

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
57587	1.0	18.9	322276	1.1	19.1	41514	1.1	18.7	10449	1.2	17.8	200409	1.3	20.2	110918	1.4	19.4
301587	1.0	19.0	284920	1.1	20.4	175545	1.1	19.5	385618	1.2	21.1	386163	1.3	21.9	401381	1.4	19.9
221553	1.0	20.0	165482	1.1	18.8	379007	1.1	20.8	137127	1.2	19.6	251312	1.3	20.9	418330	1.4	19.1
682	1.0	15.4	382218	1.1	20.0	453575	1.1	20.0	258224	1.2	20.0	68386	1.3	19.6	194588	1.4	19.9
125471	1.0	19.0	110865	1.1	19.5	131475	1.1	19.3	373003	1.2	21.1	350806	1.3	20.0	429890	1.4	20.8
144586	1.0	18.9	496090	1.1	21.7	236972	1.2	19.9	379500	1.2	20.0	68727	1.3	18.1	168802	1.4	19.9
194844	1.0	20.3	453127	1.1	21.4	337004	1.2	21.5	490146	1.2	22.4	310182	1.3	20.4	441690	1.4	21.6
187594	1.0	20.4	526221	1.1	22.0	40107	1.2	18.8	526077	1.2	21.9	453872	1.3	21.7	118693	1.4	19.8
69664	1.0	18.0	114656	1.1	19.6	32333	1.2	18.9	235086	1.2	18.7	163674	1.3	19.5	542157	1.4	21.8
336300	1.0	20.5	413557	1.1	21.3	372477	1.2	20.0	34936	1.2	18.3	247639	1.3	20.6	239992	1.4	20.4
2203	1.0	16.7	130711	1.1	18.6	144510	1.2	19.5	414287	1.2	22.1	29418	1.3	19.4	258421	1.4	21.4
348875	1.0	21.1	250242	1.1	20.6	32187	1.2	19.1	132169	1.2	17.8	208458	1.3	20.0	383001	1.4	19.9
417085	1.0	20.9	129772	1.1	23.4	197194	1.2	19.6	470035	1.2	22.0	6277	1.3	16.9	143268	1.4	20.2
123344	1.0	19.9	525487	1.1	21.0	434836	1.2	21.0	103992	1.2	19.1	205354	1.3	20.5	460601	1.4	20.6
390977	1.0	21.1	126460	1.1	17.5	80749	1.2	16.8	154791	1.2	19.5	54035	1.3	17.9	206790	1.4	18.9
993	1.0	15.6	60608	1.1	22.7	81557	1.2	18.4	203784	1.2	19.8	55666	1.3	19.6	338305	1.4	20.5
538540	1.0	21.6	532972	1.1	21.9	406146	1.2	22.2	459462	1.2	22.0	98209	1.3	18.8	467466	1.4	21.3
224348	1.0	20.4	420948	1.1	19.7	419874	1.2	21.6	78313	1.2	18.9	345556	1.3	20.1	411418	1.4	20.9
250161	1.0	20.3	531323	1.1	21.2	87452	1.2	19.0	89203	1.2	18.7	412999	1.3	21.1	319577	1.4	21.3
432035	1.0	20.7	35604	1.1	18.1	544878	1.2	21.5	238355	1.2	18.8	333450	1.3	20.8	543000	1.4	20.3
109638	1.0	20.1	341333	1.1	20.3	419142	1.2	20.9	9911	1.2	16.3	119469	1.3	19.5	461089	1.4	19.8
81644	1.0	18.9	116320	1.1	20.6	259772	1.2	19.8	222434	1.2	20.4	88295	1.3	19.6	14741	1.4	18.0
48874	1.0	17.4	241039	1.1	20.1	49999	1.2	19.1	491660	1.2	21.0	269064	1.3	20.6	40412	1.4	19.1
544562	1.0	20.8	373944	1.1	20.6	319951	1.2	19.7	292016	1.2	21.7	536064	1.3	20.3	503029	1.4	20.9
131992	1.0	18.3	463858	1.1	20.9	192197	1.2	19.2	431328	1.2	20.4	275505	1.3	21.5	132311	1.4	19.5
200765	1.0	19.6	60620	1.1	22.2	542126	1.2	21.6	13797	1.2	17.8	541460	1.3	20.4	430498	1.4	20.8
104660	1.0	19.1	402756	1.1	22.4	299238	1.2	20.3	173986	1.2	20.9	510335	1.3	21.6	90905	1.4	19.9
53185	1.0	17.9	372292	1.1	21.6	535258	1.2	20.8	448755	1.2	20.6	533075	1.3	21.2	27523	1.4	18.5
214205	1.0	19.6	113619	1.1	20.0	79488	1.2	18.7	445980	1.2	20.6	98426	1.3	18.1	450884	1.4	22.4
375998	1.0	20.7	127750	1.1	19.3	494647	1.2	19.9	15143	1.2	17.5	440425	1.3	21.2	24825	1.4	18.0
398388	1.0	19.5	83927	1.1	18.9	537969	1.2	20.3	73075	1.2	18.6	148792	1.3	20.3	56027	1.4	19.1
213074	1.0	20.5	122310	1.1	20.7	237139	1.2	19.6	118085	1.2	19.4	87197	1.3	19.9	150872	1.4	20.4
40267	1.0	17.5	132429	1.1	18.7	453838	1.2	22.2	406157	1.2	21.7	500405	1.3	19.9	495199	1.4	19.7
158521	1.0	18.2	112911	1.1	20.0	350742	1.2	21.0	135324	1.2	19.6	247331	1.3	21.0	438894	1.4	20.4
171678	1.0	19.3	495566	1.1	21.6	375896	1.2	20.6	382657	1.2	22.1	529142	1.3	21.2	496478	1.4	21.3
212314	1.0	19.7	178666	1.1	20.6	543039	1.2	19.6	405392	1.2	21.0	88845	1.3	19.7	190728	1.4	19.5
13762	1.0	17.5	39970	1.1	18.0	379058	1.2	21.1	346143	1.2	19.8	283569	1.3	20.4	67715	1.4	16.9
325193	1.0	21.4	535124	1.1	20.6	319610	1.2	21.9	354568	1.2	21.3	173445	1.3	20.2	524326	1.4	22.2
205330	1.0	21.2	299488	1.1	19.0	146357	1.2	19.6	329989	1.2	19.7	42686	1.3	17.4	378992	1.4	20.9
345198	1.0	20.2	500333	1.1	21.5	419131	1.2	21.8	402889	1.2	19.7	151476	1.3	19.0	28798	1.4	18.3
255875	1.0	20.0	114395	1.1	19.5	452193	1.2	21.2	409829	1.2	21.4	522288	1.3	21.1	307789	1.4	19.4
217078	1.0	20.0	237744	1.1	20.4	355865	1.2	20.4	175076	1.2	18.6	151064	1.3	19.7	68524	1.4	17.7
14371	1.0	18.3	184906	1.1	20.2	537316	1.2	19.7	111627	1.2	19.2	462859	1.3	21.8	336470	1.4	20.2
319674	1.0	20.1	104586	1.1	18.4	457107	1.2	19.5	292161	1.2	20.7	462885	1.3	22.2	317591	1.4	21.3
503079	1.0	21.2	376703	1.1	20.9	245697	1.2	19.5	26809	1.2	19.5	387015	1.3	22.3	54552	1.4	18.7
172103	1.0	18.8	429298	1.1	20.4	319677	1.2	20.5	26967	1.3	17.4	544509	1.3	20.4	217600	1.4	18.1
351715	1.0	19.3	187201	1.1	19.8	255895	1.2	19.8	503135	1.3	20.3	365031	1.3	20.3	506158	1.4	19.8
63383	1.0	18.7	260763	1.1	19.8	433591	1.2	21.1	136596	1.3	18.7	145429	1.3	19.4	181657	1.4	19.6
148595	1.0	19.8	317566	1.1	21.5	525572	1.2	21.3	210715	1.3	20.5	463913	1.3	20.2	392215	1.4	21.3
536720	1.0	20.2	289098	1.1	21.6	119185	1.2	19.8	68124	1.3	19.0	82035	1.3	19.0	381306	1.4	21.2
337597	1.0	20.9	29948	1.1	17.4	68047	1.2	19.1	493215	1.3	19.2	510288	1.3	20.6	307745	1.4	20.6
535151	1.0	22.0	152005	1.1	18.6	106313	1.2	18.4	354533	1.3	20.6	317676	1.3	20.4	131978	1.4	19.7
153242	1.0	18.6	445073	1.1	22.1	458850	1.2	21.0	481436	1.3	21.1	208286	1.3	19.0	15241	1.4	18.7
363192	1.0	20.1	256253	1.1	19.6	62880	1.2	18.7	114028	1.3	17.9	543544	1.3	20.4	21592	1.4	17.2
202596	1.0	19.8	2672	1.1	15.8	462662	1.2	21.0	204305	1.3	19.9	345658	1.3	22.2	292564	1.4	20.3
115964	1.0	19.9	339670	1.1	20.6	201359	1.2	20.1	187692	1.3	19.8	89552	1.3	19.6	26288	1.4	18.3
333373	1.0	20.4	332635	1.1	20.6	158362	1.2	19.7	202109	1.3	20.5	492480	1.3	20.6	406566	1.4	21.2
437039	1.0	20.8	544476	1.1	21.4	320721	1.2	21.1	466781	1.3	20.4	495732	1.3	20.8	529099	1.4	21.6
176796	1.0	20.1	540342	1.1	20.6	188059	1.2	19.9	64588	1.3	17.6	431181	1.3	21.1	149486	1.4	19.4
337751	1.0	21.0	267823	1.1	19.7	283898	1.2	19.7	217102	1.3	20.5	17083	1.3	17.3	149935	1.4	18.7
403589	1.0	21.5	194762	1.1	19.3	402553	1.2	21.3	336745	1.3	20.7	79227	1.3	20.0	15270	1.4	17.9
118215	1.0	19.2	115317	1.1	19.4	409911	1.2	21.5	473596	1.3	20.7	263163	1.3	20.1	22811	1.4	18.7
162797	1.1	20.3	534672	1.1	22.0	412562	1.2	21.0	500449	1.3	22.7	85474	1.3	18.4	293171	1.4	21.5
372598	1.1	21.2	465971	1.1	21.1	203872	1.2	20.5	18420	1.3	18.7	208254	1.3	21.0	56751	1.4	18.9
56896	1.1	17.4	412855	1.1	19.0	532452	1.2	21.0	57353	1.3	18.4	349625	1.3	20.1	420478	1.4	20.4
426404	1.1	20.0	233561	1.1	20.4	49641	1.2	18.1	6240	1.3	16.3	193837	1.3	20.4	238333	1.4	20.8
413964	1.1	21.0	61423	1.1	20.1	448170	1.2	19.5	453374	1.3	20.7	287331	1.3	20.0	14204	1.4	17.2
324563	1.1	21.6	382813	1.1	21.0	238430	1.2	19.6	372510	1.3	21.0	525985	1.3	21.7	52913	1.4	19.6
93435	1.1	19.4	325993	1.1	19.8	434913	1.2	19.7	31382	1.3	16.3	319653	1.3	21.7	329038	1.4	20.6
394832	1.1	21.1	180646	1.1	19.2	187208	1.2	20.5	157244	1.3	19.9	101982	1.3	19.9	460750	1.4	19.9
493513	1.1	21.3	26790	1.1	18.7	160835	1.2	19.8	211471	1.3	20.2	346817	1.3	19.7	393433	1.4	21.0

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
545010	1.4	21.1	512938	1.5	20.7	236327	1.5	19.7	56997	1.6	18.7	356072	1.7	20.5	53763	1.7	18.2
205214	1.4	20.7	109840	1.5	19.8	140417	1.5	19.6	324438	1.6	21.4	128948	1.7	19.0	136707	1.7	20.8
38782	1.4	19.5	205243	1.5	19.6	454009	1.5	21.7	32305	1.6	18.5	271708	1.7	21.2	413708	1.7	21.5
457189	1.4	19.1	503230	1.5	20.5	236001	1.5	20.0	461934	1.6	22.8	321645	1.7	20.0	331988	1.7	20.7
427948	1.4	20.5	90617	1.5	19.8	163469	1.5	19.3	231532	1.6	20.8	298940	1.7	19.4	434170	1.7	21.8
153898	1.4	19.0	331968	1.5	20.7	246802	1.5	20.1	303974	1.6	18.5	16135	1.7	18.0	466418	1.7	20.5
325156	1.4	21.3	421736	1.5	20.5	381633	1.5	21.9	124969	1.6	19.4	365039	1.7	20.4	32743	1.7	18.8
39388	1.4	18.9	118010	1.5	20.0	261081	1.5	20.9	263420	1.6	20.1	208375	1.7	19.8	176376	1.7	20.9
16785	1.4	16.9	68435	1.5	18.4	196173	1.5	17.8	522633	1.6	21.2	433299	1.7	20.0	29304	1.7	19.8
540055	1.4	20.5	449161	1.5	20.3	369372	1.6	20.8	86993	1.6	18.3	123221	1.7	19.7	55052	1.7	19.2
333126	1.4	20.8	441504	1.5	21.6	137766	1.6	19.9	175621	1.6	19.7	410518	1.7	19.9	17118	1.7	17.7
109881	1.4	19.4	509330	1.5	20.2	430344	1.6	20.6	468417	1.6	21.6	228083	1.7	20.4	387815	1.7	18.4
104589	1.4	19.1	345587	1.5	21.0	421273	1.6	20.9	380261	1.6	20.2	84884	1.7	18.8	323801	1.7	20.3
401960	1.4	20.8	345310	1.5	20.6	138617	1.6	19.9	408809	1.6	21.0	51469	1.7	18.3	292037	1.7	21.2
234923	1.4	20.1	190163	1.5	20.0	126264	1.6	19.0	416922	1.6	19.7	306529	1.7	20.7	381274	1.7	21.3
155205	1.4	19.1	110776	1.5	19.4	378869	1.6	21.0	143026	1.6	19.2	447239	1.7	21.6	349524	1.7	20.4
408385	1.4	20.2	250205	1.5	19.6	536406	1.6	20.6	333411	1.6	22.0	519365	1.7	20.8	452451	1.7	21.0
338057	1.4	20.4	300099	1.5	19.9	282505	1.6	19.9	274740	1.6	20.1	171863	1.7	20.4	388848	1.7	20.3
451598	1.4	21.7	226227	1.5	19.7	522433	1.6	22.3	538790	1.6	21.1	43886	1.7	18.3	333789	1.7	19.3
79844	1.4	18.7	269610	1.5	19.8	237510	1.6	20.2	280668	1.6	20.4	371250	1.7	21.6	332142	1.7	20.8
329821	1.4	20.2	114242	1.5	19.3	491676	1.6	22.1	122080	1.6	19.8	96337	1.7	19.7	178923	1.8	19.4
253704	1.4	19.8	391810	1.5	19.4	6819	1.6	16.4	270317	1.6	21.0	504252	1.7	19.5	261269	1.8	20.2
303427	1.4	21.0	302972	1.5	19.9	150338	1.6	19.2	292158	1.6	20.7	172961	1.7	18.9	419430	1.8	20.7
336533	1.4	21.0	285237	1.5	20.9	56925	1.6	18.0	262392	1.6	19.3	323112	1.7	21.0	529470	1.8	21.0
209179	1.4	19.6	538755	1.5	20.6	244849	1.6	21.0	183586	1.6	21.0	500489	1.7	21.7	102575	1.8	19.1
58056	1.4	18.8	278986	1.5	20.2	326390	1.6	21.6	79115	1.6	18.5	207404	1.7	20.6	33939	1.8	19.2
528310	1.4	21.9	340075	1.5	20.0	346850	1.6	21.4	241691	1.6	21.0	253139	1.7	20.9	58024	1.8	18.8
426878	1.4	20.6	83662	1.5	18.4	541885	1.6	22.0	188122	1.6	20.7	62266	1.7	19.3	124963	1.8	19.5
352009	1.4	21.3	207716	1.5	19.8	293162	1.6	20.5	137314	1.6	20.4	232166	1.7	19.5	231619	1.8	20.9
325962	1.4	20.7	35511	1.5	18.8	413867	1.6	21.4	388285	1.6	21.0	402113	1.7	20.2	511689	1.8	20.8
235960	1.4	20.8	446471	1.5	19.8	543259	1.6	20.9	530280	1.6	21.2	15107	1.7	16.5	396803	1.8	20.6
247063	1.4	20.8	143023	1.5	20.6	455035	1.6	19.6	421334	1.6	20.7	38783	1.7	20.0	452648	1.8	20.5
216544	1.4	20.0	349004	1.5	20.6	536437	1.6	20.4	239434	1.6	20.0	152676	1.7	19.1	461706	1.8	21.8
882	1.4	16.2	153413	1.5	20.8	433236	1.6	22.0	244765	1.6	21.0	406050	1.7	21.3	432202	1.8	21.8
448745	1.4	20.3	6764	1.5	15.1	186051	1.6	20.5	170858	1.6	19.6	542859	1.7	21.0	71077	1.8	20.1
473925	1.4	20.6	204632	1.5	19.8	142210	1.6	20.6	360806	1.6	19.7	125623	1.7	19.2	54145	1.8	19.4
424682	1.4	21.9	394362	1.5	20.2	272994	1.6	20.1	92936	1.6	19.0	105940	1.7	20.0	427542	1.8	20.6
244042	1.4	19.6	54572	1.5	18.8	22415	1.6	17.0	328774	1.6	20.8	236000	1.7	20.0	257438	1.8	20.2
464935	1.4	21.4	154935	1.5	19.9	331279	1.6	18.8	128936	1.6	19.7	151542	1.7	18.7	460611	1.8	20.9
35557	1.4	18.2	207812	1.5	20.8	381233	1.6	21.4	225605	1.6	20.5	6765	1.7	17.9	420868	1.8	20.7
113651	1.4	19.6	502866	1.5	20.7	164176	1.6	19.6	25070	1.6	18.2	258325	1.7	21.3	34111	1.8	18.5
534684	1.4	21.2	419201	1.5	21.6	207622	1.6	19.2	527428	1.6	22.3	171563	1.7	20.2	329154	1.8	20.2
400244	1.4	20.4	389451	1.5	20.3	192018	1.6	19.0	443190	1.6	20.7	188324	1.7	19.4	472462	1.8	20.6
96165	1.4	19.1	337729	1.5	20.5	227596	1.6	20.7	1455	1.6	14.8	370547	1.7	20.2	376449	1.8	20.5
291347	1.4	21.0	533920	1.5	21.4	327317	1.6	20.2	117789	1.6	19.7	289330	1.7	20.8	279504	1.8	19.5
189015	1.4	20.5	45671	1.5	17.6	202011	1.6	20.9	534889	1.6	21.7	148169	1.7	19.0	235510	1.8	20.4
190215	1.4	19.7	379054	1.5	20.2	378853	1.6	21.1	386326	1.6	20.8	16410	1.7	17.0	388674	1.8	21.6
74569	1.4	18.3	337756	1.5	21.3	140379	1.6	19.5	523667	1.6	21.7	29491	1.7	19.1	106626	1.8	20.1
55015	1.4	18.7	50392	1.5	18.3	355322	1.6	20.4	326736	1.6	19.4	278771	1.7	20.0	407475	1.8	21.4
99399	1.4	18.0	348934	1.5	21.0	502221	1.6	20.0	428923	1.6	20.8	433921	1.7	20.9	211809	1.8	20.7
304796	1.4	20.8	458315	1.5	21.6	355265	1.6	19.9	27103	1.6	19.7	301490	1.7	19.8	136068	1.8	19.2
63722	1.4	20.1	245456	1.5	20.3	463776	1.6	20.6	456526	1.6	21.2	351292	1.7	21.2	411748	1.8	21.2
47886	1.4	17.9	66940	1.5	19.1	534366	1.6	20.4	185178	1.6	20.7	299082	1.7	21.3	430170	1.8	20.9
466174	1.4	21.3	430880	1.5	20.8	81785	1.6	18.7	538546	1.6	20.9	330926	1.7	19.3	464365	1.8	20.2
532763	1.5	21.1	199681	1.5	20.3	90542	1.6	18.2	508363	1.6	20.1	9216	1.7	17.2	367336	1.8	20.9
44132	1.5	18.0	296824	1.5	19.8	57984	1.6	19.2	244247	1.6	19.2	206363	1.7	19.9	182593	1.8	19.3
54508	1.5	18.4	542618	1.5	19.4	175932	1.6	20.0	437102	1.6	21.4	542538	1.7	21.1	389767	1.8	20.7
126702	1.5	19.2	152484	1.5	19.7	170978	1.6	19.1	234915	1.6	20.9	451707	1.7	21.5	160731	1.8	20.1
367318	1.5	20.2	149871	1.5	20.7	206451	1.6	19.9	292126	1.6	20.4	407901	1.7	20.4	259897	1.8	19.8
537818	1.5	20.5	135286	1.5	19.0	27238	1.6	17.8	24789	1.6	18.4	278647	1.7	21.0	149998	1.8	18.7
281459	1.5	20.2	229655	1.5	20.4	468233	1.6	21.0	377139	1.6	19.6	153464	1.7	19.4	527106	1.8	22.2
341650	1.5	20.3	257139	1.5	20.2	442663	1.6	20.8	525204	1.6	21.7	327941	1.7	20.5	420040	1.8	20.7
448110	1.5	20.4	63019	1.5	19.1	412197	1.6	19.5	471459	1.6	21.0	131498	1.7	20.1	541257	1.8	20.9
127640	1.5	19.5	240523	1.5	21.0	544273	1.6	21.5	374599	1.6	20.8	8980	1.7	18.4	120106	1.8	17.6
209385	1.5	20.3	206272	1.5	20.0	489533	1.6	21.1	186637	1.7	19.1	410495	1.7	20.8	431241	1.8	20.7
544436	1.5	21.4	88032	1.5	18.6	354550	1.6	21.2	55796	1.7	20.1	312083	1.7	20.7	365564	1.8	21.1
157261	1.5	19.5	196680	1.5	19.8	233127	1.6	20.9	65716	1.7	19.5	219172	1.7	20.0	101873	1.8	20.9
280772	1.5	20.8	454276	1.5	20.4	125492	1.6	19.0	465731	1.7	20.8	189463	1.7	19.8	70983	1.8	18.8
531679	1.5	21.3	138637	1.5	19.1	143279	1.6	20.1	83571	1.7	19.6	428908	1.7	20.7	263778	1.8	20.8
412519	1.5	20.6	500019	1.5	21.2	165785	1.6	20.3	347013	1.7	20.3	32470	1.7	19.0	424956	1.8	19.7
80900	1.5	19.5	165884	1.5	19.8	283423	1.6	20.5	94121	1.7	19.2	520802	1.7	21.3	542872	1.8	

