

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
334077	1.0	20.9	457411	1.1	20.5	152154	1.1	19.7	317031	1.2	20.8	544191	1.3	20.4	56732	1.3	19.1
333894	1.0	21.1	398051	1.1	20.8	5633	1.1	15.7	417825	1.2	21.1	114530	1.3	18.5	212254	1.3	18.1
2701	1.0	17.6	114177	1.1	19.1	164309	1.1	19.8	493963	1.2	20.4	52892	1.3	19.0	210784	1.3	18.9
381314	1.0	21.1	287749	1.1	19.8	51997	1.1	17.7	232296	1.2	19.6	319768	1.3	21.3	422126	1.3	20.9
176942	1.0	20.4	63666	1.1	18.8	414848	1.1	20.7	74737	1.2	19.1	291032	1.3	19.4	251175	1.3	20.9
488813	1.0	21.0	92684	1.1	18.2	216190	1.1	19.6	464610	1.2	20.3	196806	1.3	20.0	52084	1.3	17.9
2652	1.0	16.8	487727	1.1	20.8	434791	1.1	21.8	48246	1.2	19.1	261110	1.3	20.1	258461	1.3	20.8
344862	1.0	20.4	379764	1.1	20.7	321252	1.1	20.6	344203	1.2	21.6	447784	1.3	20.0	63812	1.3	19.9
159504	1.0	22.4	256064	1.1	20.7	88070	1.1	19.7	281718	1.2	20.8	64993	1.3	19.8	352367	1.3	18.4
189450	1.0	20.5	163481	1.1	19.6	262470	1.1	19.8	242128	1.2	20.4	49721	1.3	17.1	187559	1.3	19.3
377505	1.0	20.7	263549	1.1	20.2	273997	1.1	21.1	488356	1.2	20.3	163646	1.3	20.2	234516	1.3	20.5
123932	1.0	18.9	23443	1.1	17.1	229792	1.1	20.3	29356	1.2	18.9	77682	1.3	17.9	414770	1.3	21.1
123170	1.0	19.2	89700	1.1	19.7	115562	1.1	18.5	161463	1.2	18.3	483425	1.3	18.5	527501	1.3	22.2
28022	1.0	17.7	227802	1.1	19.5	483040	1.1	21.3	420261	1.2	20.7	399743	1.3	19.9	256239	1.3	20.2
78128	1.0	19.6	180892	1.1	20.2	345288	1.1	19.4	420114	1.2	20.5	336485	1.3	20.9	33062	1.3	17.9
77064	1.0	18.4	406754	1.1	20.9	199060	1.1	19.5	383836	1.2	19.7	104112	1.3	18.2	107516	1.3	18.8
102646	1.0	19.6	424738	1.1	20.7	358152	1.1	19.6	358646	1.2	21.2	110056	1.3	19.8	456495	1.3	21.3
240196	1.0	20.4	133847	1.1	19.4	202362	1.1	19.7	233985	1.2	20.7	325586	1.3	19.9	228890	1.3	19.8
495582	1.0	20.5	336734	1.1	20.1	98496	1.1	19.3	101004	1.2	20.6	372291	1.3	20.1	163550	1.3	19.5
249867	1.0	19.4	101164	1.1	20.1	195662	1.1	20.8	336092	1.2	19.8	457877	1.3	21.0	130212	1.3	19.6
350068	1.0	20.2	293271	1.1	20.5	346411	1.1	19.9	408473	1.2	21.0	492183	1.3	21.4	477335	1.3	21.2
84861	1.0	18.7	55536	1.1	18.4	440616	1.1	21.1	190721	1.2	20.0	286998	1.3	20.6	271250	1.3	20.1
283057	1.0	20.8	247627	1.1	21.5	211293	1.1	19.2	145692	1.2	18.9	165101	1.3	20.1	358597	1.3	20.6
138105	1.0	18.0	322918	1.1	20.2	340660	1.1	21.0	194018	1.2	21.2	142431	1.3	20.5	491443	1.3	20.5
544807	1.0	21.1	347677	1.1	21.0	341615	1.1	19.7	441764	1.2	19.7	374045	1.3	21.9	36528	1.3	19.7
459437	1.0	21.7	453935	1.1	21.6	465137	1.1	20.5	147572	1.2	18.6	187189	1.3	20.2	271266	1.3	20.0
462477	1.0	21.1	241139	1.1	18.9	244981	1.1	19.0	207837	1.2	20.7	212144	1.3	19.8	322078	1.3	20.4
379113	1.0	21.0	272132	1.1	20.5	40254	1.1	18.8	85950	1.2	18.7	203866	1.3	20.3	336668	1.3	20.6
231005	1.0	19.7	321978	1.1	20.6	483420	1.1	19.4	248281	1.2	20.9	247951	1.3	19.7	170470	1.3	20.3
81238	1.0	18.6	130849	1.1	18.9	455935	1.1	21.5	486527	1.2	20.1	412239	1.3	20.3	234898	1.3	19.5
265316	1.0	20.7	65255	1.1	19.3	270857	1.2	21.0	142577	1.2	20.5	52061	1.3	19.5	231953	1.3	20.1
184365	1.0	19.0	27311	1.1	16.5	487968	1.2	20.1	210609	1.2	20.8	157106	1.3	20.0	148755	1.3	19.6
233275	1.0	20.2	4604	1.1	17.1	466460	1.2	21.1	78680	1.2	19.1	285040	1.3	20.2	485006	1.3	20.1
125335	1.0	18.8	424259	1.1	20.0	536318	1.2	21.1	489414	1.2	20.4	390424	1.3	19.9	202032	1.3	19.4
417240	1.0	21.1	236841	1.1	19.8	226788	1.2	20.0	458350	1.2	21.0	10338	1.3	17.8	425355	1.3	19.4
311640	1.0	21.0	2117	1.1	16.0	154718	1.2	17.8	320303	1.2	20.8	76356	1.3	19.0	459251	1.3	20.8
475678	1.0	20.0	209681	1.1	19.4	161670	1.2	20.3	8998	1.2	17.5	377057	1.3	20.7	337396	1.3	20.5
162071	1.0	21.1	39440	1.1	17.8	202375	1.2	19.8	426759	1.2	20.9	465523	1.3	20.3	496417	1.3	21.1
20886	1.0	17.3	492043	1.1	20.9	125917	1.2	19.0	188601	1.2	20.2	235768	1.3	20.2	474399	1.3	21.3
70975	1.0	19.1	37511	1.1	19.4	366090	1.2	20.0	178156	1.2	19.7	244117	1.3	19.8	428963	1.3	20.2
309377	1.0	20.7	368204	1.1	20.9	197346	1.2	19.6	55104	1.2	19.0	193995	1.3	20.3	465294	1.3	19.9
327008	1.0	21.1	247538	1.1	20.3	145613	1.2	20.7	347670	1.2	21.4	206214	1.3	20.0	34853	1.3	17.2
327397	1.0	20.7	439901	1.1	20.9	275298	1.2	20.4	301606	1.2	18.4	320000	1.3	20.1	64408	1.3	19.0
542792	1.0	21.0	344621	1.1	19.7	170604	1.2	19.5	458746	1.2	21.2	337379	1.3	21.9	456910	1.3	20.9
448748	1.0	21.3	418659	1.1	20.4	246764	1.2	20.5	137810	1.2	19.0	67093	1.3	19.1	48630	1.4	19.3
10076	1.0	18.7	504216	1.1	22.4	55708	1.2	18.6	459987	1.2	21.2	542300	1.3	21.3	415150	1.4	20.1
51964	1.0	18.4	531285	1.1	23.0	236797	1.2	19.7	230136	1.2	20.1	114217	1.3	18.5	364891	1.4	20.3
333852	1.0	20.2	384388	1.1	20.0	195934	1.2	19.5	311317	1.2	20.3	360862	1.3	20.9	187050	1.4	21.1
256823	1.0	19.9	466894	1.1	20.3	305512	1.2	21.2	142426	1.2	20.1	506079	1.3	20.4	318948	1.4	20.9
5911	1.0	16.1	78836	1.1	19.5	29580	1.2	17.6	213309	1.2	21.8	543071	1.3	21.7	81329	1.4	18.5
416112	1.0	21.0	301320	1.1	20.4	133916	1.2	21.0	99592	1.2	18.2	236764	1.3	20.4	291141	1.4	20.2
278858	1.0	20.5	229420	1.1	20.1	226128	1.2	20.8	451471	1.2	20.8	522503	1.3	20.9	182730	1.4	19.9
509561	1.0	20.4	21533	1.1	17.6	428092	1.2	21.3	46268	1.2	18.9	459925	1.3	19.8	105255	1.4	19.8
236675	1.0	20.3	499446	1.1	19.0	441064	1.2	21.5	425371	1.2	19.7	274736	1.3	19.6	316391	1.4	21.2
11189	1.0	17.4	27275	1.1	18.2	108984	1.2	18.8	401049	1.2	21.0	202081	1.3	20.4	235475	1.4	19.6
71518	1.0	18.0	403209	1.1	20.2	244989	1.2	19.6	331804	1.2	20.9	52305	1.3	18.1	33570	1.4	18.5
95420	1.0	19.7	340655	1.1	20.1	314853	1.2	21.1	161154	1.2	20.5	124586	1.3	19.4	385399	1.4	20.3
36576	1.1	18.6	373826	1.1	20.8	313522	1.2	20.0	11321	1.2	17.2	151558	1.3	19.4	411223	1.4	22.0
212159	1.1	19.9	424749	1.1	20.0	200416	1.2	20.4	467683	1.2	21.0	369120	1.3	20.8	204837	1.4	20.3
511527	1.1	19.6	535498	1.1	21.0	337626	1.2	20.8	64178	1.2	18.1	286847	1.3	21.4	262979	1.4	19.9
14777	1.1	18.9	392319	1.1	19.5	423849	1.2	20.2	244239	1.2	19.7	16671	1.3	17.1	335726	1.4	19.4
23744	1.1	18.3	187190	1.1	19.9	489377	1.2	21.7	441613	1.2	21.7	445558	1.3	21.0	269440	1.4	19.2
89527	1.1	19.9	538853	1.1	20.7	74436	1.2	18.2	194599	1.2	19.2	432444	1.3	20.8	161318	1.4	21.0
171148	1.1	20.6	319809	1.1	20.2	350079	1.2	19.4	143854	1.2	20.2	541431	1.3	21.2	528656	1.4	21.7
47850	1.1	18.2	363494	1.1	21.5	361609	1.2	20.1	493382	1.2	21.3	456186	1.3	20.8	28789	1.4	19.8
361802	1.1	19.1	429033	1.1	21.0	543540	1.2	20.7	458174	1.2	21.2	161644	1.3	19.2	447949	1.4	20.4
13544	1.1	18.2	335295	1.1	20.1	481134	1.2	20.6	145302	1.2	19.1	278319	1.3	20.4	87826	1.4	19.5
1226	1.1	14.9	102519	1.1	20.0	94183	1.2	19.5	183381	1.2	19.9	92631	1.3	19.3	251962	1.4	20.1
180978	1.1	20.6	25550	1.1	16.9	350278	1.2	20.8	339853	1.2	20.8	445109	1.3	21.0	24366	1.4	18.2
431564	1.1	20.7	254781	1.1	20.7	450855	1.2	22.0	279975	1.2	20.9	406971	1.3	21.8	537878	1.4	20.4
99871	1.1	19.3	105211	1.1	19.6	454037	1.2	19.2	397868	1.2	20.1	424033	1.3	18.5	49		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
330643	1.4	21.0	351685	1.4	19.7	453959	1.5	20.2	369179	1.6	20.9	197935	1.6	20.4	128283	1.7	19.4
440567	1.4	21.3	466891	1.4	20.3	126207	1.5	19.2	196031	1.6	20.6	339515	1.6	21.2	78232	1.7	19.0
460505	1.4	21.4	345934	1.4	21.3	132218	1.5	19.6	108041	1.6	19.1	367653	1.6	20.9	290200	1.7	20.0
17031	1.4	17.1	323184	1.5	19.9	423361	1.5	20.3	335914	1.6	19.9	151210	1.6	19.4	475853	1.7	20.2
523671	1.4	21.1	406640	1.5	21.0	59320	1.5	18.2	210679	1.6	20.2	150089	1.6	19.0	268703	1.7	19.7
523494	1.4	20.8	43791	1.5	18.2	83099	1.5	19.6	184816	1.6	19.6	347682	1.6	21.0	541751	1.7	21.9
26548	1.4	18.8	197446	1.5	20.0	202286	1.5	20.5	542971	1.6	20.4	197391	1.6	18.9	51846	1.7	17.5
490911	1.4	20.9	407427	1.5	20.9	175451	1.5	20.3	134208	1.6	19.6	339646	1.6	21.2	286235	1.7	21.2
450231	1.4	21.5	66184	1.5	18.9	457127	1.5	20.5	542606	1.6	21.3	85545	1.6	19.2	416790	1.7	19.1
8503	1.4	16.7	283411	1.5	21.3	164939	1.5	19.4	160261	1.6	19.7	13823	1.6	17.3	210008	1.7	20.5
481916	1.4	19.5	104949	1.5	18.7	494783	1.5	20.8	486455	1.6	21.1	233250	1.6	18.8	62446	1.7	18.9
6237	1.4	16.9	101130	1.5	19.8	113931	1.5	19.1	196662	1.6	20.0	516473	1.6	21.6	158272	1.7	19.2
197789	1.4	20.8	201846	1.5	19.5	387855	1.5	20.2	145895	1.6	20.1	348788	1.6	20.7	82016	1.7	17.9
37371	1.4	18.3	151585	1.5	19.5	28319	1.5	18.0	346426	1.6	20.2	240864	1.7	19.5	89311	1.7	19.9
165869	1.4	19.2	296438	1.5	20.4	403918	1.5	20.9	340630	1.6	20.5	277376	1.7	20.4	467981	1.7	21.6
185037	1.4	19.8	422491	1.5	20.7	158634	1.5	19.0	121725	1.6	22.6	481335	1.7	20.8	410542	1.7	20.8
111278	1.4	21.8	179136	1.5	19.8	201264	1.5	20.9	440301	1.6	21.4	343351	1.7	19.9	484352	1.7	21.0
226952	1.4	19.7	201814	1.5	20.4	114978	1.5	18.9	195107	1.6	19.4	78185	1.7	19.4	483759	1.7	21.6
239335	1.4	21.8	57882	1.5	19.0	179898	1.5	18.7	251468	1.6	19.0	465268	1.7	20.5	543009	1.7	20.5
195150	1.4	18.9	377563	1.5	19.7	222473	1.5	20.8	434995	1.6	21.3	185863	1.7	19.6	95459	1.7	19.5
6061	1.4	17.2	1502	1.5	14.8	13906	1.5	17.9	207664	1.6	20.9	254037	1.7	19.8	42272	1.7	17.6
447771	1.4	21.8	392840	1.5	20.3	372748	1.5	20.3	417208	1.6	21.8	541804	1.7	20.6	401222	1.7	20.1
385942	1.4	20.6	304924	1.5	21.0	252304	1.5	19.7	92795	1.6	19.4	160942	1.7	19.1	60686	1.7	19.2
134308	1.4	20.8	467042	1.5	20.8	423351	1.5	19.6	272218	1.6	19.6	275854	1.7	20.4	230950	1.7	20.1
296288	1.4	20.0	47211	1.5	18.8	376545	1.5	20.7	483811	1.6	21.6	216320	1.7	20.0	203790	1.7	20.2
407392	1.4	22.1	59386	1.5	17.5	503557	1.5	20.9	148319	1.6	18.9	10418	1.7	16.2	219517	1.7	20.6
489775	1.4	19.5	239307	1.5	20.2	529475	1.5	22.1	125842	1.6	19.0	1765	1.7	15.6	492016	1.7	20.4
163617	1.4	19.0	441472	1.5	20.9	27489	1.5	18.8	109500	1.6	19.9	2521	1.7	15.2	54945	1.7	17.9
49847	1.4	17.5	519302	1.5	20.0	334984	1.5	19.4	100464	1.6	19.9	278567	1.7	20.9	77780	1.7	18.4
148866	1.4	19.1	147111	1.5	20.0	254050	1.5	19.6	23667	1.6	17.6	130882	1.7	20.1	217421	1.7	19.8
120281	1.4	20.1	169410	1.5	20.3	5363	1.5	16.7	126691	1.6	20.0	152413	1.7	20.0	253008	1.7	21.2
240845	1.4	20.3	457775	1.5	20.8	430853	1.5	20.9	416583	1.6	21.5	199724	1.7	20.0	283368	1.7	19.0
279963	1.4	20.4	381326	1.5	20.2	385364	1.5	21.3	278848	1.6	20.3	483625	1.7	21.7	200320	1.7	19.9
162184	1.4	19.7	135904	1.5	20.4	443260	1.5	19.6	56479	1.6	18.1	50653	1.7	17.9	517009	1.7	21.7
42303	1.4	19.8	420471	1.5	19.6	223304	1.5	19.7	413194	1.6	20.0	445766	1.7	20.5	420907	1.7	21.2
544976	1.4	21.2	353923	1.5	21.4	31615	1.5	18.1	513322	1.6	19.2	32832	1.7	18.6	265845	1.7	20.2
231135	1.4	20.7	385205	1.5	20.3	34309	1.5	18.7	210596	1.6	19.8	413028	1.7	20.9	163580	1.7	20.2
347382	1.4	21.5	33394	1.5	17.6	319508	1.5	20.7	182738	1.6	20.0	270748	1.7	20.9	279938	1.7	20.9
388455	1.4	19.5	162445	1.5	19.9	493310	1.5	21.1	412435	1.6	19.5	247025	1.7	19.8	299137	1.7	19.6
189300	1.4	20.0	510303	1.5	20.4	378991	1.5	20.6	424723	1.6	19.9	110721	1.7	19.0	419819	1.7	20.3
115605	1.4	18.6	357661	1.5	19.0	216540	1.5	20.7	282108	1.6	19.9	319967	1.7	20.4	70102	1.7	18.9
124345	1.4	19.9	426917	1.5	21.1	113249	1.5	20.1	319848	1.6	21.1	28562	1.7	18.9	233000	1.7	19.9
191011	1.4	19.6	428101	1.5	20.8	258434	1.5	20.9	405549	1.6	21.5	227646	1.7	19.8	201265	1.7	19.9
363199	1.4	21.8	429831	1.5	22.2	75851	1.5	19.0	9266	1.6	17.8	169749	1.7	20.5	494864	1.7	19.4
95372	1.4	19.2	22210	1.5	17.7	137066	1.5	19.7	373928	1.6	20.1	425401	1.7	19.6	281286	1.7	20.6
194903	1.4	19.8	251729	1.5	18.6	144982	1.5	19.8	235414	1.6	19.6	6219	1.7	18.8	31262	1.7	17.7
295848	1.4	20.6	116391	1.5	19.2	441518	1.5	21.4	400418	1.6	21.5	319562	1.7	20.3	513	1.7	13.9
76084	1.4	18.9	282803	1.5	21.2	148178	1.5	19.5	421762	1.6	20.7	340019	1.7	19.2	333414	1.7	21.1
354422	1.4	20.8	481066	1.5	21.5	365631	1.5	20.1	348168	1.6	20.9	458281	1.7	20.8	541072	1.7	21.2
395177	1.4	20.6	380222	1.5	20.9	19153	1.5	18.0	438115	1.6	21.4	285556	1.7	20.8	266432	1.7	20.7
412318	1.4	20.9	411244	1.5	21.3	94862	1.5	19.1	82139	1.6	19.5	258415	1.7	20.3	104337	1.7	18.2
451768	1.4	20.7	460844	1.5	20.7	77057	1.5	18.8	184369	1.6	20.8	15504	1.7	23.2	456236	1.7	20.7
208191	1.4	20.3	203767	1.5	20.5	518628	1.5	20.4	455123	1.6	20.3	81429	1.7	18.8	425408	1.7	19.2
447023	1.4	21.8	299180	1.5	19.7	129538	1.5	20.2	57543	1.6	18.6	75629	1.7	17.8	306040	1.7	19.5
473812	1.4	19.8	444063	1.5	21.3	189675	1.6	20.2	113775	1.6	19.2	205510	1.7	20.7	134940	1.7	20.0
495592	1.4	21.2	102311	1.5	18.6	543024	1.6	20.2	78683	1.6	18.6	377533	1.7	19.9	408527	1.7	19.7
381019	1.4	20.7	152036	1.5	19.7	393187	1.6	20.4	400394	1.6	20.8	198090	1.7	19.5	78389	1.7	19.1
379610	1.4	19.4	4662	1.5	16.3	436389	1.6	20.4	491369	1.6	21.4	487629	1.7	21.2	407303	1.7	21.6
440313	1.4	21.7	445132	1.5	21.9	467982	1.6	21.1	376316	1.6	20.4	186102	1.7	19.9	116338	1.7	20.0
97500	1.4	18.1	54737	1.5	19.1	71791	1.6	18.5	201615	1.6	20.5	458150	1.7	22.4	200067	1.7	19.9
394054	1.4	20.2	108275	1.5	19.2	385373	1.6	21.5	336896	1.6	20.3	311686	1.7	20.6	108584	1.7	19.2
30089	1.4	17.9	314893	1.5	20.9	334468	1.6	21.6	536065	1.6	21.0	111170	1.7	20.1	215270	1.7	19.9
236047	1.4	19.8	493337	1.5	21.1	442224	1.6	21.3	154658	1.6	20.4	103828	1.7	19.1	543741	1.7	21.5
313542	1.4	19.4	211730	1.5	19.2	281360	1.6	21.0	542700	1.6	20.2	148888	1.7	20.2	356743	1.7	20.9
241441	1.4	19.8	229056	1.5	20.2	10521	1.6	18.4	264452	1.6	20.7	337772	1.7	20.7	215695	1.7	18.7
427845	1.4	20.2	420007	1.5	19.7	103871	1.6	19.0	321742	1.6	20.1	263985	1.7	19.6	189010	1.7	20.7
116596	1.4	18.4	129577	1.5	20.5	270949	1.6	21.8	5537	1.6	17.6	50618	1.7	18.7	166591	1.7	20.8
384278	1.4	20.9	381347	1.5	19.5	455869	1.6	21.6	27425	1.6	18.2	77189	1.7	18.2	404697	1.7	21.0
543347	1.4	21.7	24740	1.5	17.8	410831	1.6	21.3	544381	1.6	22.0	152477	1.7	19.9	477799	1.7	20.8
150699	1.4	19.8	289887	1.5	21.4	364857	1.6	20.6	142778	1.6	18.4	294789	1.7	19.8	58346	1.7	20.2
206295	1.4	19.6	142537	1.5	19.3	468937	1.6	19.8	163895	1.6	20.0	26439	1.7	16.9	17		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
66339	1.8	18.0	50633	1.8	18.7	197352	1.9	19.4	49953	1.9	17.7	488838	1.9	21.7	495440	2.0	20.3
317087	1.8	20.7	197651	1.8	20.5	16141	1.9	18.3	414849	1.9	20.8	463660	1.9	20.8	152567	2.1	19.2
218320	1.8	19.8	151280	1.8	19.8	492107	1.9	20.2	58378	1.9	20.0	149577	1.9	18.6	81261	2.1	18.8
165661	1.8	19.9	234210	1.8	20.0	318621	1.9	20.0	143205	1.9	19.2	324727	1.9	20.2	434964	2.1	21.5
97285	1.8	18.3	383436	1.8	21.0	23213	1.9	19.0	503409	1.9	19.9	59626	1.9	18.2	267003	2.1	21.7
76096	1.8	19.0	414850	1.8	19.6	345790	1.9	20.3	462493	1.9	20.9	486006	1.9	21.5	184939	2.1	19.8
83232	1.8	19.1	415376	1.8	21.5	91919	1.9	18.6	396177	1.9	20.4	196158	1.9	19.6	402658	2.1	21.0
180919	1.8	20.2	62047	1.8	20.4	256980	1.9	20.6	374640	1.9	20.3	186081	1.9	19.3	399497	2.1	20.8
200133	1.8	20.7	110664	1.8	19.1	223752	1.9	20.4	464535	1.9	20.7	81416	2.0	18.1	480939	2.1	21.8
543984	1.8	20.6	495273	1.8	21.1	116411	1.9	19.1	21677	1.9	18.1	60487	2.0	18.2	68296	2.1	18.8
228932	1.8	20.7	178650	1.8	19.9	19532	1.9	17.3	233244	1.9	19.6	424263	2.0	21.2	397185	2.1	19.7
78265	1.8	19.5	412279	1.8	20.4	412081	1.9	20.4	333382	1.9	20.0	166812	2.0	20.3	197825	2.1	21.1
446719	1.8	21.7	465827	1.8	20.5	210806	1.9	19.8	341572	1.9	21.9	499909	2.0	21.1	265405	2.1	20.7
38631	1.8	18.2	258903	1.8	20.1	339660	1.9	21.0	155951	1.9	19.8	520396	2.0	21.5	148315	2.1	18.5
167322	1.8	19.6	418629	1.8	20.9	247685	1.9	19.7	153006	1.9	19.9	231504	2.0	20.8	16842	2.1	17.6
496374	1.8	21.2	493290	1.8	20.6	224603	1.9	20.3	167665	1.9	18.9	237037	2.0	19.8	521013	2.1	20.4
235935	1.8	20.0	481061	1.8	21.0	186674	1.9	19.5	227208	1.9	19.9	152990	2.0	18.9	438428	2.1	22.1
407786	1.8	20.8	448905	1.8	21.1	220921	1.9	19.9	215912	1.9	20.2	355916	2.0	19.2	15712	2.1	18.2
77626	1.8	19.3	105880	1.8	19.4	229678	1.9	19.5	190225	1.9	19.5	165747	2.0	19.5	290732	2.1	20.5
521659	1.8	21.1	119140	1.8	19.9	467086	1.9	20.5	248739	1.9	21.1	227623	2.0	21.1	89664	2.1	19.2
317204	1.8	19.8	123168	1.8	18.9	78242	1.9	18.0	48659	1.9	17.6	69881	2.0	18.4	397194	2.1	20.5
344250	1.8	21.0	413408	1.8	20.7	46363	1.9	18.2	492081	1.9	21.5	295939	2.0	20.3	357630	2.1	21.1
87996	1.8	19.6	406675	1.8	18.9	459936	1.9	20.9	216618	1.9	19.4	481438	2.0	21.9	145920	2.1	19.7
358565	1.8	19.9	295807	1.8	20.7	368507	1.9	20.3	9798	1.9	16.8	83204	2.0	19.5	154772	2.1	20.1
446494	1.8	20.0	360597	1.8	20.1	340023	1.9	20.9	201817	1.9	19.1	241410	2.0	19.8	325662	2.1	21.0
456490	1.8	20.3	120460	1.8	20.0	195751	1.9	20.3	252489	1.9	20.0	156218	2.0	20.4	108253	2.1	18.6
205497	1.8	20.2	82135	1.8	18.6	79950	1.9	17.7	422010	1.9	21.0	419330	2.0	20.6	193094	2.1	19.1
111155	1.8	19.7	226912	1.8	20.4	483940	1.9	20.4	248951	1.9	21.0	503823	2.0	20.4	418764	2.1	21.1
77885	1.8	18.6	237704	1.8	20.4	438679	1.9	20.8	380677	1.9	20.9	382240	2.0	19.9	184329	2.1	20.2
58113	1.8	19.1	104530	1.8	19.4	387856	1.9	21.1	160473	1.9	20.0	460901	2.0	21.2	448747	2.1	21.4
46721	1.8	19.9	63814	1.8	18.4	290479	1.9	20.3	423525	1.9	21.7	126248	2.0	19.9	189971	2.1	19.2
525421	1.8	20.9	283441	1.8	20.1	543135	1.9	21.3	344369	1.9	21.3	27501	2.0	18.6	455877	2.1	21.4
133100	1.8	20.0	149855	1.8	20.2	208305	1.9	19.0	124155	1.9	20.3	527958	2.0	20.6	7503	2.1	17.4
27395	1.8	16.5	461899	1.9	21.1	34501	1.9	17.6	467827	1.9	21.5	113878	2.0	19.4	101301	2.1	19.6
488617	1.8	21.4	276340	1.9	20.2	472330	1.9	20.1	252315	1.9	20.3	37579	2.0	19.3	186187	2.1	19.5
186862	1.8	20.0	53586	1.9	18.4	403971	1.9	21.4	298532	1.9	21.2	354574	2.0	21.2	426764	2.1	20.8
151903	1.8	19.5	50468	1.9	18.4	187035	1.9	18.9	268630	1.9	20.3	311670	2.0	20.3	3523	2.1	15.0
148508	1.8	19.5	26691	1.9	19.0	492814	1.9	21.1	161163	1.9	20.4	153496	2.0	19.4	105210	2.1	19.7
228764	1.8	20.0	298612	1.9	19.7	362217	1.9	20.0	248777	1.9	21.1	339883	2.0	19.5	323899	2.1	20.3
506777	1.8	21.5	3295	1.9	17.2	86034	1.9	18.0	239927	1.9	20.1	52304	2.0	18.1	339626	2.1	20.0
132333	1.8	19.1	446709	1.9	22.2	183592	1.9	21.1	194699	1.9	20.0	90485	2.0	19.5	135288	2.1	20.9
252254	1.8	21.0	83292	1.9	18.7	15335	1.9	18.3	197358	1.9	19.8	232986	2.0	19.2	54041	2.1	18.3
132111	1.8	19.0	418663	1.9	20.8	15558	1.9	16.2	370654	1.9	20.8	265877	2.0	20.4	226536	2.1	19.1
480918	1.8	21.6	470265	1.9	19.3	194622	1.9	18.8	145931	1.9	19.3	266987	2.0	20.8	86699	2.1	18.9
481081	1.8	21.3	502473	1.9	20.4	15415	1.9	17.9	163750	1.9	19.8	368603	2.0	21.3	44091	2.1	18.9
363386	1.8	20.8	213699	1.9	19.5	201980	1.9	21.1	272000	1.9	20.5	339490	2.0	20.0	520179	2.1	20.4
348245	1.8	21.0	45642	1.9	18.6	243755	1.9	19.7	464788	1.9	20.7	399455	2.0	21.4	25724	2.1	18.9
215973	1.8	19.9	358145	1.9	19.8	199340	1.9	19.8	126346	1.9	18.4	191934	2.0	19.5	469057	2.1	21.3
219227	1.8	20.6	455767	1.9	22.4	18774	1.9	17.0	173224	1.9	20.3	9648	2.0	17.7	83047	2.1	19.5
180218	1.8	19.5	129829	1.9	20.5	517800	1.9	21.4	372123	1.9	20.8	347685	2.0	22.1	43922	2.1	18.4
372072	1.8	21.3	83373	1.9	18.7	274276	1.9	20.9	118349	1.9	17.8	111298	2.0	19.3	334611	2.1	19.0
400051	1.8	20.7	307695	1.9	20.3	207743	1.9	20.4	378999	1.9	20.3	38023	2.0	19.4	158850	2.1	19.6
265386	1.8	21.0	197875	1.9	21.1	84478	1.9	19.3	482564	1.9	21.5	457781	2.0	21.8	87145	2.1	19.5
433971	1.8	20.8	59342	1.9	18.2	52813	1.9	19.3	48673	1.9	19.8	212821	2.0	19.6	378497	2.1	20.8
60699	1.8	18.7	254968	1.9	19.8	543005	1.9	21.3	74207	1.9	19.2	305894	2.0	19.8	4641	2.1	16.9
74291	1.8	19.4	236632	1.9	20.1	483148	1.9	20.7	395375	1.9	21.5	161209	2.0	20.4	196435	2.1	18.7
32343	1.8	17.1	392281	1.9	19.8	486160	1.9	20.2	20010	1.9	18.8	82198	2.0	19.0	480718	2.1	20.2
306530	1.8	19.4	261171	1.9	20.4	487617	1.9	21.4	397192	1.9	20.6	175897	2.0	18.8	447416	2.1	20.5
465493	1.8	21.1	218342	1.9	19.0	166240	1.9	19.9	54727	1.9	18.8	492135	2.0	21.1	179108	2.1	20.8
524248	1.8	22.9	243934	1.9	19.5	486200	1.9	20.4	108602	1.9	19.4	212596	2.0	20.9	39190	2.1	18.6
169156	1.8	20.4	76765	1.9	19.3	132191	1.9	19.9	416426	1.9	20.4	71498	2.0	18.6	50992	2.1	18.1
433832	1.8	19.7	297346	1.9	19.5	303594	1.9	20.1	280011	1.9	20.4	516541	2.0	21.8	410550	2.1	20.5
247644	1.8	20.5	122773	1.9	18.8	494077	1.9	21.1	163559	1.9	20.1	182515	2.0	19.5	277903	2.1	20.4
129863	1.8	19.6	109297	1.9	18.8	214271	1.9	19.5	193120	1.9	20.0	257026	2.0	19.8	169154	2.1	19.9
49483	1.8	15.3	141873	1.9	19.9	102333	1.9	20.1	447153	1.9	20.8	244885	2.0	19.4	459314	2.1	20.8
281393	1.8	20.7	468340	1.9	20.6	135384	1.9	19.8	268576	1.9	21.0	104951	2.0	19.4	163654	2.1	19.8
368379	1.8	21.2	201935	1.9	19.8	146602	1.9	18.8	240804	1.9	19.6	541515	2.0	22.1	5219	2.1	16.6
353391	1.8	20.8	158213	1.9	19.3	222865	1.9	19.9	18392	1.9	17.6	332823	2.0	19.9	236257	2.1	19.7
290180	1.8	20.8	160809	1.9	20.2	332261	1.9	20.3	378488	1.9	21.0	412024	2.0	19.7	252608	2.1	20.6
59218	1.8	18.2	444053	1.9	21.3	168972	1.9	19.0	270604	1.9	20.8	339630	2.0	20.9	402643	2.1	22.0
122774	1.8	19.9	363592	1.9	19.8	206383	1.9	20.1	131078	1.9	19.5	158487	2.0	19.5	450		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
33986	2.1	19.1	312901	2.2	20.5	390876	2.2	21.8	151513	2.3	19.4	460686	2.4	21.3	82691	2.4	19.1
134425	2.1	19.9	202623	2.2	20.4	277924	2.2	20.2	303008	2.3	19.6	414550	2.4	21.3	258217	2.4	20.3
368231	2.1	21.8	256091	2.2	20.6	346476	2.2	19.3	544904	2.3	20.3	138641	2.4	19.3	288852	2.4	19.9
325947	2.1	20.2	239542	2.2	19.9	495241	2.2	19.7	507357	2.3	20.7	433454	2.4	21.1	44556	2.4	17.6
394433	2.1	21.3	119060	2.2	19.9	4445	2.2	17.4	285629	2.3	20.1	163686	2.4	19.0	440716	2.4	20.8
414279	2.1	20.4	54538	2.2	17.4	207045	2.2	20.2	360341	2.3	21.0	202122	2.4	19.5	442746	2.4	20.5
116447	2.1	19.3	482029	2.2	20.0	234505	2.2	19.2	223279	2.3	20.0	471241	2.4	18.2	364767	2.4	19.8
45782	2.1	18.6	11026	2.2	18.4	275748	2.2	21.2	409567	2.3	20.9	493114	2.4	20.8	251105	2.4	20.5
46775	2.1	19.7	200075	2.2	19.7	261089	2.2	20.4	155647	2.3	20.3	14323	2.4	17.7	455194	2.4	21.8
484284	2.1	19.4	455758	2.2	21.5	519786	2.2	20.7	374742	2.3	21.1	234220	2.4	20.2	510936	2.4	19.4
409517	2.1	21.3	243532	2.2	19.3	465017	2.2	20.7	493199	2.3	20.9	501970	2.4	20.4	484066	2.4	20.3
102517	2.1	19.9	48368	2.2	18.6	4009	2.3	16.9	161816	2.3	20.3	202082	2.4	20.2	343882	2.4	20.5
493279	2.1	21.2	318611	2.2	20.3	271451	2.3	19.4	481402	2.3	21.8	113606	2.4	19.7	449550	2.4	20.6
86442	2.1	18.1	122321	2.2	20.1	195538	2.3	21.1	287182	2.3	21.0	473564	2.4	20.0	10155	2.4	18.1
456058	2.1	20.8	494128	2.2	20.2	168675	2.3	20.4	367967	2.3	19.6	223882	2.4	20.0	456932	2.4	21.2
363643	2.1	21.0	109554	2.2	19.5	224805	2.3	20.2	487919	2.3	21.0	194702	2.4	19.9	465476	2.4	21.1
378479	2.1	21.0	253284	2.2	18.8	99995	2.3	19.2	455432	2.3	21.6	312776	2.4	20.5	496389	2.5	20.9
458288	2.1	21.0	125816	2.2	20.3	426746	2.3	21.1	329517	2.3	20.8	37357	2.4	18.1	313501	2.5	21.4
493181	2.1	21.0	367204	2.2	20.1	221538	2.3	19.9	57452	2.3	19.3	448864	2.4	20.7	173201	2.5	19.9
462992	2.1	19.9	279086	2.2	20.6	115288	2.3	18.7	57111	2.3	17.8	319752	2.4	21.3	163255	2.5	20.7
422076	2.1	22.4	487639	2.2	21.3	240449	2.3	20.2	311082	2.3	19.6	531410	2.4	21.6	234855	2.5	20.8
336521	2.1	19.5	413586	2.2	20.6	199387	2.3	20.7	113706	2.3	19.3	440341	2.4	22.2	389910	2.5	20.2
360474	2.1	20.8	280866	2.2	20.1	50987	2.3	18.3	506308	2.3	21.7	483142	2.4	20.3	53314	2.5	18.0
451555	2.1	21.4	44666	2.2	18.8	198697	2.3	19.1	184919	2.3	19.9	538510	2.4	21.2	65613	2.5	19.2
277338	2.1	20.2	338318	2.2	21.1	140604	2.3	19.8	542704	2.3	20.8	132853	2.4	20.0	138074	2.5	19.1
188491	2.1	20.3	336654	2.2	20.5	89099	2.3	18.2	467222	2.3	21.1	222983	2.4	19.9	308862	2.5	20.8
143641	2.1	20.3	487689	2.2	18.8	38995	2.3	19.0	337007	2.3	21.1	325844	2.4	20.2	462182	2.5	20.7
493004	2.1	21.1	378928	2.2	20.5	180700	2.3	19.6	465487	2.3	20.4	375490	2.4	20.4	387649	2.5	21.5
114239	2.1	18.4	518948	2.2	20.1	379818	2.3	19.9	161124	2.3	19.9	408845	2.4	21.1	273144	2.5	19.9
227760	2.1	19.6	417312	2.2	20.6	256454	2.3	20.2	173198	2.3	20.4	339675	2.4	20.5	226998	2.5	19.5
541597	2.1	20.6	71439	2.2	19.1	170820	2.3	19.5	479457	2.3	20.2	233059	2.4	20.5	414540	2.5	21.3
378950	2.1	21.5	204241	2.2	19.3	123884	2.3	19.2	201315	2.3	20.2	318925	2.4	20.0	122643	2.5	19.1
413409	2.1	21.1	461503	2.2	21.5	544340	2.3	20.7	459885	2.3	20.8	464877	2.4	20.5	49460	2.5	18.2
314888	2.1	20.7	215013	2.2	19.8	96666	2.3	19.0	29982	2.3	17.8	249528	2.4	19.9	11842	2.5	16.6
75231	2.1	17.9	179096	2.2	20.9	212935	2.3	19.7	162953	2.3	19.1	28563	2.4	18.1	90302	2.5	18.7
466005	2.1	20.6	422210	2.2	20.4	237388	2.3	20.2	114093	2.3	19.3	522414	2.4	19.9	272341	2.5	21.0
492662	2.1	21.4	122477	2.2	20.0	421939	2.3	21.5	7075	2.3	17.1	156101	2.4	20.0	38375	2.5	18.4
138387	2.1	19.0	407755	2.2	20.4	402942	2.3	20.5	461636	2.3	19.1	15797	2.4	17.6	230229	2.5	19.8
197383	2.1	19.7	72221	2.2	19.1	375406	2.3	20.5	154765	2.3	20.6	28986	2.4	18.4	320854	2.5	20.7
284996	2.1	20.0	385361	2.2	21.1	83540	2.3	19.0	532161	2.3	21.9	162333	2.4	19.0	170631	2.5	17.8
420903	2.1	21.4	217457	2.2	20.0	65549	2.3	18.3	83871	2.3	19.8	136455	2.4	19.6	337655	2.5	20.1
398110	2.1	20.3	23134	2.2	17.1	131490	2.3	20.4	429307	2.3	20.5	25760	2.4	18.9	489677	2.5	20.9
163658	2.1	19.9	347133	2.2	19.1	85063	2.3	19.3	172793	2.3	20.0	142659	2.4	20.5	381672	2.5	21.1
534	2.1	13.5	231208	2.2	19.4	404680	2.3	20.6	36368	2.3	19.1	126202	2.4	18.1	231203	2.5	18.9
232332	2.1	20.2	344941	2.2	20.0	205533	2.3	20.8	156226	2.3	20.4	112132	2.4	18.8	13236	2.5	17.6
257362	2.1	19.2	113081	2.2	19.4	197284	2.3	20.0	274626	2.3	21.1	361241	2.4	20.8	104079	2.5	18.4
484013	2.1	20.6	270031	2.2	20.2	177507	2.3	19.4	452831	2.3	20.9	316414	2.4	20.1	186885	2.5	20.2
372061	2.1	21.2	367002	2.2	21.2	340098	2.3	21.4	268710	2.4	20.2	340035	2.4	20.7	182106	2.5	20.7
53651	2.1	19.1	82206	2.2	19.1	148977	2.3	19.1	45391	2.4	18.8	167970	2.4	19.2	303537	2.5	20.9
429291	2.1	19.8	368844	2.2	21.1	455860	2.3	21.5	98387	2.4	17.8	304861	2.4	21.4	335722	2.5	19.4
196341	2.1	19.1	84444	2.2	19.7	465524	2.3	20.4	266058	2.4	20.7	201711	2.4	19.5	157156	2.5	20.6
490751	2.2	21.0	100348	2.2	20.2	85653	2.3	19.3	200307	2.4	19.2	129248	2.4	21.3	410928	2.5	20.1
19903	2.2	20.2	270662	2.2	19.7	70030	2.3	16.7	98017	2.4	18.9	468235	2.4	21.2	452803	2.5	19.9
62103	2.2	19.0	410601	2.2	20.9	325498	2.3	21.4	276705	2.4	20.4	262659	2.4	20.2	541079	2.5	20.3
339651	2.2	20.5	360599	2.2	19.8	404432	2.3	20.5	392747	2.4	20.3	284467	2.4	20.8	410018	2.5	20.0
77451	2.2	18.8	335930	2.2	21.4	109596	2.3	20.0	241636	2.4	20.2	440339	2.4	22.0	2454	2.5	17.2
319863	2.2	20.4	66593	2.2	18.6	222177	2.3	19.1	355315	2.4	20.9	419091	2.4	20.8	523452	2.5	20.0
61194	2.2	18.6	176977	2.2	20.6	487430	2.3	20.9	260736	2.4	19.9	419935	2.4	20.9	333389	2.5	20.7
89097	2.2	19.6	8048	2.2	16.6	275763	2.3	20.8	489565	2.4	21.2	386662	2.4	20.2	493825	2.5	20.6
542829	2.2	20.5	243711	2.2	18.5	444891	2.3	20.8	419830	2.4	20.1	100970	2.4	20.1	385159	2.5	19.9
335706	2.2	19.9	239003	2.2	19.7	443986	2.3	21.7	234438	2.4	20.1	65717	2.4	16.8	387460	2.5	20.3
216458	2.2	19.9	129621	2.2	19.5	92992	2.3	19.7	291296	2.4	19.5	406073	2.4	21.5	55798	2.5	18.0
58226	2.2	19.4	13717	2.2	18.0	215156	2.3	19.3	49584	2.4	19.3	52987	2.4	18.9	47275	2.5	18.9
87998	2.2	19.6	418540	2.2	20.2	521945	2.3	21.4	426019	2.4	20.5	495023	2.4	22.3	4335	2.5	16.9
190875	2.2	19.7	189078	2.2	18.9	290602	2.3	19.7	402283	2.4	21.3	10390	2.4	17.6	114453	2.5	19.1
90813	2.2	19.0	63489	2.2	19.1	291377	2.3	20.8	322682	2.4	19.9	422094	2.4	21.7	407421	2.5	21.6
322917	2.2	20.0	516486	2.2	21.0	233049	2.3	20.3	441500	2.4	22.0	422440	2.4	20.9	368553	2.5	21.1
201173	2.2	20.4	357397	2.2	20.5	27578	2.3	19.0	65056	2.4	19.3	280803	2.4	19.5	406237	2.5	21.0
415970	2.2	21.4	59692	2.2	18.8	308201	2.3	18.8	47659	2.4	17.9	97377	2.4	18.9	278740	2.5	21.4
194116	2.2	20.9	43198	2.2	18.0	442199	2.3	21.5	63522	2.4	19.7	440065	2.4	19.9	239397	2.5	20.1
120726	2.2	19.8	232708	2.2	19.0	250141	2.3	19.9	249274	2.4	20.5	142858	2.4	19.5	5		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
395543	2.5	21.0	145591	2.6	19.9	517536	2.6	22.2	317655	2.7	19.1	128899	2.7	19.8	364953	2.8	20.4
482879	2.5	20.2	456297	2.6	22.0	381223	2.6	21.6	187192	2.7	20.0	231976	2.7	20.5	108418	2.8	19.5
318386	2.5	19.6	516414	2.6	21.8	197806	2.6	19.8	201203	2.7	20.8	135266	2.7	19.6	400389	2.8	19.3
310765	2.5	21.1	183136	2.6	19.8	373273	2.6	20.9	297225	2.7	21.5	73999	2.7	18.8	486213	2.8	20.5
103450	2.5	17.7	421092	2.6	20.9	343209	2.6	20.4	8425	2.7	16.2	189291	2.7	20.6	345417	2.8	20.7
187584	2.5	20.2	57975	2.6	19.4	38445	2.6	19.0	161070	2.7	20.3	98475	2.7	19.3	348655	2.8	20.3
59663	2.5	19.5	376238	2.6	19.9	220923	2.6	20.7	443348	2.7	20.8	10531	2.7	17.2	77667	2.8	19.4
195847	2.5	19.8	194396	2.6	18.9	397530	2.6	22.1	253896	2.7	19.2	466735	2.7	20.3	267082	2.8	20.8
169682	2.5	19.1	451553	2.6	20.9	49548	2.6	15.9	61811	2.7	17.8	306579	2.7	18.4	268127	2.8	20.7
428431	2.5	20.1	400135	2.6	21.8	357132	2.6	20.1	164075	2.7	19.4	285470	2.7	19.6	196887	2.8	18.8
138101	2.5	19.1	420785	2.6	20.7	445959	2.6	20.9	270128	2.7	21.4	173200	2.7	20.6	5472	2.8	17.3
363112	2.5	21.5	194333	2.6	18.9	5976	2.6	15.8	109507	2.7	20.3	419970	2.7	19.6	2552	2.8	17.7
163530	2.5	19.6	314670	2.6	20.4	140736	2.6	19.4	18011	2.7	19.2	206847	2.7	20.5	314905	2.8	20.5
323479	2.5	20.6	418873	2.6	20.3	455848	2.6	20.5	311612	2.7	20.7	79577	2.7	19.9	393436	2.8	21.6
56816	2.5	19.7	443553	2.6	19.8	419496	2.6	19.9	405957	2.7	20.0	123313	2.7	19.1	152198	2.8	19.9
330233	2.5	21.9	345351	2.6	21.4	340724	2.6	21.6	134474	2.7	20.2	142568	2.7	20.7	520740	2.8	20.4
59141	2.5	18.8	414520	2.6	22.0	178188	2.6	19.1	226711	2.7	22.1	300435	2.8	21.6	447820	2.8	21.6
258060	2.5	20.2	319889	2.6	20.3	532551	2.6	21.7	141429	2.7	19.4	223828	2.8	19.9	161191	2.8	19.8
282110	2.5	20.6	352687	2.6	21.3	479473	2.6	20.9	16802	2.7	19.3	425430	2.8	20.6	233752	2.8	20.5
450216	2.5	20.9	116118	2.6	19.3	138539	2.6	20.1	307841	2.7	19.1	521718	2.8	20.3	369116	2.8	20.4
283255	2.5	19.9	31700	2.6	19.2	174284	2.6	20.5	447067	2.7	21.2	269370	2.8	19.5	83529	2.8	19.2
101597	2.5	20.2	200212	2.6	18.8	221850	2.6	20.4	186058	2.7	19.6	107961	2.8	19.2	24308	2.8	18.2
33460	2.5	17.3	468251	2.6	20.5	420389	2.6	20.0	162310	2.7	19.4	12147	2.8	17.9	491376	2.8	19.1
92615	2.5	20.5	486318	2.6	21.0	201884	2.6	19.6	77454	2.7	19.0	144218	2.8	19.4	98230	2.8	20.4
204160	2.5	19.6	36815	2.6	19.0	75945	2.6	18.0	77280	2.7	18.9	297955	2.8	19.4	313464	2.8	21.6
149044	2.5	18.8	103374	2.6	19.3	126580	2.6	19.0	364994	2.7	20.1	62129	2.8	19.6	27928	2.8	18.4
466464	2.5	21.0	396581	2.6	20.9	77817	2.6	19.3	58370	2.7	19.1	230840	2.8	19.9	16915	2.8	17.4
269190	2.5	20.3	226427	2.6	19.0	313518	2.6	21.0	545126	2.7	21.8	76805	2.8	19.4	455979	2.8	21.5
388471	2.5	20.5	174349	2.6	20.3	425395	2.6	20.2	213683	2.7	19.9	424219	2.8	21.0	463618	2.8	20.8
382138	2.5	20.3	295613	2.6	21.3	278898	2.6	20.6	242585	2.7	19.2	331053	2.8	20.6	543090	2.8	21.9
416712	2.5	20.2	455002	2.6	20.5	198002	2.6	20.1	448946	2.7	20.7	389835	2.8	21.0	249835	2.8	20.4
421113	2.5	20.3	58306	2.6	21.0	197998	2.6	19.8	289524	2.7	20.3	489585	2.8	21.2	130748	2.8	19.8
485646	2.5	20.8	70378	2.6	19.3	207132	2.6	20.4	399365	2.7	21.8	194806	2.8	20.1	205496	2.8	20.1
186665	2.5	20.1	485437	2.6	21.1	543469	2.6	20.8	319755	2.7	20.4	488603	2.8	21.5	238773	2.8	20.6
327002	2.5	20.6	318653	2.6	21.0	306781	2.6	19.1	299574	2.7	20.7	526461	2.8	20.9	271980	2.8	20.3
421405	2.5	20.4	120056	2.6	18.6	202404	2.6	19.3	363572	2.7	20.6	63994	2.8	19.3	593939	2.8	21.2
387987	2.5	21.1	179965	2.6	20.3	314255	2.6	20.3	234891	2.7	18.4	136561	2.8	20.0	313887	2.8	19.6
412332	2.5	19.6	380460	2.6	20.4	481797	2.6	21.1	450880	2.7	20.5	370412	2.8	20.9	115712	2.8	19.1
110115	2.5	19.2	193023	2.6	18.3	473883	2.6	20.3	458185	2.7	20.8	124278	2.8	20.2	384466	2.8	20.1
49894	2.5	17.5	126807	2.6	18.9	436073	2.6	21.7	108170	2.7	19.3	473509	2.8	21.2	30460	2.8	18.5
318697	2.5	19.6	286277	2.6	19.8	380432	2.6	21.3	329181	2.7	20.2	391162	2.8	20.7	404052	2.8	20.5
42217	2.5	19.0	449251	2.6	20.3	65552	2.6	19.2	292690	2.7	21.7	104423	2.8	19.0	32085	2.8	18.5
38170	2.5	18.9	288298	2.6	20.2	243380	2.6	20.2	177945	2.7	19.1	31906	2.8	20.3	417012	2.8	21.0
189280	2.5	21.0	535599	2.6	20.9	390586	2.6	21.3	28703	2.7	18.3	531451	2.8	21.1	142701	2.8	19.5
18739	2.5	17.9	482507	2.6	20.5	61154	2.6	18.3	307743	2.7	19.9	365768	2.8	21.1	200468	2.8	19.6
241554	2.5	20.8	229656	2.6	19.3	400153	2.6	21.8	331697	2.7	19.9	165740	2.8	19.5	129701	2.8	20.2
261138	2.5	20.7	95309	2.6	18.9	307790	2.6	22.0	400020	2.7	21.2	292487	2.8	20.8	133477	2.8	19.5
541479	2.5	22.1	42207	2.6	19.6	361203	2.6	20.7	295461	2.7	20.4	396622	2.8	20.8	375502	2.9	19.9
31137	2.5	18.8	36533	2.6	18.1	9408	2.6	18.0	465506	2.7	20.7	264669	2.8	20.0	309461	2.9	20.5
236276	2.5	21.1	441551	2.6	21.4	258264	2.6	20.1	112859	2.7	19.4	54717	2.8	19.6	362142	2.9	19.7
163552	2.5	20.2	244889	2.6	19.5	206182	2.6	20.2	150711	2.7	18.8	93133	2.8	19.5	202067	2.9	20.4
258266	2.5	21.2	12828	2.6	16.8	164399	2.7	19.5	117607	2.7	19.1	521453	2.8	20.9	542639	2.9	21.0
337494	2.5	21.1	253322	2.6	19.3	459592	2.7	19.6	146290	2.7	19.3	425454	2.8	19.6	367242	2.9	20.4
486448	2.5	19.6	491788	2.6	21.2	129056	2.7	19.0	218274	2.7	20.4	234212	2.8	21.0	416168	2.9	19.3
109373	2.5	19.8	493698	2.6	21.1	432883	2.7	20.7	331387	2.7	19.9	445136	2.8	21.6	124167	2.9	19.8
460036	2.5	21.6	404994	2.6	21.5	4955	2.7	16.9	369198	2.7	21.2	464573	2.8	20.6	352674	2.9	21.1
207859	2.5	20.6	489833	2.6	19.1	244814	2.7	20.5	165840	2.7	19.3	477825	2.8	20.1	19512	2.9	17.8
46181	2.5	18.5	299482	2.6	20.8	8511	2.7	17.1	519070	2.7	21.3	332265	2.8	21.6	308289	2.9	20.0
55476	2.5	17.8	543471	2.6	21.5	260951	2.7	19.6	241837	2.7	20.8	172936	2.8	18.4	192552	2.9	20.0
367612	2.5	20.1	136970	2.6	19.1	182513	2.7	21.3	304990	2.7	21.1	522444	2.8	20.5	226092	2.9	20.7
169338	2.5	19.9	378473	2.6	21.3	434212	2.7	21.1	331983	2.7	20.1	81748	2.8	19.1	295185	2.9	20.4
37062	2.5	18.8	414508	2.6	21.5	179046	2.7	19.9	223112	2.7	20.3	48600	2.8	18.5	538842	2.9	21.0
80047	2.6	18.4	408105	2.6	20.9	198923	2.7	19.7	310840	2.7	20.0	413936	2.8	20.1	331717	2.9	19.9
424244	2.6	20.9	133112	2.6	19.6	542131	2.7	21.7	346393	2.7	20.7	373672	2.8	20.6	274629	2.9	20.5
17968	2.6	18.6	201467	2.6	19.1	325772	2.7	20.3	370665	2.7	19.8	110917	2.8	20.0	392236	2.9	20.7
360475	2.6	21.3	321840	2.6	20.4	469407	2.7	20.1	56335	2.7	17.2	365613	2.8	21.2	527564	2.9	21.8
195612	2.6	19.8	451504	2.6	20.4	190112	2.7	19.9	256926	2.7	20.7	390070	2.8	20.1	1369	2.9	15.9
381201	2.6	20.8	455249	2.6	22.1	269348	2.7	20.0	293240	2.7	19.9	342952	2.8	21.1	25713	2.9	17.7
59045	2.6	20.0	12321	2.6	18.5	39360	2.7	18.1	166719	2.7	19.5	155797	2.8	19.8	7047	2.9	17.1
233573	2.6	20.0	424972	2.6	20.7	135795	2.7	20.2	127949	2.7	19.1	485182	2.8	20.9	522596	2.9	21.4
372315	2.6	21.2	321020	2.6	20.3	51542	2.7	19.7	171989	2.7	20.4	419467	2.8	20.4			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
340918	2.9	19.0	352154	2.9	21.1	193808	2.9	20.4	308298	3.1	19.4	104616	3.1	19.4	49053	3.2	19.1
76639	2.9	19.0	150367	2.9	19.3	155008	2.9	20.4	407333	3.1	21.2	367929	3.1	19.2	413694	3.2	20.5
140689	2.9	19.2	282101	2.9	20.7	408320	2.9	20.5	194658	3.1	20.0	332652	3.1	20.3	48138	3.2	17.9
140089	2.9	19.9	407397	2.9	20.7	492784	2.9	21.2	41599	3.1	19.3	156053	3.1	19.6	291636	3.2	19.6
419914	2.9	20.8	317429	2.9	20.7	455928	2.9	22.1	143714	3.1	20.1	424865	3.1	21.1	265117	3.2	20.2
216277	2.9	19.7	176978	2.9	20.5	447740	2.9	21.3	374668	3.1	20.1	34554	3.1	19.0	125476	3.2	19.9
194344	2.9	18.4	297411	2.9	21.0	84503	2.9	18.9	101258	3.1	19.7	393636	3.1	20.8	486245	3.2	21.6
165860	2.9	20.5	4441	2.9	17.7	449373	2.9	20.0	425255	3.1	19.9	24585	3.1	18.6	228237	3.2	20.3
492445	2.9	21.4	44538	2.9	17.8	531347	2.9	22.4	412951	3.1	20.8	156230	3.1	19.8	15759	3.2	17.8
339797	2.9	21.4	296329	2.9	20.1	238803	2.9	19.4	34998	3.1	17.5	393362	3.1	19.9	35108	3.2	17.8
76074	2.9	18.9	435208	2.9	21.4	28281	3.0	16.9	399371	3.1	21.2	165064	3.1	19.9	3982	3.2	16.4
116290	2.9	19.3	427214	2.9	20.8	152365	3.0	19.4	362431	3.1	19.9	411452	3.1	20.0	190260	3.2	20.0
352972	2.9	19.4	16862	2.9	16.9	275863	3.0	20.9	248759	3.1	20.5	317022	3.1	21.3	409485	3.2	20.9
154742	2.9	21.0	90486	2.9	18.3	247650	3.0	21.0	235850	3.1	19.9	243949	3.1	20.0	24343	3.2	18.2
337226	2.9	19.9	542667	2.9	19.8	399186	3.0	20.5	326067	3.1	21.4	59227	3.1	17.2	117797	3.2	18.9
262695	2.9	20.8	541533	2.9	21.2	164796	3.0	19.9	199744	3.1	20.1	125955	3.1	20.2	197757	3.2	20.0
3055	2.9	16.0	483950	2.9	20.0	287208	3.0	20.7	114253	3.1	19.3	4727	3.1	17.3	182691	3.2	20.8
544380	2.9	21.0	321869	2.9	21.1	77466	3.0	18.9	348614	3.1	19.7	494548	3.1	19.8	455804	3.2	21.3
158342	2.9	19.6	2049	2.9	17.9	156238	3.0	20.6	508344	3.1	21.1	271222	3.1	19.7	145505	3.2	19.1
542741	2.9	20.7	319713	2.9	20.6	426819	3.0	21.5	444463	3.1	20.6	444146	3.1	21.7	400825	3.2	21.2
406593	2.9	20.4	268755	2.9	20.0	406194	3.0	21.9	524049	3.1	22.7	379967	3.1	19.9	56525	3.2	18.6
132794	2.9	20.3	295882	2.9	20.9	414503	3.0	21.8	64325	3.1	18.7	70517	3.1	19.4	397473	3.2	22.0
243142	2.9	20.0	28217	2.9	18.2	322857	3.0	20.0	235413	3.1	19.6	148148	3.1	19.6	450899	3.2	20.1
344379	2.9	20.7	334522	2.9	21.7	381058	3.0	20.0	82880	3.1	19.4	254770	3.1	19.9	428126	3.2	20.1
134835	2.9	19.2	320559	2.9	20.6	338965	3.0	19.6	240682	3.1	19.6	312662	3.1	21.1	151029	3.2	19.7
133593	2.9	18.8	252222	2.9	21.2	111894	3.0	19.4	195648	3.1	20.3	409555	3.1	20.3	538513	3.2	21.3
79535	2.9	17.1	507315	2.9	21.2	44412	3.0	19.9	306281	3.1	20.7	544065	3.1	22.4	103686	3.2	19.4
404667	2.9	19.9	89356	2.9	19.3	395350	3.0	20.7	346379	3.1	20.2	486406	3.1	20.8	339008	3.2	21.0
44002	2.9	19.7	535276	2.9	20.9	542994	3.0	21.3	456254	3.1	21.1	187743	3.1	20.3	444897	3.2	21.7
310002	2.9	19.6	386732	2.9	19.6	255549	3.0	20.3	33950	3.1	19.2	336021	3.1	20.6	54347	3.2	18.0
234454	2.9	20.4	191376	2.9	20.2	104700	3.0	18.7	277951	3.1	21.0	77699	3.1	18.8	47235	3.2	16.9
463986	2.9	21.5	888	2.9	13.1	474203	3.0	21.9	92770	3.1	20.4	1567	3.1	14.2	370397	3.2	20.4
219407	2.9	20.1	413677	2.9	21.1	155204	3.0	20.8	455341	3.1	21.6	495907	3.1	21.7	460506	3.2	20.8
201909	2.9	18.9	4186	2.9	15.9	83676	3.0	18.8	181483	3.1	20.1	295277	3.1	20.0	274193	3.2	20.2
197057	2.9	19.8	33850	2.9	19.5	236049	3.0	19.2	372051	3.1	20.2	446821	3.1	21.3	102895	3.2	18.8
236919	2.9	21.0	68567	2.9	18.8	232990	3.0	20.1	539959	3.1	20.1	447432	3.1	20.6	445989	3.2	21.4
318895	2.9	20.7	349947	2.9	20.0	466734	3.0	20.8	366722	3.1	20.2	276402	3.1	20.0	18289	3.2	18.6
178542	2.9	19.1	544947	2.9	21.0	98107	3.0	19.3	225758	3.1	19.5	364319	3.1	21.3	143732	3.2	19.9
235438	2.9	19.9	314699	2.9	21.6	205723	3.0	18.9	339709	3.1	21.1	460231	3.1	21.1	214388	3.2	20.5
102840	2.9	18.9	37234	2.9	18.3	183628	3.0	19.6	192282	3.1	21.2	68984	3.2	18.9	151932	3.2	20.2
157991	2.9	20.2	417147	2.9	21.2	350373	3.0	21.5	128919	3.1	19.5	27522	3.2	18.4	213670	3.2	20.4
520745	2.9	20.8	236801	2.9	20.9	277472	3.0	20.8	466438	3.1	21.8	483674	3.2	20.5	4129	3.2	17.9
434433	2.9	20.5	109857	2.9	19.9	66546	3.0	19.7	518277	3.1	19.7	73958	3.2	19.5	411913	3.2	21.1
444059	2.9	22.0	475690	2.9	20.9	104486	3.0	20.2	487226	3.1	20.5	154084	3.2	19.7	89885	3.2	19.2
159043	2.9	19.7	421305	2.9	20.6	68547	3.0	17.6	29922	3.1	17.5	181399	3.2	20.3	426805	3.2	21.0
40374	2.9	18.2	263248	2.9	20.6	27385	3.0	17.2	105813	3.1	18.9	346111	3.2	21.5	166977	3.2	20.7
192970	2.9	20.1	166673	2.9	19.6	502481	3.0	20.7	193149	3.1	20.0	401114	3.2	21.6	215272	3.2	20.0
221691	2.9	19.6	150180	2.9	18.7	252470	3.0	20.3	229399	3.1	20.7	446321	3.2	20.1	421228	3.2	20.6
301621	2.9	19.5	467288	2.9	20.4	466422	3.0	21.2	115832	3.1	19.0	165068	3.2	19.5	433456	3.2	20.8
372275	2.9	20.8	92433	2.9	19.3	170029	3.0	20.0	259822	3.1	19.0	181226	3.2	21.2	194228	3.2	21.1
336741	2.9	20.4	262919	2.9	20.6	184782	3.0	20.6	17758	3.1	18.4	276615	3.2	20.4	109864	3.2	19.1
348180	2.9	21.4	153402	2.9	20.0	541760	3.0	20.0	262168	3.1	20.0	534637	3.2	20.6	318686	3.2	20.9
194575	2.9	20.7	489639	2.9	20.7	521526	3.0	20.6	232269	3.1	21.3	194766	3.2	20.9	455757	3.2	21.5
92658	2.9	19.5	344371	2.9	21.7	165907	3.0	19.3	502958	3.1	20.5	11133	3.2	17.5	148536	3.2	20.7
361350	2.9	21.4	342991	2.9	20.4	159616	3.0	20.3	90764	3.1	20.1	159726	3.2	18.7	346370	3.2	21.3
132325	2.9	19.9	64718	2.9	19.1	55634	3.0	17.9	386979	3.1	20.9	254735	3.2	20.3	32823	3.2	18.6
440672	2.9	20.8	34342	2.9	18.2	364259	3.0	20.4	523485	3.1	20.4	152732	3.2	19.2	414602	3.2	21.3
374673	2.9	20.2	169401	2.9	19.4	425775	3.0	20.7	139624	3.1	19.6	250211	3.2	20.1	361816	3.2	19.7
460995	2.9	20.9	199237	2.9	18.4	149277	3.0	19.9	449983	3.1	21.4	429493	3.2	20.5	314687	3.2	19.8
349527	2.9	20.0	182179	2.9	19.3	157483	3.0	19.2	175594	3.1	19.6	87042	3.2	18.8	516492	3.2	21.5
523439	2.9	20.9	356115	2.9	20.1	24463	3.0	17.8	244561	3.1	20.4	196977	3.2	19.1	349755	3.2	19.3
495556	2.9	21.4	474013	2.9	20.1	8467	3.0	17.5	104844	3.1	20.2	71435	3.2	19.3	209732	3.2	19.7
399466	2.9	21.6	136374	2.9	19.3	468505	3.0	20.4	416863	3.1	22.4	464833	3.2	20.5	290098	3.2	21.2
242591	2.9	19.8	365697	2.9	20.9	465574	3.0	21.0	142585	3.1	19.7	537917	3.2	20.3	424267	3.2	20.8
81597	2.9	19.5	390864	2.9	21.8	396876	3.0	20.5	30771	3.1	18.7	64682	3.2	19.2	254652	3.2	21.2
240689	2.9	20.2	56486	2.9	17.9	271950	3.0	20.1	363150	3.1	21.8	254089	3.2	19.6	455977	3.2	21.3
525897	2.9	21.1	418603	2.9	20.4	403343	3.0	19.8	196406	3.1	19.0	71804	3.2	19.6	376090	3.2	20.5
76309	2.9	18.1	116437	2.9	19.0	388441	3.0	19.5	232842	3.1	20.7	386906	3.2	21.5	248760	3.2	20.4
449123	2.9	19.8	252320	2.9	20.3	500293	3.0	21.4	279991	3.1	20.6	177222	3.2	19.4	147444	3.2	19.2
145405	2.9	20.2	269338	2.9	21.0	196353	3.0	19.2	438742	3.1	20.9	403072	3.2	20.3	467335	3.2	23.1
155101	2.9	20.2	53387	2.9	17.5	300283	3.0	21.3	195741	3.1	19.9	130928	3.2	18.9			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
394041	3.3	19.9	176213	3.3	20.7	372169	3.4	21.1	82263	3.4	18.2	258144	3.5	21.3	462919	3.6	20.4
110526	3.3	20.2	296292	3.3	20.8	364899	3.4	19.9	196442	3.4	18.5	370317	3.5	20.3	12021	3.6	18.3
61714	3.3	19.4	395165	3.3	20.2	415479	3.4	21.4	38294	3.4	18.1	137989	3.5	18.5	149308	3.6	19.7
376053	3.3	20.6	53441	3.3	18.3	137176	3.4	19.9	216974	3.4	20.7	16744	3.5	18.5	173228	3.6	20.6
419384	3.3	21.5	48628	3.3	17.8	32418	3.4	16.6	486864	3.4	20.2	419088	3.5	21.2	187207	3.6	20.1
496726	3.3	21.7	73285	3.3	18.1	150712	3.4	20.8	414885	3.4	21.9	375372	3.5	21.4	291580	3.6	20.1
111369	3.3	20.4	373708	3.3	21.3	414708	3.4	19.9	251268	3.4	20.9	280202	3.5	19.9	259167	3.6	19.7
237767	3.3	19.2	352855	3.3	20.7	169122	3.4	19.7	131891	3.4	18.4	86674	3.5	18.1	31561	3.6	17.4
317672	3.3	20.2	242946	3.3	20.2	85602	3.4	18.8	24437	3.4	18.0	313528	3.5	21.1	162035	3.6	19.7
298549	3.3	20.4	527477	3.3	22.6	333907	3.4	21.6	133822	3.4	19.7	59625	3.5	19.3	452410	3.6	21.9
204457	3.3	18.7	269809	3.3	20.1	286726	3.4	19.7	100570	3.4	20.0	229436	3.5	20.5	30025	3.6	18.8
276382	3.3	20.5	494698	3.3	22.1	273230	3.4	20.5	397262	3.4	22.0	222490	3.5	21.8	63967	3.6	18.0
192384	3.3	20.2	310793	3.3	20.6	177498	3.4	19.9	164139	3.5	19.5	118179	3.5	19.0	415693	3.6	21.3
191581	3.3	20.1	484817	3.3	20.2	488999	3.4	21.7	512262	3.5	20.7	174269	3.5	20.1	391423	3.6	19.8
24696	3.3	19.0	168026	3.3	18.6	77800	3.4	19.1	422887	3.5	22.1	187051	3.5	20.7	269993	3.6	21.6
28758	3.3	18.9	460167	3.3	22.0	492518	3.4	21.5	90757	3.5	19.5	484688	3.5	22.0	254728	3.6	20.3
370732	3.3	21.0	344275	3.3	21.4	135439	3.4	19.2	113780	3.5	19.8	184100	3.5	19.4	233612	3.6	20.5
486128	3.3	21.7	155985	3.3	20.1	359201	3.4	20.7	82362	3.5	19.3	452836	3.5	21.1	331315	3.6	19.4
492540	3.3	21.8	416467	3.3	19.1	404635	3.4	20.4	120007	3.5	19.2	357147	3.5	18.9	461243	3.6	21.2
16662	3.3	18.8	113982	3.3	19.0	335892	3.4	20.2	1375	3.5	14.4	458270	3.5	21.4	518094	3.6	20.7
226815	3.3	20.5	219581	3.3	21.2	125849	3.4	20.2	81191	3.5	18.9	445060	3.5	21.7	492528	3.6	21.1
450212	3.3	22.0	282327	3.3	19.5	94875	3.4	18.6	318826	3.5	20.1	206281	3.5	20.0	273415	3.6	21.2
223730	3.3	20.4	447028	3.3	21.8	126543	3.4	19.1	70	3.5	12.4	466009	3.5	20.3	241300	3.6	20.4
110215	3.3	20.8	51998	3.3	17.9	171288	3.4	20.9	26906	3.5	19.3	92498	3.5	19.1	236676	3.6	20.4
236034	3.3	20.5	276589	3.3	19.6	77274	3.4	17.7	128671	3.5	20.4	244584	3.5	20.7	539984	3.6	20.9
306089	3.3	20.5	122365	3.3	20.2	242100	3.4	19.8	226212	3.5	21.0	507311	3.5	20.7	314726	3.6	21.6
167867	3.3	19.9	164820	3.3	19.5	161799	3.4	20.2	423131	3.5	20.9	370400	3.5	21.6	265847	3.6	20.3
332435	3.3	21.4	59777	3.3	19.2	228741	3.4	20.2	421256	3.5	20.6	385876	3.5	21.1	227993	3.6	20.4
62664	3.3	19.0	250241	3.3	20.0	535992	3.4	22.1	339872	3.5	20.9	99840	3.5	19.0	457880	3.6	21.2
161136	3.3	19.0	466521	3.3	20.9	466521	3.4	20.6	200418	3.5	19.2	308193	3.5	20.5	357113	3.6	21.2
267296	3.3	20.0	325253	3.3	20.4	74355	3.4	19.4	339713	3.5	21.4	256731	3.5	20.9	61125	3.6	19.8
155086	3.3	20.3	27642	3.3	18.5	194233	3.4	20.5	464248	3.5	20.9	466215	3.5	21.4	312894	3.6	20.8
23584	3.3	17.6	390432	3.3	19.8	421087	3.4	20.3	155954	3.5	21.0	407490	3.5	21.3	49291	3.6	17.9
135698	3.3	20.0	301860	3.3	20.6	176063	3.4	20.0	54868	3.5	18.7	197882	3.5	20.6	296633	3.6	21.5
351280	3.3	20.9	544206	3.3	20.8	17307	3.4	17.8	124561	3.5	20.1	103792	3.5	19.6	462285	3.6	19.7
418711	3.3	20.7	493176	3.3	20.8	352664	3.4	21.3	317057	3.5	20.6	239646	3.5	19.1	359251	3.6	20.1
86750	3.3	20.3	400085	3.3	21.4	213709	3.4	20.7	207422	3.5	20.8	438179	3.5	22.0	432125	3.6	20.9
275842	3.3	19.9	135467	3.3	20.1	301597	3.4	20.2	166644	3.5	20.4	418539	3.5	21.8	521586	3.6	21.7
462784	3.3	19.9	293190	3.3	20.1	238616	3.4	21.4	382273	3.5	20.8	532128	3.5	21.3	357626	3.6	20.1
46310	3.3	19.0	186684	3.3	19.4	464638	3.4	20.8	487067	3.5	20.7	417427	3.5	19.9	389361	3.6	19.2
137948	3.3	18.9	189324	3.3	19.8	378417	3.4	21.2	128688	3.5	19.1	251158	3.5	20.9	282887	3.6	20.4
103358	3.3	20.0	133674	3.3	18.4	344850	3.4	21.2	338896	3.5	18.9	34508	3.5	17.5	538623	3.6	21.2
56941	3.3	19.1	275853	3.3	21.2	453956	3.4	20.2	190792	3.5	20.0	47081	3.5	18.6	201988	3.6	21.4
334960	3.3	19.8	102713	3.3	19.8	182365	3.4	20.0	71699	3.5	18.7	521813	3.5	21.2	524247	3.6	22.1
84309	3.3	19.5	336944	3.3	20.8	448882	3.4	21.5	378415	3.5	21.5	337623	3.5	21.5	488585	3.6	22.1
293886	3.3	20.4	71068	3.4	18.5	54262	3.4	18.1	176799	3.5	20.8	461006	3.5	20.0	64811	3.6	18.4
283795	3.3	18.9	214694	3.4	20.8	7580	3.4	17.5	33227	3.5	18.5	156030	3.5	20.3	138167	3.6	19.8
422867	3.3	21.2	200162	3.4	18.7	545131	3.4	20.9	425308	3.5	20.1	134337	3.5	19.5	278472	3.6	20.1
503837	3.3	19.9	60952	3.4	18.6	217293	3.4	20.4	13530	3.5	16.6	454829	3.5	21.8	18967	3.6	18.1
84524	3.3	19.8	207905	3.4	20.4	381023	3.4	19.5	450266	3.5	20.1	218183	3.5	19.3	444091	3.6	21.8
334179	3.3	20.8	521661	3.4	21.2	161195	3.4	19.8	428956	3.5	21.5	8052	3.6	17.4	288378	3.6	19.0
323834	3.3	21.1	336921	3.4	21.0	81126	3.4	18.3	276221	3.5	20.5	525098	3.6	22.6	387416	3.6	20.4
111322	3.3	19.5	300301	3.4	20.7	406956	3.4	20.5	269624	3.5	20.8	253207	3.6	18.5	413491	3.6	21.3
65989	3.3	18.5	179033	3.4	20.7	64202	3.4	18.7	152764	3.5	20.0	426799	3.6	20.5	132942	3.6	19.9
108256	3.3	19.4	109427	3.4	19.0	205212	3.4	20.4	464335	3.5	20.6	404636	3.6	20.7	128929	3.6	19.5
465842	3.3	21.0	275135	3.4	19.8	189238	3.4	20.1	434941	3.5	21.5	454652	3.6	21.0	33511	3.6	17.5
161096	3.3	19.8	57683	3.4	19.6	34112	3.4	18.6	113176	3.5	19.3	401981	3.6	21.8	271180	3.6	20.2
400182	3.3	21.0	88191	3.4	17.7	484670	3.4	21.0	119093	3.5	19.5	63081	3.6	17.8	246574	3.6	20.4
234480	3.3	20.2	395464	3.4	21.7	412028	3.4	19.9	274432	3.5	20.9	165895	3.6	19.7	290885	3.6	21.0
349968	3.3	19.2	456834	3.4	20.4	223681	3.4	20.2	517205	3.5	20.0	276333	3.6	20.4	295384	3.6	19.8
230835	3.3	20.1	236300	3.4	19.6	466127	3.4	20.4	93527	3.5	19.4	61316	3.6	18.3	490752	3.6	21.9
198100	3.3	19.6	292918	3.4	20.7	434640	3.4	21.8	365244	3.5	21.9	257864	3.6	19.8	383351	3.6	21.1
450057	3.3	21.2	151792	3.4	19.4	89039	3.4	19.0	460737	3.5	20.7	281337	3.6	21.0	244437	3.6	21.1
424812	3.3	21.9	452827	3.4	21.7	41065	3.4	19.0	362174	3.5	20.1	465240	3.6	21.3	160985	3.6	19.4
368996	3.3	19.7	102802	3.4	17.4	17491	3.4	18.7	468672	3.5	20.7	473775	3.6	20.8	450092	3.6	21.3
240884	3.3	20.6	217055	3.4	21.0	197128	3.4	19.3	57137	3.5	19.1	467695	3.6	20.8	138285	3.6	18.1
487020	3.3	21.1	463794	3.4	20.7	310760	3.4	20.5	283767	3.5	18.9	339719	3.6	20.0	503206	3.6	21.4
242977	3.3	20.2	423866	3.4	21.4	286474	3.4	20.2	86384	3.5	18.7	59468	3.6	18.2	61115	3.6	18.9
42484	3.3	18.9	169239	3.4	20.5	282458	3.4	19.9	496477	3.5	20.3	464623	3.6	21.5	339572	3.6	21.6
95485	3.3	19.1	326442	3.4	19.2	439981	3.4	21.9	58576	3.5	19.4	197627	3.6	20.1	174842	3.6	18.5
200322	3.3	20.3	450605	3.4	20.5	21452	3.4	18.3	278448	3.5	20.9	119758	3.6	18.			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
415811	3.6	22.9	458303	3.7	20.7	61243	3.7	18.5	316409	3.8	20.2	208008	3.9	20.5	456327	3.9	21.7
160381	3.6	20.0	361258	3.7	20.8	334128	3.7	21.1	289888	3.8	21.3	29040	3.9	19.1	450887	3.9	20.0
173704	3.6	19.8	447764	3.7	21.2	355981	3.7	21.5	453285	3.8	22.0	363842	3.9	21.3	390837	3.9	20.9
373703	3.6	21.7	143439	3.7	19.5	23155	3.8	17.9	64937	3.8	19.3	6143	3.9	17.0	230144	3.9	20.5
495157	3.6	21.1	404783	3.7	20.9	223005	3.8	19.5	271955	3.8	20.2	463754	3.9	21.3	324049	3.9	20.7
179909	3.6	19.7	359833	3.7	19.5	27139	3.8	16.8	535811	3.8	20.1	150681	3.9	19.5	139296	3.9	18.8
489901	3.6	21.6	486859	3.7	20.2	346316	3.8	21.8	47039	3.8	18.3	464119	3.9	20.6	433390	3.9	21.7
401714	3.6	20.6	276426	3.7	20.4	223030	3.8	19.6	536328	3.8	20.5	142108	3.9	20.3	7396	3.9	17.1
108897	3.6	20.3	249509	3.7	19.0	99799	3.8	19.5	390860	3.8	21.1	82517	3.9	19.4	142231	3.9	20.8
482483	3.6	21.4	46873	3.7	18.3	20440	3.8	18.5	443973	3.8	20.5	278463	3.9	20.7	301875	3.9	20.5
451492	3.6	21.7	89585	3.7	20.4	253942	3.8	19.6	201192	3.8	20.3	3915	3.9	15.7	82514	3.9	19.5
113661	3.6	18.4	333147	3.7	20.7	455612	3.8	21.0	234432	3.8	20.2	346896	3.9	20.6	15441	3.9	17.4
180621	3.6	19.7	115397	3.7	19.8	492508	3.8	21.4	271446	3.8	19.2	12067	3.9	18.9	124552	3.9	18.4
440220	3.6	22.0	452403	3.7	20.9	288648	3.8	20.8	119075	3.8	19.5	281836	3.9	20.2	62459	3.9	20.0
488897	3.6	20.9	293494	3.7	21.1	448805	3.8	20.9	440743	3.8	20.9	545	3.9	13.9	42565	3.9	18.6
110387	3.6	19.8	462371	3.7	20.6	108863	3.8	20.6	519960	3.8	21.2	279977	3.9	20.4	319585	3.9	20.5
37344	3.6	19.0	171348	3.7	20.7	440329	3.8	21.7	330923	3.8	20.4	537553	3.9	21.4	124333	3.9	19.7
245022	3.6	19.6	175942	3.7	19.5	260815	3.8	22.1	247956	3.8	19.6	26918	3.9	18.8	265422	3.9	20.0
76884	3.6	18.8	448198	3.7	21.0	468463	3.8	19.8	230172	3.8	19.8	319923	3.9	20.3	260052	3.9	19.9
307493	3.6	20.5	48291	3.7	18.1	268636	3.8	20.5	49478	3.8	18.3	451998	3.9	20.5	489768	3.9	20.4
259527	3.6	20.4	237778	3.7	19.8	388496	3.8	20.6	343321	3.8	19.6	259928	3.9	19.5	248219	3.9	19.3
252633	3.6	20.3	323785	3.7	20.6	101007	3.8	19.4	83175	3.8	18.5	493759	3.9	20.2	408353	3.9	20.8
11236	3.6	18.2	196016	3.7	19.2	71750	3.8	19.4	91231	3.8	17.4	399249	3.9	21.1	438232	3.9	20.3
496656	3.6	20.0	464850	3.7	20.1	323157	3.8	20.0	146694	3.8	19.8	291475	3.9	21.0	378458	3.9	21.2
176750	3.6	21.4	532681	3.7	21.5	347635	3.8	21.7	261151	3.8	20.6	111434	3.9	20.4	176935	3.9	20.1
178802	3.6	19.3	218770	3.7	20.5	178316	3.8	20.6	82609	3.8	19.4	78637	3.9	18.8	336036	3.9	20.9
426265	3.6	21.4	464747	3.7	21.7	420429	3.8	20.8	97697	3.8	17.4	360081	3.9	19.7	537814	3.9	19.9
283831	3.6	19.6	117852	3.7	18.7	424866	3.8	20.7	522142	3.8	20.9	373339	3.9	20.8	335966	3.9	20.8
454351	3.6	21.0	468539	3.7	20.1	380707	3.8	19.9	10604	3.8	18.2	139451	3.9	19.3	171377	3.9	20.3
155005	3.6	20.0	245312	3.7	20.9	14197	3.8	18.2	361719	3.8	20.6	83205	3.9	18.9	327700	3.9	19.8
211765	3.6	19.8	336913	3.7	20.8	416736	3.8	20.0	314857	3.8	21.4	363073	3.9	19.9	368081	3.9	20.1
319821	3.6	21.1	411735	3.7	19.7	36329	3.8	19.5	492033	3.8	21.2	260514	3.9	19.8	483623	3.9	20.6
3591	3.6	17.0	18356	3.7	18.3	181654	3.8	19.9	50718	3.8	17.6	43390	3.9	17.7	395141	3.9	20.2
270045	3.6	20.5	25214	3.7	18.4	57654	3.8	18.3	196714	3.8	19.4	128635	3.9	19.3	483593	3.9	21.1
238822	3.6	20.8	201862	3.7	19.3	277107	3.8	19.9	155381	3.8	19.9	324034	3.9	21.0	454689	3.9	20.6
198091	3.7	20.1	440356	3.7	21.5	416133	3.8	21.1	62309	3.8	18.7	19866	3.9	17.5	157930	3.9	20.6
456966	3.7	19.9	438483	3.7	21.0	461673	3.8	19.7	301632	3.8	19.4	26703	3.9	18.8	159709	3.9	19.5
244403	3.7	20.2	337725	3.7	20.7	235544	3.8	19.4	468017	3.8	20.4	375533	3.9	19.9	73409	3.9	19.4
494868	3.7	21.2	157685	3.7	19.8	120141	3.8	19.6	22635	3.9	17.3	453990	3.9	21.1	517197	3.9	20.0
484607	3.7	22.0	167307	3.7	20.2	304951	3.8	21.0	254813	3.9	19.4	26353	3.9	18.1	407539	3.9	21.3
182972	3.7	20.9	276216	3.7	20.0	151239	3.8	18.9	60527	3.9	18.5	454423	3.9	21.2	338348	3.9	21.2
522660	3.7	20.8	133379	3.7	19.7	542983	3.8	21.9	429258	3.9	20.6	125844	3.9	20.6	361208	3.9	20.4
421448	3.7	20.9	279686	3.7	19.5	366265	3.8	19.3	380934	3.9	21.3	523753	3.9	21.4	242779	3.9	19.9
468204	3.7	20.4	403070	3.7	20.4	165886	3.8	21.2	92833	3.9	19.4	221166	3.9	21.0	348230	3.9	20.2
483441	3.7	21.1	38911	3.7	17.6	331752	3.8	21.3	493567	3.9	21.2	450146	3.9	21.2	240895	4.0	20.6
411809	3.7	20.7	459707	3.7	20.9	150543	3.8	20.3	466954	3.9	20.5	251342	3.9	19.8	4901	4.0	17.3
86499	3.7	18.8	80376	3.7	18.8	291056	3.8	20.0	542112	3.9	22.1	368637	3.9	20.8	402567	4.0	23.1
147631	3.7	19.7	444034	3.7	21.4	145023	3.8	20.6	259937	3.9	20.4	83007	3.9	19.6	350452	4.0	20.6
177951	3.7	19.2	347782	3.7	20.1	445956	3.8	20.2	424225	3.9	21.2	213423	3.9	20.6	465553	4.0	21.2
175973	3.7	19.9	280166	3.7	20.5	155111	3.8	20.0	469196	3.9	20.5	87020	3.9	20.0	209048	4.0	21.1
318310	3.7	20.2	263943	3.7	19.8	370321	3.8	21.1	493034	3.9	20.9	486582	3.9	20.9	103772	4.0	19.5
413891	3.7	21.5	345864	3.7	20.2	109853	3.8	19.9	229370	3.9	21.2	11537	3.9	17.2	197059	4.0	19.9
8595	3.7	17.5	497257	3.7	22.2	235439	3.8	18.9	336419	3.9	20.6	272705	3.9	20.5	215954	4.0	20.6
254564	3.7	19.4	143932	3.7	19.2	121473	3.8	19.4	189096	3.9	19.7	424216	3.9	20.6	380382	4.0	21.7
202202	3.7	18.8	247649	3.7	21.2	426825	3.8	21.0	186418	3.9	20.4	494504	3.9	21.6	304931	4.0	21.3
314796	3.7	20.6	143411	3.7	18.7	257354	3.8	19.5	291226	3.9	20.4	33073	3.9	19.8	143938	4.0	18.8
6361	3.7	15.8	135834	3.7	18.7	541319	3.8	20.5	205517	3.9	20.4	154416	3.9	19.9	230474	4.0	20.4
238137	3.7	21.1	487907	3.7	20.0	370296	3.8	20.8	113327	3.9	19.6	520897	3.9	20.8	115927	4.0	19.8
162262	3.7	20.3	177552	3.7	19.5	518864	3.8	21.2	373966	3.9	18.9	174367	3.9	20.6	189985	4.0	19.7
450665	3.7	20.8	351674	3.7	19.9	290634	3.8	20.8	61555	3.9	19.8	258137	3.9	21.7	219385	4.0	19.9
50768	3.7	18.2	421996	3.7	20.7	100434	3.8	20.1	219860	3.9	20.7	244651	3.9	19.3	276748	4.0	19.5
99387	3.7	18.8	380670	3.7	20.4	338358	3.8	20.8	190800	3.9	19.2	375622	3.9	19.9	5369	4.0	17.7
322269	3.7	20.3	426021	3.7	20.3	11305	3.8	17.5	270047	3.9	20.7	244850	3.9	19.4	247697	4.0	19.4
465520	3.7	20.9	442659	3.7	20.4	238033	3.8	21.0	28637	3.9	17.9	266066	3.9	19.9	543058	4.0	21.6
395372	3.7	20.9	15160	3.7	17.6	71250	3.8	19.4	27281	3.9	17.9	219432	3.9	20.6	38272	4.0	17.8
443435	3.7	21.4	61798	3.7	19.4	148928	3.8	19.6	545124	3.9	20.5	436104	3.9	21.8	126378	4.0	19.9
376844	3.7	22.4	415888	3.7	21.0	496745	3.8	19.8	270708	3.9	20.5	190901	3.9	19.5	357247	4.0	21.3
197140	3.7	20.5	351332	3.7	19.2	405647	3.8	20.4	495787	3.9	20.5	56790	3.9	18.5	171612	4.0	19.0
263742	3.7	20.2	142320	3.7	19.7	464453	3.8	20.8	418767	3.9	19.5	2576	3.9	16.4	491350	4.0	19.8
125577	3.7	18.4	518630	3.7	20.1	517744	3.8	20.6	122479	3.9	20.0	148240	3.9	17.8	383740	4.0	21.9
58617	3.7	18.6	302987	3.7	20.0	178088	3.8	19.3	217537	3.9	19.4	77857	3.9	18.3</			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
409479	4.0	21.4	418646	4.1	19.6	473293	4.2	20.4	267720	4.2	21.1	502916	4.3	20.6	281915	4.3	20.5
252617	4.0	19.9	76656	4.1	18.3	87210	4.2	19.0	182156	4.2	20.7	290083	4.3	20.3	468850	4.3	20.4
388558	4.0	21.0	102810	4.1	19.0	179155	4.2	20.7	111041	4.2	19.5	233720	4.3	19.8	216986	4.3	20.6
48862	4.0	18.0	493986	4.1	20.6	466228	4.2	21.2	331881	4.2	21.2	84699	4.3	18.8	3857	4.3	15.9
217297	4.0	20.1	416593	4.1	20.9	240917	4.2	19.0	141147	4.2	19.8	538579	4.3	20.8	232335	4.3	19.8
329996	4.0	20.9	483712	4.1	21.4	495487	4.2	21.4	63439	4.2	19.3	234129	4.3	19.2	291920	4.3	20.9
44086	4.0	17.4	361648	4.1	20.8	2310	4.2	15.7	465801	4.2	20.1	125357	4.3	19.9	80806	4.3	22.9
470992	4.0	21.3	397824	4.1	20.2	144360	4.2	19.4	405022	4.2	21.5	314312	4.3	20.0	465794	4.3	20.6
437762	4.0	20.4	417607	4.1	21.5	532313	4.2	21.0	240439	4.2	17.8	43725	4.3	16.5	25866	4.3	18.3
494155	4.0	20.9	26377	4.1	18.7	231092	4.2	20.4	252282	4.2	21.0	176857	4.3	18.9	433026	4.3	20.5
1198	4.0	18.7	232338	4.1	20.4	86741	4.2	18.4	502082	4.2	21.0	33107	4.3	18.4	134793	4.3	18.5
33676	4.0	17.8	246345	4.1	20.3	290079	4.2	21.4	279062	4.2	20.9	259335	4.3	19.9	405137	4.3	20.4
139348	4.0	20.4	125290	4.1	19.2	195952	4.2	20.4	92957	4.2	17.8	206266	4.3	20.2	451673	4.3	20.3
67462	4.0	19.3	87292	4.1	19.7	138517	4.2	20.1	71912	4.2	18.5	333327	4.3	20.6	223765	4.3	20.5
221672	4.0	19.9	212570	4.1	18.9	281263	4.2	20.8	34840	4.2	18.5	511542	4.3	20.2	223641	4.3	19.1
499979	4.0	20.6	456894	4.1	22.1	166259	4.2	20.0	456209	4.2	22.1	144627	4.3	20.8	188763	4.3	20.8
417784	4.0	20.7	78119	4.1	19.6	327916	4.2	20.7	466455	4.2	20.9	2080	4.3	15.4	310817	4.3	20.2
290712	4.0	20.4	59417	4.1	18.4	484021	4.2	20.4	6964	4.2	17.4	465155	4.3	19.9	427225	4.3	21.4
344822	4.0	20.2	58606	4.1	19.2	376036	4.2	20.3	28753	4.2	15.8	461746	4.3	20.7	338205	4.3	19.1
414534	4.0	21.2	281339	4.1	20.8	42358	4.2	18.5	523861	4.2	20.7	327044	4.3	21.3	206544	4.3	20.3
339653	4.0	20.9	496399	4.1	22.3	204613	4.2	20.2	236348	4.2	18.9	16752	4.3	19.2	168466	4.3	19.1
134855	4.1	20.2	242001	4.1	19.7	148907	4.2	18.2	57597	4.2	18.6	522672	4.3	20.3	153993	4.4	19.8
475776	4.1	21.2	491472	4.1	19.7	37387	4.2	17.8	496978	4.2	20.8	445776	4.3	20.5	402603	4.4	21.2
135735	4.1	19.5	238303	4.1	20.4	33310	4.2	18.4	392288	4.2	20.5	386641	4.3	20.1	253349	4.4	19.3
345349	4.1	20.1	270941	4.1	21.2	104267	4.2	18.6	322266	4.2	20.5	65819	4.3	19.7	334137	4.4	20.6
449351	4.1	19.8	344427	4.1	20.6	201174	4.2	20.2	189842	4.2	19.7	421698	4.3	21.2	203778	4.4	20.7
428171	4.1	21.1	113061	4.1	19.1	14422	4.2	18.3	113182	4.2	19.4	400787	4.3	20.1	185246	4.4	20.4
362581	4.1	21.6	482866	4.1	20.9	217300	4.2	19.5	397218	4.2	20.1	515847	4.3	20.9	176269	4.4	20.5
236359	4.1	20.1	28176	4.1	20.3	45388	4.2	17.8	113595	4.2	19.9	527170	4.3	22.1	278478	4.4	21.3
313472	4.1	21.6	523740	4.1	21.2	190745	4.2	20.9	163551	4.2	20.0	66166	4.3	18.6	378413	4.4	20.9
411414	4.1	20.8	222934	4.1	20.5	492958	4.2	21.4	113207	4.2	19.9	198875	4.3	20.1	157132	4.4	20.7
87490	4.1	19.0	344331	4.1	21.8	239968	4.2	20.2	103953	4.2	18.8	104106	4.3	19.2	375474	4.4	21.3
288878	4.1	19.4	348473	4.1	21.0	376731	4.2	18.7	510850	4.2	20.7	489279	4.3	20.6	404253	4.4	20.0
454024	4.1	19.8	317345	4.1	20.4	297020	4.2	20.5	313557	4.2	19.9	375091	4.3	20.7	395354	4.4	21.5
406951	4.1	20.7	266091	4.1	19.6	49080	4.2	17.2	334062	4.2	20.3	484158	4.3	20.5	464670	4.4	21.3
136542	4.1	19.8	244659	4.1	20.2	100884	4.2	17.9	278901	4.2	20.6	214666	4.3	19.9	103630	4.4	19.4
483448	4.1	21.0	378431	4.1	20.7	273448	4.2	19.9	112949	4.2	20.3	182297	4.3	19.8	144388	4.4	20.5
241541	4.1	19.8	225258	4.1	20.5	493855	4.2	21.0	38825	4.2	18.8	200078	4.3	20.1	253037	4.4	21.1
88617	4.1	19.3	322061	4.1	20.4	428380	4.2	21.4	254698	4.2	20.5	532907	4.3	22.0	64478	4.4	18.3
367869	4.1	20.9	516979	4.1	21.6	543906	4.2	21.9	484709	4.2	20.3	339989	4.3	20.0	112681	4.4	19.5
407963	4.1	20.3	252455	4.1	20.4	88440	4.2	19.1	135829	4.2	20.5	154874	4.3	19.5	418353	4.4	20.8
54984	4.1	18.8	322630	4.1	20.5	233669	4.2	19.5	19864	4.2	18.7	35943	4.3	19.0	479342	4.4	21.3
443982	4.1	19.6	483440	4.1	22.1	96204	4.2	17.8	149891	4.2	20.3	284028	4.3	20.5	105608	4.4	20.0
369631	4.1	20.8	183666	4.1	21.0	16770	4.2	17.7	1836	4.2	16.4	421066	4.3	20.5	146440	4.4	20.3
510328	4.1	20.1	399985	4.1	20.3	264546	4.2	20.6	310775	4.2	21.0	56639	4.3	18.3	234913	4.4	20.8
267645	4.1	19.7	258455	4.1	19.5	151963	4.2	18.7	371159	4.2	20.9	473431	4.3	21.0	198104	4.4	19.8
451836	4.1	19.5	90315	4.1	20.2	316999	4.2	21.2	115333	4.2	20.6	88928	4.3	19.0	15103	4.4	17.4
473640	4.1	21.1	278991	4.1	20.4	253092	4.2	20.8	354291	4.2	19.8	87571	4.3	19.6	309598	4.4	21.2
77431	4.1	19.9	495548	4.1	21.2	537864	4.2	21.3	292668	4.2	20.6	280290	4.3	19.9	217838	4.4	20.1
377476	4.1	19.8	468518	4.1	21.4	345215	4.2	21.3	225552	4.2	21.3	109141	4.3	18.7	367222	4.4	21.3
534368	4.1	20.9	543443	4.1	20.9	159554	4.2	20.3	440283	4.2	21.1	269304	4.3	20.3	49176	4.4	19.7
394993	4.1	21.1	498521	4.1	19.7	158316	4.2	19.6	444714	4.2	21.3	405547	4.3	20.6	373791	4.4	20.2
405059	4.1	21.2	343272	4.1	19.9	402730	4.2	22.2	337736	4.2	22.1	230226	4.3	21.3	73218	4.4	18.9
448289	4.1	19.8	236962	4.1	20.9	117130	4.2	20.0	400188	4.2	21.7	239484	4.3	20.7	146344	4.4	20.0
213124	4.1	19.8	106734	4.1	19.5	44672	4.2	18.0	493555	4.3	21.6	446759	4.3	21.8	321617	4.4	20.9
355958	4.1	21.1	408801	4.1	21.9	367761	4.2	20.9	462969	4.3	20.8	345366	4.3	20.6	146448	4.4	20.5
379089	4.1	21.0	424233	4.1	20.8	233602	4.2	20.0	200388	4.3	20.0	386614	4.3	21.8	387655	4.4	20.7
185739	4.1	19.4	221140	4.1	19.7	131375	4.2	20.3	339716	4.3	21.3	104827	4.3	19.3	125118	4.4	20.7
355907	4.1	21.8	110633	4.1	19.1	109693	4.2	19.6	268128	4.3	20.7	307966	4.3	20.8	91425	4.4	19.3
74517	4.1	17.6	280221	4.1	20.1	110181	4.2	19.3	313666	4.3	21.3	457794	4.3	21.4	414793	4.4	21.0
499897	4.1	20.7	348881	4.1	21.4	335907	4.2	20.9	149324	4.3	20.0	78219	4.3	19.5	672	4.4	15.3
81294	4.1	19.5	483428	4.1	19.5	528761	4.2	21.5	378464	4.3	20.8	535662	4.3	21.0	541809	4.4	20.7
168590	4.1	19.2	270054	4.1	20.8	16806	4.2	17.3	76978	4.3	17.3	88910	4.3	18.5	408300	4.4	19.9
245327	4.1	19.1	204347	4.1	21.1	194394	4.2	20.8	334751	4.3	21.2	461452	4.3	21.0	237412	4.4	20.3
168319	4.1	20.3	62983	4.1	19.4	259999	4.2	19.8	323951	4.3	21.0	50140	4.3	18.7	520552	4.4	20.5
427128	4.1	21.3	271343	4.1	20.4	103889	4.2	19.2	9589	4.3	17.6	194383	4.3	20.6	256333	4.4	19.7
262364	4.1	19.8	147362	4.1	19.1	211324	4.2	21.1	270703	4.3	20.5	214383	4.3	19.9	104955	4.4	19.8
440219	4.1	21.6	88888	4.1	19.4	57075	4.2	19.4	150496	4.3	20.1	541948	4.3	20.7	214796	4.4	20.1
149666	4.1	19.0	136325	4.2	19.2	308785	4.2	19.7	352881	4.3	20.1	410043	4.3	20.4	27550	4.4	18.0
326406	4.1	19.7	113495	4.2	20.6	177769	4.2	20.3	413389	4.3	20.6	340058	4.3	21.2	81929	4.4	19.3
274239	4.1	20.5	131442	4.2	19.0	319525	4.2	22.1	236330	4.3	18.9	262907	4.3	19.			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
508345	4.4	20.7	57236	4.5	18.1	395322	4.5	21.8	459855	4.6	20.9	399389	4.7	20.8	538672	4.7	21.2
339679	4.4	20.1	492871	4.5	21.6	455575	4.5	21.2	457212	4.6	21.4	51817	4.7	18.9	160876	4.7	19.5
231164	4.4	19.7	345387	4.5	21.1	490706	4.5	21.5	150259	4.6	19.7	57556	4.7	18.7	518778	4.7	20.8
176075	4.4	19.4	19526	4.5	18.2	474401	4.5	22.1	142129	4.6	19.5	388905	4.7	21.1	282882	4.7	21.0
308256	4.4	20.3	486015	4.5	22.1	235983	4.5	20.6	375636	4.6	21.3	303025	4.7	20.6	166557	4.7	21.2
88043	4.4	18.9	47262	4.5	19.2	258265	4.5	21.1	421293	4.6	20.7	11265	4.7	17.8	249689	4.7	20.4
452184	4.4	20.8	44812	4.5	17.7	262046	4.5	19.3	141667	4.6	19.9	118567	4.7	18.6	502107	4.7	21.2
392480	4.4	20.3	313879	4.5	19.7	284734	4.5	20.7	49128	4.6	19.9	388104	4.7	20.8	49075	4.7	18.6
276177	4.4	20.1	252238	4.5	20.4	221168	4.5	20.8	445580	4.6	21.6	56223	4.7	18.3	493295	4.7	20.8
101184	4.4	19.0	276373	4.5	20.2	512187	4.5	20.9	289851	4.6	19.8	388107	4.7	20.5	535629	4.7	20.9
17621	4.4	18.3	381310	4.5	19.9	365645	4.5	20.5	47145	4.6	16.6	107254	4.7	18.6	407310	4.7	21.4
270761	4.4	20.1	322443	4.5	20.3	157140	4.5	20.1	447816	4.6	21.7	158964	4.7	20.2	312697	4.7	20.2
348233	4.4	21.3	370634	4.5	19.4	46318	4.5	18.8	335321	4.6	21.5	441860	4.7	20.5	381249	4.7	20.8
217129	4.4	18.6	389925	4.5	19.3	460672	4.5	21.1	131418	4.6	18.9	95985	4.7	20.2	164474	4.7	20.6
260119	4.4	20.1	122453	4.5	20.7	2650	4.5	15.6	171606	4.6	19.5	97784	4.7	17.8	272225	4.7	20.6
21856	4.4	18.3	165772	4.5	20.3	259930	4.5	19.3	65673	4.6	18.8	68337	4.7	19.3	55222	4.7	18.5
347187	4.4	21.2	455179	4.5	20.4	486996	4.5	20.8	450853	4.6	20.0	391523	4.7	21.4	174933	4.7	19.7
362689	4.4	20.4	14712	4.5	18.0	263616	4.5	20.6	295949	4.6	20.2	247599	4.7	20.8	138736	4.7	19.9
338266	4.4	21.4	337683	4.5	20.2	63517	4.5	18.7	462641	4.6	21.2	456008	4.7	20.8	460580	4.7	19.6
170648	4.4	20.9	237625	4.5	20.3	310721	4.5	21.4	461125	4.6	21.5	190802	4.7	19.9	133873	4.7	20.3
160881	4.4	19.7	421472	4.5	21.9	542644	4.5	20.7	278917	4.6	20.0	197782	4.7	20.9	484632	4.7	21.5
56499	4.4	19.0	226185	4.5	20.0	201790	4.6	19.9	135232	4.6	18.2	285901	4.7	20.5	496911	4.7	21.6
412792	4.4	19.9	28061	4.5	17.7	169526	4.6	20.2	80145	4.6	19.0	241467	4.7	20.2	369938	4.7	20.0
491988	4.4	21.3	257579	4.5	20.1	497242	4.6	20.9	518819	4.6	20.9	251217	4.7	20.2	398231	4.7	21.5
291320	4.4	21.3	448153	4.5	22.3	247971	4.6	19.9	232240	4.6	21.0	155237	4.7	20.6	331814	4.7	21.2
437898	4.4	22.2	135430	4.5	20.2	114300	4.6	18.2	152015	4.6	18.7	228735	4.7	19.7	440695	4.7	21.0
60463	4.4	18.9	241611	4.5	20.6	458218	4.6	21.9	62682	4.6	20.0	518260	4.7	20.9	63577	4.7	18.6
424220	4.4	20.7	161187	4.5	20.1	263424	4.6	20.0	247558	4.6	21.1	495022	4.7	20.2	230617	4.7	19.0
499959	4.4	20.7	212200	4.5	19.8	81926	4.6	18.5	488353	4.6	21.7	451945	4.7	20.7	54719	4.7	19.0
51355	4.4	18.4	178627	4.5	18.4	502491	4.6	20.4	271175	4.6	21.1	34515	4.7	19.4	469012	4.7	21.1
58719	4.4	19.1	294655	4.5	19.6	356992	4.6	19.9	195813	4.6	20.5	154663	4.7	19.8	180799	4.7	19.3
85529	4.4	19.5	137995	4.5	19.4	538895	4.6	21.5	238392	4.6	19.8	283384	4.7	21.0	230547	4.7	20.4
365992	4.4	20.2	218367	4.5	20.2	408836	4.6	21.3	337267	4.6	21.3	517172	4.7	20.8	257522	4.7	21.4
129807	4.4	19.6	68267	4.5	20.1	187128	4.6	20.9	30276	4.6	19.0	279219	4.7	19.7	145977	4.7	19.5
87455	4.4	18.7	520727	4.5	19.9	522082	4.6	20.7	465450	4.6	20.3	104839	4.7	18.7	379105	4.7	20.3
28473	4.4	17.9	109169	4.5	19.1	442273	4.6	21.7	449953	4.6	21.4	3427	4.7	17.0	443324	4.7	20.3
538258	4.4	20.5	30340	4.5	18.2	285329	4.6	20.3	321854	4.6	20.8	152288	4.7	20.4	524883	4.7	20.5
168088	4.4	20.3	502592	4.5	20.8	125656	4.6	19.0	65391	4.6	19.5	137917	4.7	19.6	484282	4.7	21.4
113773	4.4	19.6	10652	4.5	18.3	768	4.6	14.8	14074	4.6	18.0	70532	4.7	19.8	544105	4.7	21.7
455334	4.4	22.2	529784	4.5	22.3	401593	4.6	20.7	136083	4.6	19.3	51529	4.7	18.8	486320	4.7	21.5
457234	4.4	21.0	492957	4.5	20.9	201473	4.6	19.8	6020	4.6	17.2	156241	4.7	20.1	270871	4.7	20.5
110610	4.4	19.8	128246	4.5	19.7	361188	4.6	20.6	373999	4.6	18.8	281679	4.7	20.1	447984	4.7	20.6
67089	4.4	18.9	384549	4.5	20.6	136061	4.6	19.1	399289	4.6	19.9	174279	4.7	20.5	251578	4.7	19.2
386888	4.4	20.6	442709	4.5	21.6	275642	4.6	19.8	450818	4.6	21.5	317501	4.7	21.3	378876	4.7	20.3
271160	4.4	21.1	495461	4.5	21.5	39346	4.6	19.4	131298	4.6	18.9	451468	4.7	21.5	448785	4.7	21.7
45636	4.4	18.6	102744	4.5	18.8	182165	4.6	19.5	58044	4.6	19.4	297318	4.7	22.0	466427	4.7	20.1
313899	4.4	19.1	363593	4.5	20.4	282202	4.6	20.4	134447	4.6	21.0	403981	4.7	21.0	27767	4.7	18.0
404365	4.4	20.8	468254	4.5	20.2	325245	4.6	20.5	32624	4.6	19.7	519347	4.7	20.4	210108	4.7	19.5
81574	4.4	19.0	544304	4.5	21.2	444083	4.6	20.4	486144	4.6	21.5	188635	4.7	20.6	59258	4.7	18.9
372092	4.4	19.5	466617	4.5	20.7	195646	4.6	19.8	416825	4.6	20.4	235737	4.7	21.0	319908	4.8	21.2
218021	4.4	19.7	334600	4.5	21.5	383409	4.6	21.2	178589	4.6	18.8	340027	4.7	20.0	446958	4.8	21.8
286895	4.4	20.4	318724	4.5	20.4	279320	4.6	20.1	149287	4.6	20.1	68927	4.7	18.6	248831	4.8	21.0
168348	4.4	20.7	158298	4.5	20.1	232345	4.6	20.8	35572	4.6	17.4	10368	4.7	17.6	75710	4.8	18.3
87706	4.4	19.5	238791	4.5	19.6	89893	4.6	19.4	307277	4.6	20.5	484560	4.7	21.1	184603	4.8	19.9
462022	4.4	20.9	414475	4.5	20.8	319590	4.6	20.8	455916	4.6	21.1	175757	4.7	20.4	532633	4.8	21.1
473903	4.4	20.6	309475	4.5	21.0	536462	4.6	20.1	520907	4.6	21.4	367386	4.7	20.0	23745	4.8	19.0
457819	4.4	21.5	7627	4.5	17.5	150642	4.6	21.8	234206	4.6	20.6	75663	4.7	19.5	325163	4.8	20.9
182136	4.4	20.3	383904	4.5	20.1	460325	4.6	21.2	254773	4.6	20.0	289172	4.7	20.6	481139	4.8	21.0
179158	4.4	19.9	401908	4.5	21.0	402157	4.6	20.6	275475	4.6	20.3	219877	4.7	20.0	519888	4.8	21.4
378455	4.4	21.1	120361	4.5	19.9	426676	4.6	20.7	319880	4.6	20.4	519089	4.7	20.6	124171	4.8	19.9
44351	4.4	19.5	442536	4.5	21.3	291345	4.6	20.6	10027	4.6	16.2	409602	4.7	20.9	81875	4.8	19.3
33094	4.4	17.3	41622	4.5	18.0	73638	4.6	19.1	78737	4.6	18.6	488610	4.7	21.2	394911	4.8	21.3
198690	4.4	19.6	304917	4.5	21.0	111246	4.6	17.5	169038	4.6	18.9	165892	4.7	19.4	177743	4.8	20.4
493338	4.4	21.0	452848	4.5	20.7	326350	4.6	21.5	366318	4.6	20.8	178873	4.7	20.0	163098	4.8	19.0
182138	4.5	19.7	4659	4.5	18.0	257058	4.6	20.4	175297	4.6	20.2	434248	4.7	20.9	34768	4.8	19.3
484726	4.5	21.7	130328	4.5	20.1	191721	4.6	19.4	334590	4.7	21.3	325499	4.7	20.1	496033	4.8	22.1
244133	4.5	19.9	281338	4.5	21.4	388439	4.6	20.7	348739	4.7	20.5	62726	4.7	18.9	157859	4.8	20.4
81737	4.5	18.7	236010	4.5	19.9	258552	4.6	19.7	488926	4.7	21.4	176612	4.7	19.8	147706	4.8	19.8
263404	4.5	20.2	21947	4.5	18.9	194681	4.6	19.1	271286	4.7	20.1	225574	4.7	20.3	482543	4.8	21.0
460582	4.5	21.3	275486	4.5	22.1	397610	4.6	20.9	144008	4.7	20.1	234951	4.7	20.2	197420	4.8	19.0
48156	4.5	19.1	5930	4.5	16.6	93848	4.6	19.5	89100	4.7	19.6	142416	4.7	20.1			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
309505	4.8	20.5	492483	4.8	20.3	544244	4.9	20.3	363619	4.9	21.7	418776	5.1	20.3	152231	5.2	20.1
243916	4.8	20.4	400122	4.8	21.4	360788	4.9	19.1	134890	4.9	19.7	232428	5.1	18.5	292904	5.2	20.7
225379	4.8	20.5	34958	4.8	19.4	402645	4.9	21.3	94246	4.9	18.8	54328	5.1	18.5	73438	5.2	19.6
461659	4.8	20.3	11253	4.8	18.2	25493	4.9	17.3	113785	4.9	19.1	466904	5.1	20.5	251042	5.2	20.3
518795	4.8	20.9	291441	4.8	20.6	177831	4.9	19.1	23427	4.9	18.1	544980	5.1	21.3	447043	5.2	21.5
522618	4.8	21.3	456345	4.8	20.7	132193	4.9	19.8	80853	4.9	19.4	71468	5.1	19.1	197235	5.2	20.3
493889	4.8	20.8	92339	4.8	18.9	542084	4.9	21.8	261742	4.9	19.7	192570	5.1	19.7	455841	5.2	21.7
234165	4.8	19.3	261398	4.8	19.9	381190	4.9	20.8	493987	4.9	20.6	335903	5.1	21.0	532658	5.2	20.3
110254	4.8	19.6	174997	4.9	19.4	410108	4.9	20.4	67211	5.0	18.9	302843	5.1	19.8	543547	5.2	21.5
544962	4.8	21.0	58659	4.9	19.3	72714	4.9	18.8	400098	5.0	22.2	422328	5.1	20.8	518477	5.2	21.7
275549	4.8	20.3	313220	4.9	21.7	252568	4.9	20.1	290691	5.0	19.9	466502	5.1	20.5	426606	5.2	20.2
220018	4.8	20.4	472344	4.9	20.7	309532	4.9	20.4	176652	5.0	21.0	495298	5.1	20.9	252477	5.2	20.1
11567	4.8	17.7	279993	4.9	21.5	541789	4.9	20.5	108539	5.0	19.3	486070	5.1	21.3	374601	5.2	21.0
93967	4.8	19.3	483631	4.9	21.3	113064	4.9	19.9	81475	5.0	19.6	354610	5.1	19.5	129170	5.2	19.6
28041	4.8	17.7	164031	4.9	19.5	122554	4.9	19.6	538632	5.0	20.8	14397	5.1	18.7	25786	5.2	18.7
212477	4.8	19.7	266097	4.9	20.0	18767	4.9	17.5	402743	5.0	22.0	309467	5.1	20.8	78176	5.2	19.7
412923	4.8	21.7	359214	4.9	19.7	237772	4.9	19.2	349662	5.0	19.6	350116	5.1	19.9	206716	5.2	20.1
115124	4.8	19.2	449398	4.9	20.4	263611	4.9	19.7	225551	5.0	20.6	245782	5.1	20.3	484742	5.2	20.4
112768	4.8	19.8	80640	4.9	18.3	57181	4.9	19.2	464423	5.0	20.8	486906	5.1	21.5	314775	5.2	20.3
182710	4.8	20.6	277272	4.9	20.9	13134	4.9	18.7	120299	5.0	19.6	83987	5.1	19.7	283144	5.2	20.8
182342	4.8	20.3	270753	4.9	20.7	314971	4.9	19.3	503579	5.0	20.7	464303	5.1	20.9	24240	5.2	18.6
420871	4.8	21.7	374218	4.9	20.9	311073	4.9	18.9	232341	5.0	19.8	105765	5.1	19.8	461609	5.2	19.6
258957	4.8	20.5	268660	4.9	19.7	234944	4.9	20.7	54386	5.0	18.6	528647	5.1	21.6	134179	5.2	20.1
80383	4.8	19.2	358523	4.9	19.9	30235	4.9	19.4	92686	5.0	18.9	197863	5.1	19.8	277091	5.2	20.4
339827	4.8	21.7	98753	4.9	18.8	236273	4.9	19.2	234899	5.0	20.0	409800	5.1	20.5	425403	5.2	21.0
142826	4.8	20.0	339938	4.9	19.7	369317	4.9	20.6	541241	5.0	21.5	163229	5.1	19.7	413520	5.2	21.7
79592	4.8	19.8	416293	4.9	21.4	466035	4.9	21.7	535030	5.0	22.1	418851	5.1	20.5	149895	5.2	19.9
64409	4.8	18.7	281396	4.9	21.2	46904	4.9	20.2	89779	5.0	19.4	36408	5.1	18.3	243682	5.2	19.7
495044	4.8	20.4	317005	4.9	21.2	377558	4.9	20.0	236720	5.0	20.3	8451	5.1	18.3	239572	5.2	20.1
339892	4.8	20.4	301468	4.9	20.6	444737	4.9	20.6	146586	5.0	19.3	120484	5.1	19.3	411757	5.2	20.2
378128	4.8	21.2	109105	4.9	18.9	155035	4.9	20.5	522324	5.0	21.5	176051	5.1	20.1	251988	5.2	19.2
338250	4.8	20.4	189644	4.9	21.1	246894	4.9	19.5	526962	5.0	21.5	533912	5.1	21.0	347018	5.2	19.5
391013	4.8	20.6	189033	4.9	20.3	417396	4.9	21.2	150984	5.0	19.5	194397	5.1	20.8	113059	5.2	19.4
191397	4.8	19.7	87958	4.9	19.7	183428	4.9	19.5	20946	5.0	17.9	58413	5.1	20.2	287755	5.2	19.7
454483	4.8	21.6	252220	4.9	20.1	178412	4.9	21.7	372168	5.0	20.6	277098	5.1	19.7	400056	5.2	22.2
411383	4.8	22.5	241779	4.9	20.2	324035	4.9	20.9	516416	5.0	21.0	44372	5.1	19.9	399401	5.2	21.7
287209	4.8	20.7	337250	4.9	20.9	80044	4.9	19.0	451478	5.0	21.2	215321	5.1	20.9	1621	5.2	14.5
529719	4.8	19.9	495224	4.9	21.0	465779	4.9	21.1	61157	5.0	19.6	289056	5.1	20.6	542561	5.2	19.1
434517	4.8	21.5	108765	4.9	19.1	422890	4.9	22.5	410021	5.0	21.4	330479	5.1	20.0	230851	5.2	20.0
258335	4.8	20.2	403658	4.9	21.5	503634	4.9	20.9	473588	5.0	20.6	239282	5.1	20.1	238646	5.2	19.3
348200	4.8	21.1	52169	4.9	18.9	213692	4.9	21.3	54854	5.0	18.9	541417	5.1	20.7	466343	5.2	21.3
240450	4.8	19.9	346415	4.9	20.6	127582	4.9	19.0	284493	5.0	20.9	454933	5.1	20.9	462126	5.2	21.8
483915	4.8	20.7	129941	4.9	19.8	424283	4.9	21.5	252353	5.0	21.3	105070	5.1	19.3	143734	5.2	20.1
179182	4.8	19.9	312815	4.9	20.9	482478	4.9	21.8	234263	5.0	20.3	318949	5.1	19.9	29272	5.2	19.6
448961	4.8	21.2	95546	4.9	19.1	164919	4.9	19.0	451910	5.0	21.8	156879	5.1	19.0	139166	5.2	19.0
318746	4.8	19.8	243349	4.9	19.4	58454	4.9	18.0	460187	5.0	21.3	246849	5.1	19.8	77288	5.2	18.8
428460	4.8	21.1	447042	4.9	21.7	244310	4.9	19.1	400109	5.0	21.4	199745	5.1	19.8	117970	5.2	19.8
235058	4.8	19.9	265497	4.9	20.1	261092	4.9	21.3	162063	5.0	19.5	35797	5.1	18.1	229290	5.2	19.9
287161	4.8	21.2	363197	4.9	21.4	333041	4.9	21.6	179625	5.0	20.4	402996	5.1	19.0	136627	5.2	20.7
522525	4.8	20.3	191603	4.9	19.5	12219	4.9	17.6	421535	5.0	20.8	526435	5.1	21.9	442704	5.2	20.6
352815	4.8	20.6	365529	4.9	21.7	408813	4.9	21.9	447440	5.0	20.4	390580	5.1	21.5	416435	5.2	21.3
53489	4.8	18.4	420794	4.9	21.7	6335	4.9	16.6	398727	5.0	20.1	55155	5.1	18.8	135710	5.2	20.3
420446	4.8	20.3	487524	4.9	20.7	296785	4.9	20.4	90595	5.0	18.9	490473	5.1	21.9	1789	5.2	15.7
209132	4.8	20.1	23902	4.9	18.1	460670	4.9	20.7	474001	5.0	19.7	313540	5.1	20.6	29228	5.2	17.2
173177	4.8	20.3	543175	4.9	21.5	293110	4.9	20.2	461326	5.0	20.4	76079	5.1	18.4	112054	5.2	19.1
215173	4.8	19.5	359973	4.9	21.4	369245	4.9	21.3	109444	5.0	19.6	494859	5.1	20.7	421531	5.2	21.0
104973	4.8	17.7	44011	4.9	18.2	179118	4.9	19.7	337238	5.1	20.5	194081	5.1	20.5	197219	5.2	19.9
343664	4.8	21.1	516308	4.9	20.1	26826	4.9	18.1	154009	5.1	18.9	347248	5.1	20.7	302501	5.2	19.5
379452	4.8	20.5	277853	4.9	19.7	233661	4.9	20.2	328704	5.1	20.9	183587	5.1	20.7	481501	5.2	20.0
235540	4.8	19.5	414238	4.9	20.6	124466	4.9	18.9	32584	5.1	18.5	347217	5.1	20.7	221218	5.2	19.8
267565	4.8	19.5	58342	4.9	18.0	240709	4.9	18.4	416811	5.1	20.3	394943	5.1	20.2	187152	5.2	20.9
118014	4.8	19.6	441707	4.9	20.9	187696	4.9	20.0	429909	5.1	21.1	168017	5.1	19.6	8554	5.2	17.3
220910	4.8	19.5	318865	4.9	20.2	278030	4.9	19.5	373745	5.1	20.3	339911	5.1	20.5	458338	5.2	21.2
89423	4.8	19.4	288480	4.9	19.4	322901	4.9	20.2	62449	5.1	20.0	307674	5.1	21.3	335310	5.2	20.7
493436	4.8	21.2	19763	4.9	17.5	158305	4.9	19.4	544925	5.1	20.8	92693	5.1	20.3	488417	5.2	22.0
51835	4.8	18.5	55579	4.9	18.5	45299	4.9	19.9	139400	5.1	18.2	276734	5.1	19.4	425377	5.2	20.0
31632	4.8	18.2	368	4.9	15.2	186157	4.9	20.5	512909	5.1	21.2	532374	5.1	21.6	210115	5.2	20.7
163230	4.8	20.1	169185	4.9	19.7	30989	4.9	18.2	492027	5.1	20.2	247032	5.1	21.1	451890	5.2	20.9
157829	4.8	20.0	361733	4.9	20.6	455368	4.9	22.1	394030	5.1	20.4	372221	5.1	21.0	264448	5.2	21.5
339609	4.8	21.3	495525	4.9	21.3	99479	4.9	19.6	429325	5.1	20.7	307624	5.1	22.0	339733	5.2	21.1
265872	4.8	21.0	180040	4.9	19.5	84408	4.9	18.8	202120	5.1	21.1	543057	5.1	21.1</			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
125545	5.2	19.9	270542	5.3	20.2	201996	5.3	20.5	488133	5.4	20.7	404292	5.5	20.5	358677	5.5	20.1
527055	5.2	22.7	50577	5.3	18.7	219042	5.3	20.6	239768	5.4	19.4	231583	5.5	20.1	267879	5.5	19.6
265058	5.2	21.2	68354	5.3	19.2	232672	5.3	20.6	54009	5.4	17.5	113148	5.5	20.3	220611	5.5	20.5
449344	5.2	20.2	165897	5.3	20.4	318564	5.3	20.9	125105	5.4	18.8	225398	5.5	21.0	262991	5.5	20.3
114127	5.2	19.8	544138	5.3	20.7	205708	5.3	19.8	116187	5.4	18.3	281418	5.5	20.8	29405	5.5	17.6
300243	5.2	19.7	1543	5.3	16.8	408834	5.3	21.5	276296	5.4	20.4	123176	5.5	20.0	248228	5.5	20.6
167035	5.2	20.9	425381	5.3	20.6	475446	5.3	21.0	368589	5.4	19.5	319806	5.5	20.6	199445	5.5	20.3
194976	5.2	20.0	111133	5.3	19.6	405148	5.3	21.8	85686	5.4	20.6	215510	5.5	19.6	70041	5.5	17.4
118556	5.2	18.3	89301	5.3	19.2	289687	5.3	21.1	184267	5.4	19.0	536626	5.5	21.5	4658	5.5	18.2
14980	5.2	19.3	185896	5.3	19.9	30229	5.3	19.6	142908	5.4	18.3	81836	5.5	18.8	402664	5.5	21.4
279906	5.2	21.0	223616	5.3	20.5	415752	5.4	22.8	494879	5.4	21.5	463466	5.5	21.2	525084	5.5	21.8
197380	5.2	19.5	317648	5.3	19.4	142725	5.4	20.5	521917	5.4	22.3	399474	5.5	22.0	258160	5.5	20.5
373645	5.2	21.1	83492	5.3	18.5	447038	5.4	21.9	76134	5.4	19.0	469474	5.5	20.4	302963	5.5	20.9
285077	5.2	21.4	230421	5.3	20.0	428452	5.4	21.7	104688	5.4	19.5	83971	5.5	18.1	379831	5.5	20.2
280684	5.2	19.8	515308	5.3	21.2	514442	5.4	20.5	520791	5.4	20.9	530247	5.5	20.5	331680	5.5	20.9
317122	5.2	21.2	332638	5.3	20.2	276362	5.4	21.3	387216	5.4	19.9	145950	5.5	19.2	154731	5.5	20.5
270908	5.2	20.6	3100	5.3	15.9	320583	5.4	20.8	381959	5.4	20.6	266927	5.5	20.6	162199	5.5	19.8
160018	5.2	20.6	150890	5.3	20.4	92859	5.4	19.8	63850	5.4	18.9	336738	5.5	20.3	30639	5.5	19.2
29331	5.2	17.7	397071	5.3	20.2	277217	5.4	21.6	111851	5.4	19.8	49146	5.5	18.2	369386	5.5	21.7
145014	5.2	20.2	336563	5.3	21.4	356256	5.4	20.5	335633	5.4	21.4	274218	5.5	21.3	373973	5.5	20.8
341174	5.2	21.3	59432	5.3	19.3	310821	5.4	20.9	420966	5.4	20.5	51062	5.5	18.8	228876	5.5	19.8
467256	5.2	20.3	2390	5.3	16.4	527323	5.4	22.7	378478	5.4	20.5	376985	5.5	22.0	26853	5.5	17.5
120399	5.2	19.1	476560	5.3	22.0	192900	5.4	19.8	400136	5.4	21.6	89419	5.5	18.8	348212	5.5	20.3
507882	5.2	20.1	57595	5.3	18.9	292722	5.4	19.4	402593	5.4	21.6	234848	5.5	20.5	412933	5.5	20.3
50589	5.2	18.5	498865	5.3	21.3	441520	5.4	21.3	192324	5.4	20.9	100231	5.5	21.0	55145	5.5	18.6
284560	5.2	19.8	95357	5.3	19.6	328610	5.4	20.9	271188	5.4	20.1	450828	5.5	20.5	331343	5.5	20.2
405572	5.2	20.6	16189	5.3	18.0	95986	5.4	19.7	52646	5.4	19.0	288919	5.5	20.3	145431	5.5	20.1
62279	5.2	19.4	530474	5.3	21.6	544955	5.4	20.6	113516	5.4	19.7	88847	5.5	21.2	242352	5.5	19.7
258253	5.2	20.2	85019	5.3	20.2	526645	5.4	22.5	289574	5.4	20.5	344211	5.5	21.2	303019	5.5	20.4
204373	5.2	19.6	252427	5.3	20.9	194089	5.4	20.1	280480	5.4	19.9	427151	5.5	19.8	32626	5.6	17.4
416838	5.2	21.9	438694	5.3	21.7	155692	5.4	20.5	340165	5.4	21.2	298644	5.5	20.4	262252	5.6	21.0
238415	5.2	19.4	276354	5.3	21.2	334546	5.4	21.3	243201	5.4	20.1	536697	5.5	20.6	258293	5.6	21.2
487096	5.2	20.7	33407	5.3	17.9	475729	5.4	20.3	434969	5.4	21.5	287123	5.5	20.5	403576	5.6	21.4
462701	5.2	21.0	421214	5.3	20.9	380230	5.4	20.5	410566	5.4	21.9	16393	5.5	17.9	430465	5.6	21.3
338195	5.2	21.5	96955	5.3	19.3	397443	5.4	20.5	333114	5.4	20.5	401955	5.5	21.2	357435	5.6	20.8
51666	5.3	19.5	171075	5.3	19.3	11190	5.4	18.6	451955	5.4	20.2	226103	5.5	21.1	110187	5.6	20.1
373954	5.3	19.8	32514	5.3	16.5	323844	5.4	20.4	53999	5.4	19.0	462778	5.5	20.9	63988	5.6	19.5
532385	5.3	21.1	30313	5.3	18.6	270907	5.4	20.0	439880	5.4	21.5	373333	5.5	20.8	383369	5.6	20.5
197706	5.3	20.8	407380	5.3	21.6	352858	5.4	20.8	267862	5.4	20.4	358486	5.5	21.3	217436	5.6	20.4
314705	5.3	21.3	322241	5.3	20.5	15773	5.4	18.0	33222	5.4	17.6	300311	5.5	21.3	322385	5.6	20.9
360851	5.3	21.0	488707	5.3	19.4	239556	5.4	19.6	227689	5.4	20.7	339596	5.5	21.4	441642	5.6	21.5
171203	5.3	20.3	539807	5.3	21.5	163217	5.4	19.5	470271	5.4	20.5	460759	5.5	21.4	351218	5.6	20.7
543234	5.3	20.9	418837	5.3	20.7	464292	5.4	20.7	216284	5.4	20.7	293282	5.5	19.8	105766	5.6	19.4
128399	5.3	20.2	131517	5.3	20.2	254784	5.4	20.6	116148	5.4	18.7	541707	5.5	22.1	45688	5.6	19.1
30703	5.3	18.0	400910	5.3	20.7	16966	5.4	16.8	61235	5.4	18.1	403673	5.5	20.7	193930	5.6	21.1
335624	5.3	20.9	241953	5.3	19.5	486024	5.4	21.7	419298	5.4	20.3	270089	5.5	21.1	253125	5.6	21.5
393114	5.3	21.1	409426	5.3	21.6	108200	5.4	19.9	377540	5.4	20.9	293744	5.5	20.4	391469	5.6	20.2
464054	5.3	21.8	61369	5.3	18.8	29720	5.4	19.5	186650	5.4	19.6	179198	5.5	20.2	62520	5.6	19.9
92229	5.3	19.6	375140	5.3	21.2	197727	5.4	21.3	331836	5.4	20.7	459199	5.5	20.7	216609	5.6	20.7
303046	5.3	19.1	215282	5.3	19.7	455885	5.4	21.6	22482	5.4	19.1	203900	5.5	20.0	339751	5.6	20.4
407410	5.3	22.0	218369	5.3	20.1	468935	5.4	20.6	85007	5.4	18.3	397208	5.5	20.1	36881	5.6	17.2
178180	5.3	20.3	168415	5.3	20.5	174424	5.4	19.4	394085	5.4	20.1	263528	5.5	21.0	155955	5.6	19.6
363889	5.3	22.1	180823	5.3	20.4	361774	5.4	20.3	2090	5.4	15.8	49882	5.5	19.1	357396	5.6	21.2
58457	5.3	18.7	149299	5.3	20.2	239473	5.4	20.3	37719	5.4	19.8	146026	5.5	19.0	99880	5.6	19.8
134059	5.3	19.2	73635	5.3	19.4	437776	5.4	20.2	390724	5.4	20.2	47032	5.5	18.8	356458	5.6	20.5
222369	5.3	18.6	218318	5.3	20.2	306214	5.4	20.4	219250	5.4	20.4	308241	5.5	18.9	538763	5.6	21.2
105627	5.3	20.4	251454	5.3	20.7	389897	5.4	21.2	467251	5.4	20.0	403937	5.5	20.2	544216	5.6	21.3
79142	5.3	19.4	493654	5.3	22.1	517780	5.4	21.3	247579	5.4	20.2	240191	5.5	19.6	169981	5.6	20.4
165775	5.3	20.8	44481	5.3	19.5	300346	5.4	21.7	215703	5.4	18.5	18121	5.5	19.7	543842	5.6	21.4
419361	5.3	21.2	239899	5.3	20.9	136755	5.4	18.3	319724	5.4	20.9	466845	5.5	21.6	174910	5.6	19.8
272061	5.3	20.1	898	5.3	16.1	93822	5.4	19.9	310824	5.4	19.7	190790	5.5	20.7	61557	5.6	19.2
71315	5.3	18.5	303078	5.3	19.6	363233	5.4	20.6	120754	5.4	20.1	250249	5.5	20.2	50448	5.6	18.4
306113	5.3	20.5	409	5.3	11.1	428467	5.4	21.3	400047	5.4	21.4	482067	5.5	20.4	450809	5.6	21.3
217595	5.3	19.9	7161	5.3	18.9	89571	5.4	19.7	274271	5.4	21.1	214308	5.5	19.4	341211	5.6	21.2
104658	5.3	18.7	54192	5.3	18.6	165403	5.4	19.5	176761	5.4	19.6	195980	5.5	19.4	244444	5.6	21.1
397609	5.3	21.8	448898	5.3	20.8	458690	5.4	20.5	461766	5.4	21.1	251183	5.5	20.7	29049	5.6	19.5
263755	5.3	19.7	527027	5.3	22.5	155665	5.4	19.9	185668	5.5	20.6	401213	5.5	20.9	16438	5.6	17.9
64263	5.3	17.6	438711	5.3	21.9	234603	5.4	19.6	468395	5.5	21.0	52301	5.5	19.8	47882	5.6	18.6
226822	5.3	20.5	18555	5.3	18.3	98375	5.4	18.7	202331	5.5	19.9	218363	5.5	19.3	95776	5.6	18.4
44754	5.3	18.7	541921	5.3	20.7	154826	5.4	20.2	190938	5.5	20.2	448859	5.5	21.0	336662	5.6	20.7
364406	5.3	20.2	459589	5.3	21.1	441477	5.4	22.3	466495	5.5	20.9	450024	5.5	21.5	248922		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
413399	5.6	21.0	181424	5.7	20.8	290689	5.7	20.3	203803	5.8	20.1	438061	5.9	21.1	152945	5.9	19.4
245118	5.6	21.1	376522	5.7	20.4	104533	5.7	20.0	493091	5.8	20.8	249954	5.9	20.7	202135	5.9	20.9
279965	5.6	20.5	216687	5.7	20.4	149541	5.7	19.1	387844	5.8	21.2	159573	5.9	19.4	461648	5.9	20.1
432580	5.6	21.7	278004	5.7	21.6	521447	5.7	21.0	426517	5.8	21.7	121957	5.9	19.7	473657	5.9	21.3
167455	5.6	19.3	44038	5.7	18.9	414811	5.7	20.2	177479	5.8	19.3	521360	5.9	20.4	102482	5.9	18.1
339616	5.6	21.1	362757	5.7	20.7	339683	5.7	20.7	135428	5.8	19.8	282174	5.9	19.9	100310	5.9	19.5
265359	5.6	21.0	413548	5.7	21.3	360256	5.7	21.4	398359	5.8	22.1	506204	5.9	20.3	120251	5.9	19.7
243832	5.6	19.7	25161	5.7	17.6	237657	5.7	21.2	339788	5.8	20.9	18673	5.9	18.6	118321	5.9	19.5
544460	5.6	20.3	136321	5.7	19.3	414217	5.7	20.2	206258	5.8	19.6	466000	5.9	20.4	194745	5.9	19.3
14123	5.6	19.2	122199	5.7	20.3	248731	5.7	19.3	175631	5.8	20.4	367603	5.9	21.7	83142	5.9	18.3
82040	5.6	17.7	285100	5.7	20.0	433869	5.7	20.0	465432	5.8	20.5	397904	5.9	20.8	87836	5.9	19.2
458721	5.6	19.7	365940	5.7	19.8	30041	5.7	19.0	322903	5.8	20.3	353512	5.9	21.0	489755	5.9	20.8
362211	5.6	20.8	491060	5.7	21.2	109268	5.7	19.1	397277	5.8	21.8	320956	5.9	20.3	152947	5.9	19.6
239042	5.6	20.6	54090	5.7	18.3	336458	5.7	20.5	49305	5.8	19.4	77236	5.9	19.0	252604	5.9	18.8
19749	5.6	17.6	228041	5.7	19.7	367545	5.7	20.9	449690	5.8	20.5	300317	5.9	19.8	456272	5.9	20.8
273362	5.6	21.5	490378	5.7	20.2	437861	5.7	21.5	460236	5.8	21.0	111357	5.9	20.0	532740	5.9	21.1
175944	5.6	18.3	331741	5.7	20.2	204268	5.7	19.7	182449	5.8	19.5	381298	5.9	21.4	51806	5.9	19.3
193928	5.6	20.9	253	5.7	15.1	80195	5.7	19.1	256147	5.8	21.8	276421	5.9	18.6	176878	5.9	20.1
466837	5.6	20.6	406625	5.7	20.8	529742	5.7	21.1	283087	5.8	20.6	429277	5.9	21.0	9750	5.9	18.4
101338	5.6	19.4	134344	5.7	20.6	87105	5.7	19.6	494629	5.8	20.8	402326	5.9	20.8	27080	5.9	17.6
26829	5.6	17.6	538734	5.7	20.4	125642	5.7	19.6	482881	5.8	20.5	419032	5.9	22.3	510799	5.9	21.1
406572	5.6	21.0	307767	5.7	20.2	1013	5.7	12.8	473072	5.8	20.9	446953	5.9	22.5	322741	5.9	21.0
336846	5.6	20.3	174153	5.7	21.3	413615	5.7	21.3	81919	5.8	19.1	134893	5.9	19.9	238331	5.9	19.6
408507	5.6	21.2	235635	5.7	20.5	117137	5.7	20.1	386862	5.8	19.7	51296	5.9	18.7	124925	5.9	19.1
315601	5.6	20.1	291753	5.7	20.2	196965	5.7	19.6	519369	5.8	21.6	188093	5.9	20.3	206653	5.9	19.4
306542	5.6	20.6	541356	5.7	20.3	302648	5.8	19.5	532517	5.8	20.4	461101	5.9	20.6	71560	5.9	19.2
31696	5.6	18.1	536070	5.7	21.0	76064	5.8	19.3	217419	5.8	20.7	303493	5.9	19.4	323831	5.9	20.9
64765	5.6	18.9	222942	5.7	21.5	323179	5.8	22.0	365622	5.8	21.8	488737	5.9	22.0	179947	5.9	19.5
392507	5.6	21.2	188258	5.7	18.3	278944	5.8	20.6	120512	5.8	20.8	355963	5.9	21.7	364413	5.9	19.9
132757	5.6	19.4	282084	5.7	20.9	473938	5.8	21.2	61257	5.8	20.2	121145	5.9	18.7	456404	5.9	21.7
544268	5.6	20.3	42431	5.7	19.5	152678	5.8	19.3	328303	5.8	18.7	215802	5.9	19.7	32090	5.9	18.3
239323	5.6	21.1	518681	5.7	21.8	146669	5.8	19.5	481162	5.8	21.3	455811	5.9	20.3	108075	5.9	18.5
247197	5.6	20.6	459834	5.7	21.0	374	5.8	12.7	334420	5.8	19.7	184598	5.9	20.1	108646	5.9	18.8
34570	5.6	17.6	367614	5.7	20.6	9434	5.8	18.1	15007	5.8	17.5	151930	5.9	19.2	360621	5.9	20.3
207440	5.6	20.3	422936	5.7	21.6	5043	5.8	18.1	378510	5.8	20.5	59358	5.9	22.7	451794	5.9	20.2
230437	5.6	20.5	388539	5.7	20.8	261414	5.8	20.3	32448	5.8	18.6	204789	5.9	19.9	499650	5.9	21.7
40381	5.6	19.2	313897	5.7	19.3	179981	5.8	20.0	135824	5.8	20.9	41884	5.9	19.3	101599	5.9	18.2
441455	5.6	21.6	246423	5.7	20.4	105202	5.8	20.0	188979	5.8	20.0	44043	5.9	18.3	488836	5.9	21.7
432510	5.6	20.0	162370	5.7	19.4	128523	5.8	21.0	433859	5.8	20.7	206849	5.9	17.6	197361	5.9	19.2
281744	5.6	20.4	365466	5.7	20.9	424754	5.8	21.8	173867	5.8	20.2	94619	5.9	20.0	78874	5.9	19.9
444148	5.6	21.5	219332	5.7	20.3	172653	5.8	20.0	188200	5.8	20.3	220003	5.9	20.5	260894	5.9	20.9
424777	5.6	21.0	426279	5.7	21.0	388079	5.8	20.8	388485	5.8	20.4	436997	5.9	21.6	412250	5.9	21.1
56847	5.6	18.9	405046	5.7	21.8	451410	5.8	21.9	350677	5.8	21.6	204174	5.9	19.4	135718	5.9	20.3
125055	5.6	19.4	145575	5.7	20.1	165705	5.8	20.6	310146	5.8	19.9	270705	5.9	20.5	350072	5.9	20.9
130485	5.6	19.8	60239	5.7	19.0	211248	5.8	19.1	75379	5.8	19.2	192587	5.9	19.6	486085	5.9	21.8
347323	5.6	21.1	310101	5.7	19.6	299598	5.8	20.9	134839	5.8	20.1	365658	5.9	20.8	288234	5.9	20.7
281569	5.6	21.6	34447	5.7	18.0	129265	5.8	19.9	450052	5.8	22.1	88338	5.9	19.3	216357	5.9	19.8
382469	5.6	20.9	541855	5.7	21.1	422421	5.8	21.1	165870	5.8	19.7	465551	5.9	20.7	481217	5.9	20.9
82915	5.6	19.6	403371	5.7	20.2	181284	5.8	20.5	146978	5.8	20.2	243556	5.9	20.1	332974	5.9	19.8
110905	5.6	19.8	122328	5.7	19.6	219151	5.8	20.5	249308	5.8	19.4	44030	5.9	18.1	412905	5.9	21.0
461063	5.6	20.0	265831	5.7	20.5	464475	5.8	21.3	323888	5.8	20.6	378376	5.9	21.0	324675	5.9	20.9
410511	5.6	20.5	131518	5.7	19.9	386866	5.8	20.9	174627	5.8	20.4	363993	5.9	20.2	412818	5.9	20.5
426111	5.6	20.8	397459	5.7	20.2	521433	5.8	22.1	439984	5.8	20.7	125186	5.9	18.5	185954	5.9	18.7
127568	5.6	19.5	252345	5.7	19.8	455717	5.8	20.3	138413	5.8	20.3	198752	5.9	20.0	428931	5.9	21.0
344362	5.6	21.4	51524	5.7	18.1	489733	5.8	21.2	100083	5.8	20.0	173686	5.9	19.4	366249	5.9	21.0
144192	5.6	20.2	31244	5.7	18.9	190740	5.8	19.9	113947	5.8	19.7	455040	5.9	19.7	322279	5.9	21.0
10914	5.6	17.9	276672	5.7	20.9	141305	5.8	19.3	170545	5.8	19.0	25763	5.9	18.7	447925	5.9	20.7
169366	5.6	21.3	222980	5.7	20.2	46768	5.8	18.6	237987	5.8	19.6	194478	5.9	20.0	363367	5.9	21.2
446925	5.6	20.9	440333	5.7	21.7	312275	5.8	20.9	132776	5.8	20.6	466840	5.9	20.9	456074	5.9	21.0
220830	5.6	20.6	144836	5.7	19.2	486068	5.8	21.9	101001	5.8	19.8	458304	5.9	20.7	415489	5.9	20.9
444862	5.6	21.8	367372	5.7	20.8	231511	5.8	20.6	534207	5.8	22.0	89747	5.9	19.1	26047	5.9	18.6
526968	5.6	21.8	268587	5.7	20.6	361331	5.8	21.2	461225	5.8	20.0	390709	5.9	19.5	402595	5.9	22.5
6668	5.6	16.6	364831	5.7	20.8	163545	5.8	19.6	544932	5.8	20.7	84856	5.9	18.4	466051	5.9	21.1
455188	5.6	21.3	322347	5.7	20.1	455781	5.8	21.5	106391	5.8	18.4	5386	5.9	16.4	390718	5.9	20.1
406141	5.6	21.5	451406	5.7	22.5	257552	5.8	21.4	220619	5.8	20.6	75659	5.9	18.8	80353	5.9	18.7
237537	5.6	21.1	315621	5.7	20.5	462372	5.8	20.6	418666	5.8	21.0	466805	5.9	20.4	441488	5.9	21.2
363216	5.6	21.2	493952	5.7	20.4	229340	5.8	20.2	170122	5.8	19.0	112634	5.9	18.8	439021	5.9	21.0
229579	5.6	19.4	424931	5.7	20.4	33459	5.8	17.9	248094	5.8	21.3	82436	5.9	19.6	415505	5.9	21.4
494181	5.6	20.4	163428	5.7	19.7	284201	5.8	21.5	55406	5.8	17.8	187486	5.9	19.2	90409	5.9	18.4
379952	5.6	20.3	491763	5.7	20.6	108562	5.8	19.6	397314	5.8	21.1	131633	5.9	19.1	354588	5.9	20.3
378711	5.7	20.5	315680	5.7	19.4	483084	5.8	21.8	486754	5.8	20.9	261004	5.9				

