.0	528830	24.8	22.1	15196	24.9	19.9	317602	24.9	21.4	485077	25.0	20.9
495679	24.7	21.6	437204	24.8	21.0	22445	24.8	17.9	307660	24.9	22.1	228030	24.9	19.3	122346	25.0	21.0
281321	24.7	19.9	73077	24.8	18.6	309220	24.8	20.7	124340	24.9	18.2	428349	24.9	21.0	149597	25.0	19.9
405397	24.7	20.1	169256	24.8	20.2	336042	24.8	21.3	429280	24.9	21.2	252232	24.9	20.0	377167	25.0	21.5
52907	24.7	18.7	57652	24.8	20.0	542197	24.8	20.9	453270	24.9	22.6	378934	24.9	20.8	362158	25.0	20.9
51966	24.7	18.3	273417	24.8	21.4	414257	24.8	20.5	245262	24.9	20.6	469222	24.9	20.7	431306	25.0	21.1
426560	24.7	21.3	525708	24.8	21.9	456501	24.8	22.0	383798	24.9	20.8	12791	24.9	17.6	420629	25.0	20.3
340790	24.7	20.1	397898	24.8	21.5	497832	24.8	22.6	404804	24.9	20.8	164845	24.9	20.8	87045	25.0	19.3
430908	24.7	21.4	185699	24.8	20.8	426996	24.8	21.9	348522	24.9	21.2	521849	24.9	21.6	186204	25.0	18.5
82868	24.7	19.1	331942	24.8	20.8	96721	24.8	17.8	412281	24.9	20.4	183588	24.9	21.1	362990	25.0	19.4
194257	24.7	21.1	522090	24.8	20.1	74139	24.8	17.8	79904	24.9	17.8	265335	24.9	19.2	427523	25.0	20.0
318893	24.7	19.8	415902	24.8	21.6	398191	24.8	20.3	420124	24.9	20.4	236096	24.9	19.7	406709	25.0	20.8
103411	24.7	19.0	231172	24.8	20.7	176337	24.8	18.7	288831	24.9	20.6	467475	24.9	22.2	198313	25.0	21.1
304818	24.7	21.5	323938	24.8	21.0	226596	24.8	20.4	389177	24.9	21.1	5301	24.9	17.4	41831	25.0	18.8
206211	24.7	20.2	55324	24.8	18.0	10894	24.8	17.6	493298	24.9	20.5	532183	24.9	21.2	406152	25.0	21.5
393715	24.7	20.5	194491	24.8	20.1	320827	24.8	20.5	397916	24.9	21.4	258303	24.9	21.2	357596	25.0	20.7
344567	24.7	21.3	9162	24.8	20.1	26526	24.8	17.1	384859	24.9	21.8	104118	24.9	19.6	153771	25.0	19.4
321959	24.7	21.1	87264	24.8	19.3	497251	24.8	20.5	491943	24.9	21.5	204219	24.9	19.2	426495	25.0	21.4
197470	24.7	18.1	334290	24.8	21.4	171969	24.8	19.3	542788	24.9	20.3	130843	24.9	20.4	384845	25.0	21.4
332150	24.7	21.1	405011	24.8	21.0	173489	24.8	19.9	69774	24.9	18.3	424639	24.9	21.1	21442	25.0	18.4
122712	24.7	18.8	341580	24.8	21.7	130618	24.8	19.9	190965	24.9	20.5	377178	24.9	21.5	287402	25.0	21.1
329064	24.7	20.9	531427	24.8	21.4	138165	24.8	18.5	375436	24.9	20.9	532635	24.9	22.5	427299	25.0	21.0
196217	24.7	19.4	158550	24.8	19.9	368612	24.8	21.3	343099	24.9	20.9	265728	24.9	20.3	319700	25.0	20.8
489293	24.7	20.5	136390	24.8	19.4	155178	24.8	20.2	193093	24.9	18.9	68515	24.9	19.5	408897	25.0	20.2
496866	24.7	19.3	300356	24.8	20.0	113939	24.8	19.4	427769	24.9	22.5	360600	24.9	19.5	239557	25.0	19.1
385247	24.7	20.5	433655	24.8	21.7	303659	24.8	19.1	87373	24.9	19.6	506657	24.9	21.8	315785	25.0	20.7
151875	24.7	19.6	50561	24.8	19.1	227857	24.8	20.2	22146	24.9	18.7	347287	24.9	20.1	544300	25.0	20.8
532630	24.7	21.8	325671	24.8	20.7	472570	24.8	20.9	19629	24.9	17.7	97912	24.9	19.5	56138	25.0	18.8
28938	24.7	17.4	69208	24.8	18.9	502656	24.8	20.3	496606	24.9	21.1	217574	24.9	19.5	89173	25.0	19.4
423543	24.7	21.1	18210	24.8	19.0	544752	24.8	21.2	174232	24.9	20.3	343117	24.9	19.9	51872	25.0	18.4
58666	24.7	18.5	280880	24.8	21.5	152383	24.8	19.2	161718	24.9	20.2	411918	24.9	20.2	244029	25.0	21.2
234396	24.7	20.5	307814	24.8	21.5	200389	24.8	20.0	379884	24.9	20.0	354515	24.9	21.7	376628	25.0	20.7
449602	24.7	20.0	184085	24.8	19.0	309591	24.8	19.7	20081	24.9	17.2	345102	24.9	20.8	216865	25.0	20.8
163501	24.7	19.9	426379	24.8	21.6	4170	24.9	15.9	313776	24.9	20.6	437795	24.9	19.9	8777	25.0	16.6
458257	24.7	21.3	205561	24.8	19.8	367578	24.9	22.0	466946	24.9	19.8	201016	24.9	18.8	498115	25.0	22.0
227694	24.7	20.0	231849	24.8	20.2	120449	24.9	19.4	158562	24.9	19.3	432139	24.9	20.9	58620	25.0	18.4
378710	24.7	20.7	228273	24.8	20.1	377449	24.9	20.9	322386	24.9	18.8	377221	24.9	20.6	396727	25.0	20.1
473987	24.7	20.5	211574	24.8	20.8	191965	24.9	20.3	482806	24.9	20.9	82393	24.9	18.7	421838	25.0	21.1
423377	24.7	19.5	72535	24.8	18.5	7334	24.9	17.1	221649	24.9	20.2	148929	24.9	19.6	532239	25.0	21.5
249345	24.7	20.3	376498	24.8	19.9	168300	24.9	20.4	321251	24.9	20.6	230555	24.9	19.6	116363	25.0	20.2
410514	24.7	20.5	360795	24.8	21.0	428502	24.9	21.1	284451	24.9	19.1	271100	24.9	19.9	347737	25.1	20.5
45942	24.7	18.2	29510	24.8	18.6	67872	24.9	19.3	80098	24.9	19.5	179914	24.9	21.0	536056	25.1	20.6
375654	24.7	21.4	47318	24.8	17.1	538970	24.9	21.3	157743	24.9	20.4	371209	24.9	21.3	169383	25.1	20.3
251754	24.7	19.7	379767	24.8	20.5	39366	24.9	17.4	462287	24.9	21.7	511530	24.9	20.7	37266	25.1	17.9
9095	24.7	17.7	309335	24.8	21.7	278055	24.9	19.3	271402	24.9	20.8	168543	24.9	19.9	343007	25.1	20.4
421051	24.7	21.4	414833	24.8	21.0	429273	24.9	20.0	203672	24.9	19.7	300208	25.0	21.0	481100	25.1	21.7
240514	24.7	18.1	426463	24.8	21.2	82694	24.9	18.4	188981	24.9	19.3	333688	25.0	20.9	255813	25.1	21.1
397210	24.7	20.7	543905	24.8	21.2	393417	24.9	20.7	253978	24.9	20.4	83116	25.0	18.9	143623	25.1	19.2
453859	24.7	21.0	463580	24.8	21.2	87052	24.9	18.6	81115	24.9	19.9	176080	25.0	19.2	122324	25.1	20.0
101594	24.7	19.1	328542	24.8	20.4	221970	24.9	20.4	163645	24.9	19.9	144433	25.0	19.3	524086	25.1	20.9
66890	24.7	19.2	421804	24.8	20.1	296090	24.9	21.5	14618	24.9	17.3	137373	25.0	19.7	52910	25.1	19.5
464263	24.7	20.8	249021	24.8	20.4	188354	24.9	19.4	382190	24.9	19.5	13390	25.0	17.3	92551	25.1	19.4
208037	24.7	18.8	278686	24.8	21.1	165727	24.9	19.9	498338	24.9	21.5	233052	25.0	19.5	149494	25.1	19.9
429914	24.7	20.9	543862	24.8	21.8	196170	24.9	18.8	506550	24.9	20.7	543791	25.0	21.3	399478	25.1	21.9
107437	24.7	19.3	187658	24.8	19.8	256096	24.9	19.9	532134	24.9	21.1	63934	25.0	18.1	459185	25.1	20.8
119556	24.7	19.0	46613	24.8	19.4	146015	24.9	17.9	521924	24.9	20.4	327237	25.0	20.5	236256	25.1	19.6
496783	24.7	20.1	425398	24.8	20.8	109980	24.9	19.6	495117	24.9	21.0	38147	25.0	17.6	399462	25.1	21.5
135831	24.7	19.5	393992	24.8	19.6	419127	24.9	20.9	378887	24.9	20.9	224821	25.0	19.8	137926	25.1	18.9
337619	24.7	20.6	496245	24.8	20.5	23535	24.9	18.7	61032	24.9	18.4	57093	25.0	19.1	47213	25.1	17.2
428810	24.7	20.5	377528	24.8	19.3	461969	24.9	22.5	343212	24.9	20.0	289688	25.0	20.1	336514	25.1	20.2
299592	24.7	20.8	258182	24.8	20.0	457104	24.9	20.4	406064	24.9	22.1	21476	25.0	16.2	218630	25.1	20.2
307351	24.7	21.3	311064	24.8	20.5	349590	24.9	21.1	410443	24.9							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
135066	25.1	19.5	136783	25.1	20.5	534529	25.2	21.2	998	25.3	17.1	75877	25.3	19.2	117425	25.4	19.2
332429	25.1	20.7	202656	25.1	20.0	543238	25.2	21.9	102346	25.3	19.6	329798	25.3	20.9	311098	25.4	20.5
139484	25.1	19.6	440422	25.1	21.0	288899	25.2	21.2	293081	25.3	20.2	544392	25.3	21.2	237675	25.4	20.6
369548	25.1	20.3	62140	25.1	19.1	275045	25.2	21.6	85106	25.3	18.4	433059	25.3	21.1	2399	25.4	16.0
178995	25.1	20.0	41750	25.1	19.3	402269	25.2	21.9	345273	25.3	21.3	120950	25.3	19.2	97335	25.4	18.9
360588	25.1	20.4	341459	25.1	21.1	364219	25.2	20.1	76145	25.3	19.5	132152	25.3	19.4	149793	25.4	19.7
341689	25.1	20.7	331960	25.2	20.2	354558	25.2	21.7	18179	25.3	17.3	318959	25.3	20.4	281294	25.4	20.9
359081	25.1	21.1	264685	25.2	20.0	309370	25.2	20.9	368140	25.3	20.3	432209	25.3	20.4	524390	25.4	22.8
81021	25.1	17.3	317562	25.2	21.4	186893	25.2	20.1	183235	25.3	20.4	91027	25.3	18.6	192280	25.4	20.8
544936	25.1	21.4	95815	25.2	18.7	321147	25.2	21.2	84195	25.3	18.3	204712	25.3	18.9	194714	25.4	19.6
298372	25.1	21.2	297498	25.2	22.0	219435	25.2	20.8	230873	25.3	19.6	3242	25.3	16.7	30892	25.4	18.7
237434	25.1	20.7	42797	25.2	17.7	29174	25.2	18.7	436930	25.3	20.6	232962	25.3	19.9	384186	25.4	20.9
486724	25.1	19.5	379081	25.2	21.5	232410	25.2	20.2	63896	25.3	19.2	119992	25.3	19.5	82650	25.4	19.5
316588	25.1	20.6	345532	25.2	21.1	500008	25.2	21.0	72260	25.3	19.0	156948	25.3	19.9	88778	25.4	19.0
495248	25.1	20.9	247593	25.2	20.5	342895	25.2	20.4	493720	25.3	22.7	88281	25.3	19.3	319622	25.4	20.9
534241	25.1	21.4	209860	25.2	19.0	129554	25.2	19.1	424766	25.3	20.7	92241	25.4	19.7	456728	25.4	22.0
155397	25.1	19.6	178944	25.2	19.6	490296	25.2	22.0	149752	25.3	19.3	411338	25.4	20.3	117021	25.4	19.0
198868	25.1	18.8	445072	25.2	21.7	252356	25.2	20.9	451006	25.3	21.9	100052	25.4	18.7	394802	25.4	19.4
30468	25.1	17.9	86708	25.2	18.6	243006	25.2	20.1	111288	25.3	18.9	498989	25.4	21.6	484068	25.4	19.7
41418	25.1	18.3	304802	25.2	20.5	167550	25.2	20.2	84614	25.3	18.2	110392	25.4	20.4	245190	25.4	20.6
138194	25.1	18.9	153332	25.2	19.4	43646	25.2	18.7	320885	25.3	20.3	423242	25.4	20.3	183700	25.4	20.4
419453	25.1	19.9	372982	25.2	21.3	176519	25.2	21.0	443305	25.3	20.7	258193	25.4	20.7	419057	25.4	21.7
52288	25.1	19.8	182119	25.2	19.9	347443	25.2	21.3	541643	25.3	21.1	239255	25.4	20.0	109822	25.4	19.2
403009	25.1	20.6	120599	25.2	20.7	419979	25.2	20.6	238905	25.3	20.7	199414	25.4	19.2	134378	25.4	19.7
33194	25.1	18.3	308627	25.2	20.2	86018	25.2	18.5	532777	25.3	22.3	127149	25.4	19.8	524496	25.4	23.2
200721	25.1	19.0	163751	25.2	19.5	232427	25.2	19.5	403909	25.3	21.7	204168	25.4	20.6	107215	25.4	18.9
429036	25.1	20.5	350632	25.2	21.4	338352	25.2	20.3	529358	25.3	21.6	420559	25.4	20.4	490154	25.4	22.4
330332	25.1	21.5	356048	25.2	19.6	269997	25.2	21.9	40001	25.3	17.2	258530	25.4	19.9	387372	25.4	21.4
447194	25.1	21.5	502089	25.2	20.5	411351	25.2	21.3	330903	25.3	21.3	465257	25.4	21.4	360138	25.4	21.4
372922	25.1	20.8	384967	25.2	20.3	118763	25.2	19.7	384940	25.3	21.5	321789	25.4	21.1	267613	25.4	19.7
467703	25.1	21.1	299827	25.2	20.1	148597	25.2	20.5	11721	25.3	18.1	88355	25.4	19.3	484080	25.4	20.3
8212	25.1	16.2	274492	25.2	20.2	414237	25.2	20.7	138839	25.3	20.1	275740	25.4	19.3	106265	25.4	20.0
171677	25.1	20.2	140431	25.2	19.5	313894	25.2	20.0	381641	25.3	20.5	215507	25.4	21.5	196612	25.4	19.1
423287	25.1	20.5	151936	25.2	18.5	407405	25.2	20.7	82922	25.3	20.4	84468	25.4	19.3	138566	25.4	20.0
284835	25.1	20.3	90328	25.2	18.2	388420	25.2	21.0	465795	25.3	20.4	393458	25.4	20.4	200385	25.4	19.6
199551	25.1	20.2	298791	25.2	19.8	339731	25.2	21.4	538573	25.3	21.0	350695	25.4	21.1	249210	25.4	20.0
203598	25.1	19.8	18788	25.2	18.4	238347	25.2	19.7	384624	25.3	21.5	158976	25.4	20.2	102870	25.4	19.4
384162	25.1	20.3	369351	25.2	21.0	452439	25.2	21.6	379494	25.3	21.1	244758	25.4	19.8	498256	25.4	21.9
488653	25.1	20.8	414834	25.2	21.5	487200	25.2	20.0	499965	25.3	20.0	399067	25.4	20.1	125581	25.4	19.5
430166	25.1	22.0	450812	25.2	21.3	143373	25.2	18.9	204374	25.3	19.6	391808	25.4	19.6	313586	25.4	19.1
84746	25.1	19.6	281136	25.2	19.6	449132	25.2	21.8	44457	25.3	19.3	428882	25.4	20.8	40748	25.4	18.6
169215	25.1	19.7	250265	25.2	20.9	475318	25.2	20.6	135971	25.3	20.9	452479	25.4	20.5	182611	25.4	20.5
409993	25.1	20.9	217639	25.2	22.1	205370	25.2	20.1	36765	25.3	18.8	306328	25.4	21.0	284011	25.4	21.2
307799	25.1	20.2	421524	25.2	20.5	527482	25.2	22.1	465653	25.3	20.8	266388	25.4	20.1	515758	25.4	20.1
287580	25.1	20.2	79492	25.2	19.0	388096	25.2	19.6	541599	25.3	21.0	40852	25.4	19.4	387371	25.4	19.7
430084	25.1	21.1	408750	25.2	22.0	200948	25.2	19.7	404203	25.3	19.8	210941	25.4	20.1	171970	25.4	19.6
229098	25.1	20.5	407374	25.2	21.3	177809	25.2	20.2	367547	25.3	21.9	323783	25.4	21.3	84883	25.4	18.7
493677	25.1	20.8	419421	25.2	21.3	138339	25.2	18.5	431286	25.3	21.0	250215	25.4	21.7	243412	25.4	20.9
266697	25.1	21.2	520728	25.2	21.5	246630	25.2	20.5	370808	25.3	21.2	429903	25.4	20.7	522675	25.4	20.5
527	25.1	14.5	317615	25.2	18.6	17114	25.2	17.6	241352	25.3	19.3	368808	25.4	20.8	527695	25.4	22.4
132251	25.1	18.9	527158	25.2	21.6	90271	25.2	19.0	433320	25.3	21.1	338961	25.4	19.8	406609	25.4	20.9
454669	25.1	20.8	416607	25.2	21.3	2347	25.3	17.0	524283	25.3	21.2	445896	25.4	21.0	139352	25.4	18.9
277549	25.1	20.8	300882	25.2	21.1	462638	25.3	21.4	319581	25.3	20.8	463268	25.4	20.3	390526	25.4	20.4
84770	25.1	19.4	438453	25.2	21.1	223770	25.3	20.3	406654	25.3	21.3	140634	25.4	19.9	528732	25.4	20.8
447402	25.1	20.7	452460	25.2	21.7	354552	25.3	21.7	268800	25.3	19.8	355899	25.4	21.3	240339	25.4	19.5
277694	25.1	19.2	317861	25.2	20.1	4001	25.3	16.8	238789	25.3	19.5	105944	25.4	19.3	166883	25.4	19.7
266916	25.1	18.9	380688	25.2	20.5	461949	25.3	22.9	241477	25.3	20.5	504825	25.4	21.1	243853	25.4	19.4
376556	25.1	20.9	372673	25.2	21.3	95029	25.3	19.9	434469	25.3	20.2	137016	25.4	21.0	360584	25.4	20.7
238380	25.1	19.2	244679	25.2	20.3	344249	25.3	21.1	536617	25.3	21.4	220552	25.4	18.5	245495	25.4	20.0
531736	25.1	22.4	272595	25.2	21.1	57240	25.3	18.5	519852	25.3	21.6	497642	25.4	22.5	47427	25.4	18.1
532786	25.1	20.7	179829	25.2	20.9	516172	25.3	21.1	217252	25.3	20.4	377243	25.4	20.9	153038	25.4	19.7
467275	25.1	21.1	272391	25.2	20.0	57583	25.3	19.7	417307	25.3	20.7	408838	25.4	21.9	424954	25.4	20.6
536334	25.1	21.1	326473	25.2	19.9	409333	25.3	20.3	382866	25.3	20.6	322812	25.4	21.1	240348	25.4	20.9
317382	25.1	20.6	193876	25.2	20.6	305746	25.3	21.5	15427	25.3	15.4	92837	25.4	20.5	151212	25.4	21.3
365921	25.1	21.1	426559	25.2	21.0	404828	25.3	19.3	498205	25.3	21.3	366773	25.4	19.7	506543	25.4	20.7
497913	25.1	21.6	191274	25.2	20.1	181615	25.3	19.6	183425	25.3	19.9	303731	25.4	20.2	200848	25.4	20.4
202938	25.1	19.5	291204	25.2	21.7	197087	25.3	19.9	402859	25.3	20.6	181771	25.4	18.4	350670	25.4	21.6
429269	25.1	20.1	177516	25.2	20.0	35701	25.3	17.9	40642	25.3	19.3	177556	25.4	19.1	495917	25.4	20.3
40433	25.1	18.4	366227	25.2	21.1	224934	25.3	19.4									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
8141	25.4	17.8	489638	25.5	21.3	492449	25.6	20.3	77664	25.7	19.1	414479	25.7	21.4	532261	25.8	21.5
409287	25.4	20.1	47527	25.5	18.7	291566	25.6	20.4	66496	25.7	18.1	325358	25.7	20.2	384174	25.8	21.2
362109	25.4	21.6	345724	25.5	19.7	420567	25.6	20.1	348859	25.7	20.7	359181	25.7	20.6	462664	25.8	21.0
378905	25.4	21.2	459291	25.5	20.5	49625	25.6	19.2	15194	25.7	18.5	154260	25.7	18.7	331085	25.8	20.9
190853	25.4	20.1	67401	25.5	19.2	542867	25.6	20.3	357498	25.7	21.0	286542	25.7	19.4	544725	25.8	20.1
287579	25.4	20.2	155181	25.5	19.7	444420	25.6	21.0	135074	25.7	19.6	500063	25.7	21.0	258232	25.8	20.5
375820	25.4	19.8	465728	25.5	21.2	121079	25.6	19.6	134195	25.7	19.8	439986	25.7	21.7	76376	25.8	19.1