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
346275	1.8	19.8	102256	1.9	20.5	371762	1.9	21.2	256863	1.9	20.2	145329	2.1	20.4	376531	2.1	20.5
282829	1.8	21.4	350723	1.9	21.1	315771	1.9	21.5	337522	1.9	20.6	532318	2.1	20.9	536095	2.1	20.9
503407	1.8	20.9	493786	1.9	21.3	55828	1.9	20.2	527668	1.9	21.9	138794	2.1	20.6	348839	2.1	20.4
117080	1.8	19.7	137695	1.9	20.3	293878	1.9	19.5	181278	1.9	20.1	27071	2.1	17.7	353817	2.1	21.9
25059	1.8	18.8	325132	1.9	20.8	381625	1.9	20.5	500561	1.9	20.2	285546	2.1	19.2	192594	2.1	20.0
47914	1.8	17.7	366323	1.9	21.3	370480	1.9	20.3	49949	1.9	17.8	21275	2.1	18.5	78682	2.1	19.2
157359	1.8	19.8	151079	1.9	18.6	155453	1.9	19.2	223754	1.9	19.7	233102	2.1	20.4	265887	2.1	20.4
2516	1.8	16.9	273325	1.9	20.9	295024	1.9	20.1	148070	1.9	20.9	81252	2.1	18.4	285067	2.1	20.4
80550	1.8	18.6	259133	1.9	21.0	354582	1.9	21.5	67984	2.0	19.0	276552	2.1	20.6	76799	2.1	17.9
141874	1.8	20.5	155541	1.9	19.1	449189	1.9	20.4	284960	2.0	20.0	89230	2.1	19.2	378837	2.1	21.3
322799	1.8	20.1	307592	1.9	19.3	542410	1.9	21.2	473184	2.0	21.0	543612	2.1	20.6	369896	2.1	19.9
197578	1.8	19.7	388056	1.9	20.5	274416	1.9	20.2	161133	2.0	19.5	464255	2.1	20.2	125882	2.1	18.8
81678	1.8	18.8	258116	1.9	20.1	526955	1.9	22.1	303647	2.0	20.0	540537	2.1	20.7	411293	2.1	20.8
529782	1.8	20.1	29143	1.9	18.0	172778	1.9	19.4	98412	2.0	18.9	393854	2.1	20.9	253089	2.1	21.4
9745	1.8	18.4	394846	1.9	20.6	468412	1.9	20.7	377121	2.0	20.8	317658	2.1	19.3	110305	2.1	19.4
143433	1.8	20.6	385971	1.9	20.5	324361	1.9	20.1	169261	2.0	20.0	156384	2.1	21.1	327945	2.2	20.6
116854	1.8	18.5	235636	1.9	19.4	219991	1.9	20.1	206890	2.0	19.2	428943	2.1	20.3	271767	2.2	19.6
18103	1.8	17.6	105371	1.9	20.1	113999	1.9	18.7	133331	2.0	19.9	271429	2.1	20.0	166877	2.2	19.2
325279	1.8	20.2	68833	1.9	18.6	53693	1.9	18.9	124186	2.0	18.5	160451	2.1	18.6	278260	2.2	20.0
200628	1.8	20.7	323897	1.9	20.3	229260	1.9	19.6	294346	2.0	20.7	353433	2.1	20.7	273411	2.2	19.7
503122	1.8	20.5	290974	1.9	19.7	37809	1.9	19.8	392746	2.0	20.3	50406	2.1	18.2	145650	2.2	22.0
421497	1.8	21.3	136579	1.9	18.5	182534	1.9	19.7	198095	2.0	19.5	413925	2.1	19.7	170795	2.2	19.2
468671	1.8	20.9	193866	1.9	20.6	531780	1.9	21.3	343122	2.0	21.4	39277	2.1	17.9	118713	2.2	19.1
174488	1.8	21.3	529132	1.9	22.4	128540	1.9	19.8	105585	2.0	19.6	10693	2.1	18.4	81653	2.2	19.0
542426	1.8	20.8	113273	1.9	19.9	153021	1.9	18.7	495475	2.0	21.7	424789	2.1	20.8	518898	2.2	20.6
359140	1.8	21.6	461407	1.9	21.7	127795	1.9	18.8	374065	2.0	20.7	223718	2.1	19.8	495400	2.2	21.1
375753	1.8	20.3	57024	1.9	18.4	241677	1.9	20.2	419301	2.0	22.1	50566	2.1	17.5	101529	2.2	18.6
252330	1.8	20.9	218038	1.9	20.2	465806	1.9	21.1	303289	2.0	20.0	500361	2.1	21.2	63670	2.2	18.4
4459	1.8	16.8	383773	1.9	21.6	366876	1.9	21.3	258139	2.0	20.3	470366	2.1	21.2	323763	2.2	19.9
419702	1.8	20.6	310950	1.9	20.5	112887	1.9	19.7	113959	2.0	19.3	352135	2.1	20.7	242102	2.2	21.8
490675	1.8	19.8	193990	1.9	19.7	258383	1.9	21.2	24932	2.0	18.1	407819	2.1	21.1	28282	2.2	17.4
201871	1.8	19.6	232749	1.9	19.8	256362	1.9	20.9	211636	2.0	19.9	104493	2.1	19.5	90766	2.2	19.9
298778	1.8	20.4	48774	1.9	18.3	87120	1.9	19.7	386175	2.0	20.8	325480	2.1	19.8	319603	2.2	20.9
261075	1.8	19.7	327917	1.9	20.1	164595	1.9	20.5	275000	2.0	20.8	147109	2.1	20.5	170482	2.2	19.1
104773	1.8	18.7	285512	1.9	20.2	139689	1.9	20.1	307838	2.0	20.2	427433	2.1	22.6	155072	2.2	20.3
510039	1.8	20.5	354567	1.9	21.1	298828	1.9	21.0	500329	2.0	22.5	393441	2.1	21.0	201259	2.2	19.3
149467	1.8	19.3	524901	1.9	20.4	319926	1.9	20.5	164297	2.0	20.1	93402	2.1	18.1	304813	2.2	21.3
413505	1.8	22.1	529003	1.9	20.8	148604	1.9	20.6	365787	2.0	20.4	277200	2.1	20.5	361071	2.2	20.4
8323	1.8	17.9	121293	1.9	19.5	211898	1.9	20.4	492618	2.0	20.4	386745	2.1	20.8	186250	2.2	20.7
298324	1.8	19.3	403106	1.9	21.7	390882	1.9	21.6	397171	2.0	20.4	493750	2.1	21.5	486125	2.2	21.9
194366	1.8	20.2	532284	1.9	21.2	39429	1.9	17.8	280810	2.0	20.4	169217	2.1	19.1	135335	2.2	20.8
488822	1.8	20.7	225301	1.9	20.4	141197	1.9	20.1	240333	2.0	20.2	429300	2.1	20.1	252436	2.2	20.8
448265	1.8	21.8	239930	1.9	20.3	284974	1.9	19.8	246459	2.0	21.1	354081	2.1	20.4	377163	2.2	21.5
345576	1.8	20.6	380459	1.9	20.9	63539	1.9	18.8	240019	2.0	19.8	204146	2.1	20.4	423240	2.2	21.4
453295	1.8	21.0	29415	1.9	19.3	185059	1.9	20.3	329802	2.0	18.6	306824	2.1	20.6	179784	2.2	20.9
29599	1.8	17.5	37321	1.9	17.9	463567	1.9	21.1	313008	2.0	20.3	432432	2.1	20.8	50216	2.2	17.6
333237	1.8	19.9	118952	1.9	19.9	33443	1.9	17.2	286807	2.0	19.3	468542	2.1	21.3	285753	2.2	20.6
50991	1.8	18.3	334943	1.9	20.1	267438	1.9	20.9	526462	2.0	20.8	24168	2.1	17.6	532522	2.2	21.1
279199	1.8	19.9	26975	1.9	19.3	392249	1.9	21.3	157575	2.0	19.4	436699	2.1	20.7	492095	2.2	20.1
95025	1.8	20.9	426971	1.9	21.2	279592	1.9	19.2	126843	2.0	19.8	231079	2.1	20.3	119054	2.2	18.4
544397	1.8	22.6	303807	1.9	19.0	41444	1.9	18.0	419153	2.0	20.9	110227	2.1	19.8	431630	2.2	21.0
136934	1.8	19.2	291214	1.9	21.1	455072	1.9	21.7	448285	2.0	21.4	375439	2.1	20.5	420690	2.2	20.0
236479	1.8	19.3	202343	1.9	19.7	271877	1.9	19.6	211623	2.0	19.8	93039	2.1	18.7	118384	2.2	17.2
318341	1.8	21.1	196739	1.9	19.3	212946	1.9	20.9	113830	2.0	19.5	423359	2.1	19.6	310967	2.2	20.5
86551	1.8	17.9	541516	1.9	20.4	489058	1.9	21.5	469014	2.0	21.5	485529	2.1	21.3	125091	2.2	19.2
231182	1.8	19.3	239218	1.9	19.8	445155	1.9	21.4	250172	2.0	21.3	510078	2.1	20.4	449234	2.2	20.7
277816	1.8	20.0	164822	1.9	19.4	388479	1.9	19.9	229475	2.0	19.1	32744	2.1	18.6	406208	2.2	21.6
467301	1.8	20.9	150048	1.9	19.7	172054	1.9	20.0	193936	2.0	19.8	289051	2.1	20.4	465736	2.2	21.5
343074	1.8	21.0	284650	1.9	19.9	501425	1.9	21.3	215092	2.0	20.5	307626	2.1	20.9	82048	2.2	18.4
482883	1.8	20.5	241442	1.9	19.9	122299	1.9	19.4	95290	2.0	20.0	468467	2.1	20.5	428469	2.2	20.7
63701	1.8	19.3	233856	1.9	19.7	276302	1.9	21.0	381512	2.0	20.8	320526	2.1	20.3	404881	2.2	19.8
528876	1.8	21.9	500568	1.9	21.6	167051	1.9	20.1	82965	2.0	19.1	362155	2.1	20.4	24875	2.2	18.7
368270	1.8	21.5	419252	1.9	20.5	60472	1.9	18.0	73846	2.0	18.7	245971	2.1	20.0	61884	2.2	20.1
543570	1.8	20.2	225454	1.9	18.1	26953	1.9	18.2	61664	2.0	18.6	206246	2.1	20.2	529325	2.2	21.5
283235	1.8	20.9	456338	1.9	22.4	93657	1.9	19.0	8312	2.0	17.4	360230	2.1	20.5	284327	2.2	21.4
304930	1.9	21.4	445024	1.9	21.3	74512	1.9	17.2	245476	2.0	20.7	106949	2.1	20.6	495999	2.2	21.3
297906	1.9	19.3	54758	1.9	18.0	248485	1.9	20.3	467528	2.0	21.2	123068	2.1	20.5	406024	2.2	21.1
327287	1.9	20.6	407330	1.9	20.8	386525	1.9	20.9	351677	2.0	21.1	17398	2.1	17.7	445890	2.2	21.5
202469	1.9	20.6	421366	1.9	20.9	189416	1.9	19.8	174904	2.0	20.3	453114	2.1	21.5	502963	2.2	21.0
82460	1.9	19.2	523592	1.9	24.5	281548	1.9	20.6	381246	2.0	21.9	109630	2.1	19.9	506305	2.2	20.3
7353	1.9	16.3	503430	1.9	20.8	209548	1.9	19.0	521152	2.0	21.2	454371	2.1	20.3	166873		

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
462886	2.2	21.8	172031	2.3	20.3	136845	2.3	20.3	370752	2.4	20.4	295684	2.5	19.2	405349	2.5	21.9
428899	2.2	21.6	310883	2.3	20.7	406054	2.3	21.8	425487	2.4	20.2	183119	2.5	21.0	121101	2.5	18.5
113849	2.2	19.0	48195	2.3	18.6	74281	2.3	18.4	288095	2.4	20.5	145616	2.5	21.0	92521	2.5	18.2
290534	2.2	20.2	454243	2.3	20.1	461941	2.3	22.0	181690	2.4	21.3	315799	2.5	21.4	146418	2.5	20.4
453589	2.2	19.8	63970	2.3	17.9	155670	2.3	19.1	276253	2.4	19.9	290650	2.5	19.9	38385	2.5	18.6
385055	2.2	20.7	422710	2.3	20.3	90960	2.3	19.6	275664	2.4	20.4	97486	2.5	18.9	370720	2.5	20.5
170220	2.2	19.2	360676	2.3	21.7	324664	2.3	20.4	68688	2.4	18.3	356708	2.5	19.9	166742	2.5	19.4
203113	2.2	19.5	406136	2.3	21.0	81583	2.3	17.8	186578	2.4	19.9	369400	2.5	21.4	48500	2.5	18.3
276061	2.2	19.7	464618	2.3	20.0	329147	2.3	21.5	140247	2.4	20.2	250210	2.5	20.9	10877	2.5	18.4
109983	2.2	19.0	224011	2.3	19.4	540078	2.3	21.1	234825	2.4	20.8	350318	2.5	22.1	130755	2.5	18.7
336739	2.2	19.3	194560	2.3	19.9	463373	2.3	20.6	279143	2.4	21.6	119097	2.5	19.3	49520	2.5	19.1
95840	2.2	18.1	9855	2.3	16.8	324590	2.3	20.9	403342	2.4	20.7	170976	2.5	20.3	181648	2.5	20.2
74199	2.2	18.6	181759	2.3	19.2	245187	2.3	20.1	165872	2.4	20.6	421152	2.5	19.3	491835	2.5	21.7
8930	2.2	17.3	313795	2.3	20.7	328978	2.3	20.2	139129	2.4	18.6	293218	2.5	20.0	84695	2.5	19.4
344029	2.2	20.6	359213	2.3	21.1	502318	2.3	21.0	240080	2.4	20.0	462670	2.5	20.5	429041	2.5	21.1
409006	2.2	21.4	332676	2.3	20.4	395136	2.3	20.9	54618	2.4	18.0	103460	2.5	18.6	162748	2.5	19.5
452542	2.2	22.5	269562	2.3	20.4	227796	2.3	19.4	532937	2.4	22.7	51353	2.5	20.5	284829	2.5	19.7
178301	2.2	19.9	35292	2.3	18.3	98800	2.3	19.7	181056	2.4	19.9	419302	2.5	21.3	118854	2.5	19.9
112441	2.2	18.1	130500	2.3	19.6	296795	2.3	19.7	215728	2.4	19.0	117211	2.5	19.8	320957	2.5	19.7
139906	2.2	19.8	90734	2.3	19.3	207963	2.3	19.8	461775	2.4	21.3	284639	2.5	19.5	100686	2.5	20.2
175947	2.2	19.3	228267	2.3	18.0	461436	2.3	21.2	327312	2.4	21.1	252413	2.5	20.8	381464	2.5	21.2
297508	2.2	19.6	344328	2.3	20.2	14727	2.3	18.7	544365	2.4	20.4	502881	2.5	20.6	524307	2.5	20.8
7668	2.2	16.1	428419	2.3	20.3	63756	2.3	18.7	84228	2.4	20.4	496078	2.5	21.7	284326	2.5	21.2
307165	2.2	20.3	144186	2.3	17.9	319833	2.3	20.6	283021	2.4	20.2	190413	2.5	20.5	536094	2.5	20.9
201385	2.2	20.9	378875	2.3	20.8	112278	2.3	18.7	411336	2.4	21.5	538392	2.5	20.9	111243	2.5	17.1
489576	2.2	20.2	501351	2.3	18.7	369848	2.3	20.7	366925	2.4	21.1	468725	2.5	20.0	160770	2.5	19.8
531361	2.2	20.0	189307	2.3	20.0	143896	2.3	19.2	193877	2.4	19.1	289193	2.5	21.1	406132	2.5	20.8
69051	2.2	19.1	62231	2.3	19.3	197168	2.3	20.0	408453	2.4	19.9	441445	2.5	19.7	412988	2.5	21.3
524707	2.2	21.5	455785	2.3	21.0	298861	2.3	20.4	368621	2.4	21.4	86858	2.5	18.1	165675	2.5	19.6
128853	2.2	19.0	206430	2.3	18.9	464176	2.3	20.6	228875	2.4	18.7	114388	2.5	19.8	143103	2.5	19.3
216748	2.2	19.2	456042	2.3	20.7	354000	2.3	21.3	366139	2.4	19.7	170106	2.5	20.0	96507	2.5	19.9
366606	2.2	20.1	167659	2.3	18.6	528567	2.3	22.1	88474	2.4	19.7	59132	2.5	19.2	87775	2.5	18.7
285585	2.2	19.9	116554	2.3	19.3	287421	2.3	20.2	423529	2.4	20.4	542386	2.5	21.0	299021	2.5	20.7
81633	2.2	18.5	414954	2.3	21.5	382078	2.3	19.2	269478	2.4	21.4	458945	2.5	21.5	28325	2.5	17.2
198778	2.2	19.7	416852	2.3	20.1	321267	2.3	19.9	84460	2.4	18.7	379473	2.5	20.6	55804	2.5	19.0
486101	2.2	21.7	214387	2.3	19.0	455444	2.3	21.6	273416	2.4	20.0	460191	2.5	21.9	527343	2.5	21.0
114072	2.2	19.6	394939	2.3	21.5	538332	2.3	20.0	490210	2.4	20.1	536568	2.5	21.4	142678	2.5	19.2
456571	2.2	20.0	339826	2.3	21.8	78414	2.3	19.7	453227	2.4	20.4	406683	2.5	21.4	457651	2.5	21.8
286223	2.2	20.7	530081	2.3	20.8	543848	2.3	21.8	282221	2.4	20.9	194550	2.5	19.6	526899	2.5	20.3
120476	2.2	18.6	543923	2.3	20.6	344021	2.3	20.8	35053	2.4	19.0	225165	2.5	20.1	384456	2.5	19.8
323893	2.2	20.6	181684	2.3	20.5	5078	2.3	18.0	118803	2.4	19.7	459194	2.5	21.5	457848	2.5	20.5
280666	2.2	19.6	193799	2.3	20.5	386348	2.3	20.7	288189	2.4	21.3	433894	2.5	21.3	81895	2.6	17.8
421122	2.2	21.4	541159	2.3	21.3	3067	2.3	16.1	145174	2.4	19.2	168507	2.5	21.1	84184	2.6	19.0
30119	2.2	18.1	345140	2.3	20.0	2933	2.4	15.5	385289	2.4	21.8	196347	2.5	18.4	486284	2.6	20.0
156571	2.2	19.7	378734	2.3	19.6	532460	2.4	22.0	172959	2.4	20.3	189473	2.5	20.4	15425	2.6	16.1
158533	2.2	20.0	57090	2.3	19.1	57368	2.4	20.0	498299	2.4	21.5	256031	2.5	19.4	218045	2.6	21.0
69047	2.2	19.0	534159	2.3	21.1	414774	2.4	21.8	495450	2.4	21.0	283745	2.5	19.5	105041	2.6	18.6
29761	2.2	18.8	23447	2.3	18.7	194212	2.4	21.0	248032	2.4	19.2	241825	2.5	20.3	182142	2.6	20.2
348946	2.2	21.4	235054	2.3	18.8	451743	2.4	21.8	397991	2.4	20.7	219793	2.5	20.7	244191	2.6	20.7
135135	2.2	19.6	76151	2.3	17.2	268108	2.4	20.7	297391	2.4	20.5	304926	2.5	20.6	21197	2.6	19.1
156625	2.2	19.1	78628	2.3	19.7	319072	2.4	20.5	517618	2.4	20.1	321713	2.5	20.7	365656	2.6	21.3
148884	2.2	20.6	226633	2.3	19.1	495443	2.4	20.4	378939	2.4	20.0	294550	2.5	20.4	522151	2.6	20.8
216289	2.2	19.7	203098	2.3	20.1	35762	2.4	17.7	265360	2.4	19.7	369363	2.5	21.0	186845	2.6	19.6
370798	2.2	21.1	88528	2.3	18.0	466685	2.4	21.4	110702	2.4	19.8	419145	2.5	21.4	401384	2.6	19.7
391467	2.2	19.8	402614	2.3	22.1	250505	2.4	19.9	249282	2.4	20.5	385868	2.5	21.7	283153	2.6	20.6
19879	2.2	17.5	382385	2.3	20.5	234849	2.4	20.6	83866	2.4	19.6	502808	2.5	20.3	180274	2.6	19.5
199582	2.2	19.6	243834	2.3	20.3	189297	2.4	19.8	420754	2.4	19.9	88159	2.5	19.5	331256	2.6	20.6
41529	2.2	18.9	543786	2.3	20.9	169967	2.4	20.0	434611	2.4	20.9	146611	2.5	19.5	74064	2.6	19.3
416915	2.2	21.3	135392	2.3	20.4	143324	2.4	20.3	423494	2.4	21.0	371698	2.5	19.7	437447	2.6	20.4
420793	2.2	20.0	491619	2.3	21.3	135259	2.4	19.6	497950	2.4	22.2	131766	2.5	19.3	44023	2.6	18.3
272806	2.2	21.5	173056	2.3	20.1	70802	2.4	18.8	496396	2.4	21.3	407846	2.5	20.9	120891	2.6	20.4
486734	2.2	19.8	377255	2.3	20.2	342994	2.4	20.6	260760	2.4	20.3	36189	2.5	17.1	292505	2.6	21.0
216412	2.2	20.0	292399	2.3	20.4	395850	2.4	21.2	304995	2.4	21.0	343029	2.5	20.7	194214	2.6	20.5
440401	2.2	20.7	157442	2.3	18.6	130697	2.4	20.8	144203	2.4	19.8	432541	2.5	20.6	29882	2.6	18.4
427223	2.2	20.6	404119	2.3	19.7	401995	2.4	20.9	383383	2.4	20.9	18947	2.5	17.9	400512	2.6	20.1
336515	2.2	20.4	96202	2.3	19.4	527093	2.4	22.0	492250	2.4	21.8	390646	2.5	19.7	162850	2.6	20.1
358515	2.2	20.4	232325	2.3	20.5	436969	2.4	21.0	336484	2.4	20.6	370772	2.5	20.5	544856	2.6	21.3
538614	2.2	21.9	367531	2.3	21.5	188596	2.4	19.2	145285	2.4	19.0	408898	2.5	21.4	131364	2.6	19.3
55204	2.3	20.2	131712	2.3	19.4	138533	2.4	19.3	260971	2.4	20.2	168030	2.5	19.3	215093	2.6	20.7
147566	2.3	19.6	233549	2.3	19.3	452192	2.4	20.2	76367	2.4	18.5	243801	2.5	20.0	388652	2.6	21.6
320599	2.3	20.5	122371	2.3	19.2	341355	2.4	20.6	413660	2.4	20.8	186243	2.5	20.1	241215	2	

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
202595	2.6	20.3	456695	2.7	21.4	28468	2.7	16.9	340716	2.8	21.4	402934	2.9	21.4	101387	2.9	19.9
504548	2.6	20.9	124941	2.7	19.2	277981	2.7	21.6	458745	2.8	23.6	18491	2.9	17.0	178665	2.9	20.3
348580	2.6	21.5	93884	2.7	18.9	180632	2.7	19.3	491927	2.8	20.1	105223	2.9	20.7	28569	2.9	19.2
451068	2.6	21.5	325657	2.7	19.2	538065	2.7	21.2	443919	2.8	20.4	488827	2.9	20.0	332388	2.9	19.4
34510	2.6	18.1	46801	2.7	18.0	233543	2.7	19.6	84243	2.8	20.2	495011	2.9	20.4	164141	2.9	19.9
201075	2.6	19.7	35056	2.7	19.1	518689	2.7	20.0	19985	2.8	17.2	411551	2.9	20.6	225376	2.9	19.7
468202	2.6	21.0	535529	2.7	21.0	25811	2.7	18.8	418885	2.8	20.6	488728	2.9	21.5	159596	2.9	20.1
114613	2.6	18.7	56857	2.7	18.9	243423	2.7	19.5	297136	2.8	20.6	455108	2.9	20.9	380484	2.9	20.2
276725	2.6	19.0	426323	2.7	20.0	273184	2.7	20.9	389963	2.8	20.6	210076	2.9	20.1	94937	2.9	20.6
501686	2.6	20.5	240016	2.7	20.7	461774	2.7	21.4	387197	2.8	20.4	453013	2.9	21.2	421618	2.9	19.9
309391	2.6	20.1	427394	2.7	20.9	208333	2.7	20.5	53945	2.8	17.7	265355	2.9	20.2	493784	2.9	21.4
458846	2.6	20.9	424310	2.7	20.6	256954	2.7	19.3	417079	2.8	20.6	244595	2.9	20.1	498710	2.9	21.1
341375	2.6	20.5	7939	2.7	18.5	491993	2.7	20.3	276718	2.8	19.9	241305	2.9	19.2	527302	2.9	21.6
238387	2.6	20.3	455130	2.7	21.2	415701	2.7	20.2	169229	2.8	20.2	250158	2.9	21.1	384523	2.9	20.3
155446	2.6	18.6	68489	2.7	19.6	2871	2.7	15.9	32056	2.8	19.1	385961	2.9	21.0	423470	2.9	21.7
322352	2.6	20.5	376468	2.7	20.5	289279	2.7	19.5	207869	2.8	20.3	309472	2.9	21.1	322064	2.9	18.6
535891	2.6	20.4	466467	2.7	20.4	268466	2.7	21.1	301137	2.8	19.9	174402	2.9	18.6	433574	2.9	20.6
27588	2.6	18.5	463865	2.7	21.2	384200	2.7	21.2	85859	2.8	20.6	61324	2.9	17.7	540142	2.9	20.6
379125	2.6	21.1	411467	2.7	22.0	461989	2.7	22.2	466827	2.8	20.1	413856	2.9	21.3	487615	2.9	21.0
496094	2.6	20.1	188218	2.7	19.8	366406	2.7	20.1	464650	2.8	21.2	160801	2.9	20.2	87604	2.9	19.3
140988	2.6	17.5	155364	2.7	20.1	466214	2.7	21.5	168267	2.8	20.5	385024	2.9	21.0	261293	2.9	20.4
88445	2.6	19.6	506067	2.7	21.0	420300	2.7	20.0	99309	2.8	19.3	399557	2.9	20.9	433147	2.9	21.0
210979	2.6	20.4	340780	2.7	20.7	145882	2.7	19.6	146363	2.8	19.9	206271	2.9	20.6	529372	2.9	20.5
380249	2.6	21.2	500445	2.7	21.4	222263	2.7	20.1	456675	2.8	22.0	514920	2.9	20.2	500667	2.9	20.5
451858	2.6	20.5	176631	2.7	18.9	482897	2.7	20.8	210242	2.8	21.5	400009	2.9	20.2	201603	2.9	19.5
179030	2.6	19.4	294241	2.7	20.3	245993	2.7	20.7	410042	2.8	22.1	318261	2.9	18.6	526551	2.9	21.7
7652	2.6	18.1	18904	2.7	18.3	206280	2.7	18.9	94346	2.8	17.3	201410	2.9	20.7	466206	2.9	21.3
445111	2.6	22.2	543637	2.7	22.0	81136	2.7	19.0	319801	2.8	20.0	426122	2.9	19.6	262025	2.9	20.0
355407	2.6	19.9	108914	2.7	19.4	336750	2.7	21.1	25189	2.8	18.8	293129	2.9	21.1	231652	2.9	20.0
100632	2.6	20.6	79885	2.7	17.7	297513	2.7	21.5	432903	2.8	20.7	246603	2.9	20.3	7963	2.9	16.8
531714	2.6	21.0	9796	2.7	16.7	257319	2.7	19.5	287108	2.8	22.0	167887	2.9	19.4	169246	2.9	20.5
123551	2.6	21.0	300054	2.7	21.5	299314	2.7	20.6	533832	2.8	20.8	234892	2.9	19.3	309457	2.9	20.6
443863	2.6	22.0	303830	2.7	20.1	311024	2.7	20.6	158876	2.8	19.2	538858	2.9	21.1	152630	2.9	19.8
216666	2.6	19.0	6523	2.7	17.3	194757	2.7	20.7	343507	2.8	20.1	138578	2.9	19.4	412669	2.9	20.5
498315	2.6	21.8	299015	2.7	20.9	200874	2.7	19.6	225279	2.8	19.6	231486	2.9	19.9	456365	2.9	22.6
57466	2.6	18.1	69827	2.7	18.7	445086	2.7	21.5	217088	2.8	19.9	519989	2.9	20.9	194287	2.9	20.3
291179	2.6	20.7	434629	2.7	20.4	341219	2.7	20.3	522051	2.8	20.9	254719	2.9	20.1	435925	2.9	20.8
287295	2.6	21.3	80499	2.7	18.4	54675	2.7	18.5	19329	2.8	17.9	332767	2.9	20.1	51894	2.9	18.9
433470	2.6	20.9	140265	2.7	19.5	82019	2.7	18.9	468404	2.8	20.3	489584	2.9	22.0	153047	2.9	20.4
526040	2.6	21.4	228227	2.7	18.5	146385	2.7	19.5	462898	2.8	20.9	490297	2.9	20.8	50379	2.9	17.3
104646	2.6	17.3	489328	2.7	22.1	453793	2.7	21.7	388367	2.8	21.0	405378	2.9	21.6	416256	2.9	20.5
55591	2.6	18.9	187037	2.7	19.6	406426	2.7	20.1	518581	2.8	21.4	532510	2.9	21.2	229523	2.9	19.9
470009	2.6	21.9	341628	2.7	20.9	285902	2.7	20.9	275681	2.8	19.2	42121	2.9	18.3	139702	2.9	19.7
69973	2.6	17.5	219414	2.7	20.6	453867	2.7	21.7	284647	2.8	19.8	47126	2.9	18.9	286186	2.9	21.8
117672	2.6	19.5	481	2.7	13.2	165489	2.7	20.8	360559	2.8	21.4	332798	2.9	20.9	381212	2.9	20.9
54181	2.6	18.3	66491	2.7	20.1	169755	2.7	20.7	382131	2.8	20.2	373945	2.9	20.9	395803	2.9	21.0
498592	2.6	20.5	135342	2.7	20.1	486322	2.7	21.1	368548	2.8	20.5	290708	2.9	20.5	148908	2.9	19.4
46448	2.6	17.2	151228	2.7	19.0	81292	2.7	19.0	345673	2.8	20.3	346825	2.9	20.9	466846	2.9	20.6
441480	2.6	21.1	406043	2.7	20.7	525895	2.7	21.0	170198	2.8	19.6	30649	2.9	18.2	288251	2.9	20.9
194099	2.6	20.7	428465	2.7	20.3	502528	2.7	21.2	294158	2.8	20.0	530262	2.9	21.4	324596	2.9	21.0
275626	2.6	18.2	231114	2.7	20.3	413566	2.7	21.2	142716	2.8	19.9	2413	2.9	16.2	474116	2.9	20.3
194069	2.6	21.7	493326	2.7	20.3	504197	2.7	21.6	211515	2.8	20.4	286661	2.9	19.5	221077	2.9	20.7
387173	2.6	20.8	296620	2.7	21.0	249832	2.7	20.5	138332	2.8	19.0	443860	2.9	22.0	176756	2.9	20.0
169183	2.6	21.4	322567	2.7	20.9	120729	2.7	19.2	445296	2.8	21.5	90493	2.9	19.0	161926	2.9	19.6
532156	2.6	21.4	256384	2.7	21.2	267910	2.7	19.4	470409	2.8	21.3	375295	2.9	21.1	128554	2.9	19.4
543398	2.6	20.5	170340	2.7	19.8	375514	2.7	21.3	466305	2.8	21.6	187677	2.9	20.2	95486	2.9	19.3
135353	2.6	20.7	103099	2.7	19.1	319080	2.7	20.6	114643	2.8	19.0	459152	2.9	20.8	85203	2.9	19.0
220525	2.6	19.4	208257	2.7	19.7	304110	2.7	19.2	424361	2.8	21.1	135258	2.9	19.9	10948	2.9	17.6
110839	2.6	19.9	429349	2.7	20.0	468291	2.7	21.2	387650	2.8	20.8	267991	2.9	19.3	387515	2.9	21.3
354507	2.6	21.1	535157	2.7	22.0	445998	2.7	22.0	433097	2.8	21.0	544359	2.9	21.5	426282	2.9	20.2
188308	2.6	19.5	417630	2.7	20.1	65062	2.7	19.1	81072	2.8	19.8	519537	2.9	21.8	725	2.9	16.2
416443	2.6	20.0	451724	2.7	20.6	462937	2.7	21.3	323466	2.8	19.4	382274	2.9	20.9	350715	2.9	20.7
288742	2.6	21.0	84662	2.7	19.3	98580	2.7	19.5	83538	2.8	18.4	41528	2.9	18.9	293539	2.9	19.8
456659	2.6	21.4	531726	2.7	21.2	99409	2.7	18.9	424988	2.8	20.8	456727	2.9	21.1	54150	2.9	19.0
340699	2.6	21.1	230815	2.7	19.1	43284	2.7	17.1	146419	2.8	19.8	534806	2.9	20.2	130553	2.9	19.1
206220	2.6	21.7	20842	2.7	18.1	239049	2.7	18.5	62205	2.8	18.3	534723	2.9	20.9	446409	2.9	21.0
99578	2.6	18.8	108877	2.7	20.5	210144	2.7	20.0	544626	2.8	22.1	18512	2.9	18.1	532152	2.9	20.8
411786	2.6	20.7	292572	2.7	19.6	63989	2.7	18.4	455070	2.9	20.1	313988	2.9	20.9	116158	2.9	19.0
69811	2.6	19.4	428743	2.7	21.5	31403	2.7	18.3	380369	2.9	21.3	183641	2.9	19.1	274285	2.9	20.7
382224	2.6	20.6	432477	2.7	20.3	170309	2.7	19.4	431829	2.9	21.0	356479	2.9	21.2	386195	2.9	21.0
101508	2.6	20.8	338906	2.7	20.5	425498	2.7	20.0	341568	2.9	20.6	466590	2.9	21.1	187758	2.9	1