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
470878	5.9	20.8	190129	6.1	19.8	203834	6.1	20.7	184489	6.2	20.8	181309	6.3	20.5	279894	6.3	20.7
133516	5.9	19.6	344930	6.1	20.9	318666	6.1	20.2	462373	6.2	20.7	440284	6.3	20.8	164366	6.3	19.0
490397	5.9	22.1	419277	6.1	21.6	193660	6.1	20.5	194610	6.2	21.1	426230	6.3	20.5	313496	6.3	20.8
422565	5.9	19.6	23724	6.1	19.4	298361	6.1	21.6	522465	6.2	20.5	379316	6.3	19.6	90028	6.3	19.1
231151	5.9	20.1	248299	6.1	20.1	486130	6.1	20.7	197929	6.2	21.6	481167	6.3	21.5	75680	6.3	17.3
318208	5.9	21.0	361716	6.1	19.7	499496	6.1	22.9	538705	6.2	21.5	494042	6.3	20.9	381258	6.3	21.7
152952	5.9	20.3	447952	6.1	20.0	390107	6.1	20.9	541070	6.2	20.4	53443	6.3	17.3	348850	6.3	21.4
46579	5.9	17.5	105450	6.1	20.1	96708	6.1	19.4	222144	6.2	20.8	338992	6.3	19.6	437356	6.3	20.5
279817	5.9	20.1	197770	6.1	19.7	104195	6.1	18.5	542471	6.2	21.2	502039	6.3	20.5	188732	6.3	20.9
523342	5.9	20.1	204291	6.1	21.5	58349	6.1	19.1	321843	6.2	20.6	80510	6.3	18.8	296489	6.3	19.0
443833	5.9	21.8	298959	6.1	20.2	416868	6.1	20.4	247598	6.2	20.3	122527	6.3	20.3	139558	6.3	19.6
296920	5.9	18.5	406016	6.1	22.1	249951	6.1	20.2	241931	6.2	19.8	123965	6.3	19.2	320618	6.3	20.6
88161	5.9	18.2	267875	6.1	20.4	403339	6.1	20.5	180934	6.2	20.3	453251	6.3	21.0	491337	6.3	20.7
2731	5.9	15.8	52702	6.1	18.5	475127	6.1	21.0	291487	6.2	20.9	173865	6.3	21.1	16036	6.3	17.4
455256	5.9	21.9	10606	6.1	18.5	83619	6.1	18.6	81468	6.2	18.8	23513	6.3	17.7	317003	6.3	20.6
310804	5.9	21.8	150021	6.1	19.1	388475	6.1	19.5	306511	6.2	21.1	203901	6.3	20.5	286035	6.3	20.2
384632	5.9	20.9	320781	6.1	20.0	372064	6.1	20.9	119980	6.2	19.7	541300	6.3	21.0	116510	6.3	19.5
169793	5.9	20.7	454614	6.1	21.5	484586	6.1	21.5	340588	6.2	21.8	318099	6.3	19.7	148902	6.3	18.6
170017	5.9	20.1	368649	6.1	20.0	187482	6.1	20.3	419670	6.2	20.1	29395	6.3	17.9	393958	6.3	20.2
5231	5.9	15.9	276924	6.1	20.7	470523	6.1	21.8	286393	6.2	20.4	56396	6.3	17.8	182491	6.3	20.2
500296	5.9	21.3	528670	6.1	21.7	152679	6.1	21.4	10648	6.2	18.7	175879	6.3	21.0	228882	6.3	20.4
123814	5.9	18.2	3603	6.1	16.3	190909	6.1	21.2	51456	6.2	19.2	100994	6.3	20.1	215263	6.3	20.3
318941	5.9	20.4	411958	6.1	20.6	156395	6.1	20.2	436791	6.2	21.3	203631	6.3	19.4	306485	6.3	20.8
128531	5.9	20.3	101192	6.1	19.9	542150	6.1	22.3	251154	6.2	21.2	327434	6.3	20.9	231402	6.3	19.8
417320	5.9	20.9	365551	6.1	21.9	282099	6.1	19.9	197289	6.2	20.6	379059	6.3	21.1	314700	6.3	21.7
379777	5.9	20.6	519010	6.1	20.8	203863	6.1	21.0	379490	6.2	20.7	253190	6.3	19.4	373774	6.3	20.9
247201	5.9	20.3	165779	6.1	19.7	184795	6.1	20.2	254778	6.2	20.3	179958	6.3	20.8	31417	6.3	16.7
26256	5.9	18.7	241399	6.1	19.6	180648	6.1	19.6	66263	6.2	17.9	121874	6.3	19.3	199476	6.3	19.5
460824	6.0	21.1	96351	6.1	20.1	276669	6.1	19.9	486503	6.2	20.6	502355	6.3	20.2	425389	6.3	20.3
34897	6.0	19.0	436038	6.1	21.5	217193	6.1	19.9	212100	6.2	19.8	3510	6.3	16.4	272253	6.3	20.9
374615	6.0	20.7	392275	6.1	19.7	413599	6.1	20.1	31556	6.2	19.4	83246	6.3	18.2	4264	6.3	17.6
523866	6.0	22.0	255808	6.1	20.5	477835	6.1	19.8	113594	6.2	18.9	545059	6.3	21.1	425350	6.3	20.8
172583	6.0	20.9	266430	6.1	20.5	540435	6.1	21.4	361583	6.2	20.8	244531	6.3	21.3	488405	6.3	20.3
31495	6.0	17.8	486189	6.1	20.9	204448	6.1	20.6	185610	6.2	20.0	466865	6.3	21.0	269545	6.3	19.8
152192	6.0	20.5	466477	6.1	21.6	380114	6.1	20.4	16319	6.2	18.6	541530	6.3	20.7	154997	6.3	18.5
460334	6.0	21.7	448138	6.1	21.7	202314	6.2	19.7	64219	6.2	18.2	254952	6.3	20.7	191355	6.3	20.2
118130	6.0	20.1	370595	6.1	20.2	425043	6.2	22.7	207633	6.2	20.7	7181	6.3	16.9	28713	6.3	17.4
530452	6.0	21.3	87171	6.1	19.5	338244	6.2	20.5	83152	6.2	18.3	451544	6.3	20.9	165663	6.3	19.9
415512	6.0	21.3	256836	6.1	20.9	101163	6.2	20.8	20088	6.2	17.8	128535	6.3	20.1	278757	6.3	20.9
187888	6.0	20.5	411398	6.1	20.6	410498	6.2	20.5	152987	6.2	19.5	340839	6.3	19.9	132791	6.3	20.8
223008	6.0	19.6	58443	6.1	19.8	257085	6.2	19.9	457857	6.2	20.1	85540	6.3	19.1	453611	6.3	21.2
296077	6.0	20.7	404877	6.1	20.0	455343	6.2	22.1	173199	6.2	20.3	236847	6.3	20.4	232424	6.3	19.5
126125	6.0	19.4	341062	6.1	20.3	402668	6.2	21.8	391057	6.2	21.1	63602	6.3	19.3	433241	6.3	21.1
128639	6.0	20.4	405576	6.1	21.6	70998	6.2	18.0	459822	6.2	20.7	431151	6.3	21.4	161419	6.3	19.7
104565	6.0	18.8	224651	6.1	21.5	221307	6.2	20.6	110277	6.2	19.2	194662	6.3	19.7	261441	6.3	20.9
340072	6.0	20.3	331285	6.1	20.4	538783	6.2	21.1	1316	6.2	17.9	309349	6.3	22.2	314997	6.3	21.0
491406	6.0	20.8	428389	6.1	21.6	180917	6.2	20.4	493713	6.2	21.2	408688	6.3	20.3	78745	6.3	20.0
506295	6.0	21.0	277069	6.1	20.0	493744	6.2	22.4	424942	6.2	20.7	196945	6.3	21.0	264105	6.3	20.7
52236	6.0	19.5	427826	6.1	20.4	493671	6.2	22.2	43675	6.2	18.8	440274	6.3	21.7	144584	6.3	19.4
491082	6.0	21.8	384630	6.1	20.0	194222	6.2	20.5	482527	6.2	21.0	430480	6.3	21.0	361228	6.4	20.5
430404	6.0	19.8	47004	6.1	19.2	257208	6.2	19.9	333406	6.2	20.6	896	6.3	14.5	154266	6.4	20.1
337235	6.0	19.4	321557	6.1	20.3	484619	6.2	21.8	334567	6.2	21.1	461676	6.3	20.2	378435	6.4	20.9
318905	6.0	20.3	448737	6.1	21.2	231989	6.2	20.4	333954	6.2	21.2	246867	6.3	21.0	4288	6.4	16.0
297000	6.0	19.7	542031	6.1	21.5	358163	6.2	20.4	88071	6.2	19.9	466640	6.3	21.0	182043	6.4	19.9
178921	6.0	19.8	535774	6.1	20.9	45931	6.2	17.9	120597	6.2	20.3	291395	6.3	20.7	265499	6.4	20.1
450106	6.0	21.6	65666	6.1	18.9	461047	6.2	20.8	496045	6.2	21.1	349618	6.3	20.3	527566	6.4	21.2
404448	6.0	19.8	368453	6.1	20.4	58057	6.2	18.6	144709	6.2	19.4	214334	6.3	19.4	132075	6.4	19.4
132215	6.0	19.5	369208	6.1	20.9	210157	6.2	20.7	89923	6.2	19.2	265489	6.3	19.5	137412	6.4	19.6
123069	6.0	19.3	8186	6.1	17.6	405202	6.2	20.2	145159	6.2	20.2	492805	6.3	20.6	109999	6.4	19.9
443200	6.0	19.9	241845	6.1	20.0	326018	6.2	20.1	229363	6.2	19.6	258346	6.3	21.1	288258	6.4	20.3
279808	6.0	19.7	17343	6.1	18.1	443807	6.2	18.5	322336	6.2	19.7	351330	6.3	20.4	532785	6.4	21.2
187506	6.0	19.3	327326	6.1	20.8	104130	6.2	19.4	445037	6.2	21.5	317671	6.3	20.3	493504	6.4	20.8
479337	6.0	21.0	340080	6.1	20.9	397907	6.2	20.6	424944	6.2	21.0	496120	6.3	20.7	54080	6.4	18.5
372157	6.0	19.9	492515	6.1	20.4	542947	6.2	21.8	317174	6.2	21.0	461924	6.3	21.1	77769	6.4	18.7
47162	6.0	17.4	156735	6.1	18.8	459443	6.2	22.1	197046	6.2	20.2	21529	6.3	18.1	215785	6.4	20.6
494994	6.0	20.6	246174	6.1	20.1	240226	6.2	20.5	491363	6.2	20.1	262076	6.3	20.8	403601	6.4	21.7
296686	6.0	20.6	315458	6.1	20.2	462721	6.2	19.7	441474	6.2	21.4	145532	6.3	20.1	16205	6.4	18.1
375417	6.0	21.0	222084	6.1	21.1	25063	6.2	18.2	464835	6.2	20.6	335227	6.3	20.5	432581	6.4	21.1
119623	6.0	20.4	318670	6.1	20.7	78885	6.2	19.6	90208	6.2	18.8	226837	6.3	20.4	455279	6.4	21.3
123769	6.0	19.5	319744	6.1	20.6	176185	6.2	20.6	491236	6.2	20.8	446420	6.3	20.1	290840	6.4	20.8
336837	6.0	20.7	235169	6.1	20.4	543821	6.2	21.0	378900	6.2	21.3	377567	6.3				

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
709	6.4	13.9	201889	6.5	19.4	366962	6.5	21.0	419002	6.6	21.1	113683	6.7	19.3	134116	6.7	19.7
122108	6.4	20.1	310766	6.5	20.9	191716	6.5	19.5	336751	6.6	19.6	344397	6.7	20.1	492959	6.7	21.1
380241	6.4	21.8	151269	6.5	20.0	374245	6.5	20.0	330100	6.6	19.9	534992	6.7	20.6	164175	6.7	20.5
70829	6.4	17.2	252223	6.5	18.5	297341	6.5	19.9	82977	6.6	19.0	453292	6.7	22.4	126908	6.7	19.3
185310	6.4	19.8	169327	6.5	20.2	454488	6.5	21.3	17811	6.6	16.6	43778	6.7	18.9	109202	6.7	19.0
230661	6.4	20.1	154305	6.5	20.3	541675	6.5	21.6	392516	6.6	21.4	70373	6.7	19.5	66394	6.7	19.1
45489	6.4	18.3	424205	6.5	21.6	91457	6.5	19.8	184910	6.6	20.2	481435	6.7	21.4	367617	6.7	20.7
451559	6.4	20.5	245771	6.5	19.8	43339	6.5	17.7	153375	6.6	20.1	344284	6.7	21.5	256107	6.7	21.1
265905	6.4	20.9	188703	6.5	20.5	448817	6.5	22.5	67714	6.6	19.7	128738	6.7	19.2	541464	6.7	21.1
41560	6.4	18.1	537855	6.5	21.0	519005	6.5	21.3	158756	6.6	19.9	390827	6.7	19.5	491246	6.7	21.2
176945	6.4	21.0	85491	6.5	20.1	339742	6.5	21.0	9500	6.6	17.6	196044	6.7	19.9	70642	6.7	18.5
367994	6.4	20.3	375396	6.5	21.3	46144	6.5	19.3	154069	6.6	20.3	541702	6.7	22.0	20817	6.7	18.0
10420	6.4	16.6	465230	6.5	21.6	462952	6.5	21.1	320889	6.6	20.5	459203	6.7	20.6	381280	6.7	21.2
76673	6.4	19.6	362370	6.5	20.9	126369	6.5	19.5	364244	6.6	20.8	281800	6.7	19.7	265081	6.7	20.3
325557	6.4	20.9	464994	6.5	20.8	211698	6.5	20.2	462318	6.6	21.0	222132	6.7	20.0	269313	6.7	20.2
271912	6.4	19.8	102551	6.5	19.3	406115	6.5	19.7	335917	6.6	20.9	158927	6.7	20.6	273176	6.7	20.9
504012	6.4	22.0	519056	6.5	21.1	411283	6.5	21.8	334273	6.6	21.1	110405	6.7	19.9	421423	6.7	20.6
538168	6.4	21.0	394451	6.5	20.7	321684	6.5	21.3	522099	6.6	20.7	521618	6.7	21.3	426795	6.7	20.7
195734	6.4	19.3	80357	6.5	19.2	375084	6.5	19.9	473928	6.6	20.9	279213	6.7	20.2	30067	6.7	18.9
518589	6.4	20.7	289944	6.5	20.0	245417	6.5	21.0	496817	6.6	23.2	2014	6.7	16.1	497263	6.7	21.0
197798	6.4	19.9	12520	6.5	18.8	233613	6.5	19.7	206814	6.6	19.2	180322	6.7	20.4	351780	6.7	20.4
175767	6.4	20.0	541433	6.5	21.0	300383	6.5	20.9	190208	6.6	18.6	154130	6.7	18.8	103237	6.7	18.3
404834	6.4	20.0	304827	6.5	20.9	450851	6.5	21.5	203172	6.6	20.5	408443	6.7	19.8	440259	6.7	21.5
168024	6.4	19.2	3830	6.5	16.5	204071	6.5	20.4	148949	6.6	20.2	246080	6.7	20.9	74566	6.7	18.8
542993	6.4	19.8	374641	6.5	20.5	172587	6.5	19.7	386881	6.6	20.0	494542	6.7	21.3	178578	6.7	20.6
113996	6.4	19.4	56734	6.5	18.5	262373	6.5	20.6	37213	6.6	18.4	466828	6.7	21.1	51670	6.7	18.9
523824	6.4	19.9	372655	6.5	19.6	437816	6.5	20.2	83844	6.6	19.1	238467	6.7	21.1	29410	6.7	18.2
150660	6.4	19.3	94578	6.5	18.6	25250	6.5	19.1	437894	6.6	21.7	25085	6.7	18.5	486462	6.7	20.0
210801	6.4	19.5	173216	6.5	20.9	85344	6.5	20.2	9098	6.6	16.9	465463	6.7	21.2	160958	6.7	19.6
17865	6.4	17.7	34190	6.5	19.0	278569	6.5	20.5	209149	6.6	20.9	469227	6.7	20.4	100554	6.7	18.7
402653	6.4	21.3	311726	6.5	19.1	460376	6.5	21.8	243341	6.6	20.0	488072	6.7	20.1	375423	6.7	20.8
318257	6.4	21.3	399428	6.5	20.4	95075	6.5	20.0	344355	6.6	21.2	340642	6.7	20.8	14734	6.7	19.2
54593	6.4	18.5	162024	6.5	19.9	79758	6.5	19.5	517729	6.6	20.9	484579	6.7	21.6	55477	6.7	19.5
502587	6.4	20.4	343850	6.5	21.0	394077	6.5	20.7	366889	6.6	20.4	193840	6.7	21.1	10538	6.8	18.3
375546	6.4	21.1	348690	6.5	21.7	279931	6.5	20.7	15780	6.6	19.3	33383	6.7	18.0	48943	6.8	19.1
416419	6.4	21.3	527009	6.5	21.9	73509	6.5	20.0	432424	6.6	21.9	103302	6.7	19.0	54422	6.8	18.4
76618	6.4	18.5	358131	6.5	21.3	519483	6.5	21.1	231950	6.6	19.9	454984	6.7	20.3	359048	6.8	21.4
493129	6.4	21.2	418643	6.5	20.4	544222	6.5	21.2	75852	6.6	17.9	170556	6.7	19.9	442768	6.8	21.7
163460	6.4	19.9	79884	6.5	18.0	60865	6.5	18.8	343222	6.6	20.8	199068	6.7	18.8	17277	6.8	18.6
45393	6.4	19.2	707	6.5	15.2	466280	6.5	21.3	53003	6.6	18.9	476318	6.7	20.5	412709	6.8	22.0
261452	6.4	21.4	348663	6.5	21.4	492036	6.5	20.8	398815	6.6	21.0	382281	6.7	20.1	190743	6.8	19.5
219985	6.4	20.4	247589	6.5	20.0	274790	6.5	20.5	194207	6.6	19.7	541451	6.7	20.7	42379	6.8	18.8
419404	6.4	19.7	178660	6.5	20.3	314961	6.5	19.8	58379	6.6	18.5	461340	6.7	23.0	396184	6.8	20.3
84603	6.4	19.6	203781	6.5	20.7	169059	6.5	19.5	387450	6.6	21.5	142934	6.7	19.9	425448	6.8	20.1
133132	6.4	20.1	186426	6.5	20.4	10005	6.6	18.1	49115	6.6	19.0	164955	6.7	18.2	54951	6.8	19.3
365320	6.4	21.4	331056	6.5	20.5	286260	6.6	21.3	77572	6.6	18.6	74485	6.7	18.4	336849	6.8	20.7
451521	6.4	20.4	105991	6.5	20.4	156004	6.6	19.4	409308	6.6	20.0	155150	6.7	20.1	343202	6.8	21.0
115414	6.4	19.2	340619	6.5	20.8	242964	6.6	20.3	24342	6.6	18.0	260058	6.7	20.0	396136	6.8	21.3
494089	6.4	20.6	45747	6.5	18.8	50550	6.6	22.6	414484	6.6	22.6	161179	6.7	19.6	110010	6.8	19.6
422374	6.4	21.0	36362	6.5	18.7	120789	6.6	18.3	517726	6.6	21.4	264748	6.7	20.5	465577	6.8	20.4
185481	6.4	20.2	495982	6.5	21.9	341314	6.6	21.3	466368	6.6	21.3	196142	6.7	19.5	404291	6.8	19.9
406941	6.4	21.0	431536	6.5	21.4	87085	6.6	20.1	270914	6.6	20.3	71730	6.7	19.3	319742	6.8	21.4
401331	6.4	19.9	411810	6.5	19.3	395390	6.6	21.2	105009	6.6	20.6	348705	6.7	20.2	373787	6.8	21.1
13476	6.4	19.0	87870	6.5	19.9	243204	6.6	20.1	291791	6.6	21.3	378399	6.7	20.1	119653	6.8	20.4
159897	6.4	20.8	164187	6.5	19.6	5364	6.6	17.5	49835	6.6	18.0	4585	6.7	16.9	253319	6.8	18.9
325865	6.4	20.6	405606	6.5	21.1	405027	6.6	21.8	492941	6.6	20.7	397518	6.7	22.2	80210	6.8	19.4
350064	6.4	20.8	543151	6.5	21.4	109699	6.6	19.1	427153	6.6	20.2	158645	6.7	18.9	67948	6.8	18.9
142789	6.4	19.9	347294	6.5	19.8	543756	6.6	21.5	379090	6.6	20.6	392526	6.7	21.4	116715	6.8	18.7
419528	6.4	19.3	473869	6.5	21.1	474347	6.6	20.6	430401	6.6	20.2	118779	6.7	19.8	357278	6.8	20.3
321941	6.4	21.1	115275	6.5	19.7	488937	6.6	22.0	545079	6.6	20.3	116637	6.7	19.5	39021	6.8	18.1
265101	6.4	20.7	17531	6.5	18.1	152562	6.6	19.2	441608	6.6	22.2	410531	6.7	19.1	523777	6.8	21.0
234489	6.4	20.6	202001	6.5	21.2	285711	6.6	20.2	5213	6.6	16.6	156282	6.7	20.7	230495	6.8	20.0
13599	6.4	18.9	361261	6.5	21.0	130286	6.6	20.3	200461	6.6	18.4	53702	6.7	18.6	361297	6.8	20.4
538308	6.4	21.4	456908	6.5	21.0	15695	6.6	18.4	53466	6.6	17.8	160896	6.7	20.0	116300	6.8	18.2
318916	6.4	20.5	277702	6.5	19.9	491152	6.6	22.5	14555	6.6	17.9	340038	6.7	21.0	196415	6.8	19.6
249977	6.4	20.3	376659	6.5	20.8	457809	6.6	21.8	159763	6.6	20.1	282022	6.7	20.4	92504	6.8	20.1
516460	6.4	22.4	265925	6.5	20.6	272236	6.6	20.6	160314	6.6	19.1	268304	6.7	20.4	197101	6.8	20.1
370530	6.4	19.8	12718	6.5	18.1	409447	6.6	21.6	53375	6.6	17.7	119150	6.7	19.3	17239	6.8	17.3
408268	6.4	20.1	336073	6.5	20.2	348261	6.6	21.0	184614	6.6	20.3	174236	6.7	19.9	32165	6.8	18.7
422332	6.4	19.9	516413	6.5	21.9	370388	6.6	20.8	323522	6.6	19.9	14475	6.7	19.1	312702	6.8	21.1
97905	6.4	19.4	442694	6.5	21.3	495164	6.6	20.2	115973	6.6	19.7	465478	6.7	21.4	251757	6.8</	

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
5707	6.8	15.6	132453	6.8	19.9	448945	6.9	20.8	148889	6.9	19.5	124734	7.0	19.6	142477	7.1	20.7
230673	6.8	19.8	395324	6.8	21.3	68677	6.9	19.0	241027	6.9	20.5	339521	7.0	21.3	374254	7.1	19.7
57987	6.8	19.3	135487	6.8	17.9	3842	6.9	15.6	420663	6.9	21.0	260747	7.0	21.6	500638	7.1	20.2
440272	6.8	22.5	60739	6.8	19.3	48422	6.9	18.8	473751	6.9	20.8	331019	7.0	20.7	541369	7.1	20.3
84416	6.8	19.0	104802	6.8	19.9	193841	6.9	19.8	396596	6.9	21.1	253837	7.0	18.8	542566	7.1	20.3
41021	6.8	18.5	413588	6.8	21.5	183611	6.9	19.8	200130	6.9	22.1	402649	7.0	21.7	421757	7.1	19.6
383760	6.8	20.6	13261	6.8	18.0	370843	6.9	20.3	235059	6.9	20.0	529034	7.0	21.4	29558	7.1	17.1
487504	6.8	21.0	154076	6.8	19.8	181379	6.9	19.9	240367	6.9	21.2	167680	7.0	20.0	489783	7.1	20.5
527183	6.8	21.9	294781	6.9	19.9	228815	6.9	19.0	69403	6.9	18.8	245434	7.0	20.3	426400	7.1	21.0
397911	6.8	20.6	67327	6.9	17.0	350686	6.9	20.5	519073	6.9	20.5	386867	7.0	20.1	340092	7.1	21.5
415683	6.8	21.2	87220	6.9	19.4	406160	6.9	22.1	316116	6.9	20.1	287519	7.0	19.9	216886	7.1	20.3
304829	6.8	21.5	279806	6.9	19.5	161864	6.9	19.9	389308	6.9	21.3	467171	7.0	20.3	78792	7.1	18.6
14410	6.8	17.8	444800	6.9	21.8	232996	6.9	19.9	117161	6.9	20.0	283302	7.0	20.0	48761	7.1	17.9
204394	6.8	20.7	488069	6.9	20.6	396207	6.9	20.0	340157	6.9	19.7	143012	7.0	19.5	188772	7.1	20.4
375575	6.8	20.3	488589	6.9	21.3	355267	6.9	20.9	453660	6.9	20.4	156746	7.0	18.6	84637	7.1	18.7
274574	6.8	20.1	350543	6.9	21.3	460103	6.9	21.3	101155	6.9	19.7	201103	7.0	20.3	33840	7.1	19.9
135897	6.8	19.7	5688	6.9	17.4	402121	6.9	20.6	143079	6.9	18.8	495985	7.0	21.6	38746	7.1	18.8
367380	6.8	21.4	98060	6.9	18.9	402591	6.9	21.5	69792	6.9	19.8	115591	7.1	19.7	160494	7.1	19.0
455843	6.8	21.5	65599	6.9	19.6	40320	6.9	19.0	99121	6.9	17.8	173173	7.1	19.4	55444	7.1	18.9
396318	6.8	19.7	97542	6.9	19.7	536142	6.9	19.4	46607	6.9	17.0	377099	7.1	21.4	294087	7.1	20.5
331860	6.8	19.8	544224	6.9	20.9	376572	6.9	20.6	89113	6.9	18.6	356455	7.1	21.5	68404	7.1	19.3
239624	6.8	19.5	174281	6.9	19.4	492102	6.9	20.0	397264	6.9	21.6	378444	7.1	20.0	484571	7.1	21.9
542140	6.8	20.5	383689	6.9	21.6	62143	6.9	18.4	543068	6.9	21.5	491355	7.1	19.7	181586	7.1	20.0
418818	6.8	20.6	280447	6.9	19.9	256509	6.9	20.5	30390	6.9	19.1	531293	7.1	21.5	518764	7.1	20.9
410046	6.8	20.9	361249	6.9	20.0	338368	6.9	19.5	406555	6.9	20.8	402353	7.1	21.0	211629	7.1	18.8
230676	6.8	20.5	206842	6.9	19.6	68327	6.9	18.1	404905	6.9	21.1	158553	7.1	20.1	55549	7.1	18.7
197490	6.8	19.6	149974	6.9	19.6	38139	6.9	19.0	335325	6.9	20.9	20436	7.1	18.1	494604	7.1	20.1
301218	6.8	20.1	110391	6.9	19.0	520932	6.9	20.6	110064	6.9	19.4	173132	7.1	19.3	190001	7.1	19.5
535644	6.8	20.5	345807	6.9	20.3	452945	6.9	20.2	407348	6.9	21.4	83901	7.1	18.5	34877	7.1	19.4
272438	6.8	20.7	117332	6.9	18.9	489601	6.9	20.7	13871	6.9	17.9	53184	7.1	17.9	149628	7.1	19.4
79670	6.8	18.7	522314	6.9	20.6	118868	6.9	19.8	105062	6.9	19.2	225387	7.1	19.6	6465	7.1	15.6
326371	6.8	20.3	49689	6.9	19.5	202030	6.9	20.4	360872	6.9	20.7	29540	7.1	18.4	118307	7.1	19.9
47713	6.8	19.2	275539	6.9	20.1	269164	6.9	19.9	148644	6.9	19.5	367398	7.1	21.2	126799	7.1	19.4
220346	6.8	20.1	221133	6.9	21.1	275780	6.9	20.6	101265	6.9	20.3	22564	7.1	18.7	120018	7.1	19.5
45569	6.8	18.1	131493	6.9	20.3	204569	6.9	20.4	126532	6.9	20.1	468203	7.1	20.4	327480	7.1	20.6
86530	6.8	19.1	400164	6.9	21.7	319668	6.9	21.0	432436	7.0	20.6	254621	7.1	20.2	90955	7.1	18.4
378907	6.8	21.3	186626	6.9	19.4	1710	6.9	17.7	200337	7.0	19.0	281332	7.1	21.1	43207	7.1	17.9
258107	6.8	21.0	318836	6.9	20.1	467663	6.9	20.9	252655	7.0	19.8	222891	7.1	19.7	155671	7.1	19.5
360792	6.8	20.5	8419	6.9	17.2	530459	6.9	20.8	282185	7.0	19.9	541715	7.1	21.5	48433	7.1	18.2
23561	6.8	18.3	60071	6.9	19.8	395738	6.9	20.6	337404	7.0	20.5	315676	7.1	19.3	493748	7.1	20.4
319725	6.8	21.3	402706	6.9	21.1	381292	6.9	20.5	458231	7.0	22.1	422467	7.1	20.5	367117	7.1	20.9
307963	6.8	18.4	538197	6.9	21.6	346506	6.9	20.2	468356	7.0	21.0	313203	7.1	20.8	378529	7.1	20.3
138482	6.8	19.3	232706	6.9	19.8	475209	6.9	20.3	302550	7.0	19.9	466487	7.1	21.4	125554	7.1	18.6
408181	6.8	19.8	109926	6.9	19.7	151961	6.9	19.6	409279	7.0	20.4	494684	7.1	21.8	493652	7.1	21.1
1296	6.8	14.4	167825	6.9	19.6	400151	6.9	21.8	82009	7.0	18.8	280774	7.1	19.2	424323	7.1	20.7
88677	6.8	19.0	145268	6.9	20.5	114698	6.9	19.3	202084	7.0	20.7	466602	7.1	20.9	462751	7.1	20.6
522095	6.8	20.6	424960	6.9	20.4	377292	6.9	20.0	154323	7.0	20.0	165812	7.1	19.2	288922	7.1	21.6
277838	6.8	20.3	337081	6.9	21.5	392558	6.9	21.4	88814	7.0	19.5	258466	7.1	20.4	240103	7.1	19.6
174415	6.8	18.2	214303	6.9	19.3	114364	6.9	19.6	441704	7.0	20.5	350934	7.1	19.4	388537	7.1	19.8
111554	6.8	19.1	461172	6.9	22.3	134050	6.9	19.4	227515	7.0	20.0	337700	7.1	21.2	110727	7.1	19.5
471502	6.8	20.4	516293	6.9	21.4	301075	6.9	19.4	8020	7.0	17.4	29692	7.1	18.4	77864	7.1	18.9
188242	6.8	20.4	128665	6.9	20.3	228445	6.9	20.6	319104	7.0	20.1	410592	7.1	20.2	218742	7.1	20.3
315645	6.8	20.1	122948	6.9	19.8	282552	6.9	20.7	187068	7.0	19.4	177598	7.1	20.1	445628	7.1	23.1
183130	6.8	19.7	214850	6.9	20.2	56759	6.9	19.2	2131	7.0	16.0	391926	7.1	20.4	201874	7.1	19.7
151123	6.8	20.6	424203	6.9	21.6	544957	6.9	20.2	462378	7.0	20.9	140010	7.1	19.2	413612	7.1	21.0
132247	6.8	19.1	157721	6.9	20.1	236341	6.9	20.8	495756	7.0	20.8	402610	7.1	21.6	365674	7.1	20.9
439211	6.8	20.6	194404	6.9	20.7	241260	6.9	20.2	87283	7.0	19.5	207962	7.1	21.1	313572	7.1	19.0
58884	6.8	17.3	433834	6.9	20.8	320966	6.9	20.5	314850	7.0	20.6	144332	7.1	17.9	180677	7.1	20.3
377009	6.8	21.8	92820	6.9	19.1	262834	6.9	21.2	523754	7.0	22.3	275513	7.1	21.2	162373	7.1	19.2
442184	6.8	20.7	489365	6.9	21.2	200748	6.9	20.6	117863	7.0	19.1	200166	7.1	19.2	465514	7.1	20.4
278445	6.8	20.3	179206	6.9	20.5	231578	6.9	20.1	136327	7.0	19.5	169325	7.1	20.6	222126	7.1	20.0
246042	6.8	21.0	335416	6.9	21.2	313031	6.9	20.0	259055	7.0	21.1	128645	7.1	20.3	468175	7.1	19.9
90008	6.8	17.9	450784	6.9	21.1	237989	6.9	19.9	487569	7.0	21.5	89094	7.1	19.8	541486	7.1	21.4
24570	6.8	18.4	298564	6.9	19.3	195046	6.9	20.5	460713	7.0	21.4	327406	7.1	19.9	460294	7.1	21.7
113602	6.8	19.5	543803	6.9	21.4	55764	6.9	18.3	200966	7.0	18.9	71702	7.1	18.7	142682	7.2	19.8
28369	6.8	17.7	462640	6.9	21.1	125751	6.9	19.2	240944	7.0	19.9	116159	7.1	19.2	166654	7.2	19.4
494924	6.8	20.4	281088	6.9	19.9	464869	6.9	20.0	25571	7.0	18.3	400158	7.1	22.4	373832	7.2	20.8
416987	6.8	21.0	538837	6.9	21.4	375108	6.9	21.7	463862	7.0	20.6	230582	7.1	19.3	290195	7.2	20.5
127058	6.8	19.8	327914	6.9	20.0	144502	6.9	19.9	182120	7.0	19.1	395999	7.1	20.9	2239	7.2	15.8
440260	6.8	21.9	392775	6.9	20.6	368717	6.9	20.0	314846	7.0	21.2	95393	7.1	19.0	506345	7.2	20.6
499196	6.8	19.8	95083	6.9	19.8	226785	6.9	20.4	275839	7.0	21.0	424322	7.1	21.6			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
183792	7.2	19.7	111149	7.2	18.5	309614	7.3	20.3	218897	7.4	19.3	70429	7.4	19.0	10590	7.5	18.1
293611	7.2	20.8	539933	7.2	20.2	488115	7.3	21.1	294050	7.4	20.9	322138	7.4	19.5	492743	7.5	20.7
291055	7.2	20.1	12883	7.2	16.1	285989	7.3	21.3	161850	7.4	18.3	179995	7.4	20.0	108333	7.5	19.4
235541	7.2	19.6	422004	7.2	20.9	302989	7.3	21.1	186406	7.4	21.0	328824	7.4	20.6	538005	7.5	20.7
332428	7.2	20.4	397852	7.2	19.9	218324	7.3	19.1	64606	7.4	18.6	382328	7.4	20.3	361357	7.5	20.9
56162	7.2	17.8	129018	7.2	19.5	542252	7.3	21.7	48726	7.4	17.3	178003	7.4	20.6	411410	7.5	21.0
113226	7.2	19.3	225402	7.2	20.3	290890	7.3	20.7	384163	7.4	21.2	138463	7.4	19.3	440119	7.5	21.4
214130	7.2	20.5	148190	7.2	19.2	228772	7.3	20.0	287259	7.4	19.3	27329	7.4	18.0	88323	7.5	19.2
465480	7.2	19.9	243973	7.2	20.6	173196	7.3	21.0	433788	7.4	20.6	185841	7.4	18.3	523683	7.5	21.9
184341	7.2	20.6	17787	7.2	18.3	446401	7.3	20.4	44850	7.4	19.2	408920	7.4	21.4	463619	7.5	21.0
66286	7.2	18.3	25663	7.2	18.6	468110	7.3	20.6	41635	7.4	16.7	168400	7.4	19.7	402294	7.5	20.4
347756	7.2	20.2	326902	7.3	21.0	231184	7.3	19.4	357669	7.4	20.7	139560	7.4	19.1	419005	7.5	21.1
286147	7.2	20.3	323988	7.3	20.7	462136	7.3	20.9	3730	7.4	16.3	541397	7.4	20.9	183499	7.5	19.4
273717	7.2	20.3	316263	7.3	20.9	164457	7.3	20.7	60773	7.4	19.4	135969	7.4	19.5	150529	7.5	19.1
434251	7.2	21.0	407480	7.3	21.2	376344	7.3	20.0	477424	7.4	20.5	167669	7.4	18.9	367353	7.5	20.6
326060	7.2	20.8	25257	7.3	18.0	319697	7.3	21.1	490768	7.4	21.3	75712	7.4	17.4	535302	7.5	20.2
438257	7.2	19.1	193037	7.3	19.3	334938	7.3	20.2	385516	7.4	19.5	396128	7.4	20.2	36863	7.5	19.0
204818	7.2	20.7	365555	7.3	20.6	101673	7.3	18.9	400041	7.4	20.8	463364	7.4	21.2	83060	7.5	19.3
298509	7.2	20.5	28002	7.3	17.4	36666	7.3	18.6	203062	7.4	20.1	377524	7.4	20.9	11654	7.5	18.3
330182	7.2	20.7	277911	7.3	20.1	351326	7.3	21.2	110525	7.4	18.5	48841	7.4	18.9	310798	7.5	21.8
457089	7.2	19.9	314955	7.3	21.0	53927	7.3	18.6	227812	7.4	19.4	378470	7.4	19.7	458490	7.5	20.4
496814	7.2	19.6	245991	7.3	20.3	368834	7.3	20.9	524319	7.4	22.3	115800	7.4	18.9	512211	7.5	21.6
157225	7.2	19.4	464546	7.3	21.0	331847	7.3	20.9	385918	7.4	21.5	216411	7.4	20.2	534930	7.5	20.6
344471	7.2	19.8	123561	7.3	18.7	494049	7.3	20.4	75664	7.4	19.3	81938	7.4	18.9	488856	7.5	21.7
250008	7.2	20.0	167505	7.3	18.5	253130	7.3	21.7	492850	7.4	21.5	168015	7.4	19.3	97246	7.5	19.1
308883	7.2	19.6	452223	7.3	20.6	462436	7.3	21.0	516643	7.4	20.5	366019	7.4	19.9	40921	7.5	18.8
177980	7.2	20.8	236699	7.3	18.4	35445	7.3	17.3	85026	7.4	19.8	191307	7.4	19.2	463448	7.5	20.8
24278	7.2	18.5	464078	7.3	20.4	231562	7.3	20.0	406079	7.4	21.2	45641	7.4	18.8	436036	7.5	21.4
462776	7.2	20.6	87860	7.3	19.7	51281	7.3	18.7	114144	7.4	20.2	390176	7.4	20.7	483927	7.5	21.2
459594	7.2	20.5	453788	7.3	20.9	108088	7.3	19.2	243376	7.4	20.0	165805	7.4	19.6	399505	7.5	22.1
403129	7.2	20.0	496697	7.3	20.5	486885	7.3	20.4	394885	7.4	19.9	419366	7.4	19.0	463591	7.5	21.1
58889	7.2	19.1	144534	7.3	19.3	374256	7.3	20.5	88500	7.4	17.4	453912	7.4	20.0	236071	7.5	19.6
427670	7.2	20.6	319560	7.3	21.2	282113	7.3	19.8	81797	7.4	19.0	298385	7.5	19.5	529724	7.5	20.9
153589	7.2	17.9	29232	7.3	17.4	416576	7.3	19.8	181497	7.4	20.6	194645	7.5	20.0	187244	7.5	19.5
129853	7.2	20.1	247615	7.3	21.4	360201	7.3	20.9	234487	7.4	19.8	351260	7.5	20.5	542267	7.5	20.9
512220	7.2	20.1	434867	7.3	21.3	128970	7.3	20.4	190749	7.4	21.3	333326	7.5	20.8	86546	7.5	18.7
186610	7.2	19.5	367363	7.3	20.7	251120	7.3	20.8	265428	7.4	20.7	237812	7.5	19.2	126509	7.5	20.0
493858	7.2	20.5	339770	7.3	21.2	516464	7.3	21.7	251269	7.4	21.0	278835	7.5	20.0	402596	7.5	21.6
54688	7.2	18.5	3576	7.3	16.0	214364	7.3	18.8	180209	7.4	19.8	104999	7.5	18.9	314192	7.5	20.5
180052	7.2	19.4	458212	7.3	21.6	421033	7.3	21.0	26922	7.4	18.5	151176	7.5	19.7	541478	7.5	21.3
460273	7.2	21.0	247327	7.3	20.2	499407	7.3	20.5	264272	7.4	20.5	37217	7.5	18.5	321966	7.5	20.7
45402	7.2	18.2	237666	7.3	20.5	88011	7.3	19.6	30448	7.4	17.7	153126	7.5	19.8	404284	7.5	20.2
302973	7.2	20.1	455763	7.3	22.4	50617	7.3	19.1	64048	7.4	18.8	305593	7.5	20.9	177726	7.5	19.5
114361	7.2	18.1	232286	7.3	19.2	169188	7.3	20.2	188919	7.4	20.1	335855	7.5	19.3	488752	7.5	22.1
295084	7.2	20.1	184870	7.3	20.5	33588	7.3	18.7	231964	7.4	20.5	13766	7.5	17.6	228038	7.5	21.3
444423	7.2	20.5	364902	7.3	20.8	324692	7.3	20.0	45408	7.4	17.3	102434	7.5	18.0	544891	7.5	20.1
247671	7.2	21.1	113556	7.3	20.2	174406	7.3	20.6	314986	7.4	20.4	44136	7.5	18.1	488483	7.5	21.4
528748	7.2	21.9	384718	7.3	19.8	29363	7.3	17.5	311749	7.4	19.6	28811	7.5	17.7	233592	7.5	19.5
122211	7.2	19.0	87833	7.3	18.7	312237	7.3	20.6	400192	7.4	21.2	245839	7.5	19.9	32247	7.5	17.0
489355	7.2	20.5	400144	7.3	22.5	195055	7.3	19.5	282946	7.4	20.7	82359	7.5	19.7	293822	7.5	21.3
111857	7.2	18.8	230969	7.3	19.8	3906	7.3	15.1	5466	7.4	16.5	178658	7.5	18.6	323489	7.5	21.0
67223	7.2	18.0	532886	7.3	21.5	92574	7.3	20.1	438082	7.4	21.7	109122	7.5	19.3	46261	7.5	20.5
469091	7.2	20.6	491395	7.3	20.0	148704	7.3	19.2	16450	7.4	17.5	314812	7.5	20.5	142026	7.5	19.3
425113	7.2	21.0	84794	7.3	18.9	52440	7.3	19.4	200619	7.4	20.8	239410	7.5	19.9	165738	7.5	20.2
8559	7.2	17.5	517194	7.3	21.5	151894	7.3	19.4	152250	7.4	19.1	30820	7.5	18.3	404802	7.5	21.2
230601	7.2	18.5	29147	7.3	16.5	56053	7.3	18.5	144252	7.4	19.3	293582	7.5	19.4	245889	7.5	19.5
257086	7.2	19.8	229392	7.3	19.7	291322	7.3	20.0	252284	7.4	20.6	453082	7.5	20.8	484804	7.5	20.5
204337	7.2	21.1	431885	7.3	21.8	90200	7.3	19.3	51503	7.4	18.5	138910	7.5	18.4	8356	7.5	16.5
419001	7.2	22.3	283754	7.3	18.8	466799	7.3	20.7	58260	7.4	18.1	110948	7.5	19.5	446904	7.5	21.2
316469	7.2	20.8	174341	7.3	20.3	375493	7.3	20.7	175615	7.4	19.6	92494	7.5	19.7	83045	7.5	19.2
11117	7.2	18.1	464183	7.3	20.3	178248	7.3	20.4	463831	7.4	21.3	69149	7.5	19.2	353523	7.5	20.2
162191	7.2	20.9	321156	7.3	20.1	279209	7.3	20.8	33219	7.4	18.0	493846	7.5	21.2	438114	7.5	21.2
360346	7.2	20.4	345195	7.3	19.8	39766	7.3	18.6	206270	7.4	19.7	258156	7.5	20.5	13681	7.5	18.3
187399	7.2	20.6	288810	7.3	20.1	273181	7.3	19.8	111924	7.4	18.8	343929	7.5	21.2	523348	7.5	20.6
87623	7.2	17.3	91252	7.3	17.8	77187	7.3	18.6	64661	7.4	18.2	82554	7.5	19.3	197151	7.5	19.6
383811	7.2	20.2	127480	7.3	19.2	9024	7.3	17.1	415405	7.4	20.9	81821	7.5	19.4	50990	7.5	18.2
101081	7.2	20.1	390830	7.3	20.3	108603	7.4	20.2	234379	7.4	20.7	375595	7.5	21.8	59774	7.5	19.0
82995	7.2	18.6	475573	7.3	21.1	380221	7.4	20.0	174212	7.4	20.2	516417	7.5	21.1	8021	7.5	17.5
178293	7.2	20.7	380533	7.3	19.3	372915	7.4	19.8	316077	7.4	20.5	88347	7.5	19.9	281352	7.5	20.7
53465	7.2	17.8	93549	7.3	20.1	242344	7.4	19.6	416512	7.4	20.6	265867	7.5	20.1	489891	7.5	22.5
395830	7.2	20.5	453193	7.3	20.8	453129	7.4	20.5	316313	7.4	20.2	165684	7.5	19.9	94153	7.5</	

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
2486	7.5	14.8	307683	7.6	20.0	380011	7.7	20.2	83195	7.7	19.6	408830	7.8	21.7	449195	7.9	20.0
83940	7.5	18.9	434390	7.6	24.1	348183	7.7	20.7	161963	7.7	20.1	345204	7.8	21.0	236777	7.9	18.6
410499	7.5	20.4	195921	7.6	19.7	366873	7.7	20.4	78024	7.7	19.8	266392	7.8	20.3	11873	7.9	16.4
293375	7.5	19.6	100928	7.6	20.3	399983	7.7	19.7	419095	7.8	21.2	182230	7.8	18.8	12975	7.9	16.9
353786	7.5	20.2	300335	7.6	21.0	72843	7.7	18.5	492145	7.8	21.6	175549	7.8	19.5	144626	7.9	19.7
72024	7.5	18.2	246334	7.6	20.1	336632	7.7	20.7	391485	7.8	21.3	440054	7.8	21.0	58502	7.9	18.1
17249	7.5	18.7	328070	7.6	20.8	11169	7.7	18.4	236910	7.8	20.4	398339	7.8	21.1	467894	7.9	21.3
492467	7.6	20.7	441544	7.6	21.2	204108	7.7	19.8	539923	7.8	20.2	112456	7.8	19.6	393648	7.9	21.3
80876	7.6	19.9	20632	7.6	17.6	185909	7.7	20.1	456670	7.8	20.2	44544	7.8	17.6	479483	7.9	20.6
71101	7.6	20.1	483366	7.6	20.9	7774	7.7	16.9	167519	7.8	19.1	41571	7.8	18.1	538508	7.9	21.1
148368	7.6	20.0	279171	7.6	19.6	204179	7.7	20.0	25825	7.8	18.4	244285	7.8	19.2	146613	7.9	19.4
88359	7.6	18.4	138115	7.6	19.7	54771	7.7	18.6	252618	7.8	19.2	226206	7.8	19.0	309599	7.9	20.2
432077	7.6	20.5	89179	7.6	18.9	149653	7.7	18.8	398386	7.8	21.7	80887	7.8	19.0	171484	7.9	20.7
408364	7.6	19.6	66495	7.6	19.4	284906	7.7	20.1	28042	7.8	17.7	405371	7.8	19.3	197708	7.9	20.6
180208	7.6	19.1	381665	7.6	21.6	178973	7.7	19.5	179576	7.8	19.8	492716	7.8	20.7	463768	7.9	20.7
137167	7.6	20.2	405138	7.6	21.2	453172	7.7	20.3	2629	7.8	15.8	151856	7.8	19.5	333375	7.9	20.9
74042	7.6	18.0	235749	7.6	19.5	537990	7.7	21.1	320951	7.8	20.5	84123	7.8	18.9	357048	7.9	21.7
1793	7.6	14.0	535118	7.6	21.4	529061	7.7	21.8	544016	7.8	20.8	124294	7.8	20.1	543927	7.9	20.2
457784	7.6	20.6	325886	7.6	20.2	186483	7.7	19.7	334536	7.8	20.7	78963	7.8	19.0	2072	7.9	15.7
110756	7.6	18.0	162943	7.6	19.8	457233	7.7	21.2	197654	7.8	19.6	194689	7.8	20.9	49703	7.9	18.8
282990	7.6	20.4	323885	7.6	20.9	280553	7.7	19.2	92700	7.8	19.0	27283	7.8	17.6	176069	7.9	20.0
122416	7.6	20.3	450873	7.6	20.3	416286	7.7	22.9	492071	7.8	20.7	53637	7.8	18.6	335714	7.9	20.4
298555	7.6	19.8	237829	7.6	19.5	182141	7.7	19.9	489371	7.8	19.9	322433	7.8	20.9	18489	7.9	16.1
283568	7.6	19.7	9836	7.6	18.3	448280	7.7	21.2	461197	7.8	21.5	309513	7.8	20.3	287024	7.9	20.3
493170	7.6	20.9	124303	7.6	20.1	113519	7.7	19.4	494738	7.8	21.5	412775	7.8	20.5	248716	7.9	20.3
44226	7.6	18.2	493265	7.6	20.7	450752	7.7	21.0	10886	7.8	17.3	88680	7.8	19.9	193826	7.9	20.1
169341	7.6	19.6	95392	7.6	19.2	32062	7.7	18.3	426113	7.8	20.1	343051	7.8	20.1	282102	7.9	20.5
274488	7.6	20.3	409603	7.6	21.3	21209	7.7	18.6	390383	7.8	20.0	117918	7.8	19.7	83666	7.9	19.0
523256	7.6	20.8	178549	7.6	18.9	270944	7.7	19.5	357351	7.8	19.7	535236	7.8	20.9	46972	7.9	18.3
358218	7.6	20.9	406187	7.6	20.9	281746	7.7	20.6	168052	7.8	19.5	104343	7.8	18.4	326400	7.9	21.1
318825	7.6	20.2	306150	7.6	20.3	249402	7.7	20.4	519504	7.8	21.9	399818	7.8	20.8	72906	7.9	18.9
178270	7.6	20.0	226661	7.6	18.9	292079	7.7	21.3	34685	7.8	18.5	105050	7.8	20.0	481997	7.9	20.7
520453	7.6	19.6	282549	7.6	20.4	71483	7.7	19.7	525460	7.8	22.9	256288	7.8	20.2	148598	7.9	20.3
421630	7.6	21.4	76457	7.6	18.4	122431	7.7	19.8	257540	7.8	20.1	221673	7.8	20.6	15030	7.9	17.8
34698	7.6	16.9	156680	7.6	19.8	161436	7.7	19.1	480856	7.8	19.8	236070	7.8	20.1	256336	7.9	20.1
47965	7.6	18.8	256225	7.7	20.6	149856	7.7	19.4	260923	7.8	20.8	294105	7.8	19.9	221572	7.9	20.7
75460	7.6	19.3	110797	7.7	19.5	338285	7.7	21.0	236078	7.8	20.5	345088	7.8	21.0	406032	7.9	20.0
236684	7.6	20.1	396202	7.7	20.2	31211	7.7	17.8	281983	7.8	20.7	449416	7.8	20.5	49068	7.9	21.5
391869	7.6	21.0	486061	7.7	21.4	316630	7.7	19.7	78936	7.8	19.4	317983	7.8	20.2	279947	7.9	21.5
135328	7.6	18.9	134225	7.7	19.4	385210	7.7	21.4	31722	7.8	18.2	132754	7.8	19.2	417344	7.9	20.4
97505	7.6	19.9	75539	7.7	16.6	254972	7.7	19.5	409257	7.8	19.8	45625	7.8	18.2	340026	7.9	19.9
112484	7.6	19.0	341846	7.7	20.5	10983	7.7	18.2	360080	7.8	19.7	424807	7.8	21.1	199316	7.9	20.2
283380	7.6	20.8	1862	7.7	18.5	440087	7.7	21.8	143856	7.8	19.2	84424	7.8	18.4	68113	7.9	19.3
228808	7.6	20.0	363984	7.7	21.2	251083	7.7	20.2	181718	7.8	20.1	456034	7.9	21.2	374248	7.9	20.0
383640	7.6	21.9	373038	7.7	20.2	203084	7.7	20.2	450269	7.8	21.2	362247	7.9	19.9	424915	7.9	21.1
416496	7.6	19.4	352330	7.7	18.9	520722	7.7	21.0	390887	7.8	20.0	400862	7.9	22.7	163536	7.9	19.5
50516	7.6	18.6	293127	7.7	19.8	133818	7.7	19.3	380684	7.8	20.1	170239	7.9	20.6	367784	7.9	20.7
441549	7.6	21.1	199004	7.7	19.7	360199	7.7	20.9	387167	7.8	21.2	273193	7.9	21.5	388041	7.9	20.8
169769	7.6	20.5	454354	7.7	20.5	468352	7.7	20.9	108892	7.8	19.6	216536	7.9	20.4	86468	7.9	17.8
543213	7.6	21.3	375098	7.7	20.7	124018	7.7	19.0	136626	7.8	19.9	330470	7.9	19.7	390127	7.9	20.3
252234	7.6	20.1	430158	7.7	21.3	120397	7.7	19.9	79560	7.8	18.5	119137	7.9	18.5	234232	7.9	20.0
64593	7.6	17.8	73454	7.7	18.5	31583	7.7	17.6	120479	7.8	19.0	484854	7.9	19.6	404949	7.9	19.9
221931	7.6	20.9	33359	7.7	18.5	391813	7.7	20.9	69113	7.8	18.6	60508	7.9	19.2	334640	7.9	20.0
228751	7.6	20.4	50786	7.7	18.2	415928	7.7	21.4	171611	7.8	19.0	34775	7.9	18.7	235516	7.9	19.7
446604	7.6	21.4	15085	7.7	17.4	127291	7.7	19.2	152264	7.8	19.9	161165	7.9	19.4	425751	7.9	21.1
176931	7.6	19.5	163437	7.7	19.3	450885	7.7	20.5	514549	7.8	20.3	274768	7.9	20.5	201260	7.9	20.2
121128	7.6	18.8	143295	7.7	20.2	6323	7.7	16.2	494955	7.8	21.6	117965	7.9	19.7	384699	7.9	21.2
229332	7.6	19.9	370569	7.7	21.8	75343	7.7	17.3	92626	7.8	18.9	24102	7.9	17.8	215431	7.9	19.5
109962	7.6	20.3	543620	7.7	21.4	307013	7.7	19.8	3804	7.8	16.7	160584	7.9	20.5	489731	7.9	20.7
347416	7.6	20.7	258501	7.7	20.1	292038	7.7	19.8	373633	7.8	20.9	300366	7.9	21.4	465537	7.9	20.9
247207	7.6	20.9	419192	7.7	20.8	33813	7.7	17.6	300338	7.8	19.8	382651	7.9	20.2	79888	7.9	18.3
253158	7.6	19.9	409533	7.7	21.0	61036	7.7	19.1	463367	7.8	20.8	434709	7.9	22.8	321586	7.9	20.9
226154	7.6	19.1	445958	7.7	20.7	168104	7.7	19.8	536419	7.8	20.0	63433	7.9	19.2	52885	7.9	18.7
305010	7.6	19.0	226353	7.7	18.7	494083	7.7	20.8	211235	7.8	19.1	8472	7.9	18.0	218354	7.9	18.4
92669	7.6	20.1	29911	7.7	17.5	192125	7.7	19.1	187048	7.8	20.0	185024	7.9	21.2	201363	7.9	19.8
197468	7.6	19.8	369447	7.7	20.9	465056	7.7	21.8	279483	7.8	20.9	464357	7.9	21.3	372600	7.9	20.8
202391	7.6	20.4	443845	7.7	21.0	308271	7.7	19.3	163586	7.8	18.9	455776	7.9	22.0	218818	7.9	20.1
284237	7.6	20.4	7511	7.7	18.5	30017	7.7	16.4	493040	7.8	20.8	379431	7.9	20.0	282219	7.9	20.9
334621	7.6	19.8	374003	7.7	20.1	538386	7.7	20.8	487741	7.8	19.4	28571	7.9	18.6	238025	7.9	20.0
235514	7.6	20.3	78267	7.7	19.2	446475	7.7	21.0	145676	7.8	20.4	391453	7.9	20.2	522293	7.9	21.0
210604	7.6	19.2	27841	7.7	19.3	116394	7.7	19.4	86880	7.8	19.7	417802	7.9	20.7	351628	7.9</	