429265	25.4	20.1	169330	25.5	20.3	368418	25.6	21.0	212743	25.7	19.8	382451	25.7	20.3	408629	25.8	20.6
316730	25.5	22.1	394414	25.5	20.6	136512	25.6	20.1	508736	25.7	20.8	376570	25.7	19.8	286403	25.8	21.2
543252	25.5	20.5	96996	25.5	18.7	83371	25.6	19.4	75686	25.7	19.1	387457	25.7	20.8	436346	25.8	20.9
163154	25.5	19.0	345244	25.5	20.9	299506	25.6	20.0	445099	25.7	22.0	310436	25.7	20.0	498607	25.8	21.2
294748	25.5	21.2	131947	25.5	19.8	453166	25.6	21.4	81308	25.7	19.7	219458	25.7	19.6	129326	25.8	19.2
297507	25.5	21.6	68929	25.5	19.0	138361	25.6	20.2	495757	25.7	20.7	511557	25.7	21.2	228220	25.8	20.8
255872	25.5	20.7	342706	25.5	20.4	307787	25.6	20.6	222612	25.7	20.1	243035	25.7	19.6	540247	25.8	20.5
496865	25.5	19.8	529273	25.5	21.8	207060	25.6	20.1	460934	25.7	20.8	117656	25.7	20.1	503000	25.8	20.0
75036	25.5	17.9	90661	25.5	19.8	101480	25.6	19.5	201380	25.7	19.8	135361	25.7	19.7	256012	25.8	18.7
148552	25.5	20.3	138565	25.5	19.9	522767	25.6	20.0	255955	25.7	20.5	403604	25.7	21.1	165844	25.8	21.0
503003	25.5	20.7	209029	25.5	19.1	100716	25.6	19.1	513426	25.7	21.1	532190	25.7	20.8	246543	25.8	20.4
106895	25.5	19.5	63987	25.5	18.4	345205	25.6	20.7	304853	25.7	21.2	272345	25.7	19.4	4895	25.8	17.6
65130	25.5	19.1	318103	25.5	19.1	197434	25.6	19.6	481295	25.7	19.6	129721	25.7	20.4	152158	25.8	21.2
189863	25.5	19.5	314725	25.5	21.2	95369	25.6	20.8	307802	25.7	20.7	496199	25.7	21.2	351293	25.8	21.2
408269	25.5	20.0	25411	25.5	17.5	246843	25.6	21.1	483772	25.7	21.5	393455	25.7	21.5	183331	25.8	20.5
329271	25.5	21.5	59292	25.5	18.5	194027	25.6	20.1	420934	25.7	20.9	70343	25.7	18.7	190730	25.8	19.7
334154	25.5	20.5	308526	25.5	20.8	524137	25.6	22.3	471058	25.7	20.1	210236	25.7	19.9	461921	25.8	22.3
197082	25.5	20.3	275573	25.5	20.1	491249	25.6	21.3	534015	25.7	21.8	58609	25.7	18.2	196266	25.8	19.4
17276	25.5	18.8	239226	25.5	20.4	287386	25.6	20.7	424148	25.7	20.7	327454	25.7	19.8	335893	25.8	21.6
283765	25.5	19.5	327319	25.5	21.1	253370	25.6	20.4	206926	25.7	19.9	496938	25.7	21.0	353437	25.8	20.6
29256	25.5	18.8	48918	25.5	17.5	541721	25.6	20.3	41562	25.7	19.5	87627	25.7	19.5	397871	25.8	20.6
25274	25.5	16.8	46731	25.5	18.1	375487	25.6	20.7	10966	25.7	18.3	347610	25.7	21.1	114647	25.8	18.9
527147	25.5	21.7	544185	25.5	21.1	513126	25.6	25.3	406059	25.7	21.1	57134	25.7	18.9	450174	25.8	21.2
495954	25.5	21.7	462000	25.5	20.5	456402	25.6	21.9	146535	25.7	19.8	77636	25.7	18.4	189480	25.8	20.1
273300	25.5	21.5	284859	25.5	20.3	506237	25.6	19.3	239511	25.7	20.0	458321	25.7	22.2	310415	25.8	21.0
195321	25.5	19.4	301438	25.5	19.1	170064	25.6	19.4	497869	25.7	22.1	313005	25.7	20.9	112510	25.8	19.2
206893	25.5	19.5	187542	25.5	20.2	64181	25.6	18.7	209675	25.7	19.0	291650	25.7	20.4	92863	25.8	18.4
524555	25.5	21.0	337444	25.5	20.7	344561	25.6	21.4	218042	25.7	20.5	136285	25.7	19.3	426952	25.8	19.9
29869	25.5	17.5	346839	25.5	21.6	334491	25.6	21.2	166578	25.7	19.7	141976	25.7	20.3	229723	25.8	20.3
524277	25.5	21.0	538731	25.5	21.6	277258	25.6	19.8	447175	25.7	20.2	441884	25.7	20.9	395114	25.8	20.4
324428	25.5	20.9	339560	25.6	20.5	251760	25.6	20.4	379032	25.7	21.1	295933	25.7	20.3	21899	25.8	18.7
169202	25.5	20.4	543798	25.6	21.5	223717	25.6	20.8	287762	25.7	21.1	246445	25.7	21.0	54189	25.8	19.1
109989	25.5	20.2	142259	25.6	19.5	520968	25.6	21.3	338331	25.7	20.6	506205	25.7	20.1	280197	25.8	21.1
389333	25.5	20.6	42304	25.6	18.6	187306	25.6	19.7	541116	25.7	19.9	266792	25.7	20.3	324670	25.8	20.3
540179	25.5	21.0	5716	25.6	18.1	496115	25.6	22.3	469104	25.7	19.7	173860	25.8	21.0	64282	25.8	18.8
495468	25.5	21.2	453967	25.6	20.2	189026	25.6	19.9	500370	25.7	20.8	119706	25.8	20.6	176801	25.8	20.4
461545	25.5	20.6	159599	25.6	19.4	58865	25.6	19.2	459235	25.7	20.6	324445	25.8	21.2	536165	25.8	21.3
321261	25.5	19.8	433768	25.6	21.1	355887	25.6	21.6	193386	25.7	19.9	217095	25.8	20.9	213111	25.8	19.3
534548	25.5	20.8	77012	25.6	19.0	495643	25.6	20.9	150160	25.7	19.3	147299	25.8	19.7	66381	25.8	18.5
64423	25.5	19.3	333501	25.6	20.0	256248	25.6	20.6	483971	25.7	19.7	145896	25.8	20.2	292405	25.8	21.4
383682	25.5	20.9	49433	25.6	18.5	132890	25.6	20.0	532248	25.7	21.3	232584	25.8	19.9	285141	25.8	19.8
91393	25.5	17.9	233628	25.6	19.6	57826	25.6	19.7	347676	25.7	21.0	134467	25.8	20.2	456389	25.8	21.0
461769	25.5	21.7	35763	25.6	18.4	148583	25.6	20.6	238729	25.7	19.2	252344	25.8	21.2	410547	25.8	20.4
189388	25.5	19.4	241544	25.6	20.7	209660	25.6	21.4	133322	25.7	19.5	323980	25.8	20.3	402665	25.8	21.5
542293	25.5	22.0	210102	25.6	19.6	53303	25.6	18.4	20129	25.7	18.3	405374	25.8	21.0	492128	25.8	20.4
262200	25.5	23.1	544001	25.6	21.7	190203	25.6	19.5	47879	25.7	18.7	518901	25.8	20.2	356982	25.8	20.9
290545	25.5	21.0	166826	25.6	19.7	531514	25.6	21.0	315598	25.7	19.8	242720	25.8	19.5	394415	25.8	19.8
426183	25.5	20.5	116256	25.6	18.6	95354	25.6	19.6	463826	25.7	21.7	51989	25.8	16.8	235685	25.8	19.9
368605	25.5	19.8	338435	25.6	20.2	299430	25.6	19.3	416048	25.7	21.5	350183	25.8	20.2	234882	25.8	20.3
216674	25.5	20.4	13943	25.6	16.4	226880	25.6	20.5	328906	25.7	20.3	527214	25.8	22.2	160733	25.8	19.3
64381	25.5	18.9	429251	25.6	20.3	177811	25.6	20.1	292606	25.7	20.6	85444	25.8	18.7	315528	25.8	20.2
535551	25.5	21.5	265394	25.6	19.5	446855	25.6	21.4	88185	25.7	18.2	317452	25.8	21.6	446787	25.8	22.5
366731	25.5	19.7	165624	25.6	19.2	395218	25.6	20.1	354073	25.7	22.1	168733	25.8	20.0	412886	25.8	21.3
459956	25.5	21.3	497779	25.6	21.7	155099	25.6	18.8	507313	25.7	21.4	241609	25.8	18.7	144492	25.8	18.7
165901	25.5	19.5	280270	25.6	20.5	343491	25.6	21.3	388296	25.7	20.8	457858	25.8	20.4	425327	25.8	21.2
208468	25.5	21.0	451445	25.6	21.1	55661	25.6	19.4	3399	25.7	17.6	443874	25.8	21.9	419930	25.8	21.0
454761	25.5	20.8	56036	25.6	19.4	266703	25.6	21.0	113113	25.7	19.4	503104	25.8	21.0	360811	25.8	19.5
422062	25.5	20.9	414852	25.6	21.5	234394	25.6	20.2	432549	25.7	20.1	541540	25.8	21.9	291386	25.8	19.9
200970	25.5	20.4	122357	25.6	20.3	102393	25.6	20.1	48986	25.7	18.0	261468	25.8	19.9	119665	25.8	19.4
437203	25.5	21.4	495866	25.6	21.7	223666	25.6	20.2	74123	25.7	19.1	153987	25.8	20.6	318586	25.8	20.6
134331	25.5	19.7	7561	25.6	17.7	114232	25.6	19.1	336598	25.7	21.0	527320	25.8	22.1	42318	25.8	18.7
173703	25.5	21.4	447137	25.6	21.4	120314	25.6	18.4									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
54793	25.8	19.7	111146	25.9	20.2	269071	25.9	20.0	23161	26.1	18.0	408448	26.1	19.9	116817	26.2	19.2
125802	25.8	19.3	158242	25.9	18.5	528850	25.9	21.9	401140	26.1	20.6	415829	26.1	21.7	222448	26.2	18.3
425855	25.8	20.9	214560	25.9	20.3	368057	25.9	20.6	215805	26.1	21.2	282511	26.1	20.6	34434	26.2	17.8
456708	25.8	21.5	133538	25.9	19.7	514323	25.9	21.1	377244	26.1	20.1	178949	26.1	19.3	30335	26.2	17.7
63959	25.8	18.7	499991	25.9	22.0	109059	25.9	19.7	284991	26.1	19.9	417772	26.1	20.4	210109	26.2	20.7
497662	25.9	21.9	526712	25.9	22.1	508383	25.9	21.1	159180	26.1	20.1	98259	26.1	19.7	169418	26.2	21.3
300330	25.9	21.5	496433	25.9	21.7	269237	25.9	19.8	246910	26.1	20.6	460919	26.1	20.3	223407	26.2	19.8
159030	25.9	19.7	111089	25.9	17.8	375877	25.9	20.9	432151	26.1	20.5	484907	26.1	22.0	85198	26.2	19.2
470163	25.9	21.3	334515	25.9	21.0	187887	26.0	18.9	487297	26.1	20.2	170755	26.1	19.0	123565	26.2	20.0
325314	25.9	20.8	301706	25.9	20.1	370822	26.0	21.1	103252	26.1	19.4	137775	26.1	18.9	280463	26.2	19.3
211481	25.9	20.4	212768	25.9	20.5	335940	26.0	20.8	161637	26.1	19.0	204670	26.1	20.3	383820	26.2	20.4
529738	25.9	21.0	532929	25.9	21.8	472740	26.0	20.4	314899	26.1	21.2	534198	26.1	21.6	536540	26.2	20.2
527488	25.9	20.7	273398	25.9	20.8	519373	26.0	21.2	58990	26.1	19.9	494029	26.1	20.5	449987	26.2	21.0
135291	25.9	19.5	179009	25.9	19.7	370362	26.0	21.0	191782	26.1	19.4	393422	26.2	20.9	145095	26.2	19.3
183398	25.9	19.0	13852	25.9	17.2	351774	26.0	19.5	131872	26.1	19.5	529250	26.2	22.2	210190	26.2	19.6
440557	25.9	21.9	76849	25.9	19.6	169128	26.0	19.7	76436	26.1	18.3	143186	26.2	20.5	538519	26.2	20.7
360578	25.9	21.0	428440	25.9	21.2	483978	26.0	20.2	197906	26.1	19.9	379049	26.2	20.7	153860	26.2	19.5
304903	25.9	19.7	184753	25.9	20.1	193131	26.0	18.8	280253	26.1	20.5	2138	26.2	14.9	223670	26.2	19.6
541180	25.9	20.8	102065	25.9	19.6	308731	26.0	19.5	537122	26.1	21.1	113918	26.2	19.0	14559	26.2	18.5
223757	25.9	20.6	341753	25.9	20.4	307598	26.0	19.9	340582	26.1	20.4	410007	26.2	21.1	348691	26.2	19.7
210094	25.9	20.3	43056	25.9	19.4	45751	26.0	17.5	524114	26.1	21.8	336542	26.2	21.4	536072	26.2	20.8
58242	25.9	19.3	296128	25.9	20.7	119345	26.0	19.7	115992	26.1	19.7	102990	26.2	19.9	508371	26.2	19.8
318638	25.9	20.0	40463	25.9	19.4	256076	26.0	20.9	468568	26.1	21.1	31155	26.2	19.0	52443	26.2	18.6
109215	25.9	19.3	122130	25.9	18.8	278947	26.0	20.7	260804	26.1	20.4	200443	26.2	20.4	405955	26.2	20.7
6262	25.9	17.1	442716	25.9	21.5	11132	26.0	16.5	393946	26.1	21.8	34456	26.2	18.2	136076	26.2	18.9
90758	25.9	19.2	456657	25.9	21.3	245768	26.0	19.2	529491	26.1	20.7	93040	26.2	18.8	316747	26.2	20.6
109892	25.9	19.2	538238	25.9	20.9	238700	26.0	18.9	147434	26.1	19.8	402693	26.2	21.7	452491	26.2	19.5
455765	25.9	20.5	35755	25.9	18.4	100678	26.0	19.7	460829	26.1	20.8	100734	26.2	20.4	289661	26.2	19.5
340715	25.9	20.5	203136	25.9	21.0	252398	26.0	20.5	323128	26.1	20.9	236092	26.2	19.6	102137	26.2	18.7
107837	25.9	18.9	128483	25.9	20.8	187806	26.0	19.9	491897	26.1	20.2	469780	26.2	20.9	159957	26.2	20.1
198039	25.9	20.4	536124	25.9	21.6	179253	26.0	19.1	51858	26.1	17.3	117243	26.2	19.1	5740	26.2	16.7
122987	25.9	18.4	390411	25.9	21.1	211359	26.0	20.1	503482	26.1	20.4	36848	26.2	16.8	178174	26.2	19.9
92656	25.9	19.5	419899	25.9	21.7	506372	26.0	21.3	520082	26.1	20.8	296062	26.2	20.9	527178	26.2	21.0
437790	25.9	20.2	14413	25.9	17.9	323114	26.0	20.8	227555	26.1	20.5	12923	26.2	16.3	473950	26.2	20.8
411538	25.9	21.5	284935	25.9	20.3	348491	26.0	20.7	16987	26.1	16.8	338248	26.2	20.4	526959	26.2	21.0
349485	25.9	18.7	418738	25.9	21.1	120271	26.0	18.8	429365	26.1	20.1	345214	26.2	20.3	288660	26.2	19.4
224932	25.9	19.5	1409	25.9	15.0	231538	26.0	19.3	426884	26.1	20.3	374571	26.2	20.5	194998	26.2	19.0
55039	25.9	19.2	494714	25.9	21.4	497845	26.0	22.2	57747	26.1	18.8	529921	26.2	23.3	25120	26.2	18.6
87917	25.9	18.4	166632	25.9	19.2	79489	26.0	17.7	462676	26.1	21.6	453324	26.2	21.1	437024	26.2	20.7
123783	25.9	19.7	92417	25.9	19.2	503811	26.0	20.3	484020	26.1	20.1	145891	26.2	19.5	521094	26.2	20.4
189446	25.9	20.1	17530	25.9	17.4	421727	26.0	19.5	536687	26.1	20.6	80143	26.2	19.8	534554	26.2	21.6
72011	25.9	17.7	114849	25.9	19.3	402083	26.0	20.9	230001	26.1	18.9	393358	26.2	21.2	527064	26.2	21.1
325887	25.9	20.5	124245	25.9	18.1	359482	26.0	19.8	246641	26.1	20.3	236055	26.2	19.9	541588	26.2	21.2
429046	25.9	21.4	218665	25.9	19.5	528652	26.0	21.7	290042	26.1	21.2	326006	26.2	20.0	410583	26.2	20.1
388303	25.9	21.4	306949	25.9	21.1	372269	26.0	20.7	105572	26.1	19.0	276292	26.2	20.4	286465	26.2	20.0
240840	25.9	20.4	508189	25.9	20.5	190974	26.0	20.5	405160	26.1	19.5	520100	26.2	21.3	144795	26.2	19.2
538693	25.9	21.5	543308	25.9	21.4	34646	26.0	18.8	172990	26.1	19.6	345573	26.2	19.8	192608	26.2	18.6
138376	25.9	19.0	485062	25.9	21.1	90806	26.0	19.8	111794	26.1	19.4	272340	26.2	18.7	8598	26.2	17.9
155274	25.9	20.5	467697	25.9	21.6	350211	26.0	21.0	536652	26.1	20.8	252404	26.2	20.8	145335	26.2	20.3
389149	25.9	20.6	330420	25.9	20.2	536380	26.0	21.2	340681	26.1	20.1	13882	26.2	17.9	27406	26.2	17.9
122220	25.9	20.2	238668	25.9	21.1	343946	26.0	20.0	496601	26.1	20.7	26995	26.2	18.3	109401	26.2	19.2
246280	25.9	20.8	380385	25.9	20.7	431517	26.0	19.8	167039	26.1	19.6	543247	26.2	20.7	316463	26.2	19.4
407295	25.9	22.1	497875	25.9	20.7	83265	26.0	18.2	312241	26.1	20.3	415921	26.2	21.7	48599	26.2	17.8
21382	25.9	17.8	86727	25.9	18.7	455443	26.0	21.3	29943	26.1	15.5	206827	26.2	19.2	75410	26.2	17.7
331937	25.9	20.8	468207	25.9	20.2	109705	26.0	19.8	247310	26.1	20.3	199519	26.2	19.8	258951	26.2	20.4
532328	25.9	21.9	361397	25.9	20.9	96017	26.0	19.6	323850	26.1	20.7	89947	26.2	19.0	340689	26.2	20.3
417773	25.9	21.5	500552	25.9	20.9	306661	26.0	20.8	228053	26.1	19.6	371207	26.2	21.1	423175	26.2	19.3
52360	25.9	18.5	530867	25.9	21.1	245059	26.0	19.2	409922	26.1	21.3	86837	26.2	18.0	529998	26.2	21.8
501740	25.9	21.0	378456	25.9	21.2	291323	26.0	18.7	536897	26.1	20.6	363544	26.2	20.2	496110	26.3	21.8
178516	25.9	19.9	318154	25.9	19.6	54926	26.0	19.0	51325	26.1	18.4	530078	26.2	20.7	331501	26.3	19.5
170144	25.9	19.6	293345	25.9	19.8	118877	26.0	19.9	57553	26.1	19.0	426366	26.2	21.6	122582	26.3	19.4
54502	25.9	18.2	469361	25.9	22.3	499239	26.0	22.0	456380	26.1	21.7	101569	26.2	20.3	243156	26.3	20.4
450857	25.9	19.8	314679	25.9	21.1	291077	26.0	20.1	81848	26.1	18.4	500314	26.2	21.9	276218	26.3	19.7
208193	25.9	20.6	466219	25.9	21.0	235274	26.0	21.3	118309	26.1	18.7	433861	26.2	20.5	123492	26.3	20.2
94230	25.9	18.2	346323	25.9	19.4	128945	26.0	19.0	307950	26.1	19.1	229115	26.2	20.8	322450	26.3	20.9
544455	25.9	21.9	135348	25.9	19.3	49130	26.0	19.0	431999	26.1	21.1	424088	26.2	19.5	201048	26.3	19.8
497611	25.9	22.3	483786	25.9	21.2	463696	26.1	22.1	201398	26.1	20.9	523596	26.2	21.3	424356	26.3	19.4
460441	25.9	21.4	401396	25.9	20.0	289550	26.1	20.0	462839	26.1	21.8	540085	26.2	21.5	395814	26.3	20.8
446050	25.9	21.3	173088	25.9	21.3	425264	26.1	21.7									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
103741	26.3	19.1	176012	26.3	19.4	90072	26.4	18.9	235568	26.5	19.0	74383	26.5	19.4	151221	26.5	19.1
127165	26.3	19.3	28475	26.3	17.5	138038	26.4	18.7	544853	26.5	21.6	108913	26.5	18.8	526699	26.6	22.0
486892	26.3	19.7	110686	26.3	19.9	534657	26.4	21.1	398383	26.5	20.4	250166	26.5	20.9	230490	26.6	19.9
204792	26.3	19.5	304907	26.3	19.3	240918	26.4	20.7	57670	26.5	20.4	352782	26.5	21.0	102472	26.6	19.1
41388	26.3	18.5	168360	26.3	20.3	90946	26.4	20.7	531804	26.5	21.9	210456	26.5	19.5	125067	26.6	18.7
92665	26.3	19.2	406623	26.3	21.2	543805	26.4	21.4	63895	26.5	18.2	22310	26.5	19.4	210909	26.6	21.1