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
285592	2.9	20.6	189466	3.0	19.8	533679	3.1	20.7	413655	3.2	20.1	280191	3.2	21.2	468598	3.3	20.7
460710	2.9	21.6	471099	3.0	20.1	294442	3.1	19.9	408569	3.2	20.8	239579	3.2	19.8	238359	3.3	20.8
402607	2.9	21.3	283589	3.0	20.7	17510	3.1	17.3	37006	3.2	17.3	7388	3.2	16.9	217878	3.3	20.8
23980	2.9	18.0	17807	3.0	16.0	49802	3.1	17.0	340821	3.2	20.6	132578	3.2	19.2	157098	3.3	20.2
101491	2.9	21.0	28820	3.0	18.6	424726	3.1	21.1	413882	3.2	21.1	310376	3.2	21.0	433079	3.3	20.5
206689	2.9	19.7	209769	3.0	19.6	256946	3.1	20.8	142926	3.2	18.8	28808	3.2	18.7	134247	3.3	19.6
341672	2.9	19.7	94147	3.0	20.1	116730	3.1	19.4	254031	3.2	20.0	96426	3.2	18.9	359646	3.3	22.1
433862	2.9	20.5	9695	3.0	17.6	427755	3.1	22.0	370786	3.2	21.6	448292	3.2	22.4	495747	3.3	21.2
240082	2.9	20.2	245410	3.0	20.6	53090	3.1	18.4	309470	3.2	20.1	309326	3.2	20.3	38086	3.3	18.4
114826	2.9	20.0	76640	3.0	18.6	206228	3.1	20.4	526217	3.2	21.7	67356	3.2	19.4	440419	3.3	20.7
188051	2.9	19.0	535768	3.0	21.2	316477	3.1	20.5	300422	3.2	20.7	528223	3.2	21.4	392091	3.3	20.3
264118	2.9	20.4	427653	3.0	21.4	14124	3.1	18.5	104123	3.2	19.1	309291	3.2	21.5	505677	3.3	20.2
138215	2.9	18.9	334248	3.0	20.7	159846	3.1	20.5	265815	3.2	20.6	368587	3.2	20.8	535235	3.3	21.8
497268	2.9	20.3	364411	3.0	20.9	467560	3.1	20.9	294894	3.2	20.0	455476	3.2	21.8	113215	3.3	18.8
429362	2.9	20.0	234916	3.0	20.6	114315	3.1	20.1	62028	3.2	18.9	463932	3.2	21.4	53867	3.3	17.3
269763	2.9	20.5	541747	3.0	20.3	194449	3.1	20.9	341346	3.2	20.6	341799	3.2	21.4	48809	3.3	20.1
148042	2.9	17.9	411230	3.0	21.3	178136	3.1	20.0	430868	3.2	20.4	263142	3.2	20.0	500468	3.3	21.6
196018	2.9	20.7	93445	3.0	19.4	530377	3.1	20.7	27581	3.2	18.7	69106	3.2	18.8	544643	3.3	20.5
371214	2.9	20.6	544452	3.1	22.3	531367	3.1	21.8	413857	3.2	20.8	473440	3.2	21.6	256290	3.3	20.2
184851	2.9	20.0	63638	3.1	19.3	167065	3.1	19.4	491747	3.2	20.9	29028	3.2	17.2	132248	3.3	18.8
266360	2.9	19.6	381278	3.1	20.4	395346	3.1	20.6	388510	3.2	20.0	126273	3.2	19.0	237014	3.3	19.6
265695	2.9	20.4	287485	3.1	20.9	219333	3.1	19.5	351909	3.2	21.6	237329	3.2	19.8	382304	3.3	20.4
410082	2.9	20.5	240508	3.1	19.6	525891	3.1	21.7	258051	3.2	20.3	319680	3.3	20.2	157619	3.3	20.8
288897	2.9	20.4	114770	3.1	19.7	99444	3.1	19.3	316995	3.2	20.4	378788	3.3	20.7	204244	3.3	20.9
34867	2.9	17.8	207699	3.1	19.3	337849	3.1	20.2	447102	3.2	22.1	83395	3.3	19.0	152936	3.3	18.3
415478	2.9	20.3	402027	3.1	20.3	371918	3.1	20.5	430835	3.2	19.3	148072	3.3	20.1	304045	3.3	19.8
45193	2.9	18.7	491058	3.1	21.1	109070	3.1	18.1	464256	3.2	20.4	139760	3.3	19.3	301455	3.3	20.3
519357	2.9	20.8	77099	3.1	19.3	433092	3.1	20.6	242651	3.2	20.4	372513	3.3	20.8	217435	3.3	20.4
226285	2.9	19.7	108291	3.1	18.7	465744	3.1	21.7	232644	3.2	20.8	57472	3.3	19.7	282184	3.3	19.6
223575	2.9	18.9	143381	3.1	21.6	322612	3.1	20.9	43362	3.2	18.2	110603	3.3	19.2	27610	3.3	18.2
372681	3.0	21.5	536575	3.1	21.2	540189	3.1	21.0	49785	3.2	19.1	380447	3.3	20.2	173448	3.3	20.0
456959	3.0	22.5	542930	3.1	21.4	173136	3.1	20.0	246523	3.2	20.1	543628	3.3	21.2	426178	3.3	20.3
167866	3.0	20.3	281228	3.1	19.7	267200	3.1	20.4	210248	3.2	21.1	544974	3.3	21.0	505569	3.3	21.2
413079	3.0	20.0	304832	3.1	19.9	196588	3.1	19.6	197595	3.2	18.9	486132	3.3	21.0	321700	3.3	20.0
483699	3.0	21.8	431490	3.1	21.5	103600	3.1	19.1	413895	3.2	20.7	392717	3.3	20.7	403098	3.3	21.6
532398	3.0	21.4	518859	3.1	20.3	535709	3.1	20.5	244234	3.2	18.8	376346	3.3	20.8	193177	3.3	19.4
55567	3.0	16.4	381332	3.1	21.6	525682	3.1	21.2	208428	3.2	20.8	486030	3.3	20.9	520060	3.3	20.7
531378	3.0	20.9	313832	3.1	21.3	235690	3.1	19.3	173835	3.2	19.3	421738	3.3	21.6	346122	3.3	21.3
2165	3.0	16.6	338255	3.1	21.3	188094	3.1	19.7	503042	3.2	21.3	429376	3.3	20.2	246740	3.3	20.9
118743	3.0	19.6	66689	3.1	19.4	144774	3.1	19.2	221205	3.2	20.6	337498	3.3	20.6	524048	3.3	20.5
154642	3.0	18.3	396809	3.1	21.1	348165	3.1	20.2	309247	3.2	19.7	413567	3.3	20.5	313864	3.3	19.0
79292	3.0	18.5	180300	3.1	18.5	278807	3.1	20.8	339582	3.2	20.0	148699	3.3	20.2	453023	3.3	21.6
116272	3.0	18.7	219446	3.1	19.2	216297	3.1	20.9	375949	3.2	20.7	230497	3.3	21.5	65711	3.3	19.2
245995	3.0	20.7	469587	3.1	20.7	169716	3.1	19.2	239931	3.2	19.4	86008	3.3	18.4	182540	3.3	19.7
387243	3.0	21.5	370714	3.1	20.0	11710	3.1	17.5	246001	3.2	21.0	502354	3.3	20.6	288947	3.3	20.7
79062	3.0	19.0	234569	3.1	18.7	198676	3.1	20.5	74426	3.2	18.6	325999	3.3	20.2	540064	3.3	21.2
35268	3.0	18.2	38276	3.1	18.1	50021	3.1	18.6	288401	3.2	20.5	529077	3.3	21.9	365612	3.3	20.7
359077	3.0	21.5	105320	3.1	19.5	130006	3.1	19.2	241155	3.2	21.2	363787	3.3	19.5	221343	3.3	20.2
348449	3.0	19.8	206707	3.1	20.3	462617	3.1	20.5	148733	3.2	20.1	382854	3.3	19.5	324531	3.3	21.8
533927	3.0	20.0	350611	3.1	21.7	218744	3.1	20.0	78512	3.2	20.1	98129	3.3	18.5	506375	3.3	22.2
121135	3.0	18.3	261241	3.1	20.7	263559	3.1	19.5	35199	3.2	18.0	544866	3.3	21.2	544625	3.3	21.0
388722	3.0	20.8	367339	3.1	21.2	41576	3.1	19.2	244130	3.2	20.2	451681	3.3	20.6	292250	3.4	19.0
290800	3.0	20.4	144776	3.1	19.7	237277	3.1	20.2	387406	3.2	20.8	10674	3.3	18.0	119208	3.4	19.5
473983	3.0	20.3	328275	3.1	21.0	203890	3.2	18.8	377238	3.2	20.0	452929	3.3	20.9	375448	3.4	20.5
180265	3.0	20.3	412735	3.1	21.6	257526	3.2	20.1	345122	3.2	21.1	158640	3.3	19.5	207546	3.4	19.7
131967	3.0	18.0	193802	3.1	19.5	457086	3.2	20.5	181460	3.2	20.0	44253	3.3	18.5	130623	3.4	19.2
136096	3.0	20.4	34121	3.1	18.8	489388	3.2	21.4	432525	3.2	20.5	57691	3.3	19.3	219740	3.4	20.2
538317	3.0	20.9	124380	3.1	20.6	111499	3.2	19.2	46319	3.2	18.5	309369	3.3	20.6	39073	3.4	17.1
379934	3.0	19.5	83709	3.1	19.4	341505	3.2	20.8	535046	3.2	19.9	144804	3.3	19.4	219737	3.4	19.7
251079	3.0	20.1	145319	3.1	18.1	142603	3.2	19.7	232125	3.2	19.5	379513	3.3	19.8	5776	3.4	15.8
168487	3.0	20.0	40413	3.1	17.6	140610	3.2	18.9	319655	3.2	19.5	228768	3.3	19.6	413949	3.4	22.0
500311	3.0	21.7	386131	3.1	21.9	377072	3.2	19.2	82226	3.2	18.3	304838	3.3	20.8	312103	3.4	20.9
400758	3.0	19.9	3928	3.1	16.0	151883	3.2	19.9	396584	3.2	20.8	522266	3.3	20.9	530757	3.4	21.4
245869	3.0	19.9	427387	3.1	21.4	538397	3.2	20.4	164445	3.2	19.4	2231	3.3	17.1	390973	3.4	20.9
230469	3.0	21.1	138199	3.1	19.7	61759	3.2	18.7	114500	3.2	18.9	265756	3.3	21.0	192802	3.4	20.5
460144	3.0	20.9	209625	3.1	21.0	71675	3.2	18.3	534973	3.2	21.3	468828	3.3	20.8	221986	3.4	21.0
226292	3.0	20.0	499408	3.1	20.5	134714	3.2	19.7	122491	3.2	19.6	138362	3.3	18.6	8391	3.4	17.4
472745	3.0	20.9	84204	3.1	20.1	248564	3.2	20.3	232300	3.2	20.4	434335	3.3	19.8	348865	3.4	21.6
127101	3.0	19.3	217264	3.1	20.4	333171	3.2	20.4	505006	3.2	20.5	330887	3.3	19.2	346935	3.4	21.1
198300	3.0	19.9	264756	3.1	19.6	543724	3.2	20.9	142723	3.2	19.4	235041	3.3	19.1	324443	3.4	21.5
4870	3.0	16.5	306012	3.1	19.9	93919	3.2	19.5	299502	3.2	19.2	255971	3.3	20.2	95226	3.	

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
242405	3.4	19.3	194048	3.4	21.7	538527	3.5	21.0	188559	3.6	19.8	453996	3.6	20.2	351792	3.7	19.2
528362	3.4	22.2	532409	3.4	21.0	256195	3.5	21.6	249569	3.6	21.4	323830	3.6	20.6	143020	3.7	20.0
498945	3.4	21.0	512292	3.4	20.6	368798	3.5	21.1	61226	3.6	17.6	456227	3.6	20.8	242760	3.7	19.0
327904	3.4	20.6	190768	3.4	20.3	529399	3.5	21.5	241348	3.6	20.5	194217	3.6	19.2	229154	3.7	20.3
429102	3.4	19.8	423850	3.4	19.7	227786	3.5	20.8	114428	3.6	19.2	436284	3.6	20.8	19897	3.7	18.5
427017	3.4	21.2	317674	3.4	19.0	66462	3.5	17.4	324508	3.6	20.5	228284	3.6	19.9	33504	3.7	17.2
110147	3.4	19.2	484666	3.4	20.4	256137	3.5	19.7	316906	3.6	20.8	410497	3.6	21.0	400180	3.7	21.6
83640	3.4	20.5	440421	3.5	20.9	243298	3.5	21.0	460238	3.6	21.2	291612	3.6	19.3	518599	3.7	20.4
532353	3.4	20.5	406062	3.5	21.9	542967	3.5	20.8	52136	3.6	18.9	541360	3.6	20.2	16797	3.7	18.5
161308	3.4	19.7	258067	3.5	19.6	500835	3.5	23.2	37181	3.6	18.7	56801	3.6	19.4	209897	3.7	19.4
87242	3.4	19.5	131440	3.5	19.2	80034	3.5	17.6	467008	3.6	20.2	312991	3.6	20.2	137166	3.7	19.4
2432	3.4	16.0	519559	3.5	21.3	544628	3.5	21.7	405352	3.6	20.4	47191	3.6	20.0	241927	3.7	19.3
170323	3.4	20.7	466682	3.5	22.2	32329	3.5	18.5	529271	3.6	21.3	226901	3.6	20.8	158541	3.7	18.9
509012	3.4	21.0	445887	3.5	21.4	244246	3.5	19.3	274510	3.6	20.5	283134	3.6	20.8	529268	3.7	21.5
322796	3.4	21.1	100641	3.5	19.9	161252	3.5	18.7	245429	3.6	20.4	486143	3.6	19.9	173218	3.7	18.5
162653	3.4	19.6	41344	3.5	17.3	456390	3.5	21.4	494843	3.6	20.2	446468	3.6	19.9	10337	3.7	17.8
155137	3.4	20.7	63477	3.5	18.9	275518	3.5	20.1	242638	3.6	20.1	416872	3.6	20.6	82669	3.7	19.6
454271	3.4	20.2	190373	3.5	20.7	141097	3.5	19.2	229107	3.6	21.0	350289	3.7	20.5	126095	3.7	19.7
484624	3.4	21.1	136375	3.5	19.4	427123	3.5	20.9	296923	3.6	20.7	497	3.7	15.0	420987	3.7	21.2
35649	3.4	18.2	433033	3.5	20.9	314216	3.5	19.7	372603	3.6	20.0	51910	3.7	18.7	153658	3.7	18.6
526600	3.4	20.2	378324	3.5	20.2	83647	3.5	19.0	146499	3.6	20.1	43929	3.7	19.0	412157	3.7	19.9
412331	3.4	20.8	170708	3.5	19.5	23583	3.5	19.3	48287	3.6	18.2	14256	3.7	17.9	67273	3.7	18.4
288638	3.4	20.7	218011	3.5	19.7	29776	3.5	18.9	333120	3.6	20.9	345564	3.7	20.9	221124	3.7	20.6
213953	3.4	19.9	34585	3.5	18.1	77772	3.5	18.8	130987	3.6	19.0	206906	3.7	18.9	83231	3.7	19.2
312056	3.4	21.4	167556	3.5	20.1	543834	3.5	22.3	340836	3.6	19.5	228147	3.7	20.2	245206	3.7	20.0
266435	3.4	19.8	39617	3.5	18.7	312122	3.5	22.4	422258	3.6	20.7	280222	3.7	20.6	209101	3.7	20.4
175126	3.4	18.7	55949	3.5	18.8	388670	3.5	21.1	35275	3.6	18.1	411218	3.7	20.2	330164	3.7	19.9
526422	3.4	20.9	431254	3.5	20.9	456114	3.5	19.5	440520	3.6	22.2	370780	3.7	21.4	89725	3.7	18.4
472021	3.4	21.2	350303	3.5	20.3	273436	3.5	19.6	139670	3.6	18.1	143706	3.7	19.2	214473	3.7	19.6
384912	3.4	20.5	375629	3.5	21.2	184047	3.5	19.6	408746	3.6	19.3	425696	3.7	20.3	529285	3.7	21.7
448243	3.4	22.3	343309	3.5	21.4	224307	3.5	19.9	345618	3.6	21.9	239448	3.7	20.8	94945	3.7	19.9
185393	3.4	20.1	1372	3.5	16.0	319663	3.5	20.0	327260	3.6	20.7	542834	3.7	20.0	526321	3.7	21.0
63661	3.4	18.9	12594	3.5	18.3	244045	3.5	20.3	229883	3.6	19.2	176536	3.7	20.1	135465	3.7	19.5
497984	3.4	20.0	351919	3.5	21.5	226102	3.5	20.6	210	3.6	13.8	357124	3.7	21.3	462671	3.7	20.6
50097	3.4	17.6	401045	3.5	21.4	109549	3.5	19.3	153187	3.6	19.2	422577	3.7	21.9	437541	3.7	20.0
428418	3.4	20.5	268760	3.5	20.6	342802	3.5	20.8	53844	3.6	17.2	131855	3.7	20.1	461314	3.7	20.3
133422	3.4	19.5	165527	3.5	19.5	15260	3.5	17.3	262905	3.6	20.1	407486	3.7	21.1	58369	3.7	19.3
125339	3.4	19.7	368825	3.5	21.4	460019	3.5	21.3	152534	3.6	21.2	256143	3.7	20.8	286667	3.7	20.3
445975	3.4	21.6	321537	3.5	19.3	338232	3.5	20.3	111011	3.6	18.1	383984	3.7	21.0	6748	3.7	16.5
128452	3.4	19.9	264459	3.5	19.5	464755	3.5	22.5	447445	3.6	20.9	323843	3.7	20.7	35841	3.7	18.1
526057	3.4	22.0	452144	3.5	21.9	529409	3.5	21.7	334206	3.6	21.3	218992	3.7	19.4	405129	3.7	20.7
113822	3.4	19.5	378772	3.5	20.9	165613	3.5	20.8	461432	3.6	21.3	235055	3.7	18.9	262652	3.7	20.8
255314	3.4	20.3	129367	3.5	20.2	385319	3.5	21.2	89769	3.6	19.4	346919	3.7	19.6	178984	3.7	19.8
297243	3.4	20.3	17508	3.5	16.9	269112	3.5	20.0	500248	3.6	20.8	86881	3.7	18.4	285337	3.7	19.5
73627	3.4	19.7	86722	3.5	18.7	116921	3.5	19.1	418082	3.6	20.1	172963	3.7	19.7	327881	3.7	20.3
534446	3.4	21.4	367520	3.5	20.1	301150	3.5	20.0	126056	3.6	20.4	396814	3.7	21.1	221352	3.7	19.7
115068	3.4	20.0	82568	3.5	19.7	432059	3.5	21.5	248009	3.6	19.9	471237	3.7	22.7	423485	3.7	21.8
366445	3.4	20.6	308354	3.5	21.1	169707	3.5	18.9	403337	3.6	20.2	250207	3.7	21.1	428926	3.7	21.9
457559	3.4	21.6	314833	3.5	20.2	230449	3.5	21.4	313201	3.6	19.8	488875	3.7	22.6	109727	3.7	19.5
498562	3.4	20.8	123457	3.5	20.0	113355	3.5	20.3	337391	3.6	21.4	330059	3.7	20.6	463226	3.7	19.5
186071	3.4	20.2	79315	3.5	20.1	191907	3.5	19.2	237624	3.6	21.1	258297	3.7	20.7	378906	3.7	20.9
142475	3.4	18.1	11032	3.5	17.1	495728	3.5	20.8	433243	3.6	20.4	7021	3.7	16.1	240332	3.7	18.9
17255	3.4	18.3	503164	3.5	20.5	466186	3.5	20.7	176004	3.6	20.8	423196	3.7	22.1	465365	3.7	20.4
225395	3.4	20.1	296602	3.5	20.4	170494	3.5	20.0	280212	3.6	20.3	539846	3.7	19.5	199885	3.7	20.5
427681	3.4	20.5	281707	3.5	20.4	459110	3.5	21.7	72114	3.6	17.0	90179	3.7	19.0	135240	3.7	20.6
51820	3.4	19.5	121363	3.5	20.0	253099	3.6	21.3	224350	3.6	20.2	368691	3.7	20.2	372956	3.7	20.9
360227	3.4	20.2	374191	3.5	20.9	342956	3.6	20.3	532199	3.6	21.5	206157	3.7	20.1	320949	3.7	19.4
181713	3.4	19.7	144855	3.5	19.3	328974	3.6	21.5	409647	3.6	20.7	489667	3.7	22.9	461761	3.7	21.5
63877	3.4	18.5	461977	3.5	22.0	22669	3.6	18.2	144635	3.6	19.4	410075	3.7	20.9	103529	3.7	20.0
465724	3.4	21.7	268523	3.5	21.0	132454	3.6	18.7	119340	3.6	20.2	167513	3.7	19.6	10857	3.7	16.1
10056	3.4	16.9	284995	3.5	19.5	130778	3.6	19.3	425070	3.6	21.3	83652	3.7	18.9	12592	3.7	17.6
217077	3.4	20.2	69340	3.5	18.6	517658	3.6	20.9	264702	3.6	20.4	209448	3.7	19.3	541286	3.7	20.1
224390	3.4	19.6	497106	3.5	21.2	285152	3.6	20.5	389972	3.6	20.2	524514	3.7	22.4	149588	3.7	19.5
378330	3.4	20.7	401498	3.5	19.7	453071	3.6	21.7	376019	3.6	21.3	233022	3.7	20.1	527049	3.7	21.2
67874	3.4	19.2	194665	3.5	20.6	95553	3.6	19.8	508246	3.6	20.3	115727	3.7	20.1	345067	3.8	19.5
214489	3.4	21.0	142583	3.5	20.1	322739	3.6	18.9	435224	3.6	22.1	500702	3.7	21.8	415833	3.8	21.8
31572	3.4	17.2	521865	3.5	20.9	199682	3.6	19.6	335679	3.6	21.2	7542	3.7	16.2	65551	3.8	20.2
348726	3.4	20.8	321054	3.5	20.9	53735	3.6	17.9	234936	3.6	20.4	368766	3.7	20.5	32438	3.8	18.7
439976	3.4	21.7	296743	3.5	20.0	178989	3.6	19.8	453017	3.6	21.0	367169	3.7	20.4	189499	3.8	20.1
544678	3.4	21.4	438028	3.5	22.9	5572	3.6	16.3	173431	3.6	18.7	93751	3.7	19.4	436936	3.8	20.9
453031	3.4	22.3	371750	3.5	19.5	7436	3.6	16.1	336015	3.6	20.5	109963	3.7	19.0	468604	3.8	21.4</