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
469585	7.9	20.0	424900	7.9	21.5	40297	8.1	18.5	394098	8.1	20.4	280410	8.2	19.6	221608	8.3	19.1
430821	7.9	20.8	172697	7.9	20.2	82625	8.1	18.9	426134	8.1	20.4	316225	8.2	20.4	532063	8.3	21.6
53742	7.9	17.8	239382	7.9	19.7	322730	8.1	20.9	36783	8.1	18.9	98252	8.2	18.9	420981	8.3	20.5
42859	7.9	17.0	212113	7.9	20.3	378828	8.1	21.2	377920	8.1	21.4	128408	8.2	19.8	87284	8.3	18.9
17913	7.9	17.7	535018	7.9	22.3	379448	8.1	20.3	525720	8.1	22.1	292749	8.2	20.5	314723	8.3	21.3
344342	7.9	20.3	280685	8.0	20.2	481367	8.1	20.5	333728	8.1	20.7	129590	8.2	20.0	335218	8.3	19.4
223016	7.9	19.8	412152	8.0	20.6	123563	8.1	18.8	543565	8.1	20.8	369948	8.2	21.0	518781	8.3	20.9
409546	7.9	21.4	217428	8.0	20.3	532508	8.1	20.7	16939	8.1	17.2	101245	8.2	19.3	10683	8.3	16.9
151599	7.9	19.6	405538	8.0	20.3	241373	8.1	19.4	218969	8.1	20.4	160878	8.2	19.5	334089	8.3	20.9
67706	7.9	18.7	401013	8.0	20.4	421773	8.1	20.2	41075	8.1	19.1	29956	8.2	18.1	334209	8.3	21.4
207868	7.9	20.2	421271	8.0	20.9	322175	8.1	20.9	194863	8.1	19.3	210393	8.2	20.9	245448	8.3	20.6
225394	7.9	20.6	222955	8.0	20.7	111234	8.1	19.6	252533	8.1	20.5	198832	8.2	20.0	218949	8.3	19.7
204425	7.9	20.9	411459	8.0	20.2	55522	8.1	18.5	544311	8.1	20.9	65730	8.2	18.7	450823	8.3	22.3
367203	7.9	20.1	350586	8.0	19.8	97682	8.1	18.5	272339	8.1	19.9	71332	8.2	19.2	157090	8.3	19.5
397866	7.9	20.0	460910	8.0	20.9	225750	8.1	19.0	198001	8.1	19.6	240099	8.2	19.0	457083	8.3	21.2
100634	7.9	20.4	139368	8.0	19.3	306973	8.1	20.7	374217	8.1	19.5	115909	8.2	19.4	262732	8.3	20.2
366980	7.9	21.2	422144	8.0	21.1	161908	8.1	20.5	46998	8.1	19.4	172612	8.2	19.3	116126	8.3	19.2
19281	7.9	17.4	128983	8.0	19.9	58586	8.1	18.1	370394	8.2	20.1	94755	8.2	19.2	137686	8.3	20.2
459874	7.9	21.1	147704	8.0	19.9	269578	8.1	20.8	464152	8.2	20.9	193902	8.2	20.1	460605	8.3	20.9
484706	7.9	21.7	78996	8.0	19.7	8755	8.1	17.8	180702	8.2	19.2	269683	8.2	21.4	193817	8.3	19.5
144648	7.9	19.7	30371	8.0	18.8	452957	8.1	19.1	13918	8.2	17.1	426374	8.2	19.7	465229	8.3	21.5
95163	7.9	18.9	108658	8.0	19.3	258184	8.1	20.6	294079	8.2	21.5	85080	8.2	18.1	235107	8.3	19.5
400878	7.9	20.8	34071	8.0	17.7	204235	8.1	18.0	243672	8.2	20.5	171360	8.2	20.6	201894	8.3	19.7
532560	7.9	21.9	105186	8.0	19.1	464181	8.1	20.5	343433	8.2	19.8	45132	8.2	16.8	395720	8.3	20.9
521796	7.9	21.7	115901	8.0	18.3	221127	8.1	20.1	116109	8.2	18.8	398450	8.2	21.6	90450	8.3	19.4
51096	7.9	18.6	226949	8.0	20.5	324582	8.1	21.1	186623	8.2	18.6	324649	8.2	19.1	64563	8.3	18.9
369156	7.9	20.7	390842	8.0	20.9	443964	8.1	21.7	40533	8.2	18.3	356322	8.2	20.5	145115	8.3	19.8
32454	7.9	19.2	109625	8.0	19.5	489433	8.1	20.9	136830	8.2	18.9	280730	8.2	20.3	343003	8.3	20.1
334459	7.9	20.5	207356	8.0	19.4	147382	8.1	19.3	426290	8.2	20.7	75241	8.2	17.8	335747	8.3	19.4
325266	7.9	20.8	446980	8.0	21.2	135400	8.1	18.9	143168	8.2	19.5	455104	8.2	19.2	58224	8.3	19.1
348292	7.9	19.1	418420	8.0	20.6	409610	8.1	20.4	490767	8.2	21.3	76485	8.2	18.3	182275	8.3	20.1
179288	7.9	20.6	134742	8.0	18.5	372187	8.1	21.3	420664	8.2	20.2	244588	8.2	20.1	542089	8.3	22.1
317075	7.9	20.8	529621	8.0	21.0	188759	8.1	20.3	82346	8.2	19.2	545130	8.2	20.9	511546	8.3	20.9
451407	7.9	21.0	315746	8.0	20.4	456513	8.1	21.9	147702	8.2	20.5	101691	8.2	18.5	169113	8.3	19.8
48842	7.9	17.7	388106	8.0	20.2	230669	8.1	20.4	493688	8.2	20.7	148849	8.2	19.7	453076	8.3	19.6
314776	7.9	20.8	492163	8.0	20.4	46508	8.1	19.2	441604	8.2	21.7	493828	8.2	21.6	426619	8.3	21.3
488977	7.9	20.5	245726	8.0	19.9	136092	8.1	19.5	541238	8.2	21.0	323991	8.2	20.3	27288	8.3	17.8
122409	7.9	18.1	138142	8.0	18.4	420199	8.1	20.1	444113	8.2	21.7	460136	8.2	22.0	535369	8.3	20.9
203819	7.9	20.6	464484	8.0	20.9	282080	8.1	20.2	535993	8.2	22.5	464222	8.2	20.3	38433	8.3	18.2
15494	7.9	18.2	34253	8.0	19.7	88813	8.1	17.9	541738	8.2	21.3	465249	8.2	21.0	299534	8.3	20.4
303513	7.9	19.3	447911	8.0	20.9	190763	8.1	19.7	532884	8.2	21.2	171936	8.2	20.3	95288	8.3	19.5
126168	7.9	20.1	296617	8.0	20.4	253018	8.1	21.2	83642	8.2	17.7	61272	8.2	19.2	142960	8.3	20.4
359219	7.9	20.5	532598	8.0	21.6	204434	8.1	20.2	538367	8.2	21.0	410811	8.2	20.0	292477	8.3	20.2
399464	7.9	22.7	200350	8.0	20.3	338133	8.1	20.8	236664	8.2	20.6	50730	8.2	18.5	226260	8.3	19.7
33894	7.9	18.9	417350	8.0	20.3	542630	8.1	19.4	401362	8.2	19.7	63882	8.2	17.7	145247	8.3	19.7
176676	7.9	20.9	347636	8.0	20.5	252450	8.1	19.7	437927	8.2	21.5	298539	8.2	21.0	294646	8.3	20.4
25609	7.9	17.2	119375	8.0	19.9	278063	8.1	21.1	54356	8.2	17.2	482075	8.2	19.0	150521	8.3	19.1
466485	7.9	21.4	29546	8.0	17.5	23560	8.1	17.8	409510	8.2	20.7	47007	8.2	19.7	232980	8.3	18.4
482471	7.9	20.8	51921	8.0	18.1	324052	8.1	20.0	348921	8.2	21.1	229209	8.2	20.7	425999	8.3	20.1
271281	7.9	19.9	319676	8.0	20.1	300269	8.1	19.8	78764	8.2	18.3	87188	8.2	19.0	271248	8.3	20.6
485631	7.9	20.2	279890	8.0	20.7	341771	8.1	21.6	104874	8.2	19.3	135722	8.2	19.3	493281	8.3	20.9
541444	7.9	20.9	178514	8.0	19.3	277208	8.1	21.0	455895	8.2	21.8	210519	8.2	21.3	538795	8.3	21.0
290284	7.9	20.8	430300	8.0	20.4	62215	8.1	18.6	520874	8.2	21.1	216646	8.2	20.0	347629	8.3	21.0
170055	7.9	20.0	216559	8.0	20.1	220446	8.1	18.7	432523	8.2	19.9	127797	8.2	19.3	218380	8.3	21.4
415370	7.9	20.7	107265	8.0	18.7	459744	8.1	21.0	328060	8.2	21.1	336702	8.2	20.3	456295	8.3	21.6
493749	7.9	20.6	134432	8.0	19.6	380219	8.1	21.7	339971	8.2	20.2	463076	8.2	20.5	74156	8.3	19.0
425445	7.9	20.1	482031	8.0	20.0	491399	8.1	20.0	235250	8.2	19.7	541375	8.2	20.4	239678	8.3	20.7
486796	7.9	20.7	277310	8.0	19.8	58185	8.1	19.1	30081	8.2	18.3	152554	8.2	20.4	327007	8.3	20.6
24068	7.9	18.4	242953	8.0	21.2	90329	8.1	19.1	19743	8.2	15.9	522544	8.2	20.4	246704	8.3	20.1
357262	7.9	20.5	252630	8.0	19.1	157973	8.1	19.7	151290	8.2	19.1	467039	8.2	20.5	422863	8.3	20.8
51019	7.9	18.1	257213	8.0	20.9	4238	8.1	15.5	163186	8.2	19.3	464179	8.2	20.9	14761	8.3	19.3
538166	7.9	21.0	137787	8.0	19.5	88926	8.1	18.2	80968	8.2	18.8	76606	8.2	18.7	178661	8.3	19.3
415886	7.9	22.0	178300	8.0	20.4	308335	8.1	20.2	492489	8.2	21.6	47896	8.2	18.0	196070	8.3	19.7
423370	7.9	20.6	457051	8.0	19.7	268802	8.1	20.6	245967	8.2	20.3	40920	8.2	18.6	485495	8.3	21.6
331706	7.9	21.4	28651	8.0	18.9	33096	8.1	17.7	295260	8.2	20.1	106075	8.3	19.1	88986	8.3	19.1
347483	7.9	21.3	226108	8.0	20.3	77181	8.1	18.4	459258	8.2	20.5	120249	8.3	19.5	163614	8.3	19.7
9327	7.9	16.4	167570	8.0	19.0	215189	8.1	20.9	416687	8.2	20.1	308233	8.3	19.7	117639	8.3	19.0
285954	7.9	20.1	31748	8.0	17.7	153013	8.1	20.0	121988	8.2	20.2	538553	8.3	20.3	21544	8.3	17.1
5622	7.9	16.9	138416	8.0	19.3	488357	8.1	19.9	489691	8.2	21.3	318903	8.3	19.7	28786	8.3	18.0
453103	7.9	19.5	277096	8.0	19.7	444000	8.1	21.3	307278	8.2	19.5	391916	8.3	21.0	104282	8.3	17.8
74792	7.9	18.3	454309	8.1	21.5	428390	8.1	20.4	346398	8.2	19.9	180032	8.3	19.9			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
331704	8.3	20.9	173355	8.4	20.0	353990	8.5	21.8	20944	8.5	18.2	6117	8.6	16.2	335224	8.7	21.2
297933	8.3	19.4	420272	8.4	19.8	214354	8.5	20.3	232511	8.5	20.0	477259	8.6	20.6	253913	8.7	19.8
264464	8.3	19.3	86990	8.4	19.3	519329	8.5	21.3	458213	8.5	21.3	168195	8.6	19.7	43963	8.7	19.1
375572	8.3	20.8	182054	8.4	19.0	166849	8.5	20.0	440215	8.5	21.4	459097	8.6	20.7	398352	8.7	20.2
138655	8.3	19.4	61781	8.4	18.7	348990	8.5	20.4	161759	8.5	19.5	176402	8.6	19.4	243895	8.7	18.5
180278	8.3	19.1	382292	8.4	19.4	79979	8.5	17.8	259731	8.5	18.9	161674	8.6	19.5	28761	8.7	17.3
8104	8.3	17.4	370395	8.4	20.6	77833	8.5	19.0	51195	8.5	18.7	258286	8.6	20.1	303004	8.7	19.9
25736	8.3	17.8	179700	8.4	19.5	339735	8.5	20.1	492244	8.5	20.6	28990	8.6	17.8	180955	8.7	19.8
223706	8.3	20.0	256059	8.4	19.6	81824	8.5	19.1	282792	8.5	20.2	444813	8.6	21.4	401575	8.7	20.2
390828	8.3	21.3	119704	8.4	19.3	4475	8.5	15.7	540003	8.5	20.2	23950	8.6	18.1	316278	8.7	20.8
110107	8.3	20.5	535655	8.4	20.7	532182	8.5	22.6	405068	8.5	21.6	223971	8.6	20.2	532702	8.7	20.9
10202	8.3	16.3	296608	8.4	20.7	526647	8.5	20.6	105258	8.5	20.6	249894	8.6	20.7	47343	8.7	19.0
541722	8.3	21.6	454994	8.4	20.8	461114	8.5	19.8	5614	8.5	18.8	192437	8.6	19.8	458952	8.7	20.5
499462	8.3	20.5	175837	8.4	20.6	175266	8.5	19.7	32235	8.5	18.1	374226	8.6	20.1	438909	8.7	20.0
182511	8.3	19.3	254791	8.4	19.9	366912	8.5	20.9	260934	8.5	20.6	440651	8.6	21.2	339721	8.7	21.3
46903	8.3	18.0	527654	8.4	21.5	230135	8.5	20.3	543572	8.5	20.7	465832	8.6	20.8	258441	8.7	20.6
193994	8.3	20.7	411790	8.4	20.2	346199	8.5	20.4	3551	8.5	20.6	289612	8.6	19.7	505301	8.7	20.0
460637	8.3	20.6	108087	8.4	19.5	346906	8.5	20.1	24758	8.5	17.2	460657	8.6	20.9	211487	8.7	20.0
51521	8.3	19.1	154093	8.4	20.1	86336	8.5	17.7	405933	8.5	21.1	409481	8.6	21.0	495132	8.7	20.3
300968	8.3	20.2	422296	8.4	20.8	113847	8.5	18.9	425409	8.5	19.8	313895	8.6	19.6	140050	8.7	19.4
188753	8.3	20.0	309971	8.4	19.6	372183	8.5	21.6	426834	8.5	20.5	320784	8.6	20.5	83547	8.7	18.6
332163	8.3	20.2	484195	8.4	21.2	404006	8.5	19.7	180005	8.5	18.5	337395	8.6	20.7	243558	8.7	20.4
80409	8.3	18.8	520710	8.4	21.1	197109	8.5	19.9	355305	8.5	20.9	157553	8.6	19.8	61892	8.7	18.6
52535	8.3	19.1	423352	8.4	20.2	390824	8.5	21.3	119084	8.5	19.3	541941	8.6	20.6	422533	8.7	21.3
347596	8.3	21.1	147623	8.4	19.2	62177	8.5	19.1	165913	8.5	20.0	462165	8.6	21.3	543062	8.7	20.8
117933	8.3	19.6	64931	8.4	19.4	109605	8.5	19.4	252596	8.5	19.4	125385	8.6	18.8	489836	8.7	20.2
2910	8.3	16.3	318874	8.4	20.0	245421	8.5	19.3	142472	8.5	20.9	370688	8.6	22.2	137704	8.7	20.0
86555	8.3	18.8	437896	8.4	21.7	131321	8.5	19.2	326260	8.5	18.9	33905	8.6	17.7	543663	8.7	20.7
180876	8.3	20.2	15621	8.4	16.5	366953	8.5	20.4	33997	8.5	17.0	314747	8.6	19.9	64874	8.7	19.0
440955	8.3	19.3	381263	8.4	21.5	541920	8.5	20.6	336601	8.5	21.0	486112	8.6	20.5	187619	8.7	19.5
544241	8.3	20.3	208046	8.4	20.2	450329	8.5	20.3	419796	8.5	20.7	79643	8.6	19.5	413620	8.7	20.6
188866	8.3	20.2	231119	8.4	20.3	481387	8.5	21.6	421874	8.5	20.4	114548	8.6	19.2	466030	8.7	21.3
295555	8.3	20.7	151532	8.4	19.8	155037	8.5	19.8	475913	8.5	19.1	225305	8.6	20.7	507919	8.7	20.1
96227	8.3	19.4	467342	8.4	20.8	325883	8.5	20.4	64651	8.5	18.6	236196	8.6	20.7	238442	8.7	20.3
51782	8.3	18.8	427063	8.4	20.3	14023	8.5	17.2	67609	8.5	17.2	282081	8.6	21.1	186228	8.7	19.8
160126	8.3	19.5	379050	8.4	20.7	168691	8.5	19.3	217426	8.5	20.4	61317	8.6	19.1	421147	8.7	20.2
252433	8.3	20.3	283854	8.4	20.3	522536	8.5	19.9	304894	8.5	21.0	187641	8.6	20.1	162164	8.7	19.9
174964	8.3	18.2	238028	8.4	20.8	102418	8.5	18.6	495323	8.5	20.8	398129	8.6	20.1	42118	8.7	18.9
446327	8.3	19.9	150023	8.4	19.7	367377	8.5	19.9	276715	8.5	20.2	307868	8.6	20.9	67929	8.7	18.1
135395	8.3	19.6	241844	8.4	21.0	287774	8.5	19.7	275768	8.5	20.2	236011	8.6	19.5	218687	8.7	19.8
274526	8.4	20.8	345315	8.4	20.3	105472	8.5	18.8	456123	8.5	20.2	348246	8.6	20.6	403860	8.7	19.7
368552	8.4	20.6	351322	8.4	20.6	372193	8.5	21.4	461938	8.5	21.6	204231	8.6	20.6	322721	8.7	19.9
37291	8.4	18.3	48524	8.4	18.9	321143	8.5	21.2	263430	8.5	20.7	105446	8.6	19.6	59179	8.7	18.2
74233	8.4	19.3	335636	8.4	21.6	240459	8.5	19.5	362535	8.5	20.8	434518	8.6	21.0	202498	8.7	20.1
173430	8.4	19.2	340269	8.4	20.5	464312	8.5	21.2	535777	8.5	20.9	510774	8.6	20.4	124997	8.7	19.5
136635	8.4	18.3	197505	8.4	19.0	278137	8.5	19.5	474006	8.6	20.0	322618	8.6	20.8	418994	8.7	21.5
53319	8.4	19.4	258250	8.4	21.3	243740	8.5	20.6	408927	8.6	21.1	102010	8.6	18.6	155430	8.7	20.5
56842	8.4	17.8	135408	8.4	19.7	20998	8.5	17.8	104296	8.6	19.5	493429	8.6	20.6	197360	8.7	20.0
307832	8.4	20.3	381937	8.4	20.3	205058	8.5	18.6	277429	8.6	20.7	520947	8.6	19.9	272658	8.7	20.4
531667	8.4	22.1	501979	8.4	20.1	527059	8.5	21.8	308744	8.6	21.3	16452	8.6	16.0	499481	8.7	20.4
461343	8.4	20.9	4	8.4	6.0	333717	8.5	20.8	34726	8.6	16.9	257872	8.6	19.9	339986	8.7	20.9
150687	8.4	20.1	334969	8.4	20.1	400045	8.5	20.6	196262	8.6	18.9	183395	8.6	21.0	146452	8.7	19.5
178146	8.4	19.4	366164	8.4	20.0	460343	8.5	21.7	271293	8.6	20.4	541119	8.6	21.4	196025	8.7	20.0
220616	8.4	20.1	105567	8.4	19.7	60464	8.5	19.6	359164	8.6	20.0	56097	8.6	17.6	406661	8.7	20.2
414511	8.4	21.1	198877	8.4	19.7	141921	8.5	18.8	318092	8.6	20.3	487947	8.6	21.1	543155	8.7	21.4
14529	8.4	18.3	110897	8.4	19.5	293002	8.5	20.7	219864	8.6	19.6	527005	8.6	21.5	473942	8.7	20.5
84757	8.4	19.1	122516	8.4	20.5	184625	8.5	20.5	259667	8.6	19.8	24262	8.6	17.8	111118	8.7	18.9
492495	8.4	21.4	494977	8.4	21.4	173408	8.5	19.0	201956	8.6	20.1	27915	8.6	17.6	316784	8.7	20.1
232544	8.4	19.2	202189	8.4	20.2	228939	8.5	20.1	493770	8.6	21.5	68517	8.6	18.9	19799	8.7	19.1
243149	8.4	20.7	292190	8.4	20.6	163562	8.5	19.4	170548	8.6	19.0	266229	8.6	20.7	225239	8.7	20.1
343737	8.4	20.5	331571	8.4	21.5	404257	8.5	20.4	719	8.6	21.1	128366	8.6	19.9	47163	8.7	17.8
281402	8.4	21.1	54647	8.4	18.2	212222	8.5	19.6	397834	8.6	20.4	459193	8.6	20.7	98650	8.7	19.0
412353	8.4	20.2	444896	8.4	21.2	482534	8.5	21.5	255840	8.6	20.3	73616	8.6	19.5	146054	8.7	19.7
543578	8.4	22.3	454100	8.4	21.2	53633	8.5	17.7	405697	8.6	22.0	413613	8.6	20.9	95833	8.7	19.8
422433	8.4	21.1	221662	8.4	19.4	144537	8.5	19.3	239723	8.6	20.4	155165	8.6	19.0	247688	8.7	18.9
241120	8.4	21.0	503404	8.4	20.8	488614	8.5	21.2	71378	8.6	18.7	109178	8.6	18.9	247358	8.7	20.1
307248	8.4	20.4	382392	8.4	20.9	465245	8.5	21.0	525032	8.6	21.4	32709	8.6	18.5	209907	8.7	20.4
135982	8.4	18.7	64734	8.4	18.8	226987	8.5	20.0	381650	8.6	20.1	243393	8.6	20.0	13811	8.7	17.2
312282	8.4	20.3	481473	8.4	20.1	25216	8.5	18.4	425103	8.6	20.6	252411	8.6	20.6	397501	8.7	20.5
394400	8.4	21.3	464653	8.4	20.2	466311	8.5	20.8	74474	8.6	18.4	252283	8.7	20.3	95214	8.7	18.6
341074	8.4	20.2	161156	8.4	20.6	370589	8.5	20.1	465242	8.6	21.0	488149	8.7	21.7	11		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
383356	8.7	20.4	249009	8.8	20.5	234063	8.9	18.9	198722	8.9	20.2	152057	9.0	18.2	372728	9.1	20.9
455933	8.7	22.3	184379	8.8	19.1	11994	8.9	17.3	271352	8.9	20.5	461889	9.0	20.4	407345	9.1	20.4
252308	8.7	19.9	281998	8.8	20.9	81397	8.9	18.9	314285	8.9	19.4	306237	9.0	20.4	561111	9.1	17.7
105427	8.7	17.4	18855	8.8	17.8	541701	8.9	20.5	375567	8.9	20.6	541189	9.0	21.1	334641	9.1	20.7
466728	8.7	21.0	226164	8.8	20.3	93933	8.9	19.5	334259	8.9	21.1	441302	9.0	20.2	359231	9.1	20.6
416820	8.7	19.3	283428	8.8	21.8	177542	8.9	19.8	141608	8.9	19.4	247	9.0	12.1	542118	9.1	20.7
509376	8.7	19.9	375432	8.8	20.7	382204	8.9	20.7	345069	8.9	21.5	106308	9.0	19.6	335205	9.1	20.9
57194	8.7	18.9	466331	8.8	21.4	441401	8.9	20.8	227317	8.9	18.5	397215	9.0	20.3	289104	9.1	20.5
293639	8.7	21.1	151855	8.8	20.1	366146	8.9	19.8	422803	8.9	20.5	276621	9.0	20.0	505780	9.1	20.5
200344	8.7	19.4	165099	8.8	19.6	177817	8.9	20.2	26357	8.9	18.5	20588	9.0	17.3	388499	9.1	20.1
460400	8.7	20.3	381642	8.8	20.9	108740	8.9	20.5	340657	8.9	20.7	242852	9.0	20.2	410967	9.1	20.6
146323	8.8	19.2	489780	8.8	19.9	195889	8.9	19.8	252371	8.9	20.7	270938	9.0	19.9	43715	9.1	18.7
223160	8.8	19.1	344227	8.8	21.1	211661	8.9	20.8	446971	8.9	22.2	386875	9.0	20.2	465502	9.1	20.3
123146	8.8	19.2	116719	8.8	19.1	364434	8.9	19.9	148981	8.9	19.8	256765	9.0	19.6	86985	9.1	18.5
157114	8.8	19.6	490844	8.8	21.1	411267	8.9	21.2	401518	8.9	20.2	407375	9.0	21.4	168690	9.1	19.9
527175	8.8	21.8	179088	8.8	20.6	225079	8.9	19.8	239915	8.9	20.7	125304	9.0	18.5	147422	9.1	19.4
380050	8.8	20.2	378490	8.8	20.7	154572	8.9	19.6	189080	8.9	20.8	285637	9.0	19.8	409477	9.1	21.0
189483	8.8	20.3	429951	8.8	20.4	51168	8.9	18.6	156610	8.9	20.4	345343	9.0	20.9	190959	9.1	20.6
113988	8.8	19.4	334994	8.8	19.8	427445	8.9	20.9	367187	8.9	19.8	406729	9.0	20.5	460379	9.1	21.8
243233	8.8	19.8	439890	8.8	22.4	543091	8.9	20.9	396432	8.9	20.3	545088	9.0	20.4	151554	9.1	20.7
543110	8.8	20.7	316420	8.8	19.9	2467	8.9	15.9	363213	8.9	20.8	239286	9.0	20.1	186938	9.1	20.7
527120	8.8	21.8	455883	8.8	21.2	381410	8.9	20.1	47413	8.9	17.9	7384	9.0	17.8	543617	9.1	21.6
116540	8.8	19.2	256590	8.8	20.5	103820	8.9	19.1	50277	8.9	19.0	400571	9.0	20.4	190902	9.1	19.4
466625	8.8	20.5	66176	8.8	17.7	271378	8.9	17.9	416685	8.9	20.9	298431	9.0	20.6	217617	9.1	19.9
307779	8.8	20.5	522572	8.8	20.3	543208	8.9	22.0	107240	8.9	18.5	122083	9.0	18.7	265574	9.1	20.3
57521	8.8	19.7	397519	8.8	21.8	107991	8.9	18.5	356924	8.9	20.2	386693	9.0	20.5	535329	9.1	21.5
284339	8.8	20.1	434967	8.8	21.2	323968	8.9	21.1	408551	8.9	19.4	361429	9.0	19.4	24937	9.1	19.0
309528	8.8	19.8	91870	8.8	18.8	53920	8.9	18.9	481084	8.9	21.5	291175	9.0	20.1	455793	9.1	21.0
249897	8.8	19.1	278443	8.8	20.2	438761	8.9	21.1	28879	8.9	18.8	166355	9.0	20.1	365483	9.1	21.3
454046	8.8	20.1	335881	8.8	20.5	340998	8.9	19.4	110250	8.9	19.5	535061	9.0	21.0	54456	9.1	17.9
220873	8.8	19.2	135225	8.8	20.0	455840	8.9	21.8	524061	8.9	20.6	375592	9.0	19.7	362659	9.1	20.7
107729	8.8	18.6	169287	8.8	20.4	108459	8.9	19.8	36593	8.9	18.8	23632	9.0	17.8	134511	9.1	17.8
465788	8.8	21.1	281292	8.8	20.1	327925	8.9	19.6	203120	8.9	19.9	254084	9.0	20.9	294998	9.1	19.6
220568	8.8	20.0	234016	8.8	20.4	541669	8.9	21.2	294304	8.9	19.9	390829	9.0	21.5	290214	9.1	20.9
466850	8.8	20.4	207784	8.8	19.8	227591	8.9	20.0	56125	8.9	17.4	282518	9.0	20.6	253160	9.1	20.3
432145	8.8	21.7	489735	8.8	21.3	283403	8.9	20.4	462715	8.9	20.1	80593	9.0	18.4	401078	9.1	21.3
145578	8.8	20.2	235556	8.8	19.6	236671	8.9	20.2	81930	8.9	18.8	516652	9.0	21.2	42841	9.1	18.2
228215	8.8	20.2	185827	8.8	20.5	129655	8.9	19.3	60735	8.9	19.4	532300	9.0	21.8	195179	9.1	19.2
524210	8.8	21.7	4305	8.8	16.2	169275	8.9	20.7	145984	8.9	19.6	54195	9.0	18.4	314707	9.1	20.9
517256	8.8	20.6	25297	8.8	18.1	79783	8.9	20.2	172896	8.9	19.3	122775	9.0	19.9	134852	9.1	18.8
318158	8.8	20.0	67586	8.8	17.9	413020	8.9	20.2	161205	8.9	20.3	542044	9.0	22.4	420721	9.1	20.1
237088	8.8	20.7	468916	8.8	19.7	26727	8.9	18.5	376347	8.9	20.4	144387	9.0	19.8	337199	9.1	21.1
219354	8.8	20.0	436094	8.8	22.8	531015	8.9	22.8	259352	8.9	19.5	292942	9.0	20.1	321478	9.1	21.0
343025	8.8	20.3	9598	8.8	17.3	464262	8.9	20.1	301804	8.9	21.0	293005	9.0	21.3	201339	9.1	19.4
307819	8.8	19.5	232050	8.8	19.7	377000	8.9	22.0	83105	8.9	18.7	460572	9.0	20.9	329967	9.1	20.9
445145	8.8	20.2	249705	8.8	18.6	409968	8.9	21.0	154113	8.9	19.3	484588	9.0	21.7	281568	9.1	19.5
451428	8.8	21.6	143049	8.8	20.0	17641	8.9	18.3	86853	8.9	19.7	71559	9.0	19.7	285541	9.1	20.6
490364	8.8	21.2	242340	8.8	19.4	28604	8.9	18.3	371738	8.9	20.6	205562	9.0	20.6	415161	9.1	21.2
77581	8.8	18.6	16930	8.8	18.6	283388	8.9	21.0	155338	8.9	23.0	107366	9.0	19.2	424353	9.1	20.2
30673	8.8	20.8	159881	8.8	19.7	91831	8.9	20.1	340176	8.9	19.9	237414	9.0	19.7	153364	9.1	18.9
506950	8.8	20.4	188070	8.8	19.4	327937	8.9	20.2	303073	8.9	18.5	463600	9.0	21.2	535403	9.1	21.4
219164	8.8	20.4	198803	8.8	20.7	516769	8.9	21.3	2724	8.9	15.8	481355	9.0	20.8	245912	9.1	20.9
415375	8.8	21.6	234187	8.8	20.7	376842	8.9	18.9	333092	8.9	20.3	543040	9.0	21.3	237771	9.1	19.3
287973	8.8	21.8	178935	8.8	20.2	43218	8.9	17.7	138352	8.9	19.3	502564	9.0	20.3	311705	9.1	21.0
76735	8.8	18.9	9262	8.8	16.5	412498	8.9	20.3	518520	8.9	21.1	100628	9.1	20.8	268638	9.1	19.9
541188	8.8	21.0	143262	8.8	19.4	50325	8.9	17.7	504975	8.9	20.6	455972	9.0	20.9	350425	9.1	21.2
151937	8.8	18.3	203685	8.8	19.8	493051	8.9	20.2	279108	8.9	20.1	79917	9.0	18.6	261600	9.1	20.6
6613	8.8	17.2	284487	8.8	20.8	5091	8.9	16.3	139993	8.9	19.9	217566	9.1	20.6	541227	9.1	20.1
236374	8.8	19.9	535028	8.8	22.4	90507	8.9	19.6	196538	8.9	19.8	464781	9.1	20.4	70735	9.1	17.6
77879	8.8	18.8	409450	8.8	20.6	506175	8.9	20.2	251102	8.9	21.4	250500	9.1	19.8	483265	9.1	19.7
132280	8.8	18.7	333961	8.8	19.3	296403	8.9	19.7	422382	8.9	20.4	273671	9.1	20.8	448779	9.1	21.1
411781	8.8	21.0	413556	8.8	21.3	93579	8.9	17.8	182345	8.9	19.0	245014	9.1	20.7	135670	9.1	19.8
328348	8.8	20.8	194348	8.8	20.6	332999	8.9	20.2	54899	8.9	18.9	481992	9.1	21.6	442678	9.1	20.1
74425	8.8	18.8	484085	8.8	21.0	105127	8.9	16.9	99291	8.9	18.6	198122	9.1	20.6	84182	9.1	19.5
244238	8.8	19.5	62712	8.8	18.9	238093	8.9	18.6	361191	8.9	20.7	364320	9.1	21.2	31705	9.1	17.3
283137	8.8	20.0	285282	8.8	19.2	301577	8.9	20.6	144213	8.9	18.7	190447	9.1	19.4	163181	9.1	19.5
270870	8.8	19.5	168285	8.9	20.6	280725	8.9	20.1	308763	8.9	20.8	460618	9.1	20.7	334247	9.1	21.3
274209	8.8	19.8	489415	8.9	21.0	118345	8.9	18.2	180812	8.9	19.1	456485	9.1	21.5	466890	9.1	20.3
174154	8.8	21.2	214684	8.9	19.3	444811	8.9	21.4	7916	8.9	15.8	108435	9.1	19.4	348214	9.1	21.2
94970	8.8	19.2	452800	8.9	20.9	101692	8.9	18.5	423079	9.0	21.0	241842	9.1	20.5	18472	9.1	18.3
405582	8.8	21.9	594	8.9	14.1	383448	8.9	20.8	27269	9.0	16.7	386642	9.1	20			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
77596	9.1	19.7	175500	9.2	20.1	245925	9.3	19.9	214766	9.3	20.6	89407	9.4	19.3	172174	9.4	19.9
275794	9.1	20.4	233478	9.2	19.9	217763	9.3	19.7	153478	9.3	19.3	543172	9.4	21.0	335899	9.4	21.4
385955	9.1	21.5	178950	9.2	18.8	156833	9.3	19.5	287679	9.3	20.6	196775	9.4	19.5	217800	9.4	20.5
451031	9.1	20.3	103285	9.2	19.5	51767	9.3	18.6	484755	9.3	20.4	477422	9.4	20.4	348257	9.4	21.2
323564	9.1	20.2	13049	9.2	16.9	371188	9.3	20.4	14932	9.3	17.4	311672	9.4	20.7	322655	9.4	20.2
397241	9.1	22.0	152398	9.2	19.6	528532	9.3	22.1	47928	9.3	18.1	543727	9.4	21.5	407305	9.4	20.9
433820	9.1	20.2	274496	9.2	21.1	313545	9.3	19.7	97652	9.3	19.1	543416	9.4	20.9	128569	9.5	20.1
352912	9.1	19.9	74350	9.2	18.0	161094	9.3	18.6	203868	9.3	19.1	179067	9.4	19.7	179029	9.5	20.5
323486	9.1	20.7	418622	9.2	21.1	375369	9.3	20.9	251172	9.3	20.8	10299	9.4	18.2	130960	9.5	19.5
227236	9.1	19.3	111009	9.2	19.7	199202	9.3	20.1	306316	9.3	20.7	122551	9.4	19.7	541197	9.5	20.6
464495	9.2	21.1	336982	9.2	19.8	51312	9.3	18.2	363890	9.3	21.2	157290	9.4	20.1	242453	9.5	20.9
370377	9.2	19.9	39477	9.2	18.8	375425	9.3	21.6	383454	9.3	20.9	17086	9.4	16.7	455783	9.5	21.0
211728	9.2	20.0	54492	9.2	18.8	313033	9.3	20.3	5013	9.3	16.4	466022	9.4	20.7	485089	9.5	19.8
377193	9.2	20.1	84626	9.2	19.2	133866	9.3	20.0	440224	9.3	21.9	448475	9.4	20.3	232293	9.5	19.6
48880	9.2	19.1	164386	9.2	19.9	82588	9.3	18.4	434944	9.3	21.1	187932	9.4	18.6	53101	9.5	17.8
292997	9.2	19.3	238785	9.2	19.8	335935	9.3	20.6	135073	9.3	19.3	177920	9.4	20.1	216999	9.5	20.1
337919	9.2	20.1	122945	9.2	19.9	185898	9.3	19.9	440586	9.3	21.2	310736	9.4	20.9	73037	9.5	17.9
11178	9.2	18.1	466044	9.2	21.2	518474	9.3	21.1	293859	9.3	20.9	98914	9.4	18.1	361419	9.5	20.3
115559	9.2	19.1	319712	9.2	21.0	5891	9.3	16.7	498702	9.3	21.6	158906	9.4	19.8	324003	9.5	20.4
544832	9.2	20.4	344377	9.2	20.4	373957	9.3	20.3	383711	9.3	21.3	197291	9.4	19.4	218673	9.5	20.4
422021	9.2	20.7	429297	9.2	20.9	159213	9.3	19.1	319974	9.3	20.6	522188	9.4	20.4	19750	9.5	17.3
301690	9.2	20.6	108429	9.2	19.3	494031	9.3	19.7	495581	9.3	20.5	293740	9.4	20.4	301238	9.5	19.5
406013	9.2	21.6	252428	9.2	19.9	232723	9.3	19.8	463354	9.3	20.9	224581	9.4	20.7	387511	9.5	20.5
317552	9.2	21.2	307249	9.2	19.6	357385	9.3	20.6	234502	9.3	20.4	73962	9.4	18.4	7821	9.5	16.8
171626	9.2	19.2	426440	9.2	21.1	543231	9.3	21.2	388072	9.3	20.9	267874	9.4	20.9	71372	9.5	17.6
237136	9.2	20.1	458267	9.2	21.8	318843	9.3	20.1	330957	9.3	21.1	163572	9.4	19.3	161198	9.5	19.8
89264	9.2	19.6	535957	9.2	20.9	463787	9.3	20.6	10286	9.4	17.2	138985	9.4	18.1	205873	9.5	19.0
535536	9.2	20.5	307729	9.2	21.1	85008	9.3	18.6	136494	9.4	20.8	162929	9.4	20.3	503029	9.5	19.7
252507	9.2	20.1	243080	9.2	19.6	517819	9.3	20.9	7607	9.4	17.1	445053	9.4	22.0	466733	9.5	21.4
440975	9.2	20.5	405056	9.2	20.8	485404	9.3	21.2	367213	9.4	20.7	113199	9.4	19.8	270024	9.5	20.0
98508	9.2	17.9	526517	9.2	22.0	247378	9.3	19.4	179917	9.4	20.9	403567	9.4	21.0	282812	9.5	21.5
227590	9.2	20.1	402723	9.2	22.0	422417	9.3	21.2	135425	9.4	18.9	331106	9.4	20.2	288155	9.5	20.2
493250	9.2	20.8	373781	9.2	20.4	275296	9.3	21.0	201420	9.4	19.8	236087	9.4	20.1	517208	9.5	20.5
322526	9.2	21.2	232848	9.2	19.7	243584	9.3	21.1	243131	9.4	19.8	290711	9.4	20.8	358612	9.5	20.5
245757	9.2	20.0	282011	9.2	20.2	460607	9.3	21.1	350210	9.4	20.7	149620	9.4	20.0	391015	9.5	19.8
290688	9.2	20.5	83899	9.2	19.1	311638	9.3	21.3	366176	9.4	19.9	351545	9.4	17.5	128042	9.5	19.7
232674	9.2	19.8	62485	9.2	18.9	266321	9.3	20.7	113912	9.4	19.8	36649	9.4	19.7	12995	9.5	17.8
461124	9.2	22.3	234528	9.2	19.4	419313	9.3	20.3	236061	9.4	20.1	379813	9.4	20.9	310828	9.5	20.5
153828	9.2	19.7	178228	9.2	20.2	164574	9.3	20.2	359189	9.4	20.1	143341	9.4	19.3	106395	9.5	18.2
334599	9.2	20.8	488463	9.2	20.9	169258	9.3	20.4	86416	9.4	18.0	330398	9.4	20.7	132363	9.5	19.9
304817	9.2	20.0	116099	9.2	18.9	276754	9.3	19.3	189992	9.4	19.7	129211	9.4	19.1	13306	9.5	17.3
410549	9.2	20.3	104144	9.2	19.0	212127	9.3	18.9	406717	9.4	20.0	118119	9.4	20.1	377085	9.5	20.9
4913	9.2	17.0	265098	9.2	20.7	466838	9.3	20.3	106112	9.4	20.2	309860	9.4	21.0	32595	9.5	19.0
473807	9.2	19.8	451251	9.2	21.4	400870	9.3	21.8	86769	9.4	19.3	93	9.4	11.7	27509	9.5	18.3
225814	9.2	20.2	232023	9.2	18.9	287799	9.3	20.8	194460	9.4	21.2	2708	9.4	16.1	323959	9.5	20.7
488623	9.2	21.4	92331	9.2	19.8	426442	9.3	20.9	482045	9.4	20.3	188792	9.4	20.2	348221	9.5	21.0
280792	9.2	20.1	448812	9.2	20.7	96531	9.3	19.8	184146	9.4	19.5	252229	9.4	20.8	271220	9.5	20.4
341659	9.2	19.8	235487	9.2	20.8	392572	9.3	20.8	112542	9.4	18.5	324595	9.4	20.0	38295	9.5	18.1
183918	9.2	20.4	461097	9.2	20.0	23868	9.3	17.7	237217	9.4	20.0	310438	9.4	20.3	105391	9.5	18.1
349669	9.2	20.5	528285	9.2	22.4	101357	9.3	20.4	77946	9.4	19.6	142902	9.4	20.8	401936	9.5	21.1
63813	9.2	18.7	76368	9.2	18.4	160015	9.3	20.2	22794	9.4	18.5	460022	9.4	22.2	307815	9.5	21.7
196357	9.2	18.4	400102	9.2	21.7	145639	9.3	19.9	176880	9.4	20.2	521357	9.4	20.5	222442	9.5	19.5
495437	9.2	21.1	257281	9.2	19.5	293806	9.3	21.2	150019	9.4	19.6	428914	9.4	20.4	197764	9.5	20.3
294473	9.2	19.9	112273	9.2	19.7	264140	9.3	20.2	234895	9.4	20.1	209396	9.4	19.8	215261	9.5	20.6
38762	9.2	19.6	522140	9.2	21.1	424292	9.3	19.0	92886	9.4	20.0	451464	9.4	21.6	6454	9.5	18.7
827	9.2	16.4	401964	9.2	21.4	234397	9.3	19.7	36015	9.4	19.0	239667	9.4	19.3	474409	9.5	20.1
34208	9.2	19.5	285633	9.2	20.5	352919	9.3	21.4	102997	9.4	19.1	203657	9.4	19.4	449307	9.5	19.3
262137	9.2	20.3	396672	9.2	21.8	251619	9.3	19.5	445149	9.4	20.5	207667	9.4	20.5	117756	9.5	18.6
337437	9.2	19.7	326359	9.2	20.4	96646	9.3	18.3	483438	9.4	21.4	98001	9.4	20.4	59001	9.5	19.6
319853	9.2	21.0	82179	9.2	18.8	17685	9.3	18.0	485093	9.4	19.9	235732	9.4	20.0	100158	9.5	20.3
425424	9.2	20.3	490787	9.2	21.5	229939	9.3	19.9	251225	9.4	20.4	349631	9.4	20.3	379001	9.5	20.2
314209	9.2	21.2	322894	9.2	19.6	535017	9.3	22.1	392318	9.4	19.8	433643	9.4	21.1	6055	9.5	17.2
88942	9.2	19.6	250231	9.2	21.5	337927	9.3	20.6	211012	9.4	20.1	259378	9.4	18.8	232652	9.5	19.8
495807	9.2	20.8	362657	9.2	20.7	76966	9.3	19.6	361768	9.4	20.2	281476	9.4	21.5	202131	9.5	20.0
149314	9.2	19.6	455552	9.2	20.8	224783	9.3	21.3	161212	9.4	19.2	456423	9.4	21.3	230020	9.5	19.3
429350	9.2	20.8	460292	9.2	21.0	142906	9.3	20.5	297032	9.4	19.7	499962	9.4	19.7	288047	9.5	20.5
231984	9.2	20.2	313407	9.2	21.4	184385	9.3	20.3	458269	9.4	21.6	234504	9.4	19.0	110595	9.5	19.0
377334	9.2	20.7	195173	9.2	19.0	180641	9.3	19.2	162428	9.4	19.8	327559	9.4	19.8	126074	9.5	19.5
64268	9.2	19.5	492971	9.2	21.6	4422	9.3	16.0	455280	9.4	21.8	402656	9.4	21.3	455917	9.5	20.2
26434	9.2	17.9	190595	9.2	19.6	331495	9.3	21.1	169101	9.4	19.4	500302	9.4	20.6	104001	9.5	19.0
542527	9.2	20.2	316283	9.2	20.3	188198	9.3	19.9	441674	9.4	21.4	360592	9.4	20.			

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
207576	9.5	20.0	363588	9.6	19.7	543500	9.6	21.3	313223	9.7	20.4	47944	9.8	18.8	74264	9.8	19.1
343512	9.5	20.9	390611	9.6	19.8	409525	9.6	21.2	155493	9.7	19.3	489838	9.8	20.0	499390	9.8	20.6
266482	9.5	20.6	426587	9.6	20.3	440227	9.6	21.4	204341	9.7	20.8	394945	9.8	21.5	346375	9.8	20.0
260641	9.5	18.3	462504	9.6	21.9	190440	9.6	20.4	73798	9.7	19.6	176230	9.8	21.5	502269	9.8	20.5
110895	9.5	20.0	295739	9.6	21.1	73845	9.6	18.9	40352	9.7	19.5	210327	9.8	20.8	276450	9.8	19.2
91362	9.5	18.9	163526	9.6	19.5	204672	9.7	19.7	412214	9.7	20.4	453412	9.8	21.0	403632	9.8	21.5
494030	9.5	20.4	4316	9.6	16.4	171071	9.7	19.9	486843	9.7	21.4	474717	9.8	19.8	164877	9.8	19.7
294513	9.5	19.7	408556	9.6	20.6	45370	9.7	18.4	285759	9.7	20.4	293579	9.8	20.1	166936	9.8	18.9
143011	9.5	20.1	516874	9.6	21.2	66258	9.7	18.5	401896	9.7	19.0	460331	9.8	20.8	378439	9.9	21.2
91716	9.5	19.6	170071	9.6	18.9	364295	9.7	21.5	413549	9.7	21.4	56684	9.8	19.4	282017	9.9	18.8
91353	9.5	17.9	132067	9.6	19.9	241947	9.7	19.4	500773	9.7	20.8	276469	9.8	19.2	481440	9.9	21.3
502761	9.5	20.8	520871	9.6	21.6	231973	9.7	19.0	236591	9.7	19.7	208483	9.8	21.1	414552	9.9	21.8
468718	9.5	20.2	143085	9.6	19.7	54738	9.7	18.1	383359	9.7	21.1	61986	9.8	17.7	386615	9.9	21.3
181638	9.5	20.5	214608	9.6	20.2	253219	9.7	19.0	32103	9.7	18.9	495741	9.8	21.3	493163	9.9	21.0
474059	9.5	20.8	421412	9.6	20.3	496587	9.7	20.8	108323	9.7	18.1	150205	9.8	20.3	427175	9.9	20.7
203815	9.5	20.3	266989	9.6	20.2	431594	9.7	21.7	23243	9.7	18.9	193912	9.8	19.7	54919	9.9	18.5
186150	9.5	20.4	149220	9.6	19.4	291890	9.7	20.8	59384	9.7	18.4	424805	9.8	20.9	496252	9.9	21.1
44885	9.5	19.5	422481	9.6	20.1	116581	9.7	18.3	259008	9.7	20.2	423073	9.8	21.0	245449	9.9	20.1
287141	9.5	20.6	341097	9.6	20.0	331172	9.7	20.7	333719	9.7	21.5	401541	9.8	20.0	464462	9.9	19.9
83544	9.5	18.7	423095	9.6	21.2	71831	9.7	18.3	125325	9.7	19.5	161914	9.8	20.5	543107	9.9	21.1
249118	9.5	21.7	245980	9.6	21.2	19093	9.7	18.3	357407	9.7	18.6	448461	9.8	19.7	187301	9.9	19.9
171137	9.5	18.7	404653	9.6	21.2	359637	9.7	20.8	117887	9.7	20.0	15236	9.8	17.9	43865	9.9	19.5
286946	9.5	21.3	405752	9.6	22.1	84398	9.7	18.8	484600	9.7	21.5	385920	9.8	21.6	480132	9.9	21.1
481439	9.5	21.2	226687	9.6	19.0	229944	9.7	18.6	380956	9.7	19.8	506506	9.8	20.3	452191	9.9	21.7
81804	9.5	19.0	441189	9.6	21.5	401921	9.7	21.5	215624	9.7	19.2	196989	9.8	19.2	505630	9.9	20.8
126083	9.5	19.1	270812	9.6	19.9	358594	9.7	21.0	110596	9.7	19.3	44050	9.8	17.4	541739	9.9	20.7
466732	9.5	19.5	513817	9.6	20.6	187157	9.7	21.1	36	9.7	12.6	177367	9.8	19.7	84807	9.9	18.2
28654	9.5	19.6	425507	9.6	20.0	27008	9.7	18.1	219401	9.7	20.7	108607	9.8	19.5	336495	9.9	19.6
188898	9.5	19.5	219382	9.6	20.1	96131	9.7	18.7	230744	9.7	19.6	235418	9.8	19.8	26423	9.9	18.8
268110	9.5	18.8	191960	9.6	19.1	80880	9.7	19.5	268082	9.7	21.7	252563	9.8	20.7	252540	9.9	19.3
53119	9.5	18.2	489247	9.6	21.2	380477	9.7	20.6	150753	9.7	20.7	448149	9.8	21.5	224013	9.9	19.9
103335	9.5	18.1	321647	9.6	19.8	135940	9.7	20.3	414738	9.7	19.0	101101	9.8	20.0	449723	9.9	21.0
88394	9.5	19.4	424252	9.6	20.1	335323	9.7	19.6	29710	9.7	18.2	492031	9.8	21.2	103979	9.9	19.2
11065	9.5	17.0	464204	9.6	21.0	82165	9.7	19.2	319826	9.7	21.3	85802	9.8	18.9	393695	9.9	21.1
450780	9.5	22.3	45844	9.6	18.3	364263	9.7	20.6	124886	9.7	17.7	248998	9.8	19.4	535666	9.9	20.3
418864	9.5	20.4	409697	9.6	20.9	426927	9.7	20.2	287874	9.7	21.1	313509	9.8	21.0	422252	9.9	19.6
440152	9.5	20.5	83498	9.6	18.6	45553	9.7	18.8	455874	9.7	20.4	157176	9.8	20.5	471512	9.9	22.6
136554	9.5	20.6	178034	9.6	20.4	364409	9.7	20.4	40995	9.7	19.2	226113	9.8	20.1	494102	9.9	21.4
457144	9.5	20.7	377926	9.6	20.7	182440	9.7	19.7	78796	9.7	18.8	426258	9.8	19.8	80641	9.9	18.6
394514	9.5	21.1	522501	9.6	21.5	462071	9.7	20.9	494123	9.7	20.6	202512	9.8	20.5	8594	9.9	17.4
88594	9.5	19.4	182474	9.6	20.6	490365	9.7	20.8	18613	9.7	19.1	113361	9.8	19.2	333714	9.9	21.3
532317	9.5	21.1	174383	9.6	20.3	462449	9.7	20.6	474480	9.7	21.6	217386	9.8	19.6	339666	9.9	19.9
392299	9.5	19.7	328400	9.6	19.9	226919	9.7	20.7	56764	9.7	18.8	186632	9.8	19.9	86871	9.9	19.4
322853	9.5	20.3	82733	9.6	19.6	389596	9.7	20.1	522298	9.7	21.0	164914	9.8	20.0	228238	9.9	20.1
84643	9.5	19.2	155634	9.6	19.8	481337	9.7	20.1	282531	9.7	20.4	375630	9.8	20.3	11942	9.9	17.7
228970	9.5	19.6	146670	9.6	19.3	28479	9.7	17.3	410464	9.7	19.6	496	9.8	14.0	101758	9.9	18.2
50595	9.5	18.9	487801	9.6	20.9	246687	9.7	20.4	486127	9.7	21.2	1962	9.8	17.2	207867	9.9	20.3
324656	9.5	19.2	427386	9.6	19.8	278967	9.7	20.9	271149	9.7	20.4	167639	9.8	20.0	252062	9.9	20.1
400108	9.5	21.5	78548	9.6	19.4	214935	9.7	19.7	490781	9.7	21.6	86979	9.8	18.5	495156	9.9	20.1
68839	9.6	19.6	109978	9.6	19.6	534278	9.7	22.1	424797	9.7	21.4	425961	9.8	20.9	418783	9.9	20.6
309480	9.6	20.3	460808	9.6	21.4	456000	9.7	20.8	20026	9.8	18.2	277326	9.8	20.5	296484	9.9	20.5
148871	9.6	19.9	56245	9.6	18.1	456300	9.7	22.1	321404	9.8	20.0	31178	9.8	18.1	428167	9.9	21.1
27356	9.6	19.0	231193	9.6	19.3	273079	9.7	20.8	394131	9.8	20.7	245921	9.8	21.2	246209	9.9	19.7
409827	9.6	21.2	419923	9.6	20.1	126162	9.7	18.2	190753	9.8	19.6	135164	9.8	19.7	438714	9.9	21.5
279927	9.6	19.9	83580	9.6	19.0	375635	9.7	21.5	467405	9.8	21.0	200747	9.8	21.1	333724	9.9	20.9
282689	9.6	20.1	173236	9.6	19.9	486214	9.7	20.7	4330	9.8	16.6	447867	9.8	19.9	90538	9.9	18.7
50980	9.6	18.0	455241	9.6	21.8	522667	9.7	21.0	89703	9.8	19.7	478446	9.8	21.3	119842	9.9	19.2
522226	9.6	20.9	221219	9.6	20.4	221230	9.7	20.4	278600	9.8	20.8	43286	9.8	18.1	316254	9.9	20.5
484601	9.6	22.0	493868	9.6	20.9	154584	9.7	20.2	236091	9.8	20.3	427798	9.8	20.9	382686	9.9	21.3
322050	9.6	20.8	492056	9.6	21.2	459240	9.7	19.9	278876	9.8	21.1	197241	9.8	20.2	377052	9.9	20.5
194531	9.6	19.4	450004	9.6	20.7	372294	9.7	21.2	390858	9.8	19.8	336694	9.8	20.2	526610	9.9	21.7
447914	9.6	21.2	196360	9.6	19.6	317009	9.7	21.2	32821	9.8	19.0	212330	9.8	20.6	2888	9.9	15.3
114839	9.6	19.9	421670	9.6	20.6	87276	9.7	18.7	84056	9.8	19.8	327426	9.8	21.2	281282	9.9	20.6
287254	9.6	21.1	372885	9.6	20.6	61685	9.7	19.5	108708	9.8	19.3	535023	9.8	22.3	423892	9.9	20.6
52392	9.6	18.5	302923	9.6	22.3	88116	9.7	19.8	185615	9.8	18.4	254028	9.8	19.5	412433	9.9	19.9
461064	9.6	21.9	284138	9.6	19.5	532555	9.7	21.8	88418	9.8	19.4	168243	9.8	19.6	450920	9.9	21.0
415101	9.6	20.3	500053	9.6	21.9	467603	9.7	21.2	247399	9.8	19.9	386926	9.8	20.0	305237	9.9	20.8
265904	9.6	20.6	489778	9.6	20.1	193429	9.7	18.7	109528	9.8	19.9	507289	9.8	20.4	165710	9.9	19.6
54167	9.6	18.8	50750	9.6	19.0	135327	9.7	19.5	214823	9.8	20.4	108139	9.8	19.3	407525	9.9	21.0
61488	9.6	18.7	96640	9.6	17.7	409585	9.7	20.9	128550	9.8	20.7	440171	9.8	20.5	345900	9.9	20.5
51414	9.6	18.6	10471	9.6	18.6	421216	9.7	20.7	14544	9.8	17.7	516654	9.8	21.5	231105		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
134960	9.9	18.9	249525	9.9	20.0	91104	10.0	19.7	543918	10.1	21.5	108929	10.2	19.1	149477	10.3	18.6
55154	9.9	18.8	538018	9.9	19.9	115304	10.0	19.2	62238	10.1	19.8	67444	10.2	20.1	450840	10.3	22.0
275948	9.9	20.7	415774	9.9	21.4	263021	10.0	19.5	315813	10.1	20.5	231836	10.2	20.1	406065	10.3	21.6
120668	9.9	20.0	368075	9.9	20.5	477265	10.0	21.1	334880	10.1	20.4	240921	10.2	19.8	10465	10.3	17.2
335939	9.9	20.7	397180	9.9	20.6	188999	10.0	19.7	234415	10.1	20.1	450861	10.2	20.3	246143	10.3	20.9
181565	9.9	20.1	219871	9.9	19.7	43042	10.0	18.8	139524	10.1	19.4	164964	10.2	19.3	135382	10.3	19.0
465278	9.9	21.1	477365	9.9	19.5	520818	10.0	20.9	310831	10.1	20.8	482864	10.2	20.3	332258	10.3	21.6
123262	9.9	20.0	336884	9.9	20.7	251210	10.0	19.6	26330	10.1	19.2	460694	10.2	20.4	111184	10.3	19.8
184778	9.9	19.7	238343	9.9	19.0	132741	10.0	19.6	413529	10.1	20.4	104719	10.2	19.8	287084	10.3	21.2
427155	9.9	20.6	383673	9.9	21.0	458514	10.0	21.2	292474	10.1	21.2	298321	10.2	20.0	318824	10.3	20.6
163407	9.9	18.8	158661	9.9	19.0	541086	10.0	21.0	343797	10.1	19.5	120880	10.2	19.9	541712	10.3	20.6
85187	9.9	19.0	306440	9.9	20.2	422911	10.1	21.9	444858	10.1	21.7	43916	10.2	17.5	280957	10.3	20.2
543771	9.9	20.0	451509	9.9	19.9	226186	10.1	20.3	338290	10.1	19.4	433617	10.2	20.5	492645	10.3	21.3
12205	9.9	17.8	274632	9.9	20.4	394082	10.1	20.5	51786	10.1	18.5	319783	10.2	20.0	283375	10.3	19.9
260754	9.9	21.3	172220	9.9	20.0	233141	10.1	19.5	541697	10.1	21.1	401881	10.2	20.7	187791	10.3	19.4
475297	9.9	20.8	401863	9.9	21.8	147831	10.1	20.3	450307	10.1	21.0	88442	10.2	18.9	450114	10.3	21.7
13107	9.9	18.3	390862	9.9	20.7	277201	10.1	20.7	334068	10.1	20.6	135336	10.2	19.7	268240	10.3	21.2
368588	9.9	20.2	453020	9.9	21.5	76423	10.1	18.6	303028	10.1	19.2	391465	10.2	20.0	38026	10.3	17.3
246871	9.9	21.1	447856	9.9	20.8	7414	10.1	18.4	30840	10.1	16.4	484699	10.2	20.8	424730	10.3	21.6
154326	9.9	20.7	386884	9.9	21.0	254746	10.1	20.1	226635	10.1	19.3	479807	10.2	20.7	232086	10.3	19.3
491317	9.9	20.8	148175	9.9	19.8	447832	10.1	21.1	202652	10.1	19.6	437150	10.2	21.1	453974	10.3	20.5
195700	9.9	19.6	496192	10.0	20.3	158392	10.1	20.8	292773	10.1	19.7	35427	10.2	17.0	468095	10.3	20.7
4021	9.9	17.0	245621	10.0	19.6	13656	10.1	17.3	398151	10.1	20.5	408811	10.2	21.6	181532	10.3	20.4
361596	9.9	20.7	366343	10.0	22.4	531290	10.1	20.6	397906	10.1	19.8	417484	10.2	20.2	89057	10.3	18.3
438885	9.9	21.1	196923	10.0	19.8	177193	10.1	20.3	475877	10.1	20.4	415427	10.2	20.5	421299	10.3	20.8
7067	9.9	16.5	283978	10.0	20.8	163471	10.1	19.7	490345	10.1	20.4	10793	10.2	17.7	213728	10.3	20.5
158850	9.9	19.5	402713	10.0	20.5	389306	10.1	20.4	357659	10.1	20.2	419285	10.2	21.6	375606	10.3	20.3
193357	9.9	19.7	373670	10.0	21.0	148369	10.1	20.0	373806	10.1	20.4	339557	10.2	20.8	241840	10.3	19.1
361422	9.9	20.5	87009	10.0	19.5	67307	10.1	19.3	210234	10.1	20.6	540155	10.2	21.9	389597	10.3	20.2
240910	9.9	19.3	48320	10.0	20.2	79255	10.1	19.1	89059	10.1	18.2	494736	10.2	21.2	453889	10.3	20.3
109055	9.9	19.7	95179	10.0	20.3	491447	10.1	21.3	382147	10.1	20.9	310779	10.2	20.6	245932	10.3	20.6
85450	9.9	19.6	214614	10.0	20.8	307303	10.1	21.4	256495	10.1	19.7	543357	10.2	20.8	363106	10.3	21.2
490818	9.9	20.4	384740	10.0	20.5	302029	10.1	21.5	286968	10.1	21.1	22448	10.2	18.0	49940	10.3	18.4
162468	9.9	19.7	79803	10.0	18.4	65694	10.1	19.5	226702	10.1	20.9	43779	10.2	19.6	108356	10.3	19.8
211585	9.9	20.2	255014	10.0	20.3	129682	10.1	20.2	72818	10.1	17.7	543757	10.2	20.9	541766	10.3	21.2
601	9.9	14.5	123657	10.0	18.9	134443	10.1	20.4	106618	10.1	18.7	137205	10.2	20.0	424366	10.3	21.5
527506	9.9	22.0	163600	10.0	19.6	288160	10.1	19.8	109187	10.1	18.9	35385	10.2	19.3	314838	10.3	20.7
238549	9.9	20.3	82710	10.0	19.0	151923	10.1	19.7	179624	10.1	20.0	246965	10.2	19.8	98008	10.3	20.3
337869	9.9	20.5	133881	10.0	20.3	161291	10.1	20.0	428846	10.1	20.7	233017	10.2	20.0	256267	10.3	20.5
111943	9.9	20.1	422410	10.0	20.5	15883	10.1	23.8	55466	10.1	17.8	17486	10.2	19.1	196746	10.3	19.7
12229	9.9	16.8	148962	10.0	19.0	159979	10.1	20.3	431582	10.1	20.7	197377	10.2	19.3	532061	10.3	21.4
157457	9.9	19.8	370591	10.0	20.9	20761	10.1	17.3	241957	10.2	19.3	494881	10.2	21.7	368973	10.3	19.4
518463	9.9	22.6	115518	10.0	19.7	288323	10.1	20.1	235588	10.2	20.1	449956	10.2	21.7	186159	10.3	20.6
320011	9.9	19.9	73401	10.0	19.1	189658	10.1	20.5	394512	10.2	22.4	340595	10.2	20.8	375591	10.3	21.1
332668	9.9	20.4	123169	10.0	19.8	544667	10.1	20.7	192011	10.2	19.3	447839	10.2	21.0	25271	10.3	18.6
74660	9.9	18.3	163625	10.0	19.9	332654	10.1	21.2	176855	10.2	20.6	270755	10.2	20.7	379062	10.3	20.7
195572	9.9	20.9	379807	10.0	20.4	452335	10.1	21.4	388476	10.2	20.6	404228	10.2	20.0	400880	10.3	21.7
134435	9.9	20.5	26058	10.0	18.6	164616	10.1	19.9	81501	10.2	19.1	433777	10.2	20.2	414510	10.3	19.5
144563	9.9	18.3	280349	10.0	19.0	221941	10.1	20.3	544048	10.2	20.8	324059	10.2	21.1	511514	10.3	20.8
363513	9.9	19.2	237546	10.0	19.2	357276	10.1	19.2	264457	10.2	20.0	282634	10.2	19.3	239292	10.3	20.7
237623	9.9	19.8	394076	10.0	20.4	358341	10.1	21.1	326465	10.2	20.5	371222	10.2	20.6	486139	10.3	20.8
246658	9.9	19.7	237646	10.0	20.3	102636	10.1	17.8	408250	10.2	19.6	282118	10.2	18.5	252496	10.3	19.0
91359	9.9	19.1	193424	10.0	20.0	370502	10.1	21.7	179214	10.2	20.3	89611	10.2	19.3	521664	10.3	21.0
115451	9.9	18.9	543562	10.0	21.2	452891	10.1	21.0	59375	10.2	19.4	147311	10.2	20.7	541795	10.3	21.6
3933	9.9	17.2	452401	10.0	21.5	393988	10.1	20.1	369417	10.2	21.0	116629	10.2	19.0	85911	10.3	18.4
249694	9.9	19.6	454192	10.0	19.4	234594	10.1	19.6	255405	10.2	20.0	464241	10.2	20.0	180873	10.3	19.1
374210	9.9	20.3	529267	10.0	21.4	415707	10.1	21.6	248294	10.2	20.9	340757	10.2	21.7	418788	10.3	20.5
414201	9.9	20.3	3525	10.0	16.2	37038	10.1	19.2	409265	10.2	21.3	492175	10.2	21.0	84493	10.3	19.1
84302	9.9	18.5	217575	10.0	20.1	286902	10.1	20.7	292806	10.2	20.2	347079	10.2	20.1	366916	10.3	20.0
248279	9.9	21.3	285885	10.0	19.9	72644	10.1	18.5	201471	10.2	20.0	109230	10.2	19.0	243150	10.3	19.9
226706	9.9	20.7	29555	10.0	17.3	124404	10.1	20.3	220297	10.2	19.7	68410	10.2	19.3	132867	10.3	19.8
223057	9.9	19.0	285254	10.0	20.5	311295	10.1	20.2	78652	10.2	18.9	234926	10.2	20.3	347358	10.3	20.6
226877	9.9	20.4	348564	10.0	21.3	398822	10.1	20.3	327825	10.2	20.6	67520	10.2	19.0	290395	10.3	20.4
446849	9.9	20.3	179599	10.0	20.1	301965	10.1	18.6	218634	10.2	20.3	368557	10.2	20.5	409535	10.3	20.8
460353	9.9	21.6	458502	10.0	20.2	176010	10.1	20.0	142661	10.2	19.5	488420	10.2	20.8	54788	10.3	19.4
32531	9.9	17.2	309462	10.0	20.8	221157	10.1	19.7	483670	10.2	21.0	531531	10.2	20.9	52758	10.3	19.7
438432	9.9	22.1	20307	10.0	18.6	395812	10.1	20.5	366274	10.2	20.8	537874	10.2	21.1	139927	10.3	19.4
227799	9.9	19.8	502297	10.0	20.8	277187	10.1	20.5	422449	10.2	21.1	77716	10.2	17.9	279755	10.3	20.3
465582	9.9	20.7	365560	10.0	20.6	344366	10.1	20.8	491155	10.2	21.5	249893	10.2	19.7	148603		

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
81589	10.3	19.6	336004	10.4	21.0	394857	10.5	21.2	423126	10.5	20.2	283938	10.6	20.3	17318	10.7	18.3
486938	10.3	20.9	465459	10.4	21.4	373718	10.5	21.3	345325	10.5	20.0	254753	10.6	20.3	113562	10.7	19.3
51837	10.3	19.2	244711	10.4	20.7	278064	10.5	19.7	241839	10.5	19.7	347024	10.6	18.8	502419	10.7	20.7
47817	10.3	18.6	69125	10.4	20.1	259100	10.5	20.3	46241	10.5	18.7	368650	10.6	20.1	519602	10.7	20.1
222326	10.3	20.7	11865	10.4	17.3	519514	10.5	21.4	231067	10.5	20.5	51027	10.6	18.3	257349	10.7	20.3
113349	10.3	20.1	33660	10.4	17.5	458282	10.5	20.8	145296	10.5	19.6	369569	10.6	20.4	406641	10.7	20.3
117640	10.3	19.9	325332	10.4	20.3	373671	10.5	21.6	502150	10.5	20.0	543564	10.6	20.2	335272	10.7	20.6
119629	10.3	20.5	516689	10.4	20.8	132734	10.5	19.7	176800	10.5	20.5	45794	10.6	18.9	461228	10.7	21.2
243611	10.3	20.3	165686	10.4	20.8	465547	10.5	20.8	357424	10.5	20.4	406225	10.6	21.5	304833	10.7	20.2
464506	10.3	21.3	366752	10.4	20.9	41630	10.5	18.0	240975	10.5	20.4	312261	10.6	20.6	309906	10.7	20.4
479924	10.3	21.3	277294	10.4	20.7	333756	10.5	20.2	294077	10.5	20.2	130817	10.6	19.9	407341	10.7	21.4
21977	10.3	16.6	496193	10.4	21.4	74179	10.5	17.5	71367	10.5	16.8	461894	10.6	20.4	61084	10.7	18.6
345231	10.3	20.7	423078	10.4	21.2	450772	10.5	22.5	95969	10.5	20.0	373932	10.6	20.6	24374	10.7	17.7
343968	10.3	21.0	318995	10.4	20.2	212134	10.5	20.1	288585	10.5	20.1	193979	10.6	20.3	279921	10.7	20.5
538016	10.3	20.8	155151	10.4	20.0	541169	10.5	19.9	451642	10.6	20.2	308220	10.6	19.6	9551	10.7	20.4
415549	10.3	20.0	447803	10.4	22.2	266933	10.5	21.1	451550	10.6	20.3	136048	10.6	19.2	286480	10.7	20.2
378419	10.3	21.3	276702	10.4	20.3	267337	10.5	20.0	133763	10.6	20.4	393289	10.6	20.4	81939	10.7	19.3
293546	10.3	20.6	488469	10.4	21.4	40565	10.5	18.4	157987	10.6	19.0	252420	10.6	20.2	146712	10.7	19.1
132796	10.3	19.8	78616	10.4	19.2	309359	10.5	19.9	238063	10.6	20.1	90879	10.6	18.8	444217	10.7	20.7
457555	10.3	21.2	1193	10.4	15.3	245827	10.5	20.1	464563	10.6	20.5	76801	10.6	17.0	100670	10.7	19.3
201227	10.3	20.5	50115	10.4	18.3	482041	10.5	21.0	251631	10.6	20.4	377217	10.6	18.8	269489	10.7	19.4
119071	10.3	19.3	208813	10.4	20.6	145470	10.5	19.9	454495	10.6	20.7	314739	10.6	21.2	517017	10.7	20.9
353061	10.3	19.8	182470	10.4	20.3	53484	10.5	18.3	347606	10.6	21.0	9980	10.6	17.5	65999	10.7	20.2
39939	10.3	18.4	183947	10.4	19.3	98074	10.5	19.0	49795	10.6	17.0	333370	10.6	20.1	290516	10.7	21.0
116417	10.3	19.3	24830	10.4	18.1	395435	10.5	21.8	92832	10.6	19.5	145414	10.6	19.9	111990	10.7	19.6
176247	10.3	20.3	143947	10.4	20.7	376359	10.5	19.6	446300	10.6	20.7	212939	10.6	19.6	543115	10.7	21.8
250648	10.3	19.4	452419	10.4	21.1	317024	10.5	21.6	371733	10.6	20.1	404638	10.6	21.4	110283	10.7	19.2
88024	10.3	20.1	146816	10.4	19.8	46463	10.5	18.4	366920	10.6	20.6	187289	10.6	20.1	402363	10.7	20.2
3883	10.3	15.7	104945	10.4	20.0	483663	10.5	20.1	388979	10.6	20.3	200719	10.6	20.1	7835	10.7	16.6
255783	10.3	20.4	313403	10.4	21.6	12233	10.5	18.5	226420	10.6	20.8	378965	10.6	20.3	302423	10.7	20.5
171904	10.3	20.8	352644	10.4	21.2	166893	10.5	19.5	222099	10.6	20.3	518486	10.6	20.9	273210	10.7	20.5
456084	10.3	21.1	226205	10.4	20.2	456543	10.5	21.0	176353	10.6	19.5	382004	10.6	23.2	146393	10.7	20.1
239764	10.3	19.2	372530	10.4	20.9	318709	10.5	20.8	283289	10.6	21.0	207053	10.6	19.2	45658	10.7	18.4
235532	10.3	18.9	352901	10.4	21.2	396902	10.5	20.2	269145	10.6	20.9	178322	10.6	19.8	279968	10.7	21.0
186891	10.3	19.2	349744	10.4	20.0	294631	10.5	19.9	165813	10.6	19.8	37724	10.6	19.2	364209	10.7	21.6
460265	10.3	21.2	351281	10.4	21.3	229651	10.5	19.9	154400	10.6	19.1	458031	10.6	21.1	262844	10.7	20.0
318705	10.3	20.5	228482	10.4	20.2	344879	10.5	20.4	314918	10.6	20.1	317184	10.6	20.3	372212	10.7	20.4
205934	10.3	19.3	251184	10.4	19.4	399448	10.5	20.3	214004	10.6	18.9	110432	10.6	19.4	455812	10.7	21.4
289718	10.3	20.8	543079	10.4	21.0	362563	10.5	21.2	36409	10.6	18.7	461467	10.6	20.3	241117	10.7	20.7
467590	10.3	20.9	400388	10.4	20.4	158651	10.5	18.7	132023	10.6	18.3	366744	10.6	20.6	168716	10.7	20.4
243367	10.3	20.4	440334	10.4	21.6	535778	10.5	20.7	464317	10.6	20.8	464555	10.6	20.9	448168	10.7	20.9
328685	10.3	20.9	264424	10.4	21.8	188686	10.5	19.9	145571	10.6	20.5	440156	10.6	21.8	455693	10.7	20.2
366952	10.3	20.3	146394	10.4	19.6	487599	10.5	20.7	335982	10.6	20.5	41083	10.6	17.0	496594	10.7	20.7
430254	10.3	20.7	165909	10.4	19.2	174911	10.5	20.1	204356	10.6	19.9	511562	10.6	20.7	366220	10.7	20.8
81967	10.3	19.4	64318	10.4	19.6	423808	10.5	20.9	46530	10.6	18.7	379912	10.6	20.3	261146	10.7	20.1
150584	10.3	19.6	502754	10.4	20.8	109590	10.5	19.9	122943	10.6	20.0	274275	10.6	20.6	323794	10.7	20.2
233129	10.4	20.5	252498	10.4	20.6	56939	10.5	19.4	145911	10.6	17.7	82008	10.6	19.8	451548	10.7	21.4
5899	10.4	17.0	166856	10.4	20.4	142348	10.5	19.6	346510	10.6	21.1	227827	10.6	19.1	455016	10.7	20.7
89827	10.4	19.6	544297	10.4	21.6	399994	10.5	20.5	405611	10.6	20.8	407885	10.6	21.0	466959	10.7	20.3
327415	10.4	20.4	77893	10.4	19.7	82763	10.5	19.2	405682	10.6	20.6	466208	10.6	21.1	410613	10.7	19.3
119239	10.4	18.9	266690	10.4	20.8	241577	10.5	20.0	39010	10.6	18.8	267934	10.6	19.7	190094	10.7	20.5
190961	10.4	19.6	110495	10.4	18.8	180523	10.5	19.6	365464	10.6	20.7	148317	10.6	20.1	197993	10.7	20.8
364824	10.4	20.5	503383	10.4	20.2	110169	10.5	19.8	333890	10.6	20.7	339740	10.6	20.3	178839	10.7	19.4
288256	10.4	19.5	456242	10.4	21.3	535861	10.5	21.1	84632	10.6	18.3	280715	10.6	20.5	489971	10.7	20.7
194008	10.4	21.1	49874	10.4	18.5	293718	10.5	21.1	223583	10.6	18.9	57146	10.6	18.7	365538	10.7	20.9
223794	10.4	19.5	409472	10.4	19.9	339798	10.5	20.7	2468	10.6	16.5	270806	10.6	20.2	127491	10.7	19.6
462369	10.4	21.0	240254	10.4	21.7	212895	10.5	19.9	433806	10.6	19.9	486511	10.6	20.2	155688	10.7	19.9
23550	10.4	16.7	180660	10.4	19.4	253171	10.5	20.8	234520	10.6	19.2	168295	10.6	20.3	228799	10.7	19.4
194987	10.4	20.0	5997	10.4	17.2	490491	10.5	22.1	77938	10.6	19.7	428089	10.6	20.0	506501	10.7	20.2
334961	10.4	19.7	132071	10.4	18.8	518668	10.5	20.6	160654	10.6	19.4	84843	10.6	19.5	400170	10.7	21.4
462048	10.4	20.7	429929	10.4	21.1	396580	10.5	21.5	418395	10.6	21.0	290486	10.6	20.5	186162	10.7	20.3
369768	10.4	21.0	263403	10.4	19.7	239287	10.5	20.1	492521	10.6	20.7	135163	10.6	20.2	456541	10.7	19.7
424284	10.4	21.8	433719	10.4	20.5	490368	10.5	20.2	267892	10.6	19.9	375086	10.7	21.4	292500	10.7	21.0
266764	10.4	20.0	85437	10.4	18.0	295291	10.5	20.0	236082	10.6	19.3	163821	10.7	20.2	473301	10.7	21.1
210805	10.4	19.3	314806	10.4	20.6	366898	10.5	20.5	153408	10.6	19.2	238877	10.7	19.2	125115	10.7	17.7
25795	10.4	19.7	66540	10.4	19.4	518644	10.5	21.9	422935	10.6	20.7	298355	10.7	19.4	394402	10.7	19.6
113587	10.4	20.3	215307	10.5	20.2	90958	10.5	19.7	275688	10.6	20.6	53723	10.7	18.8	488973	10.7	21.4
389382	10.4	19.5	393189	10.5	19.9	132877	10.5	19.5	301926	10.6	19.7	359788	10.7	19.9	439675	10.7	21.2
276321	10.4	20.6	363545	10.5	19.7	234											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
228236	10.7	20.8	265232	10.8	18.4	301949	10.8	20.3	174389	10.9	20.5	147074	10.9	19.9	171528	11.0	19.1
460785	10.7	20.9	460633	10.8	21.5	198798	10.8	19.3	399513	10.9	21.1	433108	10.9	20.9	108498	11.0	19.0
183330	10.7	20.2	425392	10.8	20.0	489837	10.8	21.1	452773	10.9	20.3	119689	10.9	18.3	226177	11.0	20.3
27887	10.7	16.9	395801	10.8	20.3	262978	10.8	20.3	18177	10.9	18.0	448921	10.9	20.2	181559	11.0	19.4
55059	10.7	17.8	496937	10.8	22.3	47481	10.8	17.9	109451	10.9	20.2	6950	10.9	16.2	489456	11.0	21.0
64362	10.7	18.7	153146	10.8	19.7	301883	10.8	18.3	459580	10.9	20.4	79862	10.9	18.5	170522	11.0	18.6
407837	10.7	20.1	492564	10.8	21.1	61308	10.8	19.5	36894	10.9	19.2	8572	10.9	18.5	530537	11.0	20.9
507262	10.7	19.8	340580	10.8	20.7	421615	10.9	20.3	490906	10.9	20.9	179103	10.9	19.3	23006	11.0	18.6
139772	10.7	19.1	330509	10.8	21.2	209620	10.9	20.0	489440	10.9	21.9	381340	10.9	20.3	142680	11.0	19.4
202504	10.7	18.9	232073	10.8	21.2	543780	10.9	21.0	74552	10.9	19.7	110263	10.9	20.1	37600	11.0	18.5
275767	10.7	20.8	201180	10.8	20.3	58571	10.9	17.5	467154	10.9	20.3	528710	10.9	20.5	39722	11.0	19.1
270038	10.7	20.5	159121	10.8	20.3	460619	10.9	20.8	467132	10.9	20.3	412137	10.9	21.1	135757	11.0	21.0
191205	10.7	20.5	433519	10.8	20.5	154829	10.9	19.8	24041	10.9	19.0	399790	10.9	21.1	445944	11.0	21.2
280014	10.7	21.0	521584	10.8	21.1	133430	10.9	19.5	173436	10.9	19.6	310843	10.9	18.9	32169	11.0	18.1
104970	10.7	18.8	200560	10.8	19.7	55403	10.9	18.0	258296	10.9	21.7	88961	10.9	19.0	84201	11.0	19.8
542081	10.7	20.4	33579	10.8	17.2	428850	10.9	20.5	372116	10.9	20.5	433716	10.9	20.7	72995	11.0	18.1
4782	10.7	16.5	409490	10.8	20.9	323960	10.9	20.5	424658	10.9	21.2	234457	10.9	20.5	170810	11.0	19.2
413494	10.7	21.8	372196	10.8	21.1	183660	10.9	20.1	234475	10.9	19.8	185197	10.9	20.3	364159	11.0	21.4
370333	10.7	20.6	199351	10.8	18.8	245615	10.9	19.8	129956	10.9	20.2	538564	10.9	20.8	156450	11.0	20.8
100444	10.7	19.9	221382	10.8	20.8	451970	10.9	20.5	144273	10.9	18.2	88523	10.9	20.0	369147	11.0	20.6
157980	10.7	19.8	162171	10.8	19.2	218847	10.9	18.9	465281	10.9	21.7	526512	10.9	21.8	347706	11.0	21.4
196848	10.7	19.8	493132	10.8	21.1	92509	10.9	19.8	281349	10.9	21.1	89272	10.9	19.2	440132	11.0	21.6
46886	10.7	19.2	194887	10.8	20.3	109369	10.9	19.3	404639	10.9	19.8	95521	10.9	19.5	216793	11.0	20.5
38883	10.7	19.3	455331	10.8	22.3	55935	10.9	17.8	150532	10.9	19.8	151205	10.9	20.2	62090	11.0	20.1
314922	10.7	19.6	278031	10.8	20.3	542776	10.9	21.1	198873	10.9	19.4	323927	10.9	20.5	220947	11.0	20.5
142277	10.7	20.1	23421	10.8	18.7	309325	10.9	19.8	422926	10.9	22.1	247044	10.9	20.2	325260	11.0	21.0
173207	10.7	19.5	401986	10.8	21.3	440124	10.9	21.7	325424	10.9	20.2	17603	10.9	18.6	60792	11.0	19.9
18694	10.7	17.0	400097	10.8	21.7	490435	10.9	21.3	309496	10.9	19.3	410596	10.9	21.2	43874	11.1	19.7
411886	10.7	21.0	200393	10.8	19.9	49816	10.9	17.3	406739	10.9	20.2	377249	10.9	19.9	271717	11.1	19.4
293647	10.7	20.2	63862	10.8	19.4	282495	10.9	20.3	466490	10.9	20.9	201191	10.9	19.8	466768	11.1	20.9
413040	10.7	21.1	27190	10.8	17.7	455254	10.9	21.3	286963	10.9	20.7	408394	10.9	20.3	422632	11.1	20.6
305096	10.7	19.6	65079	10.8	18.5	97508	10.9	19.2	91008	10.9	20.1	294335	10.9	19.3	75342	11.1	18.8
447824	10.7	21.1	110132	10.8	19.2	443437	10.9	21.5	494582	10.9	20.4	185168	10.9	19.6	542153	11.1	22.2
399030	10.7	20.0	135675	10.8	19.9	304794	10.9	21.4	442660	10.9	21.3	414936	10.9	21.5	544525	11.1	21.7
313493	10.7	20.7	121275	10.8	19.7	131500	10.9	19.2	337746	10.9	20.9	499401	10.9	20.8	243377	11.1	20.9
116802	10.8	19.0	248843	10.8	21.4	85079	10.9	19.4	11255	10.9	17.0	422415	10.9	21.0	438184	11.1	21.3
14934	10.8	17.0	101978	10.8	19.2	495862	10.9	21.1	531299	10.9	21.4	359548	10.9	20.9	400119	11.1	21.8
451608	10.8	19.3	49578	10.8	17.5	87839	10.9	19.7	23972	10.9	17.7	399286	10.9	20.9	79947	11.1	18.3
535731	10.8	20.2	207436	10.8	20.7	114347	10.9	18.9	163211	10.9	19.6	364926	10.9	20.5	252572	11.1	20.8
451950	10.8	20.9	111261	10.8	18.9	446382	10.9	20.1	431498	10.9	20.7	235624	10.9	19.8	226935	11.1	20.4
155001	10.8	19.9	74253	10.8	17.6	367662	10.9	21.0	488764	10.9	22.7	403047	10.9	19.7	459340	11.1	20.6
165934	10.8	19.7	206782	10.8	19.5	234179	10.9	19.4	329410	10.9	20.6	30736	10.9	19.0	301138	11.1	19.7
127978	10.8	19.7	185934	10.8	20.2	86445	10.9	18.8	116485	10.9	18.5	481244	10.9	21.1	379776	11.1	21.2
5621	10.8	16.9	274824	10.8	20.8	142421	10.9	19.0	113948	10.9	20.3	290458	10.9	20.4	66046	11.1	18.5
6867	10.8	16.0	219469	10.8	19.5	372001	10.9	21.3	444717	10.9	19.4	287896	11.0	20.4	407520	11.1	20.6
399948	10.8	19.6	183215	10.8	20.6	235999	10.9	20.5	519875	10.9	21.2	247611	11.0	20.2	90322	11.1	19.0
236045	10.8	19.2	265404	10.8	21.0	22484	10.9	17.8	302990	10.9	21.2	404018	11.0	20.4	119546	11.1	19.3
484052	10.8	20.3	418868	10.8	20.7	489854	10.9	20.8	270068	10.9	20.7	62255	11.0	19.5	48322	11.1	19.1
269657	10.8	19.7	49058	10.8	18.3	365361	10.9	21.6	81337	10.9	17.9	282160	11.0	19.2	290797	11.1	20.3
103444	10.8	19.0	541771	10.8	20.4	522552	10.9	21.7	433410	10.9	20.4	56649	11.0	17.2	263695	11.1	20.5
165742	10.8	19.2	340651	10.8	20.6	221238	10.9	20.5	101393	10.9	19.4	76192	11.0	18.3	86639	11.1	18.2
313451	10.8	21.5	142990	10.8	20.5	363147	10.9	21.2	217291	10.9	19.1	455259	11.0	22.1	77725	11.1	19.2
271342	10.8	20.0	417172	10.8	20.7	228813	10.9	18.4	81915	10.9	18.8	529649	11.0	20.8	284157	11.1	20.3
28890	10.8	18.3	72691	10.8	18.1	27455	10.9	18.7	62944	10.9	19.5	368466	11.0	20.4	347664	11.1	21.0
442795	10.8	20.9	339708	10.8	21.5	8795	10.9	17.9	398336	10.9	21.2	395129	11.0	20.0	540063	11.1	21.3
32905	10.8	19.5	493323	10.8	21.4	87520	10.9	17.6	462624	10.9	21.4	265122	11.0	20.3	526670	11.1	22.7
522611	10.8	20.8	464486	10.8	20.8	266460	10.9	19.1	455269	10.9	21.5	357074	11.0	20.8	76131	11.1	18.4
138307	10.8	19.1	65699	10.8	18.6	243923	10.9	20.1	139752	10.9	20.2	323924	11.0	20.5	13621	11.1	17.0
503655	10.8	20.7	180668	10.8	20.4	2435	10.9	18.1	409553	10.9	20.2	26894	11.0	19.1	184589	11.1	20.7
48140	10.8	18.0	246400	10.8	20.7	449410	10.9	19.0	218887	10.9	19.5	454815	11.0	21.4	262117	11.1	19.7
51103	10.8	18.2	59242	10.8	17.8	455390	10.9	22.1	166500	10.9	19.3	102659	11.0	20.0	70457	11.1	19.6
246922	10.8	20.1	390132	10.8	19.8	283260	10.9	20.6	89150	10.9	18.8	18649	11.0	18.1	454889	11.1	21.1
110925	10.8	19.6	45649	10.8	18.6	542104	10.9	21.8	304028	10.9	20.6	418860	11.0	20.4	271387	11.1	19.7
327493	10.8	20.6	123010	10.8	20.5	298538	10.9	20.7	171217	10.9	20.4	250169	11.0	22.3	466224	11.1	22.1
385226	10.8	19.4	335211	10.8	20.1	393814	10.9	20.0	178779	10.9	18.0	441450	11.0	21.1	291629	11.1	19.5
526514	10.8	21.5	200984	10.8	19.2	536075	10.9	20.9	93439	10.9	18.6	38771	11.0	18.9	50952	11.1	18.7
467817	10.8	19.9	443988	10.8	19.7	79881	10.9	18.8	113254	10.9	19.3	270733	11.0	20.9	241559	11.1	19.0
406192	10.8	21.1	149608	10.8	18.8	13767	10.9	17.5	376835	10.9	20.7	40954	11.0	18.7	140611	11.1	20.2
178440	10.8	19.7	464225	10.8	20.5	64199	10.9	17.3	148								