118371	26.3	18.0	443897	26.3	21.8	325909	26.4	20.8	300378	26.5	20.2	291764	26.5	20.7	283753	26.6	19.7
338414	26.3	20.7	473444	26.3	19.8	158897	26.4	20.0	331144	26.5	21.0	100271	26.5	19.5	248690	26.6	19.8
125782	26.3	20.4	391417	26.3	20.1	36067	26.4	18.8	450310	26.5	21.2	406100	26.5	21.5	13914	26.6	17.4
516171	26.3	21.2	527171	26.3	22.8	349037	26.4	21.1	264737	26.5	21.0	22967	26.5	19.3	231426	26.6	18.8
108989	26.3	19.5	293645	26.3	20.1	474108	26.4	21.1	58089	26.5	19.4	268140	26.5	20.2	16029	26.6	16.1
134335	26.3	20.9	65285	26.3	19.0	206873	26.4	19.3	366407	26.5	21.1	143426	26.5	19.5	147313	26.6	18.7
143207	26.3	19.2	465494	26.3	20.5	465709	26.4	21.4	225645	26.5	19.1	424312	26.5	20.4	326461	26.6	20.3
243309	26.3	19.2	332993	26.3	19.8	313801	26.4	19.4	132356	26.5	19.2	109905	26.5	19.5	398711	26.6	21.0
82339	26.3	17.6	253017	26.3	21.0	132973	26.4	19.0	410334	26.5	19.2	299312	26.5	20.4	279974	26.6	19.7
363870	26.3	21.2	396003	26.3	21.4	312270	26.4	20.5	542373	26.5	19.3	455626	26.5	20.3	216670	26.6	18.7
493258	26.3	20.4	170567	26.3	19.5	126605	26.4	19.3	372970	26.5	20.5	249412	26.5	20.9	288565	26.6	18.9
137829	26.3	19.7	19442	26.3	18.3	124757	26.4	18.7	483732	26.5	22.0	206274	26.5	20.7	185746	26.6	20.9
529046	26.3	19.0	508714	26.3	20.8	4848	26.4	16.8	149718	26.5	18.5	15833	26.5	17.1	398162	26.6	19.8
314788	26.3	20.7	327288	26.3	20.3	88941	26.4	19.0	464112	26.5	21.2	349962	26.5	20.2	194518	26.6	19.7
241087	26.3	18.5	380112	26.3	20.9	433703	26.4	20.7	346402	26.5	19.2	93395	26.5	18.8	130641	26.6	19.8
108752	26.3	19.3	82567	26.3	19.2	530248	26.4	21.7	161122	26.5	20.4	404166	26.5	19.7	501641	26.6	20.6
481471	26.3	21.3	30779	26.3	18.6	467846	26.4	21.1	153681	26.5	19.3	172789	26.5	19.3	523974	26.6	20.7
431614	26.3	20.2	455449	26.3	21.1	497825	26.4	22.2	537098	26.5	20.2	490774	26.5	20.1	272894	26.6	20.5
143084	26.3	19.5	206735	26.4	20.6	318121	26.4	19.5	309367	26.5	19.3	204878	26.5	20.5	534847	26.6	22.0
222319	26.3	20.7	445040	26.4	22.0	241033	26.4	20.1	259190	26.5	20.9	293258	26.5	19.9	16174	26.6	18.1
540166	26.3	21.3	468674	26.4	21.1	85424	26.4	19.3	258439	26.5	21.1	351310	26.5	20.6	247684	26.6	20.7
302902	26.3	20.1	380939	26.4	21.1	4074	26.4	16.4	198980	26.5	19.6	288905	26.5	20.1	186097	26.6	20.9
359735	26.3	20.1	122575	26.4	19.1	230514	26.4	20.5	134318	26.5	19.8	130611	26.5	19.6	55987	26.6	18.3
523892	26.3	21.2	291312	26.4	20.9	194916	26.4	19.3	8456	26.5	17.4	94500	26.5	17.8	502779	26.6	20.6
534680	26.3	19.9	534164	26.4	21.2	520662	26.4	20.7	527008	26.5	21.2	33772	26.5	17.7	24051	26.6	18.2
459731	26.3	20.1	536082	26.4	20.7	218144	26.4	18.2	320659	26.5	19.6	60223	26.5	19.3	340675	26.6	19.8
458750	26.3	22.1	123054	26.4	18.4	370771	26.4	20.5	235572	26.5	19.8	388309	26.5	21.8	510058	26.6	19.1
298819	26.3	20.4	14953	26.4	17.5	47316	26.4	16.3	35412	26.5	19.2	465098	26.5	20.6	279897	26.6	20.1
104127	26.3	18.3	456582	26.4	20.3	204315	26.4	20.3	228322	26.5	19.7	42213	26.5	19.1	527261	26.6	20.8
5194	26.3	17.7	249349	26.4	20.3	232943	26.4	20.5	302495	26.5	19.1	373959	26.5	20.6	7732	26.6	16.5
245984	26.3	20.1	398474	26.4	20.8	515054	26.4	20.2	108407	26.5	18.5	271480	26.5	18.0	138585	26.6	19.9
135797	26.3	19.8	184023	26.4	20.1	286492	26.4	20.6	198179	26.5	19.3	55586	26.5	18.6	541980	26.6	21.4
239227	26.3	20.5	261531	26.4	20.0	148810	26.4	20.1	347502	26.5	21.3	281161	26.5	19.4	122713	26.6	19.3
162085	26.3	18.3	224573	26.4	20.3	375348	26.4	21.1	459135	26.5	21.1	189645	26.5	19.3	183971	26.6	20.1
470123	26.3	20.6	118391	26.4	18.7	319031	26.4	20.4	114322	26.5	20.4	452283	26.5	20.9	314802	26.6	20.2
95708	26.3	18.5	205948	26.4	18.7	82408	26.4	19.5	376470	26.5	19.5	543242	26.5	21.0	249516	26.6	20.5
54485	26.3	17.8	166622	26.4	19.3	400412	26.4	20.5	350621	26.5	20.6	209144	26.5	20.3	68582	26.6	18.1
182530	26.3	18.6	432904	26.4	20.2	445088	26.4	21.6	234547	26.5	19.9	334995	26.5	20.3	448214	26.6	20.9
203121	26.3	20.5	229155	26.4	20.4	132446	26.4	18.0	465787	26.5	20.6	110679	26.5	19.2	261031	26.6	20.6
260103	26.3	19.9	242601	26.4	20.1	539952	26.4	20.7	302059	26.5	20.8	197801	26.5	19.0	378781	26.6	21.0
310240	26.3	20.0	8429	26.4	16.9	68757	26.4	18.2	401462	26.5	20.1	81838	26.5	18.4	35573	26.6	18.6
175433	26.3	20.4	8433	26.4	16.7	302943	26.4	20.0	312336	26.5	20.5	78276	26.5	18.9	486012	26.6	21.2
228797	26.3	19.9	45892	26.4	17.2	279200	26.4	20.4	140170	26.5	20.0	88506	26.5	18.9	210878	26.6	21.0
7506	26.3	17.3	529206	26.4	21.7	114503	26.4	18.8	186867	26.5	19.4	104800	26.5	18.8	414945	26.6	21.2
40605	26.3	18.7	506307	26.4	20.6	724	26.4	17.9	534812	26.5	20.1	77915	26.5	19.2	451097	26.6	21.2
426915	26.3	21.0	28700	26.4	18.1	497783	26.4	21.8	33886	26.5	18.4	164301	26.5	20.4	100149	26.6	19.4
425470	26.3	19.9	457900	26.4	20.5	373287	26.4	20.1	79964	26.5	18.0	73886	26.5	18.8	75652	26.6	19.0
413456	26.3	20.3	180057	26.4	19.3	136385	26.4	19.1	461324	26.5	19.0	226811	26.5	20.7	109751	26.6	19.4
363122	26.3	20.3	312499	26.4	20.3	243115	26.4	18.8	236954	26.5	20.4	448231	26.5	21.7	462964	26.6	20.2
232422	26.3	19.8	509195	26.4	21.2	335999	26.4	21.2	69	26.5	11.2	388428	26.5	20.1	426435	26.6	21.4
226836	26.3	20.2	416921	26.4	21.3	179831	26.4	19.8	416951	26.5	20.4	154383	26.5	19.6	64210	26.6	18.1
163760	26.3	21.2	416564	26.4	20.6	268120	26.4	19.8	458473	26.5	20.8	285877	26.5	20.8	98377	26.6	17.4
532114	26.3	21.2	126226	26.4	19.9	466359	26.4	21.3	398343	26.5	20.9	430470	26.5	20.7	432156	26.6	20.9
253996	26.3	19.2	195706	26.4	19.7	6526	26.4	15.9	440473	26.5	21.6	433509	26.5	21.1	180254	26.6	19.8
28436	26.3	18.5	177487	26.4	20.1	398746	26.4	20.2	526157	26.5	21.1	284657	26.5	21.0	413128	26.6	19.5
443839	26.3	20.7	166795	26.4	19.2	413876	26.4	19.8	22129	26.5	18.8	80126	26.5	19.2	194603	26.6	20.8
174934	26.3	19.7	473619	26.4	21.2	191343	26.4	19.1	412342	26.5	20.5	255818	26.5	20.1	215910	26.6	19.1
126259	26.3	18.5	449180	26.4	20.8	4549	26.4	17.6	285703	26.5	21.1	44834	26.5	18.5	420535	26.6	19.0
339537	26.3	20.1	525156	26.4	22.1	34838	26.4	18.5	163705	26.5	18.0	65230	26.5	19.0	234439	26.6	20.3
152591	26.3	20.4	360254	26.4	18.8	138156	26.4	20.1	33213	26.5	18.8	348577	26.5	21.0	365745	26.6	20.5
415498	26.3	20.4	258278	26.4	19.7	405972	26.4	21.3	472295	26.5	20.5	386747	26.5	21.0	193881	26.6	20.4
156585	26.3	19.5	267782	26.4	20.6	209483	26.4	19.6	284851	26.5	20.4	414426	26.5	20.3	503725	26.6	20.1
218667	26.3	20.8	162937	26.4	21.0	437385	26.4	20.5	241358	26.5							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
268799	26.6	20.8	240907	26.7	18.9	179763	26.7	21.0	8485	26.8	16.3	203762	26.9	20.4	190978	26.9	19.4
83681	26.6	19.0	534784	26.7	19.6	284150	26.7	19.1	529038	26.8	21.0	323925	26.9	20.9	541998	26.9	20.0
444183	26.6	21.1	231812	26.7	19.2	47681	26.7	18.8	334613	26.8	21.1	148488	26.9	18.9	125537	26.9	19.3
124775	26.6	19.7	271709	26.7	21.0	415137	26.7	20.4	7904	26.8	17.0	222327	26.9	19.8	36297	26.9	19.7
337470	26.6	20.7	159999	26.7	20.4	350782	26.8	21.2	524979	26.8	20.7	415141	26.9	20.7	465817	26.9	20.9
465862	26.6	22.2	440046	26.7	21.0	381645	26.8	20.6	415820	26.8	20.5	8225	26.9	18.5	469042	26.9	20.1
324426	26.6	21.7	83147	26.7	19.5	4898	26.8	16.1	465165	26.8	21.5	280782	26.9	20.9	54523	26.9	17.4
432141	26.6	21.7	200372	26.7	19.7	150172	26.8	20.4	503051	26.8	20.7	409999	26.9	22.3	35531	26.9	18.1
410949	26.6	21.1	130571	26.7	19.8	391414	26.8	20.7	350378	26.8	21.0	45203	26.9	19.0	85482	26.9	19.8
358044	26.6	20.7	256090	26.7	20.7	462703	26.8	20.6	481315	26.8	18.0	46725	26.9	18.5	33433	26.9	18.4
18972	26.6	18.6	498577	26.7	20.5	448229	26.8	21.3	421859	26.8	20.3	188932	26.9	20.2	109924	26.9	18.2
337898	26.6	21.7	145455	26.7	18.2	501435	26.8	21.3	118333	26.8	18.8	495984	26.9	21.4	311491	26.9	20.1
283950	26.6	20.0	406585	26.7	20.4	90602	26.8	19.5	351701	26.8	21.0	285734	26.9	19.0	317481	26.9	21.0
422109	26.6	20.8	544289	26.7	21.3	17359	26.8	17.8	108272	26.8	18.7	240932	26.9	20.0	131501	26.9	19.6
532252	26.6	22.1	414858	26.7	21.5	114026	26.8	19.0	519078	26.8	20.9	244337	26.9	19.3	295433	26.9	20.2
535059	26.6	20.4	284412	26.7	21.0	307751	26.8	20.1	464456	26.8	20.5	206177	26.9	20.9	168281	26.9	20.2
208348	26.6	20.5	450026	26.7	21.1	243391	26.8	19.7	327392	26.8	19.7	402884	26.9	19.7	148798	26.9	20.0
173417	26.6	19.4	245784	26.7	20.1	468902	26.8	21.3	439719	26.8	19.6	329226	26.9	20.4	98183	26.9	18.2
393954	26.6	21.7	106935	26.7	20.0	536919	26.8	22.3	419118	26.8	21.3	28318	26.9	18.4	413558	26.9	21.1
309337	26.6	20.9	401907	26.7	21.4	237237	26.8	19.9	50885	26.8	18.9	531319	26.9	21.4	541656	26.9	21.2
492315	26.6	22.0	142963	26.7	19.4	216321	26.8	19.9	194028	26.8	20.7	420662	26.9	19.6	327268	26.9	21.0
354064	26.6	21.1	183296	26.7	20.2	98186	26.8	19.4	277828	26.8	20.7	54241	26.9	18.2	436301	26.9	19.2
377554	26.6	20.4	409889	26.7	20.9	284471	26.8	19.7	425044	26.8	21.6	385863	26.9	20.7	277577	26.9	20.5
200184	26.6	19.3	450847	26.7	20.9	99954	26.8	20.1	419235	26.8	20.1	462450	26.9	20.4	113980	26.9	20.0
290374	26.6	20.0	34455	26.7	18.7	452482	26.8	20.7	419752	26.8	21.5	531341	26.9	21.2	535890	26.9	20.9
51753	26.6	18.7	311909	26.7	20.1	133904	26.8	19.6	500588	26.8	21.2	522496	26.9	20.9	323802	26.9	20.1
206203	26.6	20.5	2752	26.7	16.3	163394	26.8	20.5	324646	26.8	20.3	208462	26.9	20.0	129174	26.9	19.7
505036	26.7	19.8	232676	26.7	20.8	245770	26.8	20.2	544486	26.8	22.4	327806	26.9	19.7	452889	26.9	19.6
486730	26.7	19.8	537876	26.7	21.3	156522	26.8	19.6	451460	26.8	21.4	280206	26.9	20.0	52244	26.9	18.9
255937	26.7	20.3	500520	26.7	21.6	134875	26.8	20.4	545016	26.8	21.6	178891	26.9	20.2	175469	26.9	20.3
241277	26.7	20.4	364983	26.7	18.9	168621	26.8	18.8	326426	26.8	21.1	489299	26.9	21.8	241210	26.9	20.2
209991	26.7	20.9	426640	26.7	20.9	68556	26.8	19.6	156554	26.8	19.3	74530	26.9	18.1	166847	26.9	20.0
483813	26.7	21.4	509994	26.7	20.2	278873	26.8	20.6	19455	26.8	16.8	229225	26.9	20.4	211597	26.9	19.7
277983	26.7	21.5	407941	26.7	21.3	372557	26.8	21.0	393434	26.8	20.4	96817	26.9	18.8	51227	26.9	18.2
531057	26.7	20.3	163448	26.7	19.8	29668	26.8	17.4	53857	26.8	18.3	387040	26.9	21.9	299446	26.9	19.6
162177	26.7	18.8	150213	26.7	18.8	122538	26.8	20.0	135373	26.8	20.4	379430	26.9	20.8	490197	26.9	21.1
194542	26.7	20.1	109024	26.7	18.5	43737	26.8	17.8	471809	26.8	21.5	491164	26.9	22.0	245992	26.9	20.0
440498	26.7	21.3	482833	26.7	21.1	40876	26.8	19.6	433873	26.8	21.1	181544	26.9	21.5	104637	26.9	19.0
284004	26.7	20.7	383501	26.7	19.4	400817	26.8	20.0	400005	26.8	19.9	337665	26.9	21.4	505089	26.9	21.6
534796	26.7	21.3	116881	26.7	18.7	232012	26.8	20.1	426353	26.8	20.5	37605	26.9	17.9	116251	26.9	19.4
274885	26.7	19.4	54896	26.7	18.2	409916	26.8	21.0	3567	26.8	18.3	188704	26.9	19.6	350238	26.9	20.2
82356	26.7	18.6	327341	26.7	20.5	379510	26.8	20.5	519860	26.9	21.3	274833	26.9	20.4	376888	26.9	20.8
4677	26.7	17.8	451210	26.7	20.6	176729	26.8	20.6	287524	26.9	18.3	230502	26.9	19.7	362927	26.9	20.3
351253	26.7	20.3	370760	26.7	21.1	405176	26.8	20.9	413868	26.9	21.2	433475	26.9	20.4	538780	26.9	21.3
368029	26.7	20.0	288715	26.7	20.7	178600	26.8	19.1	544987	26.9	20.2	442796	26.9	22.0	237177	26.9	20.7
382404	26.7	21.8	348909	26.7	21.7	532625	26.8	21.1	32564	26.9	18.7	192419	26.9	20.1	76868	26.9	17.0
306798	26.7	21.6	433219	26.7	21.0	154371	26.8	19.9	304017	26.9	19.2	493343	26.9	21.1	532433	26.9	21.3
531496	26.7	22.4	174900	26.7	19.0	236204	26.8	20.0	282349	26.9	20.8	543861	26.9	22.4	296127	26.9	20.4
232786	26.7	18.5	140880	26.7	19.1	223737	26.8	20.5	83361	26.9	18.4	351772	26.9	19.8	522323	26.9	20.5
27726	26.7	18.9	542413	26.7	20.2	110974	26.8	19.4	134067	26.9	19.0	409849	26.9	21.0	116012	26.9	19.2
457075	26.7	20.1	247663	26.7	20.6	399475	26.8	22.1	232615	26.9	20.5	304844	26.9	21.2	225587	26.9	20.6
415898	26.7	21.5	194418	26.7	19.8	230566	26.8	18.3	495395	26.9	21.2	46758	26.9	17.7	73555	26.9	18.2
366938	26.7	20.5	194199	26.7	21.2	265323	26.8	19.3	204740	26.9	18.9	237491	26.9	20.2	124396	26.9	19.6
138082	26.7	20.0	92483	26.7	17.4	405092	26.8	21.3	374541	26.9	20.7	195009	26.9	18.6	491622	27.0	22.3
376069	26.7	19.6	137234	26.7	19.1	412386	26.8	20.5	200132	26.9	20.5	296907	26.9	20.1	89362	27.0	19.0
227774	26.7	19.8	293314	26.7	20.8	404456	26.8	19.9	8629	26.9	18.9	444351	26.9	21.6	506118	27.0	21.4
544290	26.7	20.4	140624	26.7	19.3	276648	26.8	20.8	453796	26.9	21.5	198527	26.9	19.3	545055	27.0	22.0
73174	26.7	18.7	278396	26.7	20.4	425173	26.8	21.5	63829	26.9	17.6	130727	26.9	19.4	83693	27.0	19.4
446448	26.7	19.9	506211	26.7	19.8	541638	26.8	19.7	14239	26.9	16.9	484717	26.9	20.2	217100	27.0	20.6
3852	26.7	17.3	163273	26.7	19.6	363076	26.8	23.2	345289	26.9	20.7	291806	26.9	20.2	156263	27.0	19.7
127575	26.7	19.5	343611	26.7	19.3	337799	26.8	20.2	24943	26.9	17.3	176025	26.9	20.9	185913	27.0	18.8
536943	26.7	20.4	34205	26.7	18.4	38872	26.8	19.2	109977	26.9	19.8	212637	26.9	20.1	339758	27.0	19.6
514076	26.7	19.5	279169	26.7	21.1	81386	26.8	18.5	61217	26.9	17.6	463747	26.9	21.4	145279	27.0	19.0
384097	26.7	20.8	181973	26.7	19.0	28003	26.8	17.1	194505	26.9	20.1	419926	26.9	21.1	534888	27.0	21.8
246221	26.7	19.9	309057	26.7	19.1	397128	26.8	20.5	81030	26.9	18.0	463289	26.9	19.7	343244	27.0	20.5
243190	26.7	20.1	185150	26.7	21.3	239587	26.8	19.3	499023	26.9	20.8	424261	26.9	21.1	456286	27.0	22.2
244268	26.7	20.0	8582	26.7	17.4	292499	26.8	20.8	32181	26.9	17.9	188282	26.9	18.3	460745	27.0	20.5
274198	26.7	20.1	228784	26.7	20.7	186001	26.8	20.6	266540	26.9	20.6	462696	26.9	19.6	517526	27.0	21.6
363788	26.7	20.3	129377	26.7	19.4	179718	26.8	20.8	13								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
237243	27.0	20.6	389600	27.1	19.5	151208	27.2	20.0	92948	27.2	18.1	412638	27.3	20.7	88922	27.4	19.1
167997	27.0	20.4	218053	27.1	18.9	208623	27.2	19.7	207377	27.2	19.7	534484	27.3	21.0	411403	27.4	20.3
142848	27.0	19.8	38532	27.1	17.9	288526	27.2	19.7	492112	27.2	20.5	417164	27.3	21.1	456949	27.4	21.9
284381	27.0	20.0	271689	27.1	20.9	348553	27.2	20.7	337578	27.2	21.1	531604	27.3	20.8	305785	27.4	21.0
363141	27.0	20.7	428946	27.1	21.1	331301	27.2	20.7	432557	27.2	20.8	235570	27.3	19.7	69867	27.4	18.4
139841	27.0	20.1	485035	27.1	21.4	114485	27.2	20.2	238735	27.2	20.4	187891	27.3	19.4	252249	27.4	20.7