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
89698	3.8	19.4	143037	3.8	19.4	190284	3.9	21.0	144802	3.9	19.4	227989	4.0	20.4	285121	4.1	19.9
471151	3.8	21.3	235621	3.8	20.2	50258	3.9	17.4	468218	3.9	20.4	366888	4.0	21.2	314737	4.1	21.1
523666	3.8	22.5	168274	3.8	19.8	142087	3.9	20.5	385477	3.9	21.0	257332	4.0	20.6	163844	4.1	20.4
81444	3.8	20.3	535969	3.8	21.0	406124	3.9	21.8	103155	3.9	19.1	243425	4.0	19.5	267683	4.1	19.1
297399	3.8	20.5	286614	3.8	20.1	458888	3.9	20.6	424302	3.9	20.3	11952	4.0	16.6	437696	4.1	20.3
217758	3.8	21.0	131790	3.8	20.8	417724	3.9	19.9	269119	3.9	19.0	16823	4.0	18.7	8335	4.1	16.4
457031	3.8	20.3	473487	3.8	20.4	212930	3.9	19.9	123870	3.9	19.2	391153	4.0	20.7	50884	4.1	19.2
456320	3.8	22.3	27654	3.8	17.5	94412	3.9	18.8	296768	3.9	20.7	371144	4.0	21.5	499066	4.1	20.9
317579	3.8	20.6	496569	3.8	22.1	66969	3.9	18.8	84722	3.9	18.4	57173	4.0	19.2	352115	4.1	20.5
286793	3.8	19.5	44075	3.8	18.1	114036	3.9	19.6	80116	3.9	19.4	325087	4.0	19.4	276416	4.1	20.6
491053	3.8	22.1	168069	3.8	18.5	27771	3.9	17.3	544107	3.9	21.2	410041	4.0	21.8	180506	4.1	19.2
171880	3.8	20.4	3156	3.8	15.8	456948	3.9	21.5	5294	3.9	16.8	128439	4.0	19.9	120997	4.1	20.6
400810	3.8	19.4	368986	3.8	20.7	235641	3.9	19.7	165368	3.9	21.1	74534	4.0	18.3	430514	4.1	22.4
247686	3.8	19.8	503853	3.8	21.3	169335	3.9	19.7	504190	3.9	21.7	375021	4.0	20.7	208482	4.1	18.9
83599	3.8	18.4	73692	3.8	19.1	125734	3.9	19.5	230573	3.9	20.5	341674	4.0	20.5	497854	4.1	21.2
150971	3.8	20.1	529269	3.8	22.1	297041	3.9	19.3	93524	3.9	19.6	87982	4.0	18.7	399565	4.1	20.8
534173	3.8	20.6	375011	3.8	20.8	458590	3.9	20.7	277890	3.9	20.7	326150	4.0	20.1	289031	4.1	21.0
386586	3.8	21.0	488883	3.8	21.4	30669	3.9	18.8	240217	3.9	20.5	98528	4.0	19.3	315726	4.1	20.7
272866	3.8	20.6	899	3.8	15.1	311012	3.9	19.3	40629	3.9	17.7	455448	4.0	21.5	414555	4.1	21.4
428715	3.8	21.5	410045	3.8	21.7	320631	3.9	19.5	313176	3.9	19.8	505191	4.0	21.5	127941	4.1	19.5
229986	3.8	21.2	375247	3.8	20.1	271389	3.9	20.5	82155	3.9	21.4	188225	4.0	19.7	516195	4.1	19.8
318798	3.8	19.9	538249	3.8	20.8	169587	3.9	19.6	465685	3.9	21.5	357153	4.0	21.2	86987	4.1	18.4
402064	3.8	20.4	432991	3.9	20.1	375454	3.9	21.1	243354	3.9	20.5	87881	4.0	19.8	532378	4.1	21.2
542833	3.8	19.8	17543	3.9	17.2	401902	3.9	20.5	76182	3.9	19.5	327908	4.0	20.4	419043	4.1	22.1
331100	3.8	21.4	95101	3.9	20.4	465847	3.9	21.2	432464	3.9	20.4	319476	4.0	20.0	194197	4.1	20.8
121992	3.8	18.0	340808	3.9	19.1	164391	3.9	19.6	126028	3.9	20.7	432213	4.0	20.9	275012	4.1	20.9
341224	3.8	20.2	143380	3.9	19.6	164303	3.9	20.3	410834	3.9	20.5	422495	4.0	20.7	8649	4.1	17.1
544087	3.8	22.0	146605	3.9	19.2	80274	3.9	19.2	285635	3.9	20.1	385520	4.1	19.8	510992	4.1	20.2
174500	3.8	19.8	238766	3.9	19.3	445947	3.9	21.1	284940	3.9	19.7	217424	4.1	19.7	500590	4.1	20.9
146492	3.8	19.8	244178	3.9	20.0	285610	3.9	20.4	182766	3.9	20.1	208446	4.1	20.8	420665	4.1	20.5
419181	3.8	20.4	322382	3.9	19.8	388267	3.9	21.2	536570	3.9	21.1	540261	4.1	21.5	55081	4.1	18.8
173925	3.8	19.9	354868	3.9	21.9	95839	3.9	18.1	543851	3.9	21.4	328592	4.1	20.3	411377	4.1	21.5
541811	3.8	22.7	240504	3.9	19.6	252302	3.9	20.9	32127	3.9	18.3	93630	4.1	19.4	199465	4.1	19.6
285150	3.8	21.8	238833	3.9	20.2	167651	3.9	19.8	419156	3.9	21.7	204354	4.1	21.3	279751	4.1	20.7
135271	3.8	19.9	84933	3.9	18.3	77579	3.9	18.1	202406	3.9	20.4	283752	4.1	19.7	138746	4.1	19.4
107936	3.8	18.4	320927	3.9	20.0	32922	3.9	18.8	221231	3.9	21.0	244183	4.1	20.3	290104	4.1	21.1
403103	3.8	21.0	174668	3.9	20.0	215844	3.9	19.7	337696	3.9	20.3	371203	4.1	20.7	463944	4.1	21.4
458305	3.8	21.3	123094	3.9	19.5	296325	3.9	19.7	200792	3.9	21.0	64147	4.1	18.7	544064	4.1	20.5
239517	3.8	19.3	182482	3.9	21.2	343115	3.9	20.7	159651	3.9	20.1	234250	4.1	18.3	533872	4.1	21.5
180717	3.8	18.9	421184	3.9	19.5	503747	3.9	21.3	467640	3.9	21.4	433103	4.1	21.3	326024	4.1	21.3
340694	3.8	20.5	423139	3.9	20.2	357353	3.9	20.5	522372	3.9	20.7	125519	4.1	18.7	169747	4.1	19.7
525660	3.8	20.8	469017	3.9	20.7	305782	3.9	19.8	17244	3.9	17.7	324594	4.1	20.5	239729	4.1	19.5
162774	3.8	19.6	341551	3.9	21.7	414570	3.9	21.3	219416	3.9	21.1	237715	4.1	19.2	32841	4.1	17.6
13699	3.8	17.0	52669	3.9	17.6	353235	3.9	20.7	290676	3.9	21.1	155805	4.1	20.2	481688	4.1	20.7
417008	3.8	20.8	452705	3.9	22.0	207076	3.9	20.2	1173	3.9	16.0	176178	4.1	18.7	329786	4.1	21.0
162786	3.8	20.4	441825	3.9	19.2	81087	3.9	19.2	413995	4.0	21.6	526131	4.1	20.9	140450	4.1	19.3
450363	3.8	21.4	85413	3.9	19.9	502325	3.9	20.7	80392	4.0	19.5	241367	4.1	20.8	340883	4.1	20.7
5951	3.8	16.8	3118	3.9	15.3	183345	3.9	20.4	528832	4.0	21.4	527100	4.1	21.6	280237	4.1	20.9
36141	3.8	18.6	83428	3.9	18.8	517772	3.9	20.6	462001	4.0	22.4	163621	4.1	19.3	201755	4.1	20.4
347437	3.8	21.3	325974	3.9	20.8	266777	3.9	21.0	408725	4.0	19.9	237757	4.1	20.5	109714	4.1	18.4
217432	3.8	20.9	433884	3.9	20.0	277576	3.9	21.1	359161	4.0	21.0	417072	4.1	21.4	169298	4.1	19.8
151620	3.8	21.5	345133	3.9	20.5	462946	3.9	21.4	110597	4.0	20.0	179957	4.1	19.2	535281	4.1	22.5
279147	3.8	20.6	100302	3.9	20.5	88722	3.9	18.5	312095	4.0	21.1	258515	4.1	20.5	286397	4.1	21.6
242625	3.8	19.9	172548	3.9	20.1	288315	3.9	20.7	176522	4.0	20.1	190811	4.1	20.2	334584	4.1	19.9
487748	3.8	20.9	296709	3.9	21.3	534217	3.9	21.6	409001	4.0	20.6	544308	4.1	20.9	182392	4.1	19.9
488829	3.8	20.4	490211	3.9	21.4	183165	3.9	18.4	264429	4.0	20.4	532218	4.1	20.9	499192	4.1	21.3
148299	3.8	18.3	298997	3.9	20.0	53212	3.9	18.5	179840	4.0	20.6	232361	4.1	20.3	238351	4.1	19.5
28660	3.8	17.7	307348	3.9	20.7	469934	3.9	21.2	109929	4.0	19.9	263607	4.1	20.7	184136	4.1	19.2
194188	3.8	20.4	222270	3.9	21.3	295680	3.9	21.0	293231	4.0	20.8	221160	4.1	19.2	138351	4.1	18.9
237654	3.8	20.6	256314	3.9	19.9	471364	3.9	20.1	417760	4.0	21.2	409504	4.1	20.3	417039	4.1	21.3
322549	3.8	20.7	145456	3.9	18.8	295034	3.9	19.4	456322	4.0	22.1	349753	4.1	20.8	83489	4.1	19.3
228052	3.8	19.7	197052	3.9	20.1	88150	3.9	20.1	160824	4.0	19.4	18823	4.1	16.9	205524	4.1	21.4
40684	3.8	19.1	401980	3.9	22.6	169468	3.9	19.2	47772	4.0	19.4	145847	4.1	19.1	497784	4.2	21.6
491221	3.8	21.2	413088	3.9	21.5	165423	3.9	20.0	432486	4.0	20.5	221878	4.1	20.0	281189	4.2	20.6
76934	3.8	18.7	74438	3.9	18.0	273725	3.9	20.3	166297	4.0	18.7	199309	4.1	19.2	235618	4.2	19.4
274420	3.8	20.5	486077	3.9	20.5	1806	3.9	14.9	210462	4.0	20.4	10413	4.1	18.0	83275	4.2	18.2
143036	3.8	19.8	288804	3.9	20.5	337682	3.9	21.8	238915	4.0	19.8	279070	4.1	20.1	58173	4.2	18.7
194619	3.8	19.8	209027	3.9	19.2	106500	3.9	19.6	199370	4.0	20.4	22408	4.1	18.8	96464	4.2	19.1
456356	3.8	21.9	12402	3.9	17.6	371777	3.9	20.3	65094	4.0	19.0	527369	4.1	21.6	239437	4.2	21.1
332673	3.8	21.7	225606	3.9	20.5	372974	3.9	21.0	367144	4.0	20.8	125399	4.1	18.6	247706	4.2	19.9
465756	3.8	20.5	63671	3.9	19.4	158644	3.9	20.4	484729	4.0	21.0	205503	4.1	20.4	531680	4.2	2

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
524280	4.2	21.1	361579	4.2	21.2	382998	4.3	19.5	315574	4.4	20.0	328352	4.4	20.4	357379	4.5	19.5
38955	4.2	19.5	317567	4.2	21.2	348685	4.3	21.4	225599	4.4	21.0	503428	4.4	20.1	387104	4.5	20.7
496085	4.2	21.6	532996	4.2	21.8	138272	4.3	19.7	327423	4.4	21.0	524320	4.4	21.8	25873	4.5	18.4
215162	4.2	19.0	122766	4.2	19.5	95180	4.3	19.8	350810	4.4	20.3	138053	4.4	18.6	463935	4.5	21.3
461789	4.2	20.7	22814	4.2	19.3	110027	4.3	19.8	314498	4.4	19.8	244341	4.4	19.5	77681	4.5	18.0
464424	4.2	20.3	61531	4.2	18.3	275646	4.3	18.8	223695	4.4	19.3	414588	4.4	20.1	341775	4.5	21.6
492317	4.2	21.3	525839	4.2	20.6	369390	4.3	21.2	241893	4.4	20.4	337421	4.4	21.3	202324	4.5	19.1
218731	4.2	20.0	45698	4.2	20.2	385874	4.3	21.6	180718	4.4	18.9	492006	4.5	20.7	345189	4.5	20.5
383803	4.2	21.6	331626	4.2	20.0	32091	4.3	17.7	63755	4.4	20.6	151976	4.5	18.9	468600	4.5	20.8
423018	4.2	21.6	156594	4.2	19.6	249538	4.3	19.4	346949	4.4	20.3	280795	4.5	21.2	17363	4.5	19.8
78887	4.2	19.5	298970	4.2	20.8	274864	4.3	20.5	401065	4.4	21.1	495901	4.5	21.4	55221	4.5	18.2
498153	4.2	21.2	152636	4.2	19.9	532227	4.3	22.6	406253	4.4	21.3	138190	4.5	18.6	431299	4.5	21.0
457143	4.2	19.8	304692	4.2	21.2	56620	4.3	18.1	81553	4.4	19.1	342897	4.5	20.7	263049	4.5	20.2
63424	4.2	19.2	6202	4.2	18.4	322062	4.3	20.8	256367	4.4	20.6	163459	4.5	19.4	208179	4.5	19.5
533750	4.2	22.3	177432	4.2	18.7	163410	4.3	19.7	359406	4.4	20.2	187585	4.5	20.3	407371	4.5	21.2
402632	4.2	21.6	70049	4.2	17.8	522659	4.3	20.7	411753	4.4	20.9	378913	4.5	20.8	298702	4.5	19.4
320625	4.2	21.2	208477	4.2	20.4	286945	4.3	20.8	356519	4.4	21.0	404144	4.5	19.6	154352	4.5	19.7
430276	4.2	21.3	525665	4.2	21.7	6155	4.3	16.8	230527	4.4	20.0	177773	4.5	19.7	350668	4.5	22.0
513025	4.2	19.9	52628	4.2	17.9	20827	4.3	18.7	282334	4.4	20.2	208551	4.5	20.3	148626	4.5	20.4
373886	4.2	20.7	115240	4.2	19.6	533508	4.3	22.3	372421	4.4	20.1	158186	4.5	19.4	419782	4.5	21.3
57590	4.2	18.9	437554	4.2	21.0	264230	4.3	20.2	446077	4.4	21.0	133687	4.5	19.0	473423	4.5	20.2
110778	4.2	19.4	486135	4.2	22.1	66824	4.3	17.7	473009	4.4	20.7	165418	4.5	19.7	248794	4.5	19.9
393287	4.2	21.0	235442	4.2	20.2	315536	4.3	21.0	132970	4.4	18.8	536444	4.5	20.3	183419	4.5	20.5
321012	4.2	19.4	83797	4.2	19.1	381588	4.3	22.1	491069	4.4	21.2	4725	4.5	17.0	282502	4.5	20.6
23465	4.2	17.7	517598	4.2	20.5	459684	4.3	19.5	296299	4.4	19.7	18655	4.5	17.5	251226	4.5	19.9
150709	4.2	17.9	279231	4.2	20.2	364820	4.3	20.2	108904	4.4	19.1	347412	4.5	21.0	140364	4.5	19.7
536733	4.2	21.2	140725	4.2	19.7	226847	4.3	19.7	390377	4.4	19.7	79828	4.5	19.5	499382	4.5	21.8
340635	4.2	20.9	246315	4.2	20.7	288276	4.3	19.9	242568	4.4	20.1	69866	4.5	18.5	531542	4.5	21.7
339574	4.2	20.2	349006	4.2	21.3	389743	4.3	21.0	440000	4.4	20.3	113972	4.5	19.1	524266	4.5	21.7
217796	4.2	23.3	50328	4.2	20.1	34157	4.3	17.9	105178	4.4	19.0	48805	4.5	19.2	527476	4.5	21.6
212589	4.2	20.3	48396	4.2	17.0	383751	4.3	21.3	240535	4.4	19.9	495465	4.5	20.9	437108	4.5	20.3
87951	4.2	19.7	188725	4.2	19.7	528339	4.3	22.2	433635	4.4	20.3	93960	4.5	20.3	124565	4.5	19.5
474894	4.2	21.2	327419	4.3	21.6	526788	4.3	22.8	20575	4.4	16.6	257809	4.5	20.1	504241	4.5	21.4
186265	4.2	20.6	245006	4.3	20.9	487710	4.3	21.2	403974	4.4	21.1	262066	4.5	20.1	71687	4.5	18.9
402106	4.2	21.0	54443	4.3	17.2	360126	4.3	20.0	80423	4.4	18.0	544363	4.5	21.4	459252	4.5	20.9
174919	4.2	20.5	46606	4.3	19.6	467332	4.3	21.8	319592	4.4	20.6	393689	4.5	21.0	267136	4.5	19.5
186009	4.2	20.5	256138	4.3	19.8	291292	4.3	20.4	272651	4.4	19.3	281481	4.5	20.5	276717	4.5	19.4
399263	4.2	19.6	125670	4.3	19.3	420675	4.3	20.7	455914	4.4	20.9	144521	4.5	19.3	383782	4.5	20.4
537887	4.2	21.2	268859	4.3	20.9	277225	4.3	20.0	53655	4.4	18.7	168261	4.5	19.6	306198	4.5	20.7
204419	4.2	20.5	48785	4.3	18.8	518825	4.3	21.1	541573	4.4	21.9	449572	4.5	20.6	500679	4.5	20.9
39623	4.2	18.7	290536	4.3	20.6	298357	4.3	20.4	465687	4.4	21.6	79823	4.5	18.9	50542	4.5	17.9
451081	4.2	21.7	533918	4.3	21.1	169462	4.3	18.9	347130	4.4	21.9	210185	4.5	21.0	213570	4.5	19.5
44609	4.2	18.0	83335	4.3	20.2	538608	4.3	21.3	242355	4.4	20.0	262465	4.5	21.1	17799	4.5	18.4
223567	4.2	20.4	248997	4.3	19.7	197772	4.3	20.3	59746	4.4	17.8	357589	4.5	20.3	325160	4.5	20.6
345697	4.2	20.6	171454	4.3	19.7	78638	4.3	19.6	463724	4.4	20.6	317985	4.5	19.9	52371	4.5	19.4
37290	4.2	17.9	496395	4.3	21.6	389840	4.3	21.1	61461	4.4	18.5	429870	4.5	19.7	543422	4.5	21.4
456503	4.2	22.0	34107	4.3	18.6	461102	4.3	21.0	224368	4.4	20.4	289917	4.5	20.3	204257	4.5	19.5
175077	4.2	19.7	436961	4.3	21.5	415930	4.3	21.6	105478	4.4	20.1	346837	4.5	20.5	108187	4.5	18.7
237792	4.2	19.8	467186	4.3	20.2	494170	4.3	20.8	456347	4.4	21.9	367755	4.5	20.7	201422	4.5	20.2
228279	4.2	20.4	203297	4.3	20.1	393634	4.3	19.5	265673	4.4	20.2	530116	4.5	22.1	150090	4.5	20.0
314736	4.2	20.5	287510	4.3	19.7	39151	4.3	18.1	232599	4.4	20.0	462004	4.5	22.5	492783	4.5	20.7
530705	4.2	21.2	230297	4.3	20.1	196329	4.3	18.8	499482	4.4	20.7	460669	4.5	21.3	192310	4.5	20.0
422030	4.2	21.8	29738	4.3	17.9	132020	4.3	19.5	543299	4.4	21.3	389612	4.5	20.1	24189	4.5	17.0
324483	4.2	20.6	358642	4.3	19.7	397959	4.3	21.2	498893	4.4	21.2	48411	4.5	19.5	153845	4.5	20.2
201386	4.2	18.6	263631	4.3	21.0	276314	4.3	19.7	321888	4.4	21.3	67257	4.5	17.8	21009	4.5	18.4
403832	4.2	20.2	284376	4.3	21.1	397802	4.3	19.8	1565	4.4	17.2	425058	4.5	21.9	154831	4.5	20.0
525057	4.2	21.1	153919	4.3	19.9	58718	4.3	17.3	2084	4.4	15.8	493773	4.5	22.1	227682	4.5	20.9
32108	4.2	18.6	540540	4.3	20.3	42188	4.3	18.0	50936	4.4	19.3	253081	4.5	22.1	349608	4.5	19.7
513834	4.2	21.5	280176	4.3	20.8	234413	4.3	20.5	368581	4.4	20.5	78794	4.5	18.1	544254	4.5	22.3
529272	4.2	21.5	16652	4.3	17.2	350595	4.3	20.8	84304	4.4	18.9	490237	4.5	21.1	91738	4.5	18.4
203140	4.2	20.6	171922	4.3	20.6	110236	4.3	19.3	321972	4.4	20.5	322417	4.5	21.6	275017	4.5	19.9
409646	4.2	21.4	134209	4.3	19.6	110021	4.3	19.0	343251	4.4	21.3	27904	4.5	19.4	409009	4.6	22.0
425691	4.2	21.3	95119	4.3	19.0	419078	4.3	19.9	265646	4.4	20.5	56688	4.5	18.0	413528	4.6	21.3
311993	4.2	19.9	398140	4.3	19.9	172064	4.3	19.9	453900	4.4	21.5	465113	4.5	22.0	428814	4.6	21.3
169914	4.2	19.9	169205	4.3	20.1	55008	4.4	18.2	8033	4.4	16.2	287469	4.5	20.9	419072	4.6	21.3
240073	4.2	19.3	292149	4.3	21.4	284699	4.4	20.8	385304	4.4	20.7	298993	4.5	20.6	83439	4.6	19.2
158505	4.2	18.8	262574	4.3	20.2	429344	4.4	20.0	382910	4.4	21.0	108901	4.5	20.3	501313	4.6	21.3
146258	4.2	21.1	166564	4.3	18.7	91431	4.4	19.7	526994	4.4	21.4	288469	4.5	20.0	457548	4.6	22.0
83144	4.2	18.9	413146	4.3	21.0	239365	4.4	19.7	158993	4.4	19.8	283880	4.5	18.7	92262	4.6	18.9
255266	4.2	20.4	177897	4.3	19.5	123218	4.4	19.4	104073	4.4	19.2	192566	4.5	20.7	49869	4.6	19.0
337875	4.2	20.5	341866	4.3	19.9	189837	4.4	20.2	120954	4.4	19.9	170065	4.5	19.8	383695	4.6	22.