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
286506	11.1	19.3	5901	11.2	16.2	10735	11.2	16.0	424742	11.3	21.6	107757	11.4	19.0	535208	11.4	20.6
296475	11.1	19.6	84743	11.2	19.2	336613	11.2	21.4	465300	11.3	22.1	271238	11.4	20.0	226817	11.4	20.7
391005	11.1	21.0	349554	11.2	20.3	262356	11.2	20.7	343178	11.3	20.9	466403	11.4	21.4	453425	11.4	20.6
531294	11.1	21.1	483851	11.2	21.3	324703	11.2	19.1	334671	11.3	20.3	285295	11.4	20.2	303417	11.4	20.9
497173	11.1	20.4	382169	11.2	21.0	373720	11.2	21.4	78631	11.3	18.8	367004	11.4	21.0	337398	11.4	20.9
334517	11.1	21.3	441464	11.2	21.3	223070	11.2	19.9	451118	11.3	20.7	288187	11.4	18.7	125700	11.4	18.3
365509	11.1	21.2	170077	11.2	20.4	317106	11.2	21.5	277279	11.3	21.9	314298	11.4	20.1	75264	11.4	19.0
402627	11.1	22.1	15508	11.2	19.6	183401	11.2	19.9	490366	11.3	21.1	140963	11.4	19.9	330561	11.4	19.5
423140	11.1	20.6	162856	11.2	18.4	233106	11.2	20.2	52459	11.3	18.2	132158	11.4	19.0	252510	11.4	20.6
317380	11.1	20.7	495944	11.2	22.0	294733	11.2	19.4	335280	11.3	20.5	462164	11.4	20.9	338122	11.4	20.8
241272	11.1	20.8	490047	11.2	21.2	334473	11.2	20.7	318794	11.3	20.5	379131	11.4	20.6	75878	11.4	17.3
402633	11.1	21.6	13163	11.2	16.8	111227	11.2	20.1	99527	11.3	19.2	263633	11.4	19.6	424967	11.4	20.6
312248	11.1	19.8	459742	11.2	20.9	537491	11.2	21.1	455161	11.3	21.3	421198	11.4	20.2	91498	11.4	18.4
432070	11.1	21.0	538911	11.2	21.4	124327	11.2	19.8	466232	11.3	21.7	232318	11.4	18.3	737022	11.4	18.0
493712	11.1	19.9	325283	11.2	20.7	300367	11.2	21.1	307638	11.3	20.1	521986	11.4	21.1	128403	11.4	20.4
493847	11.1	19.4	157583	11.2	19.8	264725	11.2	19.6	276329	11.3	20.6	110996	11.4	19.1	72774	11.4	18.7
47358	11.1	17.6	15411	11.2	17.1	223847	11.2	19.9	180890	11.3	18.8	116594	11.4	18.3	36335	11.4	18.8
282178	11.1	20.7	392479	11.2	20.4	132235	11.2	19.4	454909	11.3	19.5	83956	11.4	19.5	4868	11.4	17.0
35247	11.1	19.0	488284	11.2	20.9	59293	11.2	17.7	333722	11.3	20.7	273732	11.4	20.6	231663	11.4	19.2
319121	11.1	20.5	138596	11.2	20.5	103510	11.2	16.7	118124	11.3	20.1	461085	11.4	20.6	492040	11.4	20.2
453888	11.1	20.6	484050	11.2	20.4	489253	11.2	21.1	282570	11.3	20.2	394904	11.4	21.1	252661	11.4	19.3
542119	11.1	22.2	138216	11.2	18.3	487888	11.2	21.1	358122	11.3	21.4	399470	11.4	21.5	462363	11.4	20.3
413994	11.1	20.5	99162	11.2	19.0	1506	11.2	15.7	448160	11.3	20.9	135951	11.4	20.2	359295	11.4	20.3
64976	11.1	18.8	65440	11.2	19.5	471999	11.2	20.5	417808	11.3	19.6	393132	11.4	20.6	126076	11.4	17.7
404262	11.1	20.8	290405	11.2	20.6	294995	11.2	20.2	87977	11.3	19.4	288779	11.4	21.6	301719	11.4	20.2
325268	11.1	20.2	232308	11.2	19.9	235614	11.2	20.1	232735	11.3	19.8	333416	11.4	20.1	357668	11.4	20.4
315735	11.1	20.7	329819	11.2	20.6	412793	11.3	21.6	235503	11.3	19.7	348765	11.4	20.0	541492	11.4	22.1
97445	11.1	19.2	214088	11.2	21.5	101899	11.3	20.4	409592	11.3	20.7	494877	11.4	20.7	258380	11.4	20.5
229907	11.1	20.3	81675	11.2	19.6	263329	11.3	20.7	63242	11.3	19.1	190953	11.4	20.8	418447	11.4	21.5
421101	11.1	20.2	413036	11.2	21.0	247229	11.3	20.3	290163	11.3	20.2	417126	11.4	20.5	18920	11.5	18.4
67219	11.1	19.2	390452	11.2	20.5	54398	11.3	18.5	2852	11.3	16.8	271095	11.4	20.6	178920	11.5	20.4
232441	11.1	19.5	348641	11.2	20.8	444902	11.3	20.4	368004	11.3	19.9	391659	11.4	20.2	251246	11.5	21.3
102163	11.1	19.2	279899	11.2	20.6	236043	11.3	20.3	235678	11.3	19.7	520000	11.4	20.8	129320	11.5	20.3
112623	11.1	18.7	381897	11.2	19.6	210447	11.3	19.7	193388	11.3	20.3	9474	11.4	17.9	197335	11.5	20.6
488447	11.1	19.6	160016	11.2	20.5	119793	11.3	19.4	182512	11.3	20.7	200682	11.4	19.5	313485	11.5	21.1
249831	11.1	20.7	234584	11.2	18.8	331458	11.3	21.0	153114	11.3	19.9	383788	11.4	21.1	197123	11.5	19.4
462769	11.1	20.5	186411	11.2	19.6	301922	11.3	19.4	85081	11.3	19.6	521582	11.4	20.9	147506	11.5	18.8
206129	11.1	20.9	241794	11.2	20.5	399171	11.3	19.9	277095	11.3	19.8	228960	11.4	20.3	126309	11.5	18.7
378386	11.1	20.4	113474	11.2	19.4	201835	11.3	19.3	465216	11.3	20.7	191752	11.4	20.6	151837	11.5	19.9
73779	11.1	20.5	273690	11.2	20.6	45065	11.3	17.5	333393	11.3	20.8	171120	11.4	20.6	8012	11.5	18.1
202653	11.1	19.7	58146	11.2	18.2	493131	11.3	21.1	542486	11.3	20.2	163553	11.4	19.4	113608	11.5	19.4
506194	11.1	21.4	344085	11.2	20.6	519241	11.3	21.9	319576	11.3	21.3	427380	11.4	21.6	301116	11.5	20.7
341501	11.1	19.8	169293	11.2	19.2	297487	11.3	19.7	467774	11.3	19.4	84375	11.4	18.7	97096	11.5	19.5
55227	11.1	18.7	376817	11.2	20.6	68654	11.3	18.8	362479	11.3	20.1	344223	11.4	21.2	452844	11.5	21.2
243874	11.1	19.8	455028	11.2	21.0	407454	11.3	20.3	411703	11.3	20.2	493090	11.4	21.3	483119	11.5	20.6
195718	11.1	19.6	236365	11.2	20.3	145572	11.3	18.7	456360	11.3	22.1	187085	11.4	20.3	451405	11.5	21.3
126455	11.1	18.1	349258	11.2	21.0	291393	11.3	21.1	247497	11.3	21.3	26949	11.4	17.0	430396	11.5	20.2
455878	11.1	21.0	74366	11.2	18.3	84324	11.3	18.9	438112	11.3	21.1	145253	11.4	19.2	503685	11.5	20.6
412246	11.1	20.0	385885	11.2	20.8	152230	11.3	20.3	464266	11.3	20.8	522614	11.4	20.6	418716	11.5	19.7
241879	11.1	20.3	136577	11.2	19.2	195908	11.3	19.6	444399	11.3	20.4	261047	11.4	20.6	522508	11.5	21.2
64348	11.1	18.4	318993	11.2	20.4	161071	11.3	20.5	226963	11.3	20.3	226924	11.4	20.1	184147	11.5	19.8
122037	11.1	18.9	384462	11.2	20.1	417751	11.3	20.8	263508	11.3	19.7	522458	11.4	21.0	432076	11.5	20.5
48480	11.1	18.2	61757	11.2	18.4	195951	11.3	19.5	254650	11.3	20.1	365607	11.4	20.6	240338	11.5	21.0
260057	11.1	20.7	525588	11.2	20.6	379480	11.3	20.5	157534	11.3	19.4	15159	11.4	18.5	302925	11.5	19.7
167088	11.1	20.5	135390	11.2	20.1	186420	11.3	20.6	181381	11.3	19.3	193897	11.4	20.8	32450	11.5	18.3
338415	11.1	19.2	45148	11.2	17.8	150207	11.3	19.5	494844	11.3	19.7	441306	11.4	20.4	541108	11.5	21.4
73261	11.1	18.5	486794	11.2	21.2	167626	11.3	19.7	496589	11.3	21.5	126549	11.4	19.3	519066	11.5	20.2
402689	11.1	21.1	279905	11.2	21.2	166755	11.3	20.3	169748	11.3	21.0	377048	11.4	21.5	453952	11.5	21.8
39769	11.1	17.4	194568	11.2	21.0	83930	11.3	19.0	16715	11.3	19.1	354005	11.4	20.5	444832	11.5	22.3
1691	11.1	15.6	68989	11.2	19.1	444936	11.3	20.0	125489	11.3	18.8	362508	11.4	20.8	146833	11.5	19.3
198053	11.1	20.2	17253	11.2	17.5	461736	11.3	21.5	113806	11.3	19.8	32878	11.4	19.2	11082	11.5	17.3
313475	11.2	20.7	282342	11.2	19.4	452408	11.3	21.1	360816	11.3	21.7	98306	11.4	19.7	182999	11.5	20.1
298500	11.2	19.6	110923	11.2	19.1	222146	11.3	20.7	133032	11.3	20.7	502339	11.4	20.9	252481	11.5	21.2
118751	11.2	19.5	302916	11.2	20.8	78373	11.3	20.0	272188	11.3	20.6	346281	11.4	21.3	1557	11.5	16.1
305040	11.2	19.6	235734	11.2	18.9	104812	11.3	19.0	391784	11.4	20.7	103813	11.4	18.6	305999	11.5	19.3
182979	11.2	20.9	332675	11.2	21.7	298483	11.3	20.2	338159	11.4	21.8	324074	11.4	20.1	494846	11.5	20.4
387432	11.2	20.0	433527	11.2	21.2	395173	11.3	19.8	8477	11.4	17.8	414906	11.4	20.9	541963	11.5	20.0
178896	11.2	20.2	441619	11.2	20.9	252228	11.3	21.3	336933	11.4	19.9	103401	11.4	18.9	496105	11.5	20.9
104751	11.2	19.2	28560	11.2	17.1	28575											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
250257	11.5	20.1	234199	11.6	20.6	408892	11.6	21.3	159467	11.7	20.6	399209	11.8	20.8	236906	11.8	20.3
503315	11.5	19.9	157678	11.6	19.4	259251	11.6	20.1	63187	11.7	19.0	345253	11.8	21.1	365620	11.8	20.9
88764	11.5	18.6	372706	11.6	19.7	447892	11.6	22.3	78722	11.7	18.6	265372	11.8	20.4	467062	11.8	19.9
339823	11.5	20.5	120575	11.6	20.4	215533	11.6	20.9	379003	11.7	21.3	42006	11.8	19.0	198960	11.8	20.5
169316	11.5	19.7	455939	11.6	20.7	293814	11.6	21.2	262051	11.7	21.0	543678	11.8	22.0	44788	11.8	17.8
343678	11.5	20.7	59430	11.6	18.6	444103	11.6	21.6	277805	11.7	20.3	464624	11.8	21.3	155643	11.8	19.0
347372	11.5	20.6	145181	11.6	20.2	456438	11.6	22.5	410933	11.7	20.1	538754	11.8	20.0	145294	11.8	19.6
460536	11.5	21.4	165802	11.6	19.9	258979	11.6	19.1	2729	11.7	15.8	303022	11.8	21.4	30167	11.8	18.4
75551	11.5	19.4	217610	11.6	21.2	55630	11.6	18.7	115757	11.7	19.1	142255	11.8	20.1	382441	11.8	21.1
82623	11.5	19.8	63807	11.6	18.9	35409	11.6	18.4	284636	11.7	20.7	73592	11.8	19.6	50701	11.8	18.1
417745	11.5	19.3	499958	11.6	21.5	538292	11.7	20.8	186192	11.7	20.2	80062	11.8	19.2	299579	11.9	19.6
413624	11.5	21.0	254657	11.6	19.4	391130	11.7	19.5	69794	11.7	19.2	279165	11.8	20.7	47670	11.9	18.1
372776	11.5	20.7	319510	11.6	20.8	238527	11.7	19.1	28062	11.7	18.3	165720	11.8	19.8	43348	11.9	18.7
61167	11.5	18.8	490367	11.6	21.7	142473	11.7	19.9	463355	11.7	21.7	443977	11.8	22.3	305070	11.9	20.0
463007	11.5	19.6	318135	11.6	20.8	252665	11.7	19.2	144381	11.7	20.0	127659	11.8	20.2	234912	11.9	20.2
379056	11.5	20.2	221235	11.6	20.5	34985	11.7	18.2	147448	11.7	19.2	393290	11.8	19.4	407393	11.9	21.1
104378	11.5	18.6	360363	11.6	19.9	383372	11.7	20.1	375623	11.7	20.2	450820	11.8	21.0	18828	11.9	18.4
349520	11.5	20.7	402707	11.6	20.7	425384	11.7	20.3	54553	11.7	19.2	118640	11.8	18.8	279516	11.9	20.1
493123	11.5	20.6	279280	11.6	19.7	527067	11.7	21.0	440320	11.7	21.9	161598	11.8	18.9	82561	11.9	19.2
215532	11.5	19.6	406067	11.6	19.8	195993	11.7	19.9	114828	11.7	19.6	340039	11.8	20.7	391157	11.9	20.6
144303	11.5	19.9	438530	11.6	20.7	88315	11.7	19.6	461479	11.7	21.1	113781	11.8	19.4	426832	11.9	20.1
412783	11.5	20.8	85345	11.6	19.0	406040	11.7	20.4	234842	11.7	20.3	296400	11.8	18.8	401416	11.9	20.2
357678	11.5	18.9	271247	11.6	20.1	307094	11.7	21.1	16270	11.7	16.2	445131	11.8	21.4	49331	11.9	17.5
433721	11.5	20.2	233890	11.6	20.5	392563	11.7	20.6	326155	11.7	20.4	13575	11.8	16.6	252385	11.9	19.7
308209	11.5	20.2	25129	11.6	17.8	453341	11.7	21.9	142928	11.7	19.2	193361	11.8	19.4	290762	11.9	20.2
396728	11.5	19.9	378396	11.6	20.1	445031	11.7	21.1	411854	11.7	20.5	161176	11.8	20.1	495500	11.9	20.9
99849	11.5	18.5	160119	11.6	20.1	136968	11.7	20.5	379466	11.7	20.2	495681	11.8	20.7	187247	11.9	20.6
110299	11.5	19.6	201330	11.6	19.9	112867	11.7	20.1	58664	11.7	19.8	159498	11.8	20.1	411322	11.9	20.5
223021	11.5	19.1	109011	11.6	19.0	19307	11.7	18.0	26470	11.7	18.6	156430	11.8	20.0	393683	11.9	21.1
492450	11.5	20.7	221967	11.6	21.7	353807	11.7	21.4	481159	11.7	21.3	83879	11.8	19.8	175057	11.9	18.2
206318	11.5	20.2	482546	11.6	20.9	136604	11.7	20.1	96682	11.7	18.4	153400	11.8	18.9	300515	11.9	21.2
265786	11.5	21.4	485095	11.6	21.0	429294	11.7	20.8	130831	11.7	20.7	294645	11.8	20.0	114186	11.9	20.0
234341	11.5	19.3	541748	11.6	20.9	337592	11.7	21.3	204389	11.7	20.2	250213	11.8	20.9	421212	11.9	21.1
237555	11.5	20.3	533995	11.6	21.7	481237	11.7	20.7	168687	11.7	19.1	27452	11.8	19.0	17730	11.9	15.5
418691	11.5	21.8	391842	11.6	20.3	301015	11.7	19.1	186986	11.7	20.8	92762	11.8	19.0	427830	11.9	19.3
385956	11.5	21.3	419109	11.6	21.5	149512	11.7	19.4	424904	11.7	21.2	183674	11.8	20.2	262605	11.9	19.4
65335	11.5	19.8	135410	11.6	20.2	89591	11.7	19.8	38808	11.7	19.6	193835	11.8	20.3	13312	11.9	16.9
152150	11.5	20.8	364678	11.6	20.2	59095	11.7	19.2	86027	11.7	18.6	352639	11.8	19.5	7649	11.9	17.1
348058	11.5	20.6	286939	11.6	21.3	344853	11.7	20.5	325609	11.7	20.8	276738	11.8	18.9	99169	11.9	19.6
63356	11.5	18.9	502187	11.6	20.8	538732	11.7	20.9	117835	11.7	20.1	165737	11.8	19.8	232446	11.9	18.9
215790	11.5	19.8	402781	11.6	22.3	333318	11.7	20.9	262369	11.7	20.6	70026	11.8	17.2	275769	11.9	19.6
442221	11.5	21.1	542139	11.6	21.3	270910	11.7	20.8	460852	11.7	21.2	426238	11.8	21.0	283889	11.9	17.9
227755	11.5	20.5	387801	11.6	19.5	297384	11.7	21.4	65887	11.7	17.0	197302	11.8	20.2	101286	11.9	20.3
237405	11.5	20.3	155994	11.6	20.8	26737	11.7	18.4	425003	11.7	20.6	391484	11.8	20.1	352711	11.9	20.3
460078	11.5	20.8	62187	11.6	19.0	260093	11.7	21.1	459430	11.7	20.5	448156	11.8	21.8	6257	11.9	16.8
235473	11.5	19.8	397505	11.6	21.0	405097	11.7	20.2	451420	11.8	21.9	540159	11.8	20.6	378495	11.9	20.8
8432	11.5	17.0	116593	11.6	19.5	86427	11.7	18.5	388032	11.8	19.7	411898	11.8	20.5	15088	11.9	18.5
219384	11.5	20.5	385503	11.6	20.0	282189	11.7	19.7	414978	11.8	20.0	436122	11.8	21.5	119419	11.9	20.2
116807	11.5	19.6	406577	11.6	20.3	344215	11.7	20.9	26128	11.8	19.0	82781	11.8	19.0	327021	11.9	20.1
357422	11.5	20.5	108268	11.6	19.2	283297	11.7	19.7	145477	11.8	19.7	149869	11.8	19.7	190787	11.9	20.0
459284	11.5	20.4	262533	11.6	21.4	76827	11.7	18.5	503281	11.8	20.5	9707	11.8	17.1	456924	11.9	21.2
204533	11.5	18.9	66360	11.6	19.3	23948	11.7	17.1	519058	11.8	20.9	197809	11.8	21.1	371790	11.9	21.7
120883	11.5	20.5	292530	11.6	20.7	127636	11.7	18.4	319769	11.8	21.4	306658	11.8	20.6	5188	11.9	16.5
250188	11.5	20.9	10397	11.6	18.5	30274	11.7	18.3	404368	11.8	21.5	470068	11.8	20.8	149263	11.9	18.6
97378	11.5	19.3	238682	11.6	20.0	284008	11.7	21.3	236084	11.8	19.6	181177	11.8	19.7	95044	11.9	19.5
168054	11.5	19.7	449366	11.6	19.1	475464	11.7	20.9	460809	11.8	20.3	212093	11.8	20.1	395776	11.9	20.8
133411	11.6	18.6	112890	11.6	19.6	100596	11.7	18.9	381910	11.8	19.2	383378	11.8	21.5	147995	11.9	20.3
207666	11.6	19.9	235522	11.6	19.7	543891	11.7	21.0	179162	11.8	20.2	405099	11.8	20.5	80461	11.9	19.3
337102	11.6	20.7	157475	11.6	20.1	301600	11.7	20.1	473626	11.8	20.5	201415	11.8	19.2	227116	11.9	19.4
117806	11.6	19.1	366759	11.6	21.2	101057	11.7	19.8	245721	11.8	20.1	545085	11.8	19.9	181905	11.9	20.3
262251	11.6	20.6	406704	11.6	20.1	193909	11.7	21.3	112827	11.8	20.4	324758	11.8	20.0	155402	11.9	20.3
531437	11.6	21.4	255953	11.6	20.3	541382	11.7	21.1	425521	11.8	20.7	544133	11.8	20.2	111268	11.9	19.6
231980	11.6	19.7	193913	11.6	19.5	247498	11.7	19.9	238934	11.8	20.1	242074	11.8	20.7	230704	11.9	20.0
83426	11.6	19.3	260635	11.6	19.2	292311	11.7	20.3	256094	11.8	21.6	105662	11.8	19.2	109132	11.9	19.2
274856	11.6	21.6	368595	11.6	21.6	439650	11.7	21.0	21750	11.8	18.1	535533	11.8	21.2	51959	11.9	16.2
194971	11.6	19.8	87643	11.6	19.2	328912	11.7	20.3	112981	11.8	18.9	495853	11.8	21.6	397883	11.9	20.4
3894	11.6	16.3	400072	11.6	21.5	132548	11.7	19.3	86032	11.8	19.7	316112	11.8	19.9	120746	11.9	19.1
122376	11.6	20.5	316324	11.6	19.5	66858	11.7	19.1	118720	11.8	19.3	455360	11.8	22.1	280251	11.9	19.7
110139	11.6	20.2	186503	11.6	20.4	201338	11.7										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
319942	11.9	19.5	195943	11.9	18.8	167954	12.0	19.5	364778	12.1	20.5	126385	12.2	20.0	464005	12.3	19.9
375328	11.9	20.8	32065	11.9	18.1	24889	12.0	16.9	317018	12.1	21.4	155233	12.2	20.3	309568	12.3	20.6
466887	11.9	20.4	344520	11.9	22.0	544298	12.0	20.7	277111	12.1	19.7	458255	12.2	20.3	368960	12.3	20.5
377546	11.9	19.9	429863	11.9	20.9	280721	12.0	21.2	61410	12.1	18.6	112156	12.2	18.4	113717	12.3	18.8
452878	11.9	21.3	89180	11.9	19.3	247930	12.0	21.8	397442	12.1	19.7	334134	12.2	21.3	204314	12.3	21.2
82007	11.9	19.3	108806	11.9	19.6	357410	12.0	21.0	452839	12.1	21.0	138963	12.2	18.8	251255	12.3	20.5
88465	11.9	18.8	441617	11.9	21.9	489771	12.0	19.8	405086	12.1	20.7	76535	12.2	18.6	410589	12.3	20.8
543563	11.9	21.1	75132	11.9	18.7	424367	12.0	20.6	288694	12.1	21.2	432854	12.2	20.1	328591	12.3	20.3
187855	11.9	19.3	64652	11.9	18.7	284200	12.0	19.9	106672	12.1	18.4	450813	12.2	21.4	166686	12.3	19.7
109993	11.9	19.7	93196	11.9	20.0	441665	12.0	21.4	81065	12.1	18.3	18407	12.2	18.6	118190	12.3	19.9
319916	11.9	20.5	189184	11.9	19.2	405635	12.0	20.5	109508	12.1	20.1	488755	12.2	21.6	464768	12.3	20.8
109990	11.9	19.7	495590	11.9	20.9	48430	12.1	18.6	449106	12.1	21.7	175173	12.2	19.5	52824	12.3	19.2
388017	11.9	20.3	67417	11.9	18.3	4220	12.1	17.0	104462	12.1	19.1	412241	12.2	19.9	343796	12.3	20.4
50850	11.9	18.4	390865	11.9	20.8	396343	12.1	19.9	229278	12.1	21.0	530455	12.2	21.0	112146	12.3	19.5
262815	11.9	19.4	249369	11.9	19.0	297104	12.1	20.6	496018	12.1	22.0	88139	12.2	18.6	32313	12.3	19.4
25564	11.9	18.1	372642	11.9	20.9	402682	12.1	21.8	535424	12.1	21.0	23251	12.2	18.7	413492	12.3	20.8
31701	11.9	18.3	291289	11.9	20.4	360309	12.1	20.9	309543	12.1	21.0	356584	12.2	19.4	279092	12.3	19.4
290794	11.9	21.1	310174	11.9	21.6	247699	12.1	20.7	223668	12.1	21.0	76281	12.2	18.5	95064	12.3	19.4
336742	11.9	20.3	226193	11.9	20.4	310249	12.1	19.9	225626	12.1	19.9	339640	12.2	21.6	117780	12.3	18.7
494830	11.9	22.1	147165	11.9	19.7	110688	12.1	19.4	31865	12.1	18.0	104820	12.2	18.9	338302	12.3	22.3
148008	11.9	18.8	483447	11.9	22.3	333371	12.1	20.4	212237	12.1	20.0	77591	12.2	19.2	400841	12.3	21.9
164490	11.9	19.5	206895	11.9	19.4	292241	12.1	21.0	485675	12.1	20.5	357419	12.2	19.3	383353	12.3	20.8
59394	11.9	17.7	432533	11.9	20.8	16332	12.1	17.9	77649	12.1	20.2	146767	12.2	19.5	487581	12.3	22.3
48926	11.9	18.5	61083	11.9	19.0	58953	12.1	19.0	429383	12.1	19.6	318770	12.2	20.5	10936	12.3	17.1
495696	11.9	20.9	233008	11.9	19.3	46538	12.1	18.5	281866	12.1	19.4	453880	12.2	22.4	2777	12.3	15.3
414482	11.9	21.0	119544	11.9	18.2	356485	12.1	20.9	286702	12.1	21.2	355943	12.2	21.1	317216	12.3	20.3
370593	11.9	21.3	254635	11.9	21.3	345053	12.1	20.9	356269	12.1	21.0	348187	12.2	20.8	420718	12.3	20.2
404112	11.9	21.1	53424	11.9	18.0	34279	12.1	18.7	239048	12.1	20.5	404270	12.2	20.6	492809	12.3	20.4
112909	11.9	20.4	78803	11.9	19.1	92157	12.1	18.9	137619	12.1	19.4	231057	12.2	20.5	147988	12.3	21.1
373166	11.9	19.8	161773	11.9	19.8	95471	12.1	19.5	312533	12.1	20.1	135772	12.2	21.2	80149	12.3	19.1
407469	11.9	20.4	241929	11.9	19.0	182700	12.1	20.5	426628	12.1	20.6	313186	12.2	20.4	68828	12.3	19.1
361735	11.9	20.0	234498	11.9	20.6	326266	12.1	20.7	327371	12.1	20.7	367881	12.2	19.8	417062	12.3	21.5
279955	11.9	20.7	197133	11.9	19.8	129261	12.1	18.9	461702	12.1	21.4	397574	12.2	22.4	464599	12.3	21.3
34430	11.9	19.8	129782	12.0	18.7	203293	12.1	20.4	484032	12.1	20.4	50690	12.2	19.0	341384	12.3	20.9
123029	11.9	20.2	180910	12.0	20.5	258236	12.1	20.5	241306	12.1	20.5	121433	12.2	19.0	381891	12.3	20.7
495506	11.9	21.1	355761	12.0	20.7	38932	12.1	19.0	542972	12.1	21.0	24673	12.2	16.2	4498	12.3	16.7
132960	11.9	18.9	237326	12.0	20.6	92734	12.1	19.4	479471	12.1	20.8	260838	12.2	20.4	428375	12.3	21.5
84071	11.9	18.9	78673	12.0	18.8	395164	12.1	20.1	257514	12.1	19.4	473397	12.2	20.3	277337	12.3	19.9
79291	11.9	18.7	446970	12.0	22.2	343216	12.1	20.9	26785	12.1	18.6	136313	12.2	19.2	424860	12.3	20.8
441210	11.9	20.8	148851	12.0	19.8	492248	12.1	21.2	414918	12.2	20.1	208370	12.2	19.8	203846	12.3	20.4
176933	11.9	20.3	285626	12.0	19.3	369412	12.1	21.1	297333	12.2	20.7	101426	12.2	19.8	403164	12.3	21.1
413970	11.9	20.9	28796	12.0	18.6	417798	12.1	20.9	406883	12.2	20.2	417056	12.2	21.3	289295	12.3	21.1
283404	11.9	20.1	428448	12.0	20.1	433647	12.1	21.3	528833	12.2	21.2	312973	12.2	19.3	116556	12.3	18.6
4556	11.9	17.0	134402	12.0	19.9	279911	12.1	20.7	473770	12.2	21.0	455246	12.2	21.8	143996	12.3	19.4
463661	11.9	20.8	169956	12.0	20.5	398332	12.1	21.1	458387	12.2	20.7	321831	12.2	20.7	424258	12.3	20.9
70672	11.9	17.0	174248	12.0	19.6	442735	12.1	20.6	376306	12.2	20.6	245997	12.2	20.6	279298	12.3	20.1
119539	11.9	18.7	351746	12.0	19.9	530292	12.1	21.0	408392	12.2	20.3	416643	12.2	21.3	343708	12.3	19.3
267568	11.9	19.9	162363	12.0	19.2	242829	12.1	19.6	73596	12.2	19.0	285653	12.2	20.8	155918	12.3	20.8
349497	11.9	21.0	2006	12.0	16.5	128544	12.1	19.2	251081	12.2	21.3	391141	12.2	20.0	85017	12.3	18.6
72802	11.9	19.4	460880	12.0	21.5	283025	12.1	21.4	128200	12.2	20.1	203660	12.2	18.7	361326	12.3	21.4
314341	11.9	20.2	463758	12.0	21.7	228484	12.1	18.8	154314	12.2	19.6	299476	12.2	20.3	28317	12.3	18.7
294974	11.9	19.6	95269	12.0	19.4	30480	12.1	16.9	277349	12.2	19.9	471242	12.2	21.4	494816	12.3	21.4
105334	11.9	20.1	176252	12.0	19.9	211309	12.1	20.5	373767	12.2	21.2	457036	12.2	20.0	111210	12.3	19.6
421914	11.9	20.4	497771	12.0	21.1	161139	12.1	19.7	183465	12.2	19.0	522423	12.2	20.9	160459	12.3	19.6
150191	11.9	20.6	483601	12.0	21.6	373300	12.1	20.7	214283	12.2	20.3	282796	12.2	20.2	150056	12.3	20.5
491266	11.9	21.3	119	12.0	12.1	123142	12.1	19.6	31001	12.2	19.1	375060	12.2	20.9	412387	12.3	20.0
207561	11.9	20.4	355922	12.0	21.1	413332	12.1	21.2	163618	12.2	19.2	205324	12.2	20.8	346929	12.3	20.0
59308	11.9	18.5	180241	12.0	20.7	196813	12.1	21.2	407922	12.2	19.8	10920	12.2	17.0	538368	12.3	20.6
122634	11.9	20.1	103996	12.0	18.9	375521	12.1	20.8	543312	12.2	21.2	5268	12.2	18.1	180324	12.3	20.0
256363	11.9	19.4	413418	12.0	20.8	213759	12.1	19.8	40295	12.2	18.7	489324	12.2	21.2	103644	12.3	18.6
484718	11.9	21.2	519030	12.0	20.5	473819	12.1	20.9	148188	12.2	19.9	1530	12.2	16.9	175786	12.3	19.2
492078	11.9	21.2	399989	12.0	20.1	199147	12.1	21.2	108521	12.2	19.3	252452	12.2	19.9	1535	12.3	16.5
502552	11.9	20.1	421975	12.0	20.8	48429	12.1	19.3	236850	12.2	20.2	1494	12.2	15.3	422396	12.3	21.1
109938	11.9	18.9	13879	12.0	17.2	277955	12.1	20.6	134442	12.2	20.1	315649	12.2	19.8	292582	12.3	20.4
327568	11.9	20.1	149199	12.0	19.9	52887	12.1	17.8	184086	12.2	18.6	104745	12.2	19.2	495472	12.3	21.0
444024	11.9	20.4	257870	12.0	21.3	92755	12.1	20.8	523782	12.2	21.5	319036	12.2	21.0	198005	12.3	19.5
44617	11.9	18.4	9086	12.0	18.3	276224	12.1	20.2	307646	12.2	21.6	241324	12.2	21.2	281737	12.3	20.6
462933	11.9	21.0	23905	12.0	18.5	51156	12.1	18.1	254611	12.2	20.3	184268	12.2	19.3	521141	12.3	20.1
90759	11.9	20.2	486156	12.0	21.7	112363	12.1	18.9									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
203114	12.3	20.0	420823	12.4	21.0	12349	12.4	16.2	62091	12.5	19.0	124417	12.6	19.9	277061	12.6	19.9
488237	12.3	20.7	453068	12.4	21.1	196719	12.4	19.5	177260	12.5	19.1	194098	12.6	20.2	160156	12.6	19.7
223920	12.3	20.2	433854	12.4	20.2	189028	12.4	19.7	19719	12.5	17.5	343151	12.6	20.4	34146	12.6	19.4
491193	12.3	21.6	197319	12.4	20.0	495019	12.4	21.0	492197	12.5	20.5	151261	12.6	19.6	73938	12.6	19.5
69028	12.3	19.2	289832	12.4	19.8	75387	12.4	18.3	243217	12.5	20.3	182712	12.6	19.5	489693	12.6	20.2
385854	12.3	21.6	160262	12.4	19.5	302896	12.4	21.7	424998	12.5	20.6	242871	12.6	20.3	78089	12.6	17.5
121670	12.3	18.7	349540	12.4	21.1	276246	12.4	20.4	273166	12.5	20.3	240262	12.6	18.7	433827	12.6	21.0
223703	12.3	20.3	167545	12.4	19.6	502533	12.4	20.8	442615	12.5	20.7	348447	12.6	20.9	430207	12.6	21.0
277191	12.3	21.4	145555	12.4	20.4	289298	12.4	18.8	40789	12.5	19.3	10079	12.6	18.4	174872	12.6	18.9
84846	12.3	18.9	120171	12.4	18.5	64943	12.4	19.2	178930	12.5	19.6	115481	12.6	19.0	175468	12.6	19.0
495593	12.3	20.3	350970	12.4	18.8	90291	12.4	18.1	197368	12.5	20.7	31662	12.6	22.3	251040	12.6	21.7
222102	12.3	21.0	301175	12.4	21.1	353996	12.4	21.7	247895	12.5	19.7	424124	12.6	20.7	58031	12.6	19.4
377070	12.3	19.9	395396	12.4	21.5	45788	12.4	18.6	233568	12.5	20.7	135021	12.6	20.6	83185	12.6	19.2
227785	12.3	20.6	162243	12.4	20.6	409423	12.4	21.1	322728	12.5	20.9	423584	12.6	21.2	190921	12.6	20.4
33103	12.3	18.3	229195	12.4	20.6	344816	12.4	19.5	157593	12.5	19.8	47635	12.6	18.5	138472	12.6	19.9
339567	12.3	20.5	422305	12.4	21.0	147086	12.4	18.1	113241	12.5	18.5	98196	12.6	20.2	406637	12.6	20.7
393646	12.3	21.4	258722	12.4	19.6	529092	12.4	21.7	423125	12.5	20.5	18017	12.6	16.6	135688	12.6	19.7
200761	12.3	21.7	84915	12.4	18.5	515167	12.4	21.7	232408	12.5	17.9	424232	12.6	20.4	136499	12.6	19.6
188241	12.3	20.2	164112	12.4	20.0	288130	12.4	20.7	29289	12.5	19.0	108479	12.6	19.5	45292	12.6	18.2
275940	12.3	21.3	57729	12.4	18.9	515009	12.4	21.1	543377	12.5	21.1	407460	12.6	19.8	494178	12.6	20.8
207568	12.3	20.9	288966	12.4	21.0	198075	12.4	19.9	482810	12.5	21.1	161086	12.6	20.4	376011	12.6	20.0
290036	12.3	20.5	381647	12.4	21.3	256194	12.4	20.3	74649	12.5	19.0	87740	12.6	19.3	216845	12.6	20.5
399449	12.3	20.9	145685	12.4	20.7	483839	12.4	21.8	286512	12.5	19.7	335689	12.6	21.1	159803	12.6	20.3
466430	12.3	20.8	481068	12.4	21.8	116303	12.4	18.5	157756	12.5	20.4	444076	12.6	21.7	81818	12.6	18.8
104884	12.3	19.7	112868	12.4	20.1	63545	12.4	19.1	314258	12.5	20.5	464504	12.6	20.6	200969	12.6	20.2
463030	12.3	20.4	6674	12.4	16.8	126194	12.4	19.4	241398	12.5	20.4	422005	12.6	20.5	195915	12.6	19.4
455223	12.3	22.0	61311	12.4	19.7	378782	12.4	20.8	102446	12.5	19.5	182339	12.6	19.7	110230	12.6	20.4
31785	12.3	18.3	461122	12.4	20.4	153428	12.5	20.4	348979	12.5	21.1	157213	12.6	18.9	46493	12.6	17.7
26049	12.3	19.6	188605	12.4	20.6	417279	12.5	21.3	162958	12.5	19.8	105260	12.6	19.0	196958	12.6	19.9
104442	12.3	18.6	48851	12.4	17.7	26986	12.5	18.8	349535	12.5	21.0	85385	12.6	18.9	105060	12.6	20.0
401219	12.3	20.7	85801	12.4	19.7	304781	12.5	20.4	305735	12.5	20.4	357641	12.6	20.2	347878	12.6	20.4
288953	12.3	21.2	117818	12.4	18.6	163398	12.5	19.7	505248	12.5	21.4	214260	12.6	20.5	475939	12.6	19.7
378910	12.3	21.3	379733	12.4	20.6	213666	12.5	19.8	259340	12.5	19.2	234205	12.6	20.3	249872	12.6	20.2
166341	12.3	19.0	541858	12.4	21.3	499929	12.5	20.1	84817	12.5	19.4	474466	12.6	21.4	273221	12.6	20.0
108241	12.3	18.4	161558	12.4	20.4	216242	12.5	19.5	394971	12.5	21.8	125936	12.6	18.8	413595	12.6	21.0
27101	12.3	18.7	20751	12.4	18.1	170844	12.5	19.7	116	12.5	10.7	11431	12.6	18.3	104536	12.6	19.0
421640	12.3	20.4	406722	12.4	21.1	15915	12.5	17.9	323572	12.5	20.0	298575	12.6	20.8	422973	12.6	20.8
441844	12.3	19.7	345117	12.4	20.9	242114	12.5	20.6	414474	12.5	21.3	78533	12.6	19.9	337862	12.6	20.2
201181	12.3	20.2	222086	12.4	20.8	344327	12.5	20.1	260992	12.5	20.7	456562	12.6	20.1	400798	12.6	19.2
97164	12.3	18.7	385200	12.4	21.3	2886	12.5	15.7	486260	12.5	20.6	353279	12.6	20.2	487928	12.6	20.8
311555	12.3	22.1	466203	12.4	21.0	239327	12.5	19.9	69891	12.5	19.1	46271	12.6	18.9	477339	12.6	20.1
162716	12.3	19.8	466395	12.4	21.7	455385	12.5	22.2	203101	12.5	20.6	89581	12.6	19.3	457856	12.6	21.7
158741	12.3	19.9	531089	12.4	20.3	239231	12.5	21.8	253975	12.5	19.3	82045	12.6	18.7	76324	12.6	19.2
139356	12.3	19.3	466923	12.4	20.4	348849	12.5	20.7	142456	12.5	19.0	223676	12.6	20.2	484678	12.6	21.0
280437	12.3	20.4	260010	12.4	20.0	184431	12.5	20.0	150495	12.5	19.8	153846	12.6	18.9	277099	12.7	19.4
281269	12.3	20.2	492811	12.4	20.0	215176	12.5	20.7	94477	12.5	18.3	398158	12.6	19.9	545103	12.7	20.9
459289	12.3	19.8	88037	12.4	19.8	344291	12.5	21.6	146445	12.5	20.0	90451	12.6	18.5	382235	12.7	20.3
274331	12.3	20.2	491840	12.4	21.6	537854	12.5	20.8	407494	12.5	21.6	27001	12.6	18.1	224817	12.7	20.5
373803	12.3	20.4	186144	12.4	19.6	203876	12.5	20.5	147876	12.5	19.3	90183	12.6	18.4	14752	12.7	18.0
52595	12.3	18.8	228408	12.4	19.2	233006	12.5	19.8	145236	12.5	20.3	463362	12.6	21.3	494026	12.7	20.8
426732	12.3	20.3	542278	12.4	21.3	230687	12.5	20.5	18394	12.5	16.3	125672	12.6	20.1	391837	12.7	21.4
408668	12.3	19.5	78443	12.4	20.1	494204	12.5	20.7	48365	12.5	18.4	49634	12.6	17.7	220055	12.7	20.3
200377	12.3	20.0	479551	12.4	20.5	236012	12.5	20.0	351761	12.5	19.4	337033	12.6	21.9	296967	12.7	20.1
424276	12.3	20.7	52720	12.4	18.7	241817	12.5	20.5	467166	12.5	20.9	377040	12.6	20.6	382114	12.7	21.1
440244	12.4	21.6	484135	12.4	20.4	68009	12.5	18.3	500003	12.5	22.2	139755	12.6	19.0	292491	12.7	20.1
375120	12.4	20.7	334180	12.4	21.1	46790	12.5	18.8	44303	12.5	19.8	185962	12.6	18.6	360298	12.7	20.3
187651	12.4	20.6	160265	12.4	19.1	263718	12.5	19.9	110752	12.5	20.0	278529	12.6	20.2	226958	12.7	19.5
433789	12.4	20.4	412393	12.4	19.8	380228	12.5	20.7	444884	12.5	21.1	305030	12.6	20.1	336576	12.7	20.8
399968	12.4	20.0	13413	12.4	18.2	163331	12.5	18.4	78752	12.5	19.3	30053	12.6	19.1	519157	12.7	20.9
51667	12.4	18.6	164928	12.4	19.2	177266	12.5	19.7	368378	12.5	20.0	468713	12.6	19.6	411358	12.7	20.8
282706	12.4	20.4	339602	12.4	21.4	236210	12.5	20.4	263916	12.5	20.5	177468	12.6	19.9	169306	12.7	20.4
243802	12.4	20.3	108346	12.4	19.6	504943	12.5	20.1	234465	12.6	19.6	519898	12.6	20.5	82006	12.7	19.3
385954	12.4	20.8	886	12.4	15.1	127749	12.5	18.8	86	12.6	13.7	335308	12.6	21.5	236694	12.7	20.6
453117	12.4	20.8	80035	12.4	18.7	145461	12.5	19.4	54723	12.6	18.9	235878	12.6	19.7	2634	12.7	15.3
441576	12.4	21.5	148554	12.4	20.3	189646	12.5	21.0	139749	12.6	20.1	497618	12.6	21.6	319793	12.7	21.2
13488	12.4	16.5	543554	12.4	22.0	453946	12.5	20.4	427105	12.6	21.0	216217	12.6	20.8	422032	12.7	21.3
255753	12.4	21.2	80933	12.4	19.1	544210	12.5	22.0	311709	12.6	20.7	463078	12.6	20.6	536783	12.7	21.1
443282	12.4	20.3	376034	12.4	19.5	243231	12.5	19.8	109854	12.6	19.9	290399	12.6	20.5	287399	12.7	20.7
441462	12.4	22.4	201354	12.4	20.0	180976	12.5										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
78712	12.7	19.6	137901	12.8	18.2	284096	12.8	20.4	468188	12.9	20.2	99908	12.9	19.0	444029	13.0	21.4
396715	12.7	21.8	151929	12.8	19.0	142658	12.8	19.1	240693	12.9	19.7	346592	12.9	20.4	38330	13.0	17.7
352194	12.7	20.2	363296	12.8	19.4	405561	12.8	21.4	130562	12.9	19.3	426999	12.9	20.8	519834	13.0	21.0
90753	12.7	19.5	395805	12.8	20.4	522485	12.8	20.6	450262	12.9	20.3	254759	12.9	21.0	297156	13.0	21.8
438882	12.7	21.3	486244	12.8	21.2	345097	12.8	21.8	229926	12.9	19.4	196952	12.9	21.1	364755	13.0	20.2
512121	12.7	21.0	252483	12.8	18.9	135741	12.8	20.1	144518	12.9	18.9	45792	12.9	18.9	460113	13.0	21.9
137501	12.7	19.6	236318	12.8	18.6	218322	12.8	20.0	83243	12.9	19.3	49685	12.9	18.8	115015	13.0	19.7
500062	12.7	21.3	347647	12.8	20.0	369233	12.8	20.8	444155	12.9	20.2	503807	12.9	20.6	319823	13.0	21.2
445960	12.7	19.9	181405	12.8	19.4	374666	12.8	21.4	252060	12.9	20.8	204867	12.9	20.5	675	13.0	12.5
329200	12.7	19.8	13559	12.8	17.8	462750	12.8	20.3	300370	12.9	20.5	420056	12.9	20.9	238152	13.0	19.4
360820	12.7	20.5	111280	12.8	19.2	280698	12.8	19.7	25632	12.9	17.3	8114	12.9	18.2	427855	13.0	20.7
319369	12.7	20.4	135938	12.8	20.2	213751	12.8	20.5	278494	12.9	20.7	394895	12.9	20.3	534281	13.0	21.9
487472	12.7	19.8	259734	12.8	20.1	378472	12.8	21.2	122309	12.9	19.7	318888	12.9	20.4	318792	13.0	20.5
229400	12.7	19.9	344276	12.8	21.3	543560	12.8	20.4	193959	12.9	20.5	318859	12.9	19.7	419458	13.0	20.3
430324	12.7	20.4	313808	12.8	20.8	53668	12.9	18.4	207802	12.9	19.8	240943	12.9	20.0	344286	13.0	22.3
347022	12.7	19.3	234365	12.8	20.2	118809	12.9	19.5	443219	12.9	20.3	493831	12.9	20.5	277976	13.0	21.4
193932	12.7	20.1	15897	12.8	18.2	24918	12.9	17.9	483450	12.9	21.9	314957	12.9	20.9	347557	13.0	20.1
108496	12.7	19.2	461759	12.8	21.5	190774	12.9	20.9	325098	12.9	20.7	51575	12.9	17.1	455954	13.0	21.3
146875	12.7	18.4	105670	12.8	19.9	246266	12.9	19.8	460399	12.9	20.8	274619	12.9	20.6	383177	13.0	20.8
74975	12.7	18.3	132001	12.8	18.2	229700	12.9	19.1	168414	12.9	20.1	62670	12.9	19.0	229774	13.0	20.6
162351	12.7	19.2	490735	12.8	20.9	388338	12.9	20.7	500007	12.9	21.7	543755	12.9	21.3	45872	13.0	19.0
455918	12.7	21.1	341435	12.8	20.9	274700	12.9	19.9	173951	12.9	21.0	293235	12.9	20.1	197705	13.0	19.6
167180	12.7	20.0	407325	12.8	21.0	345529	12.9	21.1	389878	12.9	21.2	376709	12.9	19.6	258959	13.0	20.9
448781	12.7	21.1	301618	12.8	19.6	153545	12.9	19.8	72630	12.9	18.5	288488	12.9	19.5	143813	13.0	18.7
33336	12.7	18.3	51006	12.8	18.5	288935	12.9	20.3	446661	12.9	21.1	423363	12.9	20.5	339723	13.0	21.0
100857	12.7	18.2	387692	12.8	20.6	195658	12.9	20.0	64906	12.9	19.3	7375	12.9	17.5	269609	13.0	19.2
192438	12.7	20.9	325907	12.8	20.4	282194	12.9	20.3	25597	12.9	18.8	29019	12.9	19.1	100569	13.0	19.2
544345	12.7	21.2	238122	12.8	20.9	627	12.9	14.1	367713	12.9	20.4	367257	12.9	19.8	351307	13.0	20.7
438135	12.7	21.5	222304	12.8	20.0	141883	12.9	20.5	257018	12.9	20.3	235593	12.9	20.5	373943	13.0	22.0
286458	12.7	19.9	186501	12.8	19.8	369234	12.9	21.1	322647	12.9	19.9	413527	12.9	21.2	59574	13.0	18.5
225833	12.7	20.1	93177	12.8	19.6	252416	12.9	20.0	326095	12.9	20.6	454021	12.9	20.5	331945	13.0	21.0
31538	12.7	16.1	223048	12.8	20.2	466722	12.9	20.1	278427	12.9	20.5	330262	12.9	22.0	352764	13.0	20.5
179878	12.7	20.0	208038	12.8	20.3	545091	12.9	20.7	100425	12.9	19.7	374233	12.9	20.3	441657	13.0	21.0
316255	12.7	19.6	327950	12.8	20.1	487135	12.9	21.0	220024	12.9	20.4	121113	12.9	18.8	141747	13.0	20.1
251118	12.7	20.5	79490	12.8	18.5	280663	12.9	20.5	175658	12.9	20.3	79940	12.9	18.5	418271	13.0	20.6
313194	12.7	19.7	144395	12.8	19.1	496262	12.9	21.0	161126	12.9	18.9	280597	12.9	19.6	234404	13.0	21.3
379521	12.7	19.8	112072	12.8	18.7	411375	12.9	20.7	336929	12.9	20.5	46127	12.9	17.5	334301	13.0	20.6
116700	12.7	19.2	529772	12.8	20.0	267114	12.9	20.0	339997	12.9	20.2	214787	12.9	19.6	65462	13.0	18.9
117586	12.7	19.1	343930	12.8	21.6	108981	12.9	20.1	375999	12.9	20.9	378459	12.9	20.5	528212	13.0	21.4
516787	12.7	20.2	141215	12.8	19.6	195221	12.9	20.0	125681	12.9	18.8	445108	12.9	21.3	483656	13.0	19.8
481411	12.7	21.4	278116	12.8	19.6	375350	12.9	21.0	152792	12.9	20.0	345540	12.9	20.6	61866	13.0	19.7
266593	12.7	19.7	226870	12.8	20.6	509432	12.9	21.1	349975	12.9	20.4	489413	12.9	21.1	319917	13.0	19.3
452476	12.7	20.7	46916	12.8	19.0	76379	12.9	19.4	65468	12.9	19.7	20499	12.9	18.4	435443	13.0	20.3
382383	12.7	20.6	188859	12.8	20.0	318763	12.9	20.0	238686	12.9	20.0	527149	12.9	22.3	96237	13.0	19.7
152171	12.7	19.7	278000	12.8	21.5	81293	12.9	19.6	30051	12.9	18.8	80184	12.9	19.2	35391	13.0	16.9
1206	12.7	15.5	227059	12.8	19.6	227734	12.9	20.4	92491	12.9	20.0	150368	12.9	19.5	184048	13.0	19.6
319797	12.7	21.0	9211	12.8	17.8	428960	12.9	20.8	483417	12.9	20.7	7265	12.9	16.7	250655	13.0	19.5
154787	12.7	19.1	150412	12.8	18.7	152170	12.9	20.2	266760	12.9	21.1	116641	12.9	18.9	360456	13.1	20.9
1638	12.7	15.6	37117	12.8	20.9	207682	12.9	20.0	59455	12.9	17.4	119693	12.9	19.9	412978	13.1	22.3
475629	12.7	21.6	494720	12.8	20.7	40337	12.9	18.7	145111	12.9	18.9	98115	12.9	19.2	251206	13.1	20.8
419357	12.7	20.1	104635	12.8	19.4	272117	12.9	21.5	127761	12.9	19.8	485420	12.9	21.3	50789	13.1	18.5
107722	12.7	18.5	175783	12.8	20.6	193973	12.9	21.3	282580	12.9	19.4	304777	12.9	20.0	84455	13.1	19.8
319947	12.7	20.6	142819	12.8	19.5	337505	12.9	19.4	227794	12.9	19.3	251264	12.9	20.1	113155	13.1	19.9
391061	12.7	21.3	496283	12.8	21.8	238955	12.9	20.4	114082	12.9	18.4	383373	12.9	21.6	402579	13.1	20.8
447884	12.7	21.2	2705	12.8	16.6	468212	12.9	20.5	307485	12.9	20.1	81362	12.9	18.5	314887	13.1	21.5
326437	12.7	20.2	352568	12.8	18.9	46439	12.9	19.3	313805	12.9	20.6	277900	12.9	20.1	288436	13.1	19.6
495733	12.7	21.1	180529	12.8	19.6	174333	12.9	20.3	219426	12.9	20.7	229744	12.9	20.4	202387	13.1	20.1
360827	12.7	21.2	424977	12.8	21.4	379959	12.9	21.0	104807	12.9	19.7	156189	12.9	19.5	29595	13.1	16.7
442665	12.7	21.4	408641	12.8	21.1	485676	12.9	21.1	355731	12.9	19.7	227620	12.9	20.1	210140	13.1	20.1
320309	12.7	19.7	455975	12.8	21.7	87466	12.9	19.7	206154	12.9	20.4	125630	12.9	19.3	178454	13.1	19.9
388396	12.7	21.2	517754	12.8	20.8	339887	12.9	20.4	493659	12.9	22.4	465796	12.9	19.7	92775	13.1	18.3
319835	12.7	20.6	422008	12.8	20.5	463313	12.9	20.7	293460	12.9	19.9	153935	12.9	18.1	543655	13.1	20.5
456298	12.7	21.9	441510	12.8	22.0	422906	12.9	21.4	196811	12.9	19.6	285258	13.0	18.4	200991	13.1	19.3
228758	12.7	19.5	493317	12.8	21.1	230998	12.9	19.5	428403	12.9	21.3	77102	13.0	18.6	258295	13.1	20.7
242375	12.7	20.0	260906	12.8	20.0	166075	12.9	19.4	197015	12.9	19.8	30676	13.0	17.5	335848	13.1	20.8
51441	12.7	18.3	195072	12.8	19.6	360473	12.9	21.2	319905	12.9	19.7	141051	13.0	20.5	306013	13.1	18.9
17901	12.7	17.7	271435	12.8	19.3	188473	12.9	20.4	405074	12.9	21.4	397976	13.0	21.1	293868	13.1	20.1
470048	12.7	21.3	166555	12.8	20.2	486378	12.9	20.6	424906	12.9	21.0	356476	13.0	21.4	462027	13.1	21.1
289533	12.7	19.4	277928	12.8	20.8	14751											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
284449	13.1	20.7	452922	13.1	20.7	187264	13.2	20.2	159924	13.3	20.8	455833	13.4	21.1	3571	13.4	16.7
363858	13.1	20.7	32703	13.1	18.2	375420	13.2	20.4	122033	13.3	19.6	189351	13.4	19.8	88018	13.4	20.1
199822	13.1	20.1	78690	13.1	17.9	114273	13.2	20.2	194364	13.3	20.1	204348	13.4	20.8	450607	13.4	21.0
417318	13.1	20.9	88026	13.1	19.8	14348	13.2	17.3	137264	13.3	19.7	371231	13.4	21.4	460649	13.4	20.6
409478	13.1	20.9	531629	13.1	21.6	187065	13.2	21.1	33852	13.3	19.0	307362	13.4	20.5	252637	13.4	19.9
414754	13.1	19.6	518775	13.1	20.0	391123	13.2	21.2	85507	13.3	18.5	61180	13.4	18.8	391457	13.4	19.5
174730	13.1	21.6	22825	13.1	18.5	121382	13.2	19.7	301596	13.3	20.5	335188	13.4	19.3	416617	13.4	21.0
15752	13.1	18.4	252231	13.1	21.3	34258	13.2	17.8	268088	13.3	20.3	205441	13.4	20.2	318830	13.4	20.4
160667	13.1	18.3	45271	13.1	17.5	422525	13.2	20.3	16876	13.3	18.1	518772	13.4	20.7	452829	13.4	20.7
436470	13.1	21.3	80463	13.1	19.1	84269	13.2	18.9	209724	13.3	19.9	431615	13.4	20.8	236425	13.4	20.1
467410	13.1	19.6	91377	13.1	18.8	154031	13.2	19.4	22207	13.3	18.5	136006	13.4	20.8	48815	13.4	18.5
495682	13.1	20.9	101784	13.1	19.8	15743	13.2	17.9	255779	13.3	20.2	276656	13.4	20.7	318494	13.4	20.8
379961	13.1	20.8	487273	13.1	20.9	541239	13.2	21.8	99321	13.3	19.9	226945	13.4	19.8	110019	13.4	19.7
328611	13.1	20.1	232677	13.1	19.1	90612	13.2	20.8	495529	13.3	20.6	318838	13.4	20.4	253118	13.4	21.0
224558	13.1	20.9	193703	13.1	19.2	525430	13.2	20.5	251113	13.3	20.3	338389	13.4	19.7	62452	13.4	18.5
298998	13.1	20.1	109757	13.1	19.2	544780	13.2	21.4	334172	13.3	21.3	176921	13.4	20.2	233080	13.4	20.5
254670	13.1	21.5	18886	13.1	16.7	378885	13.2	21.2	299560	13.3	19.9	160129	13.4	19.2	339632	13.4	21.0
349542	13.1	21.0	475650	13.1	20.7	2876	13.2	16.1	413545	13.3	20.6	293410	13.4	19.2	463063	13.4	20.3
389376	13.1	19.6	323993	13.1	20.0	96631	13.2	20.2	147875	13.3	20.0	318894	13.4	19.6	360243	13.4	19.8
441625	13.1	21.1	218014	13.2	20.3	85331	13.2	19.2	206355	13.3	20.9	309453	13.4	20.4	163657	13.4	19.9
406930	13.1	19.7	203817	13.2	20.2	263729	13.2	20.5	206198	13.3	19.9	340606	13.4	21.3	463514	13.4	20.9
361656	13.1	20.2	186212	13.2	19.7	260953	13.2	20.4	381890	13.3	20.5	409596	13.4	20.6	463497	13.4	21.5
237631	13.1	20.5	541579	13.2	22.2	197395	13.2	19.8	216248	13.3	20.2	69219	13.4	18.8	273055	13.4	19.8
541141	13.1	20.4	229923	13.2	20.0	543479	13.2	20.8	450917	13.3	20.1	433877	13.4	20.7	340653	13.4	21.0
486236	13.1	21.3	334263	13.2	21.3	204267	13.2	19.9	465023	13.3	19.9	87843	13.4	18.6	155657	13.4	19.3
464402	13.1	21.1	7665	13.2	17.6	403911	13.2	19.7	363916	13.3	20.9	25430	13.4	18.7	10795	13.4	16.6
313536	13.1	20.2	373911	13.2	20.6	440603	13.2	21.9	111248	13.3	18.7	205360	13.4	19.9	414269	13.4	20.1
276614	13.1	20.4	279871	13.2	21.3	178962	13.2	19.8	541555	13.3	22.1	53664	13.4	18.9	167028	13.4	20.0
197488	13.1	19.3	109101	13.2	19.7	445760	13.2	21.5	359204	13.3	20.3	237438	13.4	21.2	193225	13.4	20.2
173360	13.1	19.0	420747	13.2	20.0	506141	13.2	20.3	224664	13.3	20.4	233237	13.4	19.3	242333	13.4	18.5
1149	13.1	15.2	314702	13.2	21.2	195983	13.2	20.1	287439	13.3	20.8	270901	13.4	19.9	373133	13.4	19.9
464100	13.1	20.1	165045	13.2	19.0	151193	13.2	19.2	151194	13.3	19.9	390206	13.4	20.3	2015	13.4	15.0
538453	13.1	20.8	236791	13.2	19.9	222536	13.2	19.5	469210	13.3	19.9	123250	13.4	19.8	152475	13.4	19.6
61574	13.1	17.8	467468	13.2	21.2	406255	13.2	20.4	455531	13.3	20.9	308211	13.4	19.2	150384	13.4	19.1
113774	13.1	19.5	283971	13.2	20.7	238327	13.2	20.6	378371	13.3	21.0	43074	13.4	18.6	370487	13.4	21.5
200960	13.1	18.9	13426	13.2	18.6	275223	13.2	20.0	537885	13.3	20.7	69075	13.4	18.2	197933	13.4	20.5
489792	13.1	20.6	245320	13.2	19.4	361247	13.2	21.1	310801	13.3	20.5	156350	13.4	19.8	207572	13.4	20.2
58003	13.1	18.9	255952	13.2	19.7	221831	13.2	20.7	489806	13.3	19.9	402677	13.4	21.5	83304	13.4	19.5
440305	13.1	21.5	451520	13.2	20.7	238130	13.2	20.2	123045	13.3	19.3	137192	13.4	18.8	420189	13.5	20.6
245864	13.1	21.1	228721	13.2	21.2	175762	13.2	20.3	77801	13.3	19.3	193348	13.4	19.7	189254	13.5	20.4
369962	13.1	21.0	333616	13.2	21.5	274164	13.2	19.8	284364	13.3	20.9	34615	13.4	17.8	405618	13.5	20.3
335695	13.1	20.7	532362	13.2	21.5	345279	13.2	20.5	307855	13.3	20.3	458736	13.4	21.9	280669	13.5	20.4
110825	13.1	19.3	125722	13.2	20.2	232105	13.2	20.3	329175	13.3	19.6	486150	13.4	21.2	360485	13.5	19.6
424884	13.1	20.9	150544	13.2	17.9	232006	13.2	19.9	341873	13.3	20.9	431478	13.4	21.5	106202	13.5	19.1
81595	13.1	19.3	27459	13.2	19.1	138212	13.2	18.8	35181	13.3	19.4	295785	13.4	19.7	163488	13.5	20.9
73684	13.1	20.1	277193	13.2	21.1	460692	13.2	21.4	256856	13.3	20.0	318285	13.4	21.2	392331	13.5	20.9
231997	13.1	20.5	136433	13.2	19.4	362210	13.2	20.3	30376	13.3	17.9	399567	13.4	20.6	304065	13.5	20.3
263708	13.1	20.4	118501	13.2	18.8	110492	13.2	18.8	134100	13.3	19.4	264442	13.4	20.3	11940	13.5	16.7
29529	13.1	17.6	295542	13.2	20.3	367638	13.3	21.5	75934	13.3	18.2	542459	13.4	19.8	465097	13.5	21.0
194502	13.1	20.6	493521	13.2	21.5	77533	13.3	19.0	436428	13.3	21.0	541575	13.4	20.4	99198	13.5	18.9
517741	13.1	20.1	123099	13.2	20.0	458168	13.3	21.6	440483	13.3	20.7	109295	13.4	19.5	306556	13.5	21.2
432425	13.1	20.7	296367	13.2	19.9	2288	13.3	14.4	134847	13.3	19.9	259978	13.4	19.5	439989	13.5	20.3
366943	13.1	21.4	426891	13.2	20.3	244021	13.3	20.9	246216	13.3	20.7	252575	13.4	20.5	29820	13.5	19.3
541145	13.1	19.8	444134	13.2	21.3	543838	13.3	20.6	360465	13.3	19.7	438708	13.4	20.6	103929	13.5	19.4
276772	13.1	19.9	445929	13.2	20.8	47608	13.3	17.3	339867	13.3	20.3	118719	13.4	20.1	77776	13.5	18.1
193948	13.1	18.6	161299	13.2	19.8	454190	13.3	19.8	544965	13.3	20.7	230468	13.4	20.3	197030	13.5	20.3
484558	13.1	21.7	169909	13.2	19.8	417197	13.3	21.1	431520	13.3	21.2	322046	13.4	20.9	391137	13.5	20.7
46902	13.1	18.1	347352	13.2	20.7	34534	13.3	17.9	55916	13.3	17.6	532194	13.4	21.8	13895	13.5	18.6
185622	13.1	20.4	251075	13.2	20.1	460458	13.3	21.1	145251	13.3	20.3	60949	13.4	18.5	247085	13.5	20.7
243363	13.1	20.0	339897	13.2	20.7	164099	13.3	19.5	32503	13.3	17.1	543943	13.4	22.2	288701	13.5	20.3
17346	13.1	18.7	375611	13.2	20.5	463465	13.3	21.5	240218	13.3	19.7	372281	13.4	20.4	135778	13.5	18.9
187881	13.1	21.1	10228	13.2	18.0	247266	13.3	20.8	521951	13.3	21.6	313901	13.4	19.4	8385	13.5	17.4
288498	13.1	19.7	49207	13.2	20.6	318650	13.3	20.7	314792	13.3	20.4	402630	13.4	21.6	274513	13.5	20.4
431279	13.1	21.5	388128	13.2	20.6	493237	13.3	20.6	73777	13.3	19.5	448440	13.4	21.2	267828	13.5	20.5
491085	13.1	21.3	48409	13.2	17.8	378381	13.3	20.9	454771	13.3	20.7	151277	13.4	20.3	10794	13.5	18.7
135944	13.1	19.3	142493	13.2	21.3	143655	13.3	19.3	124196	13.3	19.1	25166	13.4	19.0	318718	13.5	20.9
193244	13.1	20.1	51099	13.2	19.7	414527	13.3	20.8	304038	13.3	20.1	116565	13.4	19.8	104971	13.5	18.5
541810	13.1	21.3	158899	13.2	19.8	187069	13.3	19.6	394919	13.3	20.4	523755	13.4	22.2	435333	13.5	20.5
86623	13.1	18.5	480901	13.2	22.0	335962											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
102844	13.5	19.6	360055	13.6	20.1	368467	13.6	20.0	398563	13.7	21.4	218682	13.7	20.1	433393	13.8	21.5
19814	13.5	19.4	93442	13.6	18.6	519956	13.6	21.4	455247	13.7	21.5	162076	13.7	20.4	198649	13.8	19.9
391435	13.5	20.1	227953	13.6	19.8	255936	13.6	19.7	302945	13.7	21.0	149039	13.7	20.2	340096	13.8	19.4
176697	13.5	20.7	406720	13.6	21.0	4917	13.6	17.1	378448	13.7	21.3	21168	13.7	17.3	400040	13.8	22.3
210379	13.5	20.3	502515	13.6	20.6	144531	13.6	19.7	402259	13.7	20.5	348706	13.7	20.5	531303	13.8	20.4
347379	13.5	20.1	48183	13.6	17.5	155917	13.6	19.9	418581	13.7	20.7	176177	13.7	20.0	39426	13.8	19.1
60107	13.5	18.4	387703	13.6	20.0	544923	13.6	20.8	362178	13.7	20.9	140051	13.7	19.7	451050	13.8	21.2
3163	13.5	18.0	313526	13.6	20.4	156145	13.6	20.7	374216	13.7	20.4	51320	13.7	18.8	33884	13.8	20.4
167628	13.5	19.7	194117	13.6	20.8	263384	13.6	20.5	460468	13.7	20.6	456249	13.7	21.0	116737	13.8	18.2
60772	13.5	18.8	110038	13.6	19.2	123542	13.6	19.8	466235	13.7	21.4	252598	13.7	20.0	196071	13.8	19.8
425366	13.5	19.9	148181	13.6	19.4	102719	13.6	18.8	261593	13.7	20.8	18181	13.7	15.0	535683	13.8	21.2
383488	13.5	20.0	266062	13.6	22.0	224859	13.6	20.5	120467	13.7	20.1	108668	13.7	19.9	491336	13.8	20.6
114032	13.5	20.1	217686	13.6	20.6	155540	13.6	20.2	414653	13.7	20.6	142772	13.7	20.4	74533	13.8	18.6
482071	13.5	20.7	370552	13.6	21.7	60413	13.6	18.7	363171	13.7	21.5	189282	13.7	20.1	243737	13.8	20.6
55	13.5	12.1	410454	13.6	19.3	298531	13.6	19.8	452590	13.7	20.5	84050	13.7	19.7	237508	13.8	19.9
161883	13.5	19.3	263619	13.6	20.7	387588	13.6	20.5	350354	13.7	20.9	53818	13.8	18.4	526954	13.8	22.0
451928	13.5	21.1	20105	13.6	18.0	12540	13.6	17.1	86082	13.7	19.4	411282	13.8	21.6	34449	13.8	19.1
78302	13.5	19.2	361737	13.6	20.6	67321	13.6	19.0	270631	13.7	21.2	10864	13.8	17.7	498013	13.8	20.7
109290	13.5	19.7	122534	13.6	21.1	331060	13.6	20.3	486489	13.7	19.2	413427	13.8	19.5	275274	13.8	20.5
239037	13.5	20.2	72684	13.6	18.9	543913	13.6	20.4	312215	13.7	20.9	136859	13.8	18.4	195310	13.8	20.0
465269	13.5	21.5	224570	13.6	20.8	219438	13.6	20.5	453155	13.7	20.5	320835	13.8	20.1	75390	13.8	19.1
543976	13.5	21.1	307637	13.6	20.4	422038	13.6	21.6	411385	13.7	21.1	44056	13.8	18.3	449936	13.8	20.8
438907	13.5	20.0	225183	13.6	21.4	66193	13.6	19.1	251721	13.7	21.2	15893	13.8	17.3	343509	13.8	20.3
277893	13.5	19.6	67283	13.6	19.3	59700	13.6	18.8	236064	13.7	19.7	518676	13.8	21.8	247925	13.8	20.6
134769	13.5	19.6	187200	13.6	20.4	463908	13.6	20.6	369797	13.7	20.9	33681	13.8	17.9	529722	13.8	20.7
521923	13.5	21.8	408852	13.6	21.8	142122	13.6	19.5	328653	13.7	20.8	96731	13.8	20.0	29436	13.8	18.8
105330	13.5	20.6	19071	13.6	18.5	146706	13.6	18.8	431200	13.7	21.0	465569	13.8	21.0	323973	13.8	19.5
105315	13.5	19.1	80675	13.6	18.5	340904	13.6	20.0	249931	13.7	20.4	153325	13.8	20.0	244065	13.8	20.3
344302	13.5	21.6	178533	13.6	19.7	157162	13.6	20.6	52321	13.7	19.0	190138	13.8	19.8	146458	13.8	18.4
196827	13.5	21.0	462497	13.6	21.1	489703	13.6	21.5	42869	13.7	16.7	232964	13.8	19.7	212739	13.8	19.1
196863	13.5	20.5	314926	13.6	20.7	396390	13.6	20.1	73861	13.7	18.2	424256	13.8	20.9	116427	13.8	19.1
400369	13.5	20.2	78995	13.6	19.0	80080	13.7	18.7	449722	13.7	20.3	280945	13.8	21.4	477783	13.8	20.5
244978	13.5	19.6	194290	13.6	20.7	77526	13.7	18.6	125966	13.7	20.1	242072	13.8	19.9	164703	13.8	19.9
122096	13.5	20.4	521878	13.6	19.9	266382	13.7	20.2	303652	13.7	19.1	185700	13.8	19.9	148806	13.8	19.7
531528	13.5	22.2	339554	13.6	20.9	21932	13.7	18.4	414559	13.7	21.0	423029	13.8	22.1	527390	13.8	22.1
364009	13.5	20.8	152508	13.6	20.7	409604	13.7	21.0	375460	13.7	21.9	420957	13.8	20.3	130981	13.8	20.1
234471	13.5	19.6	358628	13.6	20.0	488247	13.7	21.0	362766	13.7	20.9	5240	13.8	15.8	402355	13.8	20.9
426263	13.5	20.5	207109	13.6	20.4	486180	13.7	20.4	443140	13.7	19.9	296546	13.8	21.2	426543	13.8	20.6
66431	13.5	19.6	279917	13.6	20.2	526967	13.7	22.1	427708	13.7	21.0	305041	13.8	21.0	237763	13.8	19.6
376839	13.5	20.8	538708	13.6	21.5	26504	13.7	17.9	221974	13.7	19.9	283415	13.8	20.3	76715	13.8	18.7
457818	13.5	20.8	9218	13.6	17.6	159880	13.7	19.7	205608	13.7	20.2	68504	13.8	18.9	426513	13.8	20.2
404338	13.5	20.8	388443	13.6	20.2	143712	13.7	19.4	235495	13.7	19.8	349308	13.8	20.7	421547	13.8	20.8
122909	13.5	19.0	202338	13.6	20.5	185939	13.7	20.1	319421	13.7	20.4	340902	13.8	20.4	175775	13.8	17.9
57081	13.5	18.3	243698	13.6	20.1	434169	13.7	21.9	502591	13.7	20.6	228729	13.8	19.9	418790	13.8	20.4
274874	13.5	21.0	60811	13.6	17.7	82528	13.7	18.9	464230	13.7	20.8	263652	13.8	20.6	386632	13.8	20.4
364812	13.5	19.6	235982	13.6	19.0	173241	13.7	18.9	377931	13.7	20.9	359267	13.8	19.4	406690	13.8	20.5
150538	13.5	20.1	105740	13.6	19.0	363124	13.7	21.5	95730	13.7	18.5	279010	13.8	19.8	499828	13.8	20.6
163371	13.5	19.3	388469	13.6	20.2	337636	13.7	20.8	133116	13.7	19.8	467767	13.8	20.8	297854	13.8	20.7
162992	13.5	18.7	241832	13.6	20.4	116832	13.7	18.8	81458	13.7	20.4	497352	13.8	19.8	7990	13.8	19.4
258050	13.5	21.2	282398	13.6	20.7	101915	13.7	19.7	341301	13.7	21.4	110561	13.8	19.5	170848	13.8	20.2
494212	13.5	20.8	287654	13.6	20.1	162172	13.7	18.4	529482	13.7	21.4	335958	13.8	20.0	505352	13.8	20.5
401887	13.5	22.3	267598	13.6	20.4	277973	13.7	21.6	217013	13.7	21.6	340888	13.8	19.1	367996	13.8	20.1
467397	13.5	21.2	181494	13.6	19.5	49910	13.7	16.9	164359	13.7	20.0	426345	13.8	20.3	263723	13.8	20.1
173116	13.5	20.3	542068	13.6	21.3	363580	13.7	21.0	52657	13.7	17.7	518158	13.8	21.3	382843	13.8	19.3
298585	13.5	19.8	437783	13.6	20.5	146367	13.7	20.0	291489	13.7	20.2	1151	13.8	17.5	395198	13.8	21.0
140497	13.5	19.7	363863	13.6	21.1	239720	13.7	20.5	361729	13.7	19.6	457209	13.8	20.8	382546	13.8	21.7
201007	13.5	20.1	16833	13.6	16.3	307087	13.7	19.7	493125	13.7	21.0	484794	13.8	20.4	289627	13.9	20.0
3921	13.5	17.3	62290	13.6	20.6	402237	13.7	20.2	485474	13.7	21.4	194335	13.8	19.5	309539	13.9	20.6
18024	13.5	18.2	122070	13.6	18.9	417294	13.7	20.9	491381	13.7	20.7	245761	13.8	20.9	165841	13.9	19.4
113192	13.5	19.7	484631	13.6	21.4	76700	13.7	19.3	124641	13.7	20.0	269705	13.8	20.3	393265	13.9	20.2
197331	13.5	20.1	108606	13.6	19.0	348072	13.7	20.0	3073	13.7	16.2	190922	13.8	20.9	353992	13.9	21.9
46621	13.5	17.3	405158	13.6	22.1	413421	13.7	24.1	245892	13.7	20.6	334249	13.8	21.3	278018	13.9	20.4
150700	13.5	18.9	461756	13.6	21.4	52803	13.7	19.2	43835	13.7	18.7	30753	13.8	18.4	161091	13.9	20.8
429295	13.5	18.9	378909	13.6	20.7	544712	13.7	20.6	169079	13.7	19.3	256633	13.8	19.8	397869	13.9	20.7
428369	13.5	20.7	114375	13.6	19.4	332756	13.7	20.6	202550	13.7	19.5	374012	13.8	19.5	211418	13.9	20.3
146648	13.5	20.6	536220	13.6	20.7	7879	13.7	17.2	450055	13.7	19.9	542965	13.8	20.5	541992	13.9	20.5
530405	13.5	20.6	119959	13.6	18.8	433202	13.7	20.5	164419	13.7	20.2	8652	13.8	17.7	388934	13.9	20.5
287406	13.6	21.2	12491	13.6	17.4	256984	13.7	19.8	259195	13.7	18.5	289697	13.8	19.2	427254	13.9	21.4
16739	13.6	17.6	94876	13.6	19.2	485170	13.7										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
344337	13.9	21.1	440713	13.9	21.2	305180	14.0	20.1	13138	14.1	18.2	334593	14.1	20.9	218982	14.2	19.9
189495	13.9	19.4	260677	13.9	19.2	108971	14.0	19.2	31695	14.1	16.6	359079	14.1	21.9	263912	14.2	20.6
465002	13.9	20.9	183021	13.9	20.3	489281	14.0	21.7	99248	14.1	20.6	197811	14.1	20.8	239536	14.2	20.6
84012	13.9	20.0	114191	13.9	20.6	199497	14.0	20.4	116702	14.1	19.1	463579	14.1	20.8	240533	14.2	19.7
313386	13.9	21.5	535466	13.9	22.2	63366	14.0	19.0	252584	14.1	20.2	427180	14.1	20.3	381648	14.2	20.7
364875	13.9	19.9	322463	13.9	20.4	192380	14.0	19.6	290002	14.1	19.5	406628	14.1	21.3	542901	14.2	21.5
423036	13.9	21.3	5398	13.9	16.8	542096	14.0	20.9	114460	14.1	19.8	148790	14.1	19.9	385607	14.2	23.6
50677	13.9	18.0	465772	13.9	21.5	311081	14.0	19.4	306075	14.1	20.9	88038	14.1	19.6	502455	14.2	19.9
253114	13.9	20.6	452946	13.9	21.6	321633	14.0	20.3	361233	14.1	21.1	200968	14.1	20.0	239469	14.2	19.7
285401	13.9	20.7	385377	13.9	20.0	481496	14.0	20.5	488751	14.1	21.9	108271	14.1	19.5	163151	14.2	19.4
363929	13.9	21.4	487688	13.9	20.8	218768	14.0	20.3	138120	14.1	19.0	400601	14.1	19.7	76589	14.2	17.9
83475	13.9	18.9	394921	13.9	20.9	456520	14.0	20.9	196287	14.1	19.0	193906	14.1	20.8	112778	14.2	19.8
65400	13.9	19.6	154641	13.9	19.3	226916	14.0	20.4	336363	14.1	20.1	146142	14.1	20.7	216561	14.2	20.4
229051	13.9	20.1	456425	13.9	22.3	48669	14.0	18.4	358517	14.1	19.6	233187	14.1	19.4	85847	14.2	19.3
234955	13.9	19.9	411762	13.9	19.8	465401	14.0	19.4	542628	14.1	20.9	383675	14.1	20.5	346931	14.2	20.8
324593	13.9	21.3	543113	13.9	20.7	256244	14.0	19.6	19861	14.1	18.3	473543	14.1	19.9	128506	14.2	20.4
419507	13.9	19.5	91555	13.9	19.0	114525	14.0	19.5	251128	14.1	20.8	249857	14.1	21.1	363146	14.2	20.9
130998	13.9	18.5	492576	13.9	21.2	248206	14.0	19.4	10807	14.1	17.2	417184	14.1	20.3	412261	14.2	21.4
369310	13.9	21.8	485667	13.9	20.9	48686	14.0	16.9	172050	14.1	21.2	272273	14.1	20.7	423313	14.2	20.1
295402	13.9	21.2	101084	13.9	19.8	60653	14.0	18.9	108082	14.1	18.3	441494	14.1	21.9	82321	14.2	19.5
32528	13.9	17.0	544928	13.9	20.8	295640	14.0	20.9	89149	14.1	19.1	536930	14.1	21.6	543145	14.2	20.3
190916	13.9	19.7	70013	13.9	17.7	528651	14.0	23.1	280921	14.1	19.6	348184	14.1	20.2	371989	14.2	19.2
24435	13.9	19.0	146495	13.9	20.4	119741	14.0	19.2	295167	14.1	20.1	115528	14.1	19.6	261459	14.2	20.6
146366	13.9	19.9	15559	13.9	18.2	274660	14.0	20.3	10691	14.1	17.7	104754	14.2	18.8	23599	14.2	18.8
418502	13.9	20.9	473458	13.9	22.3	454437	14.0	20.7	198159	14.1	19.8	35174	14.2	17.9	339916	14.2	20.5
113380	13.9	20.6	401876	13.9	21.1	263980	14.0	20.9	224852	14.1	18.9	413428	14.2	20.2	382864	14.2	19.4
510960	13.9	19.6	426777	13.9	20.2	297228	14.0	20.4	262793	14.1	19.9	57174	14.2	19.7	10671	14.2	17.7
76022	13.9	19.7	488599	13.9	21.5	237416	14.0	21.4	114012	14.1	19.3	544026	14.2	21.2	231003	14.2	20.0
51063	13.9	18.8	265390	13.9	20.0	314259	14.0	20.4	338235	14.1	20.9	129850	14.2	20.0	3732	14.2	16.7
62798	13.9	18.9	219342	13.9	19.9	252331	14.0	19.7	401131	14.1	21.2	307629	14.2	22.0	290012	14.2	20.8
283040	13.9	20.5	56884	13.9	19.4	74164	14.0	19.8	122706	14.1	20.2	455248	14.2	21.6	149372	14.2	18.8
99453	13.9	18.4	334557	13.9	21.3	482646	14.0	20.7	454312	14.1	21.3	492954	14.2	21.3	542567	14.2	20.5
154426	13.9	20.0	243117	13.9	20.3	316343	14.0	20.9	140077	14.1	19.6	188907	14.2	19.4	465312	14.2	21.4
166807	13.9	19.6	545096	13.9	20.6	405979	14.0	22.1	543598	14.1	21.0	234880	14.2	20.3	268648	14.2	20.7
443823	13.9	21.2	422167	13.9	22.0	466775	14.0	20.5	446301	14.1	20.6	155548	14.2	20.4	64406	14.2	19.6
474110	13.9	20.0	160576	13.9	19.9	317571	14.0	20.7	37415	14.1	18.9	275046	14.2	20.3	409875	14.2	20.6
106352	13.9	19.5	361307	13.9	21.5	78984	14.0	19.5	292071	14.1	21.0	370562	14.2	21.7	14826	14.2	18.9
417076	13.9	21.1	433465	13.9	20.3	234467	14.0	20.6	466889	14.1	20.9	89348	14.2	19.9	254643	14.2	21.2
404952	13.9	21.4	285154	13.9	19.9	115185	14.0	20.0	135329	14.1	19.1	400782	14.2	19.4	402718	14.2	21.4
431602	13.9	21.0	543121	13.9	20.7	429261	14.0	20.0	334445	14.1	20.8	506941	14.2	20.4	271296	14.2	20.2
126510	13.9	19.1	156009	13.9	18.9	541089	14.0	21.8	17737	14.1	17.4	6051	14.2	16.9	528317	14.2	22.6
59529	13.9	18.7	390836	13.9	20.3	496265	14.0	21.9	315514	14.1	20.5	245008	14.2	19.8	380009	14.2	20.8
523588	13.9	22.4	228078	13.9	21.0	151549	14.0	19.8	119971	14.1	19.5	405707	14.2	22.2	343	14.2	15.1
117020	13.9	19.2	279807	13.9	20.0	32590	14.0	18.9	25737	14.1	18.3	411291	14.2	21.0	391856	14.2	20.4
531529	13.9	22.0	214480	13.9	20.2	260954	14.0	21.1	377491	14.1	20.5	309507	14.2	19.9	181961	14.2	20.9
165847	13.9	20.9	460834	13.9	21.3	345344	14.0	21.3	460656	14.1	21.4	403930	14.2	20.6	262674	14.2	19.6
340781	13.9	21.1	175388	13.9	20.1	233589	14.0	20.0	265393	14.1	21.4	408449	14.2	19.7	197436	14.2	20.5
307854	13.9	20.0	340124	13.9	19.4	347600	14.0	21.2	122952	14.1	19.2	120457	14.2	19.7	181425	14.2	20.9
247431	13.9	19.2	406176	13.9	21.5	62274	14.0	18.8	157763	14.1	20.1	465267	14.2	21.4	438654	14.2	20.4
278467	13.9	20.0	247575	13.9	20.2	362230	14.0	21.2	541728	14.1	22.9	177504	14.2	18.7	339812	14.2	20.1
485537	13.9	20.5	440679	13.9	21.1	65597	14.0	18.8	522457	14.1	21.2	32555	14.2	18.6	492030	14.2	20.4
364862	13.9	20.9	442792	13.9	20.4	487969	14.0	21.3	467370	14.1	19.3	132024	14.2	19.0	99300	14.2	19.4
56131	13.9	17.3	251344	13.9	19.8	463040	14.0	20.1	433466	14.1	20.8	439496	14.2	20.9	242107	14.2	20.7
455825	13.9	21.6	32716	13.9	18.8	491822	14.0	20.6	283315	14.1	19.6	157606	14.2	20.2	461118	14.2	20.2
238840	13.9	19.8	130614	13.9	18.7	468280	14.0	20.7	426603	14.1	20.9	99335	14.2	19.3	396733	14.2	21.7
197895	13.9	20.8	69163	13.9	19.9	282520	14.0	20.7	129634	14.1	18.9	153345	14.2	19.7	455934	14.2	21.7
231191	13.9	19.3	256229	13.9	20.7	206325	14.0	21.1	425298	14.1	20.2	118549	14.2	18.8	81568	14.2	19.3
188485	13.9	20.2	239022	13.9	20.5	31939	14.1	17.9	127387	14.1	18.8	279957	14.2	21.6	440350	14.2	22.3
164304	13.9	19.9	134829	13.9	18.6	252360	14.1	20.2	121233	14.1	19.7	502188	14.2	20.3	218029	14.2	19.7
418813	13.9	20.7	124382	13.9	19.8	274405	14.1	21.0	189653	14.1	20.1	8262	14.2	18.6	535573	14.2	21.5
138573	13.9	20.1	154543	13.9	19.4	162213	14.1	20.5	27838	14.1	17.1	235508	14.2	20.4	427549	14.2	20.9
535587	13.9	21.0	82876	13.9	19.6	113078	14.1	20.1	238807	14.1	19.9	16922	14.2	18.4	140776	14.2	19.8
211292	13.9	20.2	493879	13.9	21.3	248914	14.1	20.8	291020	14.1	20.3	289794	14.2	20.6	146551	14.3	20.3
29311	13.9	17.3	97851	13.9	19.3	338273	14.1	20.9	306567	14.1	20.6	290432	14.2	20.5	30979	14.3	19.5
235687	13.9	20.4	89998	13.9	17.4	66162	14.1	18.6	419327	14.1	21.8	406616	14.2	20.1	277977	14.3	20.6
285906	13.9	20.8	492837	13.9	21.0	283047	14.1	19.7	140702	14.1	20.4	135431	14.2	19.5	54916	14.3	18.9
336548	13.9	21.4	343989	13.9	21.0	202108	14.1	21.3	175499	14.1	19.8	106986	14.2	18.7	406629	14.3	20.9
61519	13.9	19.1	457084	14.0	20.4	137057	14.1	19.0	282977	14.1	20.9	95827	14.2	18.4	287719	14.3	21.7
362656	13.9	20.6	379538	14.0	20.5	464656</											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
373412	14.3	21.1	223673	14.3	21.2	491842	14.4	22.3	469705	14.5	21.9	150084	14.5	20.3	362441	14.6	20.3
38773	14.3	19.1	324032	14.3	21.1	526423	14.4	21.3	516256	14.5	21.7	101868	14.5	19.4	304841	14.6	21.3
194804	14.3	19.8	236032	14.3	18.9	368015	14.4	20.0	278457	14.5	20.1	151254	14.5	20.0	187490	14.6	19.5
29560	14.3	18.2	84560	14.3	19.3	411362	14.4	20.5	311799	14.5	21.0	378475	14.5	20.4	425094	14.6	21.9
542114	14.3	20.2	247464	14.3	19.6	2375	14.4	14.3	98754	14.5	19.8	359145	14.5	20.1	129374	14.6	19.9
190793	14.3	20.2	12986	14.3	18.9	204952	14.4	20.0	1131	14.5	16.9	495481	14.5	21.4	234274	14.6	20.4
47762	14.3	17.9	450181	14.3	20.5	325961	14.4	21.2	213673	14.5	20.7	168288	14.5	20.9	76113	14.6	18.9
29931	14.3	16.8	276306	14.3	21.7	82322	14.4	19.3	486120	14.5	21.4	327972	14.5	20.0	490753	14.6	19.8
327026	14.3	20.3	128466	14.3	19.5	372711	14.4	21.1	483951	14.5	20.4	317187	14.5	19.4	8171	14.6	17.4
160793	14.3	18.6	269745	14.3	20.3	284410	14.4	20.0	484630	14.5	21.5	151623	14.5	20.3	2991	14.6	17.0
213058	14.3	19.9	338987	14.3	20.2	96681	14.4	18.4	79210	14.5	18.2	1916	14.5	18.9	51148	14.6	19.0
321770	14.3	20.7	199006	14.3	20.2	116638	14.4	18.7	336604	14.5	20.6	128142	14.5	20.1	307680	14.6	20.9
65714	14.3	18.9	304071	14.3	20.9	286585	14.4	19.2	85399	14.5	18.8	93709	14.5	18.6	382156	14.6	20.7
429271	14.3	20.3	313511	14.3	19.5	377064	14.4	21.2	462628	14.5	22.0	5512	14.5	17.2	424249	14.6	21.6
280809	14.3	20.4	399255	14.3	20.1	27639	14.4	18.5	1364	14.5	15.2	5664	14.5	18.3	282097	14.6	20.9
57083	14.3	16.0	334233	14.3	20.9	292017	14.4	21.2	56622	14.5	18.5	243445	14.5	19.0	318913	14.6	19.9
111759	14.3	19.6	194450	14.3	20.4	222935	14.4	21.0	522504	14.5	21.2	44448	14.5	18.6	171862	14.6	20.4
226147	14.3	21.4	328359	14.3	20.6	148872	14.4	20.8	411824	14.5	20.4	176673	14.5	20.2	424888	14.6	21.5
227416	14.3	20.1	409957	14.3	21.3	419919	14.4	20.6	156820	14.5	20.4	234200	14.5	20.7	15814	14.6	19.6
200985	14.3	19.2	394812	14.3	20.5	387119	14.4	20.0	194020	14.5	21.1	397069	14.6	20.4	45466	14.6	17.5
370576	14.3	20.7	25474	14.3	18.3	148918	14.4	19.3	492558	14.5	21.3	110351	14.6	20.3	286002	14.6	20.1
388069	14.3	20.9	62769	14.3	19.4	543597	14.4	22.1	16265	14.5	19.1	219150	14.6	19.9	19205	14.6	19.2
59631	14.3	17.5	120392	14.3	20.1	502793	14.4	20.8	118095	14.5	20.3	86436	14.6	18.7	292982	14.6	19.9
244984	14.3	20.4	212241	14.3	19.1	531321	14.4	21.7	279017	14.5	20.5	339547	14.6	20.2	230012	14.6	19.5
372650	14.3	20.7	113808	14.3	19.0	466907	14.4	21.0	122828	14.5	20.0	352709	14.6	21.1	449551	14.6	20.5
31943	14.3	18.8	182629	14.3	19.9	217255	14.4	20.1	535378	14.5	20.6	127610	14.6	19.1	140883	14.6	20.0
246631	14.3	19.9	416611	14.3	21.9	116763	14.4	19.9	492970	14.5	21.0	364851	14.6	21.1	251286	14.6	20.5
161770	14.3	20.1	166884	14.3	20.3	280259	14.4	20.2	501952	14.5	20.1	95745	14.6	18.1	482847	14.6	20.6
320765	14.3	19.7	69227	14.3	18.3	299011	14.4	20.0	114583	14.5	19.6	460405	14.6	21.6	378841	14.6	21.1
96669	14.3	18.6	146962	14.3	19.0	414935	14.4	21.2	81963	14.5	19.1	13697	14.6	18.1	448286	14.6	21.8
293028	14.3	20.5	363020	14.3	21.2	411320	14.4	21.4	49523	14.5	18.3	263967	14.6	20.1	271498	14.6	19.4
140139	14.3	19.4	417159	14.3	20.7	279067	14.4	20.8	223755	14.5	20.1	255920	14.6	20.9	436125	14.6	21.6
192988	14.3	19.3	237773	14.3	19.5	414240	14.4	20.7	110464	14.5	19.6	171144	14.6	20.5	473634	14.6	20.9
458659	14.3	20.5	348501	14.4	21.7	373170	14.4	19.3	408930	14.5	20.2	83469	14.6	18.0	286673	14.6	19.7
111886	14.3	19.9	90090	14.4	19.4	441936	14.4	20.2	128011	14.5	20.0	194613	14.6	21.1	189649	14.6	19.7
495372	14.3	21.0	110729	14.4	20.3	428920	14.4	21.7	270959	14.5	19.8	307330	14.6	20.3	298474	14.6	19.2
205826	14.3	19.4	61544	14.4	19.6	318769	14.4	20.6	541506	14.5	21.7	541078	14.6	21.2	217542	14.6	20.2
128866	14.3	20.5	49925	14.4	18.3	85159	14.4	18.4	115726	14.5	19.6	243938	14.6	21.0	361603	14.6	19.4
391452	14.3	19.9	244289	14.4	19.0	402122	14.4	20.2	97418	14.5	18.9	219362	14.6	20.0	63721	14.6	19.3
117868	14.3	19.4	94849	14.4	19.5	144916	14.4	19.9	359599	14.5	20.9	165786	14.6	19.5	174272	14.6	19.4
66484	14.3	19.6	502168	14.4	20.4	298380	14.4	21.5	2297	14.5	15.5	417086	14.6	21.2	443970	14.6	23.0
280263	14.3	19.4	499972	14.4	20.6	451496	14.4	21.7	153814	14.5	21.0	37902	14.6	17.9	104464	14.6	19.2
108469	14.3	19.3	503683	14.4	21.4	339686	14.4	20.7	29354	14.5	19.0	123291	14.6	20.4	363682	14.6	21.6
45506	14.3	19.3	51944	14.4	18.0	2179	14.4	15.5	236669	14.5	20.8	413966	14.6	20.7	55451	14.6	17.4
346893	14.3	21.3	134883	14.4	20.2	519204	14.4	20.8	224861	14.5	19.2	541077	14.6	20.3	343341	14.6	20.5
18737	14.3	17.4	109347	14.4	17.7	402724	14.4	21.0	52117	14.5	20.0	171942	14.6	20.7	120107	14.6	20.0
40124	14.3	19.0	428095	14.4	21.1	178877	14.4	20.9	300285	14.5	20.5	327482	14.6	20.8	233005	14.6	19.9
46684	14.3	19.5	544017	14.4	21.1	25018	14.4	18.2	81935	14.5	18.6	529256	14.6	21.7	337233	14.6	18.3
113630	14.3	19.7	176969	14.4	20.9	158365	14.4	19.3	223825	14.5	19.4	36064	14.6	17.9	178545	14.6	19.6
85525	14.3	19.6	333061	14.4	21.8	147250	14.4	19.2	288643	14.5	20.2	247915	14.6	20.5	154136	14.6	20.5
171972	14.3	19.5	145237	14.4	18.6	162770	14.4	19.9	486005	14.5	21.8	224732	14.6	20.9	381051	14.6	20.5
43822	14.3	19.8	207474	14.4	20.5	64115	14.4	19.0	124675	14.5	19.4	89006	14.6	19.4	466721	14.6	20.2
403564	14.3	21.0	56139	14.4	18.2	247357	14.4	19.2	395197	14.5	20.7	273422	14.6	20.8	406037	14.6	21.7
427220	14.3	21.1	525548	14.4	21.0	13009	14.4	17.5	159461	14.5	20.0	494847	14.6	19.1	120038	14.6	20.4
148993	14.3	19.5	88997	14.4	19.4	326742	14.4	20.4	146337	14.5	19.5	182995	14.6	20.9	10773	14.6	18.7
242133	14.3	20.0	360813	14.4	19.9	5036	14.4	15.4	47384	14.5	18.5	154041	14.6	20.0	388019	14.6	21.1
126753	14.3	18.6	323942	14.4	20.9	235385	14.4	19.1	28585	14.5	18.4	10904	14.6	17.3	231094	14.6	20.2
409466	14.3	20.8	142894	14.4	20.2	514102	14.4	21.7	340065	14.5	21.0	32111	14.6	18.1	403581	14.6	21.5
169346	14.3	20.8	339754	14.4	21.3	97858	14.4	19.8	393311	14.5	19.6	129293	14.6	20.1	441636	14.6	20.7
5214	14.3	16.2	303097	14.4	20.3	492065	14.4	21.6	17990	14.5	17.2	426271	14.6	20.4	168057	14.7	20.2
84070	14.3	18.6	287869	14.4	20.2	29481	14.4	17.6	371789	14.5	20.8	343248	14.6	19.6	484855	14.7	20.8
353424	14.3	21.4	156811	14.4	19.6	459172	14.4	20.8	40272	14.5	19.4	539989	14.6	21.3	423112	14.7	20.0
134350	14.3	19.7	162077	14.4	20.7	432095	14.4	20.8	117834	14.5	19.7	10269	14.6	17.8	446897	14.7	21.6
129399	14.3	19.7	425802	14.4	20.0	278930	14.5	20.1	196980	14.5	19.2	50948	14.6	18.3	77500	14.7	17.3
367715	14.3	20.4	23418	14.4	19.0	58466	14.5	20.3	243514	14.5	19.2	425458	14.6	20.4	437935	14.7	21.8
441517	14.3	22.0	113838	14.4	19.0	541087	14.5	22.2	235412	14.5	19.7	307904	14.6	20.4	234875	14.7	20.5
412984	14.3	22.3	183964	14.4	22.6	402650	14.5	21.7	77727	14.5	19.0	455061	14.6	21.8	89920	14.7	19.4
373279	14.3	19.9	17744	14.4	19.6	280673	14.5	21.5	109563	14.5	19.4	496234	14.6	19.4	426798	14.7	20.9
28970	14.3	18.0	51792	14.4	17.7	252377	14.5	20.9	417171</								