364221	27.0	20.8	190852	27.1	18.9	25890	27.2	17.0	453286	27.2	20.8	389340	27.3	20.9	284985	27.4	19.8
259801	27.0	19.4	350600	27.1	21.7	494691	27.2	20.3	295689	27.2	21.1	366737	27.3	20.1	156556	27.4	19.4
538597	27.0	20.8	223766	27.1	19.3	370202	27.2	20.8	103905	27.2	19.3	459195	27.3	20.1	114455	27.4	18.4
220469	27.0	20.4	41846	27.1	18.9	212953	27.2	19.9	411229	27.2	21.1	164831	27.3	19.8	436016	27.4	20.6
140267	27.0	19.0	102328	27.1	18.5	79287	27.2	19.3	201820	27.2	19.7	489302	27.3	21.0	289948	27.4	20.4
496019	27.0	19.4	277600	27.1	20.5	431223	27.2	20.1	541824	27.2	20.4	166273	27.3	19.1	375495	27.4	20.6
78647	27.0	16.8	542212	27.1	19.6	534374	27.2	21.7	544675	27.2	22.0	142486	27.3	19.2	420516	27.4	21.1
85361	27.0	18.6	214537	27.1	19.5	140970	27.2	19.4	34612	27.2	18.6	432153	27.3	21.0	450748	27.4	19.3
497634	27.0	21.9	350364	27.1	20.2	15193	27.2	18.1	241207	27.2	19.4	403118	27.3	21.0	113186	27.4	18.9
153798	27.0	20.9	372507	27.1	20.8	314761	27.2	20.6	352887	27.2	20.7	4968	27.3	16.7	296216	27.4	20.3
441582	27.0	20.1	168742	27.1	20.1	340708	27.2	20.2	138123	27.2	18.7	313596	27.3	20.4	253396	27.4	20.2
423858	27.0	19.6	281390	27.1	20.9	257588	27.2	18.4	326389	27.2	20.8	494731	27.3	21.1	233181	27.4	20.5
159568	27.0	18.7	353449	27.1	20.9	487756	27.2	20.8	237367	27.2	20.0	391779	27.3	20.6	164157	27.4	19.0
147785	27.0	19.9	387654	27.1	21.7	292968	27.2	21.2	93922	27.2	17.7	57570	27.3	19.4	341276	27.4	21.4
227777	27.0	18.8	245442	27.1	19.6	58067	27.2	18.1	36952	27.2	19.2	147203	27.3	19.8	408115	27.4	19.0
276101	27.0	19.9	535202	27.1	20.9	235485	27.2	19.4	429740	27.2	20.4	25813	27.3	18.4	363634	27.4	19.8
226849	27.0	20.2	413956	27.1	20.9	124505	27.2	19.3	189260	27.2	20.1	207078	27.3	19.3	71446	27.4	18.5
543874	27.0	21.8	176047	27.1	20.3	240736	27.2	19.8	54387	27.2	18.4	192723	27.3	20.5	544140	27.4	20.7
18660	27.0	17.3	422402	27.1	21.8	219346	27.2	20.5	427579	27.2	20.7	233075	27.3	19.5	460682	27.4	19.7
528854	27.0	21.4	416633	27.1	21.2	493185	27.2	20.0	428393	27.2	20.1	531487	27.3	20.2	374063	27.4	20.1
239328	27.1	19.9	163482	27.1	20.0	381693	27.2	21.1	504324	27.2	21.1	48076	27.3	17.7	412	27.4	13.0
465986	27.1	20.5	334357	27.1	20.8	238465	27.2	20.2	30776	27.2	19.4	407358	27.3	21.2	394399	27.4	20.5
290988	27.1	19.7	240074	27.1	20.4	83155	27.2	19.5	133189	27.2	19.5	194195	27.3	19.1	336039	27.4	20.9
62272	27.1	18.8	264240	27.1	20.6	142955	27.2	19.8	2214	27.2	16.4	338328	27.3	20.7	348540	27.4	20.7
95896	27.1	19.1	117379	27.1	19.1	15399	27.2	17.2	495671	27.3	21.0	273014	27.3	19.7	175834	27.4	20.8
115030	27.1	19.8	398878	27.1	20.3	20316	27.2	19.1	284450	27.3	19.9	527015	27.3	21.3	182113	27.4	18.9
108993	27.1	20.4	351758	27.1	21.1	253133	27.2	21.2	193823	27.3	19.7	215529	27.3	19.9	405181	27.4	22.1
394888	27.1	20.3	287583	27.1	18.8	291332	27.2	19.5	519961	27.3	21.0	417540	27.3	21.5	415475	27.4	21.2
34984	27.1	17.7	330114	27.1	21.2	455054	27.2	20.5	383824	27.3	20.9	328733	27.3	19.8	378922	27.4	21.0
388268	27.1	21.5	415769	27.1	21.2	382710	27.2	20.3	304819	27.3	20.9	234815	27.3	20.5	524937	27.4	19.1
319615	27.1	21.3	187814	27.1	20.0	193161	27.2	19.0	237752	27.3	19.7	544457	27.3	20.5	206337	27.4	19.2
218319	27.1	20.8	266204	27.1	19.4	188936	27.2	19.9	150978	27.3	20.5	293111	27.3	21.1	311598	27.4	20.9
18829	27.1	17.7	170836	27.1	19.6	486702	27.2	21.1	534056	27.3	20.8	252340	27.3	20.8	247355	27.4	21.0
437013	27.1	21.1	52421	27.1	19.4	92583	27.2	19.8	239329	27.3	19.8	224008	27.3	20.5	445095	27.4	21.5
406182	27.1	22.1	225164	27.1	19.7	197590	27.2	19.6	502251	27.3	20.8	303459	27.3	20.0	30324	27.4	19.2
542808	27.1	19.2	433051	27.1	20.9	462632	27.2	21.2	91467	27.3	17.8	464897	27.3	22.0	304799	27.4	20.5
10766	27.1	17.0	103610	27.1	19.3	223483	27.2	20.2	21952	27.3	16.2	280428	27.3	19.8	325820	27.4	21.9
311704	27.1	20.3	55420	27.1	18.2	235964	27.2	20.1	423942	27.3	20.6	531580	27.3	21.3	205480	27.4	20.6
263558	27.1	20.0	462683	27.1	21.1	66717	27.2	19.2	101221	27.3	19.4	359318	27.3	19.3	15885	27.4	17.5
340705	27.1	19.9	411782	27.1	20.8	210250	27.2	20.6	367533	27.3	22.3	168275	27.3	19.7	65293	27.4	18.7
22894	27.1	16.8	368734	27.1	20.2	251518	27.2	19.8	413029	27.3	21.4	90959	27.3	19.4	385486	27.4	21.7
298394	27.1	18.6	460422	27.1	21.4	74385	27.2	19.2	16779	27.3	17.1	154702	27.3	19.2	170873	27.4	19.0
125474	27.1	19.7	240471	27.1	19.7	496158	27.2	21.1	495456	27.3	21.6	275673	27.3	21.3	470389	27.4	21.3
386524	27.1	20.2	104714	27.1	18.2	496962	27.2	20.6	313566	27.3	19.1	185082	27.3	19.6	295039	27.4	20.3
146689	27.1	20.2	327808	27.1	20.0	468857	27.2	20.8	380703	27.3	19.3	498388	27.3	21.8	422302	27.4	20.4
243850	27.1	20.4	387497	27.1	20.2	203517	27.2	19.1	369904	27.3	20.2	344549	27.3	19.9	496091	27.4	21.4
525750	27.1	20.7	164712	27.1	18.6	327929	27.2	21.3	338314	27.3	21.2	180037	27.3	19.8	454266	27.4	21.4
404235	27.1	19.8	165433	27.1	19.3	216323	27.2	20.2	141370	27.3	20.0	108348	27.3	18.5	299400	27.4	20.5
329345	27.1	20.2	233922	27.1	20.5	323821	27.2	19.6	65958	27.3	18.0	389170	27.3	21.0	24267	27.4	19.2
429838	27.1	21.1	501633	27.1	20.7	3357	27.2	15.9	185442	27.3	20.7	34981	27.3	19.0	29640	27.4	18.8
318922	27.1	20.6	536078	27.1	20.8	433189	27.2	20.7	399683	27.3	21.5	164842	27.3	20.8	470608	27.4	20.7
79080	27.1	17.9	101606	27.1	19.7	228383	27.2	20.2	359633	27.3	20.7	370805	27.3	20.2	500394	27.4	21.9
375299	27.1	20.4	345595	27.1	20.7	267753	27.2	19.5	82222	27.3	18.8	331238	27.3	20.2	183426	27.4	18.9
544639	27.1	20.3	378890	27.1	19.8	426022	27.2	20.8	497837	27.3	21.2	362792	27.3	20.1	439266	27.4	20.4
496182	27.1	21.5	149574	27.2	18.8	328655	27.2	20.3	178210	27.3	19.9	29703	27.3	18.0	445591	27.4	21.3
366919	27.1	21.4	237218	27.2	19.7	89654	27.2	19.1	288949	27.3	20.8	419179	27.3	21.5	327394	27.4	20.1
163628	27.1	21.0	304843	27.2	21.6	492064	27.2	21.8	356480	27.3	21.0	163557	27.3	19.8	136747	27.4	20.5
298825	27.1	20.0	473542	27.2	21.1	249327	27.2	20.2	500625	27.3	20.9	318715	27.3	20.3	238772	27.4	19.8
319447	27.1	20.4	487868	27.2	21.7	368764	27.2	20.5	84806	27.3	20.1	497443	27.3	20.3	226803	27.4	19.2
462877	27.1	21.7	281180	27.2	20.2	83228	27.2	20.0	296184	27.3	20.1	426308	27.3	19.8	351327	27.4	19.5
227922	27.1	20.1	331954	27.2	19.8	359082	27.2	20.6	543778	27.3	22.3	191617	27.3	18.9	370827	27.4	20.3
273188	27.1	20.4	44714	27.2	18.6	167916	27.2	19.2	258170	27.3	21.0	17715	27.3	17.7	149962	27.4	17.6
531379	27.1	21.6	432532	27.2	20.7	376237	27.2										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
496268	27.4	19.9	451252	27.5	20.1	384171	27.6	21.2	194617	27.6	21.0	203368	27.7	19.7	327942	27.8	19.7
14453	27.4	16.8	225295	27.5	21.2	337420	27.6	20.0	423088	27.6	19.9	493766	27.7	21.3	461985	27.8	22.0
350102	27.4	19.4	350714	27.5	20.5	113816	27.6	19.1	314187	27.6	19.3	245089	27.7	20.4	60891	27.8	18.8
241318	27.4	20.9	448238	27.5	21.7	455081	27.6	20.8	318793	27.6	20.0	104609	27.7	18.1	382726	27.8	21.2
494770	27.4	19.6	109089	27.5	19.5	50960	27.6	18.4	124246	27.6	19.6	61044	27.7	18.4	429355	27.8	20.1
98554	27.4	19.8	536583	27.5	21.3	284983	27.6	20.2	534289	27.6	21.3	236185	27.7	20.8	11418	27.8	17.4
428406	27.4	20.4	318601	27.5	20.7	337870	27.6	20.5	498963	27.6	21.4	531111	27.7	20.8	432546	27.8	20.1
232468	27.4	19.1	418337	27.5	20.9	448298	27.6	21.4	372019	27.6	20.4	283319	27.7	20.8	303142	27.8	20.4
39009	27.4	19.1	255829	27.5	18.7	258155	27.6	20.5	67821	27.6	18.7	130757	27.7	20.1	332396	27.8	19.4
498639	27.4	20.5	451452	27.5	21.3	38580	27.6	17.1	245486	27.7	21.1	49979	27.7	16.7	469070	27.8	21.0
186247	27.4	20.3	175780	27.5	19.5	461694	27.6	21.2	77755	27.7	18.9	247038	27.7	18.4	94581	27.8	18.8
456699	27.4	20.9	355921	27.5	20.3	396874	27.6	21.2	187045	27.7	19.5	261237	27.7	20.8	99048	27.8	19.0
343472	27.4	20.5	299140	27.5	19.8	496281	27.6	21.9	283586	27.7	20.3	369103	27.7	20.3	422750	27.8	21.4
174845	27.5	19.7	229942	27.5	20.5	138879	27.6	20.0	498518	27.7	20.9	339598	27.7	20.3	491625	27.8	21.3
411420	27.5	21.7	241583	27.5	21.0	122266	27.6	18.6	297501	27.7	20.6	520952	27.7	20.5	182720	27.8	20.3
524063	27.5	19.6	132084	27.5	18.6	270421	27.6	21.0	166998	27.7	19.4	168523	27.7	19.9	200439	27.8	20.5
356961	27.5	20.2	114651	27.5	19.3	2720	27.6	17.5	195588	27.7	19.7	125677	27.7	20.2	373022	27.8	20.2
116431	27.5	19.7	449879	27.5	20.9	526094	27.6	21.8	147196	27.7	20.0	322804	27.7	20.7	244161	27.8	20.1
237286	27.5	19.8	63376	27.5	18.2	459336	27.6	19.2	413692	27.7	20.6	90664	27.7	18.5	194701	27.8	20.9
208339	27.5	20.2	302053	27.5	20.5	288809	27.6	20.5	420863	27.7	20.0	138302	27.7	18.7	483776	27.8	20.7
312119	27.5	21.4	68032	27.5	18.7	505704	27.6	19.8	289853	27.7	19.7	375908	27.7	20.8	118896	27.8	20.1
126164	27.5	19.1	406906	27.5	20.4	2945	27.6	16.5	350301	27.7	20.9	206059	27.7	20.4	200894	27.8	19.8
534605	27.5	21.9	89594	27.5	19.3	19624	27.6	17.8	490621	27.7	21.4	448146	27.7	21.4	110867	27.8	19.6
111501	27.5	18.3	353899	27.5	20.2	386774	27.6	20.7	351304	27.7	19.7	502886	27.7	20.7	257448	27.8	21.4
159469	27.5	19.4	1896	27.5	17.4	34219	27.6	19.5	446838	27.7	21.3	465713	27.7	20.9	413991	27.8	20.7
167159	27.5	20.4	306287	27.5	20.9	494950	27.6	20.2	103164	27.7	18.1	50932	27.7	18.4	321415	27.8	19.6
403527	27.5	20.0	258169	27.5	20.8	104513	27.6	18.9	384104	27.7	21.5	500714	27.7	21.8	526738	27.8	21.9
363644	27.5	20.6	492822	27.5	21.2	14484	27.6	17.4	8816	27.7	17.9	544560	27.7	19.8	248992	27.8	20.3
459879	27.5	19.7	56813	27.5	18.3	406215	27.6	21.6	413864	27.7	21.7	500024	27.7	21.2	154754	27.8	19.4
123004	27.5	19.1	85591	27.5	17.9	277231	27.6	19.0	377276	27.7	19.2	432892	27.7	20.6	92916	27.8	18.9
467302	27.5	20.5	351768	27.5	21.2	315627	27.6	21.3	500384	27.7	21.5	288982	27.7	20.7	532772	27.8	20.8
305857	27.5	20.7	66559	27.5	19.5	456379	27.6	21.9	463538	27.7	21.0	205505	27.7	20.5	42883	27.8	17.6
104593	27.5	18.2	61632	27.5	18.4	223486	27.6	19.6	519648	27.7	20.9	178447	27.7	20.6	434909	27.8	21.3
442837	27.5	21.9	82914	27.5	19.0	140585	27.6	19.8	266222	27.7	20.5	240655	27.7	20.0	43765	27.8	18.6
376201	27.5	20.1	536735	27.5	21.9	448752	27.6	21.1	435967	27.7	20.9	350248	27.7	20.9	463995	27.8	20.9
473637	27.5	20.9	403230	27.5	21.5	494180	27.6	20.0	467879	27.7	20.5	124336	27.7	19.8	483705	27.8	21.5
337850	27.5	20.1	534081	27.5	21.2	238112	27.6	18.9	463377	27.7	20.5	33182	27.7	18.2	379864	27.8	20.0
400015	27.5	21.4	485489	27.5	19.9	416916	27.6	21.8	508417	27.7	21.0	387312	27.7	20.3	369649	27.8	20.2
50117	27.5	16.7	389883	27.5	21.3	115898	27.6	19.1	264437	27.7	20.4	240052	27.7	20.0	258980	27.8	20.7
165714	27.5	18.6	272471	27.5	21.4	374220	27.6	20.4	35769	27.7	18.5	309889	27.7	20.8	317143	27.8	20.6
416932	27.5	20.6	244994	27.5	19.9	433084	27.6	19.7	408439	27.7	19.2	505739	27.7	20.6	188530	27.8	19.5
510286	27.5	20.7	104534	27.5	18.9	532405	27.6	21.6	534336	27.7	21.3	11034	27.7	18.6	309283	27.8	20.9
23990	27.5	18.7	223516	27.5	20.3	56960	27.6	18.9	154671	27.7	19.0	292305	27.7	20.1	81980	27.8	19.1
73585	27.5	18.9	351300	27.5	20.3	469356	27.6	22.7	293048	27.7	21.2	426503	27.7	20.9	144724	27.8	18.9
527073	27.5	20.8	438162	27.5	21.3	371234	27.6	21.0	234890	27.7	19.5	538411	27.7	20.9	502948	27.8	20.7
34238	27.5	19.6	427169	27.5	21.2	289884	27.6	20.4	150501	27.7	19.5	200767	27.7	20.4	494712	27.8	20.9
82023	27.5	18.8	378903	27.5	21.3	52915	27.6	18.2	538975	27.7	20.9	4256	27.7	15.7	458256	27.8	21.1
534558	27.5	20.8	310877	27.5	17.2	314869	27.6	19.2	114888	27.7	20.6	243420	27.7	19.0	517653	27.8	21.1
540343	27.5	20.8	329269	27.5	20.3	432076	27.6	21.2	231436	27.7	18.4	226704	27.7	19.6	536922	27.8	22.5
73703	27.5	18.2	371704	27.5	20.7	381629	27.6	20.4	198907	27.7	20.3	73600	27.7	18.4	543981	27.8	21.2
444246	27.5	21.0	345233	27.5	20.0	341282	27.6	20.5	219379	27.7	19.7	466461	27.7	20.9	302830	27.8	19.3
529041	27.5	21.6	173432	27.5	18.5	437376	27.6	21.0	22465	27.7	19.5	207347	27.7	20.4	234991	27.8	19.2
20876	27.5	18.1	85329	27.6	20.6	3385	27.6	14.6	413913	27.7	21.0	258117	27.7	20.0	531473	27.8	21.8
404494	27.5	19.8	350583	27.6	19.7	160184	27.6	18.9	249601	27.7	21.2	185151	27.7	20.0	491142	27.8	21.1
401834	27.5	20.2	233511	27.6	19.5	26535	27.6	17.2	231789	27.7	20.5	440706	27.7	21.6	225237	27.8	20.6
393657	27.5	20.5	341526	27.6	20.7	9734	27.6	16.2	470187	27.7	21.0	111579	27.7	19.3	449140	27.8	19.9
452160	27.5	20.7	239012	27.6	19.2	339866	27.6	21.1	11006	27.7	16.6	243777	27.7	20.2	151781	27.8	19.9
283613	27.5	20.7	302445	27.6	19.9	16131	27.6	18.3	309819	27.7	19.8	393705	27.7	20.1	111100	27.8	19.0
371259	27.5	20.9	2332	27.6	15.3	495455	27.6	20.9	52991	27.7	18.8	105763	27.7	20.3	57227	27.8	18.5
427330	27.5	20.8	152887	27.6	19.4	85693	27.6	18.8	412408	27.7	19.8	60654	27.7	17.5	429290	27.8	20.4
463888	27.5	19.7	133941	27.6	19.5	119771	27.6	20.1	179813	27.7	20.4	197532	27.8	18.6	463683	27.8	21.7
139572	27.5	19.3	454934	27.6	19.4	544591	27.6	22.0	341734	27.7	20.2	532464	27.8	22.4	339552	27.8	20.0
266763	27.5	20.5	2733	27.6	16.0	387279	27.6	21.1	353261	27.7	18.9	533859	27.8	21.3	397038	27.8	20.4
429963	27.5	20.4	371132	27.6	20.8	372545	27.6	20.0	70849	27.7	18.7	411286	27.8	20.3	485112	27.8	19.4
540197	27.5	20.5	166756	27.6	19.5	381888	27.6	20.7	304792	27.7	20.2	453972	27.8	21.0	542125	27.8	22.7
52201	27.5	19.8	305160	27.6	19.9	135289	27.6	19.2	334629	27.7	21.7	317112	27.8	20.3	170937	27.8	18.0
416660	27.5	21.1	236193	27.6	20.8	136488	27.6	19.2	491232	27.7	21.6	204392	27.8	20.5	426528	27.8	21.1
62167	27.5	19.6	384878	27.6	20.8	27222	27.6	17.3	4246	27.7	15.2	299566	27.8	18.9	534226	27.8	21.8
80094	27.5	17.8	421133	27.6	20.4	338146	27.6	20.8	53996								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
135489	27.8	19.8	505918	27.9	20.9	204902	27.9	20.2	331336	28.0	20.3	282309	28.1	20.2	297043	28.2	19.5
401003	27.8	21.0	321555	27.9	19.3	301335	27.9	21.9	241823	28.0	19.7	288680	28.1	19.9	532440	28.2	21.6
116074	27.8	20.5	321782	27.9	19.5	47712	27.9	20.1	41666	28.0	19.1	322717	28.1	20.0	33557	28.2	18.1
30830	27.8	18.2	38695	27.9	19.2	253949	27.9	18.9	430348	28.0	20.4	26833	28.1	18.8	274799	28.2	20.0
262196	27.8	20.4	226718	27.9	20.4	396848	27.9	21.3	228722	28.0	19.9	394873	28.1	20.6	85861	28.2	18.0