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
344287	4.6	20.9	84675	4.6	19.5	536205	4.7	21.4	105171	4.8	19.5	67414	4.8	19.0	1604	4.9	15.2
460678	4.6	20.6	531203	4.6	21.0	332983	4.7	20.2	209650	4.8	19.1	178975	4.8	20.2	160542	4.9	19.1
229203	4.6	20.8	234791	4.6	20.7	88980	4.7	19.3	400354	4.8	20.4	524856	4.8	21.6	14668	4.9	16.5
284301	4.6	20.2	64492	4.6	17.9	298926	4.7	19.5	10033	4.8	16.9	100345	4.8	19.9	125944	4.9	19.8
524945	4.6	19.5	381230	4.6	20.8	345637	4.7	20.8	97929	4.8	18.8	329409	4.8	20.3	301084	4.9	20.5
411209	4.6	21.8	325223	4.6	19.9	500533	4.7	21.7	491823	4.8	22.1	299469	4.8	19.6	58811	4.9	18.4
464956	4.6	21.2	192855	4.6	19.6	212316	4.7	19.4	434835	4.8	21.2	387828	4.8	20.5	250179	4.9	19.9
534225	4.6	21.6	255869	4.6	20.9	208921	4.7	20.7	286127	4.8	20.6	450070	4.8	20.7	498810	4.9	21.1
48786	4.6	19.0	535199	4.6	21.4	98531	4.7	20.0	336917	4.8	20.3	148673	4.8	20.3	305875	4.9	21.1
485382	4.6	18.7	98006	4.6	19.2	20487	4.7	18.3	225391	4.8	20.1	118133	4.8	20.7	117289	4.9	19.0
50141	4.6	18.8	61341	4.6	18.4	62922	4.7	18.6	445286	4.8	21.1	321915	4.8	20.4	135345	4.9	20.0
182394	4.6	19.9	85124	4.6	19.4	214256	4.7	20.5	453895	4.8	20.1	33723	4.8	18.7	416854	4.9	21.0
207810	4.6	20.1	536022	4.6	21.4	505079	4.7	19.8	405157	4.8	21.3	39115	4.8	18.8	129619	4.9	19.6
218571	4.6	20.3	148894	4.6	19.2	124986	4.7	20.1	490347	4.8	21.7	522899	4.8	21.5	359088	4.9	21.1
128730	4.6	20.1	203065	4.6	20.3	478597	4.7	20.6	3406	4.8	15.0	423508	4.8	21.7	95056	4.9	19.1
175751	4.6	21.1	463626	4.6	19.8	432481	4.7	20.5	47820	4.8	18.6	153985	4.8	20.4	411407	4.9	21.4
538415	4.6	20.6	207508	4.6	19.3	345539	4.7	21.3	455281	4.8	21.2	568	4.8	14.5	9055	4.9	17.3
30094	4.6	17.1	139437	4.6	19.7	520387	4.7	20.4	457820	4.8	19.7	363797	4.8	20.5	251029	4.9	19.9
160173	4.6	19.8	109110	4.6	18.4	4014	4.7	17.3	491100	4.8	20.7	498134	4.8	21.0	442651	4.9	21.4
216431	4.6	20.0	150378	4.6	18.2	531571	4.7	21.8	284348	4.8	21.1	248212	4.8	19.8	100996	4.9	19.6
411417	4.6	21.5	249330	4.6	19.9	132269	4.7	20.3	57171	4.8	19.2	320823	4.8	21.5	144600	4.9	19.7
462036	4.6	21.6	498156	4.6	21.6	473707	4.7	20.8	269207	4.8	19.4	209542	4.8	19.7	293950	4.9	20.1
486729	4.6	19.7	104906	4.6	17.5	130824	4.7	19.6	226640	4.8	19.9	26541	4.8	18.2	70257	4.9	18.0
230099	4.6	21.6	73646	4.6	17.9	324631	4.7	20.0	78868	4.8	19.4	159174	4.8	21.0	259899	4.9	20.8
13941	4.6	17.0	317001	4.6	19.7	352762	4.7	21.3	526199	4.8	21.9	288535	4.8	19.6	456816	4.9	21.5
296336	4.6	19.9	363805	4.6	20.6	121130	4.7	18.5	271857	4.8	20.9	89943	4.8	19.5	355876	4.9	22.0
38980	4.6	18.4	109239	4.7	19.1	230543	4.7	20.0	9870	4.8	15.8	451039	4.8	21.0	110013	4.9	20.9
49107	4.6	19.8	543973	4.7	20.9	543326	4.7	21.0	48631	4.8	18.6	350640	4.8	20.6	190392	4.9	20.3
15383	4.6	18.7	524627	4.7	21.5	382658	4.7	21.5	461799	4.8	21.4	534537	4.8	21.4	207587	4.9	20.0
201888	4.6	20.4	212723	4.7	20.8	453057	4.7	21.0	171249	4.8	19.7	158998	4.8	19.9	194127	4.9	20.3
252656	4.6	20.3	205251	4.7	21.4	105970	4.7	19.5	211628	4.8	20.9	315698	4.8	19.8	202641	4.9	20.7
535262	4.6	21.5	173913	4.7	20.1	170766	4.7	19.5	261295	4.8	20.0	359061	4.8	20.2	361624	4.9	21.4
62636	4.6	18.7	419676	4.7	21.6	37020	4.7	18.3	42355	4.8	21.3	527243	4.8	21.6	257467	4.9	20.8
98385	4.6	18.1	488633	4.7	23.1	83167	4.7	19.2	55028	4.8	19.3	314709	4.8	20.1	359069	4.9	21.9
134491	4.6	20.1	307037	4.7	20.8	100763	4.7	18.6	267097	4.8	20.0	386199	4.8	21.9	196525	4.9	20.6
279800	4.6	20.8	430933	4.7	21.7	108949	4.7	19.2	4389	4.8	16.6	300171	4.8	19.8	186203	4.9	19.6
48338	4.6	20.8	130731	4.7	20.4	240292	4.7	18.7	381995	4.8	20.0	238097	4.8	19.8	157331	4.9	18.7
340728	4.6	20.4	524125	4.7	22.8	371746	4.7	20.6	387165	4.8	20.6	416557	4.8	20.8	507359	4.9	21.5
443905	4.6	21.8	246149	4.7	19.9	116861	4.7	19.0	464203	4.8	20.7	544023	4.8	21.6	329817	4.9	20.4
18621	4.6	18.8	7497	4.7	17.7	499500	4.7	20.5	465759	4.8	21.0	94887	4.8	18.6	102107	4.9	20.0
159589	4.6	19.2	245989	4.7	20.4	238728	4.7	20.4	122805	4.8	20.1	84306	4.8	19.6	461155	4.9	21.8
244055	4.6	20.6	417790	4.7	20.4	525049	4.7	22.8	529774	4.8	21.0	460287	4.8	21.2	400285	4.9	21.9
57444	4.6	18.8	40250	4.7	17.3	505234	4.7	20.9	457568	4.8	21.8	520996	4.8	21.4	12003	4.9	17.4
58506	4.6	19.1	91031	4.7	18.4	192713	4.7	19.7	27483	4.8	17.6	483784	4.8	21.8	15791	4.9	18.1
186269	4.6	20.2	182431	4.7	20.1	417251	4.7	21.6	503888	4.8	22.1	229264	4.8	20.2	6485	4.9	16.6
314226	4.6	18.7	222991	4.7	20.1	296026	4.7	20.5	106461	4.8	18.6	135217	4.8	19.8	81180	4.9	18.2
99306	4.6	19.2	179265	4.7	20.0	422673	4.7	21.4	424693	4.8	21.1	535145	4.8	22.1	222784	4.9	20.5
468119	4.6	20.9	379219	4.7	19.5	391310	4.7	20.8	139184	4.8	18.9	144895	4.8	20.2	29918	4.9	17.3
406595	4.6	20.8	460198	4.7	21.8	16722	4.7	18.4	245845	4.8	19.8	4200	4.8	17.4	530780	4.9	20.8
145552	4.6	19.0	145648	4.7	19.6	426932	4.7	21.2	337502	4.8	20.7	290164	4.8	20.7	427578	4.9	20.8
140100	4.6	19.8	100015	4.7	19.6	50398	4.7	18.9	29083	4.8	18.0	301513	4.8	20.6	454881	4.9	21.9
283581	4.6	20.7	349016	4.7	19.9	54254	4.7	18.9	94822	4.8	20.4	472228	4.8	20.2	287461	4.9	20.2
99583	4.6	17.9	268527	4.7	20.5	325479	4.7	20.1	372445	4.8	21.1	230372	4.8	19.8	57067	4.9	19.2
323590	4.6	19.7	219742	4.7	20.0	304887	4.7	20.0	162570	4.8	19.6	490302	4.8	21.1	297446	4.9	20.3
529295	4.6	21.9	80443	4.7	18.1	458408	4.7	21.4	149674	4.8	19.6	31562	4.8	18.3	275708	4.9	20.0
84274	4.6	19.3	539823	4.7	19.4	248188	4.7	19.5	462912	4.8	21.1	341363	4.8	21.2	88712	4.9	18.8
57329	4.6	19.7	90260	4.7	18.9	456398	4.7	21.3	469399	4.8	21.1	139645	4.8	19.4	406554	4.9	21.0
491108	4.6	20.6	281340	4.7	20.6	214508	4.7	19.3	387837	4.8	19.7	397075	4.8	21.2	135758	4.9	20.5
416979	4.6	21.9	306664	4.7	20.6	52970	4.7	18.3	183275	4.8	21.3	111419	4.8	19.8	231012	4.9	19.3
51978	4.6	18.6	229694	4.7	20.5	533688	4.7	21.0	55757	4.8	19.1	287812	4.8	20.3	120445	4.9	19.8
376873	4.6	20.8	522797	4.7	20.4	205022	4.7	19.2	104306	4.8	19.1	344000	4.9	19.8	366475	4.9	19.5
242619	4.6	19.9	423659	4.7	22.1	229814	4.7	20.5	74943	4.8	19.7	401621	4.9	20.4	432187	4.9	21.9
383809	4.6	20.8	463867	4.7	20.7	19349	4.7	17.7	230572	4.8	20.4	184976	4.9	20.5	271938	4.9	19.9
363390	4.6	20.9	364795	4.7	20.9	428439	4.7	20.4	187846	4.8	20.0	527600	4.9	22.2	448178	4.9	22.0
188542	4.6	19.0	498313	4.7	21.4	253995	4.7	20.0	5745	4.8	17.3	406155	4.9	21.6	125838	4.9	19.5
93971	4.6	19.5	14306	4.7	17.1	269458	4.7	20.9	112785	4.8	19.8	202008	4.9	21.2	331193	4.9	20.8
57901	4.6	18.3	141261	4.7	20.1	528903	4.7	21.4	423181	4.8	20.2	58368	4.9	19.1	414907	4.9	21.2
271837	4.6	20.7	522475	4.7	21.2	283530	4.7	20.0	493800	4.8	21.3	371287	4.9	20.9	494878	4.9	20.8
194873	4.6	20.4	256809	4.7	20.6	532729	4.7	21.1	154317	4.8	20.5	363130	4.9	20.2	451062	4.9	21.3
231900	4.6	20.8	42611	4.7	18.9	141088	4.7	19.6	7109	4.8	16.9	225591	4.9	20.1	312953	4.9	19.1
421463	4.6	21.2	533901	4.7	22.5	258287	4.7	22.1	500587	4.8	21.6	60532	4.9	17.8	26980	4.9	19.7
362753																	

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
541285	4.9	20.3	415545	4.9	20.6	277353	5.1	19.5	304943	5.1	19.6	233527	5.2	20.3	139507	5.3	19.7
464215	4.9	20.9	122910	4.9	18.8	228690	5.1	21.0	496089	5.1	21.7	505164	5.2	22.1	320161	5.3	21.1
544007	4.9	21.4	231473	4.9	20.1	245689	5.1	20.9	450360	5.1	21.6	190079	5.2	20.3	165535	5.3	19.7
538791	4.9	21.1	341445	4.9	21.2	343625	5.1	19.4	531509	5.1	22.5	346102	5.2	21.2	259919	5.3	20.6
209050	4.9	19.6	257024	4.9	20.3	118704	5.1	19.1	238643	5.1	20.5	298379	5.2	20.5	313591	5.3	19.8
320328	4.9	21.0	350658	4.9	21.2	114019	5.1	19.5	253206	5.1	20.0	95383	5.2	18.7	75887	5.3	19.8
352409	4.9	21.2	191268	4.9	20.6	528042	5.1	20.8	526211	5.1	22.4	405913	5.2	20.0	500644	5.3	21.6
419578	4.9	21.5	163221	4.9	18.3	490159	5.1	21.1	350552	5.1	21.0	144732	5.2	19.8	350629	5.3	21.8
539834	4.9	20.2	185795	4.9	20.2	504274	5.1	21.1	194252	5.1	20.2	186889	5.2	19.5	525261	5.3	20.5
29854	4.9	17.8	237308	4.9	20.6	337691	5.1	21.0	536163	5.1	20.8	95102	5.2	20.3	10327	5.3	18.4
273754	4.9	20.6	91019	5.0	19.3	10086	5.1	18.3	500555	5.1	22.0	172782	5.2	19.3	448212	5.3	21.4
167655	4.9	19.1	37200	5.0	18.4	123543	5.1	20.1	7387	5.1	17.0	77866	5.2	19.2	526276	5.3	22.0
148890	4.9	20.0	80088	5.0	18.0	410824	5.1	20.2	695	5.1	13.2	224814	5.2	20.2	338427	5.3	20.8
332848	4.9	19.9	408877	5.0	21.9	163787	5.1	20.7	344812	5.1	21.7	4270	5.2	17.8	383790	5.3	20.4
429047	4.9	21.0	404846	5.0	20.3	370715	5.1	21.4	247868	5.1	19.7	68840	5.2	19.5	209630	5.3	20.4
97381	4.9	19.7	468198	5.0	20.1	407903	5.1	20.7	194514	5.1	20.8	388882	5.2	19.8	232583	5.3	21.1
415732	4.9	20.1	347598	5.0	20.2	344071	5.1	22.0	199545	5.1	20.6	48896	5.2	17.6	222347	5.3	20.8
291526	4.9	19.5	309296	5.0	19.4	377190	5.1	21.2	268381	5.1	21.4	66575	5.2	19.7	76865	5.3	17.3
406140	4.9	21.9	359160	5.0	21.6	238472	5.1	21.1	124267	5.1	19.5	183825	5.2	20.8	544435	5.3	21.9
62691	4.9	18.9	543721	5.0	21.0	450968	5.1	21.4	459996	5.2	20.9	159557	5.2	19.3	167538	5.3	19.1
465086	4.9	22.0	110801	5.0	19.3	221081	5.1	19.8	186905	5.2	19.3	543683	5.2	21.7	149873	5.3	19.3
205590	4.9	19.8	246155	5.0	20.0	355930	5.1	20.0	313816	5.2	20.6	47895	5.2	20.1	18135	5.3	18.2
378722	4.9	20.7	373360	5.0	20.3	518133	5.1	19.7	1742	5.2	15.7	488571	5.2	21.7	266908	5.3	20.9
406163	4.9	20.9	134080	5.0	20.0	373249	5.1	20.5	36876	5.2	19.4	57063	5.2	19.6	482845	5.3	20.2
444393	4.9	21.0	541978	5.0	20.4	204995	5.1	20.7	353434	5.2	19.8	378525	5.2	21.2	419372	5.3	19.1
291936	4.9	20.4	286971	5.0	21.7	135098	5.1	20.3	416506	5.2	20.0	109771	5.2	19.7	4429	5.3	18.7
10586	4.9	17.9	111330	5.0	19.9	143334	5.1	20.3	284321	5.2	20.7	460445	5.2	20.9	534408	5.3	19.8
90023	4.9	18.3	301177	5.0	20.5	238826	5.1	19.2	147716	5.2	20.5	414224	5.2	20.6	468393	5.3	21.5
418318	4.9	20.8	66356	5.0	17.9	309257	5.1	21.1	419129	5.2	21.1	71049	5.2	18.8	244714	5.3	20.5
286355	4.9	21.2	63024	5.0	19.9	538314	5.1	21.0	60909	5.2	18.7	520731	5.2	21.4	448125	5.3	21.9
75279	4.9	20.3	97822	5.0	18.2	540283	5.1	20.6	312579	5.2	19.8	491898	5.2	21.7	56030	5.3	19.1
491612	4.9	21.3	123421	5.0	19.9	264578	5.1	21.3	388265	5.2	21.8	453281	5.2	20.2	170206	5.3	20.4
491123	4.9	21.2	80809	5.0	20.8	482849	5.1	21.0	52586	5.2	17.2	544099	5.2	22.3	469200	5.3	20.3
226947	4.9	20.7	49277	5.0	18.4	299037	5.1	21.0	20351	5.2	18.6	543254	5.2	20.0	364415	5.3	19.4
282806	4.9	20.2	239385	5.0	20.7	140032	5.1	19.8	203541	5.2	19.5	506794	5.2	20.2	412958	5.3	21.1
53540	4.9	17.9	384190	5.0	20.9	328294	5.1	20.4	150724	5.2	20.6	277588	5.2	20.7	140063	5.3	19.6
87169	4.9	20.0	51882	5.0	18.6	210956	5.1	19.9	78075	5.2	18.3	544451	5.2	20.6	100307	5.3	18.3
532399	4.9	20.0	500357	5.0	22.5	497721	5.1	21.2	98095	5.2	19.8	30980	5.2	19.9	317589	5.3	20.9
288580	4.9	20.1	245420	5.0	19.8	343158	5.1	19.7	6078	5.2	17.3	454868	5.2	21.2	428400	5.3	21.2
428866	4.9	21.3	152034	5.0	20.1	429855	5.1	20.6	301312	5.2	21.3	423189	5.2	20.3	331263	5.3	20.8
444176	4.9	20.6	362630	5.0	21.6	47700	5.1	18.8	337657	5.2	20.9	249080	5.2	20.2	386196	5.3	21.8
3180	4.9	17.4	92754	5.0	18.2	31638	5.1	17.7	241693	5.2	20.3	380044	5.2	20.8	542784	5.3	20.5
166899	4.9	18.8	278245	5.0	20.5	326449	5.1	19.6	376979	5.2	21.3	65900	5.2	18.5	502453	5.3	20.9
537039	4.9	21.5	52802	5.0	19.6	489358	5.1	21.0	184670	5.2	19.8	209602	5.2	20.6	346190	5.3	19.8
402068	4.9	21.0	426647	5.0	22.3	3249	5.1	17.5	375336	5.2	20.6	338936	5.2	19.7	524023	5.3	22.0
367524	4.9	21.0	463481	5.0	20.7	159686	5.1	20.3	364759	5.2	20.4	350070	5.2	19.6	170344	5.3	19.4
170676	4.9	19.2	492001	5.0	20.1	500828	5.1	23.9	299812	5.2	20.7	462002	5.2	21.5	283959	5.3	20.6
192783	4.9	19.8	277789	5.0	21.1	177475	5.1	20.2	239488	5.2	20.5	381696	5.2	20.5	270891	5.3	20.8
66805	4.9	19.4	168292	5.0	19.6	369873	5.1	20.3	79246	5.2	20.6	128724	5.2	19.4	187869	5.3	20.0
493890	4.9	22.1	543141	5.0	21.1	29941	5.1	17.9	184404	5.2	20.0	486805	5.2	20.4	236059	5.3	19.8
250217	4.9	21.2	223654	5.0	19.7	536276	5.1	20.1	315549	5.2	21.1	302013	5.2	19.3	104624	5.3	18.8
208253	4.9	20.4	428493	5.0	20.6	523696	5.1	21.5	355939	5.2	20.2	535093	5.2	21.3	343658	5.3	20.2
273308	4.9	20.9	526285	5.0	21.4	527051	5.1	21.6	85923	5.2	18.2	438121	5.2	20.3	425383	5.3	20.5
484967	4.9	21.3	184037	5.0	22.4	457198	5.1	20.9	232528	5.2	20.5	324441	5.2	21.8	538059	5.3	21.3
90718	4.9	20.7	199920	5.0	19.8	375298	5.1	20.6	86841	5.2	17.5	126216	5.2	19.2	58102	5.3	19.4
307625	4.9	20.9	448121	5.0	22.6	67716	5.1	19.0	460944	5.2	21.1	284013	5.2	20.9	293599	5.3	20.4
434839	4.9	21.0	242338	5.0	20.1	285115	5.1	20.0	444391	5.2	21.7	83132	5.2	18.4	191981	5.3	20.4
43007	4.9	18.3	456359	5.0	21.1	292413	5.1	18.9	58721	5.2	17.8	525923	5.2	22.1	283592	5.3	20.5
449244	4.9	20.8	462891	5.0	21.4	517195	5.1	20.9	14377	5.2	17.4	426806	5.2	21.5	81851	5.3	18.6
212703	4.9	20.9	58294	5.0	17.7	289121	5.1	20.7	112450	5.2	18.3	298362	5.2	20.1	95432	5.3	19.2
536905	4.9	21.2	109311	5.1	18.9	519296	5.1	20.9	250155	5.2	21.8	160748	5.2	19.4	457115	5.3	19.9
388750	4.9	21.8	497863	5.1	21.2	147331	5.1	18.2	526663	5.2	22.3	346283	5.3	20.8	84040	5.3	19.2
235486	4.9	20.6	263111	5.1	19.5	431477	5.1	21.3	329327	5.2	20.8	162933	5.3	19.6	406185	5.3	20.6
464562	4.9	21.7	41730	5.1	19.0	268101	5.1	20.7	277912	5.2	19.8	129737	5.3	20.0	421363	5.3	20.3
456635	4.9	20.7	230536	5.1	20.9	260715	5.1	19.5	345635	5.2	20.9	182698	5.3	19.7	341390	5.3	20.7
163695	4.9	19.6	140494	5.1	19.7	461823	5.1	20.9	168926	5.2	19.1	337572	5.3	22.5	496935	5.3	21.7
484232	4.9	21.7	496907	5.1	21.1	132262	5.1	20.7	544367	5.2	21.4	542939	5.3	20.8	447315	5.3	21.1
421304	4.9	21.5	245457	5.1	20.2	133951	5.1	18.0	113414	5.2	18.2	264775	5.3	19.6	534326	5.3	21.8
121343	4.9	20.2	378968	5.1	20.7	369723	5.1	18.9	54648	5.2	18.0	182597	5.3	19.6	188661	5.3	20.5
425016	4.9	21.0	436357	5.1	19.8	380429	5.1	20.2	115310	5.2	19.7	46763	5.3	18.4	81608	5.3	18.8
335886	4.9	20.3	451418	5.1	22.3	45613	5.1	18.8	150483	5.2	18.9	258475	5.3	21.0	32403	5.3	1

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
266746	5.3	20.5	532295	5.4	20.9	425119	5.4	21.3	312279	5.5	19.8	544568	5.5	21.9	50658	5.6	19.4
176972	5.3	19.2	664	5.4	13.5	339718	5.4	20.1	40003	5.5	18.7	302081	5.5	21.4	445911	5.6	21.1
276398	5.3	19.7	408988	5.4	21.1	126868	5.4	18.8	319733	5.5	21.4	532393	5.5	21.1	538358	5.6	21.3
16941	5.3	17.4	185365	5.4	20.9	219434	5.4	20.5	317133	5.5	20.1	289071	5.6	20.5	457851	5.6	20.5
146381	5.3	20.3	17527	5.4	17.4	8599	5.4	18.4	237238	5.5	20.9	79147	5.6	18.5	211556	5.6	19.9
236249	5.3	18.8	150885	5.4	20.7	462944	5.4	21.3	461088	5.5	20.0	91107	5.6	18.0	153990	5.6	19.9
405152	5.3	21.5	337776	5.4	20.9	298891	5.4	21.1	276907	5.5	20.3	205269	5.6	20.8	498880	5.6	21.4
49300	5.3	17.8	99933	5.4	18.4	276190	5.4	20.4	527354	5.5	21.7	268600	5.6	20.6	15322	5.6	19.1
240039	5.3	20.2	464202	5.4	20.6	197984	5.4	19.5	419700	5.5	20.4	465429	5.6	21.1	54664	5.6	18.3
6019	5.3	16.1	527216	5.4	21.2	214427	5.4	19.7	201887	5.5	21.0	239694	5.6	20.2	341760	5.6	20.3
83299	5.3	20.2	44169	5.4	17.8	432112	5.4	21.4	163188	5.5	19.1	112561	5.6	19.5	60332	5.6	19.3
386567	5.3	21.6	256403	5.4	20.9	146506	5.4	19.9	282028	5.5	21.2	49413	5.6	19.1	55801	5.6	19.6
62313	5.3	19.0	150941	5.4	21.2	258617	5.4	20.0	117168	5.5	20.8	501277	5.6	20.0	538717	5.6	21.2
526450	5.3	22.7	269776	5.4	21.0	486802	5.4	20.8	531593	5.5	20.9	322856	5.6	20.8	384232	5.6	20.7
434055	5.3	21.3	322646	5.4	22.0	167670	5.4	20.2	432169	5.5	21.4	171631	5.6	20.1	537931	5.6	20.1
170112	5.3	20.0	155074	5.4	20.7	134760	5.4	20.0	367745	5.5	21.6	18605	5.6	18.5	544650	5.6	22.2
435908	5.3	21.4	138150	5.4	20.5	16386	5.4	18.4	419104	5.5	21.0	111544	5.6	19.7	323115	5.6	20.2
349249	5.3	21.0	155154	5.4	19.5	467048	5.4	19.9	529437	5.5	21.5	544905	5.6	21.4	53987	5.6	18.5
262585	5.3	21.1	533044	5.4	21.5	79508	5.4	18.0	247021	5.5	19.9	230860	5.6	18.4	226776	5.6	20.0
535379	5.3	21.1	404237	5.4	20.3	337943	5.4	21.4	538753	5.5	21.3	126295	5.6	18.3	264572	5.6	21.9
167014	5.3	20.0	389237	5.4	20.5	314371	5.4	20.2	294592	5.5	20.4	239449	5.6	20.5	503117	5.6	20.4
217995	5.3	20.0	57881	5.4	18.1	357597	5.4	21.2	373138	5.5	20.3	409982	5.6	21.5	284343	5.6	21.0
37005	5.3	19.2	423779	5.4	21.3	241876	5.4	20.2	327292	5.5	20.7	413725	5.6	21.6	249218	5.7	20.6
206218	5.3	20.0	106525	5.4	18.6	219068	5.4	19.6	5626	5.5	18.8	215531	5.6	20.2	354055	5.7	22.0
156124	5.3	18.9	538221	5.4	21.4	459668	5.4	20.0	140006	5.5	19.5	246798	5.6	20.3	320759	5.7	21.1
389398	5.3	19.5	417253	5.4	20.0	530646	5.4	21.2	464018	5.5	21.4	398617	5.6	21.3	89422	5.7	18.7
33493	5.3	17.3	151796	5.4	20.0	427405	5.4	19.3	244119	5.5	20.2	142872	5.6	19.4	130770	5.7	19.9
17984	5.3	17.0	354990	5.4	19.8	197054	5.4	20.9	114990	5.5	19.5	90116	5.6	19.3	441833	5.7	21.3
183834	5.3	20.5	413935	5.4	20.1	525175	5.4	21.9	11192	5.5	17.3	165832	5.6	18.9	208176	5.7	20.2
393903	5.3	21.7	879	5.4	15.1	110908	5.4	18.7	329818	5.5	20.5	237280	5.6	19.6	413083	5.7	20.0
338187	5.3	21.3	175277	5.4	20.3	137085	5.5	18.6	459230	5.5	21.3	242600	5.6	19.9	337917	5.7	20.3
241365	5.3	20.3	261369	5.4	20.0	184035	5.5	19.4	246405	5.5	20.1	91486	5.6	19.2	15165	5.7	16.1
345675	5.3	20.0	201033	5.4	19.3	267220	5.5	20.7	435886	5.5	21.1	338118	5.6	21.3	176227	5.7	19.0
7816	5.3	19.2	215546	5.4	19.8	160003	5.5	19.6	18189	5.5	18.0	226009	5.6	19.7	340810	5.7	20.5
267762	5.3	19.7	169389	5.4	19.9	140806	5.5	19.6	69409	5.5	17.5	333358	5.6	21.2	299301	5.7	18.6
74055	5.3	17.7	203606	5.4	19.2	529282	5.5	21.8	209004	5.5	20.4	508097	5.6	20.6	409886	5.7	21.0
502536	5.3	21.2	526700	5.4	22.4	208825	5.5	19.4	200862	5.5	20.2	187532	5.6	19.5	278816	5.7	20.2
207067	5.3	18.9	179208	5.4	20.4	189278	5.5	20.8	250184	5.5	21.4	54651	5.6	18.8	166699	5.7	19.6
377438	5.3	21.7	544888	5.4	21.1	307762	5.5	21.1	358786	5.5	19.6	502248	5.6	20.5	56546	5.7	18.0
541284	5.3	21.0	244707	5.4	19.8	37003	5.5	19.3	199220	5.5	19.6	329173	5.6	21.1	470923	5.7	21.0
337452	5.3	20.7	256338	5.4	19.8	222068	5.5	19.7	97963	5.5	19.5	444409	5.6	21.6	228357	5.7	20.2
458774	5.3	20.6	540104	5.4	21.1	126260	5.5	20.5	107432	5.5	18.0	338083	5.6	20.7	304653	5.7	20.3
88889	5.3	18.9	203498	5.4	19.5	211632	5.5	20.5	110635	5.5	19.2	29279	5.6	18.1	537711	5.7	20.1
304869	5.3	20.4	37326	5.4	18.6	43141	5.5	17.1	53269	5.5	17.6	120060	5.6	20.1	136630	5.7	19.5
119262	5.3	19.5	461816	5.4	21.4	100927	5.5	19.3	457576	5.5	20.8	466197	5.6	20.9	340711	5.7	20.5
110317	5.3	19.2	527018	5.4	21.8	461241	5.5	22.0	297396	5.5	20.9	486252	5.6	21.3	221749	5.7	19.5
386227	5.3	20.8	194163	5.4	20.5	534320	5.5	20.4	456439	5.5	21.8	409962	5.6	21.8	133567	5.7	20.5
134450	5.3	21.3	102081	5.4	19.7	59353	5.5	18.7	279103	5.5	20.1	457530	5.6	21.8	428084	5.7	20.6
386308	5.3	21.0	108678	5.4	19.7	466333	5.5	21.1	148067	5.5	19.9	215551	5.6	20.6	409887	5.7	21.2
464900	5.3	21.9	186229	5.4	20.4	376998	5.5	21.5	484672	5.5	20.6	11075	5.6	18.5	509292	5.7	20.4
544982	5.3	19.5	289919	5.4	21.1	284729	5.5	19.8	447	5.5	13.5	238683	5.6	20.8	524840	5.7	21.0
419048	5.3	20.9	98621	5.4	17.7	24444	5.5	18.2	406556	5.5	21.5	241685	5.6	19.7	321418	5.7	20.1
489594	5.4	20.9	212712	5.4	20.0	253311	5.5	20.0	484240	5.5	20.8	284324	5.6	20.4	153892	5.7	20.5
194465	5.4	20.9	534283	5.4	22.5	180599	5.5	20.7	132789	5.5	20.2	45612	5.6	19.2	82984	5.7	19.3
383757	5.4	21.4	245075	5.4	19.6	272456	5.5	21.0	372665	5.5	20.7	359139	5.6	20.3	402555	5.7	20.2
124644	5.4	18.7	396885	5.4	20.8	84017	5.5	19.8	160810	5.5	19.7	386894	5.6	20.6	463275	5.7	20.6
524602	5.4	21.7	193780	5.4	19.3	145343	5.5	19.4	62574	5.5	19.4	163414	5.6	19.4	315437	5.7	20.3
135065	5.4	19.5	432453	5.4	20.3	210091	5.5	20.0	422435	5.5	22.8	293677	5.6	21.7	456873	5.7	22.6
19077	5.4	18.3	426419	5.4	20.8	35779	5.5	18.2	166114	5.5	19.6	283927	5.6	20.6	53874	5.7	18.1
264513	5.4	18.1	112443	5.4	18.7	195045	5.5	20.6	421669	5.5	20.7	297469	5.6	20.7	143125	5.7	19.6
409556	5.4	21.3	211891	5.4	19.2	394410	5.5	20.7	465770	5.5	21.3	87869	5.6	19.1	10564	5.7	17.2
410029	5.4	20.5	504816	5.4	20.0	175100	5.5	19.5	147707	5.5	18.7	232763	5.6	19.2	109607	5.7	19.6
160688	5.4	19.3	347700	5.4	21.2	131977	5.5	19.2	301434	5.5	21.0	54612	5.6	18.0	533853	5.7	21.5
276236	5.4	20.4	325065	5.4	20.4	341617	5.5	20.6	411353	5.5	21.9	119126	5.6	19.4	221960	5.7	20.7
210306	5.4	20.4	190424	5.4	20.2	427483	5.5	22.1	68343	5.5	17.3	246683	5.6	20.0	152691	5.7	20.2
217103	5.4	20.2	379244	5.4	20.4	256369	5.5	22.5	191941	5.5	19.8	484540	5.6	20.4	10726	5.7	18.0
350216	5.4	20.8	109480	5.4	19.8	52472	5.5	19.4	472760	5.5	22.7	532242	5.6	20.9	90711	5.7	20.2
206224	5.4	20.4	183787	5.4	21.4	200826	5.5	19.7	101534	5.5	18.5	503191	5.6	20.4	396878	5.7	20.0
399549	5.4	21.3	544242	5.4	21.7	293767	5.5	20.8	231102	5.5	20.7	183828	5.6	19.9	52185	5.7	19.7
194219	5.4	19.7	521027	5.4	20.9	71965	5.5	18.6	731	5.5	14.1	14103	5.6	17.8	102050	5.7	19.6
104767	5.4	19.2	18721	5.4	18.0	491668	5.5	21.1	534491	5.5	21.4	448262	5.6	21.5	79155	5.7	19