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
322899	14.7	19.2	44526	14.7	18.3	291143	14.8	20.6	529668	14.9	23.9	492223	14.9	20.6	160886	14.9	19.4
114976	14.7	18.3	459899	14.7	20.9	181546	14.8	19.8	169136	14.9	20.6	5801	14.9	17.2	136297	14.9	19.5
160507	14.7	20.7	235457	14.7	19.6	58567	14.8	19.3	284743	14.9	19.9	280642	14.9	18.9	466033	14.9	20.5
149031	14.7	19.4	131106	14.7	19.2	11128	14.8	17.1	105452	14.9	20.1	137389	14.9	19.4	27207	14.9	17.7
425316	14.7	21.7	145699	14.7	21.2	334926	14.8	19.2	407531	14.9	20.9	109578	14.9	19.5	88604	14.9	17.0
262610	14.7	19.6	385170	14.7	20.8	82941	14.8	19.5	63881	14.9	19.7	344277	14.9	20.8	340030	14.9	21.3
438442	14.7	21.6	314793	14.7	20.8	394412	14.8	19.8	479374	14.9	20.8	349640	14.9	21.4	428490	14.9	20.6
226174	14.7	19.4	365757	14.7	20.1	132624	14.8	19.4	2573	14.9	15.6	354389	14.9	19.8	204351	14.9	20.1
161319	14.7	19.9	350666	14.8	21.8	139830	14.8	19.1	110736	14.9	19.0	13136	14.9	18.2	494508	14.9	21.3
398147	14.7	19.4	374225	14.8	20.6	130468	14.8	19.9	322736	14.9	21.2	451476	14.9	21.5	262319	14.9	21.2
238346	14.7	19.4	532782	14.8	21.4	180949	14.8	19.8	132821	14.9	20.2	487179	14.9	21.1	496679	14.9	20.9
323483	14.7	20.8	225353	14.8	18.7	426445	14.8	20.6	158406	14.9	20.2	92781	14.9	18.3	168077	14.9	19.9
473335	14.7	20.7	398679	14.8	20.3	129386	14.8	19.9	141850	14.9	19.9	105298	14.9	18.4	402112	14.9	20.3
272192	14.7	20.7	461752	14.8	20.7	317574	14.8	21.0	229072	14.9	19.3	248218	14.9	19.9	138640	14.9	19.9
495230	14.7	20.7	403608	14.8	21.7	518705	14.8	20.9	418259	14.9	21.1	532258	14.9	21.3	213389	14.9	21.1
321073	14.7	21.2	74633	14.8	18.8	513835	14.8	20.9	71729	14.9	18.2	232083	14.9	21.1	27539	14.9	17.7
94559	14.7	18.8	390707	14.8	19.8	284797	14.8	21.5	24364	14.9	18.0	84464	14.9	19.2	534396	14.9	22.6
463389	14.7	20.0	524981	14.8	21.6	79852	14.8	19.5	375577	14.9	21.3	116716	14.9	19.3	409470	14.9	21.5
214255	14.7	19.7	270765	14.8	20.5	199429	14.8	18.9	150156	14.9	20.1	394889	14.9	21.2	102005	14.9	19.6
222117	14.7	20.6	259106	14.8	19.9	88405	14.8	18.5	163493	14.9	19.3	349399	14.9	21.5	518938	14.9	20.6
71217	14.7	19.6	61893	14.8	19.0	455345	14.8	21.9	287497	14.9	20.5	463047	14.9	19.8	460193	15.0	21.5
93132	14.7	19.5	173023	14.8	20.7	78775	14.8	19.3	336591	14.9	21.1	202673	14.9	19.8	9348	15.0	17.3
123815	14.7	19.3	194739	14.8	20.4	426958	14.8	20.8	347625	14.9	20.7	314246	14.9	19.8	130684	15.0	20.0
270999	14.7	18.5	28328	14.8	17.1	193854	14.8	19.8	109449	14.9	17.9	541475	14.9	20.1	251152	15.0	20.3
116588	14.7	19.6	48818	14.8	19.3	424869	14.8	21.2	461030	14.9	20.2	296522	14.9	20.1	49364	15.0	18.5
366141	14.7	20.4	143828	14.8	18.2	214312	14.8	20.0	109785	14.9	20.1	332050	14.9	21.1	143821	15.0	19.8
75828	14.7	19.3	407571	14.8	20.6	224963	14.8	19.6	147900	14.9	20.2	53357	14.9	17.6	381206	15.0	21.8
544584	14.7	21.0	55037	14.8	19.0	167010	14.8	19.9	62527	14.9	19.1	102226	14.9	20.2	134327	15.0	20.1
413937	14.7	20.7	5223	14.8	18.6	324021	14.8	21.3	441420	14.9	20.6	256226	14.9	20.7	42785	15.0	19.0
158855	14.7	20.6	323471	14.8	21.2	22833	14.8	17.6	191882	14.9	20.1	231971	14.9	21.2	224719	15.0	20.8
117186	14.7	19.8	245871	14.8	21.2	330263	14.8	21.5	23035	14.9	17.8	18526	14.9	19.2	29798	15.0	16.8
188325	14.7	19.7	52358	14.8	17.9	377937	14.8	21.4	174091	14.9	19.8	409858	14.9	19.7	388456	15.0	20.0
313508	14.7	19.8	186528	14.8	19.9	375561	14.8	20.8	520987	14.9	21.4	3820	14.9	17.1	255776	15.0	20.2
116674	14.7	19.6	177571	14.8	19.0	458331	14.8	22.1	169917	14.9	18.9	397525	14.9	21.5	517836	15.0	21.1
314822	14.7	19.8	198255	14.8	20.3	542162	14.8	21.2	335691	14.9	20.6	460426	14.9	21.8	422068	15.0	20.6
188319	14.7	19.4	408286	14.8	20.7	165809	14.8	20.2	397136	14.9	20.2	457025	14.9	21.1	116868	15.0	19.3
8299	14.7	17.0	122000	14.8	18.5	238411	14.8	19.8	349501	14.9	22.3	13526	14.9	18.3	453943	15.0	20.9
64058	14.7	17.9	77874	14.8	17.4	394367	14.8	19.9	439387	14.9	20.4	132975	14.9	19.4	204861	15.0	19.9
455346	14.7	22.4	298365	14.8	21.6	394067	14.8	20.9	68011	14.9	19.0	32232	14.9	17.5	219836	15.0	20.0
490390	14.7	21.6	388426	14.8	20.1	496655	14.8	21.0	381626	14.9	20.4	64841	14.9	18.0	119995	15.0	19.2
499976	14.7	21.0	156896	14.8	18.9	109583	14.8	18.9	265919	14.9	20.6	343211	14.9	21.1	201233	15.0	20.9
413553	14.7	20.5	332863	14.8	20.6	414194	14.8	20.4	449019	14.9	20.3	373234	14.9	20.0	352934	15.0	20.1
72950	14.7	19.2	250645	14.8	21.0	58004	14.8	19.3	205318	14.9	20.2	256777	14.9	20.5	148239	15.0	18.8
366069	14.7	20.1	481356	14.8	20.4	62518	14.8	17.9	334456	14.9	21.0	318711	14.9	20.4	61024	15.0	18.8
499983	14.7	21.8	475774	14.8	21.5	203985	14.8	19.7	125423	14.9	18.5	4919	14.9	17.4	215494	15.0	19.0
515268	14.7	20.7	336988	14.8	20.7	461316	14.8	21.0	80364	14.9	19.2	122398	14.9	19.6	112507	15.0	19.4
275796	14.7	20.8	222940	14.8	20.6	324090	14.8	20.9	355752	14.9	19.1	341324	14.9	20.4	463395	15.0	20.8
170922	14.7	20.0	235162	14.8	19.8	381921	14.8	20.5	356471	14.9	21.5	493708	14.9	20.5	176342	15.0	19.0
424350	14.7	21.1	466880	14.8	19.9	25933	14.8	19.0	323887	14.9	20.9	19902	14.9	17.8	35948	15.0	19.8
220896	14.7	20.2	257378	14.8	20.8	331375	14.8	20.2	496121	14.9	21.2	337632	14.9	19.6	415507	15.0	20.3
112783	14.7	20.2	283002	14.8	20.8	468213	14.8	20.9	536383	14.9	21.0	285342	14.9	21.6	455159	15.0	21.2
82557	14.7	19.8	83186	14.8	19.8	443122	14.8	20.4	311063	14.9	20.3	238261	14.9	20.4	120482	15.0	17.9
9342	14.7	18.2	512271	14.8	21.1	251617	14.8	20.9	51539	14.9	18.2	224002	14.9	20.4	81355	15.0	19.2
468461	14.7	19.8	82738	14.8	19.4	32969	14.8	19.4	432573	14.9	20.7	194862	14.9	19.2	223080	15.0	20.0
339944	14.7	19.8	162916	14.8	19.4	543147	14.8	21.6	147094	14.9	21.0	347103	14.9	19.8	114478	15.0	18.8
28801	14.7	18.2	154025	14.8	19.6	261457	14.8	21.0	525883	14.9	22.3	212458	14.9	19.7	405937	15.0	21.6
27906	14.7	19.0	14702	14.8	17.6	69782	14.8	18.8	43065	14.9	18.3	276272	14.9	20.5	314784	15.0	20.9
373665	14.7	22.0	135123	14.8	20.6	172294	14.8	20.0	204696	14.9	20.6	487131	14.9	20.6	153090	15.0	19.1
117948	14.7	18.9	169339	14.8	19.6	154767	14.8	20.5	284942	14.9	19.7	161145	14.9	20.2	276640	15.0	20.7
355976	14.7	21.4	251669	14.8	20.1	335684	14.8	20.0	228718	14.9	20.1	495661	14.9	20.8	542752	15.0	21.1
419705	14.7	20.4	224911	14.8	19.9	229713	14.8	19.8	537780	14.9	21.9	172735	14.9	18.4	276223	15.0	20.5
113589	14.7	19.5	122976	14.8	20.2	364959	14.8	20.5	328570	14.9	21.2	375627	14.9	21.2	52407	15.0	19.4
315466	14.7	19.8	325326	14.8	20.5	519610	14.8	21.6	443830	14.9	21.3	29065	14.9	18.7	298364	15.0	21.3
117087	14.7	20.3	95978	14.8	20.2	254997	14.8	19.7	148716	14.9	19.9	153953	14.9	19.7	467597	15.0	21.0
184472	14.7	20.1	114114	14.8	18.8	454819	14.8	22.2	445036	14.9	21.7	425369	14.9	19.9	84897	15.0	18.7
422934	14.7	20.3	384654	14.8	20.6	271959	14.8	20.4	390484	14.9	20.1	55184	14.9	18.8	48820	15.0	18.6
275771	14.7	20.3	398644	14.8	20.3	191362	14.8	20.6	455950	14.9	21.6	167682	14.9	18.8	341506	15.0	21.1
279904	14.7	20.3	407507	14.8	21.0	231378	14.9	19.4	263597	14.9	19.9	363876	14.9	20.8	321718	15.0	20.3
264823	14.7	18.9	151209	14.8	19.7	444049											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
426293	15.1	20.0	230465	15.1	20.1	459036	15.2	20.5	245404	15.2	19.9	481417	15.3	21.3	494638	15.4	20.6
182615	15.1	19.8	453024	15.1	22.2	451583	15.2	20.5	294055	15.2	20.1	448980	15.3	20.2	28672	15.4	17.1
344059	15.1	21.5	285679	15.1	20.9	491729	15.2	21.9	293598	15.2	19.7	2712	15.3	15.9	130537	15.4	20.7
468195	15.1	20.6	542811	15.1	20.6	322026	15.2	20.2	458182	15.2	21.5	203069	15.3	20.9	160254	15.4	20.5
339794	15.1	21.3	495601	15.1	20.9	241328	15.2	20.7	21176	15.2	18.4	224640	15.3	19.2	80762	15.4	18.4
9113	15.1	17.0	502048	15.1	20.2	442739	15.2	22.0	820	15.2	15.0	395348	15.3	21.9	101980	15.4	18.5
295744	15.1	20.2	339743	15.1	20.5	289814	15.2	19.5	409618	15.2	21.4	15828	15.3	17.3	211329	15.4	19.3
544975	15.1	20.9	328557	15.1	21.0	110836	15.2	19.0	195840	15.2	20.0	169623	15.3	19.6	114441	15.4	18.8
455893	15.1	20.5	385999	15.1	20.0	177288	15.2	19.5	7970	15.2	17.7	340601	15.3	21.2	494963	15.4	21.1
30663	15.1	18.5	144556	15.1	19.5	392493	15.2	21.3	408884	15.2	21.0	422168	15.3	21.4	43653	15.4	17.7
468760	15.1	20.8	169345	15.1	20.2	203089	15.2	19.5	425352	15.2	20.9	160247	15.3	19.6	197956	15.4	20.2
227394	15.1	20.4	391873	15.1	20.3	450951	15.2	18.9	521328	15.2	21.6	484608	15.3	21.1	271327	15.4	20.4
139180	15.1	20.2	53049	15.1	18.4	441639	15.2	21.6	176695	15.2	20.6	413616	15.3	20.9	457875	15.4	20.4
232714	15.1	20.1	68445	15.1	18.8	439965	15.2	20.7	184355	15.2	19.8	527665	15.3	22.0	3285	15.4	16.5
96683	15.1	17.7	419186	15.1	22.3	442881	15.2	21.1	110678	15.2	19.8	319841	15.3	21.1	227891	15.4	19.6
310091	15.1	19.9	32149	15.1	19.0	96992	15.2	19.6	481989	15.2	24.3	388067	15.3	20.8	52555	15.4	18.6
62045	15.1	19.4	418893	15.1	20.5	274131	15.2	20.4	12606	15.2	18.4	396521	15.3	19.3	351290	15.4	21.5
339685	15.1	21.1	323504	15.1	20.6	411324	15.2	21.6	228778	15.2	20.3	326164	15.3	20.0	455786	15.4	22.2
98721	15.1	18.9	278009	15.1	20.1	471350	15.2	21.7	310323	15.2	20.0	30873	15.3	17.9	433542	15.4	20.7
410059	15.1	20.5	451689	15.1	20.7	376616	15.2	20.7	249002	15.2	20.5	68999	15.3	19.6	367915	15.4	19.6
403994	15.1	20.8	239482	15.1	20.7	5793	15.2	17.2	189781	15.2	19.3	83031	15.3	19.1	147248	15.4	18.0
133105	15.1	20.0	486083	15.1	21.5	466498	15.2	20.9	415748	15.2	20.0	12010	15.3	17.0	241916	15.4	19.9
119735	15.1	18.9	8886	15.1	18.5	166759	15.2	19.3	336842	15.3	20.8	479549	15.3	20.5	44311	15.4	18.0
114323	15.1	20.0	97787	15.1	19.7	459633	15.2	20.9	271939	15.3	21.1	64057	15.3	19.5	372271	15.4	20.2
543695	15.1	22.1	344618	15.1	19.6	79478	15.2	19.2	120687	15.3	20.2	49210	15.3	17.9	422477	15.4	21.0
229272	15.1	19.0	300306	15.1	21.2	235444	15.2	19.6	30186	15.3	17.5	82698	15.3	19.1	63580	15.4	18.3
495061	15.1	20.9	426295	15.1	21.4	538839	15.2	21.8	398782	15.3	21.1	457831	15.3	21.4	297270	15.4	21.5
272328	15.1	20.3	131818	15.1	19.0	414566	15.2	21.5	542970	15.3	21.3	542129	15.3	20.8	403613	15.4	21.3
531504	15.1	20.6	50313	15.1	17.8	77272	15.2	19.1	372107	15.3	20.8	483187	15.3	19.9	411408	15.4	21.4
445920	15.1	19.9	26219	15.1	17.8	139189	15.2	18.9	347257	15.3	20.3	54266	15.3	18.4	157109	15.4	20.6
188236	15.1	20.2	240913	15.1	19.3	482809	15.2	21.3	238920	15.3	19.8	502401	15.3	20.7	538179	15.4	20.7
395974	15.1	20.7	385915	15.1	21.7	465474	15.2	21.6	480882	15.3	21.4	334457	15.3	21.3	544110	15.4	21.0
113786	15.1	19.6	481996	15.1	21.6	520061	15.2	21.3	373395	15.3	21.1	502210	15.3	20.6	244907	15.4	20.8
427186	15.1	22.0	55118	15.1	18.6	92563	15.2	20.4	347620	15.3	21.3	359490	15.3	21.1	440264	15.4	22.1
6820	15.1	17.0	67807	15.1	18.5	238561	15.2	20.2	274037	15.3	20.9	332140	15.3	20.6	457765	15.4	21.3
523899	15.1	23.4	274316	15.1	20.9	26003	15.2	18.6	454598	15.3	21.0	492863	15.3	22.0	20932	15.4	17.7
199616	15.1	18.9	239426	15.1	19.8	334573	15.2	21.1	457971	15.3	20.2	82944	15.3	17.7	120951	15.4	19.6
506207	15.1	19.9	117083	15.1	20.5	493804	15.2	19.8	163275	15.3	19.1	310443	15.3	21.4	531533	15.4	21.6
466454	15.1	21.4	416807	15.2	20.2	373738	15.2	20.5	503593	15.3	20.6	87760	15.3	19.7	486535	15.4	19.9
256103	15.1	20.9	125148	15.2	18.6	305120	15.2	20.5	116307	15.3	19.7	233156	15.3	20.1	92851	15.4	17.9
518645	15.1	22.4	468764	15.2	19.9	143844	15.2	19.9	115555	15.3	18.2	10802	15.3	17.4	58808	15.4	18.8
542184	15.1	20.6	397437	15.2	19.2	472722	15.2	20.1	28040	15.3	19.2	391885	15.3	20.9	124542	15.4	19.7
425893	15.1	21.2	31913	15.2	19.2	3122	15.2	17.6	483758	15.3	21.9	124461	15.3	19.6	4387	15.4	15.7
288203	15.1	19.8	220328	15.2	19.4	185057	15.2	20.5	480910	15.3	21.6	27058	15.3	17.5	165635	15.4	18.6
370796	15.1	21.4	219839	15.2	20.1	58311	15.2	19.6	447552	15.3	20.1	517604	15.3	20.6	184439	15.4	19.1
75134	15.1	18.0	53588	15.2	18.0	296675	15.2	20.7	458752	15.3	21.0	214372	15.3	20.3	15677	15.4	16.8
414870	15.1	21.4	246495	15.2	20.0	96894	15.2	19.4	235468	15.3	19.4	21306	15.3	18.1	370587	15.4	21.7
101568	15.1	19.5	79192	15.2	18.4	159023	15.2	20.2	296896	15.3	20.6	531698	15.3	21.5	491263	15.4	21.4
494063	15.1	20.8	104908	15.2	19.2	93332	15.2	19.5	454377	15.3	19.4	138513	15.3	19.8	257309	15.4	19.7
527306	15.1	21.4	304996	15.2	19.4	468325	15.2	19.6	475589	15.3	20.7	238992	15.3	19.9	318835	15.4	20.0
205349	15.1	20.6	518597	15.2	21.3	234907	15.2	20.0	6644	15.3	18.0	96013	15.3	20.5	222764	15.4	19.3
408671	15.1	21.3	528510	15.2	21.0	517182	15.2	21.0	153129	15.3	19.8	438070	15.3	21.7	136736	15.4	20.5
238492	15.1	20.3	452199	15.2	22.0	7166	15.2	16.7	181225	15.3	20.1	2394	15.3	16.5	454005	15.4	20.1
543922	15.1	21.4	327224	15.2	21.1	59033	15.2	20.0	365243	15.3	21.1	218377	15.4	19.9	172046	15.4	20.0
383416	15.1	19.7	10384	15.2	17.8	425345	15.2	20.0	137844	15.3	18.5	284233	15.4	20.8	190752	15.4	20.1
541294	15.1	21.0	187058	15.2	20.1	483973	15.2	21.4	68575	15.3	19.0	257037	15.4	20.0	106808	15.4	18.9
192602	15.1	19.7	425481	15.2	20.4	240107	15.2	19.7	29066	15.3	18.3	86975	15.4	18.3	312254	15.4	20.3
221267	15.1	20.6	139032	15.2	18.6	134458	15.2	19.9	344333	15.3	21.0	54050	15.4	17.8	339933	15.4	20.7
170134	15.1	19.5	175824	15.2	20.6	237736	15.2	21.3	117628	15.3	19.4	28624	15.4	17.2	339968	15.4	19.7
541603	15.1	21.5	383364	15.2	20.9	3946	15.2	16.4	339848	15.3	20.6	543713	15.4	20.8	415519	15.4	20.1
452363	15.1	21.1	366978	15.2	21.2	418800	15.2	21.4	163306	15.3	19.5	169696	15.4	20.1	25071	15.4	18.1
452724	15.1	20.1	443987	15.2	21.2	222799	15.2	19.6	143080	15.3	21.3	375461	15.4	20.6	495122	15.4	19.8
52397	15.1	19.5	126102	15.2	18.8	195740	15.2	19.9	541696	15.3	20.4	81733	15.4	19.4	16670	15.4	18.7
432226	15.1	20.8	409616	15.2	20.9	207774	15.2	20.6	286980	15.3	21.4	269642	15.4	20.3	529548	15.4	19.9
277174	15.1	20.5	56544	15.2	18.8	365414	15.2	19.4	296567	15.3	20.7	479393	15.4	21.3	206670	15.4	19.6
224356	15.1	20.8	370370	15.2	20.3	304863	15.2	21.4	462972	15.3	20.5	418714	15.4	20.2	196987	15.4	20.2
161466	15.1	20.2	82596	15.2	19.5	503604	15.2	21.2	490745	15.3	22.1	101533	15.4	20.4	104634	15.4	19.7
237003	15.1	20.2	131423	15.2	19.8	463809	15.2	21.2	213616	15.3	20.0	169307	15.4	20.7	92485	15.4	19.8
423320	15.1	20.8	126591	15.2	19.4	44524	15.2	17.6									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
264743	15.4	20.0	417097	15.5	21.8	420284	15.6	19.8	75702	15.6	18.9	41086	15.7	18.9	23431	15.8	19.1
118774	15.4	19.7	393980	15.5	20.1	495526	15.6	21.7	81510	15.6	18.1	455208	15.7	22.7	47082	15.8	18.5
87022	15.4	18.9	364393	15.5	20.6	541192	15.6	21.5	435001	15.6	21.9	418617	15.7	19.4	242266	15.8	20.3
334196	15.4	20.9	25672	15.5	18.3	373885	15.6	20.6	279885	15.6	19.1	400823	15.7	20.4	465219	15.8	21.7
112947	15.4	19.9	473299	15.5	20.7	394091	15.6	20.5	491177	15.6	20.6	348628	15.7	20.0	146636	15.8	18.5
25231	15.4	17.5	493932	15.5	21.1	496278	15.6	21.7	159171	15.6	19.2	543994	15.7	21.8	322373	15.8	20.3
113933	15.4	19.5	153176	15.5	19.9	214115	15.6	20.8	246068	15.6	21.2	62307	15.7	18.9	380214	15.8	21.5
426863	15.4	20.7	409427	15.5	21.8	251046	15.6	20.2	14573	15.6	18.7	80944	15.7	18.0	30917	15.8	19.9
444731	15.4	20.3	272342	15.5	20.3	62497	15.6	19.6	458261	15.6	22.1	309206	15.7	19.5	192989	15.8	19.3
420275	15.4	20.4	67657	15.5	18.7	351347	15.6	19.7	13868	15.6	18.3	466218	15.7	20.9	457803	15.8	21.0
183676	15.4	19.4	314230	15.5	20.5	89759	15.6	19.5	454352	15.6	20.1	135936	15.7	19.4	255926	15.8	19.6
394426	15.4	20.2	544672	15.5	20.7	85820	15.6	18.6	348554	15.6	21.2	310781	15.7	21.2	311742	15.8	20.0
541927	15.4	21.1	234185	15.5	19.3	150039	15.6	20.3	40644	15.6	18.0	113445	15.7	19.9	70337	15.8	18.5
490281	15.4	22.0	265367	15.5	20.6	149028	15.6	18.9	44696	15.6	18.8	171471	15.7	19.5	142552	15.8	20.9
495342	15.5	19.6	427066	15.5	21.3	144746	15.6	20.0	326168	15.6	20.0	417133	15.7	20.7	60439	15.8	19.1
456604	15.5	20.5	270234	15.5	20.9	407526	15.6	19.7	378942	15.6	21.7	441677	15.7	21.7	416511	15.8	19.3
402672	15.5	21.1	401056	15.5	22.0	142540	15.6	20.2	369395	15.6	21.1	140071	15.7	20.0	247680	15.8	20.3
254740	15.5	19.9	422165	15.5	21.1	510033	15.6	19.6	323932	15.6	19.2	344346	15.7	20.4	116319	15.8	18.9
377113	15.5	21.5	3213	15.5	17.8	447027	15.6	22.0	338979	15.6	20.9	131036	15.7	19.8	372044	15.8	21.3
244937	15.5	20.1	226127	15.5	20.7	332406	15.6	21.3	439991	15.6	21.3	244904	15.7	19.6	126429	15.8	18.3
104466	15.5	19.5	314717	15.5	21.3	166831	15.6	20.1	34965	15.6	19.6	119695	15.7	19.4	122447	15.8	17.5
311100	15.5	18.9	6140	15.5	17.1	1147	15.6	14.4	397340	15.6	21.7	37672	15.7	18.4	283896	15.8	19.5
354626	15.5	20.4	90967	15.5	20.8	295692	15.6	20.8	233627	15.6	19.2	130863	15.7	19.4	202078	15.8	20.9
331666	15.5	21.0	220288	15.5	18.4	127859	15.6	19.7	322038	15.6	20.4	452947	15.7	20.9	262103	15.8	21.1
17889	15.5	16.6	400046	15.5	21.1	292739	15.6	20.4	127684	15.6	19.6	219874	15.7	20.6	400371	15.8	19.7
197173	15.5	19.0	284731	15.5	21.1	73022	15.6	18.9	208511	15.6	20.9	458226	15.7	22.2	496025	15.8	22.6
63928	15.5	19.4	22786	15.5	18.3	233004	15.6	19.6	247664	15.6	20.7	348959	15.7	20.8	37233	15.8	17.3
149535	15.5	19.4	234407	15.5	20.5	79477	15.6	19.4	81792	15.6	19.1	246388	15.7	20.7	324630	15.8	20.9
15784	15.5	17.9	160326	15.5	20.1	369407	15.6	20.6	206717	15.7	19.1	175924	15.7	19.7	68760	15.8	19.3
147938	15.5	20.1	529771	15.5	21.0	268496	15.6	20.8	490645	15.7	19.9	304867	15.7	21.7	49527	15.8	17.7
456561	15.5	22.3	95750	15.5	19.4	379966	15.6	20.0	176783	15.7	20.3	461110	15.7	20.6	151234	15.8	19.7
293084	15.5	21.4	450156	15.5	21.2	101010	15.6	19.9	360638	15.7	20.3	214278	15.7	19.8	191774	15.8	20.7
395943	15.5	20.9	415212	15.5	19.7	232418	15.6	19.1	296826	15.7	21.4	231180	15.7	20.2	176730	15.8	20.4
116681	15.5	19.5	282538	15.5	21.4	465527	15.6	20.6	103010	15.7	19.3	104244	15.7	18.7	61109	15.8	19.3
25779	15.5	18.8	449533	15.5	20.9	229246	15.6	19.2	224818	15.7	20.6	357380	15.7	21.7	440739	15.8	20.6
506142	15.5	20.1	4730	15.5	16.1	136129	15.6	20.4	383455	15.7	19.6	137225	15.7	20.6	72263	15.8	18.9
284347	15.5	21.4	413506	15.5	21.0	541135	15.6	20.2	84502	15.7	18.7	332634	15.7	20.3	129611	15.8	19.7
201235	15.5	19.8	290032	15.5	20.5	535019	15.6	22.5	541450	15.7	21.6	408503	15.7	20.0	294534	15.8	20.7
340609	15.5	20.7	89569	15.5	19.7	153547	15.6	20.2	252217	15.7	21.4	252397	15.7	20.6	81642	15.8	18.5
408218	15.5	20.8	276678	15.5	20.1	8963	15.6	17.4	356965	15.7	19.9	460917	15.7	21.1	532775	15.8	21.4
216526	15.5	19.7	393693	15.5	21.3	395366	15.6	21.3	272850	15.7	19.4	351329	15.7	20.3	108251	15.8	19.8
442669	15.5	21.5	222979	15.5	20.7	84271	15.6	19.1	362575	15.7	21.7	798	15.7	14.0	273324	15.8	21.6
97720	15.5	18.3	85534	15.5	19.2	246733	15.6	20.1	323817	15.7	20.6	537803	15.7	20.4	459099	15.8	21.7
420879	15.5	20.2	178997	15.5	19.7	142920	15.6	19.1	543410	15.7	20.0	1471	15.7	15.3	73765	15.8	18.6
242766	15.5	20.1	424779	15.5	21.5	327331	15.6	19.8	535701	15.7	21.2	409529	15.7	20.9	2253	15.8	16.6
45418	15.5	19.1	28797	15.5	18.9	60803	15.6	18.7	108707	15.7	19.6	195883	15.7	18.6	156745	15.8	19.0
246718	15.5	20.4	24100	15.5	17.1	339712	15.6	20.4	196334	15.7	19.7	161093	15.7	20.0	194181	15.8	19.5
201269	15.5	20.4	342976	15.5	20.4	138652	15.6	20.0	490142	15.7	20.6	373256	15.7	20.2	44488	15.8	19.2
438111	15.5	20.2	453805	15.5	22.1	450774	15.6	22.1	1831297	15.7	20.9	188116	15.7	20.3	466437	15.8	21.4
417087	15.5	21.2	387353	15.5	21.2	197427	15.6	19.7	424979	15.7	21.0	233998	15.7	19.6	234886	15.8	20.3
428355	15.5	20.7	485103	15.5	20.4	81799	15.6	18.5	88423	15.7	18.9	405727	15.7	21.0	349667	15.8	20.8
104501	15.5	19.0	428812	15.5	22.0	157116	15.6	20.6	130573	15.7	20.8	543041	15.7	20.8	450654	15.8	19.6
237009	15.5	20.8	136548	15.5	20.5	59960	15.6	19.4	537	15.7	13.9	138907	15.7	18.7	290894	15.8	19.6
50639	15.5	18.3	6184	15.5	16.8	76094	15.6	19.4	347775	15.7	20.8	346110	15.7	20.3	220938	15.8	20.5
426853	15.5	21.5	418855	15.5	20.0	238383	15.6	18.7	347640	15.7	21.8	295148	15.7	21.1	258563	15.8	20.4
389300	15.5	21.7	339687	15.5	19.5	381198	15.6	21.5	277215	15.7	20.9	322135	15.7	20.6	161108	15.8	19.6
379112	15.5	21.0	333385	15.5	20.4	23682	15.6	18.9	141273	15.7	19.5	127774	15.7	18.6	402568	15.8	22.9
413038	15.5	23.2	15336	15.5	18.2	529665	15.6	21.3	132233	15.7	18.6	543188	15.7	20.8	127961	15.8	19.4
318742	15.5	20.2	537899	15.5	20.8	369959	15.6	20.8	481780	15.7	20.5	412424	15.7	19.9	236670	15.8	19.9
181995	15.5	19.9	185931	15.5	20.7	48828	15.6	19.0	44223	15.7	18.2	348197	15.7	20.5	275109	15.8	20.2
124218	15.5	19.6	338883	15.5	20.2	492460	15.6	20.4	86706	15.7	19.1	33126	15.7	18.3	151959	15.8	19.7
467596	15.5	21.6	149235	15.5	18.9	493189	15.6	21.5	304108	15.7	21.0	314738	15.7	21.0	275525	15.8	20.9
422929	15.5	21.5	339990	15.5	20.8	378826	15.6	20.2	194589	15.7	19.3	36689	15.7	18.7	397568	15.8	20.5
233009	15.5	19.8	175801	15.5	20.2	453921	15.6	21.7	11287	15.7	18.2	389387	15.7	20.8	216616	15.8	20.3
88467	15.5	18.6	78913	15.5	18.9	124329	15.6	20.2	204769	15.7	20.5	414193	15.7	20.5	426137	15.8	20.0
416619	15.5	20.6	543412	15.6	20.9	2569	15.6	15.2	16236	15.7	18.6	61231	15.7	19.0	455386	15.8	21.8
120255	15.5	19.2	370227	15.6	20.4	226359	15.6	19.2	445076	15.7	21.7	265061	15.7	20.9	194236	15.8	20.5
370497	15.5	21.5	200456	15.6	20.6	146766	15.6	20.3	197847	15.7	20.1	412258	15.7	21.8	23497	15.8	17.8
522409	15.5	21.3	256022	15.6	19.6	464006	15.6	21.									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
252595	15.8	19.8	258934	15.9	21.5	417105	15.9	21.1	257351	16.0	18.9	268268	16.1	20.5	457913	16.2	21.6
194917	15.8	19.8	24430	15.9	17.9	443992	15.9	22.2	42051	16.0	18.8	230537	16.1	19.3	287249	16.2	20.5
423348	15.8	20.4	321505	15.9	19.9	76075	15.9	19.4	376064	16.0	20.1	321980	16.1	20.9	364428	16.2	20.1
89706	15.8	19.4	157258	15.9	20.9	23423	15.9	18.6	233152	16.0	20.3	243811	16.1	20.5	280914	16.2	21.5
210587	15.8	19.1	460371	15.9	21.8	23030	15.9	17.1	481385	16.0	21.9	213701	16.1	20.5	345261	16.2	20.7
416503	15.8	20.4	532653	15.9	21.9	376348	15.9	20.1	336924	16.0	20.5	363779	16.1	19.8	346884	16.2	19.9
517181	15.8	21.8	52862	15.9	18.3	63429	15.9	18.9	413582	16.0	20.9	58134	16.1	18.8	326246	16.2	19.7
341007	15.8	20.4	13518	15.9	18.6	326316	15.9	20.9	15551	16.0	17.4	316210	16.1	20.8	461781	16.2	20.9
237708	15.8	20.0	322723	15.9	20.5	168776	15.9	20.1	239302	16.0	20.6	323913	16.1	21.1	188814	16.2	19.3
236361	15.8	20.1	146400	15.9	19.9	544897	15.9	21.0	428801	16.0	21.5	149272	16.1	20.3	121166	16.2	19.9
43596	15.8	19.2	100914	15.9	19.2	73968	15.9	18.6	56887	16.0	18.3	26433	16.1	17.4	244406	16.2	20.6
420946	15.8	20.4	104796	15.9	19.0	124419	15.9	19.8	349087	16.0	20.2	439205	16.1	20.3	483942	16.2	21.1
413537	15.8	21.6	443976	15.9	21.2	28225	15.9	18.3	38120	16.0	19.2	493853	16.1	20.6	101777	16.2	18.1
304116	15.8	21.0	409449	15.9	21.3	161666	15.9	20.0	348265	16.0	21.0	347166	16.1	19.7	151926	16.2	19.3
12230	15.8	17.8	245868	15.9	20.0	270635	15.9	20.6	40819	16.0	18.8	210976	16.1	20.4	282828	16.2	20.9
498551	15.8	21.2	450768	15.9	21.7	393682	15.9	21.1	375125	16.0	20.4	315795	16.1	20.7	169722	16.2	19.6
99918	15.8	19.6	225277	15.9	20.2	157216	15.9	20.7	147967	16.0	19.8	152880	16.1	20.6	194632	16.2	19.8
207458	15.8	20.8	276850	15.9	20.9	71622	15.9	18.0	461534	16.0	21.7	214328	16.1	20.4	208204	16.2	19.8
427088	15.8	21.1	469268	15.9	19.9	278691	15.9	20.1	466407	16.0	21.7	12286	16.1	17.5	205473	16.2	20.5
355918	15.8	20.0	229486	15.9	19.8	279056	15.9	20.9	214366	16.0	20.3	495690	16.1	21.3	194289	16.2	20.6
221551	15.8	19.7	85532	15.9	18.8	335965	15.9	21.5	532800	16.0	21.3	390840	16.1	20.8	201254	16.2	20.5
212177	15.8	20.0	492841	15.9	20.9	314327	15.9	20.1	81973	16.0	19.8	256308	16.1	21.2	80534	16.2	19.1
306377	15.8	20.9	105491	15.9	19.2	433070	15.9	21.0	364011	16.0	22.0	340001	16.1	19.8	279964	16.2	20.7
425386	15.8	19.9	269378	15.9	19.9	207805	15.9	20.6	186197	16.0	20.0	340652	16.1	20.9	279224	16.2	21.0
257519	15.8	19.4	259289	15.9	19.1	232624	15.9	21.2	233719	16.0	20.6	427251	16.1	21.1	45715	16.2	19.7
97982	15.8	19.3	29764	15.9	18.1	173221	15.9	20.5	283164	16.0	20.7	529302	16.1	21.1	418051	16.2	20.5
122990	15.8	18.9	10690	15.9	18.6	263381	15.9	19.9	454542	16.1	20.9	237511	16.1	20.6	123266	16.2	20.2
454791	15.8	21.0	49598	15.9	17.6	36855	15.9	17.0	36493	16.1	18.7	188091	16.1	19.8	141024	16.2	19.5
242353	15.8	19.2	158359	15.9	20.7	322381	15.9	20.4	94772	16.1	19.9	521373	16.1	20.7	344360	16.2	21.7
186671	15.8	19.7	270036	15.9	20.1	208081	15.9	21.0	192436	16.1	19.3	74538	16.1	18.2	57672	16.2	19.1
239670	15.8	20.1	450832	15.9	21.6	430227	15.9	21.5	219044	16.1	19.7	130762	16.1	19.0	258196	16.2	20.9
108861	15.8	19.5	544147	15.9	21.4	276358	15.9	20.5	88381	16.1	19.0	78656	16.1	18.5	340776	16.2	20.1
200004	15.8	19.1	79911	15.9	17.7	277440	15.9	20.3	185774	16.1	19.7	154311	16.1	20.3	175948	16.2	19.9
131888	15.8	18.8	493752	15.9	20.9	410878	15.9	21.5	343168	16.1	19.9	334199	16.1	21.1	245670	16.2	18.5
340011	15.9	19.9	519893	15.9	21.0	152816	15.9	19.7	148691	16.1	21.3	342882	16.1	21.2	366327	16.2	20.7
127758	15.9	19.0	110189	15.9	16.9	489702	15.9	20.7	174955	16.1	20.2	318080	16.1	19.1	258161	16.2	20.9
124407	15.9	18.3	401207	15.9	20.7	120952	15.9	19.9	375534	16.1	21.3	189272	16.1	19.9	181666	16.2	19.0
106120	15.9	18.3	119238	15.9	18.3	275761	15.9	20.9	226040	16.1	19.3	426316	16.1	20.3	109350	16.2	18.3
381289	15.9	21.0	343824	15.9	20.2	320749	15.9	20.6	270014	16.1	20.1	89226	16.1	19.1	148876	16.2	19.7
145119	15.9	20.0	211592	15.9	19.6	104947	15.9	19.3	490724	16.1	21.6	425296	16.1	20.1	541511	16.2	22.3
116894	15.9	19.7	89506	15.9	18.7	210866	15.9	19.9	256798	16.1	19.8	256044	16.1	20.1	125064	16.2	19.8
341879	15.9	20.4	271748	15.9	20.5	362601	15.9	20.8	402572	16.1	22.0	430306	16.1	20.2	219404	16.2	20.8
413579	15.9	21.0	202868	15.9	20.5	405057	15.9	21.7	179299	16.1	20.6	271303	16.1	20.9	446410	16.2	20.4
285557	15.9	19.9	295930	15.9	20.4	10929	15.9	17.1	365508	16.1	20.1	124177	16.1	20.2	143088	16.2	19.4
475478	15.9	21.9	169878	15.9	20.2	96431	15.9	18.2	512186	16.1	21.8	29179	16.1	18.7	446998	16.2	18.2
50685	15.9	18.0	3230	15.9	17.8	94410	15.9	18.0	362499	16.1	21.6	304895	16.1	21.6	228827	16.2	19.2
452582	15.9	20.6	461663	15.9	20.7	294464	15.9	20.8	460208	16.1	20.7	108204	16.1	18.7	157888	16.2	20.4
339947	15.9	20.9	334667	15.9	20.4	315587	15.9	20.2	368157	16.1	22.6	342455	16.1	19.5	544162	16.2	20.4
482466	15.9	20.8	53813	15.9	18.4	51744	15.9	19.5	252100	16.1	20.6	236817	16.1	20.0	197728	16.2	20.8
81740	15.9	18.3	55399	15.9	17.9	11247	15.9	18.8	468062	16.1	21.1	344239	16.1	21.6	100480	16.2	21.7
490436	15.9	21.7	153762	15.9	20.0	148171	15.9	19.2	89744	16.1	18.8	189543	16.1	18.6	382172	16.2	20.7
351283	15.9	21.4	448820	15.9	22.2	340859	15.9	20.8	335858	16.1	21.1	29233	16.1	17.5	335349	16.2	20.8
406060	15.9	21.8	108197	15.9	19.7	543142	15.9	20.9	453015	16.1	22.4	459148	16.1	20.9	18924	16.2	18.2
271284	15.9	20.5	248675	15.9	19.5	229033	15.9	19.7	402679	16.1	21.5	414016	16.1	20.8	300403	16.2	21.0
283099	15.9	21.5	190842	15.9	19.6	460733	15.9	21.7	387680	16.1	20.8	496112	16.1	21.1	414251	16.2	19.4
331074	15.9	20.8	18984	15.9	17.7	356006	15.9	21.0	203135	16.1	19.8	161682	16.1	20.4	124771	16.2	19.6
40507	15.9	19.2	416656	15.9	21.6	281277	16.0	20.1	456511	16.1	21.6	326481	16.1	19.0	13546	16.2	18.5
423301	15.9	20.2	16403	15.9	17.2	482053	16.0	21.3	244571	16.1	20.6	226183	16.1	20.2	483908	16.2	21.4
343782	15.9	20.7	153158	15.9	20.4	276692	16.0	20.6	378958	16.1	21.0	409424	16.1	21.0	200403	16.2	19.9
112308	15.9	19.2	255977	15.9	20.4	400426	16.0	20.0	135190	16.1	18.6	194494	16.1	22.0	25627	16.2	18.0
340625	15.9	20.5	544073	15.9	21.4	521845	16.0	20.3	303324	16.1	20.0	186447	16.1	19.8	52775	16.2	19.7
87395	15.9	19.4	62919	15.9	19.4	319993	16.0	20.5	450778	16.1	22.0	109326	16.1	18.6	412609	16.2	21.4
405966	15.9	22.0	4936	15.9	16.3	282530	16.0	18.7	421320	16.1	20.7	285642	16.1	21.4	86021	16.2	19.6
42461	15.9	18.5	379943	15.9	20.3	138195	16.0	18.8	161292	16.1	20.0	440707	16.1	20.6	306625	16.2	20.9
317424	15.9	21.3	32820	15.9	19.2	388098	16.0	21.2	482010	16.1	21.0	135151	16.1	19.7	365441	16.2	21.3
223498	15.9	19.8	440245	15.9	21.7	88339	16.0	19.9	185099	16.1	20.7	155945	16.1	20.7	18705	16.2	18.7
484677	15.9	21.7	468974	15.9	21.2	147259	16.0	20.1	277583	16.1	20.6	231972	16.1	19.7	31560	16.2	17.4
264264	15.9	20.2	271772	15.9	20.8	135910	16.0	20.5	492075	16.1	20.4	196315	16.1	19.4	124367	16.2	19.0
80922	15.9	19.0	541156	15.9	20.7	3448											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
32918	16.2	18.1	413278	16.3	21.1	419991	16.3	21.2	275488	16.4	20.4	195302	16.5	20.2	433812	16.5	20.0
265370	16.2	20.5	26765	16.3	18.9	541452	16.3	21.3	493217	16.4	21.1	95995	16.5	20.2	422268	16.5	20.8
43353	16.2	17.2	86793	16.3	18.5	414470	16.3	21.1	194826	16.4	20.8	34396	16.5	19.6	411387	16.5	20.6
414221	16.2	20.2	7274	16.3	16.2	360457	16.3	21.0	427038	16.4	21.5	111053	16.5	19.2	455842	16.5	21.5
467014	16.2	21.2	380976	16.3	20.8	429849	16.3	21.2	142741	16.4	20.7	207703	16.5	19.8	185153	16.5	20.1
262253	16.2	21.3	153157	16.3	20.2	147424	16.3	18.5	542595	16.4	20.2	496474	16.5	20.4	235667	16.5	20.2
95756	16.2	18.8	309556	16.3	19.6	340611	16.3	21.0	84139	16.4	19.9	319844	16.5	20.9	74927	16.5	20.2
381933	16.2	20.7	423803	16.3	21.0	325241	16.3	20.1	256331	16.4	20.2	364718	16.5	20.6	270974	16.5	21.0
487125	16.2	20.8	530501	16.3	21.6	224548	16.3	21.4	130153	16.4	20.7	448224	16.5	22.0	198103	16.5	19.9
158972	16.2	20.7	92475	16.3	18.5	46681	16.3	17.9	279939	16.4	21.1	277097	16.5	20.0	523676	16.5	23.1
416625	16.2	20.5	44480	16.3	18.6	524497	16.3	22.7	246349	16.4	20.3	237	16.5	13.2	416612	16.5	22.1
339580	16.2	20.9	420650	16.3	21.0	465545	16.3	21.1	118804	16.4	19.5	196443	16.5	19.5	343451	16.5	20.1
239498	16.2	19.9	321503	16.3	20.1	406650	16.4	19.6	402586	16.4	21.8	520001	16.5	21.0	313249	16.5	20.4
275403	16.2	20.1	489896	16.3	21.6	341497	16.4	20.7	194871	16.4	18.8	110668	16.5	18.9	372124	16.5	20.8
352180	16.2	20.1	5868	16.3	18.7	244709	16.4	21.0	286071	16.4	21.1	43035	16.5	17.7	209814	16.5	19.7
268065	16.2	20.9	417183	16.3	22.2	268107	16.4	20.5	441487	16.4	22.0	334201	16.5	21.0	90168	16.5	18.3
359391	16.2	20.1	391560	16.3	20.7	49969	16.4	19.2	413027	16.4	22.1	288933	16.5	20.0	86827	16.5	19.0
263423	16.2	20.1	133458	16.3	19.3	2492	16.4	16.4	196079	16.4	20.0	137983	16.5	18.3	468104	16.5	21.0
176060	16.2	19.5	393259	16.3	20.2	53948	16.4	18.7	488731	16.4	22.6	60960	16.5	18.1	278493	16.5	21.0
678	16.2	13.4	337750	16.3	21.2	453428	16.4	19.6	491105	16.4	22.0	535169	16.5	22.4	413658	16.5	20.8
25841	16.2	18.3	38921	16.3	18.9	456364	16.4	20.2	32244	16.4	18.5	183712	16.5	19.8	402686	16.5	22.2
535759	16.2	20.7	8463	16.3	18.0	152221	16.4	19.8	327417	16.4	20.8	332402	16.5	20.6	501914	16.5	20.3
96036	16.2	20.7	181932	16.3	20.1	378513	16.4	20.3	136164	16.4	20.2	369325	16.5	20.9	467809	16.5	20.5
444768	16.2	20.6	334487	16.3	22.2	329619	16.4	21.6	55082	16.4	18.4	464163	16.5	20.7	182383	16.5	20.8
460662	16.2	21.0	278028	16.3	19.9	469714	16.4	20.2	108247	16.4	20.3	187219	16.5	20.1	331710	16.5	20.6
60854	16.2	18.7	295176	16.3	20.5	140956	16.4	19.3	429278	16.4	20.6	163533	16.5	19.1	27883	16.5	17.2
442190	16.2	20.8	493006	16.3	20.7	161654	16.4	20.1	110116	16.4	20.2	288560	16.5	19.6	394864	16.5	20.7
413017	16.2	21.7	472621	16.3	20.5	210807	16.4	19.8	160059	16.4	20.4	108601	16.5	19.2	212456	16.5	20.6
417200	16.2	21.9	500386	16.3	21.9	38407	16.4	18.8	220624	16.4	20.2	232628	16.5	20.3	385350	16.5	21.0
226717	16.2	20.6	28382	16.3	19.3	31710	16.4	17.7	199273	16.4	20.2	251231	16.5	19.9	280186	16.5	20.2
169300	16.2	20.4	511543	16.3	20.7	217385	16.4	19.8	201221	16.4	20.7	393333	16.5	20.1	157757	16.5	19.7
163424	16.2	19.5	144725	16.3	19.7	111025	16.4	20.3	79093	16.4	18.7	124282	16.5	20.3	376050	16.5	21.0
197474	16.3	19.2	455363	16.3	21.8	156426	16.4	19.5	492434	16.4	20.9	296684	16.5	20.6	375489	16.5	20.3
173033	16.3	20.2	28026	16.3	17.3	162369	16.4	19.9	522327	16.4	21.7	157428	16.5	20.6	287453	16.5	21.3
183532	16.3	19.5	364871	16.3	20.8	81682	16.4	19.6	445569	16.4	21.0	51081	16.5	18.9	249199	16.5	20.1
335859	16.3	20.5	73601	16.3	19.5	372771	16.4	20.1	63975	16.4	19.3	69045	16.5	18.9	406147	16.6	21.4
531448	16.3	21.7	109460	16.3	19.9	335847	16.4	20.9	101722	16.4	18.4	406106	16.5	21.2	458341	16.6	20.9
335239	16.3	20.3	175565	16.3	19.8	270642	16.4	20.6	142016	16.4	20.1	236017	16.5	19.7	343167	16.6	21.3
46498	16.3	17.7	767	16.3	15.5	459363	16.4	19.9	327974	16.4	20.9	333585	16.5	20.9	137299	16.6	19.9
442681	16.3	21.9	303018	16.3	19.9	227804	16.4	19.1	389457	16.4	19.7	276750	16.5	19.9	114702	16.6	19.2
195600	16.3	20.0	235731	16.3	20.2	61647	16.4	18.7	465504	16.4	21.4	421426	16.5	21.0	408438	16.6	19.6
171352	16.3	20.9	311669	16.3	20.3	2605	16.4	17.2	165729	16.4	20.1	405061	16.5	21.4	12787	16.6	17.7
484204	16.3	20.1	427039	16.3	21.0	200031	16.4	19.5	422579	16.4	21.8	202335	16.5	20.2	31733	16.6	18.2
252480	16.3	20.0	27456	16.3	18.1	17132	16.4	17.7	248910	16.4	20.6	376024	16.5	20.2	112435	16.6	20.1
448923	16.3	20.6	280439	16.3	19.7	318739	16.4	20.7	165893	16.4	19.7	121867	16.5	18.3	171599	16.6	19.1
200812	16.3	19.4	53891	16.3	18.0	219453	16.4	21.4	238416	16.4	19.7	389911	16.5	21.2	430957	16.6	21.1
339469	16.3	21.1	252321	16.3	20.3	226898	16.4	20.9	529539	16.4	21.2	236927	16.5	20.1	202907	16.6	19.8
454311	16.3	21.7	110057	16.3	19.8	428912	16.4	22.2	37254	16.4	19.1	191509	16.5	20.0	26147	16.6	19.1
242596	16.3	20.7	195694	16.3	19.4	543118	16.4	21.1	172994	16.4	20.1	191159	16.5	19.2	22672	16.6	18.2
73826	16.3	19.5	419685	16.3	21.0	49813	16.4	19.6	225033	16.4	20.0	163565	16.5	20.4	356087	16.6	20.3
24729	16.3	18.1	278522	16.3	19.9	48265	16.4	19.3	186629	16.4	19.6	98246	16.5	19.1	466756	16.6	20.8
293019	16.3	20.8	337022	16.3	22.2	400916	16.4	21.7	245428	16.4	20.4	334088	16.5	21.0	202849	16.6	21.5
494692	16.3	21.8	543764	16.3	21.4	490560	16.4	22.2	486075	16.4	20.9	500441	16.5	21.7	33411	16.6	19.3
82330	16.3	19.8	168247	16.3	20.4	543105	16.4	21.4	467595	16.4	20.9	492587	16.5	21.4	339769	16.6	20.2
82000	16.3	19.1	310752	16.3	21.8	465500	16.4	21.2	437929	16.4	21.4	370524	16.5	21.0	182466	16.6	21.0
367373	16.3	20.4	413023	16.3	20.7	97554	16.4	19.2	465264	16.4	22.1	318847	16.5	20.5	150548	16.6	19.5
466222	16.3	21.8	113741	16.3	18.3	17270	16.4	18.0	373888	16.4	20.5	423121	16.5	20.4	29000	16.6	18.6
345613	16.3	21.4	288339	16.3	19.4	544174	16.4	21.3	65461	16.4	19.0	19068	16.5	18.8	279641	16.6	20.6
166605	16.3	20.3	488967	16.3	22.2	307777	16.4	20.4	127964	16.4	18.3	441603	16.5	21.7	173161	16.6	19.8
24399	16.3	17.5	263666	16.3	19.5	212174	16.4	18.9	272279	16.4	20.7	167998	16.5	19.7	461751	16.6	21.7
101627	16.3	17.5	203731	16.3	19.1	143579	16.4	19.7	506654	16.4	20.6	433787	16.5	20.8	329347	16.6	21.2
393678	16.3	21.6	158745	16.3	20.4	163595	16.4	20.3	510291	16.4	20.8	426905	16.5	20.8	451856	16.6	21.0
294134	16.3	20.7	379127	16.3	19.5	201925	16.4	20.5	50211	16.4	17.9	319894	16.5	21.3	440481	16.6	21.4
354980	16.3	20.0	37412	16.3	20.2	380479	16.4	19.8	6857	16.4	16.6	322298	16.5	20.1	67641	16.6	19.3
424705	16.3	21.0	318967	16.3	19.7	35413	16.4	18.1	424296	16.4	20.8	121596	16.5	20.4	164641	16.6	20.2
196778	16.3	19.8	277166	16.3	20.2	286994	16.4	21.0	201462	16.4	19.9	164346	16.5	19.6	321722	16.6	20.5
322074	16.3	21.1	503829	16.3	20.6	307831	16.4	20.9	295714	16.4	20.8	14205	16.5	17.1	400055	16.6	21.9
524126	16.3	22.5	93506	16.3	19.8	248657	16.4	20.6	252414	16.4	20.6	120282	16.5	19.9	171241	16.6	19.8
55354	16.3	18.4	334626	16.3	21.6	265878	16.4										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
287241	16.6	20.9	82814	16.6	19.6	375077	16.7	20.9	107977	16.8	18.6	258157	16.8	21.1	140720	16.9	19.3
230968	16.6	20.1	307677	16.6	21.3	495706	16.7	21.1	442829	16.8	20.9	161259	16.8	20.0	89683	16.9	19.9
87852	16.6	18.7	458467	16.6	21.3	64917	16.7	18.6	475468	16.8	20.6	109052	16.8	19.5	16818	16.9	18.0
481218	16.6	20.4	45458	16.6	18.9	301653	16.7	18.9	18220	16.8	18.1	305188	16.8	20.1	463024	16.9	20.9
455371	16.6	22.5	366354	16.6	21.3	17958	16.7	17.9	401957	16.8	21.0	272123	16.8	21.5	512283	16.9	20.3
190962	16.6	20.2	190178	16.6	20.2	538769	16.7	21.5	303029	16.8	20.5	528649	16.8	21.7	26844	16.9	17.3
111240	16.6	20.1	299492	16.6	19.7	68434	16.7	19.0	381228	16.8	21.0	278468	16.8	20.5	327891	16.9	20.4
114365	16.6	19.5	427065	16.6	21.2	479544	16.7	19.8	439966	16.8	21.8	487690	16.8	21.4	21598	16.9	16.7
310784	16.6	19.7	206785	16.6	19.7	82898	16.7	19.4	458330	16.8	21.3	68793	16.8	18.9	54010	16.9	18.2
276758	16.6	19.5	382298	16.6	20.2	391177	16.7	20.1	335964	16.8	21.4	416544	16.8	20.3	62151	16.9	19.0
318911	16.6	20.7	468096	16.6	20.6	411264	16.7	21.1	281585	16.8	20.8	422948	16.8	21.3	281301	16.9	20.6
130230	16.6	19.8	356663	16.6	21.3	241466	16.7	20.4	452453	16.8	22.7	235995	16.8	19.6	400514	16.9	21.1
463839	16.6	21.5	455891	16.6	21.4	146642	16.7	19.5	81966	16.8	18.8	242265	16.8	19.9	524196	16.9	19.9
134768	16.6	19.2	175763	16.6	21.9	535400	16.7	20.7	252612	16.8	20.1	139314	16.8	19.7	323981	16.9	20.8
166989	16.6	19.9	87	16.6	12.3	269436	16.7	20.8	55139	16.8	18.3	294673	16.8	20.2	401676	16.9	19.8
492229	16.6	22.0	297953	16.6	19.3	152813	16.7	19.9	535359	16.8	20.4	226754	16.8	21.1	231715	16.9	19.9
427159	16.6	20.1	8292	16.6	16.4	117386	16.7	19.8	276202	16.8	20.7	290091	16.8	21.0	372324	16.9	21.0
360489	16.6	21.1	256591	16.6	21.0	369641	16.7	20.6	410414	16.8	20.6	129106	16.8	19.4	518804	16.9	21.0
266842	16.6	20.5	488725	16.6	21.5	235579	16.7	20.7	96635	16.8	18.4	535810	16.8	21.0	453593	16.9	20.6
272373	16.6	20.9	51343	16.7	19.4	236191	16.7	21.1	461940	16.8	21.3	15156	16.8	19.0	154736	16.9	19.6
217708	16.6	20.2	524093	16.7	23.3	328723	16.7	20.9	335992	16.8	21.2	245965	16.8	20.4	429296	16.9	20.3
240242	16.6	21.3	335904	16.7	20.2	383398	16.7	21.1	131988	16.8	19.5	381244	16.8	21.7	464663	16.9	21.6
125437	16.6	19.5	125239	16.7	18.3	466221	16.7	21.7	396084	16.8	20.0	190825	16.8	20.8	383407	16.9	20.8
289806	16.6	20.3	309450	16.7	19.8	150535	16.7	19.9	413535	16.8	21.3	278610	16.8	19.8	113164	16.9	19.7
44995	16.6	18.5	246081	16.7	20.3	402759	16.7	20.9	128614	16.8	20.4	88183	16.8	18.4	494699	16.9	21.5
469220	16.6	21.3	54657	16.7	18.6	173716	16.7	19.4	280196	16.8	19.4	76090	16.8	19.1	215914	16.9	21.3
439835	16.6	21.8	436776	16.7	21.3	25588	16.7	18.8	501720	16.8	20.4	413635	16.8	21.4	336061	16.9	20.9
11725	16.6	18.4	357277	16.7	20.5	230580	16.7	20.2	67467	16.8	20.1	8007	16.8	16.7	148522	16.9	18.9
368500	16.6	21.0	130900	16.7	19.5	369596	16.7	20.6	317651	16.8	19.3	269167	16.8	20.7	96074	16.9	20.9
154448	16.6	20.0	202664	16.7	20.6	493519	16.7	21.0	466483	16.8	21.3	183440	16.9	19.3	54679	16.9	19.0
44758	16.6	17.6	45238	16.7	17.4	19000	16.7	18.4	464308	16.8	21.2	246757	16.9	20.3	449555	16.9	20.5
493297	16.6	21.4	157134	16.7	20.3	51831	16.7	18.5	418930	16.8	19.8	515808	16.9	21.0	484211	16.9	21.3
11577	16.6	17.1	280590	16.7	20.0	345819	16.7	20.2	10488	16.8	17.9	260130	16.9	20.3	437895	16.9	21.7
71743	16.6	17.4	34075	16.7	19.3	29313	16.7	17.7	164138	16.8	19.5	314847	16.9	21.1	308227	16.9	19.8
157524	16.6	19.8	36844	16.7	18.0	246589	16.7	19.2	435056	16.8	21.3	359722	16.9	21.0	366886	16.9	21.1
439974	16.6	21.7	143104	16.7	20.0	448908	16.7	21.2	101354	16.8	19.9	160366	16.9	18.5	468093	16.9	21.7
325258	16.6	20.2	293900	16.7	20.1	157926	16.7	20.3	466583	16.8	21.5	332399	16.9	20.2	10457	16.9	18.7
231967	16.6	20.0	47144	16.7	18.0	170841	16.7	19.7	105088	16.8	19.7	381595	16.9	20.1	206840	16.9	19.2
130990	16.6	19.6	377046	16.7	20.6	6726	16.7	17.0	390388	16.8	21.0	46894	16.9	18.5	364285	16.9	21.8
454540	16.6	20.4	395825	16.7	19.7	90379	16.7	19.2	289719	16.8	20.9	103525	16.9	19.5	45572	16.9	17.6
502769	16.6	21.0	91117	16.7	19.0	291906	16.7	20.9	196120	16.8	18.9	473680	16.9	20.9	115608	16.9	19.3
502208	16.6	20.6	428883	16.7	21.5	181331	16.7	18.8	133800	16.8	20.1	481773	16.9	21.3	502299	16.9	20.9
520883	16.6	21.5	179082	16.7	20.1	173753	16.7	19.2	122724	16.8	20.0	495496	16.9	21.2	223739	16.9	20.9
340686	16.6	20.8	99680	16.7	18.8	5774	16.7	17.3	316219	16.8	20.8	140891	16.9	19.5	186126	16.9	20.4
103842	16.6	19.4	114305	16.7	20.1	330759	16.7	23.8	193885	16.8	20.8	93691	16.9	20.0	430078	16.9	20.9
214335	16.6	18.8	31367	16.7	18.7	403649	16.7	21.1	205455	16.8	20.9	17820	16.9	18.9	36595	16.9	20.2
92545	16.6	19.0	274718	16.7	21.2	145549	16.7	19.8	430415	16.8	21.2	451539	16.9	20.3	148126	16.9	20.1
145704	16.6	19.7	151639	16.7	19.7	229159	16.7	20.6	1860	16.8	15.6	384593	16.9	20.3	417064	16.9	20.6
269863	16.6	20.4	461164	16.7	20.7	496509	16.7	20.7	281342	16.8	20.8	45192	16.9	18.0	34709	16.9	20.2
83156	16.6	18.2	378466	16.7	20.3	289024	16.7	20.7	517672	16.8	19.9	460106	16.9	21.5	227587	16.9	20.1
398142	16.6	20.4	388971	16.7	21.6	277066	16.7	19.5	68988	16.8	18.2	6312	16.9	16.6	31035	16.9	17.8
245436	16.6	20.7	404927	16.7	19.6	119680	16.7	19.3	486993	16.8	20.6	55645	16.9	20.1	37984	16.9	19.1
231167	16.6	19.4	412716	16.7	21.1	315510	16.7	19.5	245199	16.8	19.9	349077	16.9	20.9	397163	16.9	20.1
210351	16.6	19.6	520577	16.7	21.2	258238	16.7	21.2	369416	16.8	20.9	229030	16.9	19.4	109865	16.9	18.6
494893	16.6	21.7	209114	16.7	20.4	459452	16.7	21.6	433055	16.8	21.5	306479	16.9	21.2	351225	16.9	21.6
330928	16.6	21.3	301088	16.7	20.3	495152	16.7	20.6	544260	16.8	20.8	345186	16.9	19.5	145160	16.9	19.8
77715	16.6	18.1	441505	16.7	21.4	282183	16.7	21.1	167607	16.8	19.9	234615	16.9	19.2	89402	16.9	19.4
447895	16.6	20.2	167893	16.7	19.5	12933	16.7	18.8	438260	16.8	21.9	110669	16.9	19.9	290813	16.9	20.5
402688	16.6	21.5	278005	16.7	21.5	440690	16.7	21.3	392262	16.8	20.4	258290	16.9	22.0	9333	16.9	17.0
159724	16.6	18.4	87764	16.7	19.3	376455	16.7	21.3	446010	16.8	21.2	498576	16.9	19.9	23527	16.9	17.9
54730	16.6	18.3	10623	16.7	17.9	497602	16.7	21.0	464229	16.8	20.5	44640	16.9	19.1	43824	16.9	18.1
364703	16.6	21.1	6610	16.7	16.4	3287	16.7	18.1	357639	16.8	20.0	336531	16.9	19.9	477756	16.9	22.1
253993	16.6	19.6	81455	16.7	18.8	44516	16.7	18.2	347630	16.8	22.0	110741	16.9	19.3	320831	16.9	20.8
503846	16.6	21.1	26942	16.7	19.0	153243	16.7	19.5	15285	16.8	18.8	234208	16.9	18.9	201297	16.9	20.1
204678	16.6	20.3	251388	16.7	19.2	385367	16.7	21.1	210307	16.8	20.5	463988	16.9	21.5	402601	16.9	22.1
367511	16.6	20.1	37197	16.7	18.7	94355	16.7	18.0	223697	16.8	20.6	96022	16.9	19.8	385216	16.9	20.6
450871	16.6	21.9	463670	16.7	20.3	372165	16.7	19.7	220638	16.8	20.9	294369	16.9	20.7	460021	16.9	22.2
373631	16.6	20.4	164306	16.7	20.2	247213	16.7	20.5	542315	16.8	21.7	512174	16.9	21.6	55255	16.9	19.6
290418	16.6	20.8	20753	16.7	18.2	366979	16.8	21.4									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
45377	16.9	19.6	109680	17.0	19.4	278011	17.1	19.8	438345	17.2	20.9	321208	17.2	19.4	31536	17.3	18.1
103171	16.9	17.7	29130	17.0	16.7	541476	17.1	20.4	398972	17.2	20.8	279925	17.2	20.7	281691	17.3	19.9
532382	16.9	22.4	464236	17.0	19.9	441547	17.1	20.8	523970	17.2	20.4	116360	17.2	19.2	324580	17.3	20.7
52141	16.9	19.2	174614	17.0	20.3	467651	17.1	20.8	420851	17.2	21.4	290593	17.2	20.9	117187	17.3	20.1
47121	16.9	18.1	199778	17.0	19.3	334570	17.1	21.0	277246	17.2	20.1	265080	17.2	21.1	92552	17.3	19.9
226105	16.9	20.7	213109	17.0	18.0	425226	17.1	21.1	392916	17.2	19.9	205637	17.2	20.5	489353	17.3	20.0
458266	16.9	21.5	79868	17.0	18.8	451424	17.1	21.7	464531	17.2	20.5	126370	17.2	18.7	3195	17.3	16.7
300286	16.9	20.9	168657	17.0	19.4	347250	17.1	20.8	543195	17.2	21.0	335950	17.2	20.9	61918	17.3	18.2
11966	16.9	18.1	26610	17.0	16.8	236944	17.1	20.5	234965	17.2	20.3	182420	17.2	20.1	322542	17.3	21.1
275744	16.9	19.8	527330	17.0	21.9	163767	17.1	20.4	157690	17.2	20.0	111161	17.2	19.2	61721	17.3	18.9
229671	16.9	20.8	135137	17.0	19.2	412452	17.1	19.8	348673	17.2	19.4	256968	17.2	19.6	128520	17.3	20.3
334594	16.9	21.1	296039	17.0	19.1	172641	17.1	19.3	170360	17.2	19.9	360322	17.2	21.1	284688	17.3	20.1
387561	16.9	21.0	226166	17.0	20.1	197818	17.1	20.4	527316	17.2	22.1	129830	17.2	19.7	433143	17.3	20.7
415514	16.9	21.7	277332	17.0	19.7	275552	17.1	20.7	81492	17.2	18.1	78646	17.2	18.4	178639	17.3	19.5
184352	16.9	19.6	484305	17.0	20.9	320895	17.1	20.0	316841	17.2	19.5	154168	17.2	19.8	447890	17.3	20.8
413584	16.9	20.5	166857	17.0	19.5	207609	17.1	20.4	35858	17.2	18.7	37955	17.2	19.0	271398	17.3	19.6
429366	16.9	20.3	156104	17.0	19.7	272008	17.1	19.6	280471	17.2	20.1	190858	17.2	20.1	455987	17.3	21.7
245725	16.9	20.5	362248	17.0	19.0	486166	17.1	21.2	318024	17.2	20.1	272928	17.2	20.5	499992	17.3	20.8
505085	16.9	19.9	196119	17.0	19.2	288633	17.1	20.5	266868	17.2	20.3	14416	17.2	18.8	113968	17.3	18.9
401889	16.9	21.7	316277	17.0	20.4	455021	17.1	21.7	443966	17.2	21.7	134455	17.2	20.0	508435	17.3	21.0
284014	16.9	21.4	190739	17.0	19.7	365973	17.1	20.7	368060	17.2	20.6	36553	17.2	18.0	375324	17.3	20.8
500454	16.9	21.9	93221	17.0	16.6	297408	17.1	21.0	85305	17.2	19.5	297962	17.2	20.6	522630	17.3	21.9
144421	16.9	19.5	291919	17.0	20.5	169252	17.1	20.2	540069	17.2	20.7	8108	17.2	17.2	387002	17.3	22.0
60347	16.9	19.5	112397	17.0	19.8	358266	17.1	20.4	421313	17.2	20.6	486913	17.2	20.3	154349	17.3	20.6
459383	16.9	21.0	382236	17.0	20.8	468767	17.1	21.8	375598	17.2	20.8	393955	17.2	20.0	3813	17.3	16.4
463686	16.9	21.4	27154	17.0	17.5	488989	17.1	21.6	80306	17.2	19.2	77460	17.2	18.1	87989	17.3	17.5
268301	16.9	19.6	262210	17.0	21.1	22295	17.1	15.5	194474	17.2	19.7	325200	17.2	20.4	9934	17.3	17.8
216429	16.9	19.4	164087	17.1	19.3	495532	17.1	21.7	491014	17.2	21.0	349703	17.2	20.2	221492	17.3	19.7
108681	16.9	19.7	189414	17.1	20.0	307458	17.1	19.7	354601	17.2	20.3	346491	17.2	19.8	463057	17.3	20.7
129783	17.0	19.2	419081	17.1	21.3	414828	17.1	21.6	537977	17.2	20.7	322924	17.2	19.4	145193	17.3	18.9
79193	17.0	19.2	266426	17.1	20.2	213116	17.1	18.6	90030	17.2	19.3	280695	17.2	19.7	535805	17.3	20.6
541610	17.0	21.7	222986	17.1	20.2	331426	17.1	19.4	451016	17.2	21.7	28908	17.2	18.4	404100	17.3	20.9
335957	17.0	21.3	532388	17.1	21.4	525650	17.1	22.0	30037	17.2	17.6	407824	17.2	21.0	203833	17.3	19.6
362771	17.0	20.0	229433	17.1	20.5	256349	17.1	19.7	351244	17.2	21.1	70777	17.2	18.4	251127	17.3	20.9
25535	17.0	16.0	401707	17.1	21.2	124426	17.1	20.4	79317	17.2	19.8	521517	17.2	20.8	149531	17.3	19.4
543990	17.0	21.1	280245	17.1	20.8	412101	17.1	21.5	431533	17.2	20.7	281969	17.2	19.4	84180	17.3	18.6
272189	17.0	20.5	396680	17.1	22.2	455808	17.1	21.3	171106	17.2	19.4	77493	17.2	18.2	364916	17.3	20.3
286463	17.0	19.7	400017	17.1	21.6	332770	17.1	20.7	408994	17.2	20.7	468645	17.2	19.6	153214	17.3	20.0
84235	17.0	19.4	395736	17.1	20.0	434740	17.1	21.3	193181	17.2	19.5	428981	17.3	21.0	330503	17.3	20.7
445548	17.0	20.8	109476	17.1	18.9	419178	17.1	21.7	275803	17.2	20.8	128799	17.3	20.1	61117	17.3	19.0
78358	17.0	19.0	482009	17.1	21.3	445972	17.1	20.9	43587	17.2	18.3	419543	17.3	19.9	462902	17.3	20.7
493061	17.0	21.3	4158	17.1	16.4	123232	17.1	20.1	421763	17.2	21.3	484707	17.3	21.1	532186	17.3	22.3
268833	17.0	20.5	124842	17.1	19.2	116967	17.1	19.6	119227	17.2	18.8	178982	17.3	20.2	237770	17.3	19.1
149333	17.0	19.1	116414	17.1	18.7	439711	17.1	20.3	48912	17.2	18.4	134787	17.3	19.1	273747	17.3	20.4
533619	17.0	20.5	347654	17.1	21.3	253958	17.1	18.7	51356	17.2	17.7	405149	17.3	21.3	498772	17.3	21.1
90142	17.0	18.4	5370	17.1	21.7	502517	17.1	21.1	312818	17.2	20.8	296156	17.3	21.1	443116	17.3	20.5
274665	17.0	20.1	524055	17.1	19.7	278403	17.1	20.1	157472	17.2	20.3	363862	17.3	21.7	305290	17.3	20.0
365675	17.0	20.7	333062	17.1	20.4	120548	17.1	17.8	300386	17.2	20.9	148900	17.3	19.2	29281	17.3	17.8
97499	17.0	19.2	378252	17.1	20.1	142956	17.1	19.8	201273	17.2	20.4	181945	17.3	20.2	466742	17.3	20.4
123007	17.0	20.7	123476	17.1	18.2	239013	17.1	19.8	140002	17.2	19.2	126165	17.3	17.9	319686	17.3	21.0
200467	17.0	19.9	44815	17.1	17.6	36778	17.1	18.5	70560	17.2	18.9	400258	17.3	21.8	445897	17.3	21.1
407124	17.0	20.8	279937	17.1	21.3	139198	17.1	18.5	354983	17.2	19.5	377068	17.3	20.5	178135	17.3	20.2
252363	17.0	20.9	174497	17.1	19.7	258355	17.1	21.2	55784	17.2	19.0	400152	17.3	22.0	201788	17.3	20.3
412266	17.0	21.1	73702	17.1	18.9	65160	17.1	19.1	419538	17.2	19.8	222900	17.3	20.2	364390	17.3	21.1
121514	17.0	17.5	327957	17.1	20.1	37616	17.1	19.1	24625	17.2	18.7	51554	17.3	18.6	122878	17.3	19.8
369998	17.0	20.3	407346	17.1	21.3	123123	17.1	20.0	363823	17.2	21.3	81320	17.3	18.3	323878	17.3	21.4
412980	17.0	21.1	95994	17.1	19.5	174928	17.1	20.5	506317	17.2	21.1	26255	17.3	19.1	198749	17.3	19.5
184565	17.0	19.7	308042	17.1	19.5	465557	17.1	20.6	379960	17.2	20.8	282613	17.3	20.5	310148	17.3	20.1
78853	17.0	18.8	412811	17.1	21.0	95212	17.1	19.8	445568	17.2	21.9	542770	17.3	20.3	258845	17.3	21.6
47327	17.0	18.7	375400	17.1	21.2	245380	17.1	20.0	324634	17.2	20.3	34126	17.3	18.9	82463	17.3	19.0
163644	17.0	20.5	139623	17.1	19.1	481342	17.1	19.9	433508	17.2	20.6	532188	17.3	21.6	372194	17.3	20.3
156077	17.0	19.4	47310	17.1	17.7	306506	17.1	22.1	348240	17.2	21.0	543303	17.3	21.6	271282	17.3	20.1
264196	17.0	20.0	240013	17.1	20.0	52116	17.1	17.1	139421	17.2	19.7	218328	17.3	19.6	461154	17.3	21.1
443884	17.0	20.8	337217	17.1	19.9	77470	17.1	19.1	353444	17.2	18.9	491098	17.3	22.0	338177	17.3	21.1
400580	17.0	20.1	210416	17.1	21.2	75795	17.1	19.2	426614	17.2	21.4	82401	17.3	18.3	303979	17.3	18.8
516749	17.0	21.2	379469	17.1	20.6	454948	17.1	21.3	466015	17.2	20.6	176826	17.3	19.6	168102	17.3	19.3
199012	17.0	20.2	208914	17.1	20.1	180366	17.2	19.7	350728	17.2	20.8	484605	17.3	21.6	392774	17.3	20.7
415421	17.0	20.6	268568	17.1	20.3	199974	17.2	20.2	458361	17.2	21.8	81798	17.3	18.7	170829	17.3	19.2
400022	17.0	20.6	234123	17.1	20.5	409527											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
440136	17.3	21.1	130728	17.4	18.8	486188	17.5	20.3	120643	17.5	20.5	172007	17.6	20.3	186403	17.7	20.4
492103	17.3	20.7	101749	17.4	19.2	114950	17.5	19.6	217808	17.5	19.3	294893	17.6	19.4	498932	17.7	20.6
251049	17.3	19.2	153686	17.4	20.0	238037	17.5	19.3	522587	17.5	21.3	201965	17.6	20.7	538127	17.7	20.2
442683	17.4	20.9	339522	17.4	20.1	116421	17.5	19.1	176240	17.5	19.6	372773	17.6	20.3	65637	17.7	17.5
134786	17.4	19.4	252451	17.4	19.9	401194	17.5	20.7	219937	17.6	19.6	57494	17.6	18.5	89028	17.7	19.1
385481	17.4	21.4	197566	17.4	19.5	163543	17.5	19.4	527240	17.6	22.0	13721	17.6	17.6	421559	17.7	21.2
419121	17.4	21.1	119637	17.4	18.3	486072	17.5	21.4	266980	17.6	19.4	141487	17.6	19.3	194671	17.7	19.3
487680	17.4	20.9	120183	17.4	17.7	457134	17.5	20.1	91706	17.6	19.1	232639	17.6	19.8	352748	17.7	21.0
148740	17.4	18.8	345350	17.4	21.5	293270	17.5	19.8	394849	17.6	20.6	439235	17.6	20.7	482766	17.7	22.5
319747	17.4	21.6	458391	17.4	20.0	327420	17.5	20.8	466540	17.6	20.3	483896	17.6	21.7	239923	17.7	20.8
182563	17.4	19.5	185411	17.4	20.2	399321	17.5	21.9	296092	17.6	20.7	213946	17.6	19.4	453084	17.7	21.4
64119	17.4	18.4	106396	17.4	19.7	83820	17.5	19.7	268146	17.6	20.5	18602	17.6	17.2	520855	17.7	21.0
488562	17.4	22.1	424307	17.4	20.9	65584	17.5	20.2	411257	17.6	19.6	315590	17.6	21.1	129249	17.7	19.6
473870	17.4	20.5	87642	17.4	18.0	29714	17.5	17.5	61710	17.6	18.1	94901	17.6	20.4	15836	17.7	23.2
373819	17.4	21.2	456563	17.4	20.9	120560	17.5	18.6	63643	17.6	19.0	161186	17.6	19.6	113887	17.7	19.9
114268	17.4	19.3	256008	17.4	20.5	109633	17.5	19.6	502171	17.6	20.1	299145	17.6	20.0	429927	17.7	20.8
7357	17.4	17.2	142868	17.4	20.1	237021	17.5	20.6	140996	17.6	20.3	29574	17.6	18.4	196682	17.7	19.2
363013	17.4	21.8	404814	17.4	19.7	200880	17.5	19.1	455945	17.6	21.3	196047	17.6	19.4	142942	17.7	19.9
242025	17.4	20.5	283329	17.4	20.2	450773	17.5	21.4	217118	17.6	19.4	422209	17.6	21.4	59623	17.7	19.5
36862	17.4	19.1	219253	17.4	20.9	332961	17.5	19.8	204963	17.6	18.5	398855	17.6	20.7	486088	17.7	21.4
369421	17.4	20.8	47331	17.4	18.7	77813	17.5	18.6	189767	17.6	18.5	170653	17.6	20.2	542122	17.7	22.3
502416	17.4	20.9	445565	17.4	21.7	208087	17.5	19.9	68665	17.6	18.8	101320	17.6	18.0	396887	17.7	21.1
543936	17.4	21.1	467304	17.4	20.2	538511	17.5	21.0	441497	17.6	20.9	491428	17.6	18.9	438278	17.7	20.7
192528	17.4	19.4	62073	17.4	18.4	172245	17.5	20.6	284830	17.6	20.9	197691	17.6	20.7	248814	17.7	21.1
345416	17.4	20.6	543291	17.4	21.1	188304	17.5	20.0	152162	17.6	19.8	451459	17.6	20.6	176186	17.7	20.2
152266	17.4	19.9	11329	17.4	18.4	363936	17.5	20.7	334197	17.6	21.6	354975	17.6	20.3	99931	17.7	18.6
35847	17.4	18.7	52021	17.4	19.4	481071	17.5	21.0	155142	17.6	20.4	283276	17.6	20.2	399863	17.7	20.6
277447	17.4	20.5	465809	17.4	20.1	425518	17.5	19.7	488700	17.6	21.3	248893	17.6	20.1	470283	17.7	19.8
269195	17.4	20.2	231722	17.4	18.7	278407	17.5	20.8	289073	17.6	20.7	219833	17.6	20.1	88612	17.7	18.9
411887	17.4	20.3	451919	17.4	20.5	490413	17.5	21.7	332422	17.6	21.4	375110	17.6	20.8	265025	17.7	19.6
300304	17.4	20.1	386260	17.4	20.9	80338	17.5	19.2	508340	17.6	20.7	469291	17.6	20.7	411008	17.7	21.1
256168	17.4	19.9	31753	17.4	18.4	105321	17.5	19.5	203585	17.6	18.6	99838	17.6	18.9	327975	17.7	20.4
1109	17.4	14.5	404957	17.4	21.9	119551	17.5	18.7	276289	17.6	21.2	535441	17.6	21.4	86615	17.7	18.6
2118	17.4	15.0	255755	17.4	20.2	331587	17.5	22.4	128334	17.6	19.2	214326	17.6	20.0	424894	17.7	20.8
343712	17.4	20.6	237505	17.4	20.6	372293	17.5	20.5	17241	17.6	18.1	107791	17.6	18.4	536937	17.7	22.2
221543	17.4	20.5	257123	17.4	20.4	534896	17.5	22.0	960	17.6	15.8	8659	17.6	17.2	495722	17.7	20.6
421420	17.4	19.9	126987	17.4	19.1	412054	17.5	20.4	369365	17.6	22.0	526466	17.6	21.4	272215	17.7	20.8
466042	17.4	21.2	200975	17.4	19.1	301950	17.5	18.3	199937	17.6	18.6	165694	17.6	19.0	421739	17.7	21.4
65273	17.4	19.4	496398	17.5	20.0	101341	17.5	19.4	179658	17.6	19.7	222083	17.6	20.3	164661	17.7	19.8
375074	17.4	20.8	111642	17.5	19.3	88933	17.5	17.9	258360	17.6	18.9	541559	17.7	20.8	280260	17.7	20.6
92747	17.4	17.7	459809	17.5	20.6	114450	17.5	18.9	234967	17.6	20.2	136386	17.7	19.6	186241	17.7	19.7
39144	17.4	18.5	172206	17.5	19.6	532673	17.5	21.3	375643	17.6	20.7	100301	17.7	19.0	83539	17.7	18.6
492121	17.4	20.4	240869	17.5	19.0	122937	17.5	17.7	453009	17.6	21.1	245701	17.7	20.1	441128	17.7	20.9
184574	17.4	20.8	296082	17.5	19.5	247997	17.5	19.7	84058	17.6	19.6	38529	17.7	18.2	249860	17.7	20.5
276653	17.4	20.0	413726	17.5	21.0	231811	17.5	20.1	384761	17.6	20.9	87060	17.7	20.2	232776	17.7	21.2
348468	17.4	20.6	521034	17.5	21.5	145336	17.5	19.0	232656	17.6	19.6	240164	17.7	20.1	25739	17.7	17.7
240368	17.4	21.3	345623	17.5	21.1	492368	17.5	21.5	345759	17.6	19.6	153046	17.7	19.9	361242	17.7	20.6
37348	17.4	19.2	259112	17.5	19.5	160183	17.5	19.7	334551	17.6	20.4	82110	17.7	18.3	462963	17.7	19.9
216389	17.4	20.5	380491	17.5	20.1	318996	17.5	18.9	202219	17.6	20.1	48495	17.7	17.2	348657	17.7	19.2
313529	17.4	20.6	30143	17.5	18.3	494619	17.5	19.7	444698	17.6	20.3	94425	17.7	18.1	144393	17.7	19.4
349586	17.4	20.1	120622	17.5	19.5	59381	17.5	17.7	85506	17.6	19.8	135317	17.7	19.5	92548	17.7	19.7
264077	17.4	20.0	543274	17.5	21.4	269534	17.5	19.5	404380	17.6	19.8	24111	17.7	18.9	449145	17.7	20.9
131648	17.4	18.0	212351	17.5	21.2	455982	17.5	21.0	433087	17.6	21.3	530493	17.7	21.0	432530	17.7	20.5
256276	17.4	21.1	142538	17.5	20.0	9260	17.5	17.9	296251	17.6	20.5	58050	17.7	19.9	412692	17.7	20.7
411361	17.4	22.3	495703	17.5	20.9	151259	17.5	19.8	37973	17.6	18.7	447117	17.7	21.5	44010	17.7	19.3
269943	17.4	20.6	103545	17.5	17.9	289548	17.5	19.6	244596	17.6	20.2	46038	17.7	18.4	229351	17.7	20.9
81286	17.4	18.3	393266	17.5	19.9	466444	17.5	20.0	323790	17.6	20.5	442896	17.7	21.0	337064	17.7	19.6
418736	17.4	20.6	108922	17.5	19.7	333213	17.5	20.3	176231	17.6	19.3	173407	17.7	19.3	262497	17.7	20.5
219026	17.4	20.0	8618	17.5	17.3	457764	17.5	20.4	159477	17.6	21.0	238441	17.7	20.4	151159	17.7	20.5
428376	17.4	21.0	203753	17.5	20.7	481200	17.5	21.6	210716	17.6	20.6	17481	17.7	18.5	370526	17.7	21.1
14378	17.4	18.2	304910	17.5	20.5	194659	17.5	19.8	25288	17.6	18.0	453852	17.7	22.5	81730	17.7	18.9
452939	17.4	21.3	536744	17.5	20.9	314221	17.5	20.1	143865	17.6	19.6	141204	17.7	19.7	493740	17.7	20.3
335209	17.4	20.2	107142	17.5	18.5	419698	17.5	19.6	464445	17.6	19.9	373786	17.7	19.9	50520	17.7	18.5
122628	17.4	19.5	417927	17.5	21.0	419504	17.5	19.5	76781	17.6	19.2	252120	17.7	19.6	99282	17.7	18.2
250621	17.4	19.9	350535	17.5	21.2	339659	17.5	21.3	258289	17.6	20.5	495501	17.7	20.7	474000	17.7	20.7
473408	17.4	19.9	58432	17.5	18.6	16695	17.5	21.0	256712	17.6	19.2	447692	17.7	19.1	256325	17.7	19.6
202661	17.4	20.3	54320	17.5	19.2	135448	17.5	19.0	470390	17.6	20.4	138604	17.7	19.5	307715	17.7	20.0
30833	17.4	18.2	464259	17.5	21.0	307894	17.5	20.2	209251	17.6	19.9	448357	17.7	20.4	348548	17.7	20.8
535120	17.4	19.9	223077	17.5	19.1	14076	1										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
388038	17.7	19.8	461379	17.8	21.3	328362	17.9	20.1	482017	17.9	20.0	415637	17.9	20.0	347602	18.1	21.1
441872	17.7	20.9	400165	17.8	20.3	368350	17.9	21.5	161089	17.9	20.6	277156	17.9	20.5	439949	18.1	22.0
360241	17.7	21.1	310043	17.8	20.5	179943	17.9	19.8	299464	17.9	19.9	373993	17.9	20.7	334178	18.1	21.3
407909	17.7	20.2	361604	17.8	20.8	455745	17.9	20.8	45640	17.9	18.7	71775	17.9	20.3	500279	18.1	20.7
61189	17.7	18.0	465224	17.8	21.6	72859	17.9	18.4	83188	17.9	18.4	527317	17.9	22.0	87010	18.1	19.0
410060	17.7	20.9	400068	17.8	21.8	91335	17.9	17.7	228206	17.9	20.0	60827	17.9	18.8	421229	18.1	20.6
190977	17.7	19.7	78468	17.8	19.8	453078	17.9	20.2	440601	17.9	20.3	120277	17.9	18.7	190815	18.1	20.1
503844	17.7	19.6	541212	17.8	21.8	345729	17.9	19.8	494585	17.9	20.8	9201	17.9	17.0	300540	18.1	21.1
67449	17.7	18.5	27044	17.8	17.2	292680	17.9	21.1	140042	17.9	18.5	189137	17.9	18.6	214969	18.1	20.8
197240	17.7	20.5	16269	17.8	19.5	402592	17.9	21.6	339590	17.9	20.3	283128	18.0	20.4	398358	18.1	20.4
499412	17.7	20.1	313460	17.8	22.2	1659	17.9	14.9	17384	17.9	19.1	440012	18.0	22.4	56503	18.1	18.7
408903	17.7	20.3	274549	17.8	20.6	489734	17.9	21.4	127783	17.9	19.7	302377	18.0	19.3	444827	18.1	20.5
49333	17.7	17.4	214287	17.8	20.7	85982	17.9	18.4	292508	17.9	20.8	35194	18.0	16.9	465266	18.1	21.1
179796	17.7	20.2	349568	17.8	20.8	383392	17.9	20.4	203434	17.9	21.1	455163	18.0	21.5	195924	18.1	19.7
119250	17.7	18.6	314741	17.8	21.0	466046	17.9	22.0	215266	17.9	20.9	464553	18.0	21.1	516994	18.1	21.4
460121	17.7	21.4	54210	17.8	19.4	379505	17.9	19.9	396620	17.9	21.8	88851	18.0	20.2	260801	18.1	20.5
272549	17.7	20.3	243966	17.8	20.7	251229	17.9	20.6	288784	17.9	21.0	491384	18.0	20.4	178641	18.1	19.6
231377	17.7	19.6	133037	17.8	20.1	527359	17.9	20.7	349690	17.9	20.7	330441	18.0	20.1	339667	18.1	20.3
331723	17.7	19.9	18983	17.8	18.4	263771	17.9	20.7	375441	17.9	21.1	446785	18.0	21.7	334242	18.1	21.9
340668	17.8	21.0	24414	17.8	15.9	273202	17.9	20.8	530454	17.9	21.0	1187	18.0	15.7	277104	18.1	19.4
5909	17.8	17.0	234497	17.8	19.8	307843	17.9	19.8	346908	17.9	21.6	95804	18.0	19.8	240518	18.1	19.5
193098	17.8	19.5	133198	17.8	20.0	213995	17.9	20.1	404923	17.9	20.1	422715	18.0	22.9	375339	18.1	20.0
341367	17.8	21.1	488549	17.8	20.4	34299	17.9	19.0	60317	17.9	20.2	416895	18.0	21.1	68956	18.1	19.2
506162	17.8	21.2	503524	17.8	21.2	448180	17.9	21.2	524863	17.9	20.5	38134	18.0	17.2	467116	18.1	20.5
386261	17.8	20.6	189805	17.8	18.3	6544	17.9	17.1	467815	17.9	20.7	430223	18.0	20.9	405690	18.1	21.4
428955	17.8	20.4	306027	17.8	20.9	124430	17.9	19.6	377010	17.9	20.9	384945	18.0	20.6	137136	18.1	19.0
394427	17.8	19.8	337671	17.8	21.0	195649	17.9	20.7	75061	17.9	18.4	78099	18.0	18.2	706	18.1	15.7
24805	17.8	18.4	95160	17.8	19.7	421377	17.9	20.9	489656	17.9	20.9	224472	18.0	19.2	140049	18.1	19.7
168235	17.8	20.3	432433	17.8	20.8	453171	17.9	20.6	447906	17.9	20.4	18070	18.0	17.9	331739	18.1	20.9
51290	17.8	17.7	421579	17.8	20.7	389375	17.9	20.1	438420	17.9	21.1	183445	18.0	18.2	325356	18.1	21.0
10303	17.8	18.1	447843	17.8	20.6	375488	17.9	20.3	191769	17.9	20.6	452248	18.0	21.8	306256	18.1	20.5
296534	17.8	21.6	69896	17.8	18.0	302886	17.9	20.4	92499	17.9	19.1	487225	18.0	20.7	454565	18.1	21.0
113863	17.8	19.2	301140	17.8	20.7	189396	17.9	19.4	230250	17.9	19.7	483739	18.0	21.2	387678	18.1	20.7
310391	17.8	19.5	50949	17.8	17.9	6703	17.9	16.1	157876	17.9	18.5	37247	18.0	18.1	349329	18.1	20.8
133310	17.8	19.1	523678	17.8	21.8	318934	17.9	21.2	84655	17.9	20.1	474197	18.0	21.2	54403	18.1	17.6
238486	17.8	19.8	69248	17.8	18.1	408744	17.9	20.7	161766	17.9	20.1	426910	18.0	21.3	250137	18.1	21.0
458298	17.8	20.6	404684	17.8	20.1	43086	17.9	18.8	205220	17.9	20.0	503619	18.0	20.8	282071	18.1	20.2
518452	17.8	19.4	347601	17.8	21.7	176768	17.9	19.9	49566	17.9	17.8	452425	18.0	19.7	131728	18.1	18.4
487489	17.8	21.6	366039	17.8	21.0	355088	17.9	19.0	527431	17.9	22.4	282187	18.0	21.3	123507	18.1	20.1
225743	17.8	17.2	452279	17.8	21.4	252473	17.9	20.2	428368	17.9	21.1	10597	18.0	16.6	493362	18.1	21.7
430224	17.8	21.0	502831	17.8	20.5	10437	17.9	18.7	141225	17.9	19.8	276377	18.0	20.0	363189	18.1	20.5
237612	17.8	20.1	128710	17.8	20.2	492025	17.9	21.1	233999	17.9	19.7	264273	18.0	21.1	226182	18.1	19.7
314886	17.8	20.3	541073	17.8	21.8	468324	17.9	20.4	316227	17.9	19.4	319583	18.0	20.8	317010	18.1	21.2
207460	17.8	20.7	541250	17.8	20.3	398316	17.9	19.9	284405	17.9	20.9	274417	18.0	20.8	220349	18.1	20.2
488227	17.8	20.7	149517	17.8	18.7	524959	17.9	21.4	496476	17.9	21.8	202471	18.0	19.9	182956	18.1	19.8
234904	17.8	20.3	154865	17.8	19.9	76009	17.9	19.4	317520	17.9	20.4	29848	18.0	17.4	119736	18.1	19.2
228072	17.8	20.0	7605	17.8	16.1	105790	17.9	19.2	186167	17.9	20.7	486615	18.0	19.6	455412	18.1	20.2
495246	17.8	20.3	274528	17.8	19.5	270676	17.9	20.9	51689	17.9	18.2	339672	18.0	19.6	543251	18.1	21.6
129662	17.8	20.0	98292	17.8	18.8	363601	17.9	19.7	26710	17.9	17.4	113318	18.0	20.1	237365	18.1	20.0
452416	17.8	21.6	539951	17.8	20.6	413552	17.9	21.5	237248	17.9	20.8	375087	18.0	19.8	255877	18.1	20.0
387575	17.8	20.6	267890	17.8	20.2	43807	17.9	18.0	429259	17.9	20.2	422690	18.0	20.4	460819	18.1	21.5
204657	17.8	20.2	146521	17.8	20.6	140907	17.9	19.5	109441	17.9	19.7	203109	18.0	20.8	265833	18.1	19.2
486812	17.8	19.9	55596	17.8	18.2	241712	17.9	20.7	424851	17.9	21.9	366741	18.0	19.1	280664	18.1	19.3
8877	17.8	17.5	519000	17.8	20.8	281700	17.9	20.2	124694	17.9	18.8	372255	18.0	20.2	187215	18.1	20.5
488173	17.8	19.4	45847	17.8	18.6	375625	17.9	20.2	431448	17.9	21.3	284822	18.1	19.5	367382	18.1	20.4
267883	17.8	19.9	222078	17.8	19.4	287375	17.9	21.7	23096	17.9	17.6	257545	18.1	23.0	284481	18.1	20.2
346889	17.8	23.2	197726	17.8	19.8	279105	17.9	20.7	492241	17.9	21.0	57203	18.1	19.0	327009	18.1	20.5
216503	17.8	19.6	482043	17.9	20.7	107870	17.9	19.7	320271	17.9	20.5	420803	18.1	20.7	240711	18.1	19.4
363899	17.8	20.6	38763	17.9	18.8	348620	17.9	19.8	240106	17.9	19.7	379436	18.1	20.2	189694	18.1	20.6
320754	17.8	20.6	343667	17.9	20.6	343227	17.9	20.4	468170	17.9	20.4	465489	18.1	21.8	175532	18.1	19.9
34012	17.8	18.1	26936	17.9	17.4	221344	17.9	19.8	463472	17.9	21.6	231027	18.1	18.8	450112	18.1	21.6
295494	17.8	20.9	31309	17.9	17.4	495135	17.9	20.3	52481	17.9	18.8	314750	18.1	20.1	412491	18.1	20.2
194182	17.8	20.1	238863	17.9	18.8	355990	17.9	18.6	59513	17.9	18.5	419546	18.1	20.5	141356	18.1	19.4
197835	17.8	20.8	193122	17.9	18.9	2501	17.9	14.0	52267	17.9	17.4	195664	18.1	20.2	420317	18.1	20.1
321366	17.8	20.4	391161	17.9	19.9	222092	17.9	20.3	455815	17.9	20.9	355057	18.1	19.5	29553	18.1	17.9
313457	17.8	21.0	394075	17.9	20.0	96306	17.9	19.7	343513	17.9	20.4	329389	18.1	19.9	51332	18.1	17.7
303948	17.8	20.2	310481	17.9	20.2	301916	17.9	21.9	268797	17.9	19.9	234362	18.1	20.3	460452	18.1	20.8
238337	17.8	19.4	22190	17.9	18.0	130645	17.9	20.1	284468	17.9	21.2	393295	18.1	20.8	531306	18.1	20.6
495820	17.8	19.5	301059	17.9	19.3	482848	17.9</										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
457954	18.1	21.3	440662	18.2	21.5	406041	18.2	18.6	541793	18.3	20.1	251508	18.4	20.1	244069	18.5	19.2
213761	18.1	19.9	190943	18.2	20.6	496730	18.2	20.0	149852	18.3	19.8	280246	18.4	19.7	469281	18.5	21.8
22923	18.1	18.7	59571	18.2	19.1	134466	18.2	20.6	456437	18.3	21.6	337370	18.4	20.9	276364	18.5	20.4
148558	18.1	18.0	543856	18.2	20.8	45928	18.2	17.7	185186	18.3	19.5	3076	18.4	17.0	469658	18.5	21.7
358287	18.1	20.8	394417	18.2	20.6	178441	18.2	20.6	421148	18.3	20.7	426562	18.4	20.8	252337	18.5	20.2
93394	18.1	18.1	440249	18.2	21.7	230964	18.2	19.3	481488	18.3	19.7	158932	18.4	19.6	135297	18.5	19.8
5096	18.1	16.0	200615	18.2	20.7	313497	18.2	21.5	493173	18.3	20.8	176812	18.4	19.9	163146	18.5	18.5
437893	18.1	21.7	15630	18.2	16.7	81999	18.2	19.2	224947	18.3	20.4	256082	18.4	20.6	392254	18.5	20.4
439852	18.1	21.6	421021	18.2	20.8	51366	18.3	18.0	127756	18.3	19.4	378872	18.4	20.7	427447	18.5	21.2
137103	18.1	19.1	424251	18.2	20.3	125988	18.3	19.3	524256	18.3	21.3	196188	18.4	18.4	427690	18.5	19.3
100497	18.1	20.0	176919	18.2	20.4	337642	18.3	20.5	212550	18.3	20.4	1320	18.4	15.6	450111	18.5	21.9
68912	18.1	18.1	462768	18.2	20.8	461135	18.3	21.3	218938	18.3	20.2	197223	18.4	19.6	424885	18.5	20.9
429937	18.1	21.1	156094	18.2	20.2	132286	18.3	18.9	455116	18.3	20.5	19677	18.4	18.0	352832	18.5	21.8
422014	18.1	21.7	305592	18.2	19.6	141651	18.3	19.8	344309	18.3	21.1	267031	18.4	20.9	87864	18.5	19.8
405656	18.1	21.3	340087	18.2	20.7	483104	18.3	19.8	79730	18.3	18.0	231999	18.4	20.7	79764	18.5	19.8
272587	18.1	20.8	207562	18.2	19.8	115897	18.3	19.9	328024	18.3	21.5	5415	18.4	16.2	387849	18.5	20.7
119756	18.1	20.1	40960	18.2	18.7	441489	18.3	21.5	66762	18.3	17.9	541727	18.4	20.8	437900	18.5	21.5
93263	18.1	19.0	318366	18.2	20.3	496207	18.3	21.7	289809	18.3	20.4	182758	18.4	20.1	525567	18.5	21.2
502474	18.1	20.5	421765	18.2	20.8	375401	18.3	20.3	60564	18.3	18.7	336519	18.4	21.0	455863	18.5	21.8
77473	18.1	18.9	307417	18.2	20.1	53088	18.3	18.4	348568	18.3	20.6	489865	18.4	20.8	411833	18.5	21.0
321025	18.1	17.8	35784	18.2	18.9	50381	18.3	18.1	101677	18.3	17.7	482518	18.4	21.0	183101	18.5	20.2
79962	18.1	18.3	124646	18.2	19.6	464996	18.3	20.2	367584	18.3	20.7	403667	18.4	20.9	493230	18.5	21.0
353389	18.1	20.9	334952	18.2	19.7	128813	18.3	20.5	394866	18.3	20.9	318964	18.4	19.9	167668	18.5	18.9
215366	18.1	21.0	275636	18.2	20.6	228819	18.3	19.2	31520	18.3	17.9	11771	18.4	19.2	15878	18.5	18.3
134052	18.1	19.5	230541	18.2	20.5	357249	18.3	20.5	377482	18.3	19.3	488512	18.4	21.6	240299	18.5	19.0
8586	18.1	17.1	51711	18.2	18.9	460245	18.3	21.6	206819	18.3	19.1	377286	18.4	18.9	538264	18.5	20.5
298560	18.1	19.6	233277	18.2	18.8	296892	18.3	20.2	149948	18.3	19.8	171550	18.4	20.3	300922	18.5	20.5
152700	18.1	20.4	229882	18.2	19.8	334917	18.3	20.2	154051	18.3	19.6	129635	18.4	18.3	118701	18.5	19.8
329243	18.1	21.0	139907	18.2	18.1	212289	18.3	20.3	19999	18.3	16.9	1718	18.4	17.8	260942	18.5	20.7
257023	18.1	19.9	499403	18.2	19.3	287569	18.3	19.4	421720	18.3	21.2	112610	18.4	18.9	454698	18.5	21.0
464751	18.1	20.5	409627	18.2	21.1	113072	18.3	19.1	523690	18.3	22.0	256174	18.4	19.3	64741	18.5	18.8
541503	18.1	21.7	363956	18.2	21.8	43800	18.3	17.8	405395	18.3	20.6	351212	18.4	20.9	90573	18.5	19.4
411214	18.1	21.5	111148	18.2	19.2	404423	18.3	20.7	184366	18.3	19.7	444442	18.4	21.4	242587	18.5	19.6
114076	18.1	19.9	327962	18.2	20.8	226885	18.3	20.3	37686	18.3	18.9	541659	18.4	20.7	285169	18.5	19.9
324632	18.1	19.2	252621	18.2	20.1	118682	18.3	20.6	280895	18.3	20.8	127558	18.4	19.4	76136	18.5	19.4
486848	18.2	20.8	258136	18.2	21.0	486278	18.3	20.8	351802	18.3	19.6	100164	18.4	19.8	280699	18.5	19.3
60892	18.2	18.3	132272	18.2	19.0	459190	18.3	22.3	77345	18.3	18.9	165858	18.4	20.0	61005	18.5	19.2
252305	18.2	20.2	197672	18.2	21.3	485041	18.3	19.5	200362	18.3	20.5	81022	18.4	19.0	258460	18.5	20.2
384756	18.2	20.5	97773	18.2	18.4	199251	18.3	19.2	194205	18.3	19.8	3250	18.4	16.0	18671	18.5	17.4
428468	18.2	20.8	247199	18.2	21.6	132408	18.3	19.1	160926	18.3	18.4	491210	18.4	21.0	283377	18.5	19.4
135872	18.2	19.8	487808	18.2	21.0	122112	18.3	19.7	243517	18.4	19.6	148728	18.4	21.4	185202	18.5	18.9
418850	18.2	20.9	455556	18.2	21.4	142249	18.3	19.8	403618	18.4	21.0	406110	18.4	20.4	393714	18.5	20.7
314733	18.2	19.9	57877	18.2	18.2	289144	18.3	19.8	169273	18.4	20.0	370586	18.4	21.7	188916	18.5	19.7
493686	18.2	22.1	185670	18.2	20.6	74178	18.3	19.3	168574	18.4	18.6	55414	18.4	17.9	156122	18.5	20.2
284098	18.2	20.3	77708	18.2	19.1	396651	18.3	19.5	60515	18.4	18.3	49846	18.4	17.1	74185	18.5	19.5
124471	18.2	19.5	64155	18.2	18.6	200917	18.3	19.1	524638	18.4	22.7	464767	18.4	20.6	8639	18.5	17.6
443882	18.2	20.5	203774	18.2	20.3	144503	18.3	19.8	431472	18.4	20.7	13662	18.4	17.5	497115	18.5	19.6
344061	18.2	21.8	521583	18.2	21.0	535943	18.3	20.7	17798	18.4	17.4	465077	18.4	21.1	333708	18.5	20.3
484512	18.2	20.0	34328	18.2	18.6	194466	18.3	19.9	456870	18.4	21.7	173399	18.4	19.6	494749	18.5	20.5
81996	18.2	19.6	532051	18.2	20.6	522601	18.3	20.1	350551	18.4	20.7	82394	18.4	19.0	376045	18.5	19.5
2709	18.2	15.2	334554	18.2	20.8	299351	18.3	21.0	457841	18.4	20.8	277762	18.4	20.4	231462	18.5	20.1
367590	18.2	21.5	295452	18.2	21.1	181983	18.3	18.9	59534	18.4	19.3	376604	18.4	20.9	493109	18.5	20.9
231686	18.2	19.3	360488	18.2	20.7	537898	18.3	21.0	37385	18.4	18.7	428150	18.4	20.4	114693	18.5	17.7
153849	18.2	19.9	58836	18.2	18.4	178247	18.3	19.1	255938	18.4	20.4	380442	18.4	20.2	367325	18.5	20.1
524417	18.2	20.7	121416	18.2	19.7	118521	18.3	17.9	484648	18.4	21.2	426855	18.4	20.0	23189	18.5	19.0
466236	18.2	20.3	383368	18.2	20.6	57071	18.3	18.9	282525	18.4	21.1	362774	18.4	20.0	519117	18.5	20.9
152653	18.2	19.5	280478	18.2	19.4	80381	18.3	18.4	118117	18.4	19.9	215473	18.4	19.8	484610	18.5	21.5
357403	18.2	21.1	412602	18.2	21.6	88398	18.3	18.9	360098	18.4	19.6	251070	18.4	21.0	194625	18.5	20.2
332327	18.2	21.7	391166	18.2	20.7	42616	18.3	17.8	75172	18.4	19.7	238520	18.4	19.8	43616	18.5	18.2
280822	18.2	20.6	455799	18.2	21.1	112622	18.3	19.0	525000	18.4	22.0	283395	18.4	20.2	450152	18.5	21.1
47714	18.2	18.9	462380	18.2	21.7	487775	18.3	20.9	35400	18.4	18.9	167617	18.4	19.8	2031	18.5	16.0
96670	18.2	18.1	439272	18.2	21.1	542249	18.3	20.4	195906	18.4	19.3	74051	18.4	18.9	204246	18.5	19.2
207672	18.2	20.6	89787	18.2	19.5	464866	18.3	20.3	233952	18.4	18.8	13601	18.4	18.3	525886	18.5	21.2
226895	18.2	20.8	502191	18.2	20.1	135370	18.3	19.7	26127	18.4	17.0	387848	18.4	19.3	235505	18.5	19.4
196808	18.2	20.3	466432	18.2	21.7	240078	18.3	19.7	46744	18.4	18.9	447141	18.4	21.1	519301	18.5	20.1
387584	18.2	20.9	155844	18.2	19.9	259349	18.3	20.2	398153	18.4	20.1	428386	18.4	21.0	177834	18.5	19.5
535843	18.2	20.6	404915	18.2	20.5	273986	18.3	20.3	297321	18.4	21.2	483444	18.4	22.0	94256	18.5	18.6
410482	18.2	19.0	352427	18.2	20.5	164826	18.3	19.7	343277	18.4	20.5	283988	18.4	20.8	7984	18.5	18.0
138977	18.2	19.1	523855	18.2	21.7	527598	18.3	2									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
55614	18.5	18.9	137187	18.6	18.9	172988	18.7	20.3	360461	18.7	20.4	457231	18.8	20.5	171609	18.8	20.0
63758	18.5	19.4	106465	18.6	18.6	264069	18.7	20.9	163544	18.7	19.6	74880	18.8	17.0	335979	18.8	21.3
399305	18.5	19.6	164563	18.6	19.3	70906	18.7	18.3	230009	18.7	20.4	204294	18.8	20.7	154099	18.8	20.0
5902	18.5	17.0	128781	18.6	19.8	133259	18.7	19.9	221674	18.7	19.1	59636	18.8	17.2	349617	18.8	21.5
87878	18.5	20.1	39367	18.6	18.7	517190	18.7	21.0	535888	18.7	20.4	392554	18.8	20.4	313505	18.8	21.5
441524	18.5	20.6	167999	18.6	19.4	366224	18.7	20.9	503681	18.7	21.0	465305	18.8	20.4	23767	18.8	17.5
430116	18.5	21.0	35843	18.6	17.5	416878	18.7	20.6	252445	18.7	20.6	410079	18.8	20.8	406264	18.8	21.1
441515	18.5	22.1	58196	18.6	17.0	16172	18.7	16.9	429309	18.7	20.4	100699	18.8	19.9	93552	18.8	19.3
90588	18.5	19.3	489454	18.6	20.9	426761	18.7	20.0	354594	18.7	20.8	456431	18.8	22.0	185870	18.8	19.4
143158	18.5	20.6	461426	18.6	21.7	222248	18.7	21.3	518617	18.7	20.1	462749	18.8	20.3	300310	18.8	20.4
113746	18.5	19.7	467811	18.6	20.5	465006	18.7	20.6	385949	18.7	20.6	444044	18.8	21.5	457861	18.8	21.3
260751	18.5	20.4	81509	18.6	19.2	93092	18.7	19.9	182668	18.7	18.6	207002	18.8	21.0	26051	18.8	19.2
333403	18.5	20.7	379122	18.6	20.2	396788	18.7	20.4	306443	18.7	21.4	10568	18.8	17.6	98030	18.8	18.6
277505	18.5	19.5	481234	18.6	20.3	15484	18.7	17.8	255984	18.7	20.4	81472	18.8	19.0	152781	18.8	19.9
214319	18.5	19.8	274196	18.6	20.1	483611	18.7	21.1	171165	18.7	19.7	426919	18.8	21.8	345074	18.8	21.1
182509	18.5	20.9	195730	18.6	19.6	66896	18.7	19.4	290289	18.7	20.6	18536	18.8	18.7	368475	18.8	18.7
486231	18.5	20.6	466226	18.6	21.3	66662	18.7	18.5	222949	18.7	19.8	114002	18.8	19.7	345174	18.8	20.5
535935	18.5	20.6	252235	18.6	20.8	68013	18.7	19.7	525096	18.7	21.7	328696	18.8	20.1	277982	18.8	20.8
483928	18.5	20.1	382812	18.6	21.3	351221	18.7	20.9	450241	18.7	21.2	543686	18.8	20.4	324702	18.8	19.8
76313	18.5	18.6	310161	18.6	20.6	372740	18.7	20.4	453113	18.7	21.6	415459	18.8	20.6	151110	18.8	18.6
81819	18.5	19.8	447450	18.6	19.8	462196	18.7	20.6	104443	18.7	19.2	381304	18.8	21.6	114066	18.8	20.0
532246	18.5	20.5	88492	18.6	19.3	485550	18.7	21.1	111044	18.7	19.8	169200	18.8	19.6	318998	18.9	20.1
26582	18.5	17.9	10509	18.6	17.1	297987	18.7	20.8	221135	18.7	21.0	492396	18.8	21.5	276861	18.9	21.5
217429	18.5	19.9	107643	18.6	19.5	344192	18.7	21.1	300288	18.7	21.3	493827	18.8	21.0	373026	18.9	20.5
367768	18.5	20.3	155660	18.6	19.9	403583	18.7	20.6	301826	18.7	20.3	236913	18.8	19.4	516462	18.9	21.8
284733	18.5	21.0	157692	18.6	19.6	60404	18.7	19.6	147341	18.7	18.4	424871	18.8	21.3	335953	18.9	21.0
129688	18.5	20.1	11295	18.6	17.8	75711	18.7	19.2	437922	18.7	21.9	373411	18.8	19.1	218884	18.9	20.4
274010	18.5	20.3	188025	18.6	19.4	541247	18.7	21.0	426584	18.7	21.3	148527	18.8	20.3	140019	18.9	19.7
82415	18.5	19.0	114195	18.6	20.6	425428	18.7	20.4	449699	18.7	20.9	54183	18.8	18.9	311017	18.9	20.3
170292	18.5	20.5	400921	18.6	21.8	235633	18.7	21.0	46517	18.7	19.6	266151	18.8	19.2	142797	18.9	19.4
201657	18.5	20.7	380986	18.6	20.6	190879	18.7	20.5	251071	18.7	20.8	415878	18.8	20.6	364272	18.9	20.2
543583	18.5	21.7	29462	18.6	18.3	538593	18.7	20.4	174067	18.7	19.6	234517	18.8	20.6	54923	18.9	18.2
454561	18.5	21.7	325456	18.6	21.3	100842	18.7	18.1	532117	18.7	22.0	207941	18.8	20.9	176743	18.9	20.2
495435	18.5	20.8	62629	18.6	19.2	176925	18.7	20.3	58487	18.7	20.3	335948	18.8	21.0	427267	18.9	20.7
327396	18.5	20.0	30148	18.6	18.8	57223	18.7	19.6	197682	18.7	21.1	446338	18.8	19.4	460830	18.9	21.2
151151	18.5	19.1	103507	18.6	19.6	163161	18.7	18.4	862	18.7	14.1	477258	18.8	20.0	312348	18.9	19.7
387735	18.5	18.9	54092	18.6	18.7	30417	18.7	18.8	158619	18.7	19.1	493456	18.8	21.2	269700	18.9	20.4
167543	18.5	18.3	229598	18.6	20.6	364212	18.7	21.0	327456	18.7	20.4	278984	18.8	20.5	339983	18.9	20.6
132751	18.5	19.3	12998	18.6	18.5	402696	18.7	20.9	186258	18.7	20.1	146466	18.8	19.5	122022	18.9	19.2
406626	18.5	19.6	81909	18.6	18.8	53219	18.7	17.9	345278	18.7	20.0	455876	18.8	20.5	85920	18.9	18.1
159644	18.5	20.1	177181	18.6	20.3	318717	18.7	19.7	101817	18.7	18.1	489268	18.8	21.5	48567	18.9	17.6
169184	18.5	20.3	397528	18.6	22.2	205577	18.7	19.7	414533	18.7	20.8	392839	18.8	19.3	26757	18.9	19.2
121076	18.5	19.0	68553	18.6	17.5	251097	18.7	21.5	475357	18.7	20.5	383764	18.8	20.7	345422	18.9	19.5
7473	18.6	17.4	362540	18.6	20.8	378384	18.7	21.5	140563	18.7	18.8	393252	18.8	20.1	526969	18.9	20.3
285595	18.6	20.6	38846	18.6	19.8	316735	18.7	21.2	423081	18.7	21.3	285133	18.8	20.2	338180	18.9	20.7
90035	18.6	18.6	51560	18.6	18.2	531459	18.7	21.3	94823	18.7	20.2	442216	18.8	20.2	218648	18.9	20.2
364781	18.6	21.1	201263	18.6	20.2	76524	18.7	18.9	167272	18.7	19.6	79244	18.8	19.4	532589	18.9	21.6
304957	18.6	21.4	425466	18.6	20.5	100028	18.7	19.7	406242	18.8	20.8	406808	18.8	20.8	370815	18.9	21.5
53695	18.6	18.4	369794	18.6	19.6	495812	18.7	19.7	368460	18.8	19.7	440325	18.8	21.4	535280	18.9	20.9
232429	18.6	18.3	77586	18.6	18.4	194211	18.7	19.7	214351	18.8	21.1	363800	18.8	19.3	300302	18.9	20.2
246564	18.6	20.6	276566	18.6	20.5	431624	18.7	21.8	409223	18.8	19.8	243202	18.8	20.2	182535	18.9	19.5
422095	18.6	20.2	494167	18.6	21.3	58221	18.7	17.9	308723	18.8	20.9	224241	18.8	20.3	379493	18.9	20.3
85327	18.6	19.1	122364	18.6	19.8	203060	18.7	19.7	40694	18.8	17.9	146032	18.8	18.9	380215	18.9	21.3
340731	18.6	20.1	249559	18.6	21.4	263895	18.7	19.2	125405	18.8	20.3	460280	18.8	21.7	255873	18.9	20.7
345342	18.6	19.3	339017	18.6	19.8	361262	18.7	20.7	194663	18.8	19.5	366206	18.8	20.6	29201	18.9	18.1
116435	18.6	19.2	409663	18.6	20.6	502198	18.7	20.4	328623	18.8	20.0	384987	18.8	20.8	124472	18.9	20.4
41305	18.6	18.1	376421	18.6	21.0	10071	18.7	17.5	420250	18.8	20.7	105254	18.8	19.3	71889	18.9	19.0
276395	18.6	20.5	486781	18.6	20.7	240347	18.7	20.6	489261	18.8	20.8	431572	18.8	20.9	114234	18.9	18.7
474403	18.6	20.9	25832	18.6	19.3	255762	18.7	18.9	104447	18.8	18.6	486467	18.8	20.3	159463	18.9	20.4
210241	18.6	21.1	217442	18.6	20.4	486237	18.7	20.2	52302	18.8	18.5	242990	18.8	20.4	408862	18.9	20.5
109756	18.6	19.6	409513	18.6	20.5	37851	18.7	17.9	142951	18.8	19.8	56756	18.8	17.8	46351	18.9	18.6
356602	18.6	21.0	61103	18.6	19.2	347534	18.7	19.7	33145	18.8	19.0	26224	18.8	18.4	464105	18.9	21.3
410122	18.6	20.5	444201	18.6	20.1	135673	18.7	21.2	213236	18.8	17.7	62393	18.8	19.3	163771	18.9	20.1
468996	18.6	20.2	178898	18.6	19.5	524768	18.7	22.6	451115	18.8	20.0	122928	18.8	19.7	428495	18.9	20.3
385951	18.6	21.7	292781	18.6	19.9	295019	18.7	20.2	159005	18.8	19.1	423077	18.8	19.2	219777	18.9	19.3
363577	18.6	19.3	403526	18.6	19.7	536403	18.7	19.6	269187	18.8	19.4	33466	18.8	17.9	262789	18.9	20.4
538152	18.6	21.3	250234	18.6	19.9	284176	18.7	20.0	455969	18.8	21.1	234515	18.8	19.8	427562	18.9	22.1
379458	18.6	19.7	275659	18.6	21.2	182498	18.7	20.2	340920	18.8	19.6	57384	18.8	17.9	454268	18.9	20.1
64817	18.6	18.4	90743	18.6	19.9	412013	18.7										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
500517	18.9	21.3	421264	18.9	20.7	339904	19.0	20.9	184054	19.1	20.1	417869	19.1	20.5	510929	19.2	20.5
154289	18.9	20.1	198941	18.9	19.5	343546	19.0	20.3	285569	19.1	20.4	61568	19.1	18.5	109617	19.2	19.8
399344	18.9	21.2	296702	18.9	20.3	131264	19.0	18.5	424887	19.1	20.9	76654	19.2	19.4	423430	19.2	20.2
80939	18.9	19.1	425791	18.9	20.3	54106	19.0	17.8	263235	19.1	19.6	440336	19.2	21.6	462788	19.2	20.7
238799	18.9	20.1	13858	18.9	18.4	27152	19.0	18.6	142966	19.1	20.1	136308	19.2	18.8	275306	19.2	21.5
432507	18.9	20.0	450850	18.9	19.8	319644	19.0	20.6	248069	19.1	20.8	457432	19.2	20.9	426567	19.2	20.8
218113	18.9	19.2	62058	18.9	18.7	217454	19.0	20.5	457817	19.1	21.2	201065	19.2	19.1	349088	19.2	20.2
379035	18.9	19.7	56717	18.9	18.7	61535	19.0	19.1	87634	19.1	17.7	165800	19.2	19.9	84337	19.2	19.4
236653	18.9	20.2	75604	18.9	19.2	211612	19.0	20.1	253973	19.1	18.4	223513	19.2	19.9	421701	19.2	20.3
344564	18.9	20.2	322595	18.9	19.7	398861	19.0	19.6	428370	19.1	21.2	136338	19.2	19.9	379838	19.2	21.7
230746	18.9	20.3	466016	18.9	20.0	383703	19.0	21.3	302895	19.1	21.1	250168	19.2	20.7	495463	19.2	21.3
12075	18.9	17.5	448197	18.9	21.3	538762	19.0	21.1	378420	19.1	20.6	446895	19.2	22.1	454274	19.2	21.0
294200	18.9	20.6	54734	18.9	19.0	482826	19.0	21.0	230558	19.1	18.6	458623	19.2	20.8	122232	19.2	19.2
37465	18.9	19.6	422406	18.9	21.0	84744	19.0	19.7	6471	19.1	16.1	428759	19.2	21.0	468000	19.2	21.6
172924	18.9	19.7	394409	18.9	20.3	331006	19.0	19.9	54008	19.1	19.0	206358	19.2	21.0	362721	19.2	20.0
82372	18.9	18.5	491297	18.9	20.9	31751	19.0	18.2	335646	19.1	21.2	329202	19.2	20.3	146539	19.2	20.3
541720	18.9	21.4	349197	18.9	19.5	417254	19.0	20.1	204175	19.1	19.4	189429	19.2	18.1	304494	19.2	20.9
462708	18.9	20.5	317991	18.9	20.4	56309	19.0	17.9	408812	19.1	21.2	59376	19.2	18.7	332553	19.2	21.1
270633	18.9	20.3	174280	18.9	20.3	463594	19.0	20.8	204841	19.1	20.7	140578	19.2	19.3	37823	19.2	17.4
461332	18.9	20.7	119399	18.9	19.3	251133	19.0	20.5	439342	19.1	21.5	311694	19.2	20.3	209190	19.2	19.2
541514	18.9	22.5	366192	18.9	20.2	257060	19.0	20.5	430241	19.1	21.3	511621	19.2	20.9	419279	19.2	21.5
320880	18.9	19.7	244826	18.9	20.0	370555	19.0	21.0	168324	19.1	19.6	201997	19.2	20.5	491375	19.2	20.7
385959	18.9	21.4	307162	18.9	16.9	264574	19.0	20.4	413508	19.1	20.6	63790	19.2	19.8	452280	19.2	21.5
388497	18.9	20.3	207335	18.9	20.0	545119	19.0	21.6	220649	19.1	20.2	155996	19.2	20.2	489269	19.2	21.4
445094	18.9	20.4	200329	18.9	18.9	248556	19.0	21.2	105411	19.1	19.7	28819	19.2	18.0	21216	19.2	17.1
288468	18.9	19.5	349185	18.9	21.7	92557	19.0	19.5	69800	19.1	18.8	319517	19.2	20.6	270129	19.2	20.4
210464	18.9	19.9	400043	18.9	20.8	335702	19.0	19.7	360011	19.1	19.8	235961	19.2	19.2	13131	19.2	18.5
417152	18.9	21.4	339676	18.9	21.7	375352	19.0	20.9	522515	19.1	20.7	217417	19.2	19.5	24646	19.2	17.3
182574	18.9	20.2	372981	18.9	21.3	269221	19.0	20.6	185276	19.1	19.2	135429	19.2	20.5	377492	19.2	20.3
150193	18.9	20.1	393403	18.9	21.0	190108	19.0	20.1	123861	19.1	19.4	219352	19.2	19.7	51614	19.2	19.2
18314	18.9	17.4	111169	18.9	19.1	440576	19.0	21.4	432723	19.1	21.0	395392	19.2	21.4	164198	19.2	19.8
135187	18.9	18.8	370592	18.9	20.5	126146	19.0	19.1	318273	19.1	19.6	369225	19.2	21.2	26554	19.2	18.6
347139	18.9	20.9	331588	18.9	21.1	466906	19.0	20.9	525518	19.1	21.0	402712	19.2	22.0	146709	19.2	19.5
398128	18.9	20.1	7170	18.9	17.3	78501	19.0	19.7	431355	19.1	21.0	130699	19.2	19.4	252504	19.2	21.0
25084	18.9	16.3	214378	18.9	18.9	165927	19.0	20.3	423010	19.1	19.8	179004	19.2	19.2	274808	19.2	20.0
104083	18.9	18.7	9791	18.9	17.2	278008	19.0	21.1	456424	19.1	21.0	60813	19.2	17.8	36159	19.2	18.6
30112	18.9	17.5	347281	18.9	19.7	283162	19.0	20.1	511685	19.1	20.5	208457	19.2	19.9	35219	19.2	17.7
422891	18.9	20.2	143141	18.9	19.7	281752	19.0	20.6	155648	19.1	19.4	495698	19.2	20.8	51141	19.2	18.9
327298	18.9	21.0	187705	18.9	19.8	72900	19.1	19.1	421322	19.1	20.0	427054	19.2	20.9	321128	19.2	20.6
263370	18.9	19.8	155947	18.9	19.6	172727	19.1	19.9	1407	19.1	15.9	313533	19.2	21.5	120497	19.2	19.0
462651	18.9	21.9	148893	18.9	20.1	298823	19.1	21.0	370452	19.1	20.5	289288	19.2	20.3	165924	19.2	19.8
155429	18.9	19.6	491050	18.9	21.3	448751	19.1	20.6	30994	19.1	19.3	201022	19.2	19.1	406091	19.2	20.8
525683	18.9	20.6	43789	18.9	17.8	35998	19.1	17.3	84582	19.1	19.3	165745	19.2	19.8	36466	19.2	19.2
161750	18.9	19.2	252472	18.9	21.5	194675	19.1	19.3	273125	19.1	19.7	190391	19.2	20.1	113135	19.2	19.4
429858	18.9	21.7	28010	18.9	17.7	47445	19.1	18.7	10982	19.1	19.3	30042	19.2	17.1	325719	19.2	20.3
84660	18.9	18.9	212242	18.9	20.4	232474	19.1	18.9	296397	19.1	19.9	181356	19.2	19.2	175622	19.2	19.8
32154	18.9	18.9	84539	18.9	19.2	85849	19.1	17.4	89151	19.1	19.1	200349	19.2	20.2	419272	19.2	19.9
414471	18.9	21.1	279933	18.9	21.1	301924	19.1	20.3	139393	19.1	19.8	240231	19.2	19.7	273093	19.2	19.9
487651	18.9	21.7	242200	18.9	20.5	41160	19.1	19.0	160484	19.1	19.7	27543	19.2	18.9	281336	19.2	18.2
115597	18.9	19.1	37782	18.9	18.5	167086	19.1	20.2	37394	19.1	19.2	48358	19.2	20.8	446044	19.2	21.3
459232	18.9	20.9	467317	18.9	23.2	124170	19.1	20.1	151541	19.1	19.9	45510	19.2	18.3	318138	19.2	20.2
356460	18.9	20.8	240337	18.9	21.1	352421	19.1	21.0	538029	19.1	21.0	37430	19.2	18.8	489744	19.2	20.4
445314	18.9	19.8	207940	18.9	20.6	409945	19.1	20.7	134472	19.1	20.4	69017	19.2	18.5	312600	19.2	20.8
526027	18.9	21.4	450761	18.9	22.4	260171	19.1	20.1	483445	19.1	20.9	392791	19.2	20.5	462881	19.2	21.9
58308	18.9	19.1	170108	18.9	20.0	459218	19.1	20.1	421398	19.1	19.8	189657	19.2	19.9	366977	19.2	20.9
214594	18.9	19.9	243926	18.9	20.3	499457	19.1	20.6	481093	19.1	20.6	359283	19.2	19.6	459035	19.2	21.8
151581	18.9	19.8	233897	19.0	20.0	29687	19.1	17.7	340196	19.1	20.1	425410	19.2	19.4	277065	19.2	20.1
290950	18.9	19.5	449523	19.0	21.4	66428	19.1	18.5	449637	19.1	20.6	406600	19.2	20.0	133270	19.2	18.9
189091	18.9	20.0	166966	19.0	20.3	368059	19.1	20.6	490700	19.1	21.6	301636	19.2	19.5	353810	19.3	20.4
44046	18.9	18.7	379115	19.0	20.5	153062	19.1	20.2	156600	19.1	19.1	281856	19.2	20.2	516461	19.3	22.0
314825	18.9	20.1	403923	19.0	21.1	39565	19.1	20.5	138519	19.1	20.4	467687	19.2	20.9	381323	19.3	20.9
543645	18.9	21.4	331121	19.0	20.5	77583	19.1	19.2	475485	19.1	21.7	78545	19.2	18.6	195644	19.3	20.6
485498	18.9	21.1	57829	19.0	18.2	47807	19.1	18.8	520723	19.1	20.2	113054	19.2	19.5	3077	19.3	15.4
238931	18.9	18.5	323848	19.0	20.9	336509	19.1	21.1	115754	19.1	19.3	238388	19.2	19.0	411971	19.3	20.6
39878	18.9	18.4	325450	19.0	20.5	25634	19.1	18.1	286129	19.1	20.3	388872	19.2	19.8	418887	19.3	20.6
466034	18.9	20.9	79865	19.0	19.8	299033	19.1	19.6	404830	19.1	20.8	165836	19.2	20.3	426260	19.3	20.7
519011	18.9	20.3	149020	19.0	18.6	13760	19.1	18.3	307708	19.1	19.6	487742	19.2	21.1	246238	19.3	20.0
457801	18.9	20.7	419283	19.0	20.6	148817	19.1	20.0	103932	19.1	18.4	206868	19.2	19.2	314662	19.3	19.6
388505	18.9	21.0	141149	19.0	20.2	459057	19.1										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
450267	19.3	20.6	538736	19.3	21.1	138613	19.4	19.6	187151	19.5	19.9	163539	19.5	19.8	256557	19.6	20.3
357266	19.3	20.2	344326	19.3	20.8	67329	19.4	19.0	527061	19.5	21.1	409429	19.5	21.2	73956	19.6	19.5
413665	19.3	20.7	275102	19.3	20.2	281922	19.4	20.1	480930	19.5	19.7	544837	19.5	20.9	398148	19.6	20.1
63677	19.3	18.6	71926	19.3	19.3	346358	19.4	20.4	144196	19.5	20.4	502173	19.5	20.2	532613	19.6	21.1
344571	19.3	20.4	416829	19.3	19.6	457906	19.4	21.3	44621	19.5	18.7	61121	19.5	19.0	172153	19.6	19.8
381574	19.3	21.8	404832	19.3	19.4	345232	19.4	20.7	142008	19.5	19.7	79013	19.5	18.7	247047	19.6	18.8
280287	19.3	18.9	49781	19.3	17.6	538760	19.4	21.5	349503	19.5	21.4	233499	19.5	19.1	74373	19.6	20.1
418417	19.3	20.9	256233	19.3	20.7	382272	19.4	20.2	15934	19.5	18.8	279505	19.5	18.9	381373	19.6	20.6
78700	19.3	19.8	384331	19.3	20.8	114269	19.4	18.9	545090	19.5	21.0	361223	19.5	21.1	398835	19.6	21.1
7662	19.3	17.2	36506	19.3	18.9	337041	19.4	20.6	97525	19.5	18.7	524976	19.5	21.5	51242	19.6	18.7
139868	19.3	20.1	376063	19.3	20.1	416784	19.4	19.2	498	19.5	13.6	518485	19.5	20.8	542669	19.6	20.5
19226	19.3	17.7	401790	19.3	20.3	312345	19.4	20.5	130776	19.5	19.6	336695	19.5	19.9	353798	19.6	19.8
170731	19.3	20.2	443709	19.3	20.9	529057	19.4	21.0	3121	19.5	15.6	378981	19.5	21.0	345707	19.6	21.5
2459	19.3	15.8	4216	19.3	16.4	170576	19.4	19.9	327291	19.5	20.7	283406	19.5	20.5	69855	19.6	17.4
316565	19.3	20.4	173340	19.3	18.8	499999	19.4	21.8	34781	19.5	18.2	461755	19.5	20.8	383721	19.6	21.1
486105	19.3	20.7	361351	19.3	21.9	465775	19.4	21.5	363801	19.5	20.1	76727	19.5	18.6	500353	19.6	21.4
103027	19.3	18.9	495538	19.3	21.1	114873	19.4	19.7	107847	19.5	19.1	124017	19.5	18.9	420599	19.6	20.7
87921	19.3	18.4	20408	19.3	18.1	379064	19.4	22.1	259259	19.5	19.3	366371	19.5	21.5	309368	19.6	20.8
122983	19.3	20.1	409548	19.3	20.3	432538	19.4	20.4	289283	19.5	20.4	78360	19.5	19.7	244616	19.6	21.1
407363	19.3	20.6	3279	19.4	16.5	55491	19.4	19.2	162375	19.5	19.5	109418	19.5	19.2	241959	19.6	19.1
344423	19.3	20.2	453153	19.4	20.5	31043	19.4	19.1	306599	19.5	18.4	383791	19.6	20.1	385388	19.6	20.2
425240	19.3	21.2	352171	19.4	20.4	200962	19.4	19.4	463500	19.5	21.6	447841	19.6	21.0	111310	19.6	19.4
97104	19.3	19.7	121469	19.4	19.3	350549	19.4	20.8	516841	19.5	20.5	47489	19.6	19.0	433919	19.6	20.5
11866	19.3	17.7	293009	19.4	20.1	129501	19.4	19.6	265805	19.5	20.1	432502	19.6	20.2	541121	19.6	20.5
152228	19.3	19.1	281229	19.4	19.0	120001	19.4	19.0	353474	19.5	20.7	519826	19.6	20.8	117537	19.6	19.1
257922	19.3	20.6	456505	19.4	22.2	364251	19.4	21.8	199379	19.5	19.1	189475	19.6	19.3	309874	19.6	19.9
535462	19.3	21.2	379433	19.4	19.5	543249	19.4	21.5	173464	19.5	20.3	194200	19.6	20.0	33313	19.6	17.9
461910	19.3	21.0	214267	19.4	19.3	15790	19.4	17.8	220180	19.5	19.7	169375	19.6	20.9	44326	19.6	19.0
406549	19.3	19.2	544898	19.4	20.6	280713	19.4	20.0	112461	19.5	18.7	302981	19.6	20.1	140564	19.6	19.3
76415	19.3	19.0	76605	19.4	18.8	121287	19.4	19.8	13038	19.5	17.7	124736	19.6	18.3	182169	19.6	20.1
280766	19.3	20.3	170406	19.4	20.2	139225	19.4	17.8	420027	19.5	21.4	89704	19.6	20.8	120250	19.6	19.5
333408	19.3	20.3	171068	19.4	20.1	453246	19.4	21.9	66948	19.5	18.8	426918	19.6	20.4	209000	19.6	19.5
363214	19.3	21.1	347231	19.4	20.0	494011	19.4	20.7	141585	19.5	18.6	385627	19.6	21.3	543795	19.6	21.8
543423	19.3	21.1	373970	19.4	19.7	110811	19.4	19.8	44532	19.5	18.5	376052	19.6	19.7	287610	19.6	19.8
542714	19.3	21.0	374186	19.4	20.0	502013	19.4	20.2	460386	19.5	21.7	462130	19.6	20.4	393697	19.6	21.7
532286	19.3	21.5	1458	19.4	14.7	315489	19.4	19.6	434003	19.5	21.1	237662	19.6	19.9	451799	19.6	19.7
326482	19.3	19.4	288904	19.4	20.7	447037	19.4	22.3	455868	19.5	21.3	83170	19.6	18.7	285715	19.6	20.7
413670	19.3	20.2	405929	19.4	21.8	85712	19.4	18.4	413596	19.5	21.3	324012	19.6	20.8	48200	19.6	18.4
123162	19.3	20.1	218764	19.4	19.8	161228	19.4	20.2	23643	19.5	18.5	334013	19.6	20.1	336959	19.6	20.8
130680	19.3	19.4	288550	19.4	20.2	220690	19.4	20.4	457413	19.5	19.8	369770	19.6	20.2	453065	19.6	21.6
258199	19.3	20.6	113615	19.4	18.8	368392	19.4	20.1	201766	19.5	19.9	465277	19.6	21.9	151664	19.6	19.4
283857	19.3	19.5	541246	19.4	20.5	490852	19.4	20.5	275058	19.5	21.0	261273	19.6	20.5	534668	19.6	21.4
391913	19.3	20.7	367573	19.4	20.4	316669	19.4	20.1	407459	19.5	21.0	468986	19.6	21.2	343829	19.6	19.8
310207	19.3	20.5	257176	19.4	19.9	485533	19.4	20.4	410833	19.5	21.2	177711	19.6	19.2	155222	19.6	20.3
433684	19.3	21.4	372921	19.4	20.7	219255	19.4	20.5	73948	19.5	19.1	417019	19.6	21.7	323524	19.6	20.5
447524	19.3	21.3	247728	19.4	19.1	388444	19.4	19.8	314870	19.5	21.2	256972	19.6	20.6	341329	19.6	21.0
489839	19.3	20.5	146438	19.4	19.7	389610	19.4	19.9	279888	19.5	19.3	98428	19.6	18.4	186823	19.6	21.0
199226	19.3	20.1	345669	19.4	20.5	84661	19.4	19.0	161754	19.5	18.6	454961	19.6	21.0	427825	19.6	20.2
248861	19.3	21.8	525034	19.4	22.9	12757	19.4	17.8	338198	19.5	21.1	203103	19.6	19.6	47340	19.6	18.8
109791	19.3	20.0	333036	19.4	20.8	77523	19.4	18.9	277889	19.5	20.0	231714	19.6	20.0	178125	19.6	19.6
381214	19.3	20.8	502445	19.4	20.5	400110	19.4	21.1	121575	19.5	20.0	163743	19.6	18.9	117898	19.6	20.9
437774	19.3	20.5	13898	19.4	17.2	522338	19.4	21.0	86668	19.5	17.6	220604	19.6	20.4	232406	19.6	19.2
465212	19.3	21.5	333622	19.4	21.7	323963	19.4	20.2	21029	19.5	18.3	5314	19.6	16.2	233162	19.6	20.0
277810	19.3	20.5	424959	19.4	20.7	3009	19.4	16.9	152220	19.5	19.6	238769	19.6	19.2	155467	19.6	19.9
316860	19.3	20.1	76284	19.4	18.7	132448	19.4	18.9	375458	19.5	20.2	16098	19.6	18.1	433326	19.6	22.6
465793	19.3	20.2	75830	19.4	17.6	493907	19.4	21.2	4451	19.5	17.1	322866	19.6	20.6	433738	19.6	21.1
65544	19.3	18.5	110412	19.4	19.9	147252	19.4	19.7	394434	19.5	20.8	368469	19.6	20.6	483909	19.6	21.9
272980	19.3	20.5	51681	19.4	19.2	432492	19.4	20.3	238365	19.5	20.1	196726	19.6	21.2	311077	19.6	18.8
197260	19.3	20.7	428357	19.4	21.5	466225	19.4	20.7	475912	19.5	20.1	405589	19.6	20.8	129478	19.6	20.9
529297	19.3	21.0	194068	19.4	20.7	277086	19.4	19.8	526999	19.5	21.5	278676	19.6	20.3	284975	19.6	20.3
81204	19.3	20.1	367633	19.4	20.5	339102	19.4	21.0	194581	19.5	19.2	234911	19.6	20.3	104726	19.6	18.8
12184	19.3	18.3	187226	19.4	20.0	156597	19.4	19.4	81790	19.5	18.9	79125	19.6	19.1	381651	19.6	20.8
544348	19.3	20.6	235063	19.4	18.6	249045	19.5	19.6	59235	19.5	18.1	231851	19.6	20.2	161190	19.6	19.8
217607	19.3	19.8	136245	19.4	20.0	168239	19.5	20.5	481357	19.5	19.7	124872	19.6	19.1	135265	19.6	19.8
303005	19.3	20.5	440308	19.4	21.5	535461	19.5	21.1	400754	19.5	19.3	451241	19.6	20.8	283034	19.6	20.1
363160	19.3	21.0	468496	19.4	19.5	523482	19.5	20.5	327750	19.5	20.3	424937	19.6	21.3	448797	19.6	21.6
323151	19.3	19.5	169757	19.4	20.5	71819	19.5	20.1	31164	19.5	16.3	354984	19.6	19.8	168372	19.6	20.4
455797	19.3	22.2	421210	19.4	20.9	135900	19.5	18.5	319930	19.5	20.1	184359	19.6	19.3	221118	19.6	20.0
402118	19.3	19.7	444072	19.4	21.2	344270	19										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
532038	19.7	22.5	274630	19.7	20.7	413109	19.8	20.1	352669	19.9	21.2	103527	19.9	19.6	71493	19.9	19.2
487653	19.7	21.1	88016	19.7	19.4	112863	19.8	19.2	441586	19.9	21.0	339682	19.9	20.6	209518	19.9	20.7
52303	19.7	18.5	236911	19.7	19.9	373797	19.8	20.0	167110	19.9	21.8	522220	19.9	21.1	482819	19.9	20.9
339655	19.7	21.6	394880	19.7	21.3	43108	19.8	18.9	302032	19.9	20.2	362356	19.9	21.1	147932	19.9	20.0
110794	19.7	18.9	156280	19.7	20.1	543436	19.8	20.9	373664	19.9	20.9	97342	19.9	18.0	384895	19.9	21.1
424285	19.7	20.9	191566	19.7	19.4	68770	19.8	19.9	282446	19.9	19.8	195060	19.9	19.5	464893	19.9	21.3
268318	19.7	19.9	247560	19.7	19.6	240754	19.8	20.1	347657	19.9	19.9	293522	19.9	20.7	150340	19.9	20.2
418223	19.7	20.2	455844	19.7	21.6	327943	19.8	20.4	185332	19.9	20.1	343220	19.9	20.4	285553	19.9	19.1
282598	19.7	20.0	37046	19.7	18.9	348275	19.8	19.2	282104	19.9	19.5	25202	19.9	18.5	148880	19.9	20.0
182674	19.7	19.4	458278	19.7	21.5	426869	19.8	20.4	534292	19.9	21.6	32447	19.9	18.9	432548	19.9	20.8
482862	19.7	20.9	390175	19.7	21.0	462367	19.8	20.8	396365	19.9	20.0	2164	19.9	16.8	56664	19.9	18.4
36417	19.7	19.0	300314	19.7	21.1	212248	19.8	18.6	391863	19.9	19.8	228094	19.9	20.3	346940	19.9	20.0
391780	19.7	21.3	10349	19.7	16.5	419518	19.8	20.5	419383	19.9	20.8	433493	19.9	20.5	252523	19.9	19.6
460942	19.7	20.2	76471	19.7	18.7	111274	19.8	19.8	34473	19.9	18.2	411395	19.9	20.1	120015	19.9	19.7
260745	19.7	19.1	405623	19.7	21.0	244283	19.8	19.3	542825	19.9	20.0	241096	19.9	19.8	59682	19.9	18.5
169318	19.7	20.7	183243	19.7	19.4	384555	19.8	20.4	440740	19.9	20.7	9169	19.9	17.7	141398	19.9	18.9
401901	19.7	21.0	151060	19.7	19.7	541165	19.8	20.8	95895	19.9	18.7	116694	19.9	19.2	458161	19.9	21.8
529546	19.7	21.1	402638	19.7	21.9	55595	19.8	19.4	173844	19.9	20.2	373988	19.9	20.3	142626	19.9	19.3
412153	19.7	21.1	396869	19.7	20.8	182560	19.8	20.9	365353	19.9	20.9	452153	19.9	21.3	260880	19.9	19.9
409521	19.7	20.9	237390	19.7	20.3	452407	19.8	21.9	421979	19.9	22.4	25695	19.9	18.3	453029	19.9	21.9
183010	19.7	20.2	47612	19.7	17.2	255934	19.8	20.7	193140	19.9	19.7	436119	19.9	21.6	305012	19.9	20.4
188680	19.7	19.6	10703	19.7	17.7	370279	19.8	21.2	12839	19.9	18.6	347611	19.9	21.6	419144	19.9	20.9
45004	19.7	19.8	445918	19.7	21.0	268788	19.8	20.0	227273	19.9	19.6	143148	19.9	20.5	297058	19.9	19.7
7999	19.7	16.9	232670	19.7	20.6	133740	19.8	19.6	463917	19.9	20.9	127056	19.9	19.5	263323	19.9	20.9
119057	19.7	20.0	399510	19.7	21.1	152290	19.8	20.3	196941	19.9	19.9	233001	19.9	20.2	242109	19.9	21.1
34050	19.7	18.8	125007	19.7	18.8	466452	19.8	21.2	234512	19.9	20.0	28764	19.9	18.3	221940	19.9	20.3
252469	19.7	20.1	245698	19.7	18.7	484581	19.8	20.3	455377	19.9	22.0	471921	19.9	21.9	259087	19.9	20.6
227772	19.7	21.2	186046	19.7	20.6	68222	19.8	18.4	246370	19.9	19.7	541681	19.9	20.6	379970	19.9	19.8
254898	19.7	19.3	376661	19.7	21.4	348681	19.8	20.0	382205	19.9	19.6	275316	19.9	21.3	521573	19.9	21.6
47044	19.7	18.7	51880	19.8	18.7	166894	19.8	20.2	481413	19.9	21.1	456369	19.9	21.1	449633	19.9	21.8
275778	19.7	21.0	169385	19.8	21.1	9229	19.8	17.4	233774	19.9	19.9	142608	19.9	19.1	413501	19.9	20.3
151031	19.7	18.8	116877	19.8	18.9	378898	19.8	20.8	544630	19.9	21.5	422316	19.9	20.4	277177	19.9	20.5
370521	19.7	19.5	281738	19.8	19.6	10463	19.8	18.0	363894	19.9	21.1	151299	19.9	19.3	279926	19.9	19.8
543046	19.7	21.0	517103	19.8	19.8	50478	19.8	18.8	159111	19.9	20.5	110819	19.9	19.9	438352	20.0	21.6
247689	19.7	19.9	194454	19.8	19.8	343301	19.8	19.8	375358	19.9	20.6	447143	19.9	20.1	242763	20.0	19.3
306247	19.7	21.1	263091	19.8	19.7	261052	19.8	20.2	278479	19.9	19.8	251061	19.9	20.7	418493	20.0	21.1
424909	19.7	21.3	381985	19.8	19.9	492094	19.8	20.5	232465	19.9	18.8	291021	19.9	19.7	197779	20.0	21.4
275411	19.7	20.8	394071	19.8	19.5	264033	19.8	20.3	363196	19.9	21.5	464254	19.9	20.2	101005	20.0	19.5
235715	19.7	20.0	405178	19.8	22.1	159123	19.8	19.8	108299	19.9	19.5	187230	19.9	20.4	232324	20.0	19.7
7291	19.7	17.4	196080	19.8	19.1	203143	19.8	20.0	257508	19.9	20.2	335736	19.9	20.9	454165	20.0	20.4
480897	19.7	22.1	34354	19.8	18.1	410519	19.8	20.8	398171	19.9	19.7	95453	19.9	19.9	304906	20.0	20.3
332545	19.7	20.2	62722	19.8	18.9	425333	19.8	19.0	445059	19.9	21.3	466029	19.9	20.2	18036	20.0	18.2
328007	19.7	20.6	132242	19.8	18.9	465750	19.8	20.5	322412	19.9	20.5	424314	19.9	21.2	169250	20.0	19.4
62229	19.7	19.6	179649	19.8	20.9	337096	19.8	20.9	493674	19.9	22.2	300359	19.9	20.9	59657	20.0	18.0
351249	19.7	21.1	236883	19.8	19.9	263261	19.8	19.7	460751	19.9	21.6	334061	19.9	21.0	164940	20.0	20.4
201037	19.7	19.3	163585	19.8	20.1	486294	19.8	21.0	495905	19.9	21.9	234067	19.9	19.8	55019	20.0	19.7
143349	19.7	19.0	172780	19.8	19.2	97373	19.8	19.1	364808	19.9	20.1	197816	19.9	19.5	89326	20.0	19.0
10814	19.7	17.6	68616	19.8	18.1	310852	19.8	20.2	27937	19.9	17.8	424748	19.9	21.5	44830	20.0	20.0
19138	19.7	16.5	380756	19.8	20.5	538811	19.8	20.6	382831	19.9	21.2	310711	19.9	20.4	445093	20.0	21.8
427793	19.7	20.7	328670	19.8	21.4	89649	19.8	20.2	84766	19.9	19.0	216171	19.9	20.9	205617	20.0	20.5
544700	19.7	20.7	440217	19.8	21.8	276757	19.8	19.8	437899	19.9	20.6	478750	19.9	20.9	334582	20.0	20.6
494739	19.7	21.7	307353	19.8	20.9	161007	19.8	19.5	488832	19.9	21.1	351284	19.9	21.3	536497	20.0	21.9
74232	19.7	18.7	77140	19.8	18.1	462284	19.8	20.2	492294	19.9	22.2	390593	19.9	21.5	330018	20.0	20.1
395750	19.7	20.4	55454	19.8	17.2	418331	19.8	20.5	169357	19.9	20.6	314859	19.9	20.4	437334	20.0	21.1
395169	19.7	19.9	54209	19.8	17.3	103323	19.8	17.8	288501	19.9	19.5	526841	19.9	20.9	373323	20.0	19.9
193824	19.7	19.8	188309	19.8	19.3	445045	19.8	21.9	395156	19.9	20.0	5530	19.9	15.8	520031	20.0	21.5
386909	19.7	20.7	312292	19.8	20.0	363815	19.8	20.0	522064	19.9	20.1	281310	19.9	20.2	502856	20.0	19.7
138850	19.7	19.6	538297	19.8	21.1	74371	19.8	19.0	25838	19.9	18.3	532533	19.9	22.3	483307	20.0	21.0
373766	19.7	19.9	207612	19.8	20.7	143337	19.8	19.8	422559	19.9	20.5	129300	19.9	18.9	426023	20.0	20.9
176193	19.7	19.7	543491	19.8	20.8	309849	19.8	19.7	224210	19.9	20.7	448933	19.9	22.4	493736	20.0	20.6
537968	19.7	20.5	197963	19.8	19.0	491037	19.8	23.2	441514	19.9	21.8	118186	19.9	19.0	486316	20.0	21.2
528516	19.7	21.3	3183	19.8	17.7	29110	19.8	18.3	223484	19.9	19.1	236952	19.9	20.0	339440	20.0	20.9
529638	19.7	20.6	311291	19.8	20.2	397211	19.8	20.6	424704	19.9	21.2	491261	19.9	21.0	464261	20.0	20.7
424836	19.7	21.4	421355	19.8	20.8	75900	19.8	18.4	177344	19.9	20.2	123130	19.9	17.8	415146	20.0	20.4
194388	19.7	19.3	6420	19.8	17.1	151253	19.8	19.5	57107	19.9	19.6	127602	19.9	18.0	420697	20.0	21.1
321047	19.7	21.2	234787	19.8	20.5	256112	19.8	21.3	178195	19.9	19.7	247504	19.9	21.0	243536	20.0	19.8
463781	19.7	21.1	460855	19.8	20.9	439929	19.8	21.7	381989	19.9	19.4	12500	19.9	17.7	40377	20.0	18.9
168584	19.7	20.7	381221	19.8	20.6	383676	19.8	21.0	54616	19.9	18.5	337401	19.9	20.0	199416	20.0	19.9
411415	19.7	21.3	157026	19.8	20.0	153											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
538891	20.0	21.4	319884	20.1	20.5	399453	20.1	21.2	336457	20.2	19.7	400037	20.3	22.0	143041	20.3	19.4
82924	20.0	19.4	92588	20.1	19.1	372270	20.1	20.3	242921	20.2	20.0	522534	20.3	21.1	337367	20.3	21.4
43237	20.0	19.2	76832	20.1	18.9	220900	20.1	19.7	428996	20.2	21.0	114143	20.3	19.4	45339	20.4	18.2
116223	20.0	19.6	443167	20.1	19.8	287146	20.2	20.7	348575	20.2	20.3	59007	20.3	19.0	267216	20.4	21.2
62790	20.0	19.3	370396	20.1	20.6	426886	20.2	20.8	22402	20.2	18.0	494956	20.3	21.4	326470	20.4	19.5
151264	20.0	19.7	541306	20.1	19.6	400013	20.2	20.6	32888	20.2	19.2	183094	20.3	18.7	99274	20.4	19.4
521574	20.0	21.2	302971	20.1	19.7	280247	20.2	20.7	362202	20.2	19.8	251248	20.3	20.3	516993	20.4	21.5
83837	20.0	19.2	333958	20.1	20.0	285577	20.2	20.0	95050	20.2	19.1	77882	20.3	18.3	489362	20.4	20.7
76010	20.0	18.2	439980	20.1	21.5	58961	20.2	19.1	46926	20.2	18.9	459814	20.3	21.0	222952	20.4	21.1
345287	20.0	20.4	360296	20.1	20.5	421729	20.2	21.4	346958	20.2	20.4	129025	20.3	20.2	222795	20.4	20.1
152049	20.0	19.7	454668	20.1	20.6	24642	20.2	18.1	146549	20.2	18.5	156337	20.3	20.3	342325	20.4	21.6
133470	20.0	20.7	26190	20.1	17.7	426835	20.2	20.7	403671	20.2	20.5	394886	20.3	21.1	93727	20.4	18.5
30988	20.0	19.0	234577	20.1	20.4	481737	20.2	20.3	188927	20.2	20.2	378454	20.3	20.9	239250	20.4	20.0
207701	20.0	20.6	491023	20.1	22.0	494851	20.2	20.3	543101	20.2	21.3	341496	20.3	19.3	425382	20.4	20.7
357376	20.0	21.5	216548	20.1	19.7	414837	20.2	20.5	264561	20.2	19.8	522651	20.3	20.6	265807	20.4	19.7
127917	20.0	19.4	92728	20.1	19.3	450868	20.2	19.6	79877	20.2	19.1	268559	20.3	20.5	459116	20.4	20.1
529554	20.0	20.4	195832	20.1	19.8	347480	20.2	21.3	493829	20.2	20.6	367814	20.3	21.1	411413	20.4	20.7
102034	20.0	19.7	243567	20.1	20.4	424297	20.2	21.2	178904	20.2	19.9	333905	20.3	21.7	502380	20.4	20.9
431573	20.0	20.9	391139	20.1	20.0	542331	20.2	20.0	438783	20.2	20.7	364436	20.3	21.9	239275	20.4	20.9
79811	20.0	18.6	119197	20.1	19.1	532962	20.2	21.6	175746	20.2	21.5	144931	20.3	18.1	480287	20.4	20.8
527470	20.0	21.4	189839	20.1	19.8	487893	20.2	20.6	378188	20.2	19.6	82861	20.3	18.2	97867	20.4	19.9
422264	20.0	21.1	103703	20.1	19.0	420722	20.2	19.6	526860	20.2	20.6	523772	20.3	21.6	492185	20.4	21.1
251140	20.0	20.9	321352	20.1	21.3	463834	20.2	21.2	226196	20.2	20.7	234941	20.3	21.3	263656	20.4	20.5
84216	20.0	19.8	218760	20.1	20.2	41628	20.2	18.9	114630	20.2	19.1	180315	20.3	17.2	403900	20.4	20.5
76766	20.0	19.3	192333	20.1	19.9	372074	20.2	20.4	278477	20.2	20.7	148991	20.3	19.3	159062	20.4	19.5
117132	20.0	19.7	85955	20.1	18.0	179210	20.2	20.5	83513	20.2	19.6	149527	20.3	19.5	242388	20.4	19.6
120498	20.0	19.4	488047	20.1	19.8	407404	20.2	21.4	337372	20.2	21.1	153012	20.3	19.3	343616	20.4	20.6
51732	20.0	18.4	44938	20.1	18.4	307953	20.2	18.7	254075	20.2	19.6	138761	20.3	20.1	221223	20.4	20.5
113198	20.0	19.1	202054	20.1	20.6	117136	20.2	18.4	535518	20.2	21.4	92825	20.3	18.8	509015	20.4	22.0
109667	20.1	19.7	491424	20.1	21.0	172621	20.2	19.4	7406	20.2	18.3	333401	20.3	20.6	399767	20.4	21.2
240110	20.1	18.8	176793	20.1	21.4	30724	20.2	16.6	203106	20.2	19.8	413559	20.3	20.5	182656	20.4	20.3
320529	20.1	20.5	208470	20.1	20.9	174205	20.2	20.2	423822	20.2	20.6	61386	20.3	19.3	466021	20.4	20.6
451089	20.1	21.1	239346	20.1	20.3	212833	20.2	20.5	228765	20.2	19.3	222328	20.3	20.3	169109	20.4	20.5
340603	20.1	21.1	534052	20.1	21.3	364254	20.2	20.9	119692	20.2	20.0	488974	20.3	21.0	176807	20.4	19.9
401471	20.1	21.0	110354	20.1	19.7	544819	20.2	20.2	245454	20.2	20.6	377082	20.3	21.5	348683	20.4	20.6
203789	20.1	20.1	275378	20.1	20.9	297355	20.2	20.1	231088	20.2	20.8	536109	20.3	20.9	53386	20.4	17.7
251214	20.1	21.1	7595	20.1	16.1	277837	20.2	20.3	447946	20.2	21.5	1423	20.3	15.1	261880	20.4	20.1
484687	20.1	21.4	32094	20.1	18.0	16279	20.2	16.8	145502	20.2	19.0	458334	20.3	21.9	447822	20.4	21.2
184558	20.1	19.8	339810	20.1	20.8	463897	20.2	21.2	179161	20.2	19.8	195903	20.3	19.6	183437	20.4	19.3
92816	20.1	19.1	459169	20.1	21.5	454720	20.2	20.8	234500	20.2	20.7	229059	20.3	21.3	7685	20.4	15.4
59621	20.1	19.1	227575	20.1	20.1	324078	20.2	20.2	190896	20.3	19.2	276271	20.3	20.7	414902	20.4	20.6
53156	20.1	18.5	73770	20.1	18.8	40008	20.2	18.9	34313	20.3	18.1	495960	20.3	23.0	480700	20.4	20.5
250196	20.1	20.6	179021	20.1	20.3	176867	20.2	20.6	405608	20.3	20.2	256179	20.3	19.9	196000	20.4	20.2
16584	20.1	17.9	237731	20.1	20.8	189266	20.2	20.3	271466	20.3	19.0	292628	20.3	20.3	321752	20.4	20.8
365780	20.1	21.6	279377	20.1	20.2	98434	20.2	18.8	90237	20.3	19.1	110655	20.3	19.5	203294	20.4	20.9
447773	20.1	22.1	535942	20.1	21.2	426781	20.2	20.8	446486	20.3	20.9	194030	20.3	20.4	109954	20.4	19.8
531384	20.1	21.5	183231	20.1	20.0	195806	20.2	20.5	197661	20.3	20.6	11024	20.3	17.4	273350	20.4	21.0
101361	20.1	18.2	370419	20.1	20.8	450759	20.2	20.8	527511	20.3	21.5	111338	20.3	20.1	42023	20.4	17.7
52296	20.1	19.7	456435	20.1	22.0	43787	20.2	19.5	14830	20.3	19.0	232718	20.3	20.0	393396	20.4	21.5
233671	20.1	21.0	223100	20.1	19.7	121143	20.2	19.0	373086	20.3	20.1	421690	20.3	22.5	256171	20.4	21.2
349544	20.1	19.7	154036	20.1	19.6	349984	20.2	19.8	90089	20.3	18.4	11023	20.3	17.5	543082	20.4	21.2
381801	20.1	19.3	467805	20.1	20.8	290548	20.2	20.8	132008	20.3	19.3	57516	20.3	18.1	56029	20.4	17.8
355989	20.1	20.7	542121	20.1	21.4	204642	20.2	19.9	338957	20.3	20.4	417103	20.3	21.2	536381	20.4	21.1
544166	20.1	19.7	337580	20.1	21.2	1305	20.2	14.4	286974	20.3	21.0	33201	20.3	18.4	467598	20.4	20.6
220591	20.1	19.3	257254	20.1	19.3	240105	20.2	20.3	105190	20.3	19.9	405628	20.3	21.0	432475	20.4	21.0
238594	20.1	20.0	198836	20.1	19.2	238790	20.2	19.9	54903	20.3	18.8	227696	20.3	20.6	121702	20.4	19.4
394125	20.1	20.3	394474	20.1	20.4	36134	20.2	18.6	207634	20.3	19.9	7688	20.3	17.4	187235	20.4	19.9
256699	20.1	19.7	178165	20.1	20.0	180193	20.2	20.8	249304	20.3	20.7	27850	20.3	19.0	475179	20.4	20.9
24672	20.1	19.0	477769	20.1	21.4	232035	20.2	20.1	251751	20.3	20.4	334514	20.3	21.4	426718	20.4	21.7
11480	20.1	17.9	65569	20.1	19.7	151659	20.2	19.9	280737	20.3	20.2	153940	20.3	18.8	134741	20.4	18.4
49687	20.1	18.2	252246	20.1	20.8	62259	20.2	18.9	24586	20.3	19.0	527401	20.3	21.3	156271	20.4	19.0
194751	20.1	19.2	15771	20.1	18.6	358568	20.2	20.7	164521	20.3	19.8	146809	20.3	18.9	461876	20.4	21.0
265317	20.1	20.4	502468	20.1	20.9	372308	20.2	21.0	224858	20.3	19.7	236815	20.3	20.7	103514	20.4	17.1
306729	20.1	20.6	360315	20.1	20.9	226765	20.2	20.1	350086	20.3	20.7	158881	20.3	21.2	119284	20.4	19.2
460793	20.1	20.6	260761	20.1	19.6	217476	20.2	20.8	4802	20.3	17.8	92711	20.3	19.0	538507	20.4	21.0
292056	20.1	20.2	52085	20.1	19.5	491192	20.2	20.5	31518	20.3	17.2	19661	20.3	16.2	461131	20.4	20.7
38791	20.1	18.6	394430	20.1	20.7	92857	20.2	18.4	528674	20.3	21.5	14516	20.3	18.0	85154	20.4	19.0
526534	20.1	22.0	104823	20.1	20.0	199924	20.2	18.9	319856	20.3	20.9	425342	20.3	19.7	508043	20.4	20.7
450321	20.1	21.9	12736	20.1	17.6	43863	20.2	1									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
164982	20.4	19.4	29673	20.5	17.9	149305	20.5	19.8	279080	20.6	19.9	323562	20.7	20.8	510794	20.7	20.8
189087	20.4	19.9	186609	20.5	18.8	467686	20.5	20.9	57389	20.6	19.3	307847	20.7	19.9	279958	20.7	21.2
359947	20.4	20.5	59231	20.5	18.3	425234	20.5	20.4	12090	20.6	18.7	63626	20.7	19.1	302932	20.7	20.0
350129	20.4	20.3	43820	20.5	17.6	241022	20.5	20.9	309090	20.6	20.2	236806	20.7	19.7	293882	20.7	20.6
283224	20.4	20.2	328907	20.5	20.9	245451	20.5	20.4	26522	20.6	18.1	463554	20.7	21.1	163011	20.7	20.4
506093	20.4	20.4	172287	20.5	21.0	319646	20.5	21.1	163643	20.6	20.5	109214	20.7	18.4	337236	20.7	19.8
62170	20.4	18.7	222822	20.5	20.0	425497	20.5	20.8	240098	20.6	19.1	62035	20.7	19.6	167731	20.7	19.3
213962	20.4	19.1	426642	20.5	20.7	135360	20.5	19.5	412120	20.6	20.7	444963	20.7	20.5	461777	20.7	21.2
544599	20.4	20.9	409743	20.5	20.9	78437	20.5	18.9	72841	20.6	18.8	218694	20.7	20.4	421411	20.7	21.1
252391	20.4	21.0	165768	20.5	20.6	151810	20.5	19.0	483404	20.6	21.3	290815	20.7	20.1	466857	20.7	20.9
164788	20.4	19.7	428094	20.5	21.2	420539	20.5	20.3	26248	20.6	18.5	446674	20.7	20.6	352721	20.7	21.0
182686	20.4	20.4	313520	20.5	20.9	75871	20.5	19.2	417359	20.6	20.4	185335	20.7	20.4	320719	20.7	19.8
456595	20.4	19.4	113354	20.5	20.4	2718	20.5	16.6	538634	20.6	21.4	111767	20.7	19.4	501146	20.7	20.0
418882	20.4	20.1	158884	20.5	20.5	435287	20.5	20.8	187137	20.6	20.6	252233	20.7	20.6	415117	20.7	20.5
194340	20.4	20.1	468255	20.5	20.0	209902	20.5	20.3	265344	20.6	20.2	78573	20.7	19.5	66774	20.7	17.0
466040	20.4	20.6	508978	20.5	21.2	257271	20.5	21.0	466853	20.6	19.7	120048	20.7	19.9	143497	20.7	19.4
344290	20.4	20.6	419344	20.5	20.9	453754	20.5	19.6	307617	20.6	20.7	232747	20.7	20.1	351259	20.7	21.2
178646	20.4	19.8	1219	20.5	14.3	279694	20.5	20.8	349516	20.6	20.4	260862	20.7	20.2	377486	20.7	19.8
155113	20.4	20.6	462464	20.5	20.8	244008	20.5	20.1	389377	20.6	19.9	81193	20.7	18.1	206685	20.7	20.3
10616	20.4	18.4	110386	20.5	20.6	62477	20.5	18.8	103959	20.6	19.3	369360	20.7	19.9	458318	20.7	20.6
400139	20.4	21.0	531039	20.5	20.6	395334	20.5	21.5	139511	20.6	19.2	543095	20.7	22.0	58962	20.7	17.6
338084	20.4	21.2	455816	20.5	21.2	367388	20.5	20.5	541608	20.6	21.2	424235	20.7	21.4	365583	20.7	21.0
124413	20.4	19.1	290808	20.5	20.7	306513	20.5	20.5	134862	20.6	19.1	31363	20.7	17.8	88747	20.8	19.1
445876	20.4	20.3	430240	20.5	20.9	196632	20.5	21.1	542163	20.6	20.5	139435	20.7	19.3	160157	20.8	19.7
103020	20.4	19.5	290005	20.5	20.8	360817	20.5	20.4	494050	20.6	20.8	46909	20.7	17.3	331025	20.8	20.8
372161	20.4	20.3	411814	20.5	20.2	259131	20.5	20.1	209922	20.6	19.0	312312	20.7	20.7	299493	20.8	19.9
461098	20.4	21.1	275736	20.5	19.8	181951	20.5	19.6	524228	20.6	22.6	135156	20.7	19.6	138887	20.8	18.9
410890	20.4	20.8	219437	20.5	20.1	18982	20.5	18.0	48852	20.6	18.3	377204	20.7	17.6	305172	20.8	20.4
227454	20.4	19.8	459425	20.5	21.3	108242	20.5	18.1	118836	20.6	19.9	279983	20.7	20.2	505720	20.8	21.2
67677	20.4	19.0	502731	20.5	20.1	206850	20.5	19.2	313463	20.6	21.1	105680	20.7	18.8	418543	20.8	20.6
433074	20.4	20.7	246175	20.5	20.4	109619	20.6	19.3	378509	20.6	20.6	70219	20.7	17.8	373802	20.8	20.3
356526	20.4	20.4	28366	20.5	17.8	282130	20.6	19.5	521101	20.6	20.9	232744	20.7	18.9	246749	20.8	20.4
169020	20.4	19.2	338254	20.5	21.2	280464	20.6	19.3	60584	20.6	18.7	332455	20.7	20.7	522123	20.8	21.4
528580	20.4	20.4	144001	20.5	20.1	216858	20.6	20.2	422451	20.6	21.2	536199	20.7	20.4	203848	20.8	18.6
138064	20.4	19.3	484646	20.5	21.0	110621	20.6	19.0	253070	20.6	19.7	211268	20.7	19.3	315494	20.8	19.7
492049	20.4	20.7	345179	20.5	20.6	527455	20.6	20.7	542620	20.6	19.8	77943	20.7	19.6	124369	20.8	19.4
150204	20.4	20.1	73786	20.5	19.1	435484	20.6	19.5	115711	20.6	18.5	463804	20.7	21.1	123285	20.8	19.0
370666	20.4	19.5	284031	20.5	21.0	228458	20.6	19.9	492994	20.6	21.2	65419	20.7	18.8	419049	20.8	20.2
442745	20.4	21.6	182085	20.5	19.7	252459	20.6	20.6	354548	20.6	21.4	46587	20.7	19.4	272141	20.8	20.2
343315	20.4	20.8	28034	20.5	18.0	457158	20.6	19.7	294686	20.6	20.6	261460	20.7	21.1	544261	20.8	21.2
234871	20.4	19.8	541196	20.5	20.3	193978	20.6	20.7	293696	20.6	20.6	133784	20.7	19.6	164344	20.8	19.6
88566	20.4	19.5	214906	20.5	19.8	276593	20.6	20.3	38578	20.6	18.5	523421	20.7	19.6	83857	20.8	18.0
454327	20.4	21.4	307836	20.5	20.2	64615	20.6	18.6	216312	20.6	18.6	456491	20.7	21.9	66975	20.8	19.0
150439	20.4	18.4	199153	20.5	20.2	421162	20.6	20.7	372028	20.6	21.3	422484	20.7	20.7	452200	20.8	21.7
81230	20.4	18.9	222896	20.5	20.3	133149	20.6	20.7	148854	20.6	19.9	461841	20.7	21.4	31279	20.8	18.8
375131	20.4	20.7	62365	20.5	19.7	428980	20.6	20.7	463366	20.6	20.4	42548	20.7	17.2	124591	20.8	19.7
135230	20.4	19.4	482837	20.5	21.3	253965	20.6	20.5	288413	20.6	19.7	365929	20.7	20.1	275790	20.8	20.7
110129	20.4	19.4	52707	20.5	18.0	172669	20.6	19.7	208116	20.6	20.3	492827	20.7	21.3	89748	20.8	19.2
59181	20.4	18.8	495575	20.5	20.6	34818	20.6	18.7	456265	20.6	21.8	109133	20.7	20.2	278925	20.8	21.0
79010	20.4	18.5	411225	20.5	20.3	154117	20.6	19.3	348943	20.6	20.0	335866	20.7	21.4	152586	20.8	19.9
301939	20.4	19.7	178867	20.5	19.7	62079	20.6	18.6	293039	20.6	20.8	307886	20.7	20.2	343532	20.8	19.9
521022	20.4	20.6	337352	20.5	20.9	406173	20.6	21.7	83959	20.6	19.5	279945	20.7	20.9	233986	20.8	19.9
93359	20.4	18.0	291454	20.5	19.8	87056	20.6	19.2	167714	20.6	19.2	79502	20.7	18.8	60860	20.8	19.0
174298	20.4	20.9	398344	20.5	20.6	410564	20.6	20.5	226883	20.6	20.2	231175	20.7	20.7	91688	20.8	19.1
494968	20.4	22.0	337928	20.5	20.7	473593	20.6	20.6	202083	20.6	19.6	57261	20.7	19.0	146510	20.8	19.9
271412	20.4	19.5	340585	20.5	20.4	378440	20.6	20.6	59489	20.6	17.8	329354	20.7	20.8	110393	20.8	18.9
268243	20.4	19.7	354596	20.5	20.6	290316	20.6	20.4	35589	20.6	18.6	88584	20.7	18.3	15927	20.8	17.1
244521	20.4	21.4	60889	20.5	18.3	148931	20.6	19.6	40782	20.6	19.1	83722	20.7	18.3	405658	20.8	21.4
251058	20.4	19.9	96167	20.5	18.8	401891	20.6	21.1	333073	20.6	20.7	852	20.7	14.0	461112	20.8	20.9
256146	20.4	20.2	369138	20.5	21.0	12590	20.6	17.7	108216	20.6	19.5	505363	20.7	20.7	296196	20.8	20.8
450765	20.4	21.9	196035	20.5	18.8	375051	20.6	20.1	345236	20.6	21.2	236674	20.7	20.7	301919	20.8	20.4
164915	20.4	20.5	499499	20.5	21.0	138433	20.6	19.0	67004	20.6	19.4	270862	20.7	20.5	484857	20.8	21.2
247542	20.4	21.2	466372	20.5	21.3	484618	20.6	20.9	30750	20.6	18.9	199166	20.7	19.1	82051	20.8	18.4
239002	20.4	19.3	158555	20.5	18.2	154815	20.6	19.7	444002	20.6	20.3	287696	20.7	21.1	398473	20.8	21.3
4797	20.4	17.9	295474	20.5	20.5	259372	20.6	20.0	312229	20.6	20.7	491351	20.7	21.6	378446	20.8	20.8
248717	20.5	21.6	292259	20.5	20.8	234458	20.6	21.2	518724	20.6	20.8	3720	20.7	16.4	164798	20.8	19.1
124799	20.5	18.9	291082	20.5	20.6	50847	20.6	18.4	179802	20.6	20.6	124984	20.7	19.3	345228	20.8	20.3
339949	20.5	21.1	27124	20.5	17.0	402136	20.6	20.5	336011	20.6	20.7	458379	20.7	21.1	84438	20.8	18.7
113131	20.5	19.0	107829	20.5	18.6	405967											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
338166	20.8	19.9	189005	20.9	21.1	339756	20.9	21.4	424260	20.9	20.4	400323	21.0	21.5	413628	21.1	20.7
373213	20.8	20.0	278893	20.9	20.8	463815	20.9	21.5	113547	20.9	19.4	508788	21.0	23.6	276226	21.1	20.3
77078	20.8	18.6	115447	20.9	20.1	237027	20.9	21.0	273016	20.9	19.8	319704	21.1	21.6	168715	21.1	19.0
402624	20.8	21.1	303013	20.9	21.6	461086	20.9	21.0	151931	20.9	18.4	382206	21.1	20.8	393575	21.1	21.3
260823	20.8	21.0	378451	20.9	21.3	380505	20.9	21.0	15649	20.9	19.2	60684	21.1	19.3	289824	21.1	21.7
85091	20.8	19.7	58573	20.9	20.4	334527	20.9	21.5	495270	20.9	21.5	113216	21.1	19.0	163689	21.1	20.9
433121	20.8	20.8	429741	20.9	20.5	496701	20.9	21.0	359397	20.9	20.4	105424	21.1	19.5	428471	21.1	20.5
415700	20.8	20.9	459586	20.9	20.1	109254	20.9	19.1	336478	20.9	19.5	413065	21.1	22.2	245013	21.1	20.1
54265	20.8	18.5	329824	20.9	21.4	83119	20.9	18.8	227530	20.9	21.0	416441	21.1	20.4	520262	21.1	20.5
237078	20.8	20.7	133063	20.9	18.7	319544	20.9	21.6	160428	20.9	19.8	232609	21.1	20.6	188748	21.1	20.0
379096	20.8	21.0	118765	20.9	19.0	115681	20.9	19.9	146140	20.9	19.5	161733	21.1	20.0	31715	21.1	18.9
159743	20.8	19.4	166229	20.9	19.0	406153	20.9	22.0	143212	20.9	18.8	412418	21.1	20.2	348426	21.1	20.4
109668	20.8	19.0	377280	20.9	19.5	119281	20.9	19.2	413640	20.9	20.8	316529	21.1	20.1	418992	21.1	21.1
370836	20.8	20.3	432485	20.9	19.7	159609	20.9	22.0	121652	21.0	20.1	455909	21.1	21.3	253282	21.1	19.9
523780	20.8	21.6	285747	20.9	21.1	398146	20.9	19.0	338911	21.0	20.0	176802	21.1	20.2	433564	21.1	21.4
419393	20.8	21.6	297342	20.9	19.9	45827	20.9	19.1	425004	21.0	20.2	516975	21.1	20.9	244395	21.1	19.9
274541	20.8	20.5	38815	20.9	19.3	311060	20.9	19.9	277712	21.0	20.0	440994	21.1	20.5	163018	21.1	19.1
455907	20.8	21.3	58536	20.9	19.7	131290	20.9	19.2	170666	21.0	19.1	334639	21.1	20.3	136254	21.1	19.5
56192	20.8	17.8	86194	20.9	16.9	125660	20.9	18.6	90463	21.0	19.6	183593	21.1	20.6	278430	21.1	21.1
137702	20.8	18.9	59078	20.9	19.6	161005	20.9	19.4	181667	21.0	20.4	343252	21.1	20.7	318805	21.1	19.8
352891	20.8	21.3	28733	20.9	18.3	295855	20.9	19.7	454891	21.0	20.2	493083	21.1	21.0	102175	21.1	20.5
363140	20.8	21.0	235053	20.9	19.2	397844	20.9	20.6	413641	21.0	20.8	78736	21.1	18.8	222258	21.1	19.6
203170	20.8	18.6	417176	20.9	20.5	406915	20.9	20.2	74066	21.0	18.4	125711	21.1	20.0	410067	21.1	20.6
427100	20.8	21.3	226280	20.9	19.5	360478	20.9	20.9	228093	21.0	20.6	416867	21.1	19.3	60506	21.1	18.8
37423	20.8	18.1	103653	20.9	17.8	109571	20.9	19.6	277462	21.0	20.5	321954	21.1	20.3	422366	21.1	20.2
49023	20.8	17.5	219848	20.9	19.8	392919	20.9	19.4	408914	21.0	19.8	290326	21.1	21.2	493070	21.1	20.1
444764	20.8	21.6	315445	20.9	19.9	279898	20.9	20.4	439919	21.0	22.5	490069	21.1	21.5	148168	21.1	19.9
502505	20.8	20.9	442707	20.9	21.1	54878	20.9	19.4	194934	21.0	20.6	187909	21.1	20.1	348234	21.1	20.7
139300	20.8	20.5	138196	20.9	19.0	460172	20.9	20.8	229058	21.0	18.8	83588	21.1	19.5	55759	21.1	19.0
376291	20.8	20.9	152675	20.9	19.1	397864	20.9	20.9	165088	21.0	18.9	121811	21.1	19.6	152598	21.1	19.5
284009	20.8	21.1	82265	20.9	18.9	152083	20.9	19.7	146349	21.0	19.8	101359	21.1	19.8	430108	21.1	20.9
201077	20.8	19.8	18973	20.9	18.1	355992	20.9	20.4	51131	21.0	17.6	185857	21.1	18.4	441678	21.1	21.4
124604	20.8	18.9	178624	20.9	20.2	403104	20.9	19.9	370814	21.0	21.1	423336	21.1	20.5	399418	21.1	21.6
44225	20.8	18.9	521812	20.9	21.7	415167	20.9	20.6	309445	21.0	20.8	298567	21.1	19.3	94172	21.1	18.9
467919	20.8	20.7	22774	20.9	17.7	125334	20.9	18.8	281615	21.0	19.6	384623	21.1	20.5	536635	21.1	21.5
179880	20.8	20.5	242979	20.9	20.0	436087	20.9	21.2	15252	21.0	17.1	430353	21.1	20.8	375531	21.1	20.2
403038	20.8	20.5	339636	20.9	21.3	468271	20.9	19.8	199466	21.0	19.7	73574	21.1	17.5	109527	21.1	19.5
185337	20.8	20.2	295385	20.9	20.3	402698	20.9	22.0	250942	21.0	18.8	135779	21.1	20.9	383403	21.1	20.4
66071	20.8	18.9	463636	20.9	21.4	27303	20.9	17.9	250482	21.0	21.4	52345	21.1	16.2	47637	21.1	18.4
327498	20.8	21.4	501931	20.9	20.4	368422	20.9	21.3	54351	21.0	17.3	7439	21.1	16.7	287650	21.1	19.7
531474	20.8	22.1	453014	20.9	21.4	140233	20.9	20.5	323544	21.0	20.6	338275	21.1	20.5	177761	21.1	20.0
374637	20.8	20.9	370278	20.9	20.9	158700	20.9	19.1	66214	21.0	18.4	68246	21.1	18.5	303532	21.1	20.5
282488	20.8	20.9	451813	20.9	20.8	493027	20.9	20.8	319900	21.0	19.7	281588	21.1	20.5	194636	21.1	20.9
104417	20.8	18.9	244472	20.9	20.8	335873	20.9	20.1	314903	21.0	20.4	158943	21.1	20.1	517627	21.1	21.1
74542	20.8	19.5	221278	20.9	20.8	495562	20.9	21.0	147735	21.0	20.1	463	21.1	15.8	33044	21.1	18.6
78435	20.8	18.9	18244	20.9	19.0	477751	20.9	21.2	352575	21.0	18.7	583	21.1	13.1	194095	21.1	20.2
80989	20.8	19.2	468768	20.9	21.4	463900	20.9	21.3	379020	21.0	20.3	276305	21.1	20.1	231000	21.1	19.9
178607	20.8	19.7	233699	20.9	20.5	241534	20.9	18.4	301065	21.0	20.0	292111	21.1	20.8	459305	21.1	20.5
263	20.8	14.5	21857	20.9	18.0	467476	20.9	21.6	173900	21.0	20.8	334136	21.1	21.5	197063	21.1	19.3
301662	20.8	20.2	84061	20.9	19.9	329332	20.9	20.0	23419	21.0	18.4	431297	21.1	20.9	307742	21.1	19.6
35431	20.8	18.7	531364	20.9	21.9	235557	20.9	19.9	528512	21.0	21.8	108744	21.1	20.0	403653	21.1	20.5
375537	20.8	21.1	170212	20.9	20.8	465497	20.9	21.0	238938	21.0	18.7	116237	21.1	19.0	377176	21.1	20.7
258298	20.8	21.5	447870	20.9	22.3	79464	20.9	19.8	249863	21.0	20.7	230803	21.1	19.7	80595	21.1	18.0
204883	20.8	19.9	142478	20.9	20.8	241614	20.9	21.4	184733	21.0	19.9	181542	21.1	19.4	465473	21.1	20.6
267812	20.8	21.3	106825	20.9	19.8	89987	20.9	19.2	323857	21.0	21.0	467987	21.1	20.9	527411	21.1	21.9
159733	20.8	18.8	62153	20.9	18.8	199742	20.9	19.8	443825	21.0	21.5	108335	21.1	19.6	525127	21.2	21.5
260889	20.8	21.0	459791	20.9	19.9	535562	20.9	20.6	256277	21.0	21.3	137023	21.1	20.4	385912	21.2	20.6
538063	20.8	20.1	282052	20.9	19.1	381227	20.9	21.9	269729	21.0	20.7	90937	21.1	19.1	485102	21.2	20.3
382800	20.8	21.5	174918	20.9	20.0	21203	20.9	19.9	68561	21.0	18.7	367536	21.1	20.6	200898	21.2	19.1
199240	20.8	19.2	107988	20.9	19.3	544521	20.9	20.8	344905	21.0	20.1	302995	21.1	19.3	217799	21.2	19.9
223678	20.8	20.7	147863	20.9	19.8	391142	20.9	21.0	117148	21.0	19.1	238200	21.1	19.6	375589	21.2	21.4
109912	20.8	20.4	58987	20.9	18.7	350082	20.9	21.3	364258	21.0	19.9	67933	21.1	18.4	82979	21.2	19.1
127778	20.8	19.4	171498	20.9	21.0	418871	20.9	20.7	33913	21.0	17.9	34301	21.1	18.0	177279	21.2	20.3
78724	20.8	19.3	355942	20.9	21.1	347763	20.9	20.1	460804	21.0	20.9	439629	21.1	21.2	122824	21.2	20.1
104481	20.8	19.0	544182	20.9	20.5	493330	20.9	21.7	164880	21.0	19.4	201034	21.1	19.7	142508	21.2	19.4
176865	20.8	19.9	446306	20.9	20.0	246078	20.9	19.4	60054	21.0	17.3	339453	21.1	20.4	37740	21.2	18.7
345229	20.9	19.8	277989	20.9	21.5	525059	20.9	21.3	25611	21.0	19.4	113160	21.1	19.6	161224	21.2	20.5
381267	20.9	21.2	406068	20.9	21.2	201210	20.9	20.3	30064	21.0	18.6	544096	21.1	21.5	422950	21.2	20.8
108342	20.9	18.7	57158	20.9	19.2	1597											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
250181	21.2	20.6	178551	21.2	19.0	13516	21.3	18.1	422254	21.4	21.9	8733	21.4	17.5	383393	21.5	20.5
155633	21.2	19.9	483767	21.2	21.9	350587	21.3	21.6	338171	21.4	20.5	457116	21.4	20.0	388508	21.5	19.2
411234	21.2	21.3	492028	21.2	20.5	398143	21.3	20.4	27153	21.4	17.0	245053	21.4	19.8	221314	21.5	20.0
450248	21.2	20.9	4114	21.2	17.9	542781	21.3	20.4	439296	21.4	21.0	124933	21.4	19.5	397927	21.5	20.1
104015	21.2	19.2	323788	21.2	21.0	391448	21.3	19.7	542935	21.4	21.2	273192	21.4	20.6	354030	21.5	23.6
449608	21.2	20.4	506374	21.2	20.0	166155	21.3	19.4	438740	21.4	21.4	250209	21.4	20.6	368049	21.5	20.5
199256	21.2	19.8	27165	21.2	17.6	486813	21.3	20.4	19558	21.4	16.8	486881	21.4	20.5	139446	21.5	20.1
241941	21.2	19.4	356463	21.2	20.5	130816	21.3	19.9	306125	21.4	19.8	207790	21.4	20.3	252010	21.5	18.5
298563	21.2	19.9	331071	21.2	20.8	34200	21.3	17.6	244373	21.4	20.8	181248	21.4	19.7	450015	21.5	21.0
428151	21.2	20.9	502182	21.2	20.0	465244	21.3	20.2	284392	21.4	21.2	542515	21.4	20.0	188575	21.5	18.4
190767	21.2	19.8	416785	21.2	18.9	389338	21.3	20.8	458369	21.4	20.9	451401	21.4	21.2	197894	21.5	20.7
407800	21.2	21.2	524275	21.2	20.1	417255	21.3	20.2	409463	21.4	21.1	136084	21.4	18.6	363143	21.5	21.2
82795	21.2	18.4	484740	21.2	20.6	306365	21.3	21.0	234958	21.4	19.4	426232	21.4	20.7	361370	21.5	21.5
201295	21.2	20.6	117548	21.2	19.3	411298	21.3	20.6	505812	21.4	20.8	233674	21.4	20.3	498197	21.5	22.1
272367	21.2	19.6	302968	21.2	21.4	544121	21.3	21.5	233076	21.4	20.0	341418	21.4	21.4	279273	21.5	21.2
93497	21.2	19.7	233034	21.2	19.7	177798	21.3	20.4	28234	21.4	17.4	229067	21.4	19.3	364396	21.5	20.5
116608	21.2	19.3	4157	21.2	16.2	455888	21.3	21.3	98898	21.4	19.2	346522	21.4	20.3	328614	21.5	20.9
116365	21.2	19.5	182399	21.2	20.4	400809	21.3	20.8	56856	21.4	18.8	39107	21.4	19.4	334634	21.5	21.3
403134	21.2	20.6	333615	21.2	21.1	538628	21.3	21.4	58470	21.4	18.6	36538	21.4	18.1	528755	21.5	21.6
191885	21.2	19.8	138897	21.2	18.6	525756	21.3	22.1	153055	21.4	19.4	522191	21.4	21.1	430271	21.5	20.1
327361	21.2	20.7	287244	21.2	19.6	497060	21.3	22.0	31346	21.4	18.9	328574	21.4	20.6	292006	21.5	20.5
199071	21.2	19.6	286513	21.2	20.1	111853	21.3	19.4	132335	21.4	19.6	334192	21.4	22.3	459078	21.5	20.5
333614	21.2	21.1	486250	21.2	21.4	335853	21.3	21.2	67092	21.4	19.8	348279	21.4	20.1	19784	21.5	18.3
358579	21.2	20.2	277343	21.2	20.3	4794	21.3	15.6	382801	21.4	21.1	29084	21.4	16.8	280887	21.5	20.7
283926	21.2	20.6	109192	21.3	19.9	279088	21.3	20.4	193892	21.4	20.6	364337	21.4	22.0	322805	21.5	21.1
373650	21.2	20.7	291349	21.3	20.2	222264	21.3	20.3	193999	21.4	20.7	162170	21.4	18.4	333019	21.5	19.8
364276	21.2	20.6	207030	21.3	21.6	483517	21.3	20.8	405969	21.4	21.1	317097	21.4	20.6	182619	21.5	21.4
359239	21.2	20.1	234947	21.3	19.6	330350	21.3	21.6	254077	21.4	20.1	466497	21.5	21.4	334518	21.5	20.1
532208	21.2	21.1	203845	21.3	20.5	31111	21.3	18.1	289458	21.4	19.0	332656	21.5	21.1	276744	21.5	19.8
283987	21.2	21.4	231103	21.3	20.6	498887	21.3	20.8	51531	21.4	18.6	263874	21.5	19.1	217998	21.5	20.6
451904	21.2	21.2	111160	21.3	20.7	411393	21.3	21.4	272682	21.4	19.5	441618	21.5	21.7	108839	21.5	18.7
432435	21.2	20.7	178364	21.3	20.2	231616	21.3	20.5	322905	21.4	20.3	46521	21.5	18.8	50404	21.5	18.5
199128	21.2	19.5	40470	21.3	18.7	242224	21.3	21.0	78882	21.4	18.9	310838	21.5	20.1	245907	21.5	20.3
343732	21.2	19.7	152076	21.3	20.0	35395	21.3	18.7	337080	21.4	21.6	235659	21.5	20.3	524220	21.5	22.1
366172	21.2	19.9	160316	21.3	18.8	296688	21.3	20.9	51231	21.4	18.1	83800	21.5	18.7	37024	21.5	18.7
454086	21.2	20.7	430261	21.3	20.3	269171	21.3	19.0	448182	21.4	21.8	51100	21.5	18.1	541763	21.5	20.7
166718	21.2	19.6	145638	21.3	20.1	402570	21.3	20.7	221299	21.4	20.0	470413	21.5	21.3	432827	21.5	20.3
533756	21.2	21.0	149798	21.3	20.6	121745	21.3	19.8	79362	21.4	17.4	421854	21.5	20.8	84341	21.5	19.5
106387	21.2	18.7	57218	21.3	19.1	116580	21.3	19.7	78285	21.4	19.0	501340	21.5	21.0	226146	21.5	21.1
518919	21.2	20.8	85505	21.3	19.4	4145	21.3	17.0	337848	21.4	21.2	7366	21.5	17.4	178593	21.5	20.1
49288	21.2	18.5	129345	21.3	19.9	261355	21.3	20.0	79173	21.4	19.0	400805	21.5	19.8	209377	21.5	21.1
441555	21.2	20.6	328504	21.3	20.5	262187	21.3	21.6	529314	21.4	22.3	166338	21.5	19.1	489258	21.5	20.9
416792	21.2	20.4	376038	21.3	20.9	306541	21.3	20.1	126068	21.4	19.5	66925	21.5	17.6	469722	21.5	23.5
314953	21.2	20.2	496267	21.3	21.0	80030	21.3	18.3	292719	21.4	19.5	363236	21.5	21.8	490371	21.5	21.0
119958	21.2	18.8	157121	21.3	19.5	452405	21.3	21.9	328728	21.4	20.5	85734	21.5	19.4	350084	21.5	21.8
92839	21.2	19.5	536405	21.3	20.4	360463	21.3	20.9	335870	21.4	20.8	467283	21.5	19.3	335994	21.5	21.5
290538	21.2	20.7	37758	21.3	18.5	275041	21.3	20.9	114325	21.4	18.9	437123	21.5	20.8	541744	21.5	19.7
417061	21.2	20.9	374047	21.3	21.2	254655	21.3	20.8	219872	21.4	19.7	316502	21.5	20.8	426849	21.5	20.8
360803	21.2	20.8	182126	21.3	20.2	334231	21.3	21.2	105036	21.4	20.0	192159	21.5	18.8	788490	21.5	20.6
277298	21.2	20.4	221580	21.3	21.5	153850	21.3	19.8	327304	21.4	20.9	81897	21.5	19.1	216658	21.5	21.1
483930	21.2	21.4	353286	21.3	19.9	242969	21.3	20.6	306613	21.4	20.6	254690	21.5	20.0	409930	21.5	22.1
232993	21.2	20.2	378994	21.3	21.3	425328	21.3	20.9	545054	21.4	20.4	441241	21.5	20.7	449504	21.5	19.8
239232	21.2	20.2	100171	21.3	19.9	299501	21.3	20.5	215922	21.4	20.3	409631	21.5	21.7	153170	21.5	19.9
333881	21.2	20.1	445138	21.3	22.0	450115	21.3	21.7	78789	21.4	18.4	197403	21.5	21.0	202514	21.5	19.8
540082	21.2	21.2	345124	21.3	21.4	526447	21.3	20.2	1067	21.4	15.5	35918	21.5	19.0	113086	21.5	18.9
397043	21.2	20.5	109911	21.3	19.7	175441	21.3	20.5	295003	21.4	19.1	419876	21.5	21.0	325280	21.5	19.7
71580	21.2	19.1	232333	21.3	20.0	287442	21.3	20.6	465822	21.4	21.0	466055	21.5	21.6	169308	21.5	19.6
201258	21.2	20.6	408100	21.3	20.2	491077	21.3	22.0	535776	21.4	20.5	541229	21.5	19.9	196052	21.5	20.1
96025	21.2	18.7	174346	21.3	19.3	464473	21.3	21.1	147447	21.4	19.8	529047	21.5	22.4	414593	21.5	20.9
221729	21.2	20.5	61076	21.3	18.1	430280	21.3	20.8	445572	21.4	20.7	82699	21.5	18.8	190769	21.5	20.3
532196	21.2	21.8	513659	21.3	19.6	428427	21.3	21.6	339573	21.4	19.5	376765	21.5	21.5	86406	21.5	17.7
238743	21.2	20.5	419457	21.3	19.9	51618	21.3	19.1	222081	21.4	20.6	559	21.5	13.1	261439	21.5	20.1
249378	21.2	20.2	253287	21.3	20.1	493085	21.3	21.6	84073	21.4	20.4	190754	21.5	20.5	463267	21.5	19.9
160537	21.2	20.0	300527	21.3	20.4	364757	21.3	18.9	41437	21.4	17.8	532392	21.5	21.3	132996	21.5	19.2
486154	21.2	19.5	197134	21.3	18.7	524599	21.3	23.3	336539	21.4	20.9	255057	21.5	19.8	117126	21.5	20.2
539954	21.2	19.9	487626	21.3	21.6	122932	21.3	20.4	52224	21.4	19.1	339922	21.5	20.7	429023	21.5	21.1
279956	21.2	21.4	137727	21.3	19.6	293267	21.4	20.8	494194	21.4	20.5	328546	21.5	20.8	125583	21.5	18.8
162928	21.2	19.4	123200	21.3	20.0	246854	21.4	20.4	60337	21.4	18.6	27921	21.5	18.9	427049	21.5	20.6
157520	21.2	20.7	323468	21.3	21.0	1											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
315647	21.5	19.2	400318	21.6	21.7	413617	21.7	20.8	123791	21.7	18.4	6232	21.8	16.1	252539	21.9	20.1
246130	21.5	19.7	114667	21.6	18.9	492072	21.7	21.3	185342	21.7	20.5	352949	21.8	20.7	345410	21.9	19.6
246352	21.5	20.7	455802	21.6	20.6	426881	21.7	20.0	192584	21.7	19.9	293589	21.8	19.4	357637	21.9	21.5
482033	21.5	20.2	451511	21.6	21.7	339571	21.7	20.8	190877	21.7	20.3	85459	21.8	18.9	239319	21.9	20.6
432097	21.6	21.5	405386	21.6	19.4	432896	21.7	20.5	318891	21.7	20.5	471641	21.8	21.4	375415	21.9	20.9
406151	21.6	21.7	71597	21.6	19.0	153092	21.7	20.4	2481	21.7	17.9	406646	21.8	19.6	431292	21.9	20.5
443046	21.6	19.9	46900	21.6	20.4	413866	21.7	20.3	425052	21.7	22.1	421715	21.8	21.5	424987	21.9	19.8
294263	21.6	20.2	146450	21.6	19.6	290333	21.7	20.4	181755	21.7	20.6	501610	21.8	20.6	194461	21.9	20.7
446384	21.6	21.1	337547	21.6	20.1	424785	21.7	20.3	133561	21.8	19.7	452901	21.8	21.8	361754	21.9	21.0
77627	21.6	18.6	412712	21.6	21.1	217765	21.7	20.5	466803	21.8	20.0	398764	21.8	20.0	148927	21.9	19.6
3172	21.6	17.3	322818	21.6	20.6	9269	21.7	18.4	23929	21.8	17.1	311651	21.8	20.5	145850	21.9	18.3
89720	21.6	18.7	502255	21.6	20.8	210100	21.7	19.7	524850	21.8	20.6	220125	21.8	19.8	43398	21.9	17.7
150392	21.6	19.5	436822	21.6	20.9	349054	21.7	21.0	345533	21.8	21.0	174372	21.8	20.0	398939	21.9	21.5
424320	21.6	20.8	481222	21.6	21.6	125780	21.7	20.3	375556	21.8	19.8	30279	21.8	18.6	353695	21.9	20.1
97374	21.6	17.9	486238	21.6	20.5	432520	21.7	20.8	456510	21.8	20.8	328863	21.8	20.8	323999	21.9	20.6
493498	21.6	20.8	352700	21.6	19.7	489895	21.7	20.7	42460	21.8	19.4	283022	21.8	20.9	144623	21.9	19.6
216236	21.6	19.9	316350	21.6	19.7	262687	21.7	20.6	101465	21.8	20.1	94826	21.8	19.9	61229	21.9	19.0
411419	21.6	20.9	90045	21.6	19.3	276413	21.7	20.0	407872	21.8	19.5	89627	21.8	20.0	130688	21.9	19.3
424981	21.6	20.5	255767	21.6	20.6	259507	21.7	20.0	211236	21.8	19.4	518582	21.8	20.5	340733	21.9	20.6
164131	21.6	19.0	92649	21.6	20.0	409925	21.7	20.8	135052	21.8	20.2	114464	21.8	18.8	219189	21.9	20.6
157932	21.6	20.3	201373	21.6	20.1	329850	21.7	21.0	237509	21.8	20.5	274672	21.8	19.9	443894	21.9	21.9
218663	21.6	20.4	177453	21.6	19.5	321757	21.7	20.8	268706	21.8	20.0	404331	21.8	19.9	60598	21.9	18.2
4286	21.6	16.4	201740	21.6	19.8	538442	21.7	20.3	493985	21.8	20.7	262743	21.8	20.6	237768	21.9	19.0
234374	21.6	19.8	411241	21.6	21.0	28675	21.7	19.0	187801	21.8	19.7	163775	21.8	20.6	494517	21.9	21.0
40054	21.6	17.2	141073	21.6	19.5	71141	21.7	17.9	104084	21.8	19.2	153401	21.8	19.1	59666	21.9	19.2
173429	21.6	19.1	306527	21.6	18.8	216499	21.7	18.8	453282	21.8	22.2	7221	21.8	18.9	118288	21.9	20.3
39689	21.6	19.6	703	21.6	15.5	37331	21.7	18.2	364042	21.8	21.5	394814	21.8	20.3	74320	21.9	18.8
441503	21.6	21.5	124222	21.6	19.3	200887	21.7	19.0	397922	21.8	21.1	303045	21.8	19.6	209037	21.9	20.7
194654	21.6	20.6	534655	21.6	21.1	3281	21.7	15.3	185805	21.8	20.7	55107	21.8	19.1	305143	21.9	19.5
428409	21.6	19.8	541674	21.6	21.8	304854	21.7	21.3	409551	21.8	20.9	414599	21.8	19.8	525571	21.9	20.2
452320	21.6	20.7	274816	21.6	19.7	203747	21.7	19.7	498325	21.8	22.3	518920	21.8	19.7	212232	21.9	20.2
139937	21.6	19.6	416924	21.6	21.3	133367	21.7	18.0	307604	21.8	20.9	468102	21.8	21.2	72193	21.9	19.8
290293	21.6	19.9	465260	21.6	21.5	57728	21.7	18.7	114068	21.8	19.0	368020	21.8	19.7	84400	21.9	18.3
49004	21.6	17.1	2099	21.6	19.8	55725	21.7	18.4	427664	21.8	21.2	363228	21.8	21.4	119714	21.9	20.0
402588	21.6	21.5	415480	21.6	21.4	103884	21.7	19.3	306244	21.8	20.0	160134	21.8	20.6	466031	21.9	20.8
85117	21.6	19.4	239443	21.6	20.6	425063	21.7	21.8	318887	21.8	20.7	182555	21.8	20.9	38866	21.9	20.1
203131	21.6	19.7	413649	21.6	20.6	430308	21.7	20.5	118767	21.8	19.5	252259	21.8	20.6	303040	21.9	18.5
330965	21.6	20.2	232438	21.6	19.6	56399	21.7	18.5	78429	21.8	19.9	409356	21.8	20.8	122075	21.9	19.6
450252	21.6	20.3	482052	21.6	20.9	522685	21.7	20.9	8589	21.8	17.5	447908	21.8	20.2	483738	21.9	21.7
413618	21.6	21.1	249873	21.6	20.7	11055	21.7	16.5	408929	21.8	20.8	309560	21.8	20.5	83994	21.9	20.4
144533	21.6	19.1	377498	21.6	19.7	243696	21.7	20.1	464509	21.8	20.4	443984	21.8	21.4	82294	21.9	19.4
27690	21.6	18.2	415709	21.6	21.0	112889	21.7	19.3	353750	21.8	20.0	10670	21.8	17.5	363065	21.9	20.3
521938	21.6	21.8	214482	21.7	20.6	124450	21.7	20.0	118775	21.8	19.8	33059	21.8	18.9	166838	21.9	19.9
467579	21.6	20.9	459692	21.7	20.6	189991	21.7	19.3	139433	21.8	19.4	530460	21.8	21.1	364721	21.9	20.8
391949	21.6	20.6	226799	21.7	20.7	93461	21.7	19.7	300293	21.8	20.9	279544	21.8	19.8	373997	21.9	19.7
175585	21.6	19.2	198906	21.7	19.8	203263	21.7	19.3	169501	21.8	19.0	187558	21.8	20.7	318696	21.9	20.7
230738	21.6	20.0	32512	21.7	19.2	133655	21.7	19.7	319886	21.8	21.1	51043	21.8	18.2	73560	21.9	19.6
87782	21.6	18.0	92796	21.7	19.7	26488	21.7	17.8	76648	21.8	18.9	382023	21.8	20.1	146403	21.9	19.9
263649	21.6	20.6	284001	21.7	21.1	180283	21.7	19.9	187185	21.8	20.8	541297	21.8	21.3	34939	21.9	18.6
338238	21.6	21.8	268767	21.7	20.1	201760	21.7	20.0	419665	21.8	21.7	201761	21.8	20.9	279884	21.9	20.6
420003	21.6	21.4	112444	21.7	19.6	28564	21.7	18.1	405077	21.8	21.5	532351	21.8	21.9	191358	21.9	20.4
214099	21.6	20.2	488806	21.7	21.0	304908	21.7	21.5	243078	21.8	20.7	378492	21.8	19.9	284017	21.9	21.2
454008	21.6	20.6	240903	21.7	20.7	217290	21.7	20.3	493047	21.8	21.3	279600	21.8	20.4	130252	21.9	19.4
313794	21.6	19.8	310855	21.7	19.5	416665	21.7	21.0	441475	21.8	21.5	289928	21.9	19.9	109495	21.9	19.5
418522	21.6	20.1	301663	21.7	20.1	123122	21.7	19.2	125989	21.8	19.4	2043	21.9	15.7	70901	21.9	19.4
543817	21.6	20.4	426257	21.7	20.3	33921	21.7	18.2	315718	21.8	19.7	256838	21.9	20.1	249837	21.9	21.1
39219	21.6	19.3	66959	21.7	22.1	210740	21.7	21.1	457881	21.8	20.7	54993	21.9	18.3	201206	21.9	21.0
182116	21.6	19.9	231423	21.7	19.6	379102	21.7	20.8	251235	21.8	20.8	5861	21.9	17.4	331246	21.9	21.2
370753	21.6	21.2	268501	21.7	20.5	219406	21.7	21.0	68985	21.8	19.0	337602	21.9	21.3	130877	21.9	19.8
400842	21.6	21.8	486292	21.7	21.5	529473	21.7	21.1	84756	21.8	18.1	126614	21.9	19.3	181970	21.9	19.9
303506	21.6	19.8	45527	21.7	18.0	234190	21.7	19.9	246146	21.8	20.7	170001	21.9	20.5	493505	21.9	21.3
484572	21.6	21.0	428196	21.7	21.2	230825	21.7	19.7	241076	21.8	20.2	449861	21.9	21.1	137678	21.9	20.0
284912	21.6	19.7	273304	21.7	20.3	219156	21.7	20.3	394831	21.8	21.3	232042	21.9	20.0	386624	21.9	21.0
67314	21.6	19.5	24401	21.7	18.2	284018	21.7	20.5	372247	21.8	21.4	346181	21.9	21.1	89799	21.9	19.9
337698	21.6	21.2	531570	21.7	20.9	534245	21.7	21.5	180811	21.8	19.7	386925	21.9	20.4	210191	21.9	21.0
425375	21.6	20.9	495426	21.7	21.9	225573	21.7	20.9	334129	21.8	21.8	136505	21.9	20.0	36813	21.9	19.5
124711	21.6	19.5	213749	21.7	20.3	424928	21.7	21.1	403921	21.8	20.0	450387	21.9	21.0	286204	21.9	21.3
544603	21.6	20.2	369935	21.7	20.5	452593	21.7	20.9	113232	21.8	19.8	65497	21.9	19.3	51915	21.9	16.7
57397	21.6	18.5	154588	21.7	19.8	236293	21.7										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
29519	21.9	17.9	383344	22.0	21.6	136964	22.1	19.5	187178	22.1	20.6	411396	22.2	20.6	151635	22.3	20.9
11936	21.9	16.9	219013	22.0	20.4	363156	22.1	21.4	174185	22.1	20.4	144459	22.2	19.7	171414	22.3	20.6
171892	21.9	20.7	375593	22.0	20.7	464061	22.1	21.3	279491	22.1	19.4	419146	22.2	21.5	517606	22.3	20.8
89476	21.9	19.8	168707	22.0	19.2	439892	22.1	21.7	194596	22.1	20.2	93823	22.2	19.6	214342	22.3	19.1
412242	21.9	20.5	414748	22.0	18.9	368401	22.1	20.9	419066	22.1	21.6	466767	22.2	20.4	245016	22.3	19.0
277416	21.9	21.0	10955	22.0	18.2	282491	22.1	20.7	176941	22.1	19.2	387568	22.2	21.6	367981	22.3	20.4
145941	21.9	18.4	249167	22.0	20.5	237319	22.1	19.5	467913	22.1	20.1	55144	22.2	19.7	413457	22.3	19.2
337806	21.9	20.5	323873	22.0	20.7	167913	22.1	18.4	49549	22.1	17.5	174927	22.2	18.9	398357	22.3	20.7
141880	21.9	19.9	325496	22.0	20.4	343306	22.1	20.0	37022	22.1	18.2	67687	22.2	18.8	82474	22.3	19.9
387060	21.9	20.5	540023	22.0	21.3	488809	22.1	19.9	42800	22.1	17.4	348496	22.2	21.0	115399	22.3	19.9
367253	21.9	20.6	95010	22.0	19.1	360323	22.1	21.4	406111	22.1	21.2	266810	22.2	20.8	438377	22.3	21.6
184706	21.9	19.9	492024	22.0	20.5	381653	22.1	20.5	134814	22.1	18.6	189169	22.2	20.4	32029	22.3	19.2
203812	21.9	20.1	259153	22.0	21.3	344472	22.1	20.8	347543	22.1	20.0	449702	22.2	20.5	290771	22.3	20.6
205315	21.9	20.0	328917	22.0	20.1	498010	22.1	20.1	69709	22.1	19.3	152899	22.2	19.3	149862	22.3	19.7
318920	21.9	20.8	468249	22.0	21.2	423148	22.1	19.8	63482	22.1	19.4	190725	22.2	19.7	376144	22.3	20.0
304927	21.9	20.8	348880	22.0	21.1	2113	22.1	16.3	233767	22.1	19.7	7343	22.2	17.0	35761	22.3	18.6
277809	21.9	20.4	78472	22.0	19.7	229267	22.1	20.0	205531	22.1	20.8	201961	22.2	20.7	423043	22.3	21.0
415511	21.9	21.0	56667	22.0	17.6	102144	22.1	19.7	174180	22.1	20.0	527370	22.2	21.5	366784	22.3	22.2
457165	21.9	20.4	425204	22.0	20.8	275741	22.1	21.1	288338	22.1	20.3	289758	22.2	19.9	485559	22.3	20.0
255833	21.9	22.3	63233	22.0	17.8	38271	22.1	19.2	195128	22.1	19.4	340957	22.2	19.6	336027	22.3	21.2
274142	21.9	19.7	351297	22.0	21.3	452414	22.1	21.9	323950	22.1	20.3	79812	22.2	19.5	541611	22.3	21.1
316341	21.9	20.4	197245	22.0	21.1	303124	22.1	20.4	153449	22.1	19.6	7293	22.2	16.2	203243	22.3	20.7
219175	21.9	20.1	264443	22.0	21.0	229698	22.1	18.7	335902	22.1	21.0	285947	22.2	21.1	398139	22.3	19.1
332317	21.9	20.8	153514	22.0	19.2	243426	22.1	19.9	123134	22.1	19.3	248023	22.2	19.5	459048	22.3	19.8
175531	21.9	20.3	142925	22.0	19.6	353415	22.1	20.6	485055	22.1	19.5	467674	22.2	20.4	282098	22.3	21.0
397478	21.9	20.9	135893	22.0	19.8	138479	22.1	18.6	239409	22.1	19.9	78320	22.2	19.2	281844	22.3	20.4
420277	21.9	20.4	152075	22.0	18.5	60187	22.1	18.2	400004	22.1	21.0	59439	22.2	18.0	531331	22.3	21.5
452488	21.9	18.4	345222	22.0	19.8	216215	22.1	21.2	542663	22.1	19.0	281722	22.2	19.9	370250	22.3	21.6
490853	21.9	20.2	89165	22.0	20.0	308231	22.1	20.3	117011	22.1	19.9	320028	22.2	20.5	52629	22.3	18.3
506418	21.9	19.9	142683	22.0	19.2	161462	22.1	19.9	284025	22.1	21.3	105142	22.2	18.7	288210	22.3	20.4
347368	21.9	21.3	457805	22.0	21.3	160874	22.1	19.8	484622	22.1	21.6	543957	22.2	22.1	465820	22.3	19.9
47555	21.9	17.9	125364	22.0	18.5	13160	22.1	18.0	49446	22.1	18.5	322647	22.2	18.4	84729	22.3	18.5
106071	21.9	19.3	409584	22.0	19.9	12781	22.1	18.5	353291	22.1	20.4	207094	22.2	18.5	50683	22.3	17.6
441473	21.9	21.8	163423	22.0	20.6	107857	22.1	18.4	105212	22.2	18.9	108160	22.2	18.6	538487	22.3	21.4
53611	21.9	17.9	306069	22.0	20.2	113400	22.1	19.8	260793	22.2	20.1	349279	22.2	21.5	56604	22.3	18.0
290929	21.9	21.0	227107	22.0	20.5	62211	22.1	18.8	196734	22.2	19.9	452672	22.2	20.1	221653	22.3	20.7
101295	21.9	18.7	345735	22.0	19.7	92959	22.1	19.4	422640	22.2	19.7	378422	22.2	21.1	535772	22.3	21.3
458301	21.9	20.0	169267	22.0	19.2	453798	22.1	21.1	203119	22.2	20.0	492706	22.2	20.5	251115	22.3	21.3
452326	21.9	20.6	196637	22.0	20.2	388287	22.1	21.1	457779	22.2	20.7	201107	22.2	18.9	518701	22.3	21.5
12356	21.9	17.8	203500	22.0	20.5	383415	22.1	20.4	40334	22.2	18.2	10394	22.2	16.2	327022	22.3	19.8
172001	21.9	20.9	128103	22.0	19.3	58796	22.1	18.9	422944	22.2	20.4	543669	22.2	22.0	453407	22.3	21.0
217423	21.9	20.7	146108	22.0	18.1	399246	22.1	20.1	219887	22.2	19.8	290410	22.2	19.9	320898	22.3	19.7
14302	21.9	17.9	70749	22.0	18.1	536197	22.1	20.9	364395	22.2	21.3	353656	22.2	20.4	15908	22.3	18.4
114407	21.9	18.8	391128	22.0	20.7	403066	22.1	19.5	270882	22.2	20.3	176851	22.2	20.7	213643	22.3	20.0
541837	21.9	21.4	535517	22.0	21.0	35156	22.1	20.2	203915	22.2	20.3	467895	22.2	20.0	528700	22.3	21.3
268534	21.9	19.7	448290	22.0	19.7	463982	22.1	19.7	221528	22.2	20.7	486098	22.2	21.5	538929	22.3	20.1
199801	21.9	22.0	528520	22.0	22.2	170727	22.1	18.8	544514	22.2	21.0	406280	22.2	20.1	201845	22.3	20.3
46152	21.9	18.8	84819	22.0	20.1	282331	22.1	20.0	314845	22.2	21.2	317875	22.2	19.4	238959	22.3	19.9
538730	21.9	20.8	481761	22.0	20.3	243576	22.1	21.0	179054	22.2	19.7	111194	22.2	19.4	214566	22.3	20.4
169983	21.9	19.9	277209	22.0	20.7	423878	22.1	20.5	82778	22.2	19.7	505663	22.2	21.0	145220	22.3	19.7
436779	21.9	21.2	274539	22.0	20.8	489872	22.1	21.2	295834	22.2	20.7	451547	22.2	21.9	484754	22.3	20.9
84132	21.9	19.6	503702	22.0	20.9	339613	22.1	20.8	249014	22.2	20.8	193960	22.2	20.1	323040	22.3	19.2
233393	21.9	19.9	30434	22.0	18.1	263010	22.1	20.1	205463	22.2	20.7	493817	22.2	20.0	109296	22.3	19.7
219367	21.9	20.7	289308	22.0	20.5	493768	22.1	21.5	465828	22.2	20.7	519819	22.2	21.3	103968	22.3	18.9
404394	21.9	20.6	325342	22.0	19.9	402701	22.1	21.9	217307	22.2	20.2	352776	22.2	19.7	489409	22.3	21.4
243860	21.9	20.8	313541	22.0	19.7	14020	22.1	18.1	378393	22.2	21.0	354534	22.2	21.1	110608	22.3	19.4
124945	21.9	18.7	306217	22.0	21.1	20271	22.1	17.0	314337	22.2	19.7	162944	22.2	19.7	420846	22.3	20.1
492132	21.9	21.0	452464	22.0	22.4	213720	22.1	20.3	491151	22.2	21.1	367843	22.2	20.5	467998	22.3	21.5
534428	21.9	21.8	241470	22.0	20.5	144929	22.1	18.4	473402	22.2	20.3	124953	22.2	19.2	199121	22.3	19.2
120280	21.9	19.9	244407	22.0	21.5	315660	22.1	19.5	429881	22.2	21.2	120774	22.2	18.0	416938	22.3	21.2
145266	21.9	19.6	166599	22.1	19.3	30890	22.1	18.5	56415	22.2	18.8	43067	22.2	19.6	35777	22.3	18.4
278985	21.9	20.4	450925	22.1	19.6	381200	22.1	19.3	203861	22.2	20.5	424370	22.2	21.3	429912	22.3	21.0
429327	21.9	20.6	345736	22.1	19.8	70824	22.1	17.2	323786	22.2	20.6	397343	22.2	21.5	535917	22.3	20.9
379405	21.9	20.0	443184	22.1	20.5	458405	22.1	21.0	184411	22.2	20.6	285400	22.2	21.3	406230	22.3	20.1
542113	21.9	21.0	373553	22.1	20.0	35046	22.1	19.2	388857	22.2	21.0	238933	22.2	19.1	323159	22.3	19.4
417054	21.9	21.3	43344	22.1	17.8	25285	22.1	18.4	77979	22.2	19.3	451439	22.2	21.3	353898	22.3	21.2
224940	21.9	19.9	116667	22.1	18.8	243132	22.1	20.4	532124	22.2	22.0	119050	22.2	19.9	386130	22.3	21.4
401904	21.9	22.3	383831	22.1	19.9	325298	22.1	20.8	373723	22.2	20.9	497722	22.2	22.1	459789	22.3	20.2
291989	21.9	20.7	55148	22.1	18.5												