29259	27.8	18.3	234836	27.9	20.6	465486	27.9	20.5	286321	28.0	21.4	237101	28.1	19.5	490381	28.2	21.7
235509	27.8	20.5	416545	27.9	19.3	226636	27.9	19.4	494564	28.0	19.5	473711	28.1	20.1	469103	28.2	20.6
168987	27.8	19.0	529068	27.9	21.3	238783	27.9	20.2	281381	28.0	19.9	197638	28.1	18.1	318976	28.2	20.6
543462	27.8	20.2	208978	27.9	20.2	425983	27.9	20.1	315462	28.1	20.9	519927	28.1	20.9	325606	28.2	18.8
123213	27.8	19.6	367529	27.9	20.1	315696	27.9	20.0	295259	28.1	20.0	54748	28.1	17.8	339644	28.2	20.9
500346	27.8	20.8	81389	27.9	18.8	363808	27.9	20.7	375571	28.1	20.9	464687	28.1	21.9	124351	28.2	19.2
541123	27.9	21.4	270026	27.9	18.5	192368	27.9	18.9	339499	28.1	19.9	214846	28.1	20.7	319103	28.2	20.4
292526	27.9	21.0	83085	27.9	19.3	460772	27.9	19.9	304962	28.1	21.0	30551	28.1	18.8	8465	28.2	19.3
450295	27.9	19.6	393446	27.9	19.7	365681	27.9	20.9	528908	28.1	20.7	500048	28.1	20.6	5576	28.2	16.1
88886	27.9	19.3	90511	27.9	18.3	495291	27.9	20.3	941222	28.1	20.5	406636	28.1	20.8	15089	28.2	16.1
52691	27.9	19.9	371744	27.9	20.7	140300	27.9	19.0	417001	28.1	21.0	419474	28.1	20.7	321088	28.2	20.2
378745	27.9	20.6	196745	27.9	19.9	256562	27.9	19.2	416528	28.1	21.1	281312	28.1	19.7	314720	28.2	20.3
391094	27.9	20.7	310888	27.9	20.7	270058	27.9	21.2	534048	28.1	19.7	429015	28.1	20.4	200799	28.2	19.5
498206	27.9	21.6	173824	27.9	20.4	148701	27.9	20.3	453878	28.1	20.8	293749	28.1	19.9	524518	28.2	20.6
315540	27.9	21.5	453991	27.9	20.5	341561	27.9	20.6	222813	28.1	20.4	540123	28.1	21.0	356474	28.2	19.5
161786	27.9	19.6	28161	27.9	19.4	307324	27.9	19.7	249047	28.1	19.4	421505	28.1	20.9	486773	28.2	20.0
422554	27.9	21.3	231728	27.9	19.4	387660	27.9	20.7	527086	28.1	21.8	386235	28.1	21.1	72266	28.2	18.4
369111	27.9	21.0	495550	27.9	21.0	461036	27.9	20.2	407967	28.1	20.9	440174	28.1	21.6	432115	28.2	21.3
448275	27.9	20.9	85542	27.9	18.6	273983	27.9	20.3	468115	28.1	20.5	176882	28.1	20.0	286014	28.2	21.3
445875	27.9	19.6	292366	27.9	21.5	544040	27.9	22.3	238942	28.1	20.8	433549	28.1	21.5	122565	28.2	18.8
491714	27.9	21.5	188075	27.9	21.0	493558	27.9	20.4	448256	28.1	20.5	57693	28.1	19.6	245107	28.2	19.9
526479	27.9	20.0	315470	27.9	20.9	201389	27.9	19.9	116789	28.1	18.6	309832	28.1	19.4	326025	28.2	20.6
281993	27.9	19.1	83416	27.9	18.6	541546	27.9	21.7	76031	28.1	19.4	502885	28.1	20.4	53094	28.2	18.4
535251	27.9	20.8	351687	27.9	20.4	348463	28.0	19.6	357373	28.1	20.4	83101	28.1	19.8	155269	28.2	20.7
130855	27.9	19.0	180547	27.9	19.2	198883	28.0	20.6	275595	28.1	20.8	417028	28.1	21.7	244211	28.2	19.4
17148	27.9	18.7	118169	27.9	19.1	288833	28.0	20.3	33561	28.1	17.0	322873	28.1	19.4	239494	28.2	20.4
256405	27.9	20.9	113610	27.9	19.3	221988	28.0	19.8	311331	28.1	20.1	421206	28.1	21.7	463188	28.2	19.5
375563	27.9	20.6	378795	27.9	20.1	236302	28.0	19.6	339564	28.1	20.0	530579	28.1	21.5	233908	28.2	19.9
285427	27.9	20.3	318035	27.9	20.1	497866	28.0	21.5	463736	28.1	21.9	130569	28.1	19.0	422790	28.2	20.8
375582	27.9	20.7	468375	27.9	20.5	205554	28.0	20.4	235074	28.1	18.7	11328	28.1	17.3	433707	28.2	20.5
200684	27.9	19.9	47858	27.9	17.8	448499	28.0	19.9	89710	28.1	19.7	244280	28.1	19.4	121000	28.2	19.4
316300	27.9	20.5	495928	27.9	20.5	104247	28.0	19.0	500373	28.1	20.9	452272	28.1	21.7	198966	28.2	20.4
403279	27.9	19.6	355351	27.9	19.9	387702	28.0	20.9	298873	28.1	20.2	146370	28.1	19.3	81728	28.2	18.1
181489	27.9	20.2	126934	27.9	18.6	460154	28.0	20.8	524969	28.1	21.3	500558	28.1	20.3	320379	28.2	20.2
246636	27.9	19.1	253174	27.9	19.8	118776	28.0	17.7	288743	28.1	19.8	423941	28.1	20.6	54503	28.2	18.7
217049	27.9	18.8	41568	27.9	18.5	483215	28.0	20.2	384168	28.1	21.5	321011	28.1	18.9	182546	28.2	19.5
252334	27.9	20.2	494632	27.9	19.9	473804	28.0	21.6	12078	28.1	18.0	26116	28.1	17.1	192814	28.2	19.5
337208	27.9	21.1	178126	27.9	18.7	14185	28.0	17.3	10959	28.1	17.4	457078	28.1	20.8	28	28.2	10.9
428513	27.9	20.5	133393	27.9	18.8	544552	28.0	20.8	430368	28.1	20.9	152145	28.1	17.6	255947	28.2	20.8
493113	27.9	21.2	142560	27.9	18.8	130507	28.0	19.0	87635	28.1	19.7	223194	28.1	19.4	194286	28.2	20.8
90930	27.9	18.1	414926	27.9	21.1	236182	28.0	20.4	347402	28.1	19.9	465124	28.1	21.9	79427	28.2	19.5
496608	27.9	20.7	155268	27.9	19.7	501476	28.0	20.5	180721	28.1	20.7	52666	28.1	17.6	470811	28.2	19.5
227582	27.9	20.3	348971	27.9	20.8	432086	28.0	21.1	129346	28.1	20.9	269235	28.1	19.1	427315	28.2	20.4
387422	27.9	19.7	363373	27.9	20.9	158277	28.0	20.8	499526	28.1	20.2	502857	28.2	20.7	8798	28.2	18.2
325341	27.9	19.2	417539	27.9	21.3	301306	28.0	21.1	368624	28.1	20.8	426188	28.2	20.7	366222	28.2	19.6
415856	27.9	21.6	66400	27.9	17.4	264674	28.0	20.2	501635	28.1	21.4	532595	28.2	21.8	282661	28.2	20.4
537825	27.9	20.7	90670	27.9	20.0	166859	28.0	20.0	365690	28.1	20.9	6373	28.2	16.0	125640	28.2	19.3
529075	27.9	20.9	110469	27.9	18.4	415362	28.0	19.9	310054	28.1	20.4	221594	28.2	20.1	19463	28.2	18.1
244977	27.9	21.4	53001	27.9	18.9	306260	28.0	20.2	241059	28.1	19.9	544334	28.2	21.6	528260	28.2	20.5
251290	27.9	20.9	57797	27.9	18.8	429351	28.0	19.8	335683	28.1	20.4	241217	28.2	19.9	160109	28.2	19.4
114845	27.9	20.1	109855	27.9	19.2	432134	28.0	22.0	463770	28.1	20.9	239913	28.2	20.7	434872	28.2	21.3
522397	27.9	21.1	385074	27.9	20.9	328909	28.0	21.1	139790	28.1	19.9	326931	28.2	20.8	117167	28.2	19.3
501327	27.9	20.7	240876	27.9	20.2	246649	28.0	20.4	307430	28.1	20.0	233781	28.2	20.5	195001	28.2	20.6
415869	27.9	21.9	334574	27.9	20.9	87222	28.0	19.2	169371	28.1	19.8	186555	28.2	20.1	125974	28.2	19.5
540176	27.9	21.0	523968	27.9	21.1	462619	28.0	21.3	413604	28.1	21.0	420850	28.2	20.2	194827	28.2	19.3
528671	27.9	20.4	80151	27.9	18.9	433625	28.0	20.8	337622	28.1	20.9	78456	28.2	19.3	329328	28.2	20.8
105322	27.9	19.0	544091	27.9	20.3	430471	28.0	20.1	1678	28.1	15.7	412870	28.2	20.5	536939	28.2	20.6
35519	27.9	18.5	466552	27.9	21.3	496649	28.0	21.2	489797	28.1	20.7	70252	28.2	19.0	187876	28.2	20.4
170339	27.9	19.9	291548	27.9	20.3	194930	28.0	20.8	400547	28.1	20.8	402690	28.2	22.5	452446	28.2	20.2
409919	27.9	21.4	393435	27.9	21.0	414563	28.0	21.1	494986	28.1	21.1	348674	28.2	19.4	245928	28.2	19.3
422141	27.9	20.4	109794	27.9	19.6	87731	28.0	19.2	115311	28.1	19.9	91447	28.2	19.4	532544	28.2	20.3
427232	27.9	21.4	440573	27.9	21.7	295279	28.0	20.3	508687	28.1	21.1	382559	28.2	21.7	271138	28.2	20.8
496534	27.9	20.2	158986	27.9	20.1	348579	28.0	20.5	347937	28.1	18.9	124172	28.2	20.0	157357	28.2	19.3
499094	27.9	21.1	213707	27.9	20.8	544549	28.0	21.									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
190812	28.2	19.6	411352	28.3	21.3	8428	28.4	17.5	105971	28.5	18.8	396805	28.5	21.1	234885	28.6	19.9
11641	28.2	17.5	110411	28.3	18.9	151828	28.4	18.3	323502	28.5	20.2	340742	28.5	20.9	401308	28.6	19.2
284320	28.2	19.7	208195	28.3	20.3	284511	28.4	20.8	385305	28.5	21.9	260070	28.5	18.9	486179	28.6	21.2
163143	28.2	18.9	545077	28.3	20.5	484005	28.4	20.4	343041	28.5	20.3	97465	28.5	20.2	32203	28.6	18.5
273288	28.3	20.9	372680	28.3	20.7	381470	28.4	20.4	269811	28.5	20.0	397892	28.5	20.5	175994	28.6	20.2
466336	28.3	21.1	89324	28.3	19.9	284318	28.4	20.1	318062	28.5	19.2	388852	28.5	20.8	108211	28.6	18.1
283146	28.3	19.8	263715	28.3	19.2	541139	28.4	20.5	534692	28.5	21.8	282555	28.5	20.7	250252	28.6	20.7
144672	28.3	18.5	155077	28.3	20.3	103735	28.4	18.6	79891	28.5	19.0	41010	28.5	18.1	338441	28.6	19.9
541889	28.3	19.4	207841	28.3	19.8	331394	28.4	20.3	421168	28.5	20.5	485066	28.5	19.1	255848	28.6	19.9
486050	28.3	21.7	416193	28.3	19.8	239358	28.4	20.8	422172	28.5	20.7	201872	28.5	19.8	529556	28.6	21.7
122393	28.3	19.9	198490	28.3	20.0	155057	28.4	20.4	323442	28.5	19.5	421311	28.5	20.6	125431	28.6	18.6
327421	28.3	20.1	525981	28.3	20.5	429283	28.4	21.0	404185	28.5	19.6	58898	28.5	18.3	271206	28.6	19.6
466709	28.3	21.9	396714	28.3	20.7	108780	28.4	19.0	163588	28.5	19.7	138763	28.5	19.9	282639	28.6	20.5
242081	28.3	19.9	8089	28.3	18.7	378407	28.4	19.1	451697	28.5	20.6	261662	28.5	20.1	383722	28.6	21.1
26035	28.3	17.7	171990	28.3	19.9	32283	28.4	17.7	542106	28.5	22.1	28774	28.5	18.5	15173	28.6	18.2
427269	28.3	20.7	145141	28.3	19.1	463744	28.4	22.0	485114	28.5	20.1	61127	28.5	17.7	446029	28.6	20.4
251630	28.3	18.6	86400	28.3	18.3	327924	28.4	19.4	458400	28.5	21.1	261573	28.5	20.2	442500	28.6	21.0
29770	28.3	18.8	19762	28.3	17.6	292541	28.4	21.3	18133	28.5	18.7	17949	28.5	16.9	326439	28.6	21.0
5554	28.3	17.6	112415	28.3	19.3	538395	28.4	21.0	57936	28.5	18.8	154675	28.5	18.3	70667	28.6	18.6
385032	28.3	20.5	176803	28.3	21.2	201607	28.4	19.0	43825	28.5	18.6	231591	28.5	19.9	402559	28.6	22.0
232447	28.3	19.6	137049	28.3	19.5	411404	28.4	21.3	223727	28.5	19.5	254683	28.5	20.3	542235	28.6	21.3
217770	28.3	20.2	307796	28.3	19.7	538113	28.4	21.0	500502	28.5	20.9	154018	28.5	20.3	464965	28.6	22.0
84875	28.3	18.6	509927	28.3	20.1	471143	28.4	19.5	240532	28.5	19.5	326374	28.5	20.3	533852	28.6	21.0
299279	28.3	19.9	226595	28.3	18.7	464258	28.4	20.8	510400	28.5	21.5	454334	28.5	20.9	349587	28.6	20.8
194477	28.3	20.4	188092	28.3	20.7	343129	28.4	18.4	535297	28.5	20.9	180244	28.5	20.1	340639	28.6	21.2
324091	28.3	20.3	39953	28.3	17.6	277979	28.4	21.4	490312	28.5	20.2	369581	28.5	20.6	274642	28.6	20.5
123282	28.3	19.7	544623	28.3	21.2	56854	28.4	18.9	215544	28.5	20.6	130995	28.5	20.6	299325	28.6	20.0
424975	28.3	21.3	189500	28.3	20.9	317144	28.4	19.5	53935	28.5	19.0	178910	28.5	20.6	333684	28.6	20.8
17725	28.3	17.8	271856	28.3	21.1	283217	28.4	20.0	375390	28.5	21.3	179953	28.5	20.1	286241	28.6	20.8
483242	28.3	20.8	190387	28.3	19.5	264524	28.4	21.8	433931	28.5	20.3	182684	28.5	19.3	33144	28.6	17.5
338126	28.3	20.4	200741	28.3	20.2	432094	28.4	20.5	48622	28.5	18.8	399515	28.5	21.5	175593	28.6	19.5
344361	28.3	21.0	406210	28.3	22.0	224826	28.4	20.6	236645	28.5	21.1	385889	28.5	20.8	222728	28.6	19.8
15895	28.3	16.7	44573	28.3	18.4	83134	28.4	18.7	450170	28.5	22.4	81110	28.5	18.8	226681	28.6	19.8
313183	28.3	18.9	420857	28.3	20.3	395121	28.4	19.8	259269	28.5	18.7	500672	28.5	20.7	544473	28.6	21.5
36912	28.3	18.9	496402	28.3	20.8	215788	28.4	18.9	131189	28.5	19.7	21608	28.5	17.3	500418	28.6	21.3
88971	28.3	18.6	445133	28.4	20.5	400808	28.4	19.3	437615	28.5	21.5	36469	28.5	19.0	338900	28.6	19.7
129435	28.3	20.3	15645	28.4	18.4	148686	28.4	20.0	226592	28.5	20.5	337359	28.5	20.8	14420	28.6	17.5
258167	28.3	20.4	209123	28.4	20.6	532889	28.4	22.1	252511	28.5	20.6	200961	28.5	19.3	497110	28.6	20.8
228294	28.3	20.1	532890	28.4	21.8	461418	28.4	21.1	372472	28.5	21.5	396271	28.5	20.8	109961	28.6	19.5
173712	28.3	20.2	84172	28.4	20.0	103111	28.4	18.8	449512	28.5	20.1	394080	28.5	20.7	520875	28.6	21.0
295873	28.3	20.5	534552	28.4	20.8	529255	28.4	22.3	140639	28.5	18.8	179973	28.5	19.2	405571	28.6	21.0
6619	28.3	16.0	429249	28.4	20.4	345379	28.4	20.7	534066	28.5	21.9	36496	28.5	18.9	91476	28.6	19.9
531545	28.3	21.2	492498	28.4	20.5	190473	28.4	19.3	461067	28.5	21.0	497873	28.5	21.9	451429	28.6	21.9
450271	28.3	20.5	273440	28.4	19.9	90225	28.4	19.0	194475	28.5	20.3	188015	28.5	19.5	52390	28.6	18.9
171205	28.3	19.7	93459	28.4	19.9	243280	28.4	20.6	224843	28.5	19.9	132668	28.5	20.2	363120	28.6	20.1
261402	28.3	20.5	445328	28.4	20.1	532961	28.4	22.2	39729	28.5	19.1	88882	28.5	19.0	243419	28.6	20.8
414207	28.3	20.7	36199	28.4	18.1	487683	28.4	20.7	105551	28.5	19.5	493849	28.5	20.6	256154	28.6	20.2
290861	28.3	20.8	66331	28.4	17.5	538879	28.4	21.3	242469	28.5	19.6	413962	28.5	19.8	29490	28.6	17.6
315659	28.3	18.9	354559	28.4	20.7	207839	28.4	20.7	79429	28.5	19.2	495518	28.5	21.7	188629	28.6	20.4
55961	28.3	17.7	419856	28.4	20.7	326471	28.4	20.7	159392	28.5	20.4	273375	28.5	20.6	505165	28.6	20.9
380022	28.3	20.8	451896	28.4	21.1	31704	28.4	17.3	464895	28.5	21.4	134374	28.6	19.7	28980	28.6	18.6
543340	28.3	21.2	136670	28.4	19.7	483871	28.4	21.6	196897	28.5	18.7	423106	28.6	20.6	302401	28.6	19.2
81603	28.3	18.8	242729	28.4	19.7	128694	28.4	20.0	221312	28.5	20.3	10164	28.6	17.4	221167	28.6	19.3
175272	28.3	20.0	235273	28.4	20.2	377506	28.4	21.2	445992	28.5	20.3	156532	28.6	20.2	491935	28.6	21.4
339762	28.3	20.5	120853	28.4	20.1	305217	28.4	19.9	401332	28.5	20.8	152535	28.6	19.2	267484	28.6	19.0
92860	28.3	19.0	229511	28.4	19.8	428750	28.4	21.3	425135	28.5	22.2	59059	28.6	19.4	211499	28.6	19.7
413934	28.3	21.6	432949	28.4	21.1	98444	28.4	18.1	503265	28.5	20.1	346	28.6	11.7	135276	28.6	19.7
13410	28.3	16.5	192503	28.4	18.9	372620	28.4	20.3	116564	28.5	18.0	117614	28.6	20.2	527269	28.6	21.4
500614	28.3	21.6	159875	28.4	19.5	491966	28.4	21.1	189250	28.5	19.7	176670	28.6	21.2	279212	28.6	20.8
50525	28.3	18.6	544842	28.4	21.2	42031	28.4	19.4	537942	28.5	20.2	527357	28.6	21.2	415758	28.6	21.6
277591	28.3	20.7	325790	28.4	20.4	234896	28.4	20.4	234934	28.5	20.4	272569	28.6	21.3	5646	28.6	18.4
228201	28.3	21.7	242992	28.4	20.4	86773	28.4	17.3	122618	28.5	18.1	57183	28.6	19.4	94936	28.6	18.6
211212	28.3	19.7	419038	28.4	21.1	219369	28.4	20.9	136108	28.5	17.3	417241	28.6	21.8	544729	28.6	21.1
223814	28.3	20.5	208536	28.4	18.6	498911	28.4	21.1	413076	28.5	21.7	6761	28.6	19.1	234570	28.6	19.1
381646	28.3	20.2	401929	28.4	21.9	253959	28.4	18.8	105161	28.5	19.0	39744	28.6	18.8	417088	28.6	20.2
531730	28.3	21.2	46880	28.4	19.2	307039	28.4	21.0	528085	28.5	20.8	265369	28.6	19.4	344544	28.6	19.8
156392	28.3	19.5	494660	28.4	20.2	309292	28.4	20.1	406865	28.5	20.1	281621	28.6	19.8	242835	28.6	18.6
207583	28.3	20.3	85073	28.4	19.6	168911	28.4	19.7	352722	28.5	20.6	269417	28.6	21.2	182144	28.6	19.0
325231	28.3	20.4	497270	28.4	20.9	63523	28.4	20.1	371711								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
429022	28.6	20.9	398356	28.7	21.0	327386	28.8	19.5	155379	28.8	19.1	242447	28.9	20.0	323952	28.9	19.3
125482	28.6	19.1	491861	28.7	22.2	152311	28.8	20.4	6760	28.8	16.7	371142	28.9	20.7	466424	28.9	20.9
503152	28.6	20.4	159779	28.7	19.0	283378	28.8	20.8	244979	28.8	19.5	534837	28.9	21.3	308048	28.9	20.7
188778	28.6	20.5	204325	28.7	19.4	76798	28.8	17.6	258173	28.8	20.9	324446	28.9	21.2	124312	28.9	20.2
469184	28.6	20.9	493427	28.7	20.4	206824	28.8	19.9	271406	28.8	19.8	90939	28.9	19.0	122532	28.9	19.9