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
341043	5.7	20.6	317417	5.8	20.8	186594	5.8	18.8	48668	5.9	18.8	447403	5.9	20.1	516466	6.0	20.8
337446	5.7	20.9	194608	5.8	19.9	244580	5.8	20.1	136085	5.9	19.4	532586	5.9	21.5	221126	6.0	20.7
383797	5.7	21.5	454330	5.8	20.9	530145	5.8	20.9	409906	5.9	23.0	339441	5.9	20.1	347066	6.0	20.0
532529	5.7	21.3	106026	5.8	19.4	100176	5.8	19.6	271384	5.9	21.1	419045	5.9	22.2	372685	6.0	20.9
79170	5.7	19.1	348913	5.8	20.7	338299	5.8	21.0	404462	5.9	21.1	103550	5.9	18.1	340333	6.0	20.5
417124	5.7	19.4	288491	5.8	19.6	384137	5.8	20.6	433150	5.9	21.2	198935	5.9	20.2	199221	6.0	20.7
252434	5.7	21.5	463186	5.8	22.7	24761	5.8	19.3	451127	5.9	20.1	194265	5.9	21.0	291813	6.0	19.3
79475	5.7	19.8	113275	5.8	19.6	261204	5.8	21.2	221194	5.9	20.1	330021	5.9	21.4	530225	6.0	21.5
367774	5.7	21.6	384236	5.8	20.8	510758	5.8	21.8	231530	5.9	20.7	524179	5.9	22.6	209751	6.0	19.8
173988	5.7	20.3	416264	5.8	20.4	270752	5.8	20.1	238408	5.9	19.3	466798	5.9	20.7	306285	6.0	20.3
544939	5.7	21.6	194576	5.8	20.7	147821	5.8	19.7	312841	5.9	21.1	95763	5.9	19.5	155673	6.0	19.0
222789	5.7	20.1	415784	5.8	22.0	11076	5.8	17.3	483660	5.9	20.8	502478	5.9	21.1	236932	6.0	19.1
534597	5.7	19.9	389343	5.8	21.1	317617	5.8	20.9	113579	5.9	20.1	68972	5.9	19.2	312976	6.0	18.3
500839	5.7	23.8	307991	5.8	19.7	472097	5.8	21.4	531374	5.9	22.0	258396	5.9	19.0	123406	6.0	19.7
284669	5.7	20.4	165102	5.8	19.2	79525	5.8	18.6	77871	5.9	18.1	62430	5.9	18.9	35372	6.0	19.5
415825	5.7	20.3	183390	5.8	19.7	419115	5.8	21.2	268121	5.9	20.8	292189	5.9	20.4	161738	6.0	19.8
205332	5.7	20.3	247801	5.8	21.3	432582	5.8	19.9	358685	5.9	19.9	525869	5.9	21.2	388293	6.0	21.0
541481	5.7	20.3	206859	5.8	19.9	226827	5.8	20.5	274154	5.9	19.5	346175	5.9	20.2	101848	6.0	18.5
3890	5.7	16.9	321084	5.8	19.8	496066	5.8	21.5	29509	5.9	18.5	142201	5.9	19.8	52648	6.0	19.4
496069	5.7	21.9	171857	5.8	19.8	28331	5.8	18.4	418324	5.9	20.8	10688	5.9	18.1	459757	6.0	20.7
193965	5.7	20.4	531315	5.8	21.9	27768	5.8	18.7	28780	5.9	19.0	369080	5.9	20.0	258390	6.0	20.8
256273	5.7	20.8	378683	5.8	20.5	378821	5.8	20.8	236959	5.9	19.9	317027	5.9	21.0	185783	6.0	19.4
81618	5.7	19.2	361229	5.8	19.9	142261	5.8	20.3	533397	5.9	22.6	301220	5.9	21.0	57485	6.0	19.0
324431	5.7	21.5	31879	5.8	17.5	322811	5.8	21.0	46766	5.9	18.3	319860	5.9	20.9	531369	6.0	21.2
170806	5.7	19.8	538414	5.8	20.7	325142	5.8	20.9	386466	5.9	22.0	429055	5.9	20.1	488565	6.0	21.4
91549	5.7	18.4	278772	5.8	20.6	471152	5.8	21.8	61192	5.9	18.5	134030	5.9	19.8	378341	6.0	19.9
96203	5.7	20.4	207341	5.8	20.1	239320	5.8	20.2	142460	5.9	20.7	372643	5.9	20.7	411429	6.0	20.2
346696	5.7	20.8	541184	5.8	21.0	113958	5.8	19.5	316846	5.9	19.7	248106	5.9	21.1	221155	6.0	19.3
423985	5.7	21.9	532638	5.8	21.2	160805	5.8	20.8	217365	5.9	20.8	501401	5.9	21.2	459389	6.0	19.8
124287	5.7	20.2	362133	5.8	21.0	392520	5.8	20.2	238031	5.9	21.0	252766	5.9	19.1	345250	6.0	20.1
197311	5.7	19.8	292304	5.8	19.9	410214	5.8	20.5	1515	5.9	17.5	225268	5.9	19.9	15795	6.0	18.4
419510	5.7	20.1	65729	5.8	17.9	105145	5.8	19.1	49495	5.9	18.8	305654	5.9	22.0	105128	6.0	19.3
396855	5.7	20.8	331505	5.8	20.6	194184	5.8	20.4	60420	5.9	18.8	341567	5.9	20.3	385928	6.0	20.5
133665	5.7	19.3	55841	5.8	19.1	43501	5.8	17.7	337412	5.9	21.8	56628	5.9	18.6	175194	6.0	19.6
244489	5.7	20.4	386934	5.8	21.2	17500	5.8	19.0	500668	5.9	22.5	473625	5.9	22.0	138375	6.0	19.7
364049	5.7	20.1	500838	5.8	23.5	148478	5.8	19.1	263353	5.9	20.6	474115	5.9	20.9	83918	6.0	19.5
410421	5.7	20.6	319800	5.8	21.6	81559	5.8	18.6	202273	5.9	18.9	233055	5.9	20.2	467660	6.0	20.7
467735	5.7	21.9	19990	5.8	19.1	528273	5.8	21.6	62245	5.9	19.5	235322	5.9	20.7	206871	6.0	19.8
142792	5.7	18.8	71757	5.8	19.2	432164	5.8	20.7	145322	5.9	19.7	188852	5.9	19.9	225549	6.0	19.8
121148	5.7	18.5	163649	5.8	20.8	211177	5.8	19.2	7194	5.9	16.9	172015	5.9	19.2	410459	6.0	20.8
16305	5.7	18.8	545118	5.8	21.1	63616	5.8	18.6	224961	5.9	20.3	540136	5.9	20.9	445151	6.0	21.2
296144	5.7	21.2	461525	5.8	21.4	355790	5.8	21.6	52261	5.9	18.7	26205	5.9	19.2	491148	6.0	21.1
222294	5.7	20.0	18153	5.8	17.1	202714	5.8	19.5	134819	5.9	19.8	163002	5.9	20.2	313017	6.0	20.7
95378	5.7	19.2	59233	5.8	17.8	213704	5.8	20.0	337929	5.9	21.7	409826	5.9	20.3	268103	6.0	20.2
238401	5.7	19.3	126298	5.8	19.9	266332	5.8	20.7	325782	5.9	21.8	175023	5.9	19.7	333780	6.0	20.8
245479	5.7	21.0	285918	5.8	21.7	366044	5.8	20.4	494854	5.9	20.1	403730	5.9	21.2	57288	6.0	18.1
320886	5.7	19.7	105303	5.8	19.6	532265	5.9	21.9	427113	5.9	21.5	221330	5.9	20.4	199059	6.0	19.3
263008	5.7	20.9	448316	5.8	21.3	109084	5.9	19.5	409942	5.9	22.0	65687	5.9	18.9	39161	6.0	17.6
109592	5.7	19.6	262899	5.8	20.7	122138	5.9	19.3	518422	5.9	19.7	14252	5.9	17.4	141412	6.0	19.8
169211	5.7	19.8	393429	5.8	21.7	448765	5.9	21.4	203071	5.9	20.7	506365	5.9	22.0	358601	6.0	19.8
441836	5.7	20.8	52338	5.8	18.4	144701	5.9	18.8	540384	5.9	20.4	483740	5.9	20.4	245068	6.0	19.8
504678	5.7	20.5	117040	5.8	19.3	407935	5.9	20.9	419275	5.9	21.0	280890	5.9	19.5	104572	6.0	19.4
112736	5.7	18.2	304506	5.8	21.7	499987	5.9	20.6	148667	5.9	20.2	542610	5.9	21.3	180656	6.1	18.4
502945	5.7	20.8	536492	5.8	20.5	486740	5.9	21.0	60755	5.9	18.9	437055	5.9	20.8	432109	6.1	21.5
538900	5.7	21.2	54958	5.8	18.3	287792	5.9	20.4	245605	5.9	20.1	34860	5.9	18.9	272849	6.1	19.8
183991	5.7	19.9	543682	5.8	20.4	130679	5.9	20.1	544385	5.9	20.2	489062	5.9	20.9	144009	6.1	18.2
37174	5.7	19.1	512935	5.8	21.6	341368	5.9	20.5	206846	5.9	19.7	309285	5.9	21.3	138124	6.1	19.4
56034	5.7	18.9	170238	5.8	19.7	360158	5.9	20.7	527033	5.9	21.9	248827	5.9	20.6	456627	6.1	20.1
453066	5.7	22.0	130505	5.8	19.5	242032	5.9	20.8	224626	5.9	19.9	354560	5.9	20.6	126305	6.1	18.7
364802	5.7	21.2	182705	5.8	19.7	388310	5.9	21.1	236031	5.9	19.0	445302	5.9	20.9	159169	6.1	20.5
109758	5.7	19.5	29593	5.8	18.4	217978	5.9	20.1	194298	5.9	20.7	221236	6.0	20.1	295033	6.1	19.3
13582	5.7	16.0	433641	5.8	20.9	394061	5.9	21.5	350256	5.9	20.1	427841	6.0	20.3	268059	6.1	20.7
168959	5.7	18.7	498917	5.8	21.7	421071	5.9	20.5	322874	5.9	21.2	382373	6.0	20.0	524271	6.1	20.9
24873	5.7	18.7	283575	5.8	21.2	125647	5.9	20.7	223785	5.9	21.3	192313	6.0	19.5	338867	6.1	19.6
331633	5.7	20.6	445578	5.8	22.7	364775	5.9	21.2	423360	5.9	20.7	278754	6.0	21.3	342867	6.1	19.9
489173	5.7	20.7	83078	5.8	19.8	371725	5.9	20.2	193079	5.9	20.0	6464	6.0	16.6	343198	6.1	20.5
536453	5.7	20.5	426680	5.8	21.2	152249	5.9	20.4	271771	5.9	20.6	123570	6.0	20.2	336463	6.1	20.7
538170	5.7	21.6	388272	5.8	21.9	23004	5.9	18.8	355932	5.9	19.9	20785	6.0	17.6	189950	6.1	18.2
268589	5.7	19.9	289290	5.8	20.3	140619	5.9	20.1	334946	5.9	20.5	172388	6.0	18.5	256161	6.1	21.0
63587	5.7	19.5	399910	5.8	20.2	453669	5.9	20.3	228720	5.9	20.6	120023	6.0	19.0	71925	6.1	18.7
238413	5.7	19.2	53391	5.8	17.8	461306	5.9	22.0	301257	5.9	20.8	319631	6.0	19.2	218710		

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
302919	6.1	20.2	357592	6.1	21.1	60333	6.2	18.4	280661	6.3	20.3	57419	6.3	20.1	51161	6.4	18.7
315153	6.1	19.4	222140	6.1	19.9	425717	6.2	20.4	430867	6.3	20.2	406627	6.3	20.8	54534	6.4	18.3
429012	6.1	20.9	147598	6.1	19.1	10139	6.2	16.9	290563	6.3	20.3	212569	6.3	20.4	506000	6.4	19.7
145584	6.1	18.6	108925	6.1	20.0	333704	6.2	20.6	274842	6.3	20.7	54871	6.3	18.1	243453	6.4	19.5
489493	6.1	20.4	357769	6.1	19.6	27128	6.2	16.6	163681	6.3	20.7	200147	6.3	19.2	445121	6.4	21.8
345554	6.1	21.3	419983	6.1	20.9	536857	6.2	20.6	389591	6.3	19.9	11434	6.3	17.0	527687	6.4	22.1
5690	6.1	18.7	359138	6.1	21.1	267080	6.2	19.4	389204	6.3	21.1	457049	6.3	20.2	284554	6.4	19.7
112560	6.1	18.8	535500	6.2	19.9	11637	6.2	17.6	234551	6.3	20.2	480023	6.3	20.2	428761	6.4	21.5
453897	6.1	21.7	311032	6.2	20.5	54456	6.2	18.7	399837	6.3	21.3	324520	6.3	21.2	380371	6.4	20.1
245419	6.1	20.2	200910	6.2	21.1	291369	6.2	21.3	5344	6.3	17.7	323134	6.3	21.3	543985	6.4	20.6
526689	6.1	22.1	155317	6.2	19.1	465204	6.2	20.1	80385	6.3	19.2	184721	6.3	19.7	221221	6.4	20.6
494748	6.1	21.3	529799	6.2	19.8	277238	6.2	22.1	537949	6.3	19.2	128128	6.3	19.6	382930	6.4	21.4
502074	6.1	20.2	420569	6.2	20.5	40369	6.2	17.2	73248	6.3	18.1	411239	6.3	19.6	457136	6.4	21.2
42172	6.1	18.9	53089	6.2	17.9	127641	6.2	19.7	531660	6.3	19.7	154979	6.3	19.3	107588	6.4	17.8
251117	6.1	20.7	349067	6.2	21.3	126086	6.2	17.7	186417	6.3	18.8	258372	6.3	21.4	1681	6.4	15.5
48568	6.1	18.7	175769	6.2	19.4	454863	6.2	21.2	30339	6.3	18.3	205274	6.3	19.9	413589	6.4	20.4
532984	6.1	21.4	420004	6.2	21.3	18798	6.2	17.3	396757	6.3	20.8	208246	6.3	20.6	61046	6.4	19.5
158835	6.1	18.6	118764	6.2	19.3	424272	6.2	20.8	408887	6.3	21.7	536450	6.3	20.5	32566	6.4	18.2
177624	6.1	20.1	284382	6.2	21.1	503019	6.2	19.8	148853	6.3	19.8	62482	6.3	18.8	490104	6.4	20.8
104845	6.1	19.4	213013	6.2	20.3	38818	6.2	18.2	81179	6.3	17.8	440417	6.3	21.0	49395	6.4	18.5
137067	6.1	19.9	465981	6.2	21.1	300035	6.2	20.2	163378	6.3	19.6	460594	6.3	19.7	356343	6.4	19.2
471451	6.1	19.1	517203	6.2	21.3	110748	6.2	17.6	511516	6.3	20.1	84878	6.3	19.4	153094	6.4	19.4
265784	6.1	19.6	544148	6.2	21.3	214755	6.2	19.9	41434	6.3	17.3	25670	6.3	18.6	534310	6.4	20.3
130661	6.1	20.1	35153	6.2	19.2	223296	6.2	19.6	37720	6.3	17.6	524198	6.3	20.3	450990	6.4	20.7
167300	6.1	20.0	127117	6.2	18.9	200561	6.2	20.0	203883	6.3	19.5	104093	6.3	18.5	462864	6.4	21.3
351623	6.1	20.8	382066	6.2	19.3	194692	6.2	20.2	283201	6.3	19.5	197997	6.3	20.4	498621	6.4	21.2
200844	6.1	20.6	273082	6.2	20.5	483351	6.2	19.4	338072	6.3	20.1	345632	6.3	20.1	412777	6.4	20.2
471179	6.1	22.9	129302	6.2	19.1	524195	6.2	21.9	6670	6.3	16.6	113807	6.3	19.8	122887	6.4	20.0
446867	6.1	21.7	244513	6.2	19.3	81808	6.2	18.6	540039	6.3	18.4	183352	6.3	20.3	54004	6.4	17.3
46532	6.1	17.0	19380	6.2	17.3	189014	6.2	18.8	246725	6.3	20.6	4981	6.3	16.2	262461	6.4	19.2
239359	6.1	19.8	353366	6.2	20.1	28377	6.2	17.3	15590	6.3	16.1	422035	6.3	20.6	522242	6.4	20.9
104212	6.1	18.7	382552	6.2	21.2	210746	6.2	19.2	4010	6.3	16.4	152245	6.3	19.6	430256	6.4	20.2
522529	6.1	20.5	56944	6.2	18.7	544294	6.2	21.7	168680	6.3	19.4	140957	6.3	18.7	337627	6.4	20.5
532755	6.1	21.7	198854	6.2	20.2	4903	6.2	17.2	5329	6.3	17.9	142952	6.3	20.5	138210	6.4	19.8
464931	6.1	20.7	252291	6.2	21.2	109704	6.2	19.9	500650	6.3	21.1	111272	6.3	19.5	431189	6.4	20.1
283125	6.1	19.6	450553	6.2	20.2	319673	6.2	21.2	346255	6.3	20.5	337057	6.3	20.1	208435	6.4	19.9
327604	6.1	20.7	243436	6.2	20.3	11773	6.2	16.8	422703	6.3	20.1	520905	6.3	20.9	218047	6.4	20.8
251131	6.1	20.8	335237	6.2	20.7	364071	6.2	20.0	534742	6.3	21.8	409946	6.3	21.0	80825	6.4	18.0
282955	6.1	20.4	490497	6.2	21.3	178719	6.2	19.9	194358	6.3	20.5	244930	6.3	20.2	283160	6.4	21.2
358498	6.1	19.7	384150	6.2	19.5	510968	6.2	20.2	14091	6.3	18.0	511770	6.3	20.1	439259	6.4	20.2
87807	6.1	19.1	522623	6.2	20.6	417517	6.2	22.0	246337	6.3	20.2	193907	6.3	20.2	411316	6.4	21.3
111444	6.1	19.3	103896	6.2	19.2	136825	6.2	20.2	534753	6.3	21.2	285681	6.3	20.8	276393	6.4	20.1
355837	6.1	21.1	171248	6.2	19.6	165107	6.2	18.7	381623	6.3	20.4	137046	6.3	20.0	106295	6.4	19.1
406036	6.1	21.8	6565	6.2	16.3	411443	6.2	20.9	352134	6.3	20.6	112243	6.3	18.7	249113	6.4	20.3
221070	6.1	20.5	58767	6.2	18.9	217360	6.2	20.0	535194	6.3	21.3	499197	6.3	20.3	109684	6.4	19.4
445052	6.1	20.9	486257	6.2	19.9	297780	6.2	20.6	96229	6.3	20.2	535497	6.3	21.4	113018	6.4	19.9
417111	6.1	21.5	467600	6.2	21.4	410010	6.2	21.1	385917	6.3	21.2	338375	6.3	20.4	19312	6.4	18.4
544797	6.1	20.7	85012	6.2	19.6	365413	6.2	20.5	158548	6.3	19.7	73832	6.3	19.3	234956	6.4	20.4
241668	6.1	19.9	502495	6.2	20.3	296284	6.2	19.9	127666	6.3	20.2	464175	6.3	20.7	177474	6.4	19.0
466983	6.1	20.2	109878	6.2	19.1	284994	6.2	19.6	79218	6.3	18.8	347377	6.3	20.5	121409	6.4	18.7
261091	6.1	20.2	498886	6.2	21.5	514062	6.2	20.9	147251	6.3	19.1	194783	6.3	19.6	167055	6.4	20.5
93575	6.1	18.1	529435	6.2	21.7	460989	6.2	19.5	238852	6.3	21.0	531512	6.3	21.3	495509	6.4	20.6
186188	6.1	20.1	19622	6.2	17.3	542382	6.2	20.9	383753	6.3	20.4	164772	6.3	18.9	323155	6.4	19.3
85794	6.1	19.3	543477	6.2	20.3	165794	6.2	19.6	271492	6.3	19.6	35000	6.3	19.3	71828	6.4	17.7
142949	6.1	19.2	273299	6.2	21.0	448232	6.2	20.4	127273	6.3	19.1	486779	6.3	19.9	316095	6.4	19.5
468907	6.1	21.7	32331	6.2	18.4	36709	6.2	18.5	162725	6.3	19.7	363128	6.3	20.3	90700	6.4	18.9
1432	6.1	15.5	988	6.2	16.7	357188	6.2	20.6	344047	6.3	21.0	368141	6.3	19.3	398360	6.4	20.9
408738	6.1	19.8	154071	6.2	19.7	422799	6.2	20.7	260334	6.3	20.4	87135	6.3	18.8	375624	6.4	19.9
148731	6.1	20.0	208263	6.2	20.7	524327	6.2	21.8	420541	6.3	19.9	67906	6.3	18.8	51818	6.4	18.0
293976	6.1	20.0	490280	6.2	21.1	259862	6.2	18.2	188495	6.3	19.3	429044	6.3	20.6	125164	6.4	20.2
214506	6.1	20.4	543720	6.2	21.0	311039	6.2	21.2	443862	6.3	21.2	210315	6.3	20.6	199843	6.4	19.2
228285	6.1	17.8	197609	6.2	18.9	410493	6.2	20.8	531806	6.3	21.4	194153	6.3	19.5	498154	6.4	21.0
354863	6.1	21.7	299765	6.2	20.2	214587	6.2	19.0	285597	6.3	20.4	230570	6.3	20.1	165671	6.4	19.5
264046	6.1	19.9	527559	6.2	21.3	416033	6.2	21.0	505978	6.3	20.4	32011	6.4	17.3	346755	6.4	19.9
46931	6.1	19.8	274490	6.2	19.9	94869	6.2	18.6	433595	6.3	21.1	535203	6.4	20.7	297390	6.4	20.1
7485	6.1	17.1	247966	6.2	20.1	222106	6.2	20.2	246827	6.3	20.7	259247	6.4	20.1	415813	6.4	20.9
277247	6.1	19.3	316636	6.2	19.7	99975	6.2	18.9	500500	6.3	20.8	367607	6.4	21.0	93821	6.4	17.4
190249	6.1	19.3	361155	6.2	19.5	79469	6.2	19.1	134799	6.3	18.2	455434	6.4	21.1	191937	6.4	19.2
456724	6.1	21.7	180626	6.2	19.1	466834	6.2	21.5	379349	6.3	20.4	27368	6.4	17.7	348441	6.4	21.1
264740	6.1	20.3	465453	6.2	19.7	204382	6.3	19.2	56758	6.3	18.4	369869	6.4	20.2	412300	6.4	20.8
59287	6.1	17.6	214859	6.2	20.4	284945	6.3	19.7	200098	6.3	19.9	426256	6.4	20.5	489078	6.4	21.6