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
222250	22.3	20.3	95981	22.4	18.3	61863	22.4	19.7	12814	22.5	17.5	457319	22.6	20.8	126667	22.6	20.1
118256	22.3	18.6	544074	22.4	21.6	184869	22.4	20.4	404817	22.5	20.3	10976	22.6	17.7	135234	22.6	20.6
529950	22.3	20.6	8399	22.4	17.3	466415	22.4	21.1	410445	22.5	19.9	408570	22.6	19.3	119081	22.6	19.1
323979	22.3	20.7	473897	22.4	20.5	293741	22.4	20.1	306499	22.5	21.1	312553	22.6	20.8	200942	22.6	19.3
151135	22.3	19.1	419120	22.4	21.3	285532	22.4	19.8	196752	22.5	20.3	518153	22.6	21.2	75149	22.6	18.8
531963	22.3	20.3	433729	22.4	19.9	317111	22.4	20.4	110507	22.5	19.1	345182	22.6	19.7	247607	22.6	20.8
483787	22.3	22.0	99431	22.4	18.2	414274	22.4	20.4	68155	22.5	19.2	432434	22.6	20.1	463675	22.6	22.4
73693	22.3	19.0	543793	22.4	22.1	115921	22.4	19.1	322867	22.5	21.3	424941	22.6	20.6	462976	22.6	20.0
128304	22.3	19.5	153195	22.4	18.7	317715	22.4	20.6	415180	22.5	19.6	265019	22.6	20.1	453835	22.6	22.4
63779	22.3	19.3	12793	22.4	17.1	418862	22.5	21.2	362388	22.5	21.4	45845	22.6	18.9	135009	22.7	20.5
234583	22.3	19.2	281858	22.4	19.7	221536	22.5	20.6	424837	22.5	20.8	421539	22.6	20.8	348529	22.7	21.3
481198	22.3	21.2	466231	22.4	20.8	1006	22.5	17.3	233182	22.5	20.8	84310	22.6	18.3	197502	22.7	19.0
292112	22.3	20.3	218632	22.4	20.0	117879	22.5	19.6	339047	22.5	19.6	489410	22.6	20.7	439959	22.7	21.8
532139	22.3	21.9	440987	22.4	20.7	235456	22.5	19.2	466404	22.5	21.5	234992	22.6	19.0	223747	22.7	19.9
201184	22.3	20.3	332180	22.4	20.3	56378	22.5	18.2	245767	22.5	19.6	464404	22.6	21.1	469115	22.7	20.3
226630	22.3	20.7	408899	22.4	21.0	50662	22.5	18.0	417850	22.5	20.0	71490	22.6	18.6	128930	22.7	20.3
445096	22.3	21.7	32095	22.4	18.7	481126	22.5	21.4	510264	22.5	20.5	140800	22.6	20.3	339536	22.7	20.6
196466	22.3	18.7	113676	22.4	18.1	463547	22.5	21.3	108688	22.5	19.4	87824	22.6	19.5	109582	22.7	18.6
324695	22.3	19.8	74509	22.4	18.4	485475	22.5	20.5	20881	22.5	18.5	5298	22.6	18.4	210367	22.7	20.4
494200	22.3	21.0	96610	22.4	18.6	74368	22.5	19.4	110742	22.5	20.0	304018	22.6	20.3	30285	22.7	18.4
261185	22.3	20.7	399484	22.4	22.3	51036	22.5	18.4	503718	22.5	20.8	387578	22.6	20.4	178890	22.7	20.2
99415	22.3	19.0	369971	22.4	20.0	71092	22.5	18.3	229838	22.5	20.3	179931	22.6	19.4	271449	22.7	19.4
90986	22.3	20.2	266393	22.4	20.7	43246	22.5	18.9	6509	22.5	17.5	467763	22.6	20.5	135843	22.7	20.0
443994	22.3	20.4	323549	22.4	20.7	460032	22.5	21.6	237629	22.5	20.2	459406	22.6	19.9	197351	22.7	19.7
256671	22.3	19.9	81695	22.4	18.9	137116	22.5	20.0	165920	22.5	20.3	235938	22.6	19.5	154285	22.7	20.2
222350	22.3	19.6	8204	22.4	16.6	293373	22.5	21.0	142090	22.5	20.2	131760	22.6	19.0	543143	22.7	20.5
454175	22.3	20.9	279988	22.4	21.4	113159	22.5	19.3	204745	22.5	20.2	78174	22.6	19.2	428464	22.7	21.6
152717	22.3	20.2	290184	22.4	21.1	200141	22.5	19.7	447024	22.5	21.6	203163	22.6	19.1	123591	22.7	19.2
323966	22.3	20.5	494055	22.4	20.3	531305	22.5	21.7	311644	22.5	20.9	289735	22.6	19.9	164821	22.7	20.4
439011	22.3	20.8	4521007	22.4	21.3	465068	22.5	20.8	83909	22.5	18.8	491810	22.6	22.0	84002	22.7	19.7
277269	22.3	20.9	355280	22.4	21.1	336043	22.5	20.3	292314	22.5	20.7	327376	22.6	20.4	79307	22.7	18.2
214600	22.3	19.2	405091	22.4	21.9	149660	22.5	18.9	206992	22.5	19.4	135236	22.6	19.3	459411	22.7	20.0
51798	22.3	19.9	245840	22.4	20.5	15709	22.5	17.6	337884	22.5	19.8	424221	22.6	21.1	463609	22.7	20.9
541949	22.3	20.5	419544	22.4	20.3	361710	22.5	20.8	314808	22.5	19.7	145653	22.6	20.0	149306	22.7	19.8
20607	22.3	15.7	188527	22.4	20.2	9493	22.5	17.2	491362	22.5	20.2	210203	22.6	20.0	369657	22.7	20.5
7901	22.3	16.9	334112	22.4	21.3	340577	22.5	21.0	529079	22.5	20.7	223683	22.6	21.0	532298	22.7	22.1
501419	22.3	21.2	313415	22.4	21.3	370597	22.5	21.4	277031	22.5	20.0	429694	22.6	20.1	293706	22.7	20.9
334521	22.3	20.9	329031	22.4	20.9	55161	22.5	19.0	96390	22.5	18.2	181979	22.6	20.0	495955	22.7	19.7
336044	22.3	21.0	223768	22.4	20.0	388883	22.5	20.4	232450	22.5	18.8	395791	22.6	21.4	413481	22.7	19.9
301943	22.3	20.2	19217	22.4	19.3	486823	22.5	20.8	256262	22.5	20.2	146346	22.6	20.3	420273	22.7	20.0
145039	22.3	19.8	220631	22.4	20.1	99511	22.5	19.3	229284	22.5	19.6	115761	22.6	18.1	145364	22.7	19.7
63697	22.3	18.8	326339	22.4	20.6	61215	22.5	18.9	450821	22.5	21.0	169359	22.6	19.4	288250	22.7	20.9
426921	22.3	21.0	281299	22.4	20.8	142248	22.5	20.6	114457	22.5	19.3	64451	22.6	19.0	14450	22.7	17.9
374211	22.3	19.9	490354	22.4	21.5	303782	22.5	20.9	100987	22.5	20.3	259096	22.6	20.5	369115	22.7	21.0
343585	22.3	21.1	489785	22.4	21.0	82558	22.5	20.4	238301	22.5	20.1	332820	22.6	21.2	209489	22.7	19.8
187917	22.3	21.0	105605	22.4	19.7	34762	22.5	19.7	148001	22.5	18.4	544102	22.6	20.8	375512	22.7	20.9
15600	22.4	17.9	542884	22.4	21.1	230462	22.5	19.9	52953	22.5	19.0	527621	22.6	21.1	520687	22.7	21.1
46908	22.4	17.9	238057	22.4	19.3	293828	22.5	20.5	118535	22.5	18.5	185927	22.6	20.4	170081	22.7	20.3
457876	22.4	21.3	363655	22.4	21.4	74592	22.5	18.6	413554	22.5	21.0	230786	22.6	20.8	339614	22.7	21.3
406138	22.4	22.0	419194	22.4	20.4	409259	22.5	20.0	278084	22.5	20.4	454275	22.6	21.1	483495	22.7	21.6
428712	22.4	21.7	430215	22.4	21.0	153030	22.5	19.4	468006	22.5	21.2	192376	22.6	20.1	248703	22.7	20.8
542090	22.4	20.9	458927	22.4	20.6	228770	22.5	19.6	245754	22.5	20.7	213259	22.6	18.9	413657	22.7	21.0
494466	22.4	21.4	85100	22.4	19.6	540172	22.5	20.8	285531	22.5	19.3	13515	22.6	19.1	138549	22.7	19.9
51224	22.4	18.6	1764	22.4	15.2	310159	22.5	21.0	29177	22.5	19.1	492054	22.6	20.1	295790	22.7	20.8
68048	22.4	19.8	457263	22.4	20.7	265866	22.5	19.5	8282	22.5	18.2	151281	22.6	19.7	459708	22.7	21.0
544792	22.4	21.4	296840	22.4	20.8	161125	22.5	19.5	111433	22.6	19.5	382547	22.6	20.2	457859	22.7	21.1
452450	22.4	21.3	195976	22.4	19.5	26793	22.5	17.2	334558	22.6	20.1	381296	22.6	20.2	327431	22.7	20.7
540077	22.4	21.1	535854	22.4	21.3	81221	22.5	18.9	367230	22.6	20.7	535702	22.6	20.9	539856	22.7	19.3
66169	22.4	19.7	329344	22.4	20.3	135402	22.5	18.5	234869	22.6	19.8	518631	22.6	20.8	131934	22.7	18.6
167929	22.4	19.4	215488	22.4	20.7	153563	22.5	18.8	279055	22.6	19.6	51159	22.6	18.7	156043	22.7	20.4
161820	22.4	20.2	371707	22.4	19.4	383641	22.5	21.6	54814	22.6	19.4	204828	22.6	19.6	405586	22.7	21.1
542132	22.4	21.6	253994	22.4	19.7	306841	22.5	20.1	124309	22.6	19.3	39941	22.6	17.3	417155	22.7	21.3
339954	22.4	19.6	41293	22.4	18.9	117881	22.5	20.0	433421	22.6	21.9	205832	22.6	18.7	440523	22.7	21.0
357250	22.4	21.2	432127	22.4	20.0	390849	22.5	20.7	217412	22.6	20.5	330142	22.6	20.3	495664	22.7	20.8
113669	22.4	19.2	27025	22.4	17.5	67339	22.5	18.9	144792	22.6	19.8	411890	22.6	20.9	142666	22.7	20.4
4488	22.4	16.8	458254	22.4	21.7	217448	22.5	20.2	486874	22.6	20.7	47725	22.6	18.9	174912	22.7	21.0
100682	22.4	18.8	119344	22.4	19.4	321721	22.5	20.3	87142	22.6	19.8	34921	22.6	19.1	110289	22.7	19.3
365925	22.4	20.3	395145	22.4	20.4	83876	22.5	19.5	167096	22.6	20.2	153156	22.6	19.8	331563	22.7	20.9
483685	22.4	21.2	94814	22.4	20.6	426934	22.5										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
175995	22.7	19.2	419973	22.8	20.3	5016	22.8	16.4	390999	22.9	20.0	380521	22.9	20.0	488519	23.0	20.7
204923	22.7	20.4	7019	22.8	16.0	411277	22.8	21.9	372716	22.9	20.6	109517	22.9	19.0	183467	23.0	19.3
113411	22.7	19.6	49535	22.8	18.2	375505	22.8	21.0	226145	22.9	20.6	10275	22.9	17.5	188306	23.0	19.5
426586	22.7	20.9	323900	22.8	21.0	90279	22.8	19.3	535440	22.9	20.9	299461	22.9	20.0	278568	23.0	20.7
78136	22.7	19.9	142169	22.8	20.2	241602	22.8	20.4	333705	22.9	20.8	281281	22.9	20.9	529056	23.0	21.1
30694	22.7	17.5	389939	22.8	20.0	101830	22.8	18.1	416688	22.9	20.9	387706	22.9	20.2	346978	23.0	19.6
424240	22.7	21.6	451695	22.8	20.8	183685	22.8	19.7	368058	22.9	19.7	26440	22.9	17.9	4287	23.0	16.5
153844	22.7	19.8	521443	22.8	21.2	344557	22.8	21.1	55312	22.9	19.5	341733	22.9	21.6	134078	23.0	20.4
226816	22.7	20.3	360451	22.8	21.2	305709	22.8	20.6	458709	22.9	21.3	80045	22.9	19.1	11811	23.0	17.1
378750	22.7	20.8	397544	22.8	22.4	49484	22.8	17.3	285713	22.9	20.3	170338	22.9	20.6	150168	23.0	20.3
236843	22.7	20.4	3199	22.8	17.5	489795	22.8	21.4	473975	22.9	20.4	458395	22.9	22.3	445554	23.0	20.8
415946	22.7	22.4	150399	22.8	18.8	410506	22.8	19.2	322852	22.9	20.3	182985	22.9	18.8	360784	23.0	20.0
159263	22.7	19.4	512255	22.8	20.0	242058	22.8	20.9	367553	22.9	21.3	355702	22.9	19.8	494513	23.0	19.7
12385	22.7	18.3	372672	22.8	20.7	196155	22.8	20.9	416901	22.9	22.5	182694	22.9	20.0	83113	23.0	19.2
56126	22.7	18.1	223613	22.8	19.1	517633	22.8	21.1	370570	22.9	21.6	295749	22.9	19.5	446627	23.0	21.2
99788	22.7	19.1	260628	22.8	20.0	455931	22.8	21.1	76785	22.9	19.1	139037	22.9	18.5	243163	23.0	20.9
237836	22.7	19.6	107856	22.8	18.7	134464	22.8	20.1	178451	22.9	20.4	468088	22.9	20.1	104319	23.0	18.9
272112	22.7	19.6	425189	22.8	21.3	454263	22.8	20.3	482473	22.9	21.6	85561	22.9	18.6	264744	23.0	20.2
33463	22.7	18.3	332417	22.8	20.8	134888	22.8	19.8	252671	22.9	19.0	222291	22.9	20.3	77728	23.0	19.3
221721	22.7	19.9	30501	22.8	17.2	541817	22.8	20.2	400568	22.9	20.6	255824	22.9	21.2	7445	23.0	18.3
268768	22.7	21.2	283073	22.8	21.1	453030	22.8	23.1	28302	22.9	18.3	357020	22.9	20.3	111900	23.0	19.5
329859	22.7	20.3	428488	22.8	21.7	429038	22.8	21.5	516734	22.9	21.3	529266	22.9	22.5	142869	23.0	20.0
70912	22.7	18.5	390398	22.8	21.5	236005	22.8	19.5	358248	22.9	19.2	349956	22.9	19.2	405954	23.0	20.2
80317	22.7	19.0	301759	22.8	20.6	364438	22.8	21.6	210841	22.9	19.6	277185	22.9	20.7	206560	23.0	19.7
502891	22.7	20.1	266102	22.8	20.5	439955	22.8	21.8	5592	22.9	16.8	287316	22.9	20.6	279182	23.0	19.7
392940	22.7	21.4	375092	22.8	20.0	84265	22.8	19.0	423027	22.9	21.3	252695	22.9	21.5	170500	23.0	18.4
169622	22.7	19.3	366747	22.8	20.3	53994	22.8	18.4	379317	22.9	21.1	461020	22.9	21.3	192331	23.0	21.5
152282	22.7	20.3	161918	22.8	19.5	3748	22.8	15.1	39987	22.9	18.0	126118	22.9	18.7	208387	23.0	19.7
225371	22.7	21.2	421093	22.8	20.0	163113	22.8	18.6	148004	22.9	18.4	415822	22.9	20.7	499042	23.0	20.9
411405	22.7	21.1	63543	22.8	19.0	413144	22.8	19.7	416629	22.9	21.4	121058	22.9	19.2	488253	23.0	20.6
327076	22.7	21.5	284787	22.8	20.3	240358	22.8	21.0	167635	22.9	19.7	231121	22.9	19.5	444031	23.0	21.1
201968	22.7	20.8	103426	22.8	18.8	391077	22.8	21.0	507083	22.9	21.3	366762	22.9	21.2	297380	23.0	21.7
5090	22.7	17.5	532240	22.8	21.4	106539	22.8	17.9	241706	22.9	20.1	406017	22.9	20.8	349641	23.0	20.7
491771	22.7	21.3	160014	22.8	21.5	364398	22.8	20.8	323881	22.9	20.7	249368	22.9	19.9	239190	23.0	19.7
204256	22.7	20.1	205327	22.8	20.5	522482	22.8	20.4	82029	22.9	19.3	164162	22.9	19.4	23627	23.0	17.0
25631	22.7	17.7	7402	22.8	16.8	325194	22.8	19.9	461273	22.9	20.1	420045	22.9	21.0	532887	23.0	21.1
334530	22.7	21.2	396325	22.8	20.0	129671	22.8	19.7	523624	22.9	21.4	383687	22.9	21.6	47821	23.0	18.1
202380	22.7	19.0	41675	22.8	17.8	68667	22.8	18.4	442515	22.9	21.6	353924	22.9	21.7	7200	23.0	19.3
374664	22.7	20.5	468273	22.8	20.4	408849	22.8	21.3	369347	22.9	21.3	75926	22.9	19.0	206628	23.0	18.3
136088	22.7	18.6	16198	22.8	17.3	460451	22.9	21.1	35109	22.9	17.8	501347	22.9	20.6	378491	23.0	20.5
376044	22.7	20.7	60920	22.8	18.9	83122	22.9	19.5	423303	22.9	20.1	1117	22.9	14.6	32144	23.0	18.4
3146	22.7	16.2	455350	22.8	22.8	694	22.9	14.3	14633	22.9	18.4	10932	22.9	16.7	114301	23.0	19.4
292043	22.7	21.4	43926	22.8	16.7	340106	22.9	21.3	394092	22.9	19.8	186191	22.9	19.6	46234	23.0	18.5
238391	22.7	19.6	2477	22.8	16.0	481466	22.9	21.7	465402	22.9	19.7	95808	22.9	18.8	132043	23.0	18.9
297430	22.7	20.3	280608	22.8	19.9	294560	22.9	20.7	182571	22.9	19.1	157941	22.9	20.5	427035	23.0	21.2
525770	22.7	21.6	406944	22.8	20.3	169461	22.9	19.1	103063	22.9	19.8	141748	22.9	19.8	52634	23.0	18.1
119159	22.7	19.4	494197	22.8	21.2	527539	22.9	21.6	337702	22.9	20.4	198849	22.9	20.0	97993	23.0	19.3
311002	22.7	20.2	378921	22.8	20.6	451443	22.9	22.1	235036	22.9	19.3	539812	22.9	20.2	458660	23.0	20.2
508346	22.7	20.6	360295	22.8	20.4	105058	22.9	20.0	21702	22.9	17.5	184193	22.9	19.9	190850	23.0	19.4
58688	22.7	17.2	286122	22.8	20.5	351786	22.9	19.9	367746	22.9	21.1	150216	22.9	19.2	54466	23.0	17.3
365702	22.7	21.4	467568	22.8	21.5	343932	22.9	20.3	14108	22.9	18.3	323391	22.9	20.6	133550	23.0	20.2
154015	22.7	20.3	493516	22.8	20.6	518693	22.9	21.1	378514	22.9	20.6	232137	22.9	20.4	442290	23.0	21.2
167973	22.7	18.9	506214	22.8	21.2	39509	22.9	19.1	443827	22.9	20.0	453680	22.9	19.8	411428	23.0	19.7
41133	22.7	19.8	492933	22.8	21.5	421421	22.9	19.8	336502	22.9	21.0	103984	22.9	18.9	462732	23.0	20.2
147443	22.7	20.5	366775	22.8	21.8	242827	22.9	19.7	368580	22.9	20.3	353285	22.9	20.2	375473	23.0	20.0
235501	22.7	19.2	429960	22.8	21.0	233554	22.9	20.4	407783	22.9	21.0	282085	22.9	21.4	385010	23.0	20.4
376691	22.7	21.0	293264	22.8	20.2	511587	22.9	20.9	496116	22.9	21.5	291455	22.9	19.9	203262	23.0	21.0
87065	22.7	19.4	318100	22.8	19.7	90562	22.9	19.4	453032	22.9	22.6	425987	22.9	20.2	215264	23.0	20.4
19757	22.7	18.2	456556	22.8	21.5	284148	22.9	20.2	450911	22.9	20.7	456587	22.9	20.4	272416	23.0	20.1
400044	22.7	21.2	241838	22.8	20.2	543219	22.9	21.1	449584	22.9	20.4	74303	22.9	19.2	301962	23.0	18.1
454861	22.7	21.6	191643	22.8	21.0	147591	22.9	20.1	29831	22.9	17.3	19576	22.9	16.8	343892	23.0	20.7
114190	22.7	19.7	257856	22.8	21.1	161088	22.9	19.5	282328	22.9	20.3	522634	22.9	20.4	521049	23.0	21.0
144611	22.7	19.2	214349	22.8	19.9	541937	22.9	20.3	274265	22.9	20.1	494051	22.9	21.5	456471	23.0	22.3
149204	22.7	19.5	186597	22.8	19.1	7643	22.9	17.2	14031	22.9	17.1	256378	22.9	20.2	161950	23.0	19.3
254639	22.7	20.8	30475	22.8	18.2	223799	22.9	20.7	204134	22.9	19.5	101632	22.9	19.1	94560	23.1	17.9
117473	22.7	20.1	293601	22.8	19.2	69016	22.9	18.8	152559	22.9	20.1	296483	22.9	20.8	321994	23.1	20.7
188869	22.7	19.3	34288	22.8	18.0	5328	22.9	17.6	336034	22.9	21.9	60913	22.9	18.6	110336	23.1	19.6
496202	22.7	20.9	501084	22.8	20.3	231194	22.9	20.9	124629	22.9	20.8	248285	22.9	20.8	319528	23.1	21.7
109723	22.7	19.5	194472	22.8	20.8	538936	22.9	20.4									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
480195	23.1	20.3	385696	23.2	20.9	147083	23.2	19.8	115334	23.3	19.9	144858	23.4	18.6	425317	23.4	20.9
240581	23.1	20.9	55737	23.2	17.3	256155	23.2	21.0	502913	23.3	20.5	237203	23.4	20.0	144768	23.4	19.4
441577	23.1	21.5	177445	23.2	19.7	521922	23.2	21.7	469275	23.3	20.8	333344	23.4	21.6	233617	23.4	20.6
448953	23.1	20.9	420101	23.2	20.4	214327	23.2	20.2	195810	23.3	20.5	15873	23.4	18.1	185740	23.4	18.6
276769	23.1	21.0	312306	23.2	20.0	84421	23.2	18.9	522545	23.3	20.1	162972	23.4	19.3	344871	23.4	20.2
166821	23.1	19.5	63437	23.2	19.2	461429	23.2	20.4	543889	23.3	20.6	294015	23.4	20.8	239361	23.4	19.3
26172	23.1	18.9	242688	23.2	19.7	299620	23.2	20.1	484058	23.3	20.4	272966	23.4	20.2	25844	23.4	17.4
140742	23.1	19.2	240905	23.2	20.6	101025	23.2	20.0	372231	23.3	21.7	396319	23.4	20.0	194434	23.4	20.5
18659	23.1	18.4	256364	23.2	21.4	81188	23.2	19.1	61587	23.3	19.5	314840	23.4	20.4	535407	23.4	21.1
113949	23.1	18.7	293292	23.2	20.7	52498	23.2	19.1	429369	23.3	20.0	466719	23.4	20.2	329011	23.4	20.2
434021	23.1	21.4	498508	23.2	19.8	87854	23.2	19.4	164126	23.3	18.8	77700	23.4	18.0	47620	23.4	19.1
237229	23.1	20.2	236383	23.2	18.8	544741	23.2	20.5	438674	23.3	20.8	459722	23.4	20.1	109918	23.4	19.3
94418	23.1	18.8	421566	23.2	20.4	268798	23.2	20.8	364760	23.3	19.5	92771	23.4	19.8	150133	23.4	19.5
166289	23.1	19.8	230583	23.2	20.5	358213	23.2	20.4	442637	23.3	21.0	139347	23.4	19.9	130893	23.4	20.2
412784	23.1	21.3	424908	23.2	21.0	358621	23.2	20.7	532499	23.3	21.5	449387	23.4	20.0	240331	23.4	20.8
84909	23.1	18.4	246032	23.2	20.7	412809	23.2	21.2	407439	23.3	22.1	526566	23.4	22.6	5141	23.4	16.9
416934	23.1	21.0	282182	23.2	20.6	74521	23.2	18.8	524999	23.3	22.0	274926	23.4	21.7	56447	23.4	18.2
45116	23.1	18.9	508843	23.2	20.3	38935	23.2	19.5	155371	23.3	21.0	154678	23.4	19.3	473787	23.4	19.9
113483	23.1	19.0	413217	23.2	21.1	194198	23.2	20.1	117751	23.3	20.4	79981	23.4	17.3	89887	23.4	19.8
290568	23.1	20.4	362892	23.2	20.7	191585	23.2	19.6	412660	23.3	21.0	319803	23.4	21.0	430062	23.4	21.2
197343	23.1	19.3	464348	23.2	20.2	119187	23.2	19.7	413346	23.3	20.6	87905	23.4	19.3	520599	23.4	21.0
238131	23.1	19.8	458290	23.2	20.7	381224	23.2	20.9	113771	23.3	20.0	375347	23.4	20.5	275504	23.4	20.3
166979	23.1	20.2	331848	23.2	21.5	343197	23.2	21.6	424968	23.3	21.4	333799	23.4	20.0	351066	23.4	20.0
364381	23.1	21.0	296919	23.2	20.1	78734	23.2	18.5	179945	23.3	20.3	290301	23.4	21.1	453830	23.4	21.7
77448	23.1	18.2	366756	23.2	22.0	115915	23.2	19.8	460563	23.3	20.9	199984	23.4	19.4	468287	23.4	20.6
334152	23.1	20.8	174135	23.2	20.7	445118	23.2	21.0	461093	23.3	19.9	185894	23.4	19.9	167493	23.4	18.5
381328	23.1	20.1	243689	23.2	20.7	27815	23.2	18.0	366372	23.3	21.0	461204	23.4	21.3	391458	23.4	19.5
455336	23.1	22.2	232756	23.2	20.0	334637	23.2	21.5	206875	23.3	19.7	234856	23.4	19.7	360455	23.4	20.7
41594	23.1	19.0	250199	23.2	21.4	543159	23.3	21.0	55375	23.3	18.8	127898	23.4	18.3	231387	23.4	19.6
467533	23.1	21.4	167589	23.2	19.3	49518	23.3	18.2	467537	23.3	21.1	279936	23.4	20.8	242954	23.4	20.8
249703	23.1	19.7	417032	23.2	20.6	491563	23.3	21.7	494182	23.3	20.3	242075	23.4	20.6	168141	23.4	19.6
205328	23.1	20.0	207586	23.2	20.7	201019	23.3	21.1	205464	23.3	21.1	284756	23.4	20.2	157588	23.4	20.2
203828	23.1	19.2	31630	23.2	17.5	413981	23.3	19.7	170066	23.3	19.5	131340	23.4	19.6	459638	23.4	20.4
232830	23.1	20.7	58046	23.2	19.4	309962	23.3	20.2	13207	23.3	17.3	201439	23.4	18.7	76429	23.4	17.9
318867	23.1	20.7	160449	23.2	19.4	47155	23.3	19.5	366963	23.3	20.9	544959	23.4	21.6	152721	23.4	19.9
372727	23.1	21.3	70367	23.2	17.9	243474	23.3	21.3	538384	23.3	21.1	127511	23.4	19.7	219397	23.4	20.5
368639	23.1	20.0	238737	23.2	19.8	201918	23.3	19.8	237378	23.3	20.6	345257	23.4	21.3	481991	23.4	21.7
189024	23.1	19.9	113596	23.2	19.5	60783	23.3	19.1	110873	23.3	20.1	246140	23.4	19.9	442262	23.4	21.4
126699	23.1	19.2	285065	23.2	19.8	183919	23.3	20.2	110416	23.3	19.8	323989	23.4	20.6	277972	23.4	21.3
122361	23.1	20.2	531109	23.2	20.8	288952	23.3	20.0	246711	23.3	20.7	175313	23.4	20.0	167172	23.5	20.1
449914	23.1	22.4	277264	23.2	19.8	283304	23.3	20.4	81243	23.3	19.0	175635	23.4	20.5	517174	23.5	21.3
439935	23.1	21.3	486837	23.2	20.6	54855	23.3	18.5	62700	23.3	19.3	543696	23.4	20.6	5860	23.5	17.7
472293	23.1	19.1	84410	23.2	18.2	540053	23.3	20.7	464785	23.3	21.5	6971	23.4	17.4	271000	23.5	20.5
122286	23.1	19.4	414261	23.2	21.1	53652	23.3	18.2	42823	23.3	19.3	183195	23.4	19.5	382288	23.5	20.6
136681	23.1	21.3	165100	23.2	20.0	25689	23.3	17.8	314711	23.3	20.4	75879	23.4	18.0	112812	23.5	19.4
319037	23.1	21.0	374667	23.2	20.6	39931	23.3	18.9	405060	23.3	20.5	296551	23.4	20.2	320887	23.5	20.0
333686	23.1	20.7	121185	23.2	18.8	453418	23.3	21.0	300292	23.3	20.1	473906	23.4	20.2	319617	23.5	19.6
51540	23.1	19.2	110363	23.2	19.1	276397	23.3	21.9	249362	23.3	20.0	202365	23.4	19.2	458204	23.5	21.6
235707	23.1	19.7	498346	23.2	21.0	253351	23.3	19.0	168536	23.3	20.6	448276	23.4	21.2	459502	23.5	21.6
362608	23.1	20.9	180525	23.2	18.7	344532	23.3	21.8	79485	23.3	17.7	428461	23.4	21.9	80176	23.5	19.3
384628	23.1	19.4	463519	23.2	21.8	339553	23.3	20.9	108192	23.3	19.3	76811	23.4	18.6	2071	23.5	16.3
228835	23.1	19.8	408828	23.2	20.8	235513	23.3	20.0	415920	23.3	22.1	543076	23.4	21.5	28384	23.5	17.5
263416	23.1	20.3	29602	23.2	16.9	288972	23.3	20.6	241289	23.3	20.8	209903	23.4	20.4	87980	23.5	20.1
103788	23.1	18.8	500334	23.2	21.4	83006	23.3	18.7	238402	23.3	20.1	59765	23.4	19.2	143072	23.5	20.4
118750	23.1	18.8	448802	23.2	20.4	492286	23.3	21.3	287617	23.3	19.9	76913	23.4	18.9	422270	23.5	21.1
147453	23.1	18.6	229097	23.2	20.7	68651	23.3	19.2	352440	23.3	20.7	181606	23.4	19.2	29694	23.5	17.4
482035	23.1	21.4	48784	23.2	18.0	307840	23.3	17.2	357238	23.3	20.5	347724	23.4	20.6	105373	23.5	18.2
402662	23.1	22.0	109496	23.2	19.0	251274	23.3	20.2	324577	23.3	19.5	7692	23.4	18.1	420055	23.5	20.2
32774	23.1	18.4	135865	23.2	18.9	439946	23.3	21.3	284336	23.3	21.2	231701	23.4	20.9	185170	23.5	20.3
350512	23.1	19.4	466792	23.2	20.8	421257	23.3	20.3	325727	23.3	20.0	136500	23.4	20.3	286196	23.5	20.6
528446	23.1	22.0	421381	23.2	21.4	423373	23.3	20.4	83485	23.3	19.4	172626	23.4	20.0	362485	23.5	19.5
275394	23.1	20.0	79983	23.2	21.9	336516	23.3	21.3	466249	23.3	20.1	60668	23.4	18.4	81933	23.5	20.2
28016	23.1	17.3	163432	23.2	20.1	156073	23.3	19.1	454235	23.3	20.5	363083	23.4	21.8	166853	23.5	19.9
450139	23.1	21.9	183376	23.2	19.8	432106	23.3	20.8	54760	23.3	19.4	428983	23.4	20.5	70701	23.5	18.7
373967	23.1	20.2	189685	23.2	19.3	167964	23.3	19.4	439951	23.3	22.3	2348	23.4	15.0	429347	23.5	19.5
240835	23.1	19.9	330894	23.2	20.1	45039	23.3	19.2	333409	23.3	20.3	223042	23.4	20.1	464608	23.5	21.5
423007	23.1	22.4	60178	23.2	19.4	150196	23.3	19.7	467709	23.3	19.9	419280	23.4	21.6	138270	23.5	19.2
537939	23.1	20.5	167881	23.2	20.4	445154	23.3	21.8	278952	23.3	20.3	427474	23.4	21.0	106422	23.5	19.6
469113	23.1	20.4	234889	23.2	20.1	400889											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
51046	23.5	17.4	286766	23.6	19.7	2313	23.6	17.0	388357	23.7	21.6	88642	23.7	18.2	523784	23.8	21.6
345990	23.5	20.3	298844	23.6	20.2	63618	23.6	18.7	130568	23.7	19.9	85720	23.7	20.2	314800	23.8	20.6
430270	23.5	21.2	256085	23.6	21.4	445167	23.6	20.5	210813	23.7	20.3	197056	23.7	20.0	453054	23.8	21.3
166187	23.5	19.4	66195	23.6	18.0	331838	23.6	20.8	525744	23.7	21.6	388094	23.7	20.7	319954	23.8	20.4
350553	23.5	20.8	366982	23.6	21.0	450239	23.6	21.2	38390	23.7	18.1	287019	23.7	21.1	82954	23.8	19.6
422923	23.5	21.8	328455	23.6	21.3	265097	23.6	20.7	36811	23.7	19.2	322784	23.7	21.4	371313	23.8	19.3
157250	23.5	19.8	353442	23.6	20.6	268071	23.6	20.8	279754	23.7	20.3	465544	23.7	21.8	58769	23.8	18.6
538901	23.5	21.6	289600	23.6	19.8	182	23.6	12.5	66179	23.7	20.0	395417	23.7	21.2	135372	23.8	19.6
282817	23.5	21.3	203097	23.6	20.1	401483	23.6	21.1	421039	23.7	20.7	500613	23.7	21.5	203093	23.8	20.5
183539	23.5	19.4	258124	23.6	21.0	12431	23.6	17.9	11368	23.7	17.1	402576	23.7	20.6	291621	23.8	19.8
541591	23.5	22.3	209659	23.6	20.0	66267	23.6	19.5	521660	23.7	20.8	291326	23.7	19.7	357264	23.8	19.3
491218	23.5	19.9	543218	23.6	20.5	232243	23.6	20.8	446105	23.7	21.8	129838	23.7	20.2	251060	23.8	20.0
66215	23.5	18.2	403585	23.6	21.7	178955	23.6	20.0	140434	23.7	20.2	452217	23.7	19.9	100279	23.8	19.4
402597	23.5	21.9	369259	23.6	20.2	187731	23.6	19.1	137048	23.7	20.7	223690	23.7	20.6	340761	23.8	20.2
528836	23.5	21.6	321051	23.6	20.4	27939	23.6	18.6	234411	23.7	20.6	364364	23.7	21.6	379826	23.8	19.9
148700	23.5	19.9	398329	23.6	19.7	336053	23.6	20.5	425509	23.7	20.2	187059	23.7	20.3	295123	23.8	20.4
166780	23.5	20.3	118724	23.6	19.8	309476	23.6	20.7	150117	23.7	18.8	16207	23.8	18.0	360576	23.8	20.5
52346	23.5	18.3	109075	23.6	19.8	132258	23.6	19.9	280477	23.7	19.6	414398	23.8	19.8	36974	23.8	18.5
378916	23.5	21.1	426408	23.6	20.3	183394	23.6	19.5	495227	23.7	20.5	363380	23.8	20.7	380127	23.8	19.9
145893	23.5	19.0	109953	23.6	19.2	226769	23.6	19.9	484727	23.7	20.7	464594	23.8	21.2	190182	23.8	20.5
465697	23.5	21.3	276356	23.6	20.6	37339	23.6	17.5	508337	23.7	21.1	541836	23.8	20.7	378463	23.8	21.5
312291	23.5	20.5	363828	23.6	21.6	238366	23.6	19.1	431150	23.7	20.9	213711	23.8	21.0	243545	23.8	20.5
173391	23.5	19.5	85158	23.6	19.9	227655	23.6	20.3	527165	23.7	20.5	178999	23.8	19.8	402604	23.8	21.7
283391	23.5	20.2	81652	23.6	17.9	56561	23.6	18.8	95370	23.7	19.6	174294	23.8	20.6	172874	23.8	20.3
483636	23.5	21.9	1737	23.6	15.2	332420	23.6	20.5	399419	23.7	22.0	408776	23.8	20.6	445114	23.8	21.4
142810	23.5	19.9	111393	23.6	19.6	286973	23.6	22.2	46212	23.7	18.1	360307	23.8	20.5	527211	23.8	22.7
196179	23.5	20.3	366786	23.6	21.7	466967	23.6	20.1	465298	23.7	21.0	347191	23.8	19.7	542645	23.8	21.3
136369	23.5	18.1	355931	23.6	21.1	50739	23.6	18.5	238851	23.7	20.5	130439	23.8	20.3	250145	23.8	21.5
415151	23.5	20.7	409901	23.6	22.3	138170	23.6	19.7	33614	23.7	17.9	447823	23.8	22.3	295592	23.8	19.6
273015	23.5	20.1	169303	23.6	20.3	4987	23.6	16.5	25750	23.7	18.8	280445	23.8	20.5	53005	23.8	19.0
142747	23.5	19.8	298503	23.6	19.4	87089	23.6	19.7	273363	23.7	20.0	268087	23.8	21.8	398982	23.8	20.3
56530	23.5	18.8	335861	23.6	20.8	142371	23.6	18.9	456772	23.7	21.9	48263	23.8	19.4	237677	23.8	20.6
439361	23.5	21.5	364394	23.6	21.0	124146	23.6	20.2	43854	23.7	18.0	79722	23.8	19.4	147346	23.8	17.9
468941	23.5	20.3	108792	23.6	19.5	369269	23.6	21.3	458798	23.7	21.8	281327	23.8	21.2	339937	23.8	20.6
148122	23.5	20.0	398528	23.6	22.2	336720	23.6	20.6	270013	23.7	19.2	409617	23.8	20.9	278424	23.8	20.7
424945	23.5	20.3	542902	23.6	21.1	273000	23.6	20.1	413702	23.7	20.6	55736	23.8	18.7	37383	23.8	19.3
138487	23.5	18.8	421706	23.6	21.1	357648	23.6	19.0	453148	23.7	20.7	61294	23.8	19.2	318906	23.8	20.1
12740	23.5	15.8	202040	23.6	19.9	465452	23.6	21.4	28262	23.7	17.2	58238	23.8	19.4	188297	23.8	19.6
110195	23.5	19.1	419150	23.6	20.9	113961	23.6	19.9	201392	23.7	19.9	396539	23.8	21.6	324592	23.8	21.1
466751	23.5	20.8	432047	23.6	20.8	363609	23.6	19.3	451501	23.7	21.4	334442	23.8	18.7	142519	23.8	20.1
463712	23.5	21.5	271313	23.6	20.5	220088	23.6	20.3	467552	23.7	20.8	51851	23.8	18.4	109813	23.8	19.5
14548	23.5	17.4	496663	23.6	20.8	265512	23.6	19.8	100751	23.7	18.0	151885	23.8	19.4	389902	23.8	21.1
178430	23.5	20.8	33128	23.6	22.3	174950	23.6	18.9	67476	23.7	17.9	517537	23.8	22.7	124792	23.8	19.7
379481	23.5	19.8	82768	23.6	19.6	148844	23.6	19.0	486157	23.7	21.6	60382	23.8	18.3	219394	23.8	20.1
151231	23.5	19.6	250230	23.6	21.0	51855	23.6	17.8	3402	23.7	17.7	13218	23.8	17.1	88285	23.8	19.5
234482	23.5	20.6	276842	23.6	20.8	305992	23.7	18.9	498147	23.7	22.4	331815	23.8	21.0	291000	23.8	20.8
85051	23.5	18.9	520004	23.6	21.7	318707	23.7	20.1	194898	23.7	20.4	362401	23.8	20.8	406027	23.8	21.9
346314	23.5	21.1	67803	23.6	17.4	306493	23.7	21.6	521665	23.7	21.5	296937	23.8	20.3	320653	23.8	20.3
68189	23.5	19.5	218013	23.6	19.8	169123	23.7	20.6	53280	23.7	18.1	454671	23.8	20.2	212488	23.8	20.2
95887	23.5	20.0	222818	23.6	19.9	166625	23.7	20.0	401967	23.7	22.0	63723	23.8	20.0	178383	23.8	19.8
327347	23.5	20.6	541825	23.6	19.7	410119	23.7	20.4	533206	23.7	22.4	257482	23.8	21.3	426656	23.8	21.0
111255	23.5	18.9	242345	23.6	19.8	281464	23.7	21.2	204391	23.7	20.6	152992	23.8	19.1	237339	23.8	20.6
18754	23.5	16.8	169181	23.6	20.1	113782	23.7	19.2	52402	23.7	19.0	418654	23.8	21.4	379457	23.8	20.8
352142	23.5	20.3	270021	23.6	20.1	45624	23.7	18.9	280872	23.7	20.3	458162	23.8	22.2	145410	23.8	19.1
469438	23.5	22.4	4632894	23.6	21.1	463457	23.7	20.9	202061	23.7	19.2	37878	23.8	17.3	488119	23.8	20.6
173717	23.5	21.0	82145	23.6	18.6	219395	23.7	20.4	263110	23.7	19.3	121767	23.8	20.1	462737	23.8	21.1
5696	23.5	17.2	8837	23.6	16.9	350667	23.7	21.1	88815	23.7	19.5	126053	23.8	19.5	491390	23.8	19.7
170351	23.5	20.6	351272	23.6	21.7	407895	23.7	20.8	50972	23.7	18.5	80205	23.8	19.5	319652	23.8	20.8
398345	23.5	21.7	169302	23.6	19.9	59131	23.7	18.9	264239	23.7	21.3	464022	23.8	21.3	122507	23.8	20.6
366964	23.5	21.3	129689	23.6	19.7	532364	23.7	21.2	129001	23.7	18.6	190845	23.8	21.4	356484	23.8	21.3
425157	23.5	21.5	544134	23.6	20.6	377189	23.7	21.2	94680	23.7	18.8	458932	23.8	22.1	279064	23.8	19.8
4478	23.5	16.7	237611	23.6	20.6	465153	23.7	19.1	315737	23.7	19.8	402569	23.8	21.7	176235	23.8	19.3
416600	23.5	21.7	289922	23.6	19.9	99984	23.7	18.8	233829	23.7	20.5	90204	23.8	18.9	406108	23.8	21.3
231768	23.5	20.8	347478	23.6	19.8	118297	23.7	19.7	421038	23.7	20.2	298541	23.8	20.5	133305	23.9	19.4
279164	23.5	20.2	429000	23.6	21.1	498092	23.7	20.6	161225	23.7	19.3	179856	23.8	19.9	167541	23.9	19.0
188534	23.5	20.4	340605	23.6	20.6	133901	23.7	20.6	441508	23.7	21.8	50963	23.8	19.1	543784	23.9	20.4
189252	23.5	19.9	142330	23.6	19.3	406611	23.7	20.5	488619	23.7	21.2	244456	23.8	21.8	419994	23.9	20.3
273423	23.5	21.3	160475	23.6	19.7	294175	23.7	19.4	233587	23.7	20.6	283607	23.8	19.9	503662	23.9	21.4
252415	23.5	20.2	351781	23.6	19.5	81663	23.										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
182375	23.9	19.5	412754	23.9	21.2	233734	23.9	20.1	461713	24.0	21.0	116289	24.1	19.0	202430	24.2	20.1
328674	23.9	20.6	406579	23.9	20.1	220617	23.9	20.2	330660	24.0	20.5	203548	24.1	19.3	124581	24.2	19.3
384595	23.9	20.5	313419	23.9	21.5	224819	23.9	20.6	100978	24.0	19.1	347590	24.1	21.1	317597	24.2	22.1
475203	23.9	21.4	28074	23.9	18.5	363628	23.9	21.8	52986	24.0	18.7	323767	24.1	20.8	539947	24.2	21.0
486282	23.9	20.3	6469	23.9	17.6	307852	23.9	20.2	529679	24.0	20.8	15821	24.1	16.8	23872	24.2	17.8
512169	23.9	21.3	338466	23.9	19.4	396821	23.9	20.7	281320	24.0	21.2	483437	24.1	22.1	202397	24.2	19.8
118180	23.9	18.5	357400	23.9	20.5	484076	23.9	21.1	496871	24.0	22.1	315487	24.1	20.5	526948	24.2	22.0
92861	23.9	18.8	138122	23.9	19.2	98247	23.9	19.1	454790	24.0	19.6	542110	24.1	20.3	413614	24.2	20.2
118515	23.9	19.3	141414	23.9	20.0	441507	23.9	20.9	544215	24.0	21.0	258373	24.1	19.4	230940	24.2	19.8
171982	23.9	20.9	198780	23.9	19.5	491059	23.9	21.9	239412	24.0	19.8	378365	24.1	21.2	152046	24.2	19.3
226249	23.9	19.9	61560	23.9	19.7	149284	23.9	19.5	519212	24.0	20.7	58035	24.1	17.8	541740	24.2	20.6
20094	23.9	18.4	433539	23.9	21.8	273384	23.9	20.3	292625	24.0	21.1	180943	24.1	20.3	279395	24.2	19.6
87816	23.9	19.4	369841	23.9	20.0	426861	23.9	21.1	258321	24.0	19.7	229333	24.1	20.7	297329	24.2	21.0
153321	23.9	20.5	135401	23.9	19.5	355941	23.9	21.8	179855	24.1	20.6	23730	24.1	18.4	116197	24.2	20.0
22681	23.9	18.2	398940	23.9	19.9	116248	23.9	19.0	88650	24.1	19.4	192592	24.1	20.7	124168	24.2	19.6
185912	23.9	19.3	31224	23.9	17.8	413052	23.9	21.7	205922	24.1	19.7	544408	24.1	21.5	187164	24.2	20.6
343471	23.9	20.2	484645	23.9	20.8	10587	23.9	16.8	112671	24.1	19.2	290528	24.1	21.2	290767	24.2	20.2
80277	23.9	18.8	293101	23.9	20.2	381585	23.9	21.2	404826	24.1	20.2	362451	24.1	20.0	521815	24.2	20.9
465534	23.9	21.6	464459	23.9	20.6	441453	23.9	22.5	7792	24.1	15.0	278032	24.1	20.7	277845	24.2	20.8
11000	23.9	18.8	192613	23.9	18.5	315603	23.9	20.5	144567	24.1	19.3	131389	24.1	19.8	69863	24.2	18.8
447033	23.9	21.7	531707	23.9	20.9	7747	23.9	17.3	382174	24.1	20.1	40073	24.1	17.3	58129	24.2	19.5
360821	23.9	19.7	460212	23.9	21.0	382837	23.9	20.1	196439	24.1	18.8	398204	24.1	21.3	144834	24.2	18.8
2461	23.9	16.9	433019	23.9	21.0	14909	23.9	17.2	231307	24.1	21.1	50975	24.1	18.7	33127	24.2	17.1
356565	23.9	20.7	335851	23.9	20.3	327338	24.0	20.3	163529	24.1	19.9	1954	24.1	16.9	124447	24.2	19.1
80857	23.9	18.6	385945	23.9	20.8	442666	24.0	20.1	105587	24.1	18.8	453360	24.1	21.4	538899	24.2	21.4
543650	23.9	21.2	503735	23.9	21.1	344204	24.0	20.7	383381	24.1	20.8	540196	24.1	21.1	540102	24.2	20.5
200823	23.9	20.0	243580	23.9	21.3	58053	24.0	18.8	413075	24.1	21.2	405052	24.1	20.7	129165	24.2	20.3
367613	23.9	21.5	500371	23.9	21.2	98214	24.0	20.2	85488	24.1	20.5	232772	24.1	19.6	79849	24.2	19.5
87093	23.9	18.7	468979	23.9	20.5	467395	24.0	19.3	313869	24.1	19.5	194302	24.1	19.2	279880	24.2	18.7
531181	23.9	21.1	219154	23.9	20.2	69843	24.0	19.5	278596	24.1	20.6	424275	24.1	20.6	192756	24.2	19.8
109194	23.9	19.6	240877	23.9	19.7	257310	24.0	20.8	239241	24.1	20.5	251011	24.1	19.9	31315	24.2	18.7
163207	23.9	19.9	458680	23.9	20.0	221936	24.0	21.0	314224	24.1	20.4	176956	24.1	19.6	334049	24.2	19.8
295463	23.9	20.9	310188	23.9	21.5	195016	24.0	19.9	473875	24.1	20.8	118844	24.1	19.4	182301	24.2	20.0
294078	23.9	20.2	426427	23.9	21.3	159347	24.0	20.1	78478	24.1	19.0	117959	24.1	19.9	312236	24.2	20.6
307873	23.9	21.2	389363	23.9	20.8	42982	24.0	19.6	202617	24.1	20.4	194935	24.1	20.7	482536	24.2	21.6
524241	23.9	22.3	85875	23.9	17.6	87750	24.0	19.7	64092	24.1	19.2	86449	24.2	18.6	268078	24.2	21.3
76046	23.9	19.5	467989	23.9	20.9	544574	24.0	21.6	540042	24.1	21.5	481452	24.2	22.2	15688	24.2	17.4
46353	23.9	18.3	322847	23.9	20.9	53016	24.0	18.7	385966	24.1	21.7	378827	24.2	20.7	45736	24.2	18.9
443209	23.9	20.6	404407	23.9	20.2	90993	24.0	20.5	503719	24.1	20.6	337361	24.2	21.6	235723	24.2	20.1
312230	23.9	20.7	321237	23.9	19.3	395786	24.0	20.5	9838	24.1	17.5	110435	24.2	19.4	181541	24.2	19.4
292715	23.9	21.0	290437	23.9	21.0	353470	24.0	21.2	126059	24.1	19.2	183391	24.2	20.3	75461	24.2	18.7
302831	23.9	19.6	104623	23.9	19.4	194720	24.0	20.3	312116	24.1	22.3	230841	24.2	20.5	822	24.2	14.5
203082	23.9	19.9	83850	23.9	18.9	395799	24.0	20.5	412244	24.1	20.0	338225	24.2	21.4	367575	24.2	21.7
483798	23.9	21.9	370722	23.9	19.9	337082	24.0	20.6	60749	24.1	18.1	289517	24.2	20.3	231454	24.2	19.5
162904	23.9	19.9	228260	23.9	21.1	213100	24.0	20.5	89053	24.1	19.6	201697	24.2	19.9	121376	24.2	18.9
67543	23.9	19.8	260637	23.9	20.9	372584	24.0	19.7	252729	24.1	19.8	331421	24.2	19.2	346279	24.2	21.2
225380	23.9	20.6	224326	23.9	20.2	194734	24.0	20.0	236866	24.1	19.4	294919	24.2	20.3	493102	24.2	20.7
108698	23.9	19.6	398714	23.9	20.3	464426	24.0	20.8	419355	24.1	21.2	116584	24.2	19.1	451556	24.2	21.0
422627	23.9	21.2	101936	23.9	20.0	244503	24.0	20.3	65917	24.1	18.6	446771	24.2	21.5	41864	24.2	19.2
288152	23.9	19.2	410561	23.9	20.9	263578	24.0	20.4	192514	24.1	20.7	495860	24.2	21.0	352725	24.2	19.9
95267	23.9	18.8	400370	23.9	21.2	431516	24.0	21.1	495492	24.1	20.6	216135	24.2	19.4	529449	24.2	20.0
199931	23.9	20.7	166665	23.9	19.6	431143	24.0	21.1	463798	24.1	21.4	534497	24.2	21.3	97272	24.2	20.3
291817	23.9	19.8	358171	23.9	21.2	368133	24.0	20.1	327978	24.1	19.5	35061	24.2	20.1	242457	24.2	21.1
179996	23.9	20.1	402589	23.9	22.4	446290	24.0	20.2	10711	24.1	17.7	269964	24.2	21.3	84966	24.2	17.9
336001	23.9	20.6	241511	23.9	19.8	86963	24.0	19.1	68513	24.1	17.6	394005	24.2	20.4	468298	24.2	21.0
100324	23.9	19.8	528685	23.9	22.1	338376	24.0	19.9	484786	24.1	20.5	403621	24.2	22.7	156267	24.2	20.5
24995	23.9	18.2	75597	23.9	17.5	329179	24.0	18.6	375969	24.1	20.7	90375	24.2	19.2	335879	24.2	20.9
118797	23.9	19.5	82184	23.9	18.2	465057	24.0	20.9	385933	24.1	21.2	89322	24.2	19.3	255985	24.2	21.1
69923	23.9	19.2	151617	23.9	19.8	120763	24.0	20.0	239696	24.1	19.7	252286	24.2	20.6	72179	24.2	19.2
202377	23.9	19.0	319640	23.9	21.2	271227	24.0	20.1	445185	24.1	21.4	146098	24.2	19.3	167549	24.2	19.5
91474	23.9	19.8	196782	23.9	20.3	466905	24.0	20.7	200824	24.1	20.4	166270	24.2	20.7	486752	24.2	20.3
447725	23.9	20.8	25213	23.9	19.4	522161	24.0	21.4	78865	24.1	18.7	366992	24.2	21.3	268195	24.2	20.4
233805	23.9	19.6	139643	23.9	17.8	458200	24.0	21.8	447770	24.1	20.7	65413	24.2	20.1	464167	24.2	20.9
535927	23.9	21.7	450302	23.9	21.9	5780	24.0	17.7	405936	24.1	21.8	91364	24.2	17.8	422283	24.2	20.7
441499	23.9	20.8	231023	23.9	19.3	238839	24.0	19.9	138905	24.1	19.2	111326	24.2	19.9	104200	24.2	18.8
537686	23.9	21.4	326700	23.9	20.8	459300	24.0	20.8	28059	24.1	17.7	363061	24.2	19.0	490223	24.2	22.6
367332	23.9	19.4	401101	23.9	20.3	317011	24.0	20.2	362776	24.1	20.1	167978	24.2	20.0	329063	24.2	20.3
280845	23.9	20.9	183471	23.9	19.8	528939	24.0	21.9	61418	24.1	19.8	462659	24.2	20.8	425385	24.3	19.5
176837	23.9	21.1	500009	23.9	21.6	134821	24.0										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
467591	24.3	20.7	22229	24.3	18.6	289707	24.4	20.1	335991	24.4	21.4	156805	24.5	19.2	194592	24.6	20.4
117434	24.3	19.4	135454	24.3	20.5	303497	24.4	20.4	519061	24.4	20.8	391059	24.5	21.3	538805	24.6	21.0
328703	24.3	21.5	490394	24.3	20.6	441573	24.4	21.9	279079	24.4	20.6	332115	24.5	19.8	75554	24.6	20.0
394436	24.3	21.3	276661	24.3	20.9	407389	24.4	21.6	67292	24.4	18.8	239779	24.5	20.5	81216	24.6	19.1
491710	24.3	21.3	491638	24.3	21.9	175239	24.4	19.7	234428	24.4	19.7	332866	24.5	20.4	283990	24.6	21.5
114964	24.3	19.1	444900	24.3	20.6	312233	24.4	20.1	493934	24.4	20.7	51896	24.5	19.2	425340	24.6	20.6
42306	24.3	19.3	31996	24.3	19.3	92573	24.4	20.0	110408	24.4	19.6	247654	24.5	20.0	46666	24.6	18.8
34007	24.3	19.0	105107	24.3	20.1	58340	24.4	18.1	190320	24.4	19.3	453058	24.5	22.2	542570	24.6	19.7
265792	24.3	21.1	31485	24.3	17.7	319004	24.4	20.1	16850	24.4	18.2	245064	24.5	20.1	291384	24.6	19.7
19119	24.3	18.6	378500	24.3	21.7	532332	24.4	21.1	119841	24.4	19.3	244070	24.5	20.6	190873	24.6	18.6
541115	24.3	21.3	325670	24.3	19.8	345326	24.4	20.9	37853	24.4	17.9	198191	24.5	20.4	358603	24.6	19.6
307510	24.3	19.3	59337	24.3	18.8	335644	24.4	21.0	541749	24.4	21.3	182724	24.5	20.0	83931	24.6	19.1
157488	24.3	19.9	81880	24.3	18.3	456342	24.4	22.2	268628	24.4	20.5	9851	24.5	17.6	74453	24.6	18.6
179669	24.3	19.7	381963	24.3	20.7	242134	24.4	20.3	468671	24.4	20.8	4916	24.5	16.1	29324	24.6	18.0
116790	24.3	19.1	344306	24.3	21.0	22694	24.4	16.7	14924	24.4	18.7	540230	24.5	20.3	204726	24.6	19.2
495510	24.3	20.3	142836	24.3	17.9	197867	24.4	20.6	442824	24.4	20.9	279688	24.5	19.3	532761	24.6	21.9
544696	24.3	21.7	112074	24.3	18.2	282131	24.4	20.9	51085	24.4	21.5	159844	24.5	19.6	216762	24.6	20.2
88053	24.3	19.6	93930	24.3	19.3	412527	24.4	20.9	392557	24.4	21.0	99901	24.5	19.4	216794	24.6	20.1
495835	24.3	22.1	333402	24.3	21.0	522110	24.4	19.8	277186	24.4	21.0	271383	24.5	20.7	203153	24.6	20.0
460632	24.3	21.7	297347	24.3	19.4	132806	24.4	19.0	335955	24.4	20.2	114729	24.5	19.5	503707	24.6	20.9
404958	24.3	19.3	62242	24.3	20.0	244716	24.4	20.5	336017	24.4	21.2	275169	24.5	19.5	140518	24.6	18.2
373922	24.3	20.9	419503	24.3	19.9	301239	24.4	20.5	59676	24.4	18.4	544802	24.5	21.9	477765	24.6	20.8
352924	24.3	21.2	343294	24.3	20.7	32452	24.4	17.0	443027	24.4	20.8	278097	24.5	19.7	144606	24.6	19.4
475	24.3	16.6	134377	24.3	20.3	25459	24.4	17.9	468282	24.5	21.0	264298	24.5	21.0	230576	24.6	20.2
206314	24.3	20.2	277860	24.3	20.4	322797	24.4	20.8	170544	24.5	19.3	329643	24.5	21.6	471916	24.6	19.8
151249	24.3	19.6	132120	24.3	19.8	112720	24.4	19.6	8110	24.5	17.1	165106	24.5	19.7	343371	24.6	20.6
451087	24.3	21.7	272130	24.3	20.8	483488	24.4	21.9	109273	24.5	19.1	128590	24.5	19.7	418718	24.6	20.9
237621	24.3	20.9	18061	24.3	18.3	340743	24.4	21.2	489254	24.5	21.6	192617	24.5	18.7	288068	24.6	21.6
30661	24.3	18.6	125901	24.3	19.0	234943	24.4	20.4	141426	24.5	19.4	85870	24.5	17.8	223687	24.6	20.2
76275	24.3	18.4	343865	24.3	20.2	147344	24.4	19.6	75861	24.5	19.7	325213	24.5	20.8	168597	24.6	19.1
88020	24.3	20.0	77609	24.3	19.4	292933	24.4	21.4	492752	24.5	20.5	240503	24.5	19.8	105650	24.6	18.9
425435	24.3	19.6	189264	24.3	20.1	271261	24.4	20.3	5054	24.5	17.5	239918	24.5	20.8	440275	24.6	22.0
345123	24.3	20.7	307825	24.3	19.6	345030	24.4	20.5	522403	24.5	21.3	493854	24.5	21.2	409448	24.6	22.2
400039	24.3	22.3	256065	24.3	21.5	499450	24.4	20.8	543330	24.5	20.8	158179	24.5	20.6	113813	24.6	18.5
21272	24.3	17.5	347683	24.3	21.9	286628	24.4	19.6	415678	24.5	21.7	219199	24.5	20.8	541947	24.6	20.4
422487	24.3	20.8	415952	24.3	20.7	484711	24.4	20.9	89525	24.5	18.6	413671	24.5	21.1	188103	24.6	19.7
431479	24.3	21.9	365767	24.3	21.3	280819	24.4	21.2	453849	24.5	21.9	92648	24.5	17.3	506344	24.6	20.8
456633	24.3	20.7	379022	24.3	21.0	104511	24.4	19.3	76642	24.5	19.0	122476	24.5	20.2	122939	24.6	19.2
390821	24.3	20.1	279664	24.3	20.1	413564	24.4	21.5	396608	24.5	21.1	54861	24.5	19.6	116351	24.6	20.6
188237	24.3	20.3	543127	24.3	20.6	10748	24.4	17.3	11622	24.5	17.9	234846	24.5	20.8	254714	24.6	20.2
33975	24.3	18.5	368980	24.4	20.6	122417	24.4	20.1	325711	24.5	19.7	483609	24.5	20.1	195116	24.6	20.5
412127	24.3	20.6	486479	24.4	19.7	426028	24.4	20.5	254531	24.5	20.6	380957	24.5	20.7	46306	24.6	18.9
527063	24.3	22.7	30026	24.4	18.0	336033	24.4	21.1	228060	24.5	19.8	64100	24.5	18.7	251220	24.6	20.9
113907	24.3	18.9	538333	24.4	20.9	34678	24.4	17.6	158274	24.5	20.5	212198	24.5	19.8	283438	24.6	22.0
258404	24.3	18.6	144723	24.4	19.4	367212	24.4	20.3	252642	24.5	20.0	59119	24.5	18.7	103028	24.6	18.3
456333	24.3	21.3	226851	24.4	20.1	320159	24.4	20.7	237627	24.5	20.5	347617	24.5	21.6	324474	24.6	20.6
484831	24.3	19.7	8558	24.4	19.9	541594	24.4	22.5	360014	24.5	20.9	207188	24.5	19.7	294937	24.6	19.6
271380	24.3	20.5	367672	24.4	20.1	369096	24.4	20.7	258122	24.5	20.6	464679	24.5	20.5	418550	24.6	20.2
177440	24.3	19.0	431962	24.4	20.9	466690	24.4	21.4	11907	24.5	17.3	302339	24.5	19.5	233672	24.6	20.9
222814	24.3	19.9	189354	24.4	20.0	408104	24.4	19.7	46377	24.5	18.7	283317	24.5	22.0	11707	24.6	18.1
236321	24.3	20.0	302068	24.4	21.1	355732	24.4	20.1	451687	24.5	20.4	373386	24.5	20.4	107123	24.6	18.8
216454	24.3	19.8	233704	24.4	20.2	204363	24.4	20.7	424795	24.5	20.1	233598	24.5	21.0	490801	24.6	20.6
76610	24.3	18.9	17796	24.4	17.6	527586	24.4	21.6	541067	24.5	22.9	378465	24.5	21.1	494032	24.6	20.0
301687	24.3	20.3	258353	24.4	21.7	133442	24.4	20.5	443464	24.5	20.4	35074	24.5	18.8	80081	24.6	18.9
383653	24.3	20.2	444123	24.4	21.8	412522	24.4	19.6	359086	24.5	20.8	223662	24.5	20.2	236198	24.6	19.6
458187	24.3	22.0	309395	24.4	21.4	279262	24.4	20.2	264112	24.5	20.4	407798	24.5	21.5	370435	24.6	20.2
145051	24.3	19.6	35263	24.4	20.1	203835	24.4	20.2	86642	24.5	18.2	286197	24.5	19.1	297275	24.6	21.2
7400	24.3	17.9	156132	24.4	19.5	109770	24.4	19.0	423322	24.5	20.2	405938	24.5	21.5	182416	24.6	19.8
427260	24.3	21.5	82202	24.4	18.0	102071	24.4	19.4	355994	24.5	21.0	138646	24.5	19.7	369420	24.6	21.5
450767	24.3	22.1	48166	24.4	18.8	399487	24.4	21.9	183422	24.5	20.2	468847	24.5	21.4	363844	24.6	21.1
157894	24.3	20.3	147486	24.4	19.1	119072	24.4	19.1	538875	24.5	21.6	315533	24.5	19.4	433915	24.6	20.5
295294	24.3	20.3	530941	24.4	22.7	201272	24.4	20.2	318758	24.5	20.3	190181	24.5	20.5	94920	24.6	19.7
345378	24.3	20.3	538596	24.4	20.6	106224	24.4	19.6	339869	24.5	21.2	236015	24.6	20.5	202744	24.6	20.7
390283	24.3	20.2	46812	24.4	17.8	426327	24.4	20.8	467903	24.5	20.6	44737	24.6	19.6	457139	24.6	20.5
117623	24.3	18.1	221088	24.4	19.6	190822	24.4	19.8	153497	24.5	20.2	363900	24.6	21.9	10250	24.6	17.2
4765	24.3	16.4	276293	24.4	20.8	316064	24.4	20.2	163671	24.5	20.0	49096	24.6	17.8	226749	24.6	21.1
30441	24.3	19.0	389862	24.4	19.9	66201	24.4	18.6	143721	24.5	19.0	46301	24.6	18.3	332181	24.6	21.2
59627	24.3	18.4	55006	24.4	19.0	164174	24.4	19.1	216908	24.5	19.6	243232	24.6	20.6	331456	24.6	20.4
523857	24.3	21.5	224359	24.4	20.6	144349	24.4										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
394872	24.6	21.4	446983	24.7	22.2	358502	24.8	20.6	341191	24.8	20.0	501968	24.9	20.4	262787	24.9	21.2
89732	24.6	20.1	377095	24.7	20.8	274197	24.8	20.5	157663	24.8	19.7	468087	24.9	21.4	122897	24.9	19.4
227017	24.6	19.2	197231	24.7	19.4	318207	24.8	19.9	543812	24.8	21.3	34228	24.9	18.8	190165	24.9	20.8
271804	24.6	21.4	462352	24.7	21.5	351228	24.8	21.2	402626	24.8	21.5	40161	24.9	17.5	78735	24.9	18.8
239502	24.6	20.4	27210	24.7	18.5	171947	24.8	20.6	338882	24.8	19.9	319749	24.9	21.0	80132	24.9	19.5
112333	24.6	19.1	145865	24.7	19.3	340576	24.8	21.5	339551	24.8	20.7	416561	24.9	19.0	73337	24.9	18.7
127683	24.6	18.1	84907	24.7	19.4	327963	24.8	20.7	335279	24.8	20.5	219187	24.9	21.0	306008	24.9	19.4
394858	24.6	20.5	426402	24.7	20.8	258333	24.8	21.4	270953	24.8	20.8	467592	24.9	21.2	323918	24.9	20.7
358675	24.6	20.0	252272	24.7	20.3	265500	24.8	20.0	314876	24.8	20.8	264450	24.9	20.7	81426	24.9	18.4
27786	24.6	18.8	113916	24.7	18.9	464776	24.8	21.7	33846	24.8	18.6	321897	24.9	20.8	10740	24.9	18.2
416843	24.6	21.3	279336	24.7	20.3	8549	24.8	17.1	343265	24.8	20.8	251411	24.9	20.7	90304	24.9	19.1
170541	24.6	19.9	465539	24.7	21.1	532263	24.8	21.2	462666	24.8	21.9	339815	24.9	21.2	16246	24.9	19.6
56909	24.6	19.8	543278	24.7	21.1	233747	24.8	20.3	76897	24.8	17.2	526879	24.9	21.0	193991	24.9	20.0
26480	24.6	17.9	337737	24.7	20.8	56936	24.8	18.4	468971	24.8	21.0	5674	24.9	17.1	518127	24.9	20.7
361532	24.6	19.5	411374	24.7	20.8	4880	24.8	16.2	481299	24.8	18.6	409531	24.9	20.8	258361	24.9	20.8
71350	24.6	19.5	285340	24.7	20.4	201822	24.8	19.1	235493	24.8	19.1	24153	24.9	17.8	408545	24.9	20.4
492548	24.6	21.4	459263	24.7	21.0	102780	24.8	20.1	358487	24.8	21.3	310727	24.9	21.6	464685	24.9	21.5
338351	24.6	21.2	483181	24.7	19.8	448866	24.8	20.9	82813	24.8	18.8	114152	24.9	20.1	122432	24.9	19.1
105678	24.6	20.3	273400	24.7	20.0	238140	24.8	20.2	252307	24.8	21.2	352850	24.9	21.2	387564	24.9	20.6
329047	24.6	20.9	258375	24.7	19.7	220579	24.8	19.6	484705	24.8	21.7	296904	24.9	20.4	314669	24.9	21.0
243952	24.6	20.1	98446	24.7	18.5	543235	24.8	21.2	122762	24.8	19.9	127039	24.9	20.2	353410	24.9	19.8
419328	24.6	21.4	61159	24.7	19.2	405989	24.8	21.0	107721	24.8	19.1	462642	24.9	21.1	251182	24.9	21.2
276835	24.6	19.5	203758	24.7	19.7	47474	24.8	18.1	247759	24.8	20.4	312581	24.9	20.1	400130	24.9	20.9
128219	24.6	19.3	6976	24.7	16.9	235677	24.8	20.9	492099	24.8	20.5	375124	24.9	21.6	65452	24.9	18.8
90738	24.6	18.3	1539	24.7	16.4	505174	24.8	21.2	135457	24.8	19.5	301201	24.9	19.9	390613	24.9	20.8
337599	24.6	21.0	466525	24.7	19.6	290177	24.8	20.4	119127	24.8	19.3	172657	24.9	19.1	449890	24.9	21.4
432064	24.6	20.4	101156	24.7	20.1	282547	24.8	21.5	145898	24.8	19.2	203853	24.9	20.3	174980	24.9	19.5
522252	24.6	21.2	227641	24.7	20.8	450763	24.8	20.8	536589	24.8	20.8	175633	24.9	19.5	285911	24.9	21.3
337520	24.6	20.9	365683	24.7	21.2	303433	24.8	19.9	481209	24.8	21.2	375398	24.9	20.7	28425	24.9	17.8
217247	24.6	21.6	318760	24.7	19.9	289239	24.8	19.3	73929	24.8	21.5	272665	24.9	20.2	187900	24.9	20.7
543283	24.6	21.3	182111	24.7	18.9	395319	24.8	21.1	114245	24.8	19.8	260819	24.9	21.2	65872	24.9	19.3
489310	24.6	19.8	542761	24.7	21.0	451413	24.8	22.5	465723	24.8	21.7	300297	24.9	20.2	368026	24.9	20.0
211298	24.6	19.3	511549	24.7	21.3	336462	24.8	19.6	543588	24.8	20.4	319534	24.9	21.5	293139	24.9	20.5
247657	24.6	21.0	264755	24.7	20.3	427042	24.8	19.8	135049	24.8	19.6	203584	24.9	19.2	468664	24.9	21.0
31784	24.6	16.9	497649	24.7	21.0	285182	24.8	20.0	481392	24.8	21.8	23739	24.9	18.0	441600	24.9	21.7
146966	24.6	19.4	542593	24.7	20.9	235695	24.8	20.9	16988	24.8	18.0	230500	24.9	20.8	118158	24.9	19.8
312396	24.6	19.4	226014	24.7	19.3	496802	24.8	21.1	144	24.8	12.6	317653	24.9	19.8	6085	24.9	17.6
455961	24.6	21.4	136078	24.7	19.8	207619	24.8	20.0	175328	24.8	19.6	521572	24.9	21.2	266673	24.9	20.3
190833	24.6	20.6	426792	24.7	20.7	104252	24.8	20.4	65368	24.8	19.5	116993	24.9	19.6	247638	24.9	21.8
429336	24.6	20.7	270040	24.7	19.6	199715	24.8	20.0	535710	24.8	21.2	68551	24.9	18.5	44464	24.9	20.3
397170	24.7	20.6	486036	24.7	19.2	142399	24.8	20.3	233983	24.8	20.2	138477	24.9	20.4	488042	24.9	20.6
201875	24.7	20.2	275776	24.7	20.4	1818	24.8	17.1	484652	24.8	20.8	27375	24.9	18.6	432446	24.9	20.3
269360	24.7	19.9	293006	24.7	20.2	339917	24.8	20.4	60678	24.8	19.4	265587	24.9	21.1	379799	24.9	20.4
3904	24.7	15.5	149861	24.7	20.2	353499	24.8	20.5	544272	24.8	21.1	116063	24.9	20.4	281720	24.9	19.9
493682	24.7	20.6	51823	24.7	19.4	430294	24.8	20.7	413978	24.8	20.6	110099	24.9	19.8	315740	24.9	20.5
493453	24.7	20.6	188577	24.7	19.5	63133	24.8	19.3	89454	24.8	19.5	347624	24.9	21.3	184627	24.9	20.2
3015	24.7	16.8	370522	24.7	20.8	335981	24.8	21.3	242608	24.8	19.1	413905	24.9	20.0	194634	24.9	19.5
403068	24.7	19.5	105401	24.7	19.7	45592	24.8	17.6	40617	24.8	18.8	428862	24.9	21.6	229114	24.9	21.5
265832	24.7	19.8	254644	24.7	20.4	265869	24.8	21.1	535881	24.8	20.2	401047	24.9	20.7	93642	24.9	19.8
312355	24.7	19.1	325284	24.7	21.0	236239	24.8	20.0	519109	24.8	21.1	245966	24.9	20.5	387443	24.9	21.4
251076	24.7	20.4	60944	24.7	19.1	270792	24.8	19.9	204819	24.8	20.7	459929	24.9	21.9	274531	24.9	20.2
166997	24.7	20.5	296540	24.7	20.6	280431	24.8	19.8	543746	24.8	22.0	49482	24.9	17.8	88188	24.9	20.5
179586	24.7	20.1	179952	24.7	20.2	404544	24.8	19.9	58163	24.8	19.1	123475	24.9	20.0	534174	24.9	20.9
541543	24.7	20.6	246676	24.7	20.3	146451	24.8	19.5	6817	24.8	16.9	247661	24.9	19.8	380930	24.9	20.0
62615	24.7	18.5	104878	24.7	18.8	482050	24.8	21.1	150217	24.8	20.5	276730	24.9	18.7	95921	24.9	18.2
112952	24.7	20.0	207082	24.7	19.8	333720	24.8	21.4	402339	24.8	21.1	27853	24.9	19.0	279916	24.9	21.4
486429	24.7	20.4	201309	24.7	19.7	305729	24.8	20.1	439612	24.8	20.2	298951	24.9	20.2	532410	24.9	20.4
347780	24.7	19.7	544136	24.7	21.3	382358	24.8	20.5	201485	24.8	19.1	83823	24.9	18.6	332761	24.9	20.9
51172	24.7	18.3	220554	24.7	20.6	124230	24.8	20.1	24335	24.8	16.5	450281	24.9	19.6	494216	24.9	21.1
284315	24.7	19.6	26062	24.7	18.3	318796	24.8	20.6	169140	24.8	20.0	503722	24.9	20.6	503040	24.9	21.2
399367	24.7	21.4	521607	24.7	20.5	276809	24.8	21.1	29414	24.8	19.2	323912	24.9	20.5	229413	24.9	20.1
50800	24.7	18.7	541983	24.7	21.1	406145	24.8	21.7	543464	24.8	21.2	61534	24.9	19.3	388462	24.9	18.8
241820	24.7	20.9	119639	24.7	19.2	513824	24.8	20.0	522183	24.8	21.2	379076	24.9	21.5	522124	24.9	21.1
364461	24.7	19.8	291283	24.7	20.0	233484	24.8	19.9	427055	24.8	20.9	429869	24.9	20.9	51176	24.9	18.7
174249	24.7	20.2	373783	24.7	20.7	150356	24.8	20.0	222255	24.8	21.4	71890	24.9	19.9	472266	24.9	20.4
447776	24.7	22.6	135310	24.7	19.5	102953	24.8	19.4	199522	24.8	20.5	467910	24.9	21.4	210438	24.9	20.2
397583	24.7	21.9	232247	24.7	20.4	149409	24.8	19.2	319866	24.8	20.7	132249	24.9	18.9	395458	24.9	20.8
82161	24.7	19.5	159731	24.7	19.1	103737	24.8	19.0	494105	24.8	21.2	217644	24.9	20.6	10019	24.9	17.7
334203	24.7	21.6	37563	24.7	18.2	234469	24.8										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
61049	25.0	18.9	339819	25.1	21.3	486774	25.1	21.0	381308	25.2	20.0	54421	25.3	17.9	320755	25.3	20.5
459025	25.0	21.4	105101	25.1	19.5	441574	25.1	21.6	115977	25.2	19.2	541783	25.3	21.5	170767	25.3	19.2
413489	25.0	21.1	99956	25.1	17.8	154665	25.1	20.3	538759	25.2	22.1	406840	25.3	20.2	293593	25.3	19.9
44228	25.0	19.1	491331	25.1	20.8	518230	25.1	20.4	1010	25.2	15.3	250159	25.3	20.6	397477	25.3	21.0
316561	25.0	19.5	165771	25.1	19.4	340062	25.1	20.4	174355	25.2	20.8	226264	25.3	20.3	292084	25.3	20.9
365818	25.0	20.5	445046	25.1	21.4	151908	25.1	19.1	346633	25.2	19.9	333723	25.3	21.2	279896	25.3	21.1
306902	25.0	19.9	273146	25.1	20.5	144773	25.1	19.2	260477	25.2	20.6	409934	25.3	22.0	339673	25.3	21.5
338189	25.0	21.8	424846	25.1	21.7	238022	25.1	20.0	404410	25.2	20.8	473324	25.3	21.6	80479	25.3	18.4
219356	25.0	20.6	339755	25.1	20.8	234909	25.1	21.4	468970	25.2	20.4	330714	25.3	20.6	495085	25.3	20.7
145677	25.0	20.2	77746	25.1	19.1	423567	25.1	21.9	541964	25.2	20.3	164572	25.3	20.5	377206	25.3	20.7
207479	25.0	19.7	463793	25.1	21.0	54536	25.1	18.3	465065	25.2	21.8	280254	25.3	20.3	347367	25.3	21.6
405599	25.0	21.4	489107	25.1	21.5	52214	25.2	19.0	371662	25.2	19.9	76132	25.3	19.9	236891	25.3	19.5
500657	25.0	22.1	506948	25.1	20.6	387670	25.2	20.5	224550	25.2	19.8	128316	25.3	18.7	401652	25.3	19.9
77612	25.0	18.2	122656	25.1	20.4	403716	25.2	20.4	153344	25.2	19.0	256240	25.3	21.4	283947	25.3	20.1
507312	25.0	21.6	68752	25.1	18.9	48516	25.2	17.6	451502	25.2	21.8	232981	25.3	18.5	258397	25.3	20.5
27860	25.0	17.1	339831	25.1	21.0	27432	25.2	19.3	241166	25.2	20.7	143094	25.3	20.3	230999	25.3	20.0
228716	25.0	20.9	268603	25.1	20.7	180928	25.2	20.3	41003	25.2	19.4	127652	25.3	19.2	429906	25.3	20.3
61870	25.0	19.8	298862	25.1	19.5	315520	25.2	20.9	216607	25.2	20.6	75736	25.3	18.0	411087	25.3	20.1
59244	25.0	19.0	62060	25.1	19.9	203091	25.2	20.2	109670	25.2	19.4	343466	25.3	19.5	232720	25.3	19.1
273002	25.0	20.0	402575	25.1	22.0	160267	25.2	20.4	139030	25.2	18.9	461113	25.3	20.2	104801	25.3	19.8
42238	25.0	17.9	23338	25.1	19.1	162918	25.2	19.5	110192	25.2	19.1	262963	25.3	21.0	421956	25.3	21.8
399518	25.0	21.4	340691	25.1	20.5	385178	25.2	21.5	313468	25.2	20.3	240378	25.3	20.7	311328	25.3	20.0
464529	25.0	21.2	449253	25.1	21.4	379947	25.2	20.0	495608	25.2	20.3	116919	25.3	20.1	327470	25.3	20.6
18464	25.0	18.4	290159	25.1	21.4	409612	25.2	21.3	491343	25.2	21.0	419196	25.3	20.7	243512	25.3	19.5
460579	25.0	21.3	244698	25.1	20.8	370498	25.2	20.3	130629	25.2	20.6	527451	25.3	22.2	459865	25.3	18.9
525926	25.0	22.2	280271	25.1	21.3	92841	25.2	19.2	301942	25.2	20.4	56552	25.3	18.8	258364	25.3	20.4
386913	25.0	20.0	400074	25.1	21.4	37817	25.2	18.0	12055	25.2	17.2	381321	25.3	20.3	133124	25.3	19.9
319807	25.0	21.9	402673	25.1	21.0	416682	25.2	19.7	46624	25.2	17.8	466708	25.3	20.1	495494	25.3	21.3
202060	25.0	20.6	484669	25.1	21.3	284389	25.2	20.3	267444	25.2	20.2	465521	25.3	21.2	47460	25.3	18.2
428949	25.0	21.8	435049	25.1	21.5	540006	25.2	21.7	120378	25.2	20.7	202076	25.3	19.4	433810	25.4	20.4
390614	25.0	21.5	38768	25.1	19.0	362720	25.2	20.6	193865	25.2	20.6	109305	25.3	19.5	226757	25.4	21.1
2699	25.0	16.2	460312	25.1	21.5	435435	25.2	21.2	491022	25.2	22.2	414844	25.3	21.4	367615	25.4	22.1
280423	25.0	19.9	57794	25.1	19.1	264269	25.2	20.4	526986	25.2	20.4	205493	25.3	19.9	71578	25.4	19.8
381208	25.0	21.4	466766	25.1	20.3	8672	25.2	17.7	76810	25.2	18.4	456367	25.3	22.0	94673	25.4	18.4
427805	25.0	20.7	133547	25.1	19.7	96940	25.2	19.5	336861	25.2	19.8	231152	25.3	20.0	149526	25.4	19.6
130437	25.0	20.6	282586	25.1	19.7	248231	25.2	20.0	126407	25.2	18.7	78006	25.3	19.0	467403	25.4	20.4
283933	25.0	20.9	166645	25.1	19.8	306816	25.2	20.3	87939	25.2	19.8	225469	25.3	18.6	38190	25.4	19.0
9853	25.0	17.0	447442	25.1	20.9	20860	25.2	21.0	466376	25.2	21.6	284924	25.3	20.2	479584	25.4	20.1
95110	25.0	19.1	139971	25.1	19.1	483803	25.2	21.6	410428	25.2	19.5	164278	25.3	19.7	307620	25.4	22.0
394933	25.0	21.4	14982	25.1	18.3	131575	25.2	18.7	209016	25.2	19.2	345843	25.3	19.8	36276	25.4	19.1
502418	25.0	21.0	535787	25.1	20.0	24617	25.2	19.0	23500	25.2	17.2	126067	25.3	18.8	27863	25.4	19.7
144689	25.0	19.5	289616	25.1	20.6	88554	25.2	18.4	31090	25.2	18.7	100366	25.3	20.4	287055	25.4	20.9
415734	25.0	20.9	103105	25.1	18.1	329627	25.2	20.1	204275	25.2	19.4	359227	25.3	20.0	331028	25.4	20.6
532536	25.0	20.6	188483	25.1	20.9	512308	25.2	20.6	252501	25.2	20.2	493520	25.3	20.3	271336	25.4	20.4
134437	25.0	21.0	532584	25.1	21.7	154321	25.2	19.5	336603	25.2	21.4	116477	25.3	19.3	47118	25.4	18.0
262434	25.0	21.3	148329	25.1	19.0	169310	25.2	20.6	321893	25.2	20.1	451757	25.3	20.5	307732	25.4	20.9
105086	25.0	20.5	27278	25.1	16.3	423284	25.2	20.3	34894	25.2	20.1	291907	25.3	21.7	1142	25.4	14.6
156894	25.0	19.5	108077	25.1	19.1	368591	25.2	20.0	438895	25.2	21.8	302499	25.3	19.5	421834	25.4	21.6
32121	25.0	18.0	335625	25.1	19.1	114637	25.2	17.5	429338	25.2	20.5	192381	25.3	20.0	414904	25.4	21.1
87600	25.0	18.9	141013	25.1	19.4	67256	25.2	17.8	413738	25.2	21.5	125618	25.3	19.0	543152	25.4	22.0
395367	25.1	21.7	120717	25.1	20.1	334981	25.2	19.5	501824	25.2	21.1	377198	25.3	20.5	25259	25.4	18.8
111165	25.1	18.9	506367	25.1	20.9	343542	25.2	19.9	188903	25.2	20.0	267768	25.3	19.7	15275	25.4	18.3
287339	25.1	19.7	453052	25.1	23.3	421361	25.2	20.1	448985	25.2	21.3	163761	25.3	20.3	519168	25.4	21.4
194285	25.1	20.7	531394	25.1	21.5	300240	25.2	19.6	314722	25.2	20.8	135169	25.3	19.6	215525	25.4	21.1
169297	25.1	20.3	13926	25.1	19.3	540059	25.2	21.0	37962	25.2	21.2	60520	25.3	18.9	271236	25.4	20.9
180562	25.1	20.1	185367	25.1	19.7	180662	25.2	19.6	148212	25.2	19.0	204942	25.3	20.6	252582	25.4	19.2
249850	25.1	21.5	140175	25.1	19.5	204779	25.2	19.3	448000	25.2	20.1	37156	25.3	19.1	443995	25.4	21.9
74404	25.1	18.5	198107	25.1	19.2	362783	25.2	19.5	31796	25.2	18.0	204891	25.3	20.2	175241	25.4	21.0
472426	25.1	20.9	421832	25.1	20.8	386817	25.2	20.5	273323	25.2	20.9	339757	25.3	20.6	182715	25.4	20.2
147160	25.1	19.1	503692	25.1	20.6	173922	25.2	20.9	458263	25.2	20.6	467887	25.3	20.4	294044	25.4	19.7
345170	25.1	19.8	472267	25.1	20.0	190772	25.2	20.2	334193	25.2	20.5	209525	25.3	21.2	312227	25.4	20.3
258045	25.1	20.9	433104	25.1	20.8	85546	25.2	20.4	4383	25.2	16.4	370669	25.3	20.1	2849	25.4	16.5
34912	25.1	20.2	100064	25.1	19.1	245142	25.2	20.3	110001	25.2	19.8	81639	25.3	18.6	458864	25.4	22.0
223691	25.1	20.5	144199	25.1	20.3	293230	25.2	20.3	544067	25.2	21.4	327935	25.3	19.8	64053	25.4	19.1
461417	25.1	22.0	420180	25.1	19.9	253312	25.2	19.7	32244	25.2	17.6	75615	25.3	19.0	134321	25.4	20.5
5967	25.1	16.1	432018	25.1	21.5	103881	25.2	19.7	168445	25.2	19.0	293872	25.3	21.1	53145	25.4	19.0
25563	25.1	18.6	64405	25.1	18.3	146646	25.2	20.1	197810	25.2	21.1	340726	25.3	21.3	237712	25.4	19.7
352813	25.1	21.8	526495	25.1	21.8	111372	25.2	19.3	343498	25.2	20.2	231803	25.3	19.1	272317	25.4	21.0
152592	25.1	19.8	463563	25.1	21.2	389844	25.2										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
284367	25.4	21.5	223124	25.4	19.8	472287	25.5	19.7	11623	25.6	16.7	175478	25.6	21.0	317060	25.7	20.5
124589	25.4	20.0	204281	25.4	18.9	8147	25.5	19.1	378924	25.6	22.0	448951	25.7	20.8	8941	25.7	17.1
302952	25.4	21.7	327035	25.5	20.5	230563	25.5	19.9	421498	25.6	21.0	47113	25.7	17.4	490387	25.7	21.7
424741	25.4	21.7	283999	25.5	20.6	273063	25.5	20.4	241945	25.6	19.9	433780	25.7	20.1	190935	25.7	20.5
160686	25.4	19.0	88029	25.5	19.9	263175	25.5	20.1	192582	25.6	20.3	454447	25.7	21.6	199189	25.7	20.8
498881	25.4	21.0	544332	25.5	20.5	138665	25.5	20.5	467896	25.6	20.0	393641	25.7	21.5	259875	25.7	18.9
484697	25.4	20.4	152190	25.5	20.7	289857	25.5	20.3	228793	25.6	19.7	444616	25.7	20.9	249434	25.7	19.9
179881	25.4	20.5	270020	25.5	18.9	1258	25.5	15.7	61917	25.6	19.7	186414	25.7	20.1	242630	25.7	20.8
469098	25.4	20.2	426865	25.5	21.1	187311	25.5	20.8	362209	25.6	19.9	538506	25.7	21.2	527500	25.7	21.2
28230	25.4	16.4	38234	25.5	19.1	240531	25.5	19.0	237442	25.6	19.2	383437	25.7	20.4	15686	25.7	19.2
45399	25.4	18.5	493348	25.5	21.3	366249	25.5	21.4	430923	25.6	21.1	79820	25.7	20.0	340734	25.7	20.0
262494	25.4	19.6	409937	25.5	21.0	319519	25.5	21.4	4803	25.6	16.3	278410	25.7	20.0	424940	25.7	20.9
295977	25.4	20.3	149886	25.5	19.5	115768	25.5	20.9	470864	25.6	20.1	55368	25.7	18.5	131452	25.7	19.7
146262	25.4	19.0	152315	25.5	19.7	543455	25.5	20.5	443990	25.6	20.8	433737	25.7	20.4	131654	25.7	19.8
313430	25.4	21.5	245141	25.5	21.0	205594	25.5	20.1	409309	25.6	20.3	253229	25.7	19.8	148020	25.7	19.2
534540	25.4	22.5	393952	25.5	20.7	314748	25.5	20.1	80289	25.6	18.8	1662	25.7	16.2	396555	25.7	20.7
332894	25.4	19.6	393432	25.5	21.0	243507	25.5	20.9	230793	25.6	19.5	416950	25.7	20.9	449209	25.7	20.4
460297	25.4	20.9	183037	25.5	21.8	283256	25.5	19.7	411435	25.6	20.2	309978	25.7	20.2	490783	25.7	20.7
411455	25.4	20.8	157265	25.5	19.6	279953	25.5	21.5	324031	25.6	20.8	158383	25.7	19.9	329836	25.7	20.8
522447	25.4	20.5	369678	25.5	21.2	538097	25.5	19.9	212294	25.6	20.4	312922	25.7	19.9	457785	25.7	21.7
469066	25.4	20.6	320861	25.5	20.7	30678	25.5	19.7	110358	25.6	19.3	143128	25.7	20.2	394431	25.7	20.8
319802	25.4	21.4	94465	25.5	17.7	221661	25.5	19.9	327930	25.6	20.8	452576	25.7	21.0	163737	25.7	20.0
469003	25.4	21.5	373717	25.5	20.2	158954	25.5	20.5	483029	25.6	20.9	57373	25.7	19.2	292647	25.7	20.7
54031	25.4	18.7	341878	25.5	20.7	370390	25.5	20.4	535161	25.6	20.4	309351	25.7	21.7	49663	25.7	17.2
181886	25.4	20.2	227781	25.5	20.6	254632	25.5	20.4	350224	25.6	21.4	436033	25.7	20.7	450221	25.7	20.9
375007	25.4	20.5	116281	25.5	19.5	221819	25.5	19.5	137164	25.6	18.5	237729	25.7	20.1	174859	25.7	19.4
486034	25.4	21.5	146662	25.5	20.4	343552	25.5	20.7	292198	25.6	18.8	538062	25.7	20.2	424061	25.7	20.4
125503	25.4	19.1	47723	25.5	19.6	523883	25.5	21.3	303939	25.6	21.3	339808	25.7	20.4	299276	25.7	20.8
64425	25.4	18.6	217456	25.5	20.8	450272	25.5	20.1	306019	25.6	21.3	526933	25.7	20.6	101134	25.7	19.9
80345	25.4	19.5	237789	25.5	19.7	52219	25.5	18.7	162988	25.6	19.5	497994	25.7	20.3	192273	25.7	20.7
204212	25.4	19.9	113802	25.5	19.4	464378	25.5	20.6	196178	25.6	19.6	129310	25.7	19.7	116177	25.7	19.8
105434	25.4	19.4	143285	25.5	20.5	27174	25.5	16.6	251181	25.6	21.2	197815	25.7	20.4	441384	25.7	20.6
145218	25.4	20.8	281852	25.5	19.6	460890	25.5	21.0	189062	25.6	21.5	197883	25.7	20.9	134431	25.7	20.6
542559	25.4	21.1	482814	25.5	20.9	70159	25.5	19.5	16459	25.6	18.7	266679	25.7	20.5	264436	25.7	21.2
194083	25.4	19.8	9304	25.5	18.3	244988	25.5	19.8	181895	25.6	20.2	448259	25.7	20.1	96323	25.7	18.3
90780	25.4	18.1	190874	25.5	20.1	18260	25.5	18.1	219149	25.6	19.5	52272	25.7	18.0	16315	25.7	17.8
715	25.4	14.4	410826	25.5	21.3	282835	25.5	21.2	299525	25.6	20.5	464231	25.7	20.4	36372	25.7	19.6
286630	25.4	19.9	130974	25.5	19.6	244527	25.5	20.0	110369	25.6	18.9	122042	25.7	19.7	231735	25.7	18.6
164819	25.4	20.5	222779	25.5	19.6	378410	25.5	20.5	228256	25.6	18.8	22648	25.7	18.4	458829	25.8	20.0
486407	25.4	18.3	35999	25.5	18.9	250259	25.5	20.3	56281	25.6	17.8	442836	25.7	21.3	237650	25.8	20.6
154766	25.4	20.4	448158	25.5	22.2	302897	25.5	21.5	309357	25.6	22.1	285656	25.7	21.4	340955	25.8	19.0
172616	25.4	20.1	215897	25.5	20.2	44357	25.5	17.9	187447	25.6	20.3	138233	25.7	18.6	84792	25.8	19.0
1155	25.4	14.5	128771	25.5	19.6	32882	25.5	18.5	395509	25.6	20.5	353539	25.7	20.8	298680	25.8	20.1
114293	25.4	19.5	114102	25.5	20.0	110081	25.5	19.7	495039	25.6	20.7	468567	25.7	21.1	369374	25.8	20.9
54756	25.4	19.2	85373	25.5	18.1	111887	25.5	19.5	496598	25.6	20.9	55058	25.7	17.8	144730	25.8	19.7
108560	25.4	19.4	320033	25.5	19.5	190144	25.5	19.5	23542	25.6	19.0	119276	25.7	18.7	421679	25.8	21.3
482825	25.4	20.2	248959	25.5	21.3	34142	25.5	19.6	447945	25.6	22.0	12197	25.7	17.9	201855	25.8	19.6
114033	25.4	19.4	155969	25.5	19.9	279875	25.5	20.6	541474	25.6	20.4	273242	25.7	19.6	279909	25.8	20.8
423023	25.4	21.4	352786	25.5	20.7	165711	25.5	20.6	82909	25.6	19.1	418390	25.7	20.8	347184	25.8	19.7
430290	25.4	21.5	13429	25.5	18.4	434409	25.5	20.9	379110	25.6	20.9	543792	25.7	21.4	195963	25.8	20.1
137825	25.4	19.7	71504	25.5	18.9	88526	25.5	20.2	116196	25.6	20.5	415884	25.7	22.2	78575	25.8	19.1
404445	25.4	20.6	463901	25.5	20.6	413683	25.5	21.7	193127	25.6	19.8	205283	25.7	21.4	239366	25.8	21.0
24645	25.4	18.7	263627	25.5	20.4	98337	25.5	19.3	407383	25.6	20.7	29306	25.7	17.3	383716	25.8	20.7
98726	25.4	19.8	264458	25.5	19.5	113055	25.6	18.8	282625	25.6	20.7	52851	25.7	19.0	439363	25.8	20.6
183975	25.4	19.9	54947	25.5	18.3	76165	25.6	18.9	233824	25.6	20.3	135407	25.7	20.1	61479	25.8	18.9
145711	25.4	20.2	345271	25.5	21.0	40289	25.6	18.8	197079	25.6	19.1	61372	25.7	19.4	83675	25.8	19.8
436035	25.4	22.2	372695	25.5	21.4	202634	25.6	20.3	109949	25.6	19.0	222380	25.7	18.4	414206	25.8	21.1
409597	25.4	19.9	508852	25.5	19.9	93893	25.6	18.4	355410	25.6	21.2	192987	25.7	20.2	62713	25.8	19.5
153154	25.4	20.3	471353	25.5	20.6	29744	25.6	18.3	161149	25.6	19.7	281405	25.7	20.5	223783	25.8	20.5
500131	25.4	20.0	510644	25.5	21.1	284092	25.6	20.8	488693	25.6	21.3	185131	25.7	20.9	493385	25.8	21.4
264058	25.4	20.9	238404	25.5	20.6	279842	25.6	21.0	496106	25.6	22.2	374594	25.7	20.8	485016	25.8	22.2
140500	25.4	20.1	260797	25.5	21.6	286496	25.6	20.3	2392	25.6	16.6	194053	25.7	20.5	285914	25.8	20.8
24517	25.4	19.4	251054	25.5	20.0	537767	25.6	22.3	256142	25.6	19.6	368749	25.7	19.9	441467	25.8	21.7
350022	25.4	20.5	364881	25.5	20.6	197721	25.6	21.0	80536	25.6	20.1	198817	25.7	19.7	203847	25.8	20.1
166007	25.4	18.6	226932	25.5	20.0	22528	25.6	18.4	535765	25.6	21.4	464250	25.7	20.8	536046	25.8	21.1
17718	25.4	17.4	392544	25.5	21.9	541060	25.6	19.7	163791	25.6	20.4	30747	25.7	18.3	344077	25.8	20.8
208229	25.4	20.0	464532	25.5	20.7	398485	25.6	21.0	77787	25.6	19.1	245012	25.7	20.1	167116	25.8	20.9
449484	25.4	20.2	221659	25.5	19.8	125213	25.6	19.6	456444	25.6	22.3	77719	25.7	19.4	167129	25.8	20.7
13567	25.4	16.8	200700	25.5	20.1	341621	25.6										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
54932	25.8	20.0	486109	25.9	21.9	139759	25.9	19.4	491062	25.9	21.7	38131	26.1	19.4	139763	26.1	19.9
339579	25.8	20.8	406461	25.9	19.4	439958	25.9	22.6	260933	25.9	20.4	519850	26.1	21.8	110294	26.1	19.5
337225	25.8	19.4	544662	25.9	21.9	479505	25.9	20.8	463478	25.9	21.6	171499	26.1	18.6	25237	26.1	18.3
375361	25.8	20.5	494596	25.9	19.4	495546	25.9	21.5	362138	25.9	20.6	57148	26.1	18.2	373469	26.1	19.7
402652	25.8	21.6	43751	25.9	19.3	491911	25.9	21.0	468294	25.9	20.5	299030	26.1	19.2	134452	26.1	20.0
421643	25.8	21.0	80760	25.9	19.2	290978	25.9	19.5	261919	25.9	19.8	184251	26.1	20.0	77111	26.1	18.5
191948	25.8	20.5	502126	25.9	20.3	243189	25.9	20.1	211253	25.9	20.0	230569	26.1	19.0	389369	26.1	20.1
352769	25.8	21.2	301226	25.9	19.8	543550	25.9	21.8	136751	25.9	21.0	205483	26.1	21.3	322838	26.1	21.5
259004	25.8	21.5	293908	25.9	20.6	230712	25.9	20.0	283382	25.9	21.4	236025	26.1	20.2	388050	26.1	20.0
461741	25.8	21.2	512203	25.9	22.0	336023	25.9	21.6	282540	25.9	21.4	468603	26.1	21.6	83633	26.1	19.1
52680	25.8	18.5	446453	25.9	19.9	382089	25.9	20.5	231143	25.9	19.0	258412	26.1	19.8	205466	26.1	20.8
53893	25.8	18.5	462771	25.9	20.2	83488	25.9	18.7	78717	25.9	19.2	138653	26.1	19.3	81150	26.1	18.7
483016	25.8	20.6	273321	25.9	21.6	42805	25.9	18.6	345099	26.0	21.2	49459	26.1	18.2	339871	26.1	20.8
119596	25.8	19.3	235084	25.9	19.6	233894	25.9	20.3	259624	26.0	19.9	13432	26.1	18.2	410788	26.1	19.2
449511	25.8	19.9	58200	25.9	18.5	89708	25.9	19.6	362184	26.0	21.0	139891	26.1	19.8	289845	26.1	19.2
303060	25.8	20.5	532121	25.9	21.3	394438	25.9	21.5	382229	26.0	20.6	408913	26.1	21.5	163772	26.1	19.9
166511	25.8	21.0	193219	25.9	19.6	398220	25.9	21.4	188665	26.0	19.8	14022	26.1	17.7	448452	26.1	19.4
105868	25.8	18.4	541725	25.9	21.3	485678	25.9	20.6	169351	26.0	20.2	512223	26.1	21.8	152893	26.1	20.2
235081	25.8	20.3	181175	25.9	20.4	104963	25.9	19.6	318842	26.0	20.2	50200	26.1	17.3	167786	26.1	20.1
310823	25.8	19.8	202127	25.9	20.1	61196	25.9	19.3	433510	26.0	20.8	280672	26.1	20.0	526156	26.1	22.4
529219	25.8	21.6	83399	25.9	19.8	276345	25.9	20.3	189655	26.0	20.5	438168	26.1	22.4	366087	26.1	20.8
247605	25.8	20.6	417110	25.9	20.9	109049	25.9	17.9	535936	26.0	20.8	15144	26.1	17.0	122063	26.1	19.4
98408	25.8	19.7	451073	25.9	21.8	251082	25.9	21.6	409518	26.0	21.2	36835	26.1	19.2	171878	26.1	20.9
172700	25.8	20.3	500037	25.9	21.6	207818	25.9	20.6	170754	26.0	19.5	167544	26.1	19.7	326468	26.1	20.6
33616	25.8	17.3	540007	25.9	20.0	184643	25.9	20.2	541519	26.0	22.2	345230	26.1	21.2	321370	26.1	20.0
230634	25.8	20.5	214569	25.9	20.1	60453	25.9	19.3	75933	26.0	19.8	544793	26.1	21.6	54835	26.1	18.8
80458	25.8	18.3	458005	25.9	21.3	245575	25.9	21.0	494706	26.0	20.6	279874	26.1	20.1	431623	26.1	20.9
540022	25.8	20.7	135464	25.9	21.2	304791	25.9	20.7	12207	26.0	17.6	65719	26.1	18.8	538606	26.1	21.1
176850	25.8	20.2	46317	25.9	18.6	347720	25.9	20.9	473846	26.0	21.4	405632	26.1	21.5	248796	26.1	20.5
86810	25.8	18.8	164612	25.9	20.3	196094	25.9	19.1	44723	26.0	19.6	220448	26.1	19.3	517612	26.1	21.0
106650	25.8	19.1	382351	25.9	20.9	21303	25.9	18.4	214797	26.0	19.7	185958	26.1	19.5	334592	26.1	21.5
312969	25.8	20.7	448122	25.9	21.0	413610	25.9	21.0	108276	26.0	18.2	51044	26.1	19.0	135253	26.1	20.1
16865	25.8	17.6	494970	25.9	21.9	541767	25.9	21.5	165881	26.0	19.0	149970	26.1	20.6	116461	26.1	19.5
441443	25.8	21.0	235078	25.9	19.4	179938	25.9	19.9	178958	26.0	19.6	37140	26.1	19.4	525977	26.1	21.3
498279	25.8	22.0	462779	25.9	21.1	78234	25.9	19.1	191598	26.0	19.3	384616	26.1	20.2	363791	26.1	20.8
119662	25.8	19.0	541772	25.9	21.5	510962	25.9	20.2	253183	26.0	20.4	270627	26.1	19.7	57617	26.1	18.8
229085	25.8	18.4	409642	25.9	21.4	376739	25.9	21.5	461655	26.0	20.0	15580	26.1	16.6	272107	26.1	19.6
525133	25.8	22.2	243372	25.9	19.7	245970	25.9	20.7	3020	26.0	16.4	30252	26.1	18.7	392891	26.1	21.0
182366	25.8	20.2	8270	25.9	16.7	11438	25.9	16.6	450829	26.0	20.7	304920	26.1	21.2	230544	26.1	19.1
410083	25.8	20.8	468093	25.9	21.1	527101	25.9	21.6	428087	26.0	21.5	21635	26.1	19.0	491380	26.1	20.8
424854	25.8	22.2	368074	25.9	20.5	37456	25.9	19.8	454770	26.0	20.6	59411	26.1	17.3	133770	26.1	19.9
481152	25.8	21.5	137835	25.9	20.1	75845	25.9	20.2	386264	26.0	21.2	137862	26.1	18.4	521038	26.1	20.9
224420	25.8	20.2	190882	25.9	19.1	68447	25.9	19.7	502751	26.0	21.1	290726	26.1	19.3	223692	26.1	20.1
156046	25.8	19.7	226221	25.9	19.3	110180	25.9	20.4	365580	26.0	20.3	84126	26.1	18.5	375590	26.1	20.9
199047	25.8	20.9	95040	25.9	18.6	76105	25.9	18.2	159141	26.0	19.6	276747	26.1	20.3	355964	26.1	20.5
205111	25.8	19.0	531832	25.9	21.1	60775	25.9	18.6	8909	26.0	17.6	34926	26.1	19.7	240087	26.1	19.6
239675	25.8	19.6	323495	25.9	20.6	201873	25.9	20.7	8913	26.0	17.7	173045	26.1	20.0	525639	26.1	20.9
387858	25.8	20.4	65357	25.9	18.3	182608	25.9	19.8	280948	26.0	20.7	1835	26.1	16.1	58074	26.2	20.3
132352	25.8	19.5	311042	25.9	20.2	275277	25.9	20.1	79023	26.0	20.1	365541	26.1	22.0	151868	26.2	19.4
1683	25.8	16.0	373896	25.9	21.2	427092	25.9	20.2	445556	26.0	20.6	411330	26.1	22.2	185308	26.2	20.8
365233	25.8	19.6	465483	25.9	21.3	234950	25.9	20.6	159742	26.0	19.3	76587	26.1	18.1	360843	26.2	21.4
81643	25.8	19.6	24844	25.9	17.8	159199	25.9	19.4	327278	26.0	21.1	493249	26.1	20.5	483415	26.2	21.9
254878	25.8	20.0	372433	25.9	21.8	19872	25.9	19.0	27227	26.0	18.0	446988	26.1	19.9	429009	26.2	21.0
405025	25.8	20.4	246237	25.9	20.1	453807	25.9	21.9	517578	26.0	21.9	496355	26.1	22.6	14521	26.2	18.4
278015	25.8	21.1	214311	25.9	18.8	119376	25.9	19.6	216300	26.0	20.8	381222	26.1	20.4	197637	26.2	20.4
306107	25.8	20.5	258083	25.9	20.2	425444	25.9	20.3	164607	26.0	20.9	95977	26.1	19.4	103406	26.2	18.3
502145	25.8	20.9	199110	25.9	20.3	41358	25.9	17.5	54620	26.0	17.6	239222	26.1	20.4	142423	26.2	20.6
8565	25.8	17.5	400791	25.9	20.4	321002	25.9	20.2	229325	26.0	20.3	400583	26.1	21.6	496643	26.2	19.9
340607	25.8	21.5	373868	25.9	21.4	198850	25.9	19.4	164827	26.0	20.4	244325	26.1	19.5	183294	26.2	19.9
463000	25.8	20.6	165743	25.9	20.7	543959	25.9	21.7	327428	26.0	20.1	309410	26.1	19.4	162950	26.2	20.0
27608	25.8	19.3	499974	25.9	21.0	458357	25.9	21.9	68981	26.0	19.5	173304	26.1	20.3	468349	26.2	20.5
499920	25.8	21.1	47847	25.9	18.6	306572	25.9	18.6	36017	26.0	21.1	95968	26.1	19.4	83169	26.2	18.8
268179	25.8	20.5	422938	25.9	20.0	221156	25.9	19.7	459345	26.0	21.1	410830	26.1	21.4	417192	26.2	19.9
151173	25.8	19.8	518152	25.9	20.6	88950	25.9	18.9	525602	26.0	21.3	483938	26.1	20.9	160674	26.2	19.4
453097	25.9	21.7	415579	25.9	20.8	323164	25.9	19.6	534890	26.0	21.3	188475	26.1	19.1	86917	26.2	19.0
403005	25.9	20.9	468381	25.9	20.2	88306	25.9	19.1	323911	26.0	19.7	224975	26.1	20.2	18760	26.2	18.4
280862	25.9	20.3	276317	25.9	20.2	536063	25.9	21.4	340134	26.0	20.6	43796	26.1	18.4	29222	26.2	20.1
392260	25.9	20.9	452874	25.9	21.4	216708	25.9	20.6	45158	26.0	19.8	237672	26.1	20.4	194888	26.2	19.9
30594	25.9	18.0	180983	25.9	20.2	401609	25.9	20.8									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
68778	26.2	18.8	445285	26.2	20.4	101840	26.3	18.7	181870	26.4	19.8	538620	26.4	21.4	51839	26.5	18.8
522185	26.2	21.4	64347	26.3	18.9	109824	26.3	20.1	360308	26.4	20.0	197011	26.4	20.2	406594	26.5	20.3
185989	26.2	20.6	241935	26.3	19.7	319901	26.3	20.3	319605	26.4	21.8	201975	26.4	20.6	235449	26.5	20.1
268154	26.2	21.1	235989	26.3	19.5	367579	26.3	21.2	33111	26.4	17.7	14027	26.4	19.2	514320	26.5	20.1
239052	26.2	20.5	71764	26.3	18.0	279036	26.3	19.1	504020	26.4	21.4	190760	26.4	20.2	411835	26.5	20.8
467009	26.2	20.6	3062	26.3	15.7	226737	26.3	20.9	151643	26.4	19.4	119532	26.4	19.7	229715	26.5	19.9
493351	26.2	21.2	203105	26.3	20.8	346272	26.3	21.5	166811	26.4	19.6	8286	26.4	16.4	37325	26.5	18.1
176875	26.2	20.3	147548	26.3	18.6	431000	26.3	21.1	237725	26.4	20.6	303070	26.5	18.6	89391	26.5	18.6
31707	26.2	18.8	191569	26.3	18.5	529456	26.3	22.1	280739	26.4	19.8	190782	26.5	20.4	531576	26.5	22.1
95973	26.2	19.7	193277	26.3	19.2	116897	26.3	18.7	343058	26.4	20.4	489933	26.5	21.9	461188	26.5	22.0
319756	26.2	21.3	19358	26.3	18.1	261035	26.3	21.1	197120	26.4	19.2	36249	26.5	18.3	314229	26.5	20.1
423193	26.2	21.6	327058	26.3	20.7	89849	26.3	19.4	73927	26.4	18.7	76308	26.5	18.0	45989	26.5	17.6
129712	26.2	20.7	26904	26.3	18.6	351301	26.3	20.0	525497	26.4	20.7	120233	26.5	18.5	323746	26.5	21.0
256558	26.2	19.9	245263	26.3	19.7	67328	26.3	18.2	345262	26.4	20.1	415716	26.5	20.4	467367	26.5	20.6
430403	26.2	19.7	286352	26.3	20.9	196783	26.3	19.8	138756	26.4	19.8	317546	26.5	21.9	347137	26.5	20.8
374007	26.2	20.0	49616	26.3	18.6	532456	26.3	22.4	466472	26.4	21.2	374243	26.5	21.3	388136	26.5	20.9
494646	26.2	19.6	98117	26.3	19.0	369603	26.3	20.4	459476	26.4	20.1	158215	26.5	19.6	122744	26.5	20.7
136381	26.2	18.7	64648	26.3	18.2	11035	26.3	16.8	160181	26.4	20.4	456412	26.5	22.6	46881	26.5	18.5
393556	26.2	20.2	408844	26.3	21.6	483205	26.3	21.0	2789	26.4	17.1	518642	26.5	21.7	543794	26.5	22.4
483464	26.2	21.0	500178	26.3	21.2	195647	26.3	19.9	320069	26.4	20.2	433848	26.5	20.7	316462	26.5	20.2
8496	26.2	17.3	135931	26.3	19.9	166721	26.3	20.0	115946	26.4	18.7	112603	26.5	19.7	86479	26.5	19.5
403110	26.2	19.9	161530	26.3	19.3	483874	26.3	21.6	104308	26.4	19.9	67286	26.5	18.3	75962	26.5	18.4
266153	26.2	19.2	77666	26.3	19.2	399192	26.3	20.0	290261	26.4	21.5	526555	26.5	21.8	517608	26.5	20.7
444303	26.2	20.3	483719	26.3	22.1	64420	26.3	19.5	495141	26.4	19.8	77748	26.5	18.4	465594	26.5	21.0
113631	26.2	19.5	59402	26.3	17.8	162949	26.3	19.3	433039	26.4	20.3	543716	26.5	21.6	105851	26.5	19.7
430468	26.2	21.7	299545	26.3	20.1	542745	26.3	20.4	506323	26.4	20.9	448736	26.5	20.6	24922	26.5	17.6
254622	26.2	20.5	211397	26.3	21.2	165462	26.3	20.5	203721	26.4	19.8	79937	26.5	18.7	405050	26.5	21.9
257317	26.2	20.0	455252	26.3	22.4	52458	26.3	19.0	15445	26.4	17.6	287699	26.5	20.7	419135	26.5	21.4
335927	26.2	20.6	379879	26.3	20.2	252080	26.3	20.7	234254	26.4	20.4	395331	26.5	20.9	406222	26.5	21.4
529527	26.2	21.2	194779	26.3	18.8	113223	26.3	19.4	522238	26.4	21.1	395432	26.5	21.0	525434	26.5	20.0
124877	26.2	19.3	290120	26.3	20.9	403962	26.3	21.5	221969	26.4	20.6	524690	26.5	22.5	424308	26.5	20.9
335960	26.2	20.7	505011	26.3	22.0	60628	26.3	17.6	162717	26.4	20.3	43781	26.5	20.6	111957	26.5	19.5
118611	26.2	18.4	136448	26.3	17.9	349513	26.3	20.7	341727	26.4	20.9	63809	26.5	17.9	544263	26.5	21.7
83136	26.2	19.1	243763	26.3	20.9	461753	26.3	20.7	410522	26.4	20.7	496014	26.5	19.8	499966	26.5	20.7
275923	26.2	21.8	306553	26.3	20.1	480365	26.3	21.2	314867	26.4	20.7	178899	26.5	19.8	531275	26.5	22.2
382209	26.2	21.2	87652	26.3	18.6	492123	26.3	20.8	464557	26.4	20.8	95897	26.5	19.4	46264	26.5	18.6
347123	26.2	20.4	205474	26.3	21.0	316179	26.3	21.5	287142	26.4	21.3	531333	26.5	21.5	171976	26.5	20.7
31589	26.2	18.6	177538	26.3	19.0	76327	26.3	17.3	89079	26.4	19.0	124207	26.5	20.0	258093	26.5	21.4
541259	26.2	21.5	413376	26.3	19.8	83302	26.3	19.3	54025	26.4	18.0	50367	26.5	19.0	500312	26.5	21.3
124358	26.2	19.2	345515	26.3	20.3	427026	26.3	21.9	322763	26.4	20.0	135358	26.5	20.9	279412	26.5	20.2
160275	26.2	19.8	227579	26.3	19.9	543639	26.3	20.9	313770	26.4	20.6	152385	26.5	19.3	468717	26.5	20.8
54791	26.2	19.4	30493	26.3	17.8	453112	26.3	21.0	139679	26.4	19.8	443656	26.5	20.1	66467	26.5	19.4
110502	26.2	19.5	381331	26.3	20.2	279733	26.3	20.0	325921	26.4	20.6	177749	26.5	21.0	495266	26.5	21.9
189163	26.2	19.7	475594	26.3	20.4	404389	26.3	19.4	232845	26.4	21.2	179156	26.5	19.9	85145	26.5	19.2
443855	26.2	21.1	240351	26.3	21.2	522555	26.3	21.4	461139	26.4	21.1	429229	26.5	19.7	336547	26.5	20.5
80639	26.2	19.3	440486	26.3	21.7	260128	26.3	19.9	58741	26.4	17.6	211670	26.5	19.6	505276	26.5	21.2
445169	26.2	21.2	312200	26.3	20.0	88736	26.3	18.6	26111	26.4	18.3	135117	26.5	19.3	92676	26.5	18.8
450315	26.2	21.1	375650	26.3	20.8	541944	26.3	20.1	8517	26.4	17.8	27531	26.5	17.8	230737	26.5	19.8
418283	26.2	20.3	150568	26.3	20.0	117007	26.4	19.6	399502	26.4	22.5	320852	26.5	19.9	502423	26.5	20.1
81310	26.2	18.9	338045	26.3	21.0	492973	26.4	20.8	43092	26.4	19.6	117912	26.5	20.2	285767	26.5	21.4
377020	26.2	21.7	473537	26.3	20.8	27219	26.4	16.0	384773	26.4	21.0	410501	26.5	20.6	239080	26.5	20.6
227263	26.2	19.9	439227	26.3	21.4	321348	26.4	19.8	105003	26.4	20.0	420730	26.5	20.7	238361	26.5	19.0
108770	26.2	19.4	19014	26.3	18.5	67041	26.4	19.5	246205	26.4	20.4	322863	26.5	20.9	160799	26.5	20.7
75299	26.2	18.8	379798	26.3	21.2	248938	26.4	20.0	244293	26.4	20.0	193419	26.5	19.1	114320	26.5	20.0
317079	26.2	20.2	35373	26.3	19.8	197740	26.4	21.0	199790	26.4	20.5	49381	26.5	18.3	410516	26.5	21.2
77878	26.2	17.3	138657	26.3	19.6	486974	26.4	20.0	78663	26.4	19.9	411305	26.5	21.1	441410	26.5	19.4
395111	26.2	19.7	465501	26.3	21.8	493484	26.4	21.5	354058	26.4	19.4	381277	26.5	21.0	35475	26.5	17.3
118752	26.2	19.6	5533	26.3	17.7	217781	26.4	19.9	275182	26.4	19.9	96398	26.5	18.7	83856	26.5	19.0
190744	26.2	20.0	469142	26.3	20.3	381322	26.4	20.5	521984	26.4	19.8	340789	26.5	19.9	493664	26.5	20.4
379721	26.2	20.9	1259	26.3	14.5	291628	26.4	20.3	76287	26.4	18.6	495638	26.5	20.7	118531	26.5	19.3
323847	26.2	20.9	486253	26.3	20.1	139576	26.4	19.7	393005	26.4	20.9	318775	26.5	20.8	98796	26.5	19.1
286070	26.2	19.6	61570	26.3	18.6	370658	26.4	20.9	120742	26.4	21.3	251109	26.5	20.8	302953	26.5	20.7
40263	26.2	18.8	473475	26.3	20.8	522074	26.4	19.9	24480	26.4	18.5	6527	26.5	17.1	11230	26.5	16.7
245076	26.2	19.5	204295	26.3	21.5	362237	26.4	20.9	178104	26.4	21.8	430191	26.5	20.6	384794	26.6	20.9
522265	26.2	21.3	209416	26.3	20.2	439964	26.4	22.8	422743	26.4	22.8	388054	26.5	19.6	269782	26.6	21.1
325473	26.2	20.4	313455	26.3	21.6	350956	26.4	19.8	418924	26.4	20.8	372434	26.5	20.4	104588	26.6	18.7
59770	26.2	19.6	543182	26.3	21.1	522535	26.4	21.2	51232	26.4	18.7	462974	26.5	21.1	204558	26.6	20.3
20847	26.2	17.0	154011	26.3	20.0	252585	26.4	20.3	155220	26.4	19.8	352698	26.5	20.9	337051	26.6	21.3
536110	26.2	21.1	85168	26.3	21.1	262579	26.4	20.0									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
109752	26.6	19.7	174235	26.6	20.5	452218	26.7	21.7	201122	26.8	18.9	194731	26.8	21.0	372120	26.9	21.1
309740	26.6	19.8	333753	26.6	20.3	440246	26.7	21.9	541219	26.8	21.4	528899	26.8	20.9	46356	26.9	18.2
386631	26.6	20.6	203486	26.6	20.1	438757	26.7	20.7	502604	26.8	21.0	466790	26.8	20.9	263499	26.9	20.1
252713	26.6	20.0	541787	26.6	21.6	231601	26.7	21.2	399152	26.8	19.0	238883	26.8	20.4	528277	26.9	20.7
301325	26.6	20.9	63717	26.6	19.2	391048	26.7	20.0	462376	26.8	20.3	325629	26.8	20.2	463771	26.9	20.5
354988	26.6	20.3	166896	26.6	19.9	268522	26.7	19.8	197667	26.8	20.3	363044	26.9	21.8	456502	26.9	20.4
418432	26.6	20.9	535234	26.6	20.3	279827	26.7	20.5	345190	26.8	21.5	49035	26.9	19.0	284899	26.9	20.3
399081	26.6	19.4	110281	26.6	19.9	10280	26.7	18.9	77440	26.8	18.4	496739	26.9	20.5	35944	26.9	19.4
456248	26.6	22.0	58282	26.6	18.6	334244	26.7	21.2	10701	26.8	18.7	144596	26.9	19.3	187216	26.9	19.8
27675	26.6	16.6	135403	26.6	20.4	240230	26.7	20.5	399417	26.8	21.3	358154	26.9	19.8	153959	26.9	21.5
4250	26.6	17.0	310197	26.6	21.4	322170	26.7	20.5	110460	26.8	20.9	399222	26.9	19.9	281848	26.9	20.6
49552	26.6	18.6	468211	26.6	20.7	303075	26.7	19.8	86756	26.8	18.6	146380	26.9	19.6	142378	26.9	20.9
17220	26.6	18.4	155423	26.6	20.5	70206	26.7	19.2	222632	26.8	20.7	242893	26.9	20.2	82693	26.9	18.9
25175	26.6	18.1	26046	26.6	19.2	136010	26.7	19.6	275762	26.8	21.3	492934	26.9	21.1	441528	26.9	21.8
542711	26.6	20.9	291937	26.6	20.7	370401	26.7	21.6	226006	26.8	20.9	518902	26.9	21.0	308226	26.9	18.8
98430	26.6	18.4	431503	26.6	21.2	454410	26.7	20.2	71103	26.8	16.8	295922	26.9	20.1	259760	26.9	20.5
412883	26.6	21.4	119636	26.6	21.0	93606	26.7	18.6	43311	26.8	18.7	428867	26.9	21.5	365463	26.9	22.3
75408	26.6	18.1	381316	26.6	22.2	94951	26.7	18.5	254799	26.8	20.1	16597	26.9	17.9	229073	26.9	19.8
157260	26.6	19.7	323095	26.6	21.6	244724	26.7	20.1	541908	26.8	20.9	362238	26.9	19.7	493205	26.9	21.8
302935	26.6	20.8	241790	26.6	20.8	176202	26.7	19.5	526056	26.8	22.1	115536	26.9	19.2	345292	26.9	21.4
406055	26.6	22.2	349031	26.6	20.9	17837	26.7	18.0	129553	26.8	19.8	124900	26.9	19.1	430325	26.9	20.8
232571	26.6	19.6	115910	26.6	19.6	502907	26.7	19.7	412513	26.8	20.6	497674	26.9	21.3	301946	26.9	20.2
141979	26.6	20.6	132726	26.6	19.5	29987	26.7	18.0	4886	26.8	18.8	369836	26.9	20.6	105113	26.9	19.8
536830	26.6	20.9	144104	26.6	19.4	396267	26.7	19.8	152423	26.8	20.5	456269	26.9	22.1	66421	26.9	19.0
502594	26.6	20.4	156493	26.6	19.5	411697	26.7	20.6	221920	26.8	20.1	187243	26.9	19.7	61538	26.9	19.3
58704	26.6	18.7	201891	26.7	18.9	170777	26.7	19.3	294999	26.8	20.0	423159	26.9	21.0	416510	26.9	20.7
375326	26.6	20.9	213642	26.7	21.1	495723	26.7	21.3	456241	26.8	21.7	264659	26.9	20.5	273760	26.9	20.4
85687	26.6	19.0	521904	26.7	20.6	321833	26.7	21.1	492466	26.8	20.6	327032	26.9	20.3	544278	26.9	20.3
348485	26.6	21.4	26469	26.7	17.1	341309	26.7	21.6	162451	26.8	19.5	354589	26.9	20.5	158673	26.9	19.3
296575	26.6	21.6	58517	26.7	19.6	413695	26.7	21.6	126091	26.8	19.2	93214	26.9	18.6	313489	26.9	21.4
304033	26.6	21.2	137202	26.7	20.3	215934	26.7	20.3	543418	26.8	21.3	412018	26.9	20.0	527010	26.9	21.9
409303	26.6	21.4	105292	26.7	20.2	288136	26.7	21.5	393694	26.8	21.3	381349	26.9	20.9	45714	26.9	18.8
255801	26.6	20.5	247918	26.7	19.4	84477	26.7	19.3	341454	26.8	20.2	536487	26.9	20.6	53023	26.9	18.8
361680	26.6	21.0	439993	26.7	21.1	348400	26.7	21.8	368832	26.8	20.8	321547	26.9	20.7	282590	26.9	20.6
344414	26.6	19.6	449391	26.7	19.9	310933	26.7	21.3	249374	26.8	19.8	429257	26.9	20.7	343184	26.9	19.9
151840	26.6	18.5	512188	26.7	21.0	353584	26.7	20.3	368494	26.8	20.2	519143	26.9	21.4	520864	26.9	20.7
142900	26.6	20.6	443148	26.7	20.1	94913	26.7	20.4	230600	26.8	19.1	345522	26.9	20.8	519187	26.9	21.1
399291	26.6	20.0	61851	26.7	19.4	318837	26.7	20.5	197065	26.8	20.6	135280	26.9	19.4	490248	26.9	21.9
410794	26.6	20.9	96182	26.7	19.9	59042	26.7	20.2	403351	26.8	20.0	203700	26.9	21.5	258366	26.9	20.3
42253	26.6	18.3	135502	26.7	20.2	420756	26.7	20.5	226909	26.8	21.0	248086	26.9	22.2	314767	26.9	20.8
384151	26.6	20.4	337488	26.7	20.5	393976	26.7	20.8	131884	26.8	18.2	53707	26.9	18.2	303114	26.9	19.1
109047	26.6	19.2	465005	26.7	21.0	451498	26.7	22.4	190946	26.8	19.9	294275	26.9	20.8	194361	26.9	21.4
12999	26.6	17.6	103958	26.7	18.9	126238	26.7	20.6	173396	26.8	20.1	339928	26.9	20.5	282991	26.9	20.9
171238	26.6	19.1	306340	26.7	21.4	184159	26.7	20.8	270824	26.8	20.7	459772	26.9	20.5	319957	26.9	20.5
253104	26.6	22.0	87562	26.7	20.1	269411	26.7	20.7	263973	26.8	20.6	446312	26.9	21.0	48292	26.9	18.5
204438	26.6	20.8	349600	26.7	20.4	426288	26.7	21.1	93573	26.8	20.2	280679	26.9	19.0	172122	26.9	19.3
185422	26.6	20.0	415670	26.7	21.1	98291	26.7	19.1	47845	26.8	18.9	235589	26.9	20.6	211690	26.9	19.9
14583	26.6	19.1	484324	26.7	20.8	140130	26.7	19.5	65139	26.8	18.7	390843	26.9	21.5	110906	26.9	19.3
143406	26.6	19.1	414236	26.7	21.1	9389	26.7	17.6	195828	26.8	20.0	144945	26.9	18.5	42326	26.9	18.2
126310	26.6	19.4	527709	26.7	22.0	326148	26.7	19.9	251415	26.8	20.2	263437	26.9	20.6	535471	26.9	21.3
40516	26.6	18.4	456309	26.7	21.9	92650	26.7	20.4	166081	26.8	19.2	11347	26.9	17.2	112495	26.9	20.4
406719	26.6	21.0	459273	26.7	19.2	13779	26.7	17.6	4184	26.8	16.5	339711	26.9	21.4	545032	26.9	20.0
232051	26.6	19.4	484676	26.7	21.5	296462	26.7	19.7	129556	26.8	20.4	117119	26.9	20.1	204316	26.9	21.4
278460	26.6	19.1	310747	26.7	19.9	538492	26.7	20.3	480838	26.8	21.5	201878	26.9	18.8	502461	26.9	20.4
373077	26.6	20.7	285668	26.7	21.4	28650	26.7	17.8	64970	26.8	19.2	448939	26.9	19.4	81473	26.9	18.9
493793	26.6	21.4	58648	26.7	19.7	458167	26.7	21.2	151217	26.8	19.5	72728	26.9	18.7	34337	26.9	17.8
10719	26.6	18.3	292334	26.7	20.9	122514	26.7	20.5	334597	26.8	21.6	138471	26.9	18.7	193904	26.9	19.5
436681	26.6	20.7	135357	26.7	20.1	258066	26.7	20.9	49260	26.8	19.8	173477	26.9	20.8	422699	26.9	21.4
272259	26.6	20.2	293774	26.7	20.5	182582	26.7	20.4	249123	26.8	20.4	388884	26.9	20.0	142559	26.9	17.9
427687	26.6	21.2	542923	26.7	21.5	169208	26.7	20.2	248514	26.8	19.4	492993	26.9	21.4	334342	26.9	20.1
155026	26.6	19.9	424332	26.7	21.6	37588	26.8	17.7	518426	26.8	21.7	544060	26.9	21.1	460885	26.9	20.9
191613	26.6	19.6	483690	26.7	22.1	81654	26.8	19.0	142785	26.8	20.6	249187	26.9	20.4	357010	26.9	21.7
137970	26.6	19.2	25251	26.7	19.1	392292	26.8	20.0	339643	26.8	21.0	26838	26.9	17.9	136986	26.9	20.3
494617	26.6	20.8	14192	26.7	17.8	254467	26.8	20.5	135093	26.8	19.7	362203	26.9	20.0	123042	26.9	18.6
407515	26.6	20.9	104056	26.7	19.6	354027	26.8	19.8	425473	26.8	20.4	8735	26.9	18.4	431230	26.9	21.6
384843	26.6	21.1	83230	26.7	19.6	403665	26.8	21.8	113461	26.8	19.2	173771	26.9	20.1	314898	26.9	20.7
52622	26.6	18.6	111068	26.7	19.0	395785	26.8	20.7	25655	26.8	17.3	475552	26.9	21.8	30240	26.9	18.2
486228	26.6	20.9	517663	26.7	21.1	69080	26.8	19.3	283292	26.8	19.8	321	26.9	14.2	495936	26.9	20.6
183777	26.6	20.2	274707	26.7	20.2	223545	26.8										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
361425	26.9	19.7	152726	27.0	19.6	104017	27.1	19.3	502597	27.2	20.5	284197	27.2	19.6	262802	27.3	20.4
473724	26.9	20.6	534303	27.0	21.9	491207	27.1	21.6	53279	27.2	17.7	502703	27.2	20.9	174961	27.3	19.2
529055	26.9	21.4	522192	27.0	20.8	408711	27.1	22.8	232958	27.2	19.5	15131	27.2	17.4	109405	27.3	19.6
361742	26.9	20.7	382003	27.0	20.4	222323	27.1	21.1	237671	27.2	20.8	155139	27.2	20.0	446085	27.3	19.9
109753	26.9	19.8	483439	27.0	21.8	542758	27.1	21.0	409456	27.2	20.6	344265	27.2	20.3	327921	27.3	21.1
165935	26.9	20.5	525618	27.0	20.7	82414	27.1	19.3	3157	27.2	16.7	216005	27.2	20.5	139191	27.3	18.6
496260	26.9	21.2	260779	27.0	20.6	419026	27.1	21.9	81997	27.2	19.7	325626	27.2	20.9	79740	27.3	18.6
237545	26.9	20.7	488931	27.0	21.2	492191	27.1	21.5	492812	27.2	21.4	299467	27.2	19.4	150369	27.3	17.5
117450	26.9	19.7	63426	27.0	18.9	109067	27.1	19.2	256007	27.2	20.5	219447	27.2	19.5	314872	27.3	20.2
357378	26.9	21.4	305146	27.0	19.9	460156	27.1	21.5	493826	27.2	20.8	279919	27.2	21.3	509976	27.3	20.4
324676	26.9	20.5	18999	27.0	18.8	306795	27.1	20.8	489321	27.2	20.7	74838	27.2	19.3	50371	27.3	18.1
65624	26.9	19.5	252285	27.0	21.5	102669	27.1	19.7	310725	27.2	20.6	538750	27.2	20.9	418640	27.3	21.3
445156	26.9	20.7	102991	27.0	18.9	542933	27.1	20.7	344130	27.2	20.9	415775	27.2	21.2	201960	27.3	21.1
154369	26.9	18.6	451725	27.0	20.2	364777	27.1	20.1	234832	27.2	20.1	500572	27.2	21.7	151597	27.3	20.3
233804	26.9	20.3	30351	27.1	18.5	194242	27.1	20.6	176189	27.2	19.2	295465	27.3	20.5	451808	27.3	21.3
317572	26.9	20.8	453026	27.1	21.6	205578	27.1	20.3	489289	27.2	21.5	308058	27.3	20.4	88520	27.3	18.4
289673	26.9	20.4	279676	27.1	20.5	543893	27.1	21.5	30469	27.2	19.2	355272	27.3	20.0	267533	27.3	19.8
422018	26.9	21.5	233068	27.1	19.1	472449	27.1	20.9	226631	27.2	18.3	414847	27.3	21.3	301748	27.3	20.5
2059	26.9	21.1	465510	27.1	21.6	32981	27.1	19.6	73754	27.2	18.9	116280	27.3	18.8	347211	27.3	20.6
325774	26.9	21.5	147880	27.1	19.5	43817	27.1	18.2	35248	27.2	19.3	168149	27.3	19.3	190798	27.3	19.4
18089	26.9	19.1	488148	27.1	21.5	340021	27.1	19.7	323380	27.2	19.7	1048	27.3	13.0	494576	27.3	20.3
9374	27.0	17.5	262761	27.1	19.8	413517	27.1	22.0	452399	27.2	21.2	230581	27.3	19.7	155632	27.3	20.0
409438	27.0	21.0	317550	27.1	20.9	219515	27.1	20.3	118791	27.2	20.2	494544	27.3	20.7	232812	27.3	19.7
184340	27.0	20.1	365199	27.1	20.5	55304	27.1	18.5	261629	27.2	19.9	35245	27.3	18.7	245662	27.3	19.4
248773	27.0	20.1	409986	27.1	20.9	336594	27.1	20.6	37353	27.2	16.6	408006	27.3	20.7	407384	27.3	21.3
96537	27.0	19.8	125218	27.1	19.7	203873	27.1	20.0	349612	27.2	19.5	228786	27.3	20.3	9106	27.3	16.8
423055	27.0	21.4	30987	27.1	20.0	130628	27.1	19.5	84773	27.2	19.0	66252	27.3	17.9	456415	27.3	21.3
351742	27.0	19.0	13093	27.1	16.4	417332	27.1	20.3	187060	27.2	20.4	236909	27.3	20.6	18913	27.3	16.9
330442	27.0	20.3	313405	27.1	21.5	422269	27.1	21.1	234410	27.2	19.6	360118	27.3	19.8	415296	27.3	19.9
206010	27.0	19.5	252293	27.1	20.4	374645	27.1	20.9	404455	27.2	19.5	59873	27.3	19.1	534515	27.3	21.8
265698	27.0	20.9	460337	27.1	21.3	285001	27.1	20.7	535996	27.2	20.8	489660	27.3	21.6	104325	27.3	19.9
382199	27.0	20.7	227347	27.1	19.1	152523	27.1	19.7	56699	27.2	18.9	373420	27.3	19.7	58618	27.3	19.1
259011	27.0	20.8	419769	27.1	21.5	422416	27.1	20.9	246044	27.2	20.3	451937	27.3	19.3	290037	27.3	21.1
204276	27.0	20.1	152542	27.1	20.1	512955	27.1	20.9	441182	27.2	21.4	353652	27.3	20.2	346269	27.3	20.5
190860	27.0	20.0	286664	27.1	19.6	186164	27.1	20.5	296080	27.2	19.5	125153	27.3	19.2	347757	27.3	20.6
289731	27.0	21.2	457385	27.1	21.0	36943	27.1	18.7	235031	27.2	19.4	247543	27.3	19.7	162332	27.3	19.0
54465	27.0	17.4	276878	27.1	21.2	294604	27.1	21.4	1994	27.2	16.8	489741	27.3	20.6	331508	27.3	20.6
101222	27.0	19.4	317049	27.1	20.1	406080	27.1	21.5	437596	27.2	20.9	362950	27.3	20.1	387023	27.3	21.6
430954	27.0	20.9	259658	27.1	19.3	535534	27.1	21.0	450969	27.2	20.9	7107	27.3	17.3	463976	27.3	21.4
276898	27.0	20.7	370604	27.1	20.6	135436	27.1	20.2	22179	27.2	18.2	194108	27.3	20.9	134009	27.3	19.1
58744	27.0	18.6	246779	27.1	20.3	433685	27.1	21.0	2566	27.2	15.2	3050	27.3	17.1	101144	27.3	19.5
80574	27.0	19.3	22592	27.1	16.9	147518	27.1	19.1	233605	27.2	19.2	32405	27.3	16.9	247217	27.3	20.4
137137	27.0	18.5	197204	27.1	19.9	278861	27.1	20.6	9887	27.2	17.8	486090	27.3	21.5	531353	27.3	21.7
428503	27.0	20.9	322338	27.1	20.1	218822	27.1	20.5	364377	27.2	21.2	222118	27.3	20.5	318321	27.3	20.4
183639	27.0	20.6	79656	27.1	19.9	462896	27.1	20.7	450835	27.2	20.4	408403	27.3	19.2	490004	27.3	22.3
448759	27.0	21.7	523515	27.1	20.5	196709	27.1	20.1	194492	27.2	20.9	467689	27.3	21.2	508349	27.3	20.0
484691	27.0	20.6	190832	27.1	19.8	500319	27.1	20.7	544735	27.2	22.1	493869	27.3	21.6	502125	27.3	20.6
209095	27.0	20.5	364884	27.1	20.0	497114	27.1	20.5	203072	27.2	20.5	462057	27.3	20.0	116398	27.3	19.5
40362	27.0	17.9	47991	27.1	19.4	491089	27.1	22.0	46239	27.2	17.5	241253	27.3	20.5	361726	27.3	20.8
286125	27.0	20.5	180938	27.1	19.9	444068	27.1	21.6	959	27.2	16.1	264910	27.3	21.0	67752	27.3	19.2
244202	27.0	19.3	142972	27.1	20.1	379075	27.1	21.1	366864	27.2	20.2	424305	27.3	20.3	319579	27.3	20.3
463641	27.0	20.9	10888	27.1	17.3	114264	27.1	19.5	111142	27.2	19.4	28577	27.3	17.3	497677	27.3	22.3
534359	27.0	21.7	269679	27.1	20.5	27536	27.1	17.7	483934	27.2	21.4	236893	27.3	20.2	538307	27.3	20.4
122235	27.0	19.8	84769	27.1	18.2	234859	27.1	20.6	404824	27.2	21.1	493886	27.3	20.7	458287	27.3	20.9
542057	27.0	20.7	11879	27.1	18.0	184897	27.1	20.4	30481	27.2	19.1	194748	27.3	20.7	452852	27.3	21.9
94829	27.0	17.8	352761	27.1	20.6	327965	27.1	18.8	30250	27.2	18.8	224806	27.3	19.3	411255	27.3	20.8
113487	27.0	18.7	481136	27.1	21.3	8780	27.2	17.2	295859	27.2	20.2	80102	27.3	18.8	460043	27.3	21.4
336069	27.0	20.2	161847	27.1	20.1	82578	27.2	20.0	454936	27.2	21.2	343754	27.3	19.3	419113	27.3	20.9
484288	27.0	20.9	455809	27.1	20.5	93918	27.2	19.2	315545	27.2	20.2	457771	27.3	21.4	490114	27.3	22.0
541840	27.0	21.1	59340	27.1	19.2	23234	27.2	18.7	86019	27.2	17.4	436116	27.3	19.6	350713	27.3	21.3
221713	27.0	20.3	456311	27.1	22.2	323845	27.2	19.5	93880	27.2	20.0	171178	27.3	19.1	335970	27.3	21.4
41101	27.0	18.8	141297	27.1	19.8	491319	27.2	21.1	101468	27.2	20.4	91000	27.3	17.7	400237	27.3	20.0
240437	27.0	20.7	502139	27.1	20.7	411729	27.2	20.1	80840	27.2	20.4	176968	27.3	20.1	398160	27.4	20.3
29932	27.0	17.7	98145	27.1	18.1	424775	27.2	21.7	369349	27.2	20.6	527255	27.3	21.6	339926	27.4	19.5
369698	27.0	20.3	163446	27.1	20.4	161980	27.2	20.1	104992	27.2	18.9	351248	27.3	21.3	323876	27.4	21.1
544750	27.0	21.7	218842	27.1	20.3	300339	27.2	19.8	137215	27.2	19.7	116747	27.3	18.7	80787	27.4	18.5
27978	27.0	18.4	40594	27.1	18.0	222085	27.2	19.8	178192	27.2	19.8	242393	27.3	20.3	454500	27.4	21.3
189629	27.0	18.8	381241	27.1	21.0	61477	27.2	18.9	522645	27.2	21.2	306498	27.3	21.5	482817	27.4	21.1
311086	27.0	19.1	462668	27.1	19.9	542223	27.2	2									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
84485	27.4	18.6	150178	27.4	19.1	494735	27.5	22.7	426851	27.6	20.2	494958	27.6	21.3	34015	27.7	17.9
119554	27.4	19.5	442755	27.4	20.6	500005	27.5	21.4	451978	27.6	20.0	277511	27.6	20.1	14576	27.7	17.5
303297	27.4	21.0	200713	27.4	18.7	194419	27.5	19.6	7813	27.6	17.2	496571	27.6	20.2	39926	27.7	18.5
45540	27.4	18.6	343834	27.4	19.7	252565	27.5	20.3	202780	27.6	20.5	52563	27.6	18.2	348158	27.7	20.1
492	27.4	15.0	235607	27.4	19.6	97553	27.5	19.0	386976	27.6	21.5	268786	27.6	20.6	504929	27.7	20.1
9397	27.4	19.0	237884	27.4	19.1	402563	27.5	21.0	105417	27.6	20.0	15141	27.6	16.5	300568	27.7	20.4
364399	27.4	19.9	388646	27.4	21.3	216667	27.5	19.2	293766	27.6	20.0	330390	27.6	18.8	241350	27.7	19.7
277147	27.4	20.7	321063	27.4	20.7	71943	27.5	19.2	313337	27.6	19.7	429893	27.6	20.9	441637	27.7	21.0
444654	27.4	19.9	76420	27.4	19.3	481097	27.5	20.7	368094	27.6	19.9	294902	27.6	20.5	483094	27.7	20.2
152570	27.4	19.3	397698	27.4	20.2	317202	27.5	20.4	289015	27.6	20.2	181024	27.6	20.2	150085	27.7	19.9
128759	27.4	19.3	483237	27.4	20.5	141276	27.5	18.6	500464	27.6	21.9	135404	27.6	19.5	518900	27.7	19.2
416928	27.4	20.9	163759	27.4	19.9	423805	27.5	20.7	381894	27.6	20.0	395144	27.6	19.8	410467	27.7	20.7
445624	27.4	19.5	315728	27.4	19.7	112653	27.5	19.5	462858	27.6	21.2	16272	27.6	17.2	93532	27.7	18.5
72269	27.4	18.8	179978	27.4	20.3	283573	27.5	20.4	405964	27.6	21.0	485063	27.6	20.2	315695	27.7	20.1
518702	27.4	21.2	495448	27.4	20.6	440724	27.5	21.7	414589	27.6	21.7	143887	27.6	20.2	242562	27.7	20.2
246303	27.4	21.0	330143	27.4	20.0	544208	27.5	21.3	456472	27.6	22.2	199314	27.6	20.2	96031	27.7	20.3
196492	27.4	19.0	277863	27.4	19.7	422023	27.5	20.9	406932	27.6	21.0	72145	27.6	18.7	100183	27.7	20.3
486095	27.4	21.2	337699	27.4	21.5	466481	27.5	20.8	520911	27.6	21.2	137038	27.6	20.6	171845	27.7	18.6
450891	27.4	21.2	485117	27.4	20.7	280006	27.5	21.7	313878	27.6	19.1	31584	27.6	17.2	286774	27.7	19.1
253941	27.4	18.8	47925	27.4	19.4	240021	27.5	20.3	194468	27.6	20.6	26391	27.6	16.0	147469	27.7	19.5
498075	27.4	20.6	267867	27.4	19.8	113214	27.5	19.7	441676	27.6	20.8	113521	27.6	18.5	184346	27.7	21.0
89108	27.4	20.6	387556	27.4	20.9	21695	27.5	18.7	278112	27.6	19.5	20033	27.6	18.7	411982	27.7	20.4
430034	27.4	20.6	416876	27.4	20.8	161690	27.5	20.2	213645	27.6	20.9	457791	27.6	21.0	254750	27.7	19.7
38957	27.4	19.0	364821	27.4	19.9	128066	27.5	19.8	380676	27.6	20.6	115913	27.6	18.9	239432	27.7	19.3
199303	27.4	21.2	492149	27.4	20.0	359724	27.5	20.7	170374	27.6	20.0	113458	27.6	19.6	270614	27.7	20.6
339472	27.4	20.2	426417	27.4	21.1	541542	27.5	20.1	181409	27.6	20.7	334929	27.6	19.8	226734	27.7	20.7
284981	27.4	20.6	43871	27.4	19.4	64778	27.5	20.0	279881	27.6	21.0	251989	27.6	18.9	89418	27.7	20.0
187196	27.4	20.5	322841	27.4	19.8	422439	27.5	20.7	413648	27.6	20.9	305141	27.6	20.5	317127	27.7	20.4
378932	27.4	21.0	534130	27.4	21.1	315492	27.5	20.2	287596	27.6	18.9	339608	27.6	21.1	110898	27.7	18.9
303413	27.4	19.8	267643	27.4	20.4	261143	27.5	20.7	294940	27.6	19.3	258429	27.6	20.3	331761	27.7	20.6
165821	27.4	19.5	138099	27.5	18.2	240371	27.5	21.6	320971	27.6	19.6	7209	27.6	16.8	325471	27.7	20.3
518480	27.4	21.2	302994	27.5	19.6	381685	27.5	20.5	57049	27.6	18.7	417170	27.6	21.8	528868	27.7	22.0
147305	27.4	19.5	224209	27.5	19.9	536017	27.5	21.4	181465	27.6	20.4	107176	27.6	19.2	256359	27.7	21.3
406046	27.4	21.5	408013	27.5	20.6	265895	27.5	19.8	535171	27.6	21.2	448236	27.6	21.5	297383	27.7	20.6
235429	27.4	20.4	273396	27.5	19.9	125878	27.5	19.2	180929	27.6	19.5	379498	27.6	20.1	480927	27.7	21.8
495284	27.4	21.5	160127	27.5	20.1	165762	27.5	19.7	239725	27.6	20.2	138034	27.6	19.2	265983	27.7	18.3
467570	27.4	21.3	100124	27.5	19.7	328659	27.5	21.0	399991	27.6	20.1	187635	27.6	20.4	16334	27.7	18.6
175419	27.4	20.3	389133	27.5	20.7	258340	27.5	19.8	121606	27.6	19.3	223707	27.6	20.1	347375	27.7	20.5
39594	27.4	18.1	330136	27.5	20.7	270821	27.5	20.0	5948	27.6	16.1	64639	27.6	18.9	88455	27.7	20.1
383395	27.4	20.1	448205	27.5	21.3	146465	27.5	19.4	445915	27.6	20.9	435442	27.6	20.1	485079	27.7	19.8
66072	27.4	19.2	163152	27.5	17.9	101009	27.5	19.0	394877	27.6	19.8	332136	27.6	21.1	422042	27.7	20.5
166691	27.4	20.8	302907	27.5	21.2	486208	27.5	20.6	367383	27.6	20.3	191486	27.6	20.0	383736	27.7	21.4
444137	27.4	20.8	6295	27.5	17.8	426262	27.5	19.7	165665	27.6	20.0	160351	27.6	19.3	240221	27.7	20.6
400026	27.4	21.4	151733	27.5	18.3	163508	27.5	20.1	168264	27.6	20.0	210199	27.6	20.2	125719	27.7	19.7
389003	27.4	20.5	543662	27.5	21.1	188474	27.5	21.3	49644	27.6	18.6	522273	27.6	20.6	292851	27.7	20.8
143056	27.4	18.6	170032	27.5	19.7	218866	27.5	19.6	468371	27.6	19.9	496336	27.6	20.7	110878	27.7	19.4
353626	27.4	20.1	540444	27.5	21.3	135228	27.5	18.9	488195	27.6	19.6	529059	27.6	21.2	454098	27.7	21.2
458358	27.4	20.9	216843	27.5	20.5	439914	27.5	21.8	140929	27.6	19.8	57088	27.6	18.7	433717	27.7	20.5
315541	27.4	19.9	110121	27.5	19.6	47751	27.5	18.9	174140	27.6	20.4	274231	27.6	19.0	176929	27.7	20.5
68836	27.4	19.4	95834	27.5	19.6	418907	27.5	19.2	348290	27.6	19.6	351325	27.6	20.5	378474	27.7	20.1
236098	27.4	19.6	377252	27.5	19.8	58284	27.5	19.6	18158	27.6	18.4	288992	27.6	20.0	232313	27.7	19.4
350724	27.4	21.3	227752	27.5	19.7	206112	27.5	19.5	372075	27.6	20.5	137089	27.6	19.6	394836	27.7	20.8
146188	27.4	18.2	109329	27.5	19.1	273903	27.5	20.1	46590	27.6	17.8	196753	27.6	19.3	422656	27.7	20.1
242336	27.4	20.6	30035	27.5	18.1	108058	27.5	18.4	17751	27.6	16.2	117704	27.6	19.4	148705	27.7	19.7
365230	27.4	18.8	252589	27.5	19.8	394461	27.5	21.0	142437	27.6	20.5	56054	27.6	18.0	330930	27.7	20.7
202396	27.4	19.6	406649	27.5	19.5	45535	27.5	18.7	265391	27.6	20.0	124443	27.6	19.7	95511	27.7	19.4
103345	27.4	18.9	241571	27.5	19.1	522029	27.5	19.8	110951	27.6	19.5	408408	27.7	20.7	141605	27.7	19.4
155409	27.4	19.9	410557	27.5	19.7	271271	27.5	20.8	29827	27.6	18.1	249596	27.7	20.6	73739	27.7	19.3
307737	27.4	19.6	135325	27.5	19.9	460293	27.5	21.1	27614	27.6	18.7	526480	27.7	21.2	502606	27.7	19.7
279930	27.4	20.8	159135	27.5	20.1	481259	27.5	21.1	363817	27.6	20.7	4239	27.7	16.9	33503	27.7	16.8
224509	27.4	19.8	402305	27.5	21.4	158653	27.5	18.8	74471	27.6	18.8	479527	27.7	20.1	55306	27.7	19.2
409503	27.4	20.9	508589	27.5	21.0	51239	27.5	17.6	31408	27.6	16.8	45835	27.7	18.1	334142	27.7	21.6
18677	27.4	16.5	426280	27.5	20.6	464305	27.5	20.4	217594	27.6	20.1	477777	27.7	21.5	500340	27.7	20.7
154866	27.4	19.8	225200	27.5	21.2	152295	27.5	19.3	347418	27.6	21.0	138451	27.7	19.3	490819	27.7	21.2
520765	27.4	21.0	399433	27.5	24.9	314805	27.5	21.0	318727	27.6	21.1	483493	27.7	22.1	146544	27.7	19.6
142860	27.4	20.3	242435	27.5	19.3	280800	27.5	19.6	174858	27.6	20.3	166171	27.7	19.5	253216	27.7	19.7
311048	27.4	21.9	36018	27.5	18.0	143502	27.5	19.0	484704	27.6	21.4	8041	27.7	17.1	416970	27.7	21.3
502486	27.4	20.7	189631	27.5	20.3	240255	27.5	19.8	116740	27.6	19.4	280756	27.7	20.0	108254	27.7	18.8
133986	27.4	18.7	241494	27.5	20.7	54											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
375066	27.8	21.1	6823	27.8	16.3	199786	27.9	19.9	350760	27.9	20.9	337244	28.0	20.7	340794	28.1	20.5
289236	27.8	20.2	279982	27.8	21.2	111107	27.9	19.5	3675	27.9	15.6	186082	28.0	19.9	424917	28.1	20.8
276391	27.8	20.9	429008	27.8	20.6	138625	27.9	20.2	61891	27.9	18.7	350342	28.0	20.6	136990	28.1	17.9
487745	27.8	21.4	51749	27.8	18.6	332817	27.9	20.6	341851	27.9	20.3	406548	28.0	21.1	396800	28.1	20.4
101892	27.8	18.7	526940	27.8	23.1	457681	27.9	21.2	543940	27.9	22.5	388502	28.0	20.2	119777	28.1	19.5
366936	27.8	21.4	134478	27.8	19.9	397167	27.9	20.6	344375	27.9	20.4	272269	28.0	20.4	59501	28.1	18.3
282668	27.8	20.5	44058	27.8	18.0	98285	27.9	18.7	190827	27.9	20.3	536511	28.0	20.6	91461	28.1	20.0
6614	27.8	17.5	55409	27.8	19.2	79496	27.9	18.5	343250	27.9	20.1	212982	28.0	20.9	461438	28.1	20.1
421084	27.8	21.9	154877	27.8	18.8	523287	27.9	20.9	422266	27.9	20.8	310741	28.0	20.2	330549	28.1	20.6
453803	27.8	21.1	189638	27.8	19.2	410055	27.9	21.6	493479	27.9	20.4	124352	28.0	20.1	63749	28.1	18.8
255249	27.8	20.9	177656	27.8	19.1	145776	27.9	19.3	301642	27.9	19.7	297925	28.0	19.2	229794	28.1	21.1
260995	27.8	19.6	483807	27.8	21.4	286003	27.9	20.2	404377	27.9	19.8	83690	28.0	19.3	544046	28.1	21.1
43660	27.8	18.1	369822	27.8	19.9	468359	27.9	20.0	510899	27.9	20.4	181449	28.0	19.6	216555	28.1	19.7
119682	27.8	19.3	457814	27.8	20.3	43011	27.9	18.2	95205	27.9	20.0	295894	28.0	20.6	295997	28.1	20.1
237161	27.8	20.0	369547	27.8	20.4	319754	27.9	20.7	55812	27.9	18.5	224822	28.0	20.4	523978	28.1	20.0
141000	27.8	19.9	40786	27.8	18.2	51809	27.9	19.0	347228	27.9	20.4	7307	28.0	15.7	267635	28.1	20.3
377038	27.8	21.2	251170	27.8	20.2	5103	27.9	16.7	252421	27.9	20.7	92918	28.0	19.6	311087	28.1	19.3
525012	27.8	21.0	31605	27.8	17.9	494107	27.9	20.6	460718	27.9	21.0	503833	28.0	20.5	408894	28.1	21.3
150530	27.8	19.7	541953	27.8	20.0	351241	27.9	21.0	269605	27.9	18.8	460903	28.0	20.0	406957	28.1	20.4
116736	27.8	18.5	489216	27.8	20.6	28929	27.9	17.7	34368	27.9	17.8	319439	28.0	20.1	458172	28.1	21.6
460825	27.8	20.6	237077	27.8	20.3	101240	27.9	20.0	390995	27.9	21.0	244544	28.0	20.2	210612	28.1	18.9
172507	27.8	19.8	218635	27.8	19.9	316094	27.9	19.9	455530	27.9	19.5	279102	28.0	21.2	367371	28.1	20.2
451441	27.8	21.5	230660	27.8	19.8	83696	27.9	19.3	393986	27.9	20.0	392954	28.0	21.4	4106	28.1	15.0
219428	27.8	20.5	416869	27.8	21.2	317017	27.9	21.1	349734	27.9	20.3	284002	28.0	20.7	296027	28.1	19.6
201671	27.8	20.4	333617	27.8	20.4	154258	27.9	19.2	85360	27.9	19.7	94725	28.0	19.4	314715	28.1	20.9
399608	27.8	20.8	484037	27.8	19.3	419103	27.9	21.9	527686	27.9	22.2	388065	28.0	19.7	188630	28.1	20.1
200366	27.8	20.6	172777	27.8	18.7	534846	27.9	21.2	446820	27.9	21.4	437586	28.0	20.4	510250	28.1	20.5
62102	27.8	17.7	14065	27.8	18.8	522369	27.9	20.9	209964	27.9	20.3	210399	28.0	19.9	426285	28.1	20.5
171524	27.8	18.7	363584	27.8	19.2	226354	27.9	18.8	531560	27.9	21.2	258663	28.0	18.9	481226	28.1	21.0
237398	27.8	19.1	264764	27.8	20.0	190808	27.9	20.2	216978	27.9	21.2	328551	28.0	20.7	104394	28.1	18.0
413538	27.8	22.0	397010	27.8	20.8	442789	27.9	20.9	86425	27.9	18.0	53347	28.0	17.1	315683	28.1	20.3
486082	27.8	21.9	345064	27.8	20.5	469030	27.9	21.0	178303	27.9	19.7	416495	28.0	20.5	260848	28.1	19.8
66617	27.8	19.0	45212	27.9	17.7	233539	27.9	19.2	486778	27.9	20.1	414212	28.0	19.7	327971	28.1	20.5
76320	27.8	17.7	142571	27.9	19.9	455349	27.9	22.3	203723	27.9	21.1	292346	28.0	21.9	268766	28.1	20.7
205552	27.8	21.0	202158	27.9	19.9	388491	27.9	19.1	29187	27.9	18.8	191886	28.0	20.3	440636	28.1	21.4
529698	27.8	19.9	52028	27.9	18.9	276273	27.9	20.6	440626	27.9	21.7	361407	28.0	19.9	117185	28.1	20.0
392959	27.8	19.7	363850	27.9	20.2	451560	27.9	20.5	281293	27.9	20.9	166178	28.0	19.6	401991	28.1	20.5
194230	27.8	20.3	320897	27.9	20.3	321500	27.9	21.4	47861	27.9	18.2	325564	28.0	20.8	130253	28.1	19.6
290357	27.8	20.4	10730	27.9	16.7	535412	27.9	20.8	116429	27.9	18.9	482030	28.1	20.7	363833	28.1	21.2
439947	27.8	21.6	336025	27.9	21.3	420941	27.9	20.6	382121	27.9	21.0	261246	28.1	20.0	231940	28.1	19.3
51304	27.8	18.6	332671	27.9	20.4	217262	27.9	21.0	180162	27.9	19.6	279879	28.1	20.8	51113	28.1	18.3
152568	27.8	18.5	60151	27.9	20.0	239435	27.9	20.7	464827	27.9	21.3	268606	28.1	20.5	159936	28.1	19.4
56916	27.8	19.3	400148	27.9	21.2	508342	27.9	21.8	133500	27.9	20.3	429955	28.1	20.9	340783	28.1	20.9
280436	27.8	19.9	26258	27.9	19.1	12679	27.9	18.0	157443	27.9	19.7	88397	28.1	17.8	309789	28.1	19.6
352079	27.8	20.9	300490	27.9	19.7	27093	27.9	18.4	48636	27.9	18.9	165700	28.1	20.0	154367	28.1	18.9
424881	27.8	19.8	379060	27.9	20.8	84164	27.9	19.4	69583	27.9	17.7	400272	28.1	21.0	381671	28.1	20.5
47339	27.8	18.0	84189	27.9	19.1	87621	27.9	19.3	91239	27.9	18.1	283940	28.1	20.6	448991	28.1	21.2
486590	27.8	20.0	330134	27.9	21.1	45186	27.9	19.3	464209	27.9	20.6	301702	28.1	19.8	424996	28.1	20.6
158204	27.8	20.1	334631	27.9	19.7	98279	27.9	19.1	275754	27.9	20.0	258359	28.1	19.9	401225	28.1	20.5
4182	27.8	16.2	508979	27.9	20.6	277117	27.9	20.6	417853	27.9	20.9	81530	28.1	18.1	248027	28.1	19.2
536014	27.8	20.7	455779	27.9	21.7	429054	27.9	20.3	465438	27.9	21.3	448248	28.1	21.4	433932	28.1	20.3
47008	27.8	18.9	345314	27.9	19.7	265927	27.9	19.8	500141	27.9	20.0	452529	28.1	21.5	130541	28.1	18.9
284484	27.8	19.9	334145	27.9	22.0	240511	27.9	18.8	367606	27.9	20.8	220334	28.1	19.1	415667	28.1	20.1
186255	27.8	19.4	279044	27.9	20.2	159208	27.9	20.3	290883	27.9	20.3	322275	28.1	20.5	63422	28.1	18.9
113565	27.8	19.3	108894	27.9	18.8	495800	27.9	20.4	81251	27.9	18.2	71780	28.1	18.6	493361	28.1	20.7
396846	27.8	20.5	295774	27.9	21.0	118290	27.9	19.5	328331	27.9	20.5	202119	28.1	18.8	311305	28.1	19.7
151349	27.8	20.3	153056	27.9	20.6	493455	27.9	20.9	12009	27.9	18.7	379418	28.1	19.7	459755	28.1	20.6
479512	27.8	20.5	288446	27.9	19.4	100093	27.9	18.2	393653	27.9	20.9	524680	28.1	20.7	255565	28.1	20.1
77630	27.8	18.8	368572	27.9	19.9	327321	27.9	20.6	137110	28.0	19.6	11867	28.1	18.4	340978	28.1	19.4
107194	27.8	19.0	536408	27.9	20.6	216233	27.9	20.3	43053	28.0	18.7	233212	28.1	19.7	536647	28.1	21.4
360331	27.8	20.8	135842	27.9	19.8	428401	27.9	20.9	471193	28.0	20.5	301725	28.1	20.2	334985	28.1	19.2
219357	27.8	21.0	245936	27.9	20.5	290457	27.9	19.8	383645	28.0	21.9	267773	28.1	19.4	317570	28.1	20.7
151223	27.8	19.3	275751	27.9	21.4	188716	27.9	20.3	315500	28.0	19.8	224397	28.1	20.0	87215	28.1	18.2
446982	27.8	21.6	81718	27.9	18.9	339759	27.9	20.0	409971	28.0	20.6	383778	28.1	21.9	452494	28.1	20.3
59724	27.8	18.3	534981	27.9	20.5	223704	27.9	20.4	241317	28.0	20.2	132924	28.1	19.8	544559	28.1	20.4
498524	27.8	20.5	190708	27.9	20.1	250466	27.9	19.9	57332	28.0	18.2	496506	28.1	20.6	147143	28.1	19.8
301935	27.8	17.8	202321	27.9	20.2	231166	27.9	19.1	280832	28.0	20.6	360783	28.1	19.3	344534	28.1	21.2
111031	27.8	20.1	51893	27.9	18.2	422927	27.9	21.4	310164	28.0	20.4	257530	28.1	19.8	532570	28.1	20.7
196656	27.8	19.4	247678	27.9	21.2	401909											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
243760	28.1	20.1	393706	28.2	21.7	172193	28.3	20.2	254782	28.3	20.5	458190	28.4	21.7	298705	28.5	19.4
369280	28.1	20.6	173015	28.2	20.4	217992	28.3	19.7	324622	28.3	20.5	203141	28.4	19.6	75033	28.5	18.2
200139	28.1	21.0	421418	28.2	20.6	336551	28.3	20.6	465518	28.3	21.6	253305	28.4	19.5	166848	28.5	20.1
10859	28.1	15.3	492373	28.2	21.4	467816	28.3	20.8	536091	28.3	21.8	216833	28.4	20.0	151867	28.5	18.6
343427	28.1	19.7	282603	28.2	19.8	360337	28.3	21.0	84545	28.3	19.2	406000	28.4	20.5	252032	28.5	20.3
28510	28.1	16.9	523815	28.2	23.9	413600	28.3	20.6	299353	28.3	20.1	334105	28.4	21.8	493401	28.5	21.0
130527	28.1	19.1	340825	28.2	20.2	39121	28.3	18.2	231456	28.3	19.4	364417	28.4	21.0	496003	28.5	21.5
400169	28.2	20.9	235464	28.2	20.1	242914	28.3	20.0	464454	28.3	20.3	351239	28.4	21.7	2243	28.5	15.5
184785	28.2	19.8	231711	28.2	20.3	423289	28.3	20.7	395310	28.3	19.7	354555	28.4	20.7	351324	28.5	20.1
397862	28.2	19.6	192990	28.2	19.6	524081	28.3	20.1	220639	28.3	19.4	415827	28.4	21.4	542154	28.5	21.8
142262	28.2	20.0	48664	28.2	17.9	232570	28.3	20.6	244039	28.3	20.0	411440	28.4	20.8	190199	28.5	19.4
320690	28.2	20.2	345720	28.2	20.5	393007	28.3	19.6	290859	28.3	20.2	433771	28.4	20.0	276813	28.5	19.9
275611	28.2	18.6	201421	28.2	18.6	285063	28.3	19.8	191634	28.3	20.5	443390	28.4	20.5	409536	28.5	20.2
237330	28.2	19.9	309755	28.2	20.7	49233	28.3	19.0	194771	28.3	20.4	196867	28.4	19.9	58722	28.5	18.7
467258	28.2	20.6	417583	28.2	20.8	258425	28.3	20.2	242227	28.3	20.6	323859	28.4	20.6	416837	28.5	22.5
200795	28.2	21.1	50034	28.2	19.2	270023	28.3	20.1	260905	28.3	19.8	276716	28.4	20.0	148863	28.5	19.7
241290	28.2	20.6	94707	28.2	18.9	311089	28.3	19.2	101356	28.3	20.4	329092	28.4	20.7	117143	28.5	19.4
26909	28.2	18.6	367559	28.2	21.3	334622	28.3	21.0	239028	28.3	19.6	186621	28.4	19.8	256970	28.5	19.2
144362	28.2	19.7	73452	28.2	18.7	222354	28.3	19.7	14421	28.3	19.0	240031	28.4	20.6	344293	28.5	20.2
483311	28.2	19.6	61414	28.2	19.1	56093	28.3	18.9	328717	28.3	20.6	328374	28.4	20.9	113577	28.5	19.1
331765	28.2	21.6	155939	28.2	20.5	333285	28.3	21.3	191874	28.3	19.7	230016	28.4	18.8	394408	28.5	19.6
170529	28.2	19.6	197833	28.2	20.0	180722	28.3	18.8	453828	28.3	21.0	161104	28.4	20.2	480845	28.5	22.2
31030	28.2	17.9	344343	28.2	21.4	255958	28.3	19.0	314740	28.4	21.8	121892	28.4	18.8	80054	28.5	18.9
413609	28.2	20.8	9721	28.2	16.3	451011	28.3	20.9	379051	28.4	21.3	251119	28.4	19.2	161615	28.5	18.8
231704	28.2	20.5	418675	28.2	20.9	83936	28.3	19.0	383741	28.4	20.8	469085	28.4	20.7	532722	28.5	21.0
159091	28.2	19.7	49063	28.2	18.6	290342	28.3	20.5	459262	28.4	21.2	532323	28.4	21.8	353998	28.5	20.8
110036	28.2	19.3	279882	28.2	21.9	522048	28.3	21.2	63467	28.4	19.4	465958	28.4	20.7	142684	28.5	19.3
245487	28.2	20.1	325497	28.2	20.1	228801	28.3	20.1	342864	28.4	20.3	495480	28.4	20.7	108596	28.5	19.4
203852	28.2	20.0	419039	28.2	21.4	363368	28.3	21.8	5998	28.4	17.0	49397	28.4	17.6	35630	28.5	18.0
27282	28.2	17.4	29229	28.2	16.2	529718	28.3	23.0	290254	28.4	20.4	138650	28.4	19.9	361673	28.5	21.1
381618	28.2	21.2	265339	28.2	20.2	149928	28.3	19.9	54808	28.4	18.0	466795	28.4	20.9	254727	28.5	19.5
284088	28.2	20.7	485056	28.2	19.8	228282	28.3	19.8	182403	28.4	21.2	123881	28.4	19.9	84451	28.5	19.7
83207	28.2	19.4	5575	28.2	17.9	527103	28.3	21.3	321564	28.4	19.5	194426	28.4	20.4	142774	28.5	19.5
541893	28.2	21.0	279922	28.2	21.0	481346	28.3	21.2	377108	28.4	20.6	522661	28.4	20.7	518151	28.5	21.7
240051	28.2	20.5	348977	28.2	20.9	258371	28.3	20.7	496367	28.4	21.1	201271	28.4	19.8	248028	28.5	19.9
437781	28.2	20.3	236376	28.2	19.6	109936	28.3	19.3	407564	28.4	21.3	426925	28.4	20.8	112280	28.5	19.5
52280	28.2	18.3	126630	28.2	19.4	80222	28.3	19.6	231016	28.4	19.2	175300	28.4	19.8	34797	28.5	18.6
149045	28.2	17.9	167050	28.2	20.2	419805	28.3	20.6	210182	28.4	19.7	368540	28.4	20.8	103322	28.5	18.6
320700	28.2	19.7	144275	28.2	19.0	200395	28.3	19.7	387429	28.4	21.2	170318	28.4	20.4	185529	28.5	20.3
46488	28.2	19.1	462981	28.2	20.1	420159	28.3	20.2	338162	28.4	20.3	87241	28.4	18.8	370795	28.5	21.0
120683	28.2	19.8	360828	28.2	19.5	324614	28.3	19.4	321436	28.4	20.9	321795	28.4	20.9	382258	28.5	19.9
333332	28.2	22.1	166213	28.2	19.5	461804	28.3	21.5	427727	28.4	22.2	319636	28.4	20.0	39683	28.5	18.2
4976	28.2	16.3	450849	28.2	21.2	417009	28.3	20.3	72769	28.4	18.9	290868	28.4	21.6	409903	28.5	19.1
445063	28.2	20.7	353281	28.2	20.2	39741	28.3	19.6	203832	28.4	20.8	539935	28.4	20.7	174218	28.5	20.3
187344	28.2	20.1	458094	28.2	20.2	409544	28.3	20.6	165784	28.4	19.8	63627	28.4	19.1	493162	28.5	21.6
143462	28.2	19.8	505214	28.2	21.5	333033	28.3	21.1	268775	28.4	19.9	82539	28.4	18.1	31404	28.5	19.2
232339	28.2	20.2	88283	28.2	19.7	126239	28.3	19.0	167548	28.4	19.9	421292	28.4	20.5	128357	28.5	19.4
62444	28.2	19.0	202604	28.2	19.8	320481	28.3	20.4	63050	28.4	18.9	387534	28.4	19.8	1050	28.5	16.4
138079	28.2	17.7	118807	28.2	19.0	158202	28.3	20.1	298850	28.4	20.4	45426	28.4	19.1	300094	28.5	20.5
313579	28.2	19.0	537852	28.3	19.9	278544	28.3	19.8	15619	28.4	18.3	406588	28.4	19.4	337583	28.5	20.4
78798	28.2	18.2	10042	28.3	17.6	388660	28.3	21.7	458353	28.4	22.4	174250	28.4	20.4	1685	28.5	15.9
142071	28.2	20.4	430172	28.3	22.1	108885	28.3	19.1	194964	28.4	20.6	152204	28.4	20.8	262298	28.5	20.7
519843	28.2	20.2	34314	28.3	17.4	543139	28.3	21.3	524129	28.4	21.6	136493	28.4	19.6	246862	28.5	20.6
378761	28.2	21.1	374001	28.3	18.9	280846	28.3	20.6	431531	28.4	21.1	527192	28.4	21.9	337028	28.5	21.2
239229	28.2	20.9	495619	28.3	21.3	203618	28.3	18.9	414480	28.4	19.6	22443	28.4	19.0	424874	28.5	22.1
125733	28.2	20.1	540093	28.3	20.9	57002	28.3	19.1	468315	28.4	20.5	441561	28.4	21.5	315663	28.5	20.1
83419	28.2	18.8	4110	28.3	15.9	425704	28.3	20.9	107121	28.4	18.5	294747	28.4	20.4	460429	28.5	21.6
8585	28.2	16.1	251648	28.3	21.9	84921	28.3	18.9	423631	28.4	21.5	122946	28.4	18.1	129687	28.5	20.8
262209	28.2	20.3	417007	28.3	21.8	98537	28.3	19.0	219375	28.4	20.1	162920	28.4	20.0	385934	28.5	20.3
432241	28.2	20.6	192292	28.3	20.3	395126	28.3	19.3	151224	28.4	18.5	343836	28.4	20.1	284760	28.5	20.2
292660	28.2	20.3	344565	28.3	21.3	518535	28.3	21.1	83473	28.4	19.2	246716	28.4	19.8	238973	28.5	19.6
349123	28.2	20.5	297878	28.3	19.6	23782	28.3	17.2	344814	28.4	21.0	522121	28.4	20.6	354581	28.5	21.2
201426	28.2	20.3	249010	28.3	20.4	55157	28.3	17.5	280473	28.4	19.3	139251	28.4	20.2	401890	28.5	22.4
284227	28.2	20.5	403965	28.3	21.1	135771	28.3	19.4	269969	28.4	21.3	418844	28.4	19.9	462296	28.5	20.0
54569	28.2	18.7	270675	28.3	20.5	339707	28.3	20.4	327961	28.4	20.5	495870	28.4	21.5	22905	28.5	16.6
93173	28.2	19.2	70259	28.3	19.4	140084	28.3	19.9	450800	28.4	22.7	541895	28.4	21.3	158874	28.5	20.8
447186	28.2	20.7	174815	28.3	18.6	286850	28.3	20.2	367827	28.4	20.8	18934	28.4	19.1	390006	28.5	19.6
388126	28.2	20.5	489581	28.3	22.1	392759	28.3	20.8	138480	28.4	19.4	455810	28.4	21.2	87657	28.5	19.7
196276	28.2	19.0	482227	28.3	19.9	348188											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
27513	28.5	18.2	426024	28.6	20.2	247595	28.7	20.8	61328	28.7	19.1	182076	28.8	20.4	181724	28.9	19.6
41660	28.5	18.2	541430	28.6	20.3	538344	28.7	20.4	236981	28.7	21.1	345560	28.8	21.2	172644	28.9	19.1
45330	28.5	18.6	256153	28.6	20.5	79220	28.7	19.0	205656	28.7	20.6	513153	28.8	19.4	310125	28.9	20.2
234448	28.5	20.5	40691	28.6	18.2	12829	28.7	16.6	338214	28.7	21.2	237506	28.8	20.5	366884	28.9	20.1
458448	28.5	21.3	506306	28.6	21.7	258517	28.7	20.3	31933	28.7	17.8	340690	28.8	21.5	398743	28.9	20.1
189299	28.5	20.1	363571	28.6	20.6	309525	28.7	20.4	395755	28.7	20.3	481449	28.8	21.3	483901	28.9	21.4
377495	28.5	19.7	538604	28.6	21.3	393457	28.7	20.6	39265	28.7	18.5	328330	28.8	21.3	85486	28.9	19.9
149979	28.5	19.2	349939	28.6	19.5	57286	28.7	19.4	183649	28.7	20.6	275178	28.8	20.9	493515	28.9	21.5
455964	28.5	20.8	355834	28.6	21.9	337563	28.7	20.3	388013	28.7	21.2	231250	28.8	20.2	456605	28.9	19.7
238352	28.5	19.1	528416	28.6	21.2	314798	28.7	21.2	239902	28.7	20.4	2373	28.8	17.1	354218	28.9	19.6
324521	28.5	20.0	231129	28.6	20.7	22936	28.7	18.8	224284	28.7	19.9	377060	28.8	21.8	231720	28.9	18.6
164834	28.5	20.2	370540	28.6	20.3	50947	28.7	19.2	152994	28.7	18.9	468545	28.8	21.2	104689	28.9	19.3
243245	28.5	19.9	35	28.6	11.3	413525	28.7	20.7	252240	28.7	20.9	409515	28.8	21.3	66277	28.9	19.7
327433	28.5	20.9	428898	28.6	21.1	357634	28.7	20.1	422454	28.7	21.5	158867	28.8	19.7	50925	28.9	16.8
474575	28.5	19.0	250204	28.6	22.0	141534	28.7	19.0	58147	28.7	19.6	467185	28.8	20.6	237776	28.9	19.8
335996	28.5	20.3	407067	28.6	20.4	195227	28.7	20.0	541270	28.7	19.9	276620	28.8	21.5	144805	28.9	19.9
232679	28.5	19.7	317663	28.6	19.3	384568	28.7	19.9	306115	28.7	20.8	456396	28.8	21.5	164183	28.9	19.6
20757	28.5	18.0	354504	28.6	21.5	235164	28.7	19.1	226985	28.7	20.1	32146	28.8	18.3	20611	28.9	17.0
417034	28.5	21.2	414485	28.6	20.2	256170	28.7	20.7	76788	28.7	18.6	46547	28.8	18.2	419333	28.9	20.8
306531	28.5	20.6	41014	28.6	18.4	422954	28.7	22.0	241551	28.7	19.6	238695	28.8	19.4	467180	28.9	20.7
458238	28.5	21.9	148544	28.6	20.2	230552	28.7	20.1	60454	28.7	22.6	412211	28.8	19.5	169260	28.9	19.7
277055	28.5	20.6	462482	28.6	20.8	99836	28.7	18.9	146254	28.7	18.9	194768	28.8	20.3	238775	28.9	19.4
508749	28.5	20.6	395418	28.6	20.5	419813	28.7	20.7	262535	28.7	20.3	150555	28.8	20.3	455855	28.9	20.1
56768	28.5	18.1	153960	28.6	19.8	234974	28.7	19.7	464657	28.7	20.7	266847	28.8	20.0	215913	28.9	18.7
59167	28.5	18.2	430412	28.6	21.7	29345	28.7	16.9	496295	28.7	21.6	282949	28.8	19.8	264271	28.9	20.6
349717	28.5	19.8	124498	28.6	20.6	97910	28.7	19.7	433688	28.7	20.3	353974	28.8	19.9	227631	28.9	20.5
158895	28.5	20.2	325470	28.6	20.7	27202	28.7	17.4	288429	28.7	19.5	91401	28.8	19.9	441869	28.9	20.4
230702	28.5	19.7	95240	28.6	18.4	258268	28.7	20.1	182557	28.7	20.0	390877	28.8	20.9	175765	28.9	20.0
279924	28.6	20.9	406960	28.6	21.4	269783	28.7	19.5	136904	28.7	19.4	47646	28.8	18.0	71268	28.9	18.8
324492	28.6	20.8	451017	28.6	19.8	367880	28.7	20.0	458595	28.7	19.7	282999	28.8	21.1	405940	28.9	20.4
459807	28.6	21.1	408660	28.6	21.1	317626	28.7	20.3	21607	28.7	17.0	407505	28.8	21.2	424964	28.9	21.1
301261	28.6	21.2	441670	28.6	21.8	526935	28.7	22.9	245931	28.7	20.2	409578	28.8	19.7	235476	28.9	19.9
87912	28.6	18.3	25569	28.6	17.8	331715	28.7	21.3	46531	28.7	18.9	55348	28.8	17.8	135478	28.9	20.6
16244	28.6	18.6	131831	28.6	19.8	473793	28.7	21.0	223700	28.7	19.6	158571	28.8	20.0	1310	28.9	14.3
492983	28.6	20.6	54146	28.6	18.7	110327	28.7	20.0	424763	28.7	22.5	330475	28.8	20.9	49230	28.9	19.8
60858	28.6	18.7	456267	28.6	22.2	464310	28.7	21.2	475739	28.7	20.8	544829	28.8	21.4	483013	28.9	21.0
415722	28.6	21.4	87409	28.6	20.0	417257	28.7	20.9	93101	28.7	18.5	249979	28.8	19.1	79113	28.9	19.0
270303	28.6	20.5	78198	28.6	19.4	47689	28.7	18.1	367589	28.7	20.9	483882	28.8	21.3	84205	28.9	19.2
339585	28.6	20.7	241729	28.6	20.0	94730	28.7	19.5	282801	28.7	20.9	97420	28.8	19.9	169228	28.9	19.9
82083	28.6	18.1	25254	28.6	18.7	68613	28.7	18.0	500584	28.7	21.2	452197	28.8	20.7	421869	28.9	21.0
276569	28.6	20.5	368151	28.6	21.1	461923	28.7	21.1	534472	28.7	20.4	56532	28.8	19.0	1998	28.9	15.0
464840	28.6	20.6	544128	28.6	20.4	391427	28.7	19.3	410575	28.7	20.3	132040	28.8	19.1	102099	28.9	19.8
502153	28.6	20.2	360035	28.6	20.5	24204	28.7	18.4	235529	28.7	19.7	289251	28.8	20.4	544635	28.9	21.1
294859	28.6	20.7	110856	28.6	20.4	37360	28.7	18.2	337813	28.7	20.4	112686	28.8	19.8	234968	28.9	18.9
282961	28.6	20.9	256242	28.6	21.0	492070	28.7	20.5	349996	28.8	19.6	54927	28.8	18.8	440452	28.9	21.5
166782	28.6	20.2	491356	28.6	20.9	400376	28.7	20.7	473858	28.8	21.1	367572	28.8	20.1	250138	28.9	21.0
89221	28.6	19.7	4796	28.6	17.1	314782	28.7	20.2	329820	28.8	21.3	528229	28.8	21.4	417189	28.9	21.2
226153	28.6	20.1	177724	28.6	19.0	117677	28.7	19.7	539906	28.8	19.8	232147	28.8	19.9	396817	28.9	19.9
454229	28.6	19.9	151170	28.6	19.5	201012	28.7	20.4	489307	28.8	21.1	133061	28.8	19.2	163534	28.9	19.9
453027	28.6	20.7	137573	28.6	19.8	539863	28.7	20.2	220633	28.8	20.1	456304	28.8	21.6	204250	28.9	19.9
58324	28.6	19.5	205461	28.6	20.7	498884	28.7	20.8	309436	28.8	20.6	231201	28.8	20.1	168535	28.9	20.0
363836	28.6	21.3	505848	28.6	20.9	161449	28.7	19.9	194240	28.8	19.7	109342	28.8	19.9	76450	28.9	18.2
293739	28.6	20.9	55171	28.6	19.1	354547	28.7	21.2	493270	28.8	21.6	192446	28.8	21.1	231077	28.9	20.6
243728	28.6	18.8	9287	28.6	18.6	142641	28.7	20.0	101337	28.8	19.2	115251	28.8	19.0	523508	28.9	20.9
92838	28.6	20.0	239357	28.6	20.2	290467	28.7	21.3	108777	28.8	19.2	433845	28.8	21.3	20413	28.9	18.8
104436	28.6	19.7	43297	28.6	19.1	451682	28.7	19.9	15598	28.8	16.6	54155	28.8	18.9	264441	28.9	21.4
433433	28.6	21.1	40508	28.6	18.6	213938	28.7	19.8	104661	28.8	19.3	447226	28.8	21.0	9264	28.9	17.7
170864	28.6	19.4	89305	28.6	19.5	155134	28.7	20.4	221144	28.8	19.7	104554	28.8	18.5	260809	28.9	21.1
182926	28.6	23.6	16264	28.6	18.4	419491	28.7	19.7	430383	28.8	21.1	334942	28.8	18.6	112652	28.9	20.2
8533	28.6	16.6	428910	28.6	20.4	143796	28.7	18.1	486151	28.8	21.8	285627	28.8	20.8	51725	28.9	19.3
296728	28.6	20.0	340740	28.6	20.9	436055	28.7	21.0	213691	28.8	20.6	264099	28.8	20.2	18732	28.9	17.6
64244	28.6	19.0	189667	28.6	19.9	427070	28.7	20.7	40944	28.8	18.7	467584	28.8	20.8	336746	28.9	20.9
187759	28.6	20.3	426730	28.6	20.8	473448	28.7	20.5	249018	28.8	19.8	377560	28.8	20.2	87733	28.9	19.1
61001	28.6	19.2	387006	28.6	21.0	36164	28.7	18.0	343770	28.8	19.7	406563	28.8	19.8	146359	28.9	20.1
105952	28.6	19.9	532485	28.6	21.4	465938	28.7	21.7	125176	28.8	20.1	352789	28.8	21.7	348287	28.9	20.3
451467	28.6	22.0	211756	28.7	20.5	187167	28.7	19.5	57988	28.8	19.0	352849	28.8	20.0	243683	28.9	20.3
66533	28.6	18.9	201841	28.7	19.8	419728	28.7	20.4	289265	28.8	20.9	261946	28.8	21.0	461691	28.9	21.7
466391	28.6	21.1	489622	28.7	21.5	39312	28.7	17.5	137070	28.8	19.6	194945	28.8	18.7	128494	28.9	19.2
544283	28.6	22.0	328624	28.7	20.7	252557	28.7	20.0									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
326049	28.9	20.4	427307	28.9	20.5	432053	29.0	21.8	407516	29.1	21.2	23541	29.2	18.7	466396	29.2	21.6
538892	28.9	21.4	536332	28.9	21.4	407979	29.0	20.6	441863	29.1	20.1	45538	29.2	19.2	22730	29.2	18.2
168489	28.9	21.1	157233	28.9	19.4	406178	29.0	20.3	442898	29.1	20.4	250246	29.2	19.8	188828	29.2	20.5
234065	28.9	19.8	131434	28.9	19.5	284811	29.0	20.1	395443	29.1	21.3	465440	29.2	21.3	126328	29.2	19.2
8726	28.9	17.4	363595	28.9	19.3	293337	29.0	20.2	51059	29.1	18.9	337538	29.2	21.4	8721	29.2	17.0
334148	28.9	21.0	428356	28.9	21.0	30591	29.0	18.4	152917	29.1	18.9	365209	29.2	20.4	494869	29.2	20.8
522152	28.9	20.7	322886	28.9	19.5	427553	29.0	21.2	10809	29.1	18.1	235490	29.2	18.8	498864	29.2	20.6
63651	28.9	19.1	405963	28.9	21.8	163353	29.0	19.9	425349	29.1	20.4	526151	29.2	22.0	532251	29.2	21.6
343875	28.9	20.4	216149	28.9	20.2	375387	29.0	20.2	331817	29.1	21.7	411213	29.2	20.9	134261	29.2	19.2
543996	28.9	21.4	156151	28.9	19.8	484650	29.0	21.1	394826	29.1	21.2	283897	29.2	19.3	456395	29.2	21.9
6099	28.9	18.4	168381	28.9	18.5	417676	29.0	19.5	23914	29.1	17.8	74387	29.2	19.9	503666	29.2	20.2
151638	28.9	20.7	10949	28.9	17.6	155029	29.0	19.9	42487	29.1	19.0	13253	29.2	16.9	219873	29.2	19.6
376992	28.9	21.5	86991	28.9	19.6	149519	29.0	18.1	467991	29.1	20.8	77763	29.2	17.9	245176	29.2	19.9
440258	28.9	21.5	47716	28.9	18.8	435343	29.0	20.9	103590	29.1	19.2	175001	29.2	19.8	543850	29.2	21.0
234372	28.9	20.3	78773	28.9	19.2	163496	29.0	19.4	133169	29.1	20.2	217096	29.2	20.2	415094	29.2	19.7
235759	28.9	20.3	79087	28.9	18.9	17941	29.0	17.3	535506	29.1	20.4	50676	29.2	17.9	441622	29.2	21.7
485459	28.9	20.7	544751	28.9	21.6	245528	29.0	19.9	75650	29.1	17.6	417065	29.2	21.4	498223	29.2	21.2
431182	28.9	21.3	79100	28.9	18.7	404925	29.0	19.5	521995	29.1	20.7	411247	29.2	22.1	504798	29.2	20.7
809	28.9	15.7	280632	28.9	20.2	445044	29.0	20.3	318839	29.1	20.0	496609	29.2	20.6	397160	29.2	21.0
293631	28.9	20.4	325463	28.9	19.8	430237	29.0	22.2	460478	29.1	20.7	39306	29.2	17.6	134328	29.2	19.3
73926	28.9	19.3	4887	28.9	17.5	178906	29.0	19.7	194045	29.1	19.5	344572	29.2	20.5	85605	29.2	17.7
398653	28.9	19.6	461764	28.9	20.4	426802	29.0	20.4	83922	29.1	19.3	347697	29.2	19.6	112430	29.2	19.5
131524	28.9	20.2	322186	28.9	20.5	187934	29.0	18.8	252530	29.1	20.0	502176	29.2	20.7	339920	29.2	19.2
290092	28.9	20.4	204561	28.9	20.3	503319	29.0	19.9	446741	29.1	21.9	171345	29.2	18.9	64946	29.2	17.7
428424	28.9	20.5	260731	28.9	20.3	417505	29.0	19.5	203855	29.1	20.3	418385	29.2	20.8	497754	29.2	22.2
457215	28.9	19.7	308229	28.9	19.7	22212	29.0	17.4	93614	29.1	19.5	115823	29.2	19.4	121092	29.3	18.0
313473	28.9	21.6	79279	28.9	19.1	207607	29.1	20.3	432515	29.1	19.7	505442	29.2	20.5	281075	29.3	21.0
465798	28.9	20.3	79530	28.9	19.1	493150	29.1	20.1	165129	29.1	19.7	461116	29.2	20.9	466217	29.3	20.4
451765	28.9	20.0	537868	28.9	20.6	262578	29.1	21.9	230530	29.1	18.2	91277	29.2	18.5	58879	29.3	17.2
110854	28.9	19.1	359575	28.9	20.7	241803	29.1	20.5	158303	29.1	20.3	96081	29.2	20.2	471194	29.3	19.7
245738	28.9	19.9	460814	28.9	20.8	453179	29.1	19.5	242233	29.1	21.3	197356	29.2	19.8	66222	29.3	18.9
63542	28.9	18.7	418187	28.9	20.2	226634	29.1	18.0	508618	29.1	20.3	230006	29.2	18.8	522232	29.3	21.1
425978	28.9	20.8	29180	28.9	18.5	410020	29.1	20.9	155913	29.1	20.0	524992	29.2	22.0	290648	29.3	20.7
424920	28.9	21.1	21230	28.9	17.6	44903	29.1	18.8	79821	29.1	19.1	512300	29.2	20.7	491308	29.3	20.5
90143	28.9	18.7	448940	28.9	20.6	238	29.1	12.4	61054	29.1	19.1	459355	29.2	20.2	466529	29.3	19.7
518972	28.9	20.9	100840	28.9	18.8	21238	29.1	16.6	483594	29.1	20.2	231185	29.2	19.8	87023	29.3	18.2
125391	28.9	18.7	412129	28.9	20.0	197438	29.1	20.2	185349	29.1	20.3	143124	29.2	18.6	110815	29.3	19.9
41107	28.9	19.5	84242	28.9	20.5	125307	29.1	18.9	352760	29.1	21.2	306002	29.2	21.0	238782	29.3	20.4
82797	28.9	18.3	202694	28.9	20.3	219417	29.1	19.7	142780	29.1	19.3	46221	29.2	18.1	211189	29.3	19.0
525180	28.9	21.3	313465	28.9	21.2	351777	29.1	19.6	35055	29.1	16.8	146693	29.2	19.5	5449	29.3	17.4
409242	28.9	18.9	323512	28.9	19.6	306509	29.1	20.5	20931	29.1	16.4	456489	29.2	22.2	466462	29.3	21.5
139898	28.9	19.9	179587	28.9	19.0	541862	29.1	21.4	408762	29.1	21.4	166895	29.2	20.0	420732	29.3	20.0
4283	28.9	15.8	529476	28.9	20.7	256219	29.1	20.1	471288	29.1	21.4	434234	29.2	21.5	541711	29.3	22.9
507549	28.9	20.4	381327	28.9	19.9	237722	29.1	20.3	197494	29.1	19.6	131466	29.2	19.6	113979	29.3	19.3
10383	28.9	17.3	73481	28.9	18.1	194819	29.1	18.0	119669	29.1	18.6	362464	29.2	20.0	417173	29.3	21.4
155926	28.9	20.0	185900	29.0	19.7	194487	29.1	18.9	255898	29.1	21.0	520435	29.2	21.1	315689	29.3	20.3
10141	28.9	16.5	391490	29.0	20.1	27520	29.1	18.5	235966	29.1	18.9	472353	29.2	19.0	244924	29.3	19.9
16938	28.9	17.4	380659	29.0	20.3	441017	29.1	19.8	197257	29.1	19.3	409979	29.2	20.7	32254	29.3	18.1
460324	28.9	20.0	306549	29.0	21.0	91382	29.1	18.3	360789	29.1	19.1	323947	29.2	19.8	170734	29.3	20.0
498228	28.9	21.4	176733	29.0	20.2	59364	29.1	17.9	528338	29.1	21.0	154356	29.2	21.0	416627	29.3	21.6
392702	28.9	20.1	284919	29.0	20.4	327061	29.1	20.6	70646	29.1	18.9	275772	29.2	21.2	416891	29.3	20.8
162956	28.9	20.1	368618	29.0	21.3	50077	29.1	18.2	371299	29.1	20.5	339935	29.2	20.6	475547	29.3	20.4
75401	28.9	19.0	461782	29.0	20.4	204014	29.1	18.2	365803	29.1	20.9	455287	29.2	20.6	542608	29.3	20.7
491352	28.9	21.3	92950	29.0	18.9	105637	29.1	20.4	85085	29.1	19.9	79137	29.2	19.1	238880	29.3	19.5
50528	28.9	17.5	311069	29.0	21.1	347245	29.1	19.8	532846	29.1	21.6	124562	29.2	19.7	282826	29.3	20.7
509986	28.9	20.4	153213	29.0	18.9	352678	29.1	21.8	69204	29.1	19.1	132882	29.2	19.8	55365	29.3	18.7
75874	28.9	19.2	69849	29.0	19.9	335681	29.1	20.3	363818	29.1	21.1	345207	29.2	20.0	493238	29.3	21.6
38657	28.9	19.7	455818	29.0	20.6	124127	29.1	18.5	296362	29.1	20.6	203070	29.2	21.3	240916	29.3	19.4
448776	28.9	21.1	139430	29.0	19.0	110535	29.1	19.5	3884	29.1	16.9	465217	29.2	21.3	326994	29.3	20.3
390823	28.9	21.0	286670	29.0	20.0	6636	29.1	17.1	402925	29.2	21.7	304062	29.2	20.8	78787	29.3	19.2
186394	28.9	20.3	201351	29.0	20.8	84495	29.1	19.0	205542	29.2	20.6	493349	29.2	21.6	81592	29.3	18.7
493118	28.9	21.1	534778	29.0	21.5	256130	29.1	19.7	48788	29.2	18.3	60296	29.2	18.1	197519	29.3	19.6
461723	28.9	21.3	400562	29.0	19.5	236953	29.1	19.8	493247	29.2	20.5	175978	29.2	18.5	128766	29.3	20.0
151325	28.9	19.8	516991	29.0	21.4	498222	29.1	20.8	489407	29.2	21.6	495471	29.2	21.3	302904	29.3	20.4
77484	28.9	18.5	53557	29.0	18.5	542786	29.1	20.3	442650	29.2	21.0	334659	29.2	21.1	5799	29.3	17.5
466350	28.9	20.6	202620	29.0	19.8	255996	29.1	19.7	129102	29.2	19.6	209708	29.2	19.2	450008	29.3	21.7
283408	28.9	20.3	247522	29.0	21.0	261287	29.1	21.0	139864	29.2	19.8	183880	29.2	19.8	416192	29.3	20.3
80921	28.9	17.8	20091	29.0	17.4	258115	29.1	21.0	176877	29.2	20.4	495163	29.2	19.6	44677	29.3	18.0
8806	28.9	17.4	395078	29.0	20.6	281603	29.1	20.3	147385								