380055	28.7	21.4	462869	28.7	21.3	167957	28.8	19.7	141572	28.8	19.7	122450	28.9	19.9	158603	28.9	19.6
140869	28.7	18.9	219699	28.7	20.3	83917	28.8	19.1	399335	28.8	21.1	421768	28.9	20.0	398382	28.9	20.3
9697	28.7	18.0	190588	28.7	20.9	378764	28.8	21.2	495834	28.8	22.1	84694	28.9	20.0	304803	28.9	20.6
44548	28.7	18.4	84528	28.7	19.0	450137	28.8	20.7	373108	28.8	20.6	527676	28.9	21.1	67631	28.9	19.0
116069	28.7	19.3	201943	28.7	19.3	106378	28.8	18.7	240008	28.8	21.0	471174	28.9	20.2	145357	28.9	19.5
341862	28.7	19.7	215065	28.7	19.7	495842	28.8	21.8	238030	28.9	19.7	543310	28.9	20.3	24985	28.9	17.7
209354	28.7	20.0	408987	28.7	21.2	451882	28.8	19.7	213121	28.9	19.7	227680	28.9	20.0	389452	28.9	20.4
249035	28.7	19.9	468504	28.7	20.5	544631	28.8	21.3	97705	28.9	18.5	502938	28.9	21.0	256257	28.9	20.5
534445	28.7	20.8	455796	28.7	20.0	464591	28.8	20.5	95054	28.9	18.8	7097	28.9	17.4	339931	28.9	20.3
361753	28.7	19.9	322533	28.7	20.0	192294	28.8	21.0	455553	28.9	20.0	350759	28.9	20.4	495151	28.9	20.1
295495	28.7	19.8	116760	28.7	19.7	528742	28.8	21.1	406086	28.9	20.8	122482	28.9	19.6	74413	28.9	18.5
361374	28.7	20.3	88510	28.7	19.5	361356	28.8	20.5	455760	28.9	20.6	345212	28.9	21.6	484763	28.9	20.2
336904	28.7	20.2	155569	28.7	18.8	245872	28.8	20.0	211879	28.9	19.4	205331	28.9	20.0	120759	28.9	19.8
519591	28.7	20.9	19498	28.7	17.6	531411	28.8	21.0	509282	28.9	19.8	512270	28.9	20.1	232403	28.9	18.5
174496	28.7	19.9	265325	28.7	19.2	66563	28.8	19.1	417786	28.9	19.8	495524	28.9	21.3	221247	28.9	20.5
531445	28.7	21.4	110347	28.7	20.0	266206	28.8	20.8	360368	28.9	20.5	219797	28.9	20.3	153003	28.9	18.5
419996	28.7	21.1	127900	28.7	18.8	423137	28.8	20.4	187818	28.9	20.5	444238	28.9	20.7	204721	28.9	19.7
151220	28.7	19.9	112039	28.7	19.5	504022	28.8	20.8	413141	28.9	20.5	492420	28.9	20.5	415931	28.9	19.8
426704	28.7	21.4	469230	28.7	20.0	193813	28.8	19.0	140867	28.9	20.1	192068	28.9	20.4	414544	29.0	20.8
379099	28.7	21.1	540133	28.7	21.2	62260	28.8	18.3	190340	28.9	20.4	324679	28.9	19.6	56084	29.0	18.1
385550	28.7	21.0	46993	28.7	18.9	306606	28.8	19.3	126220	28.9	19.6	171588	28.9	20.1	42741	29.0	18.8
399356	28.7	21.3	365774	28.7	20.6	50231	28.8	17.6	68842	28.9	19.1	3238	28.9	17.9	417544	29.0	20.4
492607	28.7	20.3	541535	28.7	21.4	185041	28.8	20.5	358099	28.9	20.1	84439	28.9	20.6	299404	29.0	18.9
531426	28.7	20.8	252537	28.7	19.3	334645	28.8	21.4	232694	28.9	20.4	370755	28.9	20.6	55166	29.0	18.4
261456	28.7	20.9	431235	28.7	21.5	381994	28.8	20.1	212147	28.9	19.7	264423	28.9	20.7	375836	29.0	20.8
364726	28.7	20.0	309440	28.7	20.4	431127	28.8	20.8	375560	28.9	20.3	345628	28.9	21.8	430756	29.0	22.2
40662	28.7	18.4	177983	28.7	20.8	401584	28.8	20.1	237036	28.9	19.3	445581	28.9	21.7	311092	29.0	20.3
327903	28.7	20.5	509951	28.7	18.9	467129	28.8	19.6	140147	28.9	19.6	78881	28.9	19.2	421270	29.0	20.4
241890	28.7	19.9	469086	28.7	20.4	47298	28.8	19.4	499471	28.9	19.6	406592	28.9	21.1	188775	29.0	20.7
446317	28.7	19.9	497696	28.7	21.9	449201	28.8	21.8	208452	28.9	20.2	458372	28.9	21.2	180707	29.0	18.8
302914	28.7	21.0	229871	28.7	20.5	152281	28.8	19.4	23236	28.9	17.9	57997	28.9	18.6	79336	29.0	18.9
83218	28.7	19.1	19145	28.7	18.5	500406	28.8	21.4	526190	28.9	22.1	427716	28.9	20.4	79446	29.0	18.7
161641	28.7	18.1	38235	28.7	17.9	498273	28.8	21.3	387211	28.9	20.9	234874	28.9	19.9	462792	29.0	22.2
371200	28.7	20.8	140821	28.8	19.0	326405	28.8	21.7	16967	28.9	18.2	268751	28.9	21.3	431547	29.0	21.9
162005	28.7	20.3	533066	28.8	20.9	80398	28.8	18.5	182409	28.9	20.2	30180	28.9	16.9	510456	29.0	21.2
378863	28.7	20.0	84142	28.8	19.0	371773	28.8	20.3	362253	28.9	20.2	67956	28.9	19.2	312272	29.0	20.8
264568	28.7	20.6	35508	28.8	17.8	174846	28.8	19.4	224435	28.9	19.7	28995	28.9	19.1	323129	29.0	21.5
403542	28.7	19.7	127643	28.8	19.9	8809	28.8	18.5	50287	28.9	17.6	58063	28.9	18.9	291217	29.0	19.6
133273	28.7	19.8	209499	28.8	19.7	289802	28.8	19.5	72661	28.9	18.5	284341	28.9	20.9	56164	29.0	17.9
45616	28.7	18.9	137809	28.8	18.9	173018	28.8	20.4	276316	28.9	20.4	293365	28.9	20.1	463717	29.0	21.8
24639	28.7	17.2	101514	28.8	18.0	250238	28.8	21.0	265813	28.9	21.2	391794	28.9	19.6	122912	29.0	19.6
238873	28.7	19.8	101765	28.8	18.5	135422	28.8	20.1	334865	28.9	20.0	131318	28.9	23.2	485069	29.0	19.4
177969	28.7	20.9	151174	28.8	20.5	457137	28.8	20.0	47624	28.9	18.7	180932	28.9	20.0	103628	29.0	19.5
269183	28.7	19.6	498385	28.8	21.9	418615	28.8	20.5	66509	28.9	18.5	149262	28.9	20.2	96411	29.0	17.9
68646	28.7	17.4	522139	28.8	20.5	444736	28.8	20.0	230262	28.9	19.4	148293	28.9	18.9	165707	29.0	19.8
536187	28.7	21.1	309234	28.8	21.0	327902	28.8	21.1	413519	28.9	20.9	367756	28.9	20.2	337965	29.0	21.3
243010	28.7	19.7	3198	28.8	15.6	334164	28.8	20.6	536066	28.9	20.9	455445	28.9	21.8	52203	29.0	19.0
374998	28.7	19.8	326466	28.8	20.4	38804	28.8	18.5	13147	28.9	17.4	174836	28.9	19.3	448246	29.0	20.1
400546	28.7	20.7	544963	28.8	21.2	453808	28.8	21.2	182522	28.9	20.5	204887	28.9	20.5	173752	29.0	18.6
536393	28.7	21.1	222346	28.8	20.1	196685	28.8	19.9	44694	28.9	17.3	290165	28.9	19.7	311030	29.0	19.7
217120	28.7	21.5	232079	28.8	19.8	419701	28.8	20.4	279552	28.9	20.2	428841	28.9	21.0	61223	29.0	19.1
262832	28.7	21.0	419978	28.8	20.9	109916	28.8	19.7	505953	28.9	19.9	135192	28.9	19.8	246362	29.0	20.1
123673	28.7	19.6	461401	28.8	21.5	15586	28.8	17.5	26149	28.9	19.3	529113	28.9	21.7	44858	29.0	19.4
136235	28.7	18.8	359168	28.8	19.2	234377	28.8	19.7	227595	28.9	19.6	419848	28.9	21.8	256875	29.0	20.8
390596	28.7	20.4	200978	28.8	20.6	498979	28.8	21.1	165442	28.9	20.2	287629	28.9	20.0	353858	29.0	20.4
415377	28.7	20.7	34755	28.8	19.0	135409	28.8	20.2	423376	28.9	20.2	316861	28.9	19.5	33866	29.0	18.2
331203	28.7	19.4	369344	28.8	21.8	186234	28.8	20.5	3963	28.9	17.5	396536	28.9	19.3	80400	29.0	18.6
449543	28.7	20.5	200654	28.8	20.0	75860	28.8	18.8	358630	28.9	19.9	110947	28.9	18.5	283587	29.0	21.0
384646	28.7	19.3	39955	28.8	18.0	316468	28.8	20.5	359124	28.9	21.6	380341	28.9	21.3	365415	29.0	20.3
367861	28.7	20.3	501328	28.8	21.1	266485	28.8	20.4	309504	28.9	20.3	456686	28.9	21.5	403077	29.0	20.9
492907	28.7	20.5	500511	28.8	21.6	125712	28.8	19.8	322235	28.9	20.1	360825	28.9	20.4	205250	29.0	20.3
37118	28.7	17.6	406070	28.8	22.1	443898	28.8	21.5	401962	28.9	22.1	486094	28.9	21.7	317629	29.0	19.6
489246	28.7	20.3	27885	28.8	18.3	49541	28.8	18.2	155662	28.9	19.7	36634	28.9	19.8	206164	29.0	20.8
277175	28.7	20.0	122637	28.8	20.3	494670	28.8	20.2	210264								

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
401350	29.1	19.7	84723	29.1	17.8	221338	29.2	20.0	163431	29.3	19.7	519189	29.3	20.8	114193	29.4	19.2
172995	29.1	19.4	351729	29.1	21.3	211460	29.2	19.3	42252	29.3	17.7	270409	29.3	19.8	28315	29.4	18.5
215088	29.1	21.1	465771	29.1	21.2	118046	29.2	20.4	129533	29.3	20.1	311322	29.3	19.5	465441	29.4	21.3
343155	29.1	20.6	41815	29.1	18.5	258306	29.2	20.1	349664	29.3	20.3	409890	29.3	20.4	84550	29.4	19.5
384144	29.1	20.3	185526	29.1	20.3	343246	29.2	19.7	424853	29.3	21.2	81855	29.3	18.5	392989	29.4	20.4
467641	29.1	20.7	519955	29.1	20.7	391098	29.2	19.4	237194	29.3	20.9	52672	29.3	18.2	287599	29.4	20.2
541524	29.1	19.8	528542	29.1	20.9	291391	29.2	19.7	191223	29.3	19.9	467052	29.3	19.8	502276	29.4	20.8
122216	29.1	19.0	21962	29.1	18.5	106737	29.2	18.8	78751	29.3	19.0	229149	29.3	20.5	241	29.4	12.4
65868	29.1	20.1	90837	29.1	19.7	538429	29.2	20.7	21386	29.3	17.9	170115	29.3	20.1	95185	29.4	19.6
215045	29.1	21.1	27687	29.1	19.4	425005	29.2	19.6	451002	29.3	20.4	88873	29.3	19.2	460858	29.4	20.0
353495	29.1	21.0	256396	29.1	20.2	462941	29.2	21.7	342912	29.3	20.3	400834	29.3	19.1	366947	29.4	20.0
125881	29.1	19.0	341678	29.1	21.2	82902	29.2	18.6	115054	29.3	19.7	534511	29.3	22.5	163806	29.4	18.9
458252	29.1	22.4	21403	29.1	17.8	209665	29.2	20.8	138598	29.3	19.9	288849	29.3	20.3	236264	29.4	20.1
257036	29.1	20.7	286541	29.1	20.4	206248	29.2	20.8	544405	29.3	21.9	280516	29.3	19.9	100708	29.4	19.4
251278	29.1	20.5	133815	29.1	19.2	486084	29.2	21.2	202093	29.3	20.3	181570	29.3	19.0	39976	29.4	18.1
291500	29.1	20.0	430701	29.1	20.6	233472	29.2	20.7	233892	29.3	20.3	427218	29.3	22.4	181732	29.4	20.6
260105	29.1	20.1	458371	29.1	21.1	403130	29.2	20.8	452072	29.3	21.0	465765	29.3	20.7	529664	29.4	20.1
369552	29.1	20.9	179807	29.1	20.2	64141	29.2	18.3	112025	29.3	19.6	468361	29.3	20.4	103162	29.4	18.8
18695	29.1	18.4	63706	29.1	18.0	64782	29.2	18.9	425438	29.3	20.2	34748	29.3	17.7	132082	29.4	19.7
42432	29.1	18.9	234392	29.1	19.4	241346	29.2	20.4	20768	29.3	18.2	488874	29.3	20.4	157805	29.4	19.8
76186	29.1	18.6	224285	29.1	19.5	377538	29.2	20.6	52479	29.3	17.5	378947	29.3	20.8	450712	29.4	20.0
33796	29.1	17.3	473669	29.1	21.1	63750	29.2	18.7	271825	29.3	21.0	45851	29.3	17.7	8213	29.4	16.8
348785	29.1	20.6	271427	29.1	19.8	407503	29.2	21.7	505975	29.3	20.5	35076	29.3	17.3	10177	29.4	16.8
105752	29.1	18.4	533849	29.1	21.9	221225	29.2	20.3	142290	29.3	20.6	538039	29.3	20.0	134796	29.4	19.4
431281	29.1	19.2	289764	29.1	20.0	181433	29.2	20.2	252370	29.3	18.8	341511	29.3	20.4	401974	29.4	22.2
446345	29.1	19.6	185386	29.1	20.7	491076	29.2	21.7	112410	29.3	19.9	346862	29.3	20.5	535864	29.4	21.7
15966	29.1	17.7	544781	29.1	20.6	81013	29.2	18.0	186147	29.3	20.6	304879	29.3	20.3	345096	29.4	21.2
336574	29.1	20.2	444095	29.1	21.9	383649	29.2	21.3	172010	29.3	20.4	541822	29.3	21.8	303928	29.4	19.5
290671	29.1	20.1	381497	29.1	21.4	502756	29.2	20.1	4393	29.3	16.5	234040	29.3	20.2	455479	29.4	21.1
456508	29.1	21.5	486067	29.1	21.5	34505	29.2	18.0	166633	29.3	21.5	321764	29.3	21.0	63951	29.4	20.1
463249	29.1	20.6	529234	29.1	21.0	114738	29.2	19.3	246864	29.3	20.4	246766	29.3	20.9	377472	29.4	21.2
165746	29.1	19.9	200803	29.1	19.7	428436	29.2	20.7	163736	29.3	19.5	55484	29.3	17.6	416890	29.4	21.6
430323	29.1	20.9	317563	29.1	19.9	402667	29.2	22.0	415863	29.3	22.4	22776	29.3	17.5	224377	29.4	19.3
223507	29.1	20.1	161588	29.1	20.2	142526	29.2	19.2	483979	29.3	19.9	6783	29.3	17.2	218738	29.4	20.6
185120	29.1	20.1	522356	29.1	20.7	6600	29.2	17.4	118301	29.3	19.8	508439	29.3	21.4	240011	29.4	20.7
221201	29.1	19.7	155597	29.1	19.0	93938	29.2	20.0	497656	29.3	20.3	202944	29.3	19.9	301275	29.4	21.6
13471	29.1	16.6	240791	29.2	19.4	363807	29.2	19.4	353255	29.3	19.3	104854	29.3	19.3	318613	29.4	20.5
505238	29.1	21.0	155975	29.2	19.6	294417	29.2	19.6	506300	29.3	18.9	96257	29.3	19.4	483535	29.4	21.7
531399	29.1	22.5	194415	29.2	20.0	487837	29.2	19.4	359093	29.3	20.4	526143	29.3	21.4	56057	29.4	19.3
275497	29.1	20.7	11088	29.2	16.9	45861	29.2	18.5	353380	29.3	20.4	66995	29.3	19.0	369364	29.4	21.1
128865	29.1	19.4	346071	29.2	20.5	511702	29.2	21.3	483806	29.3	20.6	228021	29.3	18.8	408925	29.4	21.4
5166	29.1	15.8	239514	29.2	20.3	289028	29.2	20.6	532395	29.3	21.2	210698	29.3	19.5	163685	29.4	20.1
133488	29.1	19.6	337807	29.2	20.9	247444	29.2	19.8	404776	29.3	19.0	421905	29.3	20.3	30338	29.4	17.3
953009	29.1	21.8	156984	29.2	20.0	94495	29.2	17.0	182505	29.3	19.9	455441	29.3	21.9	494661	29.4	22.3
486219	29.1	20.9	527219	29.2	21.6	524199	29.2	22.0	244245	29.3	19.7	324601	29.3	21.7	501440	29.4	21.0
150236	29.1	20.0	84672	29.2	18.9	400934	29.2	21.3	238308	29.3	19.0	456876	29.3	21.4	282154	29.4	20.6
366736	29.1	19.3	78566	29.2	18.9	296773	29.2	20.7	221905	29.3	20.2	534825	29.3	21.7	329407	29.4	20.9
126265	29.1	18.9	95004	29.2	19.7	48279	29.2	19.4	83668	29.3	18.7	8129	29.3	16.8	81545	29.4	18.9
250148	29.1	20.1	284408	29.2	20.2	240883	29.2	19.2	179896	29.3	20.2	416049	29.3	21.1	535315	29.4	21.9
70235	29.1	19.8	313853	29.2	19.7	190133	29.2	19.5	124231	29.3	19.7	380664	29.3	19.4	364796	29.4	20.8
518828	29.1	20.9	69486	29.2	19.7	325516	29.2	20.1	459128	29.3	20.1	350589	29.4	20.5	66231	29.4	18.7
458293	29.1	21.4	406530	29.2	19.9	155238	29.2	19.1	429052	29.3	20.9	520961	29.4	21.4	422645	29.4	22.1
341344	29.1	20.6	158390	29.2	19.1	30743	29.2	18.4	29365	29.3	16.6	536892	29.4	21.0	79681	29.4	18.4
341395	29.1	20.5	57802	29.2	18.7	398380	29.2	20.7	5914	29.3	16.1	49431	29.4	17.7	203820	29.4	20.8
21653	29.1	18.0	258518	29.2	20.0	456637	29.2	20.6	293178	29.3	19.9	415087	29.4	20.3	242962	29.4	20.4
237971	29.1	20.9	316793	29.2	21.5	355947	29.2	19.7	148609	29.3	21.0	142919	29.4	19.3	109948	29.4	19.6
496614	29.1	20.5	522609	29.2	20.6	455	29.2	13.3	485021	29.3	20.9	987	29.4	14.3	235391	29.4	20.8
530265	29.1	20.9	463246	29.2	19.1	445043	29.2	20.3	207937	29.3	20.0	393700	29.4	19.7	110156	29.4	18.1
433077	29.1	21.0	55064	29.2	18.1	147266	29.2	19.9	349839	29.3	20.7	35423	29.4	17.2	144633	29.4	19.3
226820	29.1	20.1	105951	29.2	18.4	113909	29.2	18.9	109285	29.3	19.4	101881	29.4	18.2	454843	29.4	21.6
401247	29.1	21.4	82732	29.2	19.2	35709	29.2	16.4	307826	29.3	21.1	453840	29.4	20.4	375479	29.4	20.8
208326	29.1	20.7	348878	29.2	20.5	473531	29.2	19.9	255990	29.3	20.4	432092	29.4	20.5	357587	29.4	21.3
102401	29.1	18.9	14667	29.2	17.6	409947	29.2	21.7	16556	29.3	17.2	420460	29.4	20.4	219736	29.4	20.9
331379	29.1	19.5	53627	29.2	17.7	433089	29.2	20.5	140009	29.3	20.1	351554	29.4	20.1	85840	29.4	18.9
191942	29.1	19.9	287422	29.2	20.5	230231	29.2	20.0	304941	29.3	19.8	245700	29.4	20.4	206139	29.4	19.8
368620	29.1	20.9	236666	29.2	20.2	206386	29.2	20.2	207088	29.3	19.8	148832	29.4	20.6	440482	29.4	21.2
419031	29.1	21.1	327350	29.2	20.5	322036	29.2	20.3	323111	29.3	21.2	468274	29.4	20.5	123427	29.4	20.0
147307	29.1	18.1	450068	29.2	20.3	468490	29.2	19.5	81573	29.3	19.1	301815	29.4	19.4	35397	29.4	17.3
58325	29.1	21.2	245830	29.2	20.4	95484	29.2	19.0	343954	29.3	20.3</						

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
269024	29.5	20.4	107033	29.5	19.4	377948	29.6	21.0	290611	29.6	19.7	538993	29.7	20.2	113257	29.8	19.8
415855	29.5	20.1	256350	29.5	20.2	33666	29.6	18.9	203831	29.6	19.8	337500	29.7	20.5	379084	29.8	20.9
483906	29.5	21.7	384758	29.5	20.1	535426	29.6	21.4	88859	29.6	19.1	21046	29.7	18.5	391391	29.8	20.5
532587	29.5	21.2	155623	29.5	19.3	156778	29.6	19.6	408842	29.6	20.8	115039	29.7	19.2	451041	29.8	19.0