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
166277	6.4	19.5	537056	6.5	21.2	455957	6.6	20.8	31756	6.6	18.4	497822	6.7	21.9	491947	6.8	20.5
534438	6.4	20.4	533761	6.5	21.0	356636	6.6	20.7	168254	6.6	19.5	527441	6.7	21.5	70899	6.8	18.1
71266	6.4	19.0	347693	6.5	20.9	69205	6.6	19.3	84562	6.6	19.9	335641	6.7	20.1	337758	6.8	20.9
95584	6.4	18.9	442724	6.5	21.0	502749	6.6	20.7	78708	6.6	19.4	285135	6.7	20.6	173765	6.8	19.7
146058	6.4	17.9	378758	6.5	21.4	44969	6.6	19.3	502702	6.6	20.5	84859	6.7	18.8	449135	6.8	20.4
272989	6.4	20.0	528370	6.5	22.5	228178	6.6	21.1	54370	6.6	18.4	296205	6.7	20.9	96379	6.8	18.8
486741	6.4	19.8	248994	6.5	19.4	535336	6.6	21.1	153812	6.6	20.0	100143	6.7	19.7	462663	6.8	21.1
272461	6.4	20.5	422160	6.5	21.4	246448	6.6	20.2	90252	6.6	19.4	3072	6.7	15.7	370501	6.8	20.5
167024	6.4	20.1	420800	6.5	20.3	461967	6.6	22.2	236989	6.6	20.5	191778	6.7	19.6	118291	6.8	18.9
498920	6.4	19.7	167614	6.5	19.9	201708	6.6	20.4	330529	6.6	19.9	500032	6.7	20.9	465679	6.8	21.1
406381	6.4	19.9	88588	6.5	18.8	526729	6.6	22.0	234490	6.6	19.8	341629	6.7	21.3	104347	6.8	17.7
369578	6.4	20.2	78727	6.5	19.0	201053	6.6	20.3	444018	6.6	23.3	341696	6.7	20.3	120777	6.8	20.3
123028	6.4	20.2	352788	6.5	21.2	129808	6.6	18.5	538001	6.7	21.0	292898	6.7	20.6	460914	6.8	20.0
290134	6.4	19.1	310412	6.5	21.6	237311	6.6	20.4	359180	6.7	20.1	210834	6.7	20.7	23028	6.8	18.4
232600	6.4	20.7	73393	6.5	18.3	209040	6.6	20.4	135106	6.7	20.2	104715	6.7	18.9	107841	6.8	18.5
68073	6.4	19.2	334305	6.5	20.6	2508	6.6	15.9	432514	6.7	20.6	138740	6.7	19.9	84765	6.8	20.1
256025	6.4	20.5	248312	6.5	19.0	82107	6.6	18.8	381682	6.7	20.0	136978	6.7	19.9	500830	6.8	23.7
498288	6.4	21.7	10029	6.5	18.5	229909	6.6	20.8	323982	6.7	20.0	50792	6.7	18.0	258561	6.8	20.5
366880	6.4	21.2	17932	6.5	17.8	284803	6.6	20.1	36999	6.7	18.3	383412	6.7	19.8	394813	6.8	20.1
277685	6.4	19.5	57764	6.5	18.7	283908	6.6	20.1	120527	6.7	19.8	289315	6.7	23.3	443893	6.8	21.1
309320	6.4	20.9	345254	6.5	20.3	134236	6.6	19.5	357588	6.7	21.5	267030	6.7	21.7	35608	6.8	18.1
521001	6.4	20.9	368186	6.5	19.7	248935	6.6	20.8	726	6.7	14.4	472619	6.7	19.8	276403	6.8	19.4
527213	6.4	21.1	432143	6.5	21.3	287479	6.6	19.3	351983	6.7	20.5	378408	6.7	19.7	3478	6.8	16.0
364856	6.4	20.3	377174	6.5	20.3	330971	6.6	20.2	281298	6.7	20.2	181706	6.7	19.7	98177	6.8	19.7
539875	6.4	19.7	408860	6.5	21.7	189474	6.6	19.3	229591	6.7	19.5	364246	6.7	21.2	147087	6.8	18.6
292809	6.4	19.7	544693	6.5	21.5	181193	6.6	19.8	444284	6.7	20.9	423133	6.7	20.1	500204	6.8	20.3
442185	6.4	20.6	432133	6.5	22.0	254659	6.6	19.8	17823	6.7	17.4	172431	6.7	20.6	110833	6.8	18.9
27701	6.4	19.0	494716	6.5	21.0	163546	6.6	19.3	26628	6.7	16.7	472443	6.7	21.3	341431	6.8	20.5
35054	6.4	19.2	410364	6.5	21.0	299027	6.6	20.1	191056	6.7	18.7	221032	6.7	20.1	294045	6.8	19.9
205261	6.4	20.3	347632	6.5	21.3	235069	6.6	19.2	532469	6.7	21.0	151854	6.7	18.9	338323	6.8	19.2
463987	6.4	20.6	29270	6.5	17.1	114219	6.6	19.9	226003	6.7	20.0	36079	6.7	16.6	247681	6.8	19.6
116708	6.4	20.3	14007	6.5	15.6	164810	6.6	18.1	515748	6.7	21.1	409913	6.7	21.5	219411	6.8	20.2
58790	6.5	17.8	328622	6.5	18.2	429045	6.6	21.2	462795	6.7	21.9	251303	6.7	21.0	524295	6.8	20.5
148304	6.5	19.2	106218	6.5	19.8	197737	6.6	19.2	12160	6.7	16.6	334523	6.7	20.6	270007	6.8	19.2
146970	6.5	18.3	523906	6.5	20.9	282218	6.6	21.3	301338	6.7	19.2	235779	6.7	20.0	53982	6.8	18.1
133301	6.5	19.3	383632	6.5	21.7	464713	6.6	20.7	480075	6.7	20.6	96598	6.7	18.6	545070	6.8	21.0
179883	6.5	20.6	128762	6.5	19.1	500836	6.6	23.7	237713	6.7	20.2	78786	6.7	18.9	525036	6.8	20.7
325836	6.5	20.2	427691	6.5	20.3	183377	6.6	19.7	506321	6.7	20.1	39230	6.7	17.9	541214	6.8	21.0
368613	6.5	21.9	132009	6.5	18.4	324604	6.6	19.3	46014	6.7	17.5	102493	6.7	18.1	242415	6.8	19.3
377428	6.5	20.9	135413	6.5	19.7	176989	6.6	19.6	432526	6.7	19.9	52849	6.7	18.3	365948	6.8	19.4
445540	6.5	19.8	12470	6.5	16.5	466048	6.6	20.5	466565	6.7	22.2	137630	6.7	19.6	22175	6.8	17.9
356472	6.5	19.8	523804	6.5	18.4	106092	6.6	19.6	202678	6.7	19.7	152811	6.7	18.6	9104	6.8	17.3
284973	6.5	20.0	289745	6.5	19.8	498305	6.6	21.6	410008	6.7	20.5	317497	6.7	20.9	72965	6.8	18.4
282346	6.5	19.8	266601	6.5	20.1	17373	6.6	18.2	463843	6.7	21.0	464235	6.7	20.3	165666	6.8	19.9
177413	6.5	19.5	261074	6.5	20.2	364323	6.6	20.7	463703	6.7	22.4	454089	6.7	21.3	38289	6.8	18.3
306563	6.5	20.2	289060	6.5	18.8	406159	6.6	20.9	151219	6.7	18.8	353267	6.7	20.0	486262	6.8	21.1
492060	6.5	19.9	97854	6.5	19.1	543717	6.6	20.9	339005	6.7	20.2	81759	6.7	17.9	102285	6.8	20.0
135111	6.5	18.7	166127	6.5	18.8	367564	6.6	20.7	103457	6.7	19.7	229629	6.7	19.6	456235	6.8	21.0
414817	6.5	21.2	349192	6.5	20.9	504170	6.6	21.5	96403	6.7	19.0	283390	6.8	20.6	484057	6.8	20.1
391269	6.5	20.7	519016	6.5	20.2	10560	6.6	16.5	171918	6.7	19.9	450993	6.8	19.7	520834	6.8	20.3
426949	6.5	20.6	307517	6.5	19.8	427420	6.6	21.3	273616	6.7	20.7	534600	6.8	22.8	434450	6.8	20.1
135108	6.5	19.3	351638	6.5	21.3	175651	6.6	18.1	448199	6.7	21.8	2303	6.8	15.3	241086	6.8	19.3
492570	6.5	20.5	458276	6.5	21.1	171943	6.6	19.6	497028	6.7	21.2	135131	6.8	18.5	424209	6.8	20.8
340710	6.5	20.6	105871	6.5	18.2	257666	6.6	19.5	169400	6.7	20.0	294106	6.8	19.2	182549	6.8	19.4
382705	6.5	20.5	148811	6.5	19.8	423174	6.6	20.1	28618	6.7	17.4	183876	6.8	19.2	412334	6.8	19.2
5289	6.5	16.7	233608	6.5	19.7	505024	6.6	21.1	463896	6.7	21.0	212985	6.8	19.5	412795	6.8	20.6
343203	6.5	20.9	202012	6.6	20.5	193240	6.6	18.9	461720	6.7	21.4	126689	6.8	19.3	481040	6.8	20.4
534945	6.5	22.3	279140	6.6	20.4	122668	6.6	19.6	345119	6.7	19.5	486803	6.8	19.2	458776	6.8	21.3
422118	6.5	20.2	140509	6.6	20.2	492806	6.6	20.5	346292	6.7	21.1	447082	6.8	20.9	456581	6.8	20.6
240583	6.5	20.8	282076	6.6	19.7	421686	6.6	21.4	3690	6.7	15.0	79782	6.8	19.8	396875	6.8	20.4
268375	6.5	20.9	296722	6.6	19.3	535973	6.6	21.2	339877	6.7	20.3	529278	6.8	20.9	254039	6.8	19.4
54310	6.5	18.1	528815	6.6	21.0	315569	6.6	20.2	357395	6.7	20.4	433009	6.8	21.2	500719	6.8	20.7
68473	6.5	19.6	359127	6.6	21.5	455175	6.6	22.1	467929	6.7	21.0	543161	6.8	21.6	413943	6.8	19.2
113225	6.5	18.2	542152	6.6	20.5	95654	6.6	19.5	368746	6.7	20.6	388447	6.8	19.8	369591	6.8	20.6
281885	6.5	20.1	174018	6.6	20.2	16622	6.6	16.9	246275	6.7	20.4	542295	6.8	21.6	324506	6.8	21.6
240484	6.5	19.3	161514	6.6	18.4	215458	6.6	19.4	286206	6.7	20.7	279185	6.8	19.9	464560	6.8	20.3
467486	6.5	21.4	60976	6.6	18.5	296113	6.6	20.0	89128	6.7	18.2	128942	6.8	19.3	257437	6.8	20.4
77221	6.5	18.2	541966	6.6	21.2	217550	6.6	18.8	82638	6.7	19.3	34359	6.8	18.2	538366	6.8	21.0
18538	6.5	18.1	1134	6.6	17.4	140336	6.6	19.9	58735	6.7	17.5	500282	6.8	20.8	267407	6.8	21.1
366375	6.5	20.7	387246	6.6	21.2	404210	6.6	19.6	445970	6.7	20.8	445337	6.8	19.9	18227	6.8	17.9
126282	6.5	20.9	32387	6.6	19.1	400196	6.6	22.4	536721	6.7	20.1	132010	6.8	18.3	537844	6.8	20

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
423830	6.8	20.9	290031	6.9	20.1	416571	6.9	19.5	104746	7.0	18.8	114124	7.1	19.1	101695	7.2	19.2
145936	6.8	20.5	41757	6.9	19.2	444368	6.9	21.8	200810	7.0	19.9	193968	7.1	19.3	433119	7.2	21.4
292588	6.8	20.2	237453	6.9	18.5	410456	6.9	20.2	246310	7.0	20.6	29100	7.1	19.7	336552	7.2	20.8
503013	6.8	20.6	363348	6.9	21.1	140908	6.9	19.3	59757	7.0	18.5	542059	7.1	20.8	413018	7.2	21.5
2559	6.8	16.9	65167	6.9	19.4	227608	6.9	21.4	221040	7.0	19.7	276801	7.1	20.5	333394	7.2	21.2
240843	6.8	19.5	170384	6.9	19.7	89192	6.9	17.3	299067	7.0	21.1	410028	7.1	20.4	297948	7.2	20.7
498242	6.8	21.6	413869	6.9	22.4	51174	6.9	18.8	338281	7.0	21.2	238753	7.1	19.3	502718	7.2	21.0
527310	6.8	21.9	12727	6.9	16.9	275054	6.9	20.9	126713	7.0	18.5	176220	7.1	18.8	109790	7.2	18.8
494650	6.8	20.3	211019	6.9	20.1	326076	6.9	20.5	49243	7.0	18.0	351705	7.1	20.6	412403	7.2	19.8
394068	6.8	21.1	436367	6.9	21.0	207759	6.9	20.1	240028	7.0	21.3	194624	7.1	21.2	535433	7.2	21.3
99579	6.8	18.3	447247	6.9	22.0	529839	6.9	21.7	340775	7.0	19.7	462884	7.1	22.0	207509	7.2	19.9
159293	6.8	20.4	419167	6.9	21.5	200408	6.9	20.1	55136	7.0	19.3	433063	7.1	21.0	539948	7.2	20.3
229989	6.8	20.4	470015	6.9	21.7	408265	6.9	19.4	221284	7.1	20.0	145925	7.1	20.4	343637	7.2	20.0
527590	6.9	22.4	63719	6.9	18.3	173837	6.9	20.3	29013	7.1	18.9	8137	7.1	17.8	455379	7.2	21.6
113738	6.9	19.2	375897	6.9	20.9	141002	6.9	19.5	489518	7.1	20.5	191251	7.1	19.8	183396	7.2	20.0
181857	6.9	20.7	310879	6.9	20.7	401307	6.9	19.5	500837	7.1	23.8	126034	7.1	20.1	324615	7.2	21.0
528419	6.9	20.3	296464	6.9	20.1	440728	6.9	21.9	222362	7.1	20.5	115733	7.1	19.1	192016	7.2	19.5
444210	6.9	19.4	289023	6.9	20.3	83858	6.9	19.5	274567	7.1	19.1	491916	7.1	21.1	334268	7.2	20.9
218365	6.9	18.7	496315	6.9	22.9	338251	6.9	20.1	8261	7.1	17.3	280790	7.1	20.6	595	7.2	12.4
292157	6.9	19.5	101008	6.9	19.4	16314	6.9	17.4	172605	7.1	19.0	354050	7.1	21.6	18110	7.2	17.8
124628	6.9	19.0	162954	6.9	19.8	444025	6.9	23.3	41830	7.1	16.6	182107	7.1	19.1	460356	7.2	21.5
284777	6.9	21.2	479438	6.9	19.7	495889	6.9	21.1	463927	7.1	19.5	183254	7.1	21.3	487119	7.2	20.1
247668	6.9	20.2	406295	6.9	20.5	288892	6.9	21.2	48617	7.1	18.5	419102	7.1	21.5	434931	7.2	21.0
445293	6.9	20.4	422497	6.9	21.2	370707	6.9	21.2	232608	7.1	20.4	16786	7.1	17.1	277547	7.2	21.0
264414	6.9	20.6	411401	6.9	22.4	159246	6.9	20.3	497249	7.1	19.7	64340	7.1	18.7	133395	7.2	19.8
25788	6.9	17.6	198640	6.9	20.7	317038	6.9	20.0	1708	7.1	16.7	535380	7.1	20.7	350679	7.2	21.4
256326	6.9	20.6	63713	6.9	18.0	421374	6.9	20.1	143791	7.1	18.9	529566	7.1	20.8	427357	7.2	20.2
458384	6.9	20.9	381997	6.9	19.9	37446	6.9	18.6	158090	7.1	19.9	367542	7.1	20.8	322106	7.2	20.6
229070	6.9	19.2	99863	6.9	19.4	513648	6.9	20.9	375294	7.1	20.3	323109	7.1	20.8	326722	7.2	18.9
465194	6.9	19.5	366367	6.9	21.4	134383	6.9	19.2	509985	7.1	20.5	325773	7.1	21.4	331456	7.2	20.8
523699	6.9	21.8	540011	6.9	19.7	388273	6.9	21.2	6106	7.1	17.2	1086	7.1	14.3	137055	7.2	19.5
250996	6.9	20.4	58279	6.9	19.1	479026	6.9	20.2	166855	7.1	21.2	477461	7.1	21.6	264667	7.2	21.1
68531	6.9	18.8	433086	6.9	20.5	415832	6.9	22.1	523975	7.1	21.5	528657	7.1	20.9	54500	7.2	18.0
1125	6.9	16.2	155357	6.9	19.8	391323	6.9	21.5	83501	7.1	18.4	113597	7.1	19.4	327339	7.2	20.5
543802	6.9	21.4	1689	6.9	15.9	169172	6.9	20.4	339729	7.1	20.4	336954	7.1	20.1	770	7.2	14.0
241621	6.9	19.6	228197	6.9	18.7	217303	6.9	18.9	498210	7.1	20.8	170816	7.1	19.6	346838	7.2	20.3
408596	6.9	18.0	70547	6.9	17.2	390584	6.9	19.6	370823	7.1	21.0	417558	7.1	21.2	321799	7.2	20.5
543770	6.9	21.8	538137	6.9	20.2	208949	6.9	20.8	38790	7.1	18.0	505941	7.1	20.2	250237	7.2	20.8
125845	6.9	18.8	336908	6.9	20.0	79215	6.9	19.8	300178	7.1	20.2	324591	7.1	20.4	336730	7.2	20.5
338009	6.9	20.3	26996	6.9	18.3	434971	6.9	20.4	538226	7.1	21.6	104126	7.1	19.0	452238	7.2	20.7
206160	6.9	19.2	42922	6.9	17.7	120768	6.9	18.9	375776	7.1	20.0	36797	7.1	18.7	517563	7.2	20.8
1441	6.9	17.5	359089	6.9	21.3	492527	6.9	19.5	62505	7.1	18.8	518414	7.1	20.4	461509	7.2	19.5
158953	6.9	20.4	525831	6.9	21.6	420096	6.9	21.4	415956	7.1	21.7	162022	7.1	20.2	150982	7.2	21.2
105218	6.9	19.4	183322	6.9	20.5	420477	6.9	20.6	514086	7.1	20.9	262654	7.1	20.9	431554	7.2	21.4
265783	6.9	19.8	238813	6.9	19.6	531388	6.9	20.7	42911	7.1	17.1	411900	7.1	20.9	371265	7.2	20.9
149289	6.9	20.3	299586	6.9	20.2	364018	6.9	20.7	252386	7.1	19.6	421267	7.1	20.4	443881	7.2	21.4
108021	6.9	18.5	334648	6.9	21.1	490274	6.9	20.9	472698	7.1	19.6	22308	7.1	17.7	135334	7.2	20.0
208464	6.9	20.6	315670	6.9	20.8	213834	6.9	20.3	236874	7.1	19.2	404631	7.1	19.2	434537	7.2	20.0
367619	6.9	20.1	453347	6.9	21.6	536567	6.9	21.2	82054	7.1	18.3	544970	7.1	21.3	302436	7.2	20.3
242473	6.9	21.7	282204	6.9	20.5	23373	6.9	18.9	173733	7.1	19.9	495041	7.1	20.7	527094	7.2	21.1
331799	6.9	19.1	293953	6.9	19.2	302375	6.9	19.2	42837	7.1	17.9	284883	7.1	20.1	461793	7.2	21.4
375958	6.9	20.3	124987	6.9	19.8	241510	6.9	19.4	268533	7.1	20.1	413960	7.1	20.2	312265	7.2	20.7
217987	6.9	20.1	126388	6.9	20.3	524529	6.9	20.5	447456	7.1	19.5	431162	7.1	20.7	67212	7.2	18.3
363977	6.9	21.6	276165	6.9	20.1	122654	6.9	19.3	473745	7.1	21.0	243091	7.1	20.0	221198	7.2	20.1
75450	6.9	19.4	430898	6.9	19.6	38981	6.9	17.9	107872	7.1	18.7	347712	7.1	20.9	534639	7.2	21.2
284140	6.9	19.3	222281	6.9	19.7	354222	6.9	19.1	289875	7.1	20.7	336030	7.1	19.8	217062	7.2	20.2
117280	6.9	19.4	209364	6.9	21.0	129006	6.9	20.0	464983	7.1	21.4	408970	7.1	22.6	504188	7.2	21.7
319746	6.9	20.0	189995	6.9	17.8	93983	6.9	19.4	221412	7.1	19.8	302017	7.1	20.3	82686	7.2	18.9
324576	6.9	20.7	55902	6.9	18.3	537289	6.9	20.4	367537	7.1	21.1	39060	7.1	18.7	506384	7.2	21.8
500512	6.9	21.0	449090	6.9	19.7	11301	6.9	17.2	173864	7.1	20.2	345768	7.1	20.4	265644	7.2	21.2
56587	6.9	17.3	52150	6.9	18.4	104240	6.9	19.2	518937	7.1	20.7	168505	7.1	19.9	148712	7.2	20.4
273012	6.9	20.3	475936	6.9	20.6	300121	6.9	20.2	155804	7.1	19.2	241674	7.1	18.7	542953	7.2	21.3
499019	6.9	22.1	64992	6.9	18.9	16379	6.9	19.1	195240	7.1	19.0	276167	7.1	20.0	248010	7.2	19.5
397255	6.9	21.8	79369	6.9	18.5	454636	6.9	20.8	498187	7.1	20.7	265772	7.1	19.8	541931	7.2	20.4
37363	6.9	18.3	256459	6.9	18.6	271158	6.9	20.0	113951	7.1	20.2	277450	7.1	20.4	151689	7.2	20.5
433050	6.9	20.9	73525	6.9	19.3	488545	6.9	21.0	57563	7.1	19.2	145486	7.1	22.9	83831	7.2	18.7
395742	6.9	20.8	463082	6.9	20.1	359387	6.9	20.1	175554	7.1	19.5	144908	7.1	23.5	346788	7.2	20.1
463215	6.9	21.0	140932	6.9	18.7	402621	6.9	21.8	415808	7.1	22.2	350761	7.1	19.8	85322	7.2	18.6
413626	6.9	20.3	252300	6.9	20.4	124190	6.9	20.0	312997	7.1	20.8	494008	7.1	19.9	151567	7.2	19.8
323521	6.9	18.9	254038	6.9	18.0	378731	6.9	19.9	50708	7.1	19.4	236175	7.1	20.9	288447	7.2	19.6
538812	6.9	20.9	215465	6.9	20.8	534915	6.9	21.3	34020	7.1	18.2	290327	7.1	20.4	29433	7.2	18