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
336518	29.3	21.0	494872	29.4	20.8	64646	29.4	18.7	204141	29.5	19.3	405643	29.6	21.4	509424	29.6	20.1
383367	29.3	20.7	272644	29.4	20.2	502917	29.4	21.0	7808	29.5	15.7	408419	29.6	20.4	33907	29.6	18.6
52585	29.3	18.3	164916	29.4	19.0	503314	29.4	20.8	389886	29.5	20.6	480837	29.6	22.2	395320	29.6	20.5
243361	29.3	20.4	205027	29.4	19.9	186595	29.4	19.4	178318	29.5	19.5	322826	29.6	20.6	197866	29.6	20.2
162773	29.3	20.0	8333	29.4	16.8	422515	29.4	21.3	178249	29.5	20.5	3625	29.6	16.2	464299	29.6	21.6
400565	29.3	21.4	405071	29.4	21.5	373936	29.4	21.6	467575	29.5	20.7	240065	29.6	19.8	17150	29.6	18.5
379808	29.3	20.8	83229	29.4	18.6	230431	29.4	20.5	334272	29.5	21.6	335925	29.6	21.1	306274	29.6	20.9
73530	29.3	19.4	32122	29.4	18.8	263259	29.4	20.7	87813	29.5	19.6	529555	29.6	20.5	123294	29.6	20.0
136392	29.3	20.0	239216	29.4	20.2	66219	29.4	17.8	2185	29.5	15.7	141489	29.6	19.3	389617	29.6	20.2
314728	29.3	21.1	312332	29.4	19.7	109417	29.4	19.2	456844	29.5	21.4	142513	29.6	18.9	521006	29.6	20.3
340034	29.3	20.6	401884	29.4	20.3	436728	29.4	21.5	238345	29.5	19.4	373719	29.6	21.0	146388	29.6	19.4
169259	29.3	21.0	438035	29.4	21.1	40449	29.4	19.0	541560	29.5	20.6	544661	29.6	20.3	30202	29.6	18.0
76370	29.3	18.6	141525	29.4	20.6	34321	29.4	18.5	10276	29.5	18.3	364456	29.6	21.0	214402	29.6	19.8
490138	29.3	21.8	247756	29.4	19.4	330805	29.4	21.6	191450	29.5	20.3	446683	29.6	20.2	455759	29.6	21.8
501590	29.3	20.9	50852	29.4	18.5	144682	29.4	18.9	134055	29.5	19.7	327254	29.6	19.8	407468	29.6	21.7
462420	29.3	21.1	45067	29.4	17.5	185665	29.4	20.3	57478	29.5	18.2	234389	29.6	20.3	2258	29.6	15.3
3275	29.3	15.5	262901	29.4	19.6	297151	29.4	20.9	423864	29.5	20.6	542226	29.6	21.2	109053	29.6	19.0
172043	29.3	20.6	267824	29.4	20.0	274659	29.4	20.5	468707	29.5	21.1	397529	29.6	21.5	254027	29.6	19.3
514315	29.3	19.8	177533	29.4	19.4	278787	29.4	20.3	414601	29.5	20.6	8880	29.6	17.3	10166	29.6	17.9
91833	29.3	19.5	389194	29.4	20.2	398722	29.4	20.4	290510	29.5	20.6	325580	29.6	19.2	279759	29.6	19.6
227308	29.3	20.3	429292	29.4	20.4	349517	29.4	20.7	35453	29.5	18.1	149680	29.6	19.2	246663	29.6	20.6
63675	29.3	19.0	41363	29.4	18.4	265088	29.4	20.6	152684	29.5	19.2	178290	29.6	20.4	348155	29.6	19.7
164839	29.3	20.7	113769	29.4	19.2	29182	29.4	18.7	38199	29.5	19.0	396771	29.6	20.5	415160	29.6	20.6
103752	29.3	19.1	463058	29.4	20.6	125841	29.4	19.5	323535	29.5	20.8	424957	29.6	20.2	467979	29.6	21.1
104929	29.3	19.8	123351	29.4	19.8	344583	29.4	18.5	136779	29.5	20.2	130609	29.6	19.2	462361	29.6	21.1
110045	29.3	19.4	454968	29.4	21.5	492268	29.4	21.3	24757	29.5	17.5	204319	29.6	20.6	464148	29.6	21.3
424334	29.3	20.5	117721	29.4	18.7	325249	29.4	20.1	345058	29.5	21.0	411378	29.6	20.8	221547	29.6	20.7
543539	29.3	21.8	266686	29.4	21.6	202004	29.4	20.0	481190	29.5	20.8	101216	29.6	20.6	59130	29.6	19.6
130544	29.3	18.8	182678	29.4	20.1	7300	29.4	16.9	495527	29.5	20.5	427052	29.6	21.3	97786	29.6	19.4
307296	29.3	19.7	296741	29.4	20.7	85914	29.4	18.4	319907	29.5	21.1	38070	29.6	17.9	87036	29.6	19.5
347944	29.3	19.6	441638	29.4	22.0	529363	29.4	21.5	216245	29.5	20.0	156108	29.6	20.1	523527	29.6	20.8
71503	29.3	17.7	244167	29.4	19.8	292000	29.4	21.2	157252	29.5	19.8	290515	29.6	20.1	456426	29.6	22.1
432545	29.3	20.2	181320	29.4	19.1	406614	29.4	20.3	538873	29.5	21.4	368009	29.6	19.6	63485	29.6	19.3
317522	29.3	20.9	327430	29.4	20.5	402580	29.4	21.6	312510	29.5	20.1	105027	29.6	19.7	377179	29.6	20.9
41621	29.3	18.7	31959	29.4	18.4	273343	29.4	21.3	166690	29.5	20.1	246203	29.6	20.4	419016	29.6	22.2
341697	29.3	20.0	443457	29.4	20.9	299049	29.4	21.2	253217	29.5	21.6	341796	29.6	20.4	104926	29.6	18.6
194317	29.3	20.6	388059	29.4	18.4	416532	29.4	20.1	3886	29.5	16.6	338890	29.6	19.5	455836	29.6	20.9
302470	29.3	19.3	543253	29.4	22.2	99246	29.4	19.1	121214	29.5	20.2	30357	29.6	18.5	392984	29.6	20.7
194385	29.3	20.2	322875	29.4	19.9	331756	29.4	20.5	353736	29.5	20.4	202020	29.6	20.7	323936	29.6	20.3
46451	29.3	18.9	433852	29.4	20.6	4812	29.5	17.4	323805	29.5	19.7	420238	29.6	20.5	268297	29.6	18.6
281365	29.3	20.7	428141	29.4	20.9	226725	29.5	20.3	465800	29.5	20.5	238784	29.6	19.5	284172	29.6	19.6
133031	29.3	19.7	178066	29.4	20.3	101203	29.5	19.3	341490	29.5	20.5	373316	29.6	20.2	148973	29.6	19.9
395360	29.3	20.9	253173	29.4	20.9	219690	29.5	18.7	361186	29.5	20.3	364182	29.6	21.1	88831	29.6	19.1
186667	29.3	20.5	116709	29.4	19.0	448459	29.5	19.7	236251	29.5	19.2	351680	29.6	19.7	452344	29.6	21.1
16186	29.3	16.2	154711	29.4	19.3	32429	29.5	18.2	432540	29.5	20.7	76738	29.6	18.1	288264	29.6	19.7
411258	29.3	20.5	237526	29.4	19.3	517808	29.5	21.0	244535	29.5	20.4	353399	29.6	20.5	232788	29.6	20.1
58973	29.3	20.1	58534	29.4	23.0	412360	29.5	19.6	218679	29.5	20.4	32782	29.6	19.1	195939	29.6	19.1
430244	29.3	22.0	125459	29.4	19.9	380700	29.5	19.9	135798	29.5	19.8	388088	29.6	19.5	84762	29.6	19.1
344529	29.3	20.9	524833	29.4	20.8	7220	29.5	18.0	90551	29.5	18.8	376610	29.6	20.2	254875	29.6	19.3
384596	29.3	20.3	381211	29.4	21.2	261352	29.5	20.8	341623	29.5	20.0	161019	29.6	19.5	461184	29.6	22.1
158536	29.3	21.1	376625	29.4	21.0	145746	29.5	19.4	509545	29.5	20.9	240795	29.6	19.5	96912	29.6	19.6
184118	29.3	19.9	264420	29.4	20.9	180101	29.5	19.6	299527	29.5	19.1	501733	29.6	19.9	146049	29.6	18.3
322527	29.3	20.9	494870	29.4	20.6	19734	29.5	17.7	543507	29.5	21.6	498908	29.6	20.6	333125	29.7	21.6
272223	29.3	20.4	227422	29.4	19.7	243226	29.5	21.2	463761	29.5	21.8	1630	29.6	14.9	272642	29.7	20.2
58701	29.3	18.5	30074	29.4	17.0	252435	29.5	20.0	101566	29.5	17.7	479335	29.6	20.8	239336	29.7	20.4
440497	29.3	21.8	336510	29.4	21.0	426898	29.5	20.2	231107	29.5	20.4	455904	29.6	21.2	347665	29.7	21.5
226771	29.3	19.9	231202	29.4	20.2	391798	29.5	21.2	492753	29.5	20.4	538589	29.6	20.8	295512	29.7	20.6
398111	29.3	19.3	404809	29.4	20.6	223658	29.5	21.0	447429	29.5	20.6	228172	29.6	21.7	189413	29.7	20.7
242142	29.3	20.1	52222	29.4	18.7	121410	29.5	19.6	43371	29.5	18.8	256183	29.6	20.2	206275	29.7	20.7
158200	29.3	19.0	489848	29.4	20.2	370567	29.5	21.2	83546	29.5	19.9	195652	29.6	20.0	5155	29.7	16.9
8738	29.3	18.7	167559	29.4	19.3	164188	29.5	19.7	159769	29.5	18.4	356051	29.6	19.6	283885	29.7	19.1
186442	29.3	20.3	145768	29.4	20.0	11442	29.5	16.9	364402	29.5	20.6	452935	29.6	21.3	368820	29.7	20.9
311809	29.3	20.4	53901	29.4	18.1	110138	29.5	18.9	435386	29.5	20.6	396861	29.6	20.6	237693	29.7	20.6
39917	29.3	18.1	364015	29.4	21.2	76705	29.5	19.2	502450	29.5	20.9	202039	29.6	20.2	152367	29.7	19.9
276639	29.3	20.2	517770	29.4	21.4	26243	29.5	18.1	365430	29.5	19.9	313484	29.6	20.7	366975	29.7	21.0
216191	29.3	19.5	301934	29.4	19.9	95158	29.5	19.7	172394	29.5	19.2	527046	29.6	21.4	381231	29.7	20.5
136003	29.3	20.0	6189	29.4	16.7	454267	29.5	20.2	345989	29.5	20.7	67366	29.6	18.3	421602	29.7	20.9
209450	29.3	19.2	143677	29.4	19.3	489661	29.5	22.5	32883	29.5	17.8	153034	29.6	20.4	534568	29.7	21.9
229397	29.3	19.7	432158	29.4	20.2	493024	29.5	2									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
226876	29.7	20.8	234507	29.7	19.9	432179	29.8	21.5	300381	29.9	21.1	192432	29.9	20.1	463803	30.0	19.8
406081	29.7	22.3	214111	29.7	20.8	66382	29.8	18.4	499975	29.9	20.5	82412	29.9	18.1	268131	30.0	19.5
463973	29.7	20.9	203851	29.7	20.2	340055	29.8	19.4	21882	29.9	18.6	48033	29.9	18.7	87041	30.0	18.7
84630	29.7	18.9	320850	29.7	19.6	384196	29.8	19.9	5112	29.9	16.9	295392	29.9	20.8	382465	30.0	20.7
100650	29.7	19.7	142670	29.7	18.1	459911	29.8	21.3	182233	29.9	19.1	235951	29.9	20.1	201286	30.0	19.3
65378	29.7	19.2	232727	29.7	19.7	527271	29.8	21.3	522143	29.9	21.2	181402	29.9	19.0	430492	30.0	21.7
206390	29.7	20.7	320711	29.7	20.4	353949	29.8	20.9	145439	29.9	18.0	138055	29.9	19.1	394109	30.0	21.0
114493	29.7	19.8	326975	29.7	20.8	163362	29.8	19.6	28239	29.9	18.3	542091	29.9	21.5	220	30.0	15.1
243056	29.7	20.8	435175	29.7	20.9	213270	29.8	18.8	288756	29.9	19.9	292834	29.9	20.3	53317	30.0	17.3
371307	29.7	20.1	149627	29.7	19.5	84072	29.8	19.3	465579	29.9	20.9	148782	29.9	20.6	439390	30.0	21.0
229344	29.7	20.5	542996	29.7	19.8	258388	29.8	20.6	461052	29.9	20.1	67423	29.9	18.0	122168	30.0	19.3
451659	29.7	19.7	124640	29.7	19.7	402705	29.8	21.5	431469	29.9	21.4	26225	29.9	18.5	179905	30.0	21.0
136283	29.7	18.4	447089	29.7	21.5	58161	29.8	19.2	407367	29.9	21.1	456552	29.9	22.0	236148	30.0	19.6
527495	29.7	21.4	406643	29.7	20.2	83162	29.8	19.3	39525	29.9	16.6	160120	29.9	19.8	192967	30.0	20.0
110972	29.7	19.6	65823	29.7	19.6	227557	29.8	20.4	400276	29.9	22.0	467409	29.9	20.1	145556	30.0	19.6
409964	29.7	21.3	118802	29.7	19.0	229040	29.8	19.0	345535	29.9	20.9	171033	29.9	20.7	201455	30.0	18.8
493322	29.7	20.7	10387	29.7	17.7	195186	29.8	18.9	257053	29.9	20.1	176203	29.9	19.3	53039	30.0	18.5
261422	29.7	20.3	83288	29.7	19.6	544825	29.8	21.8	207556	29.9	20.6	172320	29.9	20.4	293676	30.0	19.3
244179	29.7	20.2	110235	29.7	19.4	77679	29.8	17.9	354514	29.9	21.0	48623	29.9	19.4	107979	30.0	18.6
284089	29.7	20.1	372004	29.7	20.2	535233	29.8	20.7	122079	29.9	18.3	303034	29.9	20.3	519935	30.0	21.1
410968	29.7	20.0	62867	29.7	19.4	319635	29.8	20.9	446265	29.9	19.6	488554	29.9	21.4	64090	30.0	18.9
350089	29.7	20.7	124482	29.7	18.4	489740	29.8	21.6	194144	29.9	20.2	405585	29.9	21.3	6521	30.0	16.3
283130	29.7	20.3	284989	29.7	20.8	538076	29.8	21.0	75607	29.9	19.5	305039	29.9	21.1	285572	30.0	20.2
196348	29.7	19.4	502827	29.7	20.2	461323	29.8	20.2	142415	29.9	20.1	82183	29.9	18.8	8786	30.0	18.5
318848	29.7	20.3	158994	29.7	19.7	483728	29.8	22.0	450848	29.9	20.5	355476	29.9	19.8	109761	30.0	19.0
58605	29.7	18.9	403109	29.7	20.3	274022	29.8	20.9	430500	29.9	21.5	333620	29.9	21.2	217789	30.0	20.4
433066	29.7	20.9	277970	29.7	21.1	413536	29.8	20.5	444310	29.9	20.4	354518	29.9	21.2	285920	30.0	21.2
14894	29.7	18.0	224423	29.8	19.9	233700	29.8	19.2	118686	29.9	19.3	180469	29.9	19.0	362072	30.0	20.1
531387	29.7	21.3	415231	29.8	20.9	88861	29.8	19.1	169163	29.9	19.9	229766	29.9	20.1	320393	30.0	20.7
416029	29.7	20.5	489278	29.8	21.3	372068	29.8	21.2	218727	29.9	20.8	185889	29.9	19.7	311065	30.0	19.0
218743	29.7	18.6	337086	29.8	20.7	241872	29.8	20.8	155126	29.9	19.5	306708	29.9	19.4	494067	30.0	20.6
7748	29.7	17.8	377509	29.8	19.9	361619	29.8	20.1	101096	29.9	20.0	16682	29.9	17.6	277978	30.0	21.6
249190	29.7	20.8	541814	29.8	21.6	208216	29.8	19.9	28483	29.9	16.9	59295	29.9	18.1	301629	30.0	19.7
405655	29.7	21.4	477359	29.8	21.2	185055	29.8	20.0	293485	29.9	20.3	385913	29.9	20.5	32972	30.0	18.1
119762	29.7	19.2	195942	29.8	19.2	456677	29.8	21.4	461703	29.9	22.0	322293	29.9	19.8	417701	30.0	20.8
180512	29.7	19.2	52921	29.8	19.0	250198	29.8	21.2	543731	29.9	20.6	433336	29.9	21.4	317557	30.0	20.9
138111	29.7	18.5	271234	29.8	19.9	199363	29.8	20.5	457909	29.9	21.5	19529	29.9	18.2	466763	30.0	20.8
382407	29.7	20.8	47222	29.8	18.5	389315	29.8	21.3	335975	29.9	20.6	423391	29.9	20.4	321829	30.0	21.0
395947	29.7	20.5	264417	29.8	21.6	447002	29.8	20.3	465466	29.9	21.4	373864	29.9	20.5	82801	30.0	19.3
269372	29.7	20.2	207159	29.8	18.8	543043	29.8	21.1	5811	29.9	17.2	82424	29.9	18.7	142590	30.0	19.1
468858	29.7	20.8	468920	29.8	20.4	189476	29.8	20.2	334512	29.9	20.9	244827	29.9	19.0	76157	30.0	18.7
456329	29.7	21.8	106149	29.8	19.7	422135	29.8	21.9	429880	29.9	21.3	296661	29.9	20.6	313424	30.0	21.2
11009	29.7	17.5	541851	29.8	20.7	148121	29.8	20.3	9729	29.9	17.7	440536	29.9	20.4	11558	30.0	18.3
217565	29.7	20.0	531366	29.8	21.5	415652	29.8	20.9	454867	29.9	21.0	334111	29.9	20.7	4254	30.0	15.8
82348	29.7	19.3	11980	29.8	17.7	502531	29.8	21.0	268820	29.9	20.9	448244	29.9	20.5	356621	30.1	19.4
35250	29.7	19.0	25005	29.8	18.8	228774	29.8	19.8	458455	29.9	19.1	97405	29.9	19.0	233531	30.1	20.1
14337	29.7	17.9	406117	29.8	20.9	529571	29.8	20.7	233012	29.9	19.6	177996	29.9	21.0	97932	30.1	19.6
26187	29.7	17.9	105987	29.8	20.5	532731	29.8	21.0	509529	29.9	21.3	164584	29.9	20.2	233183	30.1	20.0
525687	29.7	21.7	424701	29.8	22.9	78180	29.8	19.5	142466	29.9	19.5	331631	29.9	19.2	116550	30.1	18.2
378253	29.7	20.5	50273	29.8	18.3	408983	29.8	20.7	361741	29.9	20.9	417900	29.9	20.6	327377	30.1	20.4
466425	29.7	21.3	402558	29.8	21.8	29045	29.9	18.6	349970	29.9	19.5	425406	29.9	20.6	223735	30.1	20.2
218637	29.7	20.3	261423	29.8	20.3	90108	29.9	18.4	219358	29.9	22.0	206158	29.9	20.4	324645	30.1	21.0
318981	29.7	20.4	185899	29.8	19.7	405062	29.9	21.4	492453	29.9	20.4	83933	29.9	19.1	105131	30.1	19.5
377559	29.7	19.1	290767	29.8	20.5	527366	29.9	22.0	506624	29.9	20.5	147295	29.9	19.6	370013	30.1	20.2
174628	29.7	20.3	126473	29.8	18.8	386861	29.9	19.9	292876	29.9	21.9	103269	29.9	18.1	81830	30.1	19.1
353445	29.7	19.4	70784	29.8	18.4	75382	29.9	18.1	385960	29.9	21.5	229679	30.0	20.5	409877	30.1	20.1
138088	29.7	19.6	530392	29.8	21.8	396884	29.9	20.1	519548	29.9	20.3	494837	30.0	22.0	417014	30.1	21.2
506095	29.7	19.9	130834	29.8	20.9	18466	29.9	17.5	230571	29.9	19.3	63720	30.0	19.2	544703	30.1	21.2
142612	29.7	19.8	82747	29.8	18.9	30998	29.9	19.2	52352	29.9	18.6	43269	30.0	18.6	46934	30.1	19.2
132178	29.7	18.8	484673	29.8	20.6	227080	29.9	20.0	1411	29.9	15.6	413469	30.0	19.3	90282	30.1	19.0
161100	29.7	19.4	334589	29.8	20.7	421187	29.9	20.3	277448	29.9	21.0	4849	30.0	17.0	222107	30.1	20.8
173131	29.7	20.6	461754	29.8	20.5	23988	29.9	17.8	200455	29.9	20.0	378424	30.0	21.4	102230	30.1	19.7
285112	29.7	20.9	348412	29.8	20.7	69304	29.9	18.5	311050	29.9	21.1	511579	30.0	20.5	45948	30.1	17.5
163769	29.7	19.8	262351	29.8	19.5	243459	29.9	20.6	406042	29.9	21.5	174481	30.0	20.1	405159	30.1	22.0
31458	29.7	17.3	231822	29.8	19.4	101485	29.9	20.9	259355	29.9	19.5	148745	30.0	19.8	64061	30.1	19.4
35668	29.7	16.6	125318	29.8	19.0	314974	29.9	21.2	455041	29.9	22.1	487679	30.0	19.7	194138	30.1	20.3
280201	29.7	21.0	52226	29.8	18.9	431215	29.9	20.9	340620	29.9	20.8	284458	30.0	19.8	94840	30.1	18.7
126402	29.7	17.5	260124	29.8	20.1	458230	29.9	21.0	374004	29.9	20.2	468003	30.0	21.4	29578	30.1	18.8
226224	29.7	19.9	341810	29.8	21.4	381338	29.9	20.8									