330418	29.5	20.2	154277	29.5	20.3	200855	29.6	20.9	164313	29.6	20.3	355630	29.7	19.4	351662	29.8	20.2
219430	29.5	21.0	370479	29.5	19.0	172386	29.6	19.0	8800	29.6	19.4	149938	29.7	18.5	290787	29.8	20.6
57336	29.5	19.2	231136	29.5	19.4	341442	29.6	20.5	34444	29.6	17.2	118778	29.7	18.8	306011	29.8	19.4
119751	29.5	20.1	538177	29.5	20.4	105237	29.6	19.1	38055	29.6	17.1	439950	29.7	21.4	219412	29.8	20.6
230011	29.5	18.8	425702	29.5	21.0	541635	29.6	19.8	341438	29.7	20.7	534635	29.7	19.2	379134	29.8	20.5
510046	29.5	21.2	212516	29.5	20.3	208983	29.6	20.9	63454	29.7	19.0	112037	29.7	19.1	114387	29.8	18.7
256078	29.5	21.0	368571	29.5	19.2	529468	29.6	21.7	329855	29.7	19.8	286690	29.7	19.3	181935	29.8	20.1
203075	29.5	20.5	461932	29.5	22.1	373281	29.6	20.1	315820	29.7	19.6	42266	29.7	18.8	19766	29.8	17.3
350745	29.5	21.5	351672	29.5	21.0	354549	29.6	21.1	78462	29.7	18.3	226180	29.7	20.2	190821	29.8	21.6
70327	29.5	19.1	198886	29.5	19.3	54469	29.6	18.4	318645	29.7	20.5	499988	29.7	21.0	79281	29.8	18.7
491965	29.5	20.7	258175	29.5	19.8	255927	29.6	20.3	111061	29.7	19.6	378340	29.7	20.1	63999	29.8	19.5
177583	29.5	19.7	486890	29.5	20.0	151095	29.6	19.7	249410	29.7	20.9	456411	29.7	21.3	56585	29.8	18.6
76732	29.5	17.5	210861	29.5	21.0	426954	29.6	20.8	145640	29.7	20.2	482056	29.7	21.2	274589	29.8	20.7
522180	29.5	21.2	301230	29.5	21.4	354520	29.6	21.4	529607	29.7	21.4	85428	29.7	18.3	113712	29.8	19.3
434812	29.5	20.9	345620	29.5	20.7	223698	29.6	20.2	432552	29.7	20.7	469023	29.7	21.0	277825	29.8	20.3
166845	29.5	20.1	490291	29.5	20.4	241165	29.6	19.3	194221	29.7	19.4	98596	29.7	19.4	484291	29.8	20.1
267029	29.5	20.7	463881	29.5	21.0	465776	29.6	20.7	341652	29.7	20.7	428505	29.7	21.5	444432	29.8	21.2
496350	29.5	21.4	346399	29.5	20.4	254065	29.6	19.3	43593	29.7	19.1	451466	29.7	21.0	300345	29.8	19.5
381962	29.5	20.6	483990	29.5	20.8	463892	29.6	21.3	469423	29.7	21.3	147882	29.7	20.0	127994	29.8	19.4
387467	29.5	20.7	58283	29.5	19.2	165525	29.6	18.8	87565	29.7	20.6	422709	29.7	21.1	224495	29.8	20.7
235650	29.5	19.7	228736	29.5	19.9	40858	29.6	18.8	38065	29.7	17.0	296094	29.7	19.9	467524	29.8	20.8
192859	29.5	20.8	526053	29.5	21.5	528693	29.6	21.1	143153	29.7	19.6	372333	29.7	19.9	248568	29.8	20.3
23956	29.5	17.5	194438	29.5	20.1	540531	29.6	20.5	165284	29.7	18.8	138348	29.7	18.5	488022	29.8	20.2
274951	29.5	20.2	204494	29.5	19.0	490797	29.6	20.0	72344	29.7	18.0	30656	29.7	17.6	453815	29.8	22.0
532439	29.5	21.5	410801	29.5	20.3	62113	29.6	18.9	303247	29.7	20.4	294595	29.7	20.3	440623	29.8	21.9
503795	29.5	18.6	348874	29.5	21.0	148816	29.6	19.8	474043	29.7	20.8	275063	29.7	21.4	165889	29.8	19.6
395456	29.5	20.7	200777	29.5	19.8	456807	29.6	22.3	303335	29.7	20.8	171987	29.7	20.2	268567	29.8	19.6
529694	29.5	21.1	341668	29.5	20.2	538212	29.6	21.8	304992	29.7	21.4	79895	29.7	17.7	226350	29.8	19.1
463912	29.5	22.0	135364	29.5	19.4	179120	29.6	19.9	541834	29.7	20.3	175440	29.7	20.6	190369	29.8	20.5
64913	29.5	18.9	190194	29.5	19.2	417223	29.6	21.5	30298	29.7	19.0	27802	29.7	18.5	541280	29.8	20.6
274930	29.5	20.8	280899	29.5	20.5	257939	29.6	20.3	345596	29.7	21.9	317134	29.7	20.6	6888	29.8	17.4
76314	29.5	18.3	535625	29.5	20.0	236080	29.6	19.7	421819	29.7	20.0	193972	29.7	19.8	262685	29.8	20.6
30365	29.5	17.5	415602	29.5	20.9	76333	29.6	18.7	435999	29.7	20.9	428896	29.7	20.7	265649	29.8	20.5
47757	29.5	19.8	368819	29.6	21.8	172389	29.6	19.2	54879	29.7	20.0	404357	29.7	20.2	345654	29.8	21.4
210865	29.5	20.9	406121	29.6	20.9	341586	29.6	20.5	122834	29.7	19.1	45750	29.7	18.1	319614	29.8	21.0
34808	29.5	18.4	522341	29.6	20.9	322714	29.6	19.7	282142	29.7	20.9	159490	29.7	19.2	104883	29.8	19.3
372103	29.5	20.7	194229	29.6	20.8	337567	29.6	20.6	534661	29.7	20.3	532321	29.7	22.1	151160	29.8	20.0
87303	29.5	19.5	400279	29.6	21.5	467892	29.6	19.9	483701	29.7	20.5	206967	29.7	20.4	318002	29.8	21.2
93058	29.5	19.0	58199	29.6	18.9	304809	29.6	20.3	512975	29.7	21.2	499059	29.7	21.2	286962	29.8	20.9
89544	29.5	19.6	152352	29.6	18.9	18231	29.6	18.3	8196	29.7	16.8	180474	29.8	21.2	383746	29.8	21.3
362084	29.5	21.1	121021	29.6	17.7	80413	29.6	18.4	251753	29.7	21.1	29181	29.8	18.5	412328	29.8	19.0
130694	29.5	20.0	543314	29.6	20.8	400523	29.6	19.6	502850	29.7	20.5	487850	29.8	20.1	254297	29.8	20.8
234496	29.5	20.1	220596	29.6	20.1	266345	29.6	19.5	11416	29.7	18.0	200420	29.8	20.4	241778	29.8	19.8
234491	29.5	20.4	62370	29.6	17.8	161090	29.6	19.1	410407	29.7	19.5	232589	29.8	20.2	543495	29.8	20.2
415665	29.5	20.3	189044	29.6	19.8	341548	29.6	21.0	50174	29.7	18.9	5563	29.8	15.8	221353	29.8	20.8
530246	29.5	21.3	27817	29.6	19.0	460170	29.6	20.4	413621	29.7	21.0	496345	29.8	21.1	5453	29.8	17.2
30410	29.5	18.4	258403	29.6	19.5	532901	29.6	20.7	125349	29.7	19.2	189100	29.8	19.8	201519	29.8	19.0
109866	29.5	19.9	337845	29.6	19.8	34052	29.6	17.5	529935	29.7	24.1	247308	29.8	20.6	65309	29.8	19.2
41627	29.5	18.6	357228	29.6	19.7	56690	29.6	18.0	387188	29.7	20.6	246287	29.8	20.8	237617	29.8	19.7
18953	29.5	19.3	147281	29.6	19.7	413522	29.6	20.9	284129	29.7	21.3	461587	29.8	21.2	84590	29.8	18.9
329754	29.5	20.8	435949	29.6	20.9	219750	29.6	20.1	388424	29.7	19.7	486031	29.8	21.7	147763	29.8	19.4
525808	29.5	21.5	84533	29.6	19.7	184314	29.6	22.5	498110	29.7	20.6	276235	29.8	20.5	433064	29.8	20.4
281387	29.5	19.3	268500	29.6	20.3	219553	29.6	20.5	50791	29.7	18.7	206106	29.8	20.5	190425	29.8	20.0
171964	29.5	19.7	425982	29.6	19.9	468594	29.6	20.9	80024	29.7	17.4	432878	29.8	20.2	471323	29.8	21.2
58290	29.5	18.4	75776	29.6	19.2	35449	29.6	18.8	409003	29.7	21.6	146672	29.8	19.9	179982	29.8	19.7
164377	29.5	18.9	161679	29.6	18.5	186196	29.6	20.3	250160	29.7	20.8	69093	29.8	18.7	10325	29.8	16.3
60018	29.5	19.8	461710	29.6	21.5	12496	29.6	17.5	19604	29.7	18.6	82366	29.8	18.1	205313	29.8	21.0
463560	29.5	20.2	233590	29.6	20.2	509	29.6	13.0	244469	29.7	20.5	229614	29.8	20.4	428863	29.8	21.7
136415	29.5	18.4	321687	29.6	20.2	149918	29.6	20.0	89344	29.7	19.1	461719	29.8	21.3	417821	29.8	20.1
248707	29.5	19.3	168304	29.6	19.5	472368	29.6	19.3	24940	29.7	17.2	379496	29.8	19.6	96870	29.8	18.3
140259	29.5	20.3	110658	29.6	20.6	149968	29.6	19.7	232432	29.7	19.3	465655	29.8	21.4	458392	29.8	20.0
544858	29.5	20.5	232458	29.6	18.8	400799	29.6	19.7	258606	29.7	20.2	375314	29.8	22.2	518618	29.8	20.3
240553	29.5	19.8	235599	29.6	20.0	246035	29.6	19.8	42309	29.7	18.9	501279	29.8	20.5	519529	29.8	20.7
542541	29.5	21.1	101384	29.6	20.3	173046	29.6	20.0	71003	29.7	19.3	205372	29.8	20.6	113309	29.8	19.2
37315	29.5	18.9	259813	29.6	19.2	269425	29.6	20.4	141125	29.7							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
456679	29.8	21.1	96002	29.9	19.0	357487	29.9	19.7	122137	30.0	18.7	266409	30.1	19.8	228202	30.2	20.3
19808	29.8	17.8	142152	29.9	20.3	51958	29.9	18.2	431265	30.0	21.0	26506	30.1	18.4	33816	30.2	18.1
464554	29.8	21.4	502514	29.9	21.1	40253	29.9	18.1	89190	30.0	19.4	391476	30.1	19.7	380964	30.2	20.6
534171	29.8	20.7	522402	29.9	20.5	198932	29.9	20.3	493692	30.0	19.8	247131	30.1	21.3	90263	30.2	18.4
466968	29.8	20.4	25125	29.9	17.0	24700	29.9	18.0	382135	30.0	20.4	338111	30.1	21.1	116537	30.2	18.8
287260	29.8	20.9	336985	29.9	20.1	83441	29.9	18.6	21768	30.0	17.2	92847	30.1	18.5	523868	30.2	19.9
332919	29.8	20.0	8978	29.9	17.6	82469	29.9	18.9	58304	30.0	18.1	515720	30.1	20.2	488525	30.2	20.5
15135	29.8	16.4	323780	29.9	20.2	468241	29.9	20.8	66912	30.0	18.6	445608	30.1	21.4	496800	30.2	19.8
340638	29.8	21.0	257054	29.9	20.4	2471	29.9	16.0	519622	30.0	20.6	237116	30.1	20.8	317029	30.2	20.4
154434	29.8	20.1	111562	29.9	19.7	331229	29.9	20.7	35119	30.0	18.7	7326	30.1	17.6	237536	30.2	20.2
67709	29.8	18.2	525143	29.9	20.5	36612	29.9	19.0	294409	30.0	19.3	31693	30.1	16.8	152113	30.2	19.6
532717	29.9	21.5	124520	29.9	19.6	104558	29.9	18.7	530306	30.0	21.2	374025	30.1	20.8	30446	30.2	17.2
191840	29.9	19.5	80259	29.9	20.1	306403	29.9	21.5	406131	30.0	20.3	401827	30.1	21.9	55309	30.2	18.1
124580	29.9	19.7	498166	29.9	21.3	503515	29.9	19.8	369567	30.0	20.4	373450	30.1	20.8	138627	30.2	20.5
150786	29.9	19.0	318614	29.9	20.0	91413	29.9	18.9	435686	30.0	20.0	544390	30.1	21.8	544434	30.2	21.8
486110	29.9	21.5	328834	29.9	20.7	307685	29.9	19.5	417191	30.0	20.9	265739	30.1	20.5	386540	30.2	19.9
100664	29.9	19.4	451575	29.9	21.0	455120	29.9	22.4	431619	30.0	21.4	262363	30.1	20.0	52406	30.2	20.4
540119	29.9	21.2	417114	29.9	20.7	207899	29.9	20.7	526192	30.0	21.0	516181	30.1	20.5	689	30.2	15.7
88675	29.9	19.5	255784	29.9	21.3	449226	29.9	20.8	423563	30.0	21.1	167192	30.1	20.4	335894	30.2	21.1
445128	29.9	21.2	209023	29.9	19.6	424335	29.9	20.7	16370	30.0	19.1	91115	30.1	18.4	347619	30.2	21.2
173369	29.9	18.9	158331	29.9	20.1	472231	29.9	21.5	178929	30.0	20.4	51275	30.1	18.7	483760	30.2	20.8
544248	29.9	20.3	229893	29.9	20.6	505176	29.9	21.0	347422	30.0	21.1	110063	30.1	19.4	464552	30.2	21.5
245055	29.9	20.3	255939	29.9	21.1	305708	29.9	20.6	360467	30.0	21.2	417015	30.1	20.8	178132	30.2	20.6
421941	29.9	20.8	131462	29.9	19.8	227598	29.9	20.1	238749	30.0	20.2	202134	30.1	18.8	445141	30.2	21.5
261236	29.9	19.1	74983	29.9	18.7	277818	29.9	20.4	104525	30.1	19.4	157505	30.1	19.6	536099	30.2	21.3
456767	29.9	21.0	14506	29.9	18.2	171571	29.9	19.2	167109	30.1	19.1	32395	30.1	17.5	307628	30.2	21.2
408855	29.9	21.5	539020	29.9	20.6	514058	29.9	20.1	28889	30.1	18.4	501588	30.1	21.4	455389	30.2	21.0
468186	29.9	21.2	327313	29.9	20.9	163452	29.9	19.6	113099	30.1	19.4	210871	30.1	21.1	89280	30.2	19.5
317554	29.9	20.7	165304	29.9	20.1	424126	29.9	19.9	164932	30.1	19.5	406003	30.1	22.3	341626	30.2	21.0
3204	29.9	17.9	130582	29.9	19.2	232392	29.9	21.1	75029	30.1	18.7	432091	30.1	21.4	175453	30.2	20.8
483832	29.9	21.5	534485	29.9	21.7	121261	29.9	19.8	277569	30.1	20.3	428118	30.1	20.9	446047	30.2	20.5
204899	29.9	20.2	21796	29.9	17.9	492604	29.9	20.3	233515	30.1	19.9	519290	30.1	21.4	445899	30.2	19.9
394042	29.9	21.1	332670	29.9	22.3	459096	29.9	21.8	152663	30.1	20.0	329385	30.1	21.5	494005	30.2	20.6
110834	29.9	18.7	27924	29.9	18.2	185203	29.9	19.5	16164	30.1	18.4	189791	30.1	19.4	266399	30.2	20.4
471782	29.9	20.8	224823	29.9	19.7	348634	29.9	21.0	279161	30.1	20.7	486129	30.1	21.5	260799	30.2	19.0
27563	29.9	18.5	62679	29.9	19.5	5057	29.9	17.4	447436	30.1	21.5	313790	30.1	20.6	222283	30.2	18.7
135807	29.9	19.3	252602	29.9	19.7	204386	29.9	20.9	224953	30.1	20.1	460832	30.1	21.4	484736	30.2	20.2
345239	29.9	20.8	490084	29.9	21.3	308029	29.9	19.7	11751	30.1	15.8	287586	30.1	19.3	411678	30.2	20.0
322616	29.9	19.9	71399	29.9	18.4	466796	29.9	21.5	397891	30.1	21.0	534360	30.1	22.0	175937	30.2	19.0
473176	29.9	20.8	406164	29.9	21.8	19081	29.9	16.9	524594	30.1	24.0	495659	30.1	21.4	180143	30.2	20.1
199486	29.9	19.6	156733	29.9	19.5	340104	29.9	20.8	119003	30.1	18.9	346992	30.1	20.1	290765	30.2	20.9
80664	29.9	18.7	492454	29.9	20.4	266356	29.9	20.5	167773	30.1	19.8	494669	30.1	21.7	426767	30.2	20.2
471158	29.9	20.4	464039	29.9	21.6	288285	29.9	19.9	354587	30.1	20.5	525662	30.1	21.8	500738	30.2	21.8
315499	29.9	20.9	343079	29.9	21.0	295955	29.9	20.7	446109	30.1	21.5	301164	30.1	20.2	208192	30.2	20.1
319795	29.9	21.2	83004	29.9	19.8	454343	30.0	19.7	27443	30.1	17.8	89316	30.1	19.9	308976	30.2	20.3
280434	29.9	20.6	147844	29.9	19.5	271415	30.0	19.3	498241	30.1	21.3	123449	30.1	18.8	54976	30.2	18.8
413972	29.9	21.2	433839	29.9	20.6	84940	30.0	19.3	16838	30.1	18.2	186801	30.1	19.9	356973	30.2	21.1
140297	29.9	19.7	433170	29.9	21.0	341305	30.0	20.0	171047	30.1	18.9	293016	30.1	20.7	121991	30.2	18.2
346920	29.9	21.2	184096	29.9	19.5	360529	30.0	21.4	272825	30.1	21.5	398784	30.1	21.1	238947	30.2	19.9
157582	29.9	20.2	276608	29.9	20.6	364389	30.0	20.6	233158	30.1	20.4	424643	30.1	21.0	265321	30.2	20.6
34546	29.9	17.0	37352	29.9	17.9	89966	30.0	20.0	140394	30.1	19.8	216169	30.1	19.7	249395	30.2	20.7
343544	29.9	20.2	373361	29.9	20.3	162758	30.0	20.5	385099	30.1	20.8	121024	30.1	21.2	473617	30.2	21.7
89257	29.9	19.2	67666	29.9	17.2	505148	30.0	21.2	451678	30.1	20.2	327374	30.1	21.2	84666	30.2	19.5
141483	29.9	19.0	114606	29.9	18.9	304569	30.0	19.9	245271	30.1	20.3	239444	30.1	21.1	485071	30.2	19.2
25470	29.9	17.2	382817	29.9	20.6	133478	30.0	19.9	491182	30.1	21.1	16713	30.1	18.3	461084	30.2	20.1
354226	29.9	20.3	385029	29.9	20.3	363012	30.0	20.4	497736	30.1	22.1	496520	30.1	20.6	490012	30.2	21.0
162792	29.9	20.1	281058	29.9	21.0	227685	30.0	19.5	319003	30.1	19.0	542491	30.1	20.5	12201	30.2	17.3
492621	29.9	19.9	336520	29.9	21.3	182592	30.0	19.4	39194	30.1	18.2	101270	30.1	19.5	464356	30.2	21.0
159196	29.9	20.6	148260	29.9	19.0	2842	30.0	15.0	343604	30.1	20.5	325713	30.1	20.5	464441	30.2	21.7
416881	29.9	21.3	39927	29.9	17.3	83390	30.0	18.5	166215	30.1	18.7	364443	30.1	21.0	9876	30.2	18.2
287515	29.9	20.2	224909	29.9	19.1	77207	30.0	18.0	350	30.1	13.8	47851	30.1	18.0	103035	30.2	19.4
281267	29.9	20.5	76859	29.9	18.8	544237	30.0	19.7	258454	30.1	20.6	320857	30.1	20.8	297044	30.2	18.8
262865	29.9	20.9	369341	29.9	21.6	532666	30.0	22.0	533972	30.1	20.7	465587	30.1	20.9	165931	30.2	19.2
30877	29.9	18.8	414252	29.9	19.8	292080	30.0	20.4	218379	30.1	19.2	48193	30.1	19.6	53354	30.2	18.3
17329	29.9	19.4	412164	29.9	20.0	144946	30.0	19.2	127369	30.1	18.7	489728	30.1	20.6	187290	30.2	19.6
385909	29.9	20.3	433909	29.9	19.5	204292	30.0	20.6	101400	30.1	20.2	211513	30.1	20.1	391772	30.2	20.7
90760	29.9	20.1	445625	29.9	20.5	96033	30.0	19.8	463319	30.1	20.6	172853	30.1	21.0	157827	30.2	19.3
345520	29.9	20.0	223501	29.9	20.2	17637	30.0	17.7	166844	30.1	20.0	34079	30.1	18.2	464989	30.2	21.8
282559	29.9	21.0	170039	29.9	19.2	444322	30.0	21.7	240506	30.1	19						

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
244997	30.2	19.7	201419	30.3	19.0	73512	30.3	18.9	384182	30.4	20.7	240744	30.5	20.2	528236	30.5	21.3
76395	30.2	18.1	22746	30.3	18.0	111249	30.3	19.3	121533	30.4	19.2	402850	30.5	21.9	500402	30.5	20.9
206075	30.2	20.5	153906	30.3	20.3	417333	30.3	21.3	339461	30.4	20.1	219687	30.5	19.7	156509	30.5	19.0
381680	30.2	20.3	378976	30.3	20.2	408865	30.3	22.2	468721	30.4	20.8	337036	30.5	21.2	96089	30.5	19.1
406171	30.2	21.9	367521	30.3	20.9	455115	30.3	22.1	60621	30.4	23.1	298922	30.5	19.8	306332	30.5	22.0
64746	30.2	18.2	74001	30.3	18.4	83925	30.3	19.4	324041	30.4	19.5	331057	30.5	21.0	384877	30.5	20.8
512355	30.2	19.5	348502	30.3	22.3	98189	30.3	19.5	296797	30.4	20.7	541988	30.5	21.1	543015	30.5	22.0
37320	30.2	17.7	415969	30.3	21.3	138809	30.4	19.7	386184	30.4	21.0	1550	30.5	16.4	486919	30.6	19.9
322148	30.2	20.9	468910	30.3	18.7	278003	30.4	19.7	140085	30.4	19.5	135105	30.5	19.4	532830	30.6	20.8
512280	30.2	21.0	322747	30.3	20.2	399682	30.4	20.4	536114	30.4	21.8	522078	30.5	19.9	175102	30.6	19.4
521811	30.2	20.6	49250	30.3	18.7	260858	30.4	20.6	309258	30.4	19.9	351686	30.5	20.7	176604	30.6	20.4
439271	30.2	20.2	2304	30.3	15.0	495926	30.4	22.1	275336	30.4	21.0	294073	30.5	20.7	54732	30.6	18.0
532316	30.2	21.6	250488	30.3	19.2	372432	30.4	20.3	341767	30.4	21.8	144299	30.5	20.0	499405	30.6	20.8
382324	30.2	20.9	133362	30.3	20.4	14313	30.4	17.7	238835	30.4	19.9	495613	30.5	21.3	136380	30.6	18.7
348543	30.2	20.3	448111	30.3	19.4	206221	30.4	20.7	413570	30.4	21.2	443889	30.5	23.0	355858	30.6	20.8
165657	30.2	19.5	113200	30.3	19.6	234455	30.4	19.5	368574	30.4	21.1	336718	30.5	20.3	161023	30.6	19.6
35962	30.2	18.4	159472	30.3	18.4	396653	30.4	19.2	542093	30.4	20.5	154008	30.5	18.9	176944	30.6	20.0
386833	30.2	20.1	399117	30.3	19.7	437824	30.4	20.3	522026	30.4	20.5	149242	30.5	20.2	334286	30.6	20.8
525025	30.2	21.8	47576	30.3	21.3	135515	30.4	20.9	543841	30.4	21.9	534781	30.5	21.1	109859	30.6	19.9
458813	30.2	21.7	304056	30.3	19.4	422287	30.4	20.3	377940	30.4	19.4	53402	30.5	17.8	254007	30.6	20.6
148574	30.2	20.1	500453	30.3	21.2	360826	30.4	21.0	487715	30.4	20.0	500536	30.5	20.7	23808	30.6	18.9
387831	30.2	19.4	16525	30.3	15.7	271179	30.4	19.4	534735	30.4	21.3	241936	30.5	20.0	138373	30.6	20.0
415938	30.2	22.1	142403	30.3	18.8	340779	30.4	21.3	455055	30.4	21.0	62945	30.5	18.7	36109	30.6	19.2
450483	30.2	21.2	321300	30.3	20.1	33168	30.4	17.8	117107	30.4	19.3	534125	30.5	21.2	450723	30.6	19.8
161797	30.2	19.4	502053	30.3	20.9	384651	30.4	19.9	473741	30.4	20.3	391019	30.5	20.0	284697	30.6	19.7
53728	30.2	17.6	192512	30.3	19.5	467195	30.4	20.8	226233	30.4	20.2	279533	30.5	19.6	515203	30.6	19.8
160436	30.2	19.8	343189	30.3	21.4	300192	30.4	20.4	155277	30.4	19.6	432427	30.5	19.8	62317	30.6	19.5
531204	30.3	20.1	442677	30.3	21.1	194872	30.4	20.3	133724	30.4	20.0	351302	30.5	20.4	21697	30.6	18.7
418267	30.3	20.1	456596	30.3	20.5	471124	30.4	20.9	312379	30.4	19.7	19674	30.5	18.0	415299	30.6	20.0
63262	30.3	18.3	464412	30.3	21.8	283605	30.4	21.4	168278	30.4	20.2	218880	30.5	19.4	540300	30.6	20.9
23734	30.3	17.7	30291	30.3	18.4	203039	30.4	19.9	383796	30.4	20.5	431621	30.5	21.2	13972	30.6	17.1
425486	30.3	19.9	222860	30.3	18.9	315538	30.4	20.8	339451	30.4	20.8	28773	30.5	16.9	451446	30.6	21.8
22533	30.3	17.7	170839	30.3	19.1	100153	30.4	19.3	411550	30.4	20.8	83193	30.5	19.8	314691	30.6	20.9
327788	30.3	21.6	360450	30.3	20.4	234198	30.4	19.2	221291	30.4	19.8	297079	30.5	19.0	363389	30.6	21.7
445134	30.3	20.1	414857	30.3	21.8	410061	30.4	20.9	350539	30.4	21.0	525738	30.5	21.7	299004	30.6	20.7
10883	30.3	18.6	405956	30.3	21.9	405200	30.4	20.8	6901	30.4	16.9	497274	30.5	21.6	456872	30.6	20.4
337711	30.3	21.0	347612	30.3	20.5	282581	30.4	20.0	171036	30.4	19.1	268045	30.5	20.8	315642	30.6	20.2
499927	30.3	20.2	328533	30.3	19.9	326363	30.4	20.7	462062	30.4	20.8	332183	30.5	20.3	167627	30.6	20.4
183349	30.3	20.3	433844	30.3	21.4	448312	30.4	21.0	169999	30.4	19.3	422022	30.5	21.1	210120	30.6	20.7
174274	30.3	19.7	180011	30.3	20.4	533845	30.4	19.8	388859	30.4	20.4	454292	30.5	20.4	304851	30.6	20.1
433225	30.3	20.3	36365	30.3	19.2	403711	30.4	21.1	341469	30.4	20.4	204360	30.5	20.4	524285	30.6	22.2
427000	30.3	21.0	404675	30.3	21.0	110667	30.4	19.3	334325	30.4	20.6	410016	30.5	22.0	426313	30.6	20.3
392843	30.3	20.4	163636	30.3	20.0	384125	30.4	21.2	135287	30.4	20.1	94729	30.5	19.7	332841	30.6	20.3
416933	30.3	21.2	232942	30.3	21.1	433049	30.4	19.8	364829	30.4	20.0	52968	30.5	19.3	366381	30.6	20.9
275617	30.3	21.3	247011	30.3	20.4	283558	30.4	20.2	399568	30.4	21.2	130072	30.5	19.8	355853	30.6	21.5
331260	30.3	20.3	544081	30.3	21.7	277339	30.4	19.2	295448	30.4	21.1	345682	30.5	21.1	340763	30.6	20.9
306923	30.3	20.9	535634	30.3	21.3	94943	30.4	18.6	299026	30.4	20.5	239740	30.5	19.5	5848	30.6	17.2
145433	30.3	19.3	218683	30.3	20.4	417226	30.4	21.7	415653	30.4	22.0	441866	30.5	21.4	59872	30.6	18.5
20468	30.3	19.0	290960	30.3	19.4	92921	30.4	18.9	467577	30.5	21.2	346041	30.5	20.6	447257	30.6	21.4
200118	30.3	20.1	217988	30.3	18.6	323153	30.4	19.5	412962	30.5	21.0	246172	30.5	20.1	241894	30.6	20.1
170403	30.3	19.8	472560	30.3	20.5	350651	30.4	21.0	193933	30.5	19.6	205272	30.5	20.6	285650	30.6	21.1
315629	30.3	20.1	459223	30.3	20.7	497591	30.4	20.8	127801	30.5	18.3	157489	30.5	20.2	486296	30.6	20.9
415354	30.3	19.4	19233	30.3	18.2	88772	30.4	18.9	262386	30.5	19.1	115099	30.5	20.1	65703	30.6	19.1
415753	30.3	20.8	130466	30.3	19.8	344553	30.4	20.7	108718	30.5	18.3	529133	30.5	22.5	217762	30.6	20.0
391288	30.3	21.7	456613	30.3	19.9	3650	30.4	16.0	239313	30.5	21.0	327051	30.5	20.2	496007	30.6	21.5
496412	30.3	20.9	38759	30.3	18.0	544259	30.4	21.2	445137	30.5	21.5	519135	30.5	20.9	291596	30.6	19.8
54053	30.3	16.9	330074	30.3	20.9	335864	30.4	21.1	245655	30.5	19.7	497648	30.5	21.8	8423	30.6	19.1
460946	30.3	20.9	346807	30.3	21.5	513489	30.4	23.9	500485	30.5	19.9	411518	30.5	20.9	119436	30.6	18.9
205351	30.3	19.8	411343	30.3	20.6	345109	30.4	20.9	536084	30.5	21.2	454786	30.5	20.8	146416	30.6	20.5
502982	30.3	20.5	238418	30.3	19.3	498391	30.4	21.5	163531	30.5	20.2	265770	30.5	20.6	234906	30.6	19.9
453308	30.3	22.1	61804	30.3	17.6	465481	30.4	20.8	379754	30.5	20.2	68358	30.5	19.0	199239	30.6	20.2
286524	30.3	20.2	95103	30.3	20.0	173140	30.4	19.9	111090	30.5	18.7	490264	30.5	21.0	341876	30.6	20.6
245028	30.3	18.0	134355	30.3	19.3	186077	30.4	20.7	14833	30.5	17.6	214386	30.5	17.7	18389	30.6	17.5
207367	30.3	19.9	415824	30.3	21.2	241322	30.4	18.3	386157	30.5	21.3	527199	30.5	21.1	419875	30.6	21.1
535413	30.3	21.5	223660	30.3	20.1	538908	30.4	21.5	239885	30.5	20.1	203620	30.5	18.9	53795	30.6	18.0
166891	30.3	20.0	82773	30.3	18.6	17573	30.4	18.7	532241	30.5	22.3	256095	30.5	20.7	466448	30.6	21.6
150754	30.3	19.9	128868	30.3	19.1	49292	30.4	18.8	279489	30.5	20.7	235049	30.5	18.8	256889	30.6	19.8
525632	30.3	20.8	112806	30.3	19.8	209065	30.4	20.7	52263	30.5	18.7	385969	30.5	20.3	416964	30.6	21.3
277526	30.3	20.2	165908	30.3	20.5	382188	30.4	21.3									

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V	№	04	V	№	04	V
401992	30.6	22.6	211244	30.6	19.7	468432	30.7	21.6	283557	30.8	19.6	528109	30.9	19.8	430681	30.9	21.3
151522	30.6	19.9	399019	30.6	20.3	197525	30.7	20.9	314239	30.8	19.8	341662	30.9	20.8	484908	30.9	21.7
258127	30.6	20.0	470900	30.6	20.8	435015	30.7	19.9	5061	30.8	17.2	48383	30.9	19.1	399966	30.9	19.9
93696	30.6	19.0	418592	30.6	20.2	536330	30.7	20.6	468589	30.8	20.3	172029	30.9	19.9	532329	30.9	21.6
530217	30.6	21.4	407484	30.6	21.5	224183	30.7	19.6	39184	30.8	19.3	89944	30.9	19.1	537875	30.9	20.5
353987	30.6	19.6	163832	30.7	20.1	106681	30.7	18.0	156552	30.8	19.1	488644	30.9	24.1	544890	30.9	21.6
341686	30.6	20.5	430614	30.7	21.7	338076	30.7	20.8	439906	30.8	22.2	329004	30.9	20.8	62108	30.9	18.0
316780	30.6	20.3	209022	30.7	19.6	245651	30.7	19.2	78672	30.8	18.2	262702	30.9	20.8	384204	30.9	20.1
473871	30.6	20.3	418874	30.7	20.3	538403	30.7	21.5	121086	30.8	19.3	58737	30.9	19.0	26594	30.9	17.7
135821	30.6	20.5	388427	30.7	20.3	456314	30.7	20.9	105085	30.8	19.0	98485	30.9	18.3	529343	30.9	20.5
500829	30.6	24.3	212547	30.7	20.6	353844	30.7	19.9	182400	30.8	20.0	301374	30.9	20.0	200881	30.9	19.0
34070	30.6	19.5	460393	30.7	20.4	518744	30.7	21.0	486274	30.8	20.7	157921	30.9	19.8	61349	30.9	18.6
37495	30.6	19.3	322113	30.7	20.5	279877	30.7	21.0	328769	30.8	20.2	397465	30.9	20.4	85537	30.9	18.6
27843	30.6	17.9	166991	30.7	19.8	337156	30.7	21.4	438904	30.8	20.5	280225	30.9	20.2	486903	30.9	20.3
288752	30.6	19.7	207570	30.7	20.3	173953	30.7	20.6	212343	30.8	19.5	160786	30.9	19.6	74513	30.9	19.4
162423	30.6	19.0	185495	30.7	20.6	191810	30.7	20.1	335990	30.8	21.1	256011	30.9	20.2	173797	30.9	20.6
538787	30.6	20.1	454064	30.7	20.5	62663	30.7	17.6	437518	30.8	21.4	378421	30.9	21.6	490400	30.9	21.4
139874	30.6	19.7	124279	30.7	19.6	78225	30.7	19.0	316850	30.8	19.9	233949	30.9	21.1	151562	30.9	19.6
194407	30.6	20.5	411348	30.7	20.6	426724	30.7	22.0	104585	30.8	18.5	3986	30.9	15.9	337704	30.9	21.1
127913	30.6	18.3	437770	30.7	20.9	35325	30.7	18.5	404863	30.8	19.2	196776	30.9	20.2	456700	30.9	20.8
171902	30.6	19.5	347112	30.7	21.0	304830	30.7	21.8	121031	30.8	20.6	226763	30.9	20.8	126274	30.9	18.9
345799	30.6	20.6	234195	30.7	19.0	91501	30.7	20.5	461168	30.8	20.3	4318	30.9	16.3	307328	30.9	19.9
464379	30.6	20.7	222755	30.7	18.9	80551	30.7	19.4	20166	30.8	17.2	180410	30.9	20.2	341693	30.9	20.5
485059	30.6	19.3	541231	30.7	21.7	381604	30.7	20.5	289596	30.8	20.4	183974	30.9	19.6	404317	30.9	19.9
165730	30.6	20.0	263441	30.7	20.2	192549	30.7	20.2	463889	30.8	20.7	198658	30.9	19.6	198664	30.9	20.1
35161	30.6	19.2	47088	30.7	18.6	264499	30.7	21.3	298910	30.8	19.9	375453	30.9	20.5	335949	30.9	21.3
523803	30.6	23.6	108679	30.7	19.3	503009	30.7	20.0	310947	30.8	21.4	401136	30.9	21.0	28472	30.9	17.5
93483	30.6	19.7	234421	30.7	20.6	122434	30.7	18.8	384254	30.8	21.5	10817	30.9	17.4	422613	30.9	19.8
327847	30.6	19.8	432170	30.7	20.4	538473	30.7	20.3	106227	30.8	20.0	101449	30.9	19.6	203787	30.9	21.4
147464	30.6	18.6	154803	30.7	20.1	294130	30.7	20.3	464082	30.8	20.5	74337	30.9	18.9	544601	30.9	21.1
284370	30.6	21.4	458300	30.7	21.7	544387	30.7	21.6	492415	30.8	21.0	320406	30.9	20.6	405169	30.9	22.4
85547	30.6	19.4	359119	30.7	21.5	47016	30.7	18.2	348167	30.8	19.0	356009	30.9	19.3	408890	30.9	21.5
155258	30.6	18.1	62775	30.7	19.5	534942	30.7	20.8	57056	30.8	19.2	394374	30.9	21.3	401969	30.9	22.3
59824	30.6	18.0	319363	30.7	21.0	473401	30.7	21.3	237996	30.8	20.7	339720	30.9	20.9	289656	30.9	19.8
431563	30.6	21.0	35731	30.7	18.4	166797	30.7	20.2	187529	30.8	19.7	422585	30.9	19.0	459187	30.9	20.2
287486	30.6	20.2	36398	30.7	19.5	84314	30.8	19.5	68004	30.8	18.9	289409	30.9	20.5	359158	30.9	21.3
252600	30.6	20.2	227679	30.7	20.5	425469	30.8	20.3	341877	30.8	20.0	59260	30.9	18.8	181811	30.9	21.4
166906	30.6	19.0	402117	30.7	20.7	112849	30.8	20.3	301097	30.8	21.2	256232	30.9	20.7	11122	30.9	16.5
123244	30.6	20.3	529105	30.7	20.7	369826	30.8	20.9	456650	30.8	21.1	377429	30.9	21.2	524392	30.9	21.4
413042	30.6	21.6	324585	30.7	20.7	337835	30.8	20.6	468900	30.8	21.4	534042	30.9	22.1	160092	30.9	19.7
490115	30.6	21.8	1609	30.7	14.8	266642	30.8	19.4	7936	30.8	17.3	110771	30.9	19.2	201635	30.9	19.7
20132	30.6	19.6	366983	30.7	21.2	462099	30.8	20.0	494666	30.8	20.3	240227	30.9	20.3	262468	30.9	21.2
405150	30.6	22.4	520041	30.7	20.7	253315	30.8	20.7	426906	30.8	20.6	375335	30.9	20.9	405951	30.9	20.8
464930	30.6	22.6	492559	30.7	21.2	366877	30.8	20.2	149769	30.8	19.7	136615	30.9	19.6	91320	30.9	17.8
84166	30.6	19.9	344570	30.7	20.8	423580	30.8	21.0	249114	30.8	19.7	272469	30.9	21.2	534381	30.9	21.8
201111	30.6	20.7	365686	30.7	20.7	451057	30.8	21.1	429303	30.8	19.7	271813	30.9	19.3	127993	30.9	17.4
120285	30.6	19.1	375029	30.7	21.1	458027	30.8	20.5	93873	30.8	19.5	107887	30.9	18.7	283059	30.9	20.5
472596	30.6	20.6	54659	30.7	17.5	284373	30.8	20.0	544323	30.8	21.2	386190	30.9	21.3	90777	30.9	19.5
385856	30.6	21.0	119957	30.7	19.6	420809	30.8	20.5	357339	30.8	21.2	57510	30.9	18.6	146526	30.9	20.4
148824	30.6	20.6	330718	30.7	20.4	61978	30.8	18.5	456616	30.8	20.2	352796	30.9	20.5	197279	30.9	20.9
55439	30.6	19.2	5107	30.7	16.8	233163	30.8	20.5	44768	30.8	16.8	383630	30.9	21.2	142260	30.9	20.1
417213	30.6	21.1	466445	30.7	20.9	528592	30.8	22.3	497628	30.8	21.1	512328	30.9	20.3	53694	30.9	17.6
15157	30.6	17.2	166715	30.7	19.5	291118	30.8	20.7	116911	30.8	18.3	454203	30.9	18.9	35374	30.9	18.8
7660	30.6	17.2	311052	30.7	20.9	258092	30.8	21.1	228737	30.8	19.7	474102	30.9	20.5	416228	30.9	19.5
68648	30.6	17.9	343671	30.7	20.1	111222	30.8	19.0	449169	30.8	21.6	29636	30.9	18.1	525701	30.9	21.9
397913	30.6	19.7	252548	30.7	22.0	453214	30.8	19.8	96774	30.8	19.6	283433	30.9	20.2	429301	30.9	19.9
341389	30.6	21.3	269065	30.7	20.4	445955	30.8	19.8	284847	30.8	20.5	130682	30.9	19.0	79538	30.9	18.7
340818	30.6	20.0	89655	30.7	19.4	11424	30.8	16.3	460974	30.8	21.4	125797	30.9	19.4	213931	30.9	19.9
122881	30.6	19.2	57084	30.7	19.7	31482	30.8	18.4	349796	30.8	20.2	417326	30.9	21.8	93903	30.9	18.2
386096	30.6	22.6	319516	30.7	21.4	343676	30.8	20.0	455898	30.8	21.1	421197	30.9	20.7	422661	30.9	21.4
66301	30.6	18.1	274561	30.7	20.7	187491	30.8	20.3	378715	30.8	20.7	22349	30.9	18.6	316721	30.9	21.1
535657	30.6	22.3	157976	30.7	19.1	45766	30.8	17.7	106287	30.8	20.3	172536	30.9	21.2	463748	30.9	21.2
349893	30.6	21.1	200847	30.7	20.4	163495	30.8	20.0	33576	30.8	17.1	487224	30.9	20.5	256414	30.9	20.9
521144	30.6	20.2	484001	30.7	20.2	470854	30.8	21.1	346974	30.8	20.4	200073	30.9	20.3	68034	30.9	19.5
210432	30.6	20.2	239797	30.7	21.4	57804	30.8	18.4	461733	30.8	21.1	337495	30.9	21.4	371177	30.9	20.6
135472	30.6	18.9	186608	30.7	19.9	401893	30.8	21.7	343305	30.8	20.6	94845	30.9	18.9	307746	30.9	20.6
155195	30.6	19.5	432107	30.7	21.4	500437	30.8	21.9	93316	30.8	19.1	275485	30.9	21.5	109218	30.9	19.6
159457	30.6	18.5	383786	30.7	21.2	7344	30.8	16.1	416967	30.8	19.8	308356	30.9	20.1	17526	30.9	18.6
168173	30.6	19.7	292971	30.7	19.2	456671	30.8	22.1	178389	30							

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	04	V	№	04	V	№	04	V	№	04	V
169377	30.9	20.0	104579	30.9	19.3	335698	30.9	21.3	445066	30.9	22.2
27686	30.9	18.2	305648	30.9	21.1	319843	30.9	20.0			
537123	30.9	20.4	345657	30.9	21.1	30465	30.9	18.1			
204918	30.9	20.3	362156	30.9	19.6	50844	30.9	18.0			
376759	30.9	20.5	289151	30.9	21.3	542499	30.9	20.2			