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
230002	30.1	19.6	225625	30.2	20.0	418881	30.2	20.9	525023	30.3	21.6	180577	30.3	20.2	19552	30.4	18.4
428501	30.1	20.6	19544	30.2	17.4	401540	30.2	20.0	47908	30.3	17.9	331081	30.3	20.9	417077	30.4	20.5
29561	30.1	18.2	7988	30.2	19.0	215005	30.2	20.2	204685	30.3	20.6	56866	30.3	18.7	417049	30.4	20.4
223852	30.1	20.1	226173	30.2	20.4	338942	30.2	18.8	26023	30.3	19.1	541124	30.3	21.8	241025	30.4	20.5
116673	30.1	18.9	124120	30.2	19.9	17062	30.2	18.1	262182	30.3	21.6	453067	30.3	22.6	113453	30.4	18.8
174221	30.1	20.7	207753	30.2	21.1	286001	30.2	20.6	256987	30.3	19.6	380376	30.3	22.2	249561	30.4	20.2
412278	30.1	20.2	334245	30.2	20.5	227089	30.2	20.8	326032	30.3	20.4	318432	30.3	19.5	281675	30.4	19.8
256886	30.1	20.0	136087	30.2	18.7	61593	30.2	19.6	250468	30.3	18.2	340465	30.3	20.6	543333	30.4	20.2
279883	30.1	21.1	403570	30.2	21.6	336530	30.2	20.9	131040	30.3	20.2	530954	30.3	20.9	140979	30.4	20.0
186655	30.1	20.3	213947	30.2	19.8	512162	30.2	21.7	484294	30.3	21.0	370711	30.3	21.2	236337	30.4	19.9
370523	30.1	21.0	29597	30.2	17.9	407592	30.2	20.5	295668	30.3	21.1	340409	30.3	20.3	170772	30.4	18.5
119686	30.1	20.1	442565	30.2	19.6	179307	30.2	19.4	338269	30.3	21.4	461808	30.4	20.8	239663	30.4	20.6
520921	30.1	20.6	279913	30.2	20.2	75778	30.2	18.0	22366	30.3	19.2	112433	30.4	20.0	483765	30.4	22.0
430721	30.1	19.1	74519	30.2	17.9	131817	30.2	18.9	244684	30.3	20.6	284644	30.4	20.3	156867	30.4	19.6
468500	30.1	20.5	338897	30.2	19.2	187890	30.2	20.4	411198	30.3	21.3	239401	30.4	20.8	369289	30.4	21.3
46472	30.1	18.2	440074	30.2	22.5	424859	30.2	21.7	416945	30.3	20.5	349076	30.4	19.7	534112	30.4	21.1
426887	30.1	20.0	54515	30.2	17.9	126468	30.2	18.5	75075	30.3	18.6	393640	30.4	20.8	428463	30.4	20.7
216976	30.1	19.7	492511	30.2	21.1	95274	30.2	20.2	378409	30.3	20.2	153328	30.4	20.0	255983	30.4	20.9
83279	30.1	19.2	405023	30.2	21.0	458210	30.2	22.2	373891	30.3	21.3	502294	30.4	20.9	235467	30.4	19.4
27351	30.1	18.3	373666	30.2	22.1	340676	30.2	20.7	427689	30.3	19.5	135227	30.4	19.9	122192	30.4	19.3
258111	30.1	20.2	53291	30.2	18.2	9437	30.2	17.0	529723	30.3	19.1	381972	30.4	20.1	425463	30.4	20.3
204566	30.1	21.3	257288	30.2	21.1	363792	30.2	21.2	325320	30.3	19.9	502124	30.4	20.8	445127	30.4	21.7
58160	30.1	18.2	193975	30.2	20.7	158448	30.2	19.3	112338	30.3	19.3	452142	30.4	21.2	524654	30.4	23.5
315753	30.1	19.7	512218	30.2	21.3	146373	30.2	19.4	502312	30.3	21.0	283969	30.4	21.2	71857	30.4	19.1
219205	30.1	19.2	235498	30.2	18.9	50692	30.2	18.4	85543	30.3	19.9	460158	30.4	21.5	142733	30.4	19.7
26160	30.1	18.3	54545	30.2	18.4	306181	30.2	19.6	285586	30.3	20.9	130621	30.4	20.2	87119	30.4	18.9
526704	30.1	22.6	31771	30.2	19.0	319775	30.2	21.3	127063	30.3	18.7	21875	30.4	17.9	396605	30.4	21.2
20508	30.1	17.6	204456	30.2	20.7	243963	30.2	19.7	149534	30.3	18.6	4957	30.4	17.8	290229	30.4	20.9
310440	30.1	20.8	524144	30.2	21.7	222495	30.2	19.7	113580	30.3	19.2	255933	30.4	20.2	89424	30.4	20.1
486866	30.1	19.9	296199	30.2	20.4	344230	30.2	20.8	36546	30.3	17.8	308769	30.4	21.4	441011	30.4	19.7
255972	30.1	20.2	122241	30.2	19.8	201796	30.2	20.3	542379	30.3	19.8	405040	30.4	20.9	201987	30.4	20.5
27804	30.1	18.9	535609	30.2	20.1	429359	30.3	20.0	389395	30.3	20.0	24144	30.4	18.5	152984	30.4	18.5
395336	30.1	19.8	166646	30.2	19.0	156734	30.3	19.7	227353	30.3	20.7	323778	30.4	20.8	463924	30.4	20.6
41073	30.1	19.2	429250	30.2	20.2	383666	30.3	22.2	82037	30.3	18.9	29178	30.4	18.6	15608	30.4	17.0
363211	30.1	21.2	413611	30.2	19.9	421103	30.3	20.8	529178	30.3	21.5	177853	30.4	20.4	293207	30.4	19.4
451541	30.1	21.5	155401	30.2	20.2	399560	30.3	22.2	407361	30.3	20.9	426296	30.4	21.0	206286	30.4	20.4
320680	30.1	20.6	112329	30.2	19.8	53366	30.3	17.4	499027	30.3	21.2	246759	30.4	20.7	532637	30.4	21.4
445193	30.1	21.6	338467	30.2	18.9	309271	30.3	20.7	306294	30.3	20.7	15266	30.4	18.6	424878	30.4	21.6
223291	30.1	19.3	319757	30.2	22.0	48466	30.3	18.4	105412	30.3	18.7	535296	30.4	20.9	445113	30.4	21.2
190829	30.1	20.1	381256	30.2	20.4	420884	30.3	20.8	281322	30.3	21.2	424914	30.4	20.5	158199	30.4	20.7
411364	30.1	20.7	303024	30.2	20.8	386166	30.3	20.4	410489	30.3	18.6	321026	30.4	20.4	290339	30.4	20.2
157968	30.1	19.2	18869	30.2	16.1	150497	30.3	20.1	345171	30.3	21.1	541879	30.4	20.8	97528	30.4	18.8
522394	30.1	20.7	34176	30.2	18.6	426278	30.3	21.2	320729	30.3	20.1	392273	30.4	19.9	14447	30.4	19.1
338184	30.1	21.1	34080	30.2	19.0	153202	30.3	19.8	421379	30.3	20.8	303186	30.4	18.8	197147	30.4	19.3
208424	30.1	20.6	274430	30.2	19.8	79493	30.3	18.2	125316	30.3	19.5	402657	30.4	20.8	483982	30.4	20.6
289135	30.1	21.1	486849	30.2	21.2	278549	30.3	20.1	441554	30.3	21.9	489411	30.4	20.5	144969	30.4	17.9
255929	30.1	20.5	116526	30.2	19.3	49509	30.3	19.0	82459	30.3	19.1	431489	30.4	20.9	330819	30.4	20.6
281146	30.1	19.7	455364	30.2	21.6	345272	30.3	21.0	52784	30.3	18.9	454397	30.4	20.8	250243	30.4	20.2
543021	30.1	20.7	133806	30.2	19.8	340105	30.3	20.4	38688	30.3	19.3	147128	30.4	19.3	7499	30.4	17.8
65903	30.1	19.0	323499	30.2	20.5	385518	30.3	20.1	46921	30.3	18.8	527609	30.4	21.7	368530	30.4	21.6
349092	30.1	20.2	132239	30.2	19.2	290320	30.3	20.0	8245	30.3	16.6	465054	30.4	21.1	315	30.4	15.8
110848	30.1	19.6	56739	30.2	17.9	159765	30.3	19.1	61224	30.3	18.2	453586	30.4	20.7	401898	30.4	21.4
3036	30.1	15.4	542381	30.2	21.8	278812	30.3	20.2	22492	30.3	18.7	345200	30.4	20.6	385877	30.4	20.6
348295	30.1	20.3	175382	30.2	20.6	453466	30.3	20.9	174208	30.3	20.5	81413	30.4	17.7	217003	30.4	20.9
380663	30.1	20.1	329843	30.2	21.0	380662	30.3	19.6	117005	30.3	19.1	362484	30.4	20.7	223995	30.4	18.9
397153	30.1	20.6	256745	30.2	19.0	322902	30.3	21.3	231392	30.3	19.4	152029	30.4	19.7	295457	30.4	19.4
276182	30.1	20.7	251039	30.2	20.1	152246	30.3	20.0	40366	30.3	18.5	92554	30.4	19.9	135264	30.4	19.9
138551	30.1	20.2	5756	30.2	18.3	365832	30.3	20.1	402308	30.3	22.2	426020	30.4	20.9	467268	30.4	20.2
276348	30.1	20.5	46929	30.2	18.2	409588	30.3	21.1	154879	30.3	20.1	462626	30.4	21.5	133888	30.4	20.6
125995	30.1	19.0	131485	30.2	20.1	484017	30.3	21.5	364311	30.3	21.1	171840	30.4	19.0	191383	30.4	20.2
136810	30.1	18.8	319511	30.2	21.8	448447	30.3	19.7	426980	30.3	21.5	288460	30.4	19.9	297448	30.4	19.7
312238	30.1	21.1	256134	30.2	20.6	207418	30.3	20.2	340981	30.3	19.2	206207	30.4	21.1	5940	30.4	16.5
487613	30.1	21.5	372569	30.2	20.6	150365	30.3	19.2	520373	30.3	20.6	342052	30.4	19.1	518421	30.4	20.6
325816	30.1	21.5	327071	30.2	20.8	495704	30.3	21.3	174926	30.3	19.1	182504	30.4	19.8	391930	30.4	20.6
467679	30.1	21.0	314941	30.2	19.2	289660	30.3	19.6	360453	30.3	21.5	9614	30.4	16.4	111232	30.4	20.4
535505	30.1	20.8	424731	30.2	21.7	113206	30.3	19.3	134106	30.3	19.9	486838	30.4	20.5	336817	30.4	19.7
346074	30.1	19.2	64337	30.2	18.7	37530	30.3	19.1	249049	30.3	19.3	73314	30.4	18.9	384962	30.4	20.8
429268	30.2	20.4	1231	30.2	15.5	190886	30.3	19.6	494729	30.3	21.1	113096	30.4	18.8	401674	30.5	20.7
382818	30.2	20.8	540018	30.2	20.2	237371	30.3										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
402666	30.5	21.9	134815	30.5	19.1	348626	30.6	21.8	256043	30.6	19.7	352150	30.7	19.8	321216	30.8	20.4
455971	30.5	20.8	46632	30.5	19.8	448474	30.6	19.6	318812	30.6	20.3	492940	30.7	21.1	175865	30.8	19.4
374983	30.5	20.0	119690	30.5	19.7	453910	30.6	21.1	284713	30.6	20.2	523479	30.7	20.6	190195	30.8	20.3
59245	30.5	18.6	418811	30.5	21.0	308712	30.6	21.4	516903	30.6	20.9	482872	30.7	20.8	521014	30.8	21.1
293208	30.5	18.7	24831	30.5	17.7	158647	30.6	18.5	196448	30.7	19.5	268061	30.7	20.3	304064	30.8	20.6
236366	30.5	20.2	467485	30.5	21.4	488502	30.6	22.2	14674	30.7	17.5	302887	30.7	20.5	388448	30.8	19.2
493062	30.5	21.3	197270	30.5	20.5	487661	30.6	20.3	358106	30.7	20.2	399511	30.7	22.2	534195	30.8	22.0
542903	30.5	21.6	338334	30.5	20.0	29489	30.6	17.5	283082	30.7	19.4	495663	30.7	21.1	162990	30.8	20.4
420069	30.5	20.8	378150	30.5	20.8	218714	30.6	20.4	410478	30.7	20.8	490353	30.7	21.1	544011	30.8	21.5
306363	30.5	20.7	141944	30.5	19.6	487967	30.6	21.0	158372	30.7	19.8	304057	30.7	19.6	445547	30.8	20.8
491034	30.5	20.5	244429	30.5	21.3	486054	30.6	21.1	419332	30.7	21.1	447959	30.7	21.0	173668	30.8	19.6
25413	30.5	16.8	429924	30.5	20.9	401278	30.6	21.1	74661	30.7	19.4	242623	30.7	20.3	363151	30.8	21.3
260813	30.5	20.7	9526	30.5	18.5	12663	30.6	18.1	323807	30.7	20.5	206866	30.7	19.8	117788	30.8	19.2
280796	30.5	20.6	447101	30.5	20.8	135789	30.6	19.9	171893	30.7	19.8	323534	30.7	20.3	287560	30.8	20.1
499951	30.5	21.1	235558	30.5	19.5	381275	30.6	21.0	140271	30.7	19.8	126401	30.7	18.4	248315	30.8	19.7
227901	30.5	20.0	340146	30.5	19.6	338206	30.6	20.7	423203	30.7	21.7	345303	30.7	20.6	409462	30.8	21.4
104731	30.5	19.6	335936	30.5	21.0	318804	30.6	20.4	372085	30.7	21.0	523189	30.7	20.3	263356	30.8	19.9
532866	30.5	20.9	98544	30.5	18.3	40340	30.6	18.4	234060	30.7	20.0	343245	30.7	20.8	448293	30.8	21.3
364836	30.5	20.7	415687	30.5	19.7	327440	30.6	20.1	176953	30.7	19.7	34714	30.7	18.7	339852	30.8	20.4
19891	30.5	19.4	427871	30.5	20.9	238419	30.6	19.5	336885	30.7	20.9	500425	30.7	20.3	325694	30.8	20.8
544281	30.5	21.3	269936	30.5	21.1	366753	30.6	21.1	256120	30.7	18.8	128177	30.7	19.5	122999	30.8	19.8
444726	30.5	19.8	32627	30.5	18.5	275289	30.6	20.0	85617	30.7	18.6	521102	30.7	20.6	399517	30.8	21.8
81910	30.5	19.3	172376	30.5	19.6	218642	30.6	20.5	175909	30.7	18.6	175395	30.7	20.0	350642	30.8	20.1
493365	30.5	20.8	197725	30.5	19.3	194411	30.6	20.0	424246	30.7	20.6	337381	30.7	21.3	418713	30.8	20.4
18985	30.5	17.0	168291	30.5	20.9	307241	30.6	20.2	246296	30.7	20.5	317613	30.7	20.2	82566	30.8	19.3
216151	30.5	20.0	33695	30.5	19.3	45335	30.6	19.2	152604	30.7	19.7	339526	30.7	20.3	43578	30.8	19.0
29683	30.5	18.7	181076	30.5	19.6	336540	30.6	20.5	322722	30.7	20.2	161166	30.7	20.4	59140	30.8	19.6
179808	30.5	20.7	426877	30.5	20.8	143311	30.6	20.3	252367	30.7	20.5	320744	30.7	20.4	544125	30.8	20.9
14445	30.5	18.6	51778	30.5	19.8	143102	30.6	18.7	402720	30.7	21.3	170594	30.7	18.6	92634	30.8	19.9
125972	30.5	20.2	165756	30.5	20.3	316576	30.6	20.7	167102	30.7	20.0	21548	30.7	17.3	32735	30.8	18.3
109166	30.5	18.7	76391	30.5	18.1	542894	30.6	21.3	315571	30.7	19.4	68388	30.7	19.6	26375	30.8	20.8
30296	30.5	18.6	306679	30.5	20.9	375545	30.6	21.5	408870	30.7	21.2	190755	30.7	19.4	450901	30.8	20.0
81253	30.5	18.1	182104	30.5	19.6	335941	30.6	21.0	82885	30.7	18.9	246656	30.7	20.1	155265	30.8	20.1
444102	30.5	21.8	241505	30.5	20.1	173027	30.6	19.2	361175	30.7	20.3	84163	30.7	19.9	527413	30.8	21.6
228277	30.5	20.4	464976	30.5	21.7	31627	30.6	17.2	122441	30.7	18.5	10021	30.7	17.9	194218	30.8	20.0
335586	30.5	20.5	227653	30.5	20.1	160253	30.6	19.8	233597	30.7	19.8	234202	30.7	20.2	433731	30.8	20.6
127170	30.5	19.2	395874	30.5	21.0	129369	30.6	20.9	15990	30.7	18.3	21292	30.7	18.7	174374	30.8	19.9
446710	30.5	21.9	160355	30.6	19.4	400053	30.6	21.0	196001	30.7	20.1	53687	30.7	20.1	64307	30.8	19.7
422770	30.5	21.7	474420	30.6	21.2	433430	30.6	20.6	480886	30.7	20.3	156223	30.7	20.1	118431	30.8	19.3
180856	30.5	20.9	542950	30.6	21.5	34988	30.6	18.1	363184	30.7	21.5	403887	30.7	19.9	415318	30.8	20.7
54735	30.5	18.0	406061	30.6	21.4	380252	30.6	20.8	370372	30.7	21.0	445050	30.7	21.3	345926	30.8	20.2
327960	30.5	20.3	117602	30.6	19.4	496718	30.6	21.2	344190	30.7	19.6	381945	30.7	20.6	113926	30.8	18.9
400157	30.5	21.7	28206	30.6	18.5	113230	30.6	19.4	284741	30.7	20.3	69003	30.7	18.5	246769	30.8	19.8
183657	30.5	19.7	143999	30.6	17.5	214382	30.6	19.8	336614	30.7	20.7	137377	30.7	19.3	413064	30.8	21.7
323014	30.5	21.4	228409	30.6	19.0	492767	30.6	21.3	187809	30.7	19.9	364008	30.7	20.8	111341	30.8	19.9
468774	30.5	21.4	489782	30.6	20.6	450967	30.6	21.7	169882	30.7	20.2	280226	30.7	20.3	364336	30.8	21.4
246011	30.5	20.5	244950	30.6	21.1	104290	30.6	18.4	172911	30.7	18.8	74454	30.7	18.6	61058	30.8	19.6
434177	30.5	20.7	235946	30.6	19.4	151645	30.6	19.2	331980	30.7	19.6	221274	30.7	19.8	316086	30.8	20.1
15447	30.5	16.8	501992	30.6	19.9	294556	30.6	19.5	363873	30.7	20.8	315807	30.7	20.5	492721	30.8	21.7
251207	30.5	20.6	166724	30.6	19.6	472279	30.6	20.4	265790	30.7	20.9	523787	30.7	22.2	197014	30.8	20.0
179022	30.5	19.2	3544	30.6	15.7	334079	30.6	21.7	321174	30.7	19.9	264727	30.7	20.5	430174	30.8	21.2
360303	30.5	20.3	34315	30.6	18.8	282556	30.6	21.1	307817	30.7	20.8	486227	30.7	20.9	460898	30.8	20.8
275256	30.5	20.8	419149	30.6	21.5	233188	30.6	20.0	163612	30.7	20.2	158844	30.8	19.7	182428	30.8	20.8
415688	30.5	21.6	541985	30.6	20.2	63406	30.6	19.1	544743	30.7	20.3	66598	30.8	18.9	370787	30.8	21.0
30728	30.5	19.9	338719	30.6	21.2	306063	30.6	19.8	126099	30.7	19.8	145710	30.8	20.4	350837	30.8	20.7
179019	30.5	20.3	267825	30.6	20.1	442754	30.6	21.3	275747	30.7	19.9	544940	30.8	21.0	366885	30.8	20.6
332556	30.5	20.8	39048	30.6	18.8	93569	30.6	18.9	96343	30.7	19.2	299378	30.8	20.0	375617	30.8	21.1
488531	30.5	21.0	453668	30.6	20.7	256348	30.6	20.2	402296	30.7	20.7	59202	30.8	18.4	538240	30.8	20.7
426836	30.5	20.8	486137	30.6	21.3	366846	30.6	20.7	54937	30.7	17.6	157898	30.8	19.7	212358	30.8	20.4
312972	30.5	20.5	154748	30.6	19.8	25562	30.6	17.6	105341	30.7	18.7	171994	30.8	20.8	89602	30.8	19.1
113405	30.5	19.5	400264	30.6	21.5	28996	30.6	18.5	465458	30.7	21.2	375634	30.8	19.7	190781	30.8	21.0
188456	30.5	19.2	130488	30.6	20.1	411439	30.6	20.7	336633	30.7	21.0	521575	30.8	22.1	265778	30.8	20.6
427467	30.5	21.5	306891	30.6	20.7	408985	30.6	20.4	360832	30.7	20.5	460004	30.8	21.2	29430	30.8	18.3
290335	30.5	21.0	400447	30.6	20.9	79517	30.6	19.9	419918	30.7	20.8	193864	30.8	19.7	237957	30.8	20.3
293382	30.5	19.1	406687	30.6	20.1	315764	30.6	20.2	90443	30.7	19.0	315552	30.8	19.0	58996	30.8	19.7
28827	30.5	18.2	380492	30.6	20.2	111970	30.6	18.9	54316	30.7	18.7	368617	30.8	20.8	419166	30.8	21.7
35700	30.5	17.9	1449	30.6	14.2	242314	30.6	19.2	312319	30.7	20.5	489912	30.8	21.0	84747	30.8	18.0
419514	30.5	19.8	417272	30.6	20.9	137991	30.6	19.3	410815	30.7	20.9	306292	30.8	20.2	75699	30.8	20.0
231002	30.5	19.4	155249	30.6	20.5	3698											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
197971	30.8	20.6	341730	30.9	21.0	111143	30.9	19.0	146718	31.0	20.1	27723	31.1	17.8	203092	31.2	19.6
71653	30.8	17.6	167990	30.9	19.2	194727	30.9	20.1	243025	31.0	21.6	493499	31.1	21.2	155538	31.2	19.3
473904	30.8	20.3	336922	30.9	20.1	133856	30.9	20.6	116059	31.0	20.4	543815	31.1	20.9	180482	31.2	19.2
259820	30.8	19.2	532667	30.9	22.0	154376	30.9	20.0	178395	31.0	18.7	486844	31.1	20.0	427135	31.2	21.0
341349	30.8	20.1	34008	30.9	19.1	357173	30.9	19.0	375549	31.0	20.0	331825	31.1	20.1	180015	31.2	19.1
319727	30.8	21.2	451114	30.9	20.0	233591	30.9	20.0	413120	31.0	22.2	503429	31.1	19.9	17295	31.2	17.4
85195	30.8	19.4	272738	30.9	20.2	390591	30.9	20.1	31206	31.0	17.7	318694	31.1	20.6	254724	31.2	20.4
136619	30.8	18.7	397963	30.9	21.4	448948	30.9	21.1	174376	31.0	20.6	306053	31.1	20.6	411169	31.2	19.6
129439	30.8	19.7	240045	30.9	19.5	6444	30.9	18.3	222776	31.0	19.6	543173	31.1	20.6	80128	31.2	19.3
196363	30.8	18.6	323889	30.9	20.5	89281	30.9	18.8	183818	31.0	19.5	455195	31.1	22.2	327289	31.2	19.6
347194	30.8	19.9	41224	30.9	18.5	315758	30.9	20.6	18256	31.0	18.4	276869	31.1	21.6	54016	31.2	18.6
80351	30.8	18.8	473474	30.9	20.5	429952	30.9	20.8	255944	31.0	19.7	166741	31.1	19.8	206290	31.2	19.0
194405	30.9	20.5	456288	30.9	22.8	132346	30.9	18.9	7794	31.0	17.0	160917	31.1	19.4	78770	31.2	19.4
541737	30.9	21.5	313410	30.9	21.0	419019	30.9	21.1	101290	31.0	20.3	103619	31.1	19.4	480877	31.2	20.6
505300	30.9	20.9	328644	30.9	20.3	70953	30.9	19.5	236767	31.0	20.3	462018	31.1	20.6	144842	31.2	19.8
429048	30.9	21.4	496615	30.9	20.3	133854	30.9	19.5	463431	31.1	20.7	295852	31.1	19.4	319651	31.2	21.7
334211	30.9	20.9	282456	30.9	19.8	262939	30.9	20.2	448226	31.1	21.4	398157	31.1	20.5	110562	31.2	18.7
315584	30.9	21.3	141327	30.9	19.6	334014	30.9	20.9	143392	31.1	19.7	482480	31.1	21.3	252519	31.2	19.9
138035	30.9	19.8	458442	30.9	20.3	14364	30.9	18.4	451472	31.1	22.4	518940	31.1	20.7	396898	31.2	21.4
451895	30.9	20.6	431185	30.9	21.8	397884	30.9	20.3	85447	31.1	18.7	314743	31.1	21.6	196523	31.2	20.0
163516	30.9	19.6	185052	30.9	20.8	303027	30.9	19.7	360460	31.1	20.3	30545	31.1	16.4	12072	31.2	18.4
46134	30.9	18.4	14459	30.9	18.3	53582	30.9	18.1	386921	31.1	19.3	327329	31.1	19.8	232305	31.2	20.9
90636	30.9	19.5	433745	30.9	20.5	184361	30.9	20.0	459131	31.1	20.7	348658	31.1	20.0	459039	31.2	21.3
445027	30.9	21.7	372172	30.9	21.0	1891	30.9	16.2	197362	31.1	20.2	145565	31.1	20.2	150372	31.2	18.3
273409	30.9	20.4	237359	30.9	21.1	141650	30.9	19.0	114073	31.1	19.4	299508	31.1	19.6	353254	31.2	20.2
89026	30.9	18.5	405038	30.9	19.6	188628	30.9	20.2	493035	31.1	21.1	57059	31.1	18.8	413973	31.2	19.9
294714	30.9	19.2	397816	30.9	20.8	543807	30.9	21.0	430360	31.1	21.0	84475	31.1	19.1	465746	31.2	21.3
542807	30.9	21.2	85855	30.9	17.7	461191	31.0	20.8	465470	31.1	21.8	151607	31.1	20.3	173376	31.2	18.5
121963	30.9	18.0	490192	30.9	21.3	281511	31.0	20.9	458191	31.1	21.1	453098	31.1	22.6	224023	31.2	19.7
111439	30.9	19.3	266348	30.9	20.2	325148	31.0	19.8	197577	31.1	20.0	261207	31.1	20.1	379121	31.2	20.2
996	30.9	14.9	243130	30.9	20.6	307409	31.0	21.1	211664	31.1	20.8	358520	31.1	20.6	494900	31.2	22.3
84589	30.9	19.1	13746	30.9	17.9	105683	31.0	19.2	110920	31.1	18.7	543704	31.1	21.4	212630	31.2	20.5
182663	30.9	19.5	251281	30.9	21.3	217766	31.0	21.1	414495	31.1	20.9	265819	31.1	21.6	458235	31.2	20.9
203773	30.9	20.1	315046	30.9	19.3	319956	31.0	19.8	144224	31.1	19.5	128351	31.1	19.5	255913	31.2	20.5
221544	30.9	21.2	21759	30.9	18.5	515725	31.0	20.2	93794	31.1	19.6	166747	31.1	20.4	433888	31.2	20.2
417137	30.9	21.1	194177	30.9	20.7	451557	31.0	20.5	292414	31.1	20.8	76847	31.1	19.1	400761	31.2	19.9
301683	30.9	20.1	240735	30.9	20.5	494217	31.0	20.9	408379	31.1	19.9	412207	31.1	19.5	96676	31.2	18.8
496125	30.9	19.5	259119	30.9	20.2	462965	31.0	20.9	223720	31.1	20.0	109205	31.1	19.7	527518	31.2	21.7
284399	30.9	20.9	455749	30.9	19.9	274373	31.0	19.8	78403	31.1	19.3	379023	31.1	20.5	208991	31.2	19.9
232172	30.9	19.0	146834	30.9	19.5	325324	31.0	19.9	401911	31.1	21.2	183063	31.1	19.3	315446	31.2	20.0
130517	30.9	18.6	104911	30.9	19.2	155485	31.0	20.4	394912	31.1	20.9	502540	31.1	20.7	333868	31.2	20.5
388472	30.9	19.8	64005	30.9	18.0	172862	31.0	19.2	313471	31.1	20.5	54875	31.1	18.3	386167	31.2	21.0
26343	30.9	17.6	108640	30.9	19.5	430391	31.0	20.7	294273	31.1	20.5	491251	31.1	20.4	373340	31.2	19.9
319979	30.9	20.5	5642	30.9	18.7	149995	31.0	19.8	120827	31.1	18.7	487654	31.1	21.2	64399	31.2	18.8
64242	30.9	18.4	294543	30.9	20.7	339586	31.0	20.2	203643	31.1	19.4	35384	31.1	19.4	50100	31.2	19.3
188591	30.9	20.0	258422	30.9	19.6	92840	31.0	19.1	141491	31.1	18.8	76171	31.1	19.2	456617	31.2	20.7
201383	30.9	20.0	234808	30.9	20.6	316090	31.0	19.6	204997	31.1	20.0	425514	31.1	19.7	341899	31.2	20.4
296086	30.9	20.3	496049	30.9	21.1	257130	31.0	19.4	483750	31.1	21.5	544009	31.1	21.8	108522	31.2	19.5
461847	30.9	20.3	283932	30.9	20.3	169356	31.0	20.8	214547	31.1	20.8	112110	31.1	18.5	538379	31.2	21.1
493722	30.9	21.7	186233	30.9	20.4	453149	31.0	20.9	95979	31.1	20.1	153359	31.1	19.6	422930	31.2	21.7
259183	30.9	19.1	442609	30.9	22.3	81315	31.0	19.0	226934	31.1	20.9	52290	31.1	19.8	491212	31.2	20.3
453111	30.9	21.5	455828	30.9	21.0	418842	31.0	20.3	428487	31.1	20.8	4925	31.1	17.3	142518	31.2	21.1
328637	30.9	20.2	294671	30.9	19.4	369011	31.0	20.5	118089	31.1	18.8	334104	31.1	20.4	55404	31.2	18.9
282162	30.9	20.3	142023	30.9	20.5	320272	31.0	21.1	406573	31.1	20.0	85698	31.1	18.8	537851	31.2	20.7
316732	30.9	19.9	493141	30.9	21.0	196883	31.0	20.3	48615	31.1	19.4	441711	31.1	21.1	332883	31.2	19.6
384653	30.9	20.2	36111	30.9	17.3	543092	31.0	20.5	353793	31.1	20.9	306390	31.1	21.0	481426	31.2	21.2
458171	30.9	21.6	81398	30.9	18.7	17217	31.0	18.5	231592	31.1	20.0	448235	31.1	21.8	63996	31.2	18.9
274698	30.9	19.3	488919	30.9	20.5	411843	31.0	20.3	68678	31.1	19.1	69039	31.1	19.1	355308	31.2	20.0
373654	30.9	21.5	84232	30.9	19.2	28981	31.0	19.1	108184	31.1	18.8	468177	31.1	20.2	110881	31.2	19.4
433073	30.9	21.1	246309	30.9	20.0	165767	31.0	19.8	335916	31.1	20.8	510906	31.1	20.4	8683	31.2	17.7
392264	30.9	21.0	419468	30.9	20.0	534371	31.0	20.3	171417	31.1	19.4	56645	31.1	18.1	28097	31.2	18.8
82464	30.9	20.0	204477	30.9	20.0	350769	31.0	20.7	400259	31.1	21.8	520067	31.1	20.9	372159	31.2	20.4
335933	30.9	21.5	353367	30.9	20.1	238329	31.0	19.0	345631	31.1	19.6	400628	31.1	19.4	367616	31.2	21.1
318097	30.9	19.7	336947	30.9	20.4	153312	31.0	19.3	493480	31.1	21.3	413081	31.1	21.0	431327	31.2	20.3
11761	30.9	18.8	85212	30.9	19.5	421224	31.0	20.9	156149	31.1	19.5	63027	31.2	17.8	304042	31.2	19.5
427170	30.9	20.6	410066	30.9	21.2	81378	31.0	18.3	291187	31.1	20.1	138717	31.2	19.7	337038	31.2	21.5
424224	30.9	20.4	433397	30.9	20.1	508821	31.0	21.2	222971	31.1	20.4	334949	31.2	20.6	223018	31.2	20.6
45689	30.9	18.1	341227	30.9	20.7	327073	31.0	20.8	270066	31.1	19.1	339987	31.2	21.2	433709	31.2	19.7
542646	30.9	20.5	318778	30.9	20.4	464321											

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
527625	31.2	21.4	473868	31.3	21.1	356022	31.4	20.2	419155	31.4	21.6	517774	31.5	20.6	476503	31.5	19.9
293273	31.2	20.5	156568	31.3	19.1	150400	31.4	18.8	416628	31.4	21.2	59670	31.5	18.9	248293	31.5	20.3
18382	31.2	17.6	408992	31.3	20.6	189656	31.4	20.0	187931	31.4	19.2	96945	31.5	19.0	48300	31.5	17.5
230526	31.2	20.3	333855	31.3	20.6	62323	31.4	19.0	495244	31.4	20.7	225306	31.5	20.1	231985	31.5	20.1
141660	31.2	19.4	68395	31.3	18.3	232489	31.4	21.4	458195	31.4	21.9	260909	31.5	20.3	447397	31.5	21.7
202103	31.2	18.9	535303	31.3	21.0	270859	31.4	20.3	201707	31.4	18.6	420507	31.5	20.4	447066	31.5	21.7
54816	31.2	19.6	215469	31.3	19.3	354965	31.4	19.4	117916	31.4	19.9	392397	31.5	19.6	377086	31.5	20.5
381658	31.2	20.5	372426	31.3	20.2	97562	31.4	19.3	264253	31.4	20.7	66435	31.5	19.3	90748	31.5	19.3
143069	31.2	20.3	235596	31.3	20.9	210039	31.4	20.5	66353	31.4	17.7	345552	31.5	21.2	238821	31.5	20.4
506021	31.2	20.7	333867	31.3	20.6	347093	31.4	20.8	1220	31.4	16.1	119395	31.5	19.0	317500	31.5	21.6
143161	31.2	19.6	38941	31.3	17.6	192424	31.4	20.0	276294	31.4	20.3	229321	31.5	19.7	334532	31.5	21.5
121269	31.2	18.6	284404	31.3	20.0	339784	31.4	19.5	251027	31.4	21.0	209908	31.5	20.2	31467	31.5	19.4
16647	31.2	17.3	250221	31.3	21.4	487097	31.4	19.7	491701	31.4	21.8	224810	31.5	20.3	343493	31.5	20.0
528423	31.2	23.3	82937	31.3	19.2	136373	31.4	19.2	239408	31.4	19.8	176816	31.5	20.6	222147	31.6	19.6
404619	31.2	20.7	71455	31.3	18.2	258082	31.4	19.3	13982	31.4	17.9	433450	31.5	20.4	429971	31.6	19.6
136486	31.2	19.7	384127	31.3	21.3	175915	31.4	18.6	450980	31.4	20.5	259741	31.5	18.7	311075	31.6	19.9
508878	31.2	20.9	365219	31.3	19.9	462850	31.4	21.5	541791	31.4	21.9	156168	31.5	19.1	129669	31.6	20.3
213655	31.2	20.4	182989	31.3	21.1	338112	31.4	20.7	77333	31.4	18.5	252381	31.5	20.5	221694	31.6	19.7
62704	31.2	19.2	321940	31.3	21.5	190813	31.4	20.7	7871	31.4	17.3	424357	31.5	20.6	541761	31.6	21.0
330448	31.2	20.4	47027	31.3	19.4	350908	31.4	20.1	30687	31.4	17.8	8351	31.5	16.5	78579	31.6	19.8
349604	31.2	20.3	97184	31.3	19.2	66202	31.4	17.7	529743	31.4	20.9	196319	31.5	18.6	286586	31.6	20.1
452304	31.2	22.2	118073	31.3	19.8	344617	31.4	19.8	231010	31.4	19.1	426931	31.5	19.9	263475	31.6	19.5
466335	31.2	20.4	36285	31.3	18.0	144809	31.4	20.0	266841	31.4	20.9	451454	31.5	21.0	425330	31.6	20.0
88409	31.2	19.3	521009	31.3	20.5	339860	31.4	21.0	191602	31.4	19.8	87827	31.5	18.7	114238	31.6	17.8
339674	31.2	20.3	115715	31.3	19.2	401970	31.4	21.8	411498	31.4	20.4	124409	31.5	19.9	179721	31.6	20.1
166864	31.3	18.9	64729	31.3	18.8	334973	31.4	20.8	109778	31.4	20.2	384003	31.5	20.0	246830	31.6	21.6
159051	31.3	20.1	371238	31.3	20.8	496582	31.4	20.9	66433	31.4	19.8	415455	31.5	20.3	160795	31.6	19.3
356531	31.3	21.2	532655	31.3	21.7	6690	31.4	16.3	204840	31.4	20.6	261521	31.5	20.4	204255	31.6	18.9
319892	31.3	21.1	244537	31.3	20.8	326290	31.4	20.1	108376	31.4	20.0	375612	31.5	21.0	32189	31.6	18.6
84329	31.3	19.6	49010	31.3	19.6	63630	31.4	18.1	172385	31.4	19.5	221152	31.5	20.3	289945	31.6	20.6
148963	31.3	18.6	190335	31.3	21.2	157214	31.4	19.8	333674	31.4	19.8	407530	31.5	20.9	492193	31.6	20.8
202346	31.3	19.8	112106	31.3	18.7	364245	31.4	20.6	21389	31.4	17.9	443923	31.5	20.0	375822	31.6	21.9
433694	31.3	20.4	52984	31.3	17.4	194912	31.4	19.6	255130	31.4	21.2	373827	31.5	20.6	406139	31.6	20.6
264715	31.3	20.5	57629	31.3	18.2	153153	31.4	19.4	536392	31.4	21.3	71752	31.5	18.5	496197	31.6	21.1
239545	31.3	20.7	532085	31.3	21.6	281558	31.4	20.1	104141	31.4	18.9	197091	31.5	20.0	26007	31.6	18.7
288908	31.3	20.0	180460	31.3	20.2	209074	31.4	19.9	450296	31.4	21.6	503769	31.5	20.2	223037	31.6	18.7
345282	31.3	21.4	228579	31.3	19.9	7179	31.4	17.5	206229	31.4	20.1	192568	31.5	19.7	394055	31.6	20.3
290860	31.3	20.4	157909	31.3	20.0	458311	31.4	20.9	341805	31.4	21.6	336423	31.5	20.7	115822	31.6	19.4
441469	31.3	22.3	192309	31.3	20.7	90977	31.4	18.9	71779	31.4	18.3	466793	31.5	20.9	458314	31.6	20.9
412587	31.3	20.2	468963	31.3	20.9	186596	31.4	18.3	332735	31.4	19.8	541531	31.5	21.0	452385	31.6	19.6
55869	31.3	18.2	512231	31.3	20.3	520784	31.4	21.3	97877	31.4	19.8	7940	31.5	17.5	183606	31.6	20.9
338082	31.3	21.1	381234	31.3	20.4	109655	31.4	18.9	357617	31.4	19.6	14946	31.5	17.5	197171	31.6	19.9
323926	31.3	20.8	541827	31.3	20.3	346899	31.4	21.0	104840	31.4	19.1	130692	31.5	20.4	143495	31.6	19.4
287118	31.3	21.0	269224	31.3	20.3	123229	31.4	18.6	48770	31.4	18.9	21629	31.5	17.5	334945	31.6	20.9
385974	31.3	20.1	407312	31.3	20.8	78339	31.4	18.6	520787	31.4	21.3	354609	31.5	18.1	534287	31.6	20.9
285673	31.3	21.0	132281	31.3	18.3	58100	31.4	18.2	535375	31.4	20.7	36314	31.5	18.8	327024	31.6	20.7
464505	31.3	20.8	424974	31.3	20.4	27471	31.4	17.7	234585	31.4	20.8	66753	31.5	19.7	314754	31.6	20.5
233203	31.3	19.3	266443	31.3	20.1	337908	31.4	20.8	357612	31.4	20.6	419161	31.5	20.7	423219	31.6	21.8
97845	31.3	18.2	412366	31.3	20.1	247487	31.4	20.8	541347	31.5	21.1	314810	31.5	20.4	452952	31.6	20.6
282614	31.3	19.9	412583	31.3	22.2	166865	31.4	19.9	422769	31.5	21.5	304874	31.5	20.6	61911	31.6	18.9
316844	31.3	19.0	452208	31.3	21.3	92242	31.4	18.8	55042	31.5	18.9	262546	31.5	20.9	506172	31.6	20.5
46507	31.3	20.3	302889	31.3	21.3	191612	31.4	18.8	395515	31.5	20.3	4418	31.5	16.3	482827	31.6	21.5
183168	31.3	19.9	334109	31.3	21.5	245599	31.4	20.0	355461	31.5	20.8	345150	31.5	19.8	270742	31.6	19.8
153984	31.3	19.7	427007	31.3	21.6	383823	31.4	20.8	275600	31.5	18.8	296022	31.5	20.2	57301	31.6	17.6
258345	31.3	20.5	142497	31.3	20.5	203139	31.4	20.7	126619	31.5	23.5	333189	31.5	20.6	360458	31.6	20.6
127365	31.3	19.4	229327	31.3	20.8	419692	31.4	20.8	194537	31.5	19.1	385229	31.5	21.2	456351	31.6	21.6
30430	31.3	17.1	124330	31.3	19.2	243994	31.4	20.7	490884	31.5	20.9	276739	31.5	19.8	408068	31.6	20.3
182624	31.3	19.4	3773	31.3	16.5	302950	31.4	19.7	523499	31.5	21.5	500298	31.5	21.1	447915	31.6	20.5
412238	31.3	19.0	100999	31.3	19.1	313391	31.4	21.5	238386	31.5	19.2	293919	31.5	19.9	258227	31.6	20.5
406092	31.3	21.3	523672	31.3	22.0	416900	31.4	21.8	247586	31.5	21.6	58943	31.5	20.1	285766	31.6	21.3
364301	31.3	20.2	334085	31.3	20.8	430497	31.4	21.4	446221	31.5	20.7	163794	31.5	19.6	44355	31.6	19.1
538882	31.3	20.5	89447	31.3	20.0	543100	31.4	21.4	39335	31.5	18.1	343899	31.5	19.6	48421	31.6	18.6
80142	31.3	19.7	149696	31.3	19.6	185892	31.4	20.0	135051	31.5	19.4	247564	31.5	21.5	341032	31.6	20.4
498926	31.3	20.9	45558	31.3	18.6	102976	31.4	18.3	412714	31.5	21.0	541629	31.5	21.6	24945	31.6	18.2
292548	31.3	21.2	340987	31.3	20.3	222546	31.4	19.1	382744	31.5	18.8	380349	31.5	20.9	483397	31.6	21.8
419087	31.3	21.3	24681	31.3	17.4	17522	31.4	17.7	410013	31.5	21.7	385947	31.5	20.8	448916	31.6	21.5
191967	31.3	20.1	345352	31.3	21.1	431293	31.4	20.3	322625	31.5	20.8	327439	31.5	20.1	409475	31.6	20.8
148666	31.3	19.8	172938	31.3	20.5	108332	31.4	19.0	523522	31.5	20.8	176830	31.5	20.6	285705	31.6	21.3
468859	31.3	20.2	86914	31.3	19.7	237325	31.										

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

№	03	V	№	03	V	№	03	V	№	03	V	№	03	V	№	03	V
525849	31.6	21.7	12456	31.7	17.9	170409	31.7	20.8	109550	31.8	19.2	165799	31.9	19.5	252631	31.9	20.1
349585	31.6	21.4	462658	31.7	20.7	213623	31.7	21.4	63603	31.8	18.7	235095	31.9	19.4	431188	31.9	21.3
356579	31.6	20.3	543187	31.7	20.0	227521	31.7	19.9	349101	31.8	19.7	468429	31.9	21.5	150114	31.9	20.0
290250	31.6	20.2	542004	31.7	20.7	124654	31.7	20.2	224848	31.8	19.9	486315	31.9	20.1	56711	31.9	18.7
352903	31.6	20.2	136771	31.7	20.1	181589	31.7	20.0	392695	31.8	21.4	292438	31.9	20.6	449207	31.9	21.0
406051	31.6	20.8	530174	31.7	21.1	386889	31.7	19.9	8668	31.8	16.9	412478	31.9	20.2	340012	31.9	21.0
11750	31.6	18.0	278782	31.7	20.8	448018	31.7	20.0	104373	31.8	19.0	285072	31.9	20.4	128795	31.9	20.1
289232	31.6	20.4	191616	31.7	19.9	221233	31.7	20.0	510878	31.8	20.3	276406	31.9	19.7	50472	31.9	18.5
344918	31.6	20.4	300469	31.7	19.3	208307	31.7	19.3	468010	31.8	20.0	216620	31.9	19.5	143682	31.9	19.9
338218	31.6	20.8	15538	31.7	18.0	197891	31.7	20.3	325906	31.8	20.8	74430	31.9	18.3	31749	31.9	17.4
122013	31.6	19.3	467532	31.7	21.2	413012	31.7	19.8	399980	31.8	20.1	232754	31.9	20.6	414912	31.9	21.0
264760	31.6	18.9	412780	31.7	20.1	34736	31.7	18.3	408886	31.8	19.7	139278	31.9	19.5	405085	31.9	21.2
431527	31.6	21.5	165788	31.7	19.9	116611	31.7	18.6	339801	31.8	21.1	351270	31.9	20.5	198441	31.9	19.4
265026	31.6	20.1	224168	31.7	20.3	321117	31.7	20.6	469089	31.8	20.6	251048	31.9	19.1	273413	31.9	20.3
258955	31.6	19.4	453147	31.7	21.8	90559	31.7	19.1	220533	31.8	18.8	392218	31.9	21.4	26305	31.9	18.4
524503	31.6	22.0	281143	31.7	20.8	522481	31.7	21.3	543301	31.8	20.8	168031	31.9	20.0	451440	31.9	21.5
462357	31.6	21.4	351751	31.7	20.3	14372	31.7	17.7	65471	31.8	18.5	531453	31.9	20.9	363132	31.9	21.2
6939	31.6	16.8	378493	31.7	21.0	176869	31.7	20.7	340568	31.8	21.1	332771	31.9	20.8	408846	31.9	20.2
34254	31.6	18.8	15211	31.7	17.9	334098	31.7	20.3	339787	31.8	20.6	237493	31.9	20.8	97564	31.9	18.8
398224	31.6	21.2	452352	31.7	21.5	204820	31.7	20.5	140727	31.8	19.2	41829	31.9	19.2	468113	31.9	20.9
459315	31.6	20.2	60556	31.7	17.7	232413	31.7	18.9	51918	31.8	18.0	4712	31.9	16.4	183682	31.9	20.2
200939	31.6	20.4	464574	31.7	20.1	275147	31.7	19.7	469715	31.8	21.0	335221	31.9	19.8	79351	31.9	18.6
451789	31.6	20.6	2274	31.7	13.9	82490	31.7	19.4	527193	31.8	21.5	310935	31.9	21.7	207935	31.9	20.2
61260	31.6	19.2	171487	31.7	20.9	404224	31.8	20.9	59301	31.8	18.8	461693	31.9	20.3	304085	31.9	20.4
431238	31.6	21.1	191334	31.7	20.0	242958	31.8	19.5	95980	31.8	19.6	262812	31.9	20.5	334993	31.9	20.0
264456	31.6	19.5	160130	31.7	19.5	142329	31.8	20.7	83939	31.8	18.7	139128	31.9	18.5	176277	31.9	20.3
446000	31.6	20.6	409885	31.7	19.6	385295	31.8	21.8	462635	31.8	20.9	520707	31.9	20.4	522054	31.9	21.0
527618	31.6	21.1	120977	31.7	19.3	293014	31.8	20.1	85891	31.8	18.2	387465	31.9	21.9	483507	31.9	19.7
184913	31.6	20.1	224258	31.7	20.7	138791	31.8	20.4	355547	31.8	19.7	535200	31.9	21.1	152152	31.9	20.7
110909	31.6	20.2	440433	31.7	21.5	49906	31.8	18.1	183807	31.8	19.2	355962	31.9	19.5	152422	31.9	19.4
198	31.6	12.9	103665	31.7	19.0	444694	31.8	19.9	110172	31.8	19.2	313480	31.9	18.9	462359	31.9	21.4
228016	31.6	20.4	351702	31.7	20.7	483012	31.8	21.1	58218	31.8	18.9	466791	31.9	20.2	404560	31.9	20.4
176209	31.6	19.2	219846	31.7	20.0	3455	31.8	15.2	85852	31.8	19.4	368054	31.9	20.4	400099	31.9	21.8
333960	31.6	21.9	104408	31.7	20.4	502977	31.8	19.9	534141	31.8	21.3	194254	31.9	20.0	108702	31.9	18.7
538474	31.6	20.6	119734	31.7	19.5	177739	31.8	19.2	76380	31.8	19.1	236301	31.9	20.3	197831	31.9	20.9
228213	31.6	20.6	73879	31.7	18.8	106764	31.8	19.8	151251	31.8	20.6	242379	31.9	20.1	419502	31.9	19.7
225807	31.6	19.2	169295	31.7	19.4	280813	31.8	20.2	175602	31.8	19.0	273463	31.9	20.7	336504	31.9	20.3
194566	31.6	19.0	15303	31.7	17.7	15451	31.8	16.8	271911	31.8	20.3	454976	31.9	21.8	279005	31.9	20.4
466486	31.6	21.2	139598	31.7	19.4	323922	31.8	20.6	199903	31.8	19.7	413718	31.9	21.6	406044	31.9	22.1
124444	31.6	18.8	450783	31.7	22.1	359786	31.8	20.3	127146	31.8	19.9	543292	31.9	22.1	378974	31.9	20.4
406929	31.6	20.3	28836	31.7	18.9	192232	31.8	20.4	28730	31.8	17.9	6097	31.9	16.5	197498	31.9	19.3
540525	31.6	20.6	275338	31.7	19.5	142289	31.8	19.9	80928	31.8	20.0	17252	31.9	17.5	313398	31.9	21.6
81405	31.6	18.5	221515	31.7	21.1	494717	31.8	21.0	497109	31.8	21.2	420091	31.9	21.2	240912	31.9	20.3
215730	31.6	20.3	55696	31.7	18.3	425457	31.8	20.5	268170	31.8	20.6	383408	31.9	20.8	27257	31.9	16.9
501909	31.6	20.1	6172	31.7	19.7	230813	31.8	20.5	428128	31.8	20.7	234932	31.9	20.1	448313	31.9	19.4
224074	31.6	19.7	34830	31.7	18.4	98400	31.8	19.1	268242	31.8	20.9	543512	31.9	20.7	245009	31.9	19.7
80942	31.6	18.3	64315	31.7	18.5	288622	31.8	20.4	339972	31.8	21.1	336989	31.9	19.9	105739	31.9	18.5
462092	31.6	21.0	116214	31.7	19.0	44652	31.8	18.3	424666	31.8	21.2	444150	31.9	21.4	215590	31.9	19.1
517680	31.6	20.2	461577	31.7	21.2	54364	31.8	17.9	497107	31.8	20.3	459424	31.9	19.9	41436	31.9	18.0
452971	31.6	20.4	236726	31.7	20.5	336482	31.8	19.8	118544	31.8	18.0	49185	31.9	18.1	341681	31.9	21.7
177029	31.6	17.6	395122	31.7	20.1	456316	31.8	21.6	147594	31.8	19.0	468107	31.9	21.7	489234	31.9	22.0
180194	31.6	20.6	398682	31.7	20.8	342915	31.8	21.1	220485	31.8	19.2	456743	31.9	21.8	193005	31.9	20.4
157560	31.6	19.2	446788	31.7	22.0	532146	31.8	21.5	100293	31.8	19.6	428421	31.9	20.9	419207	31.9	21.5
126829	31.6	19.7	17134	31.7	18.3	257335	31.8	19.9	456955	31.8	22.1	473989	31.9	20.7	293083	31.9	21.0
188733	31.6	20.2	90583	31.7	17.5	290353	31.8	20.6	383696	31.8	21.1	347116	31.9	20.6	223261	31.9	18.3
351217	31.6	21.5	441631	31.7	21.9	532497	31.8	21.4	421006	31.8	19.9	496546	31.9	20.6	319936	31.9	20.8
462862	31.6	21.8	488979	31.7	21.5	245898	31.8	19.8	194202	31.8	20.2	162965	31.9	19.6	16665	31.9	18.2
340863	31.6	21.0	294237	31.7	20.7	176937	31.8	20.6	241145	31.8	21.1	180887	31.9	20.4	169152	31.9	20.1
90574	31.6	19.4	522454	31.7	21.1	537850	31.8	20.4	417315	31.8	21.1	306866	31.9	18.9	186993	31.9	19.5
367563	31.6	20.8	277197	31.7	20.1	280747	31.8	20.2	419425	31.8	19.6	236838	31.9	20.7	492009	31.9	20.1
101415	31.6	20.5	74630	31.7	18.9	366863	31.8	20.8	299432	31.8	20.4	459075	31.9	21.0	472577	31.9	20.2
526966	31.6	21.7	402282	31.7	20.8	345115	31.8	20.8	249285	31.8	19.6	26689	31.9	18.9	176895	31.9	20.2
495649	31.7	20.5	386886	31.7	19.2	197300	31.8	19.6	450771	31.8	20.2	246780	31.9	20.2	313504	31.9	20.0
283293	31.7	19.7	73531	31.7	20.0	293664	31.8	20.8	325919	31.8	20.2	536496	31.9	21.1	309486	31.9	21.0
438285	31.7	21.6	459689	31.7	20.4	459862	31.8	20.6	247295	31.8	20.3	164662	31.9	20.1	402266	31.9	21.0
76227	31.7	19.2	376529	31.7	20.1	301412	31.8	19.1	341660	31.8	21.1	221537	31.9	20.3	529970	31.9	22.5
206298	31.7	18.3	495445	31.7	20.8	41307	31.8	19.4	190525	31.8	19.2	451034	31.9	21.2	494971	31.9	21.5
22570	31.7	16.4	542334	31.7	20.1	503643	31.8	20.8	108486	31.8	19.5	75638	31.9	18.1	49537	31.9	18.0
408917	31.7	21.0	51017	31.7	17.7	34865											

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

№	03	V	№	03	V	№	03	V
448177	31.9	22.4	475012	31.9	20.1	410024	31.9	21.1
334658	31.9	21.0	375373	31.9	20.4	500300	31.9	21.7
10987	31.9	17.1	456271	31.9	22.3	345559	31.9	20.8
184722	31.9	20.4	221250	31.9	20.3	237219	31.9	20.3
383662	31.9	20.8	13966	31.9	18.1			