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
327865	7.2	21.1	320652	7.3	21.7	138579	7.4	19.5	445106	7.4	20.7	225405	7.5	20.0	342063	7.5	20.2
246545	7.2	20.0	399950	7.3	20.4	526212	7.4	21.3	429962	7.4	20.5	356824	7.5	21.7	420280	7.5	20.7
193853	7.2	19.5	83862	7.3	18.9	442623	7.4	21.8	62469	7.4	19.2	280536	7.5	19.6	298739	7.5	19.5
297887	7.2	19.1	368815	7.3	20.5	92753	7.4	19.0	127512	7.4	19.1	367782	7.5	20.4	245179	7.5	19.5
180692	7.2	19.5	436297	7.3	20.9	219388	7.4	20.0	163405	7.4	19.7	199423	7.5	20.3	170273	7.5	20.8
301263	7.2	21.2	69100	7.3	18.9	219769	7.4	20.0	282872	7.4	20.1	182670	7.5	20.1	52463	7.5	18.1
17322	7.2	18.0	32747	7.3	19.8	206757	7.4	19.7	46410	7.4	17.5	194235	7.5	18.8	85398	7.5	19.4
274721	7.2	19.4	256286	7.3	19.8	6030	7.4	17.4	301214	7.4	21.5	500642	7.5	21.6	219073	7.5	20.2
103764	7.2	19.9	418865	7.3	19.9	291096	7.4	19.4	337560	7.4	20.8	325453	7.5	20.3	330411	7.5	20.1
95613	7.2	18.8	264047	7.3	20.3	128414	7.4	19.6	343006	7.4	20.0	330174	7.5	20.4	532142	7.5	21.3
51799	7.2	19.1	6508	7.3	18.0	344313	7.4	20.5	239760	7.4	20.7	496875	7.5	22.0	266446	7.6	19.7
171457	7.2	19.4	207662	7.3	20.5	293032	7.4	20.4	3639	7.4	16.6	526847	7.5	19.7	119194	7.6	18.1
110885	7.2	20.2	51315	7.3	18.7	424990	7.4	20.3	224936	7.4	20.7	498202	7.5	21.7	499026	7.6	21.7
56268	7.2	18.1	263007	7.3	20.7	399575	7.4	20.3	315074	7.4	20.7	315592	7.5	20.8	345815	7.6	19.7
501942	7.2	20.5	431587	7.3	21.2	116217	7.4	19.7	386145	7.4	21.1	76918	7.5	18.7	346986	7.6	20.1
222524	7.2	18.9	202111	7.3	20.6	346209	7.4	21.8	47625	7.4	18.9	38949	7.5	19.2	530099	7.6	23.5
48482	7.2	18.4	87072	7.3	19.5	363224	7.4	21.0	228586	7.4	19.7	143147	7.5	19.3	422597	7.6	21.0
297234	7.2	21.9	30497	7.3	16.9	24879	7.4	17.8	309277	7.4	21.5	285612	7.5	20.6	390461	7.6	20.3
29221	7.2	18.2	62292	7.3	18.4	86059	7.4	20.0	401130	7.4	20.5	89119	7.5	19.3	346820	7.6	20.2
341765	7.2	21.0	428844	7.3	21.4	341585	7.4	20.7	459137	7.4	21.7	531420	7.5	21.2	161002	7.6	19.1
34527	7.2	17.6	120486	7.3	18.7	258488	7.4	19.9	295971	7.4	19.9	309207	7.5	19.5	338161	7.6	20.8
355829	7.2	20.8	203867	7.3	19.4	123633	7.4	20.0	293725	7.4	19.9	200995	7.5	20.7	274552	7.6	20.1
343120	7.2	21.8	138322	7.3	18.6	334690	7.4	20.0	7043	7.4	15.2	366927	7.5	20.1	269637	7.6	19.9
331431	7.2	19.7	430268	7.3	20.6	66459	7.4	18.8	232620	7.4	20.5	378808	7.5	20.7	241518	7.6	20.7
194273	7.2	20.7	6553	7.3	16.8	420281	7.4	19.9	394089	7.4	21.0	303544	7.5	18.2	508742	7.6	20.0
264563	7.2	21.3	335669	7.3	21.1	158736	7.4	18.6	516657	7.4	21.4	228806	7.5	19.5	226973	7.6	19.9
76330	7.2	18.4	411421	7.3	21.4	132353	7.4	18.3	326103	7.4	20.5	529838	7.5	20.8	341530	7.6	20.8
543668	7.2	21.8	180736	7.3	18.2	449321	7.4	21.1	408997	7.4	19.8	149250	7.5	18.1	380020	7.6	20.4
407812	7.2	20.8	280204	7.3	20.3	348537	7.4	22.2	507159	7.4	20.2	482015	7.5	21.3	471488	7.6	19.6
109263	7.2	18.9	347409	7.3	21.2	349852	7.4	20.5	181708	7.4	23.0	305783	7.5	19.4	425567	7.6	19.7
202762	7.2	19.8	245032	7.3	20.0	148750	7.4	20.4	331290	7.4	19.9	171224	7.5	19.4	141048	7.6	19.9
500390	7.2	21.2	316078	7.3	20.7	164376	7.4	19.5	50665	7.4	17.3	373474	7.5	21.2	231357	7.6	20.6
161129	7.2	19.0	1111	7.3	15.1	316645	7.4	20.4	52326	7.4	19.4	498670	7.5	20.8	429196	7.6	21.1
538707	7.3	20.8	124179	7.3	18.4	348863	7.4	21.0	84947	7.4	19.1	389	7.5	11.0	244693	7.6	20.8
461814	7.3	21.8	80194	7.3	18.7	272908	7.4	20.9	37310	7.4	17.8	167972	7.5	19.1	41045	7.6	19.3
373021	7.3	21.1	71396	7.3	18.7	176518	7.4	20.5	373383	7.4	20.2	215138	7.5	20.3	455551	7.6	20.6
185502	7.3	19.7	495654	7.3	20.7	206324	7.4	19.1	304404	7.4	20.2	189478	7.5	19.8	432122	7.6	21.2
231090	7.3	19.8	58042	7.3	16.8	356049	7.4	19.5	2429	7.4	16.1	511056	7.5	20.9	47084	7.6	19.1
186266	7.3	19.8	365792	7.3	20.1	153132	7.4	19.8	204266	7.4	18.5	410071	7.5	21.7	113542	7.6	18.7
111226	7.3	20.0	161597	7.3	19.8	184149	7.4	18.9	181693	7.4	20.2	149454	7.5	18.7	234053	7.6	19.2
246604	7.3	19.8	28606	7.3	17.7	500636	7.4	21.5	341441	7.4	20.7	16052	7.5	18.0	301314	7.6	21.1
544178	7.3	21.8	508767	7.3	19.5	179865	7.4	20.5	468666	7.4	21.4	154917	7.5	18.6	490380	7.6	19.8
123370	7.3	20.1	544232	7.3	21.0	135311	7.4	19.6	117202	7.4	18.7	29588	7.5	17.7	87150	7.6	18.4
141541	7.3	18.1	403329	7.3	20.9	229958	7.4	20.1	202307	7.4	19.5	498369	7.5	21.6	193038	7.6	19.0
97276	7.3	18.3	58012	7.3	18.4	61150	7.4	19.0	198413	7.5	20.5	443815	7.5	20.7	406002	7.6	21.2
217438	7.3	20.7	128805	7.3	19.8	135095	7.4	19.4	41777	7.5	18.9	138725	7.5	19.8	171954	7.6	20.1
529357	7.3	20.6	235440	7.3	20.5	410022	7.4	21.4	198975	7.5	19.6	444198	7.5	20.5	500378	7.6	20.7
505313	7.3	22.1	169169	7.3	19.4	437303	7.4	21.4	209056	7.5	19.9	459197	7.5	21.8	139577	7.6	18.9
237638	7.3	20.4	225596	7.3	21.0	210510	7.4	18.8	6896	7.5	17.8	429244	7.5	20.0	13919	7.6	16.7
223270	7.3	20.0	448200	7.3	19.2	289935	7.4	21.4	247478	7.5	18.5	215020	7.5	19.9	26347	7.6	17.6
110078	7.3	17.9	463992	7.3	20.6	295737	7.4	19.2	240516	7.5	19.1	258990	7.5	21.4	526690	7.6	22.7
242858	7.3	19.8	76689	7.3	18.7	441864	7.4	20.4	29678	7.5	18.1	496913	7.5	21.8	426602	7.6	20.3
123246	7.3	19.4	449262	7.3	20.6	349044	7.4	20.9	355912	7.5	19.8	2414	7.5	16.9	30129	7.6	17.8
261438	7.3	19.5	433193	7.3	20.7	501442	7.4	21.9	8746	7.5	18.0	242755	7.5	19.2	191149	7.6	19.8
513851	7.3	19.2	527137	7.3	22.2	424992	7.4	20.7	143797	7.5	18.7	28035	7.5	18.2	179001	7.6	19.7
528375	7.3	20.9	79463	7.3	19.1	245024	7.4	20.2	74177	7.5	18.4	49639	7.5	18.7	453816	7.6	20.6
35619	7.3	16.7	38015	7.3	17.8	208989	7.4	20.1	412290	7.5	19.6	318726	7.5	19.6	84387	7.6	19.2
322055	7.3	20.8	350220	7.3	21.2	415703	7.4	20.8	424611	7.5	19.4	330446	7.5	20.7	64037	7.6	19.6
323461	7.3	18.7	459962	7.3	20.9	340597	7.4	21.8	258334	7.5	20.6	341612	7.5	20.3	51636	7.6	18.2
86845	7.3	17.8	289357	7.3	19.6	244061	7.4	20.6	431234	7.5	20.9	23153	7.5	19.9	354169	7.6	21.7
407904	7.3	21.3	495429	7.3	20.9	164316	7.4	20.9	462614	7.5	20.2	55778	7.5	18.5	328562	7.6	21.0
456405	7.3	21.5	464055	7.3	20.8	294289	7.4	20.1	530210	7.5	22.9	9457	7.5	18.1	369545	7.6	21.0
55297	7.3	18.8	127031	7.3	18.2	513079	7.4	20.8	258385	7.5	19.6	148120	7.5	19.4	499397	7.6	19.2
244291	7.3	19.0	348520	7.3	20.7	19322	7.4	19.2	533947	7.5	21.5	180675	7.5	18.7	5353	7.6	17.0
477666	7.3	21.1	505923	7.3	20.4	520820	7.4	19.9	396737	7.5	20.9	265683	7.5	20.1	184676	7.6	19.8
384121	7.3	21.2	359085	7.3	21.4	139452	7.4	19.9	280175	7.5	20.6	464646	7.5	21.2	163457	7.6	19.8
8290	7.3	17.0	337027	7.3	20.7	459247	7.4	21.3	466171	7.5	20.7	179961	7.5	19.7	252017	7.6	18.9
409458	7.3	21.4	527551	7.3	21.6	51230	7.4	18.5	247662	7.5	19.4	532915	7.5	21.4	465163	7.6	22.3
55700	7.3	19.3	68703	7.3	18.7	534321	7.4	21.3	433231	7.5	21.3	319529	7.5	19.7	109893	7.6	20.9
511753	7.3	20.4	65144	7.3	18.6	213267	7.4	17.9	178868	7.5	19.7	172677	7.5	19.6	209743	7.6	19.0
463460	7.3	19.9	165724	7.3	20.1	425692	7.4	21.0	27757	7.5	15.7	372500	7.5	20.0	56092	7.6	19.9
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LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
372570	7.6	20.3	313890	7.7	19.7	354062	7.7	21.0	461444	7.8	19.7	245160	7.9	19.9	525725	7.9	19.9
44021	7.6	18.6	373075	7.7	20.4	483778	7.7	21.0	205350	7.8	20.5	436825	7.9	20.6	526045	7.9	22.1
224540	7.6	20.6	538825	7.7	21.0	359043	7.8	21.2	77394	7.8	19.3	108745	7.9	19.2	448118	7.9	21.0
149547	7.6	17.3	52417	7.7	19.9	42420	7.8	19.4	543664	7.8	21.8	512982	7.9	21.0	143504	7.9	18.8
382308	7.6	20.5	156569	7.7	17.7	1979	7.8	16.9	20405	7.8	18.4	294005	7.9	20.6	359098	7.9	19.9
483757	7.6	21.8	17473	7.7	17.6	123256	7.8	19.0	229621	7.8	20.1	360033	7.9	20.2	279543	7.9	20.5
448272	7.6	21.7	415821	7.7	20.3	423724	7.8	20.1	496773	7.8	21.0	544322	7.9	21.5	425477	7.9	19.5
125045	7.6	19.3	457232	7.7	19.5	211877	7.8	19.7	266407	7.8	19.8	344197	7.9	20.4	490127	7.9	19.8
88095	7.6	19.7	358169	7.7	20.4	432570	7.8	20.8	28391	7.8	18.1	496541	7.9	19.6	417402	7.9	20.4
394380	7.6	19.5	489152	7.7	22.5	328340	7.8	20.5	527131	7.8	21.6	389850	7.9	19.5	494813	7.9	20.6
117817	7.6	18.7	100722	7.7	18.3	151227	7.8	20.1	445866	7.8	21.5	496344	7.9	21.6	158753	7.9	19.4
406109	7.6	21.3	430296	7.7	21.3	235717	7.8	19.9	28248	7.8	18.1	9128	7.9	16.4	413139	7.9	20.5
500033	7.6	21.1	316840	7.7	19.9	288297	7.8	20.5	292145	7.8	21.0	47106	7.9	17.4	379082	7.9	19.4
413980	7.6	21.3	167657	7.7	19.9	344837	7.8	19.6	197703	7.8	20.1	442743	7.9	21.1	528730	7.9	22.4
493104	7.6	20.3	222357	7.7	19.8	447110	7.8	20.7	536354	7.8	21.7	429010	7.9	20.7	500424	7.9	22.1
535166	7.6	20.8	474789	7.7	20.2	62988	7.8	18.5	338907	7.8	20.0	459231	7.9	21.3	117320	7.9	19.3
518608	7.6	20.5	88795	7.7	18.5	289164	7.8	20.0	450328	7.8	20.6	51218	7.9	17.8	406842	7.9	19.6
434023	7.6	21.1	337098	7.7	19.9	307376	7.8	20.0	192957	7.8	20.6	230532	7.9	19.7	516159	7.9	21.6
145902	7.6	19.5	77262	7.7	17.4	465437	7.8	20.6	345688	7.8	21.4	491850	7.9	20.9	1871	7.9	18.2
51965	7.6	17.0	246752	7.7	19.8	445152	7.8	21.2	124451	7.8	20.1	330960	7.9	21.0	140477	7.9	19.5
421587	7.6	20.2	73644	7.7	16.4	347014	7.8	20.0	107274	7.8	18.5	194334	7.9	20.0	540070	7.9	21.0
445886	7.6	20.7	132398	7.7	19.5	148129	7.8	19.7	324589	7.8	21.1	402744	7.9	21.9	85526	7.9	18.8
58641	7.6	19.0	162766	7.7	20.1	223751	7.8	20.0	187404	7.8	18.5	14708	7.9	17.8	172726	7.9	20.5
206227	7.6	20.3	284866	7.7	19.8	389587	7.8	19.9	126861	7.8	20.1	248589	7.9	20.3	56845	7.9	18.2
533842	7.6	21.5	350664	7.7	20.8	142040	7.8	18.4	272870	7.8	20.1	199496	7.9	19.6	203636	7.9	18.5
343808	7.6	19.4	254080	7.7	19.2	271170	7.8	19.6	530525	7.8	21.9	391317	7.9	21.7	536634	7.9	21.3
464990	7.6	21.2	63824	7.7	18.1	468720	7.8	20.8	534380	7.8	21.5	356511	7.9	20.5	406891	7.9	20.1
457193	7.6	19.7	155816	7.7	18.9	194489	7.8	20.7	61611	7.8	19.4	98057	7.9	18.5	54517	7.9	18.5
121280	7.6	19.8	285960	7.7	20.6	255520	7.8	19.0	239274	7.8	19.9	172005	7.9	20.6	297278	7.9	21.7
55187	7.6	18.6	54317	7.7	18.5	508147	7.8	20.5	246926	7.8	19.7	221558	7.9	20.3	22442	7.9	18.1
434861	7.6	20.9	109749	7.7	18.9	309798	7.8	19.1	500310	7.8	22.2	460448	7.9	20.4	317016	7.9	19.9
8722	7.6	18.2	124290	7.7	18.6	57091	7.8	19.3	262689	7.8	19.9	218905	7.9	19.9	439873	7.9	20.6
483411	7.6	21.9	469078	7.7	19.9	399591	7.8	21.3	397855	7.8	20.8	331627	7.9	19.6	325107	7.9	20.4
210791	7.6	19.1	212580	7.7	20.5	62608	7.8	18.4	176828	7.8	20.2	306330	7.9	20.7	30214	7.9	17.4
293037	7.6	21.1	84334	7.7	19.0	500659	7.8	21.5	218708	7.8	19.8	145307	7.9	19.4	34763	7.9	18.4
36857	7.6	17.7	207140	7.7	19.2	337896	7.8	20.7	331206	7.8	20.3	336303	7.9	20.7	222074	7.9	18.3
30210	7.6	17.7	93944	7.7	20.2	322154	7.8	20.4	231966	7.8	20.1	279142	7.9	20.7	448132	7.9	21.5
135092	7.6	19.2	179970	7.7	19.8	526191	7.8	22.4	390810	7.8	19.1	370778	7.9	20.8	532585	7.9	21.3
293238	7.6	19.7	188224	7.7	19.4	206781	7.8	20.3	225640	7.8	20.0	301151	7.9	20.4	489369	7.9	20.8
29586	7.6	18.0	500856	7.7	24.1	114676	7.8	18.8	167601	7.8	18.8	203492	7.9	19.9	284380	7.9	20.4
528712	7.6	21.8	483006	7.7	21.3	283418	7.8	20.3	138428	7.8	18.0	83135	7.9	18.9	497828	7.9	21.1
351469	7.6	20.5	208995	7.7	20.1	49992	7.8	18.1	78574	7.8	19.3	79499	7.9	18.4	535179	7.9	20.7
106068	7.6	19.7	347920	7.7	20.3	317072	7.8	19.9	501394	7.8	20.6	138126	7.9	18.6	14857	7.9	19.2
534475	7.6	21.2	235408	7.7	19.5	445882	7.8	20.5	497668	7.9	20.9	240228	7.9	20.2	256646	7.9	19.1
163489	7.6	19.1	2244	7.7	16.6	227560	7.8	20.0	489236	7.9	21.3	29747	7.9	17.4	310856	7.9	19.2
543625	7.6	21.3	283943	7.7	20.4	62216	7.8	18.2	135218	7.9	19.5	146444	7.9	20.4	281261	7.9	21.3
382295	7.6	20.3	351570	7.7	21.2	289890	7.8	19.6	486056	7.9	21.5	223514	7.9	19.6	236099	8.0	19.6
58512	7.6	18.3	170853	7.7	19.3	78023	7.8	18.1	2061	7.9	19.7	367324	7.9	19.7	283159	8.0	19.9
377355	7.6	19.9	542890	7.7	20.4	241520	7.8	20.8	120956	7.9	19.8	266922	7.9	20.8	241133	8.0	19.6
543370	7.7	21.6	526734	7.7	22.0	518390	7.8	20.1	413977	7.9	20.8	354074	7.9	21.4	194387	8.0	19.3
201913	7.7	20.1	396334	7.7	20.4	113584	7.8	19.7	293065	7.9	21.1	27584	7.9	19.3	235638	8.0	20.0
215514	7.7	20.4	400319	7.7	21.1	185343	7.8	20.2	532525	7.9	21.6	262525	7.9	19.1	150705	8.0	20.5
393905	7.7	20.5	225378	7.7	19.7	417409	7.8	20.6	123051	7.9	19.6	453994	7.9	19.0	463595	8.0	21.0
290022	7.7	19.9	212958	7.7	20.0	265385	7.8	20.4	14446	7.9	17.0	179180	7.9	19.4	533848	8.0	20.5
381620	7.7	20.5	500596	7.7	21.4	64223	7.8	18.5	462007	7.9	20.9	429317	7.9	21.4	118722	8.0	18.8
409936	7.7	22.5	97824	7.7	19.1	114259	7.8	19.1	347910	7.9	21.2	114911	7.9	19.6	428414	8.0	20.1
310050	7.7	19.1	319675	7.7	21.2	495570	7.8	19.6	235278	7.9	18.8	245133	7.9	19.7	542777	8.0	21.3
334678	7.7	19.6	37190	7.7	18.8	71870	7.8	18.5	171927	7.9	20.6	120258	7.9	18.8	414003	8.0	20.8
109657	7.7	18.8	171957	7.7	20.3	432245	7.8	22.5	496940	7.9	21.9	59585	7.9	18.3	191272	8.0	20.1
282850	7.7	20.3	78801	7.7	18.8	466886	7.8	20.6	7598	7.9	16.7	135569	7.9	18.1	503134	8.0	21.1
192425	7.7	20.6	542133	7.7	20.6	253533	7.8	19.6	420634	7.9	19.8	415828	7.9	20.4	348904	8.0	20.2
39172	7.7	18.7	138775	7.7	19.5	73550	7.8	18.4	11110	7.9	17.3	437162	7.9	20.8	538575	8.0	21.4
70545	7.7	19.3	403107	7.7	22.1	253220	7.8	18.3	341388	7.9	22.1	301176	7.9	21.0	329603	8.0	19.0
264620	7.7	21.6	11926	7.7	17.5	26982	7.8	17.6	243657	7.9	18.8	372419	7.9	20.5	434516	8.0	20.7
298897	7.7	19.8	523266	7.7	20.4	113908	7.8	17.2	51127	7.9	18.8	317172	7.9	20.5	236107	8.0	19.9
29245	7.7	18.5	246037	7.7	21.1	300736	7.8	21.1	526957	7.9	20.6	82429	7.9	18.7	21245	8.0	19.1
245463	7.7	20.6	116853	7.7	19.1	443279	7.8	20.1	506380	7.9	20.3	268541	7.9	20.9	34743	8.0	18.9
210732	7.7	20.4	463283	7.7	20.5	468592	7.8	21.2	51102	7.9	18.1	541255	7.9	21.5	68594	8.0	18.2
81962	7.7	18.8	498351	7.7	20.9	175339	7.8	18.5	117923	7.9	18.5	401419	7.9	19.7	400576	8.0	21.8
250853	7.7	20.3	463952	7.7	21.5	98326	7.8	18.2	201869	7.9	18.9	336320	7.9	20.6	543665	8.0	21.5
351747	7.7	19.6	497992	7.7	20.0	531611	7.8	20.7	415941	7.9	20.5	305578	7.9	20.8	143293	8.0	

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
283320	8.0	20.5	502529	8.1	21.3	372039	8.2	20.1	500612	8.2	21.5	279193	8.3	19.8	201933	8.3	18.6
350816	8.0	19.6	438105	8.1	20.2	146244	8.2	20.0	529767	8.2	21.3	205219	8.3	19.8	538044	8.3	20.0
459393	8.0	21.0	444390	8.1	21.3	427248	8.2	20.4	316467	8.2	20.1	149599	8.3	18.7	292064	8.3	19.5
331943	8.0	20.6	88668	8.1	17.6	176759	8.2	20.9	167546	8.2	19.5	34341	8.3	17.9	373971	8.3	21.2
90685	8.0	19.1	296076	8.1	19.2	451077	8.2	21.3	329853	8.2	18.7	284742	8.3	20.1	201958	8.3	19.4
261461	8.0	18.6	430019	8.1	21.6	299057	8.2	20.6	497447	8.2	21.7	353301	8.3	20.2	513265	8.3	20.0
58825	8.0	18.6	140633	8.1	18.8	100736	8.2	19.5	462907	8.2	21.5	271971	8.3	20.3	362126	8.3	20.3
165846	8.0	19.7	212422	8.1	19.2	142434	8.2	21.0	501344	8.2	20.5	465690	8.3	21.9	422152	8.3	21.5
416578	8.0	19.6	216910	8.1	17.9	62320	8.2	19.6	413841	8.2	21.4	255945	8.3	19.4	272466	8.3	19.5
426613	8.0	19.7	85076	8.1	20.1	455237	8.2	21.6	495553	8.2	20.7	119719	8.3	18.8	464151	8.3	20.1
244329	8.0	19.6	460666	8.1	19.8	129549	8.2	18.2	84239	8.2	19.3	51833	8.3	17.7	140998	8.3	19.8
335212	8.0	20.7	491685	8.1	21.4	206742	8.2	18.6	257769	8.2	20.0	139942	8.3	20.4	8614	8.3	17.8
501079	8.0	19.9	84278	8.1	19.6	148770	8.2	19.3	104583	8.2	18.9	35798	8.3	18.1	406204	8.3	21.8
229110	8.0	20.8	196793	8.1	19.3	538259	8.2	20.0	263560	8.2	19.9	235993	8.3	19.1	295321	8.3	20.4
497717	8.0	21.3	150998	8.1	20.2	194760	8.2	20.1	222370	8.2	20.6	265014	8.3	20.6	184488	8.4	21.1
76032	8.0	19.5	433604	8.1	21.0	431229	8.2	20.8	341669	8.2	19.8	129309	8.3	18.2	217792	8.4	20.4
72587	8.0	19.3	499473	8.1	21.1	93233	8.2	19.3	132223	8.2	18.1	374075	8.3	21.1	117252	8.4	20.2
494187	8.0	21.0	199394	8.1	20.9	448190	8.2	21.2	232998	8.2	19.5	545069	8.3	20.8	431967	8.4	20.5
137063	8.0	18.3	399184	8.1	19.7	343293	8.2	21.0	82064	8.2	18.4	409870	8.3	21.7	505545	8.4	21.0
130186	8.0	19.1	415840	8.1	21.3	205023	8.2	18.7	152750	8.2	20.4	245088	8.3	19.0	334724	8.4	18.9
103987	8.0	20.1	299352	8.1	21.5	32348	8.2	15.9	14219	8.2	17.4	79476	8.3	19.2	491344	8.4	21.3
35524	8.0	19.1	46615	8.1	18.9	498959	8.2	21.2	343047	8.2	20.8	166768	8.3	20.0	544558	8.4	21.3
415932	8.0	21.0	413673	8.1	21.6	283503	8.2	19.1	197792	8.2	20.2	39302	8.3	18.7	203615	8.4	20.2
201854	8.0	19.2	101150	8.1	18.9	37336	8.2	17.9	122318	8.2	19.6	320918	8.3	20.2	366870	8.4	20.6
267441	8.0	20.8	17097	8.1	17.8	60576	8.2	18.6	304060	8.2	20.2	530739	8.3	20.7	462848	8.4	21.6
208560	8.0	20.1	437095	8.1	21.2	229081	8.2	18.8	262438	8.2	20.8	109351	8.3	19.6	252313	8.4	20.8
210850	8.0	20.9	143429	8.1	18.9	118065	8.2	19.8	528014	8.2	20.8	6170	8.3	17.1	320984	8.4	18.9
176835	8.0	20.5	314199	8.1	19.7	169362	8.2	19.5	347146	8.2	20.4	184446	8.3	18.9	448294	8.4	21.9
385943	8.0	20.2	502865	8.1	20.1	171397	8.2	20.1	246072	8.2	19.6	183773	8.3	19.7	530627	8.4	20.6
156082	8.0	19.7	66730	8.1	18.5	417196	8.2	20.8	166276	8.2	18.6	462895	8.3	21.8	146152	8.4	19.6
261938	8.0	20.6	91419	8.1	18.5	86443	8.2	18.5	375123	8.2	20.1	200411	8.3	20.4	27983	8.4	17.4
254088	8.1	19.3	373346	8.1	20.5	100725	8.2	19.3	376433	8.2	20.9	526777	8.3	21.6	110344	8.4	20.2
229105	8.1	21.2	175530	8.1	19.7	377230	8.2	20.6	534845	8.2	21.1	22975	8.3	17.8	343188	8.4	20.0
486851	8.1	19.8	421097	8.1	20.3	341356	8.2	19.6	180567	8.2	20.2	323107	8.3	21.0	251069	8.4	21.8
419999	8.1	20.2	533210	8.1	22.5	6441	8.2	15.7	197528	8.2	20.1	135308	8.3	19.6	525694	8.4	21.1
544843	8.1	21.1	142570	8.1	19.8	70851	8.2	19.1	294461	8.2	18.9	4899	8.3	15.2	116984	8.4	19.2
146612	8.1	19.6	50511	8.1	18.0	228210	8.2	20.5	337846	8.2	20.9	417071	8.3	22.0	80327	8.4	19.3
500833	8.1	23.8	87620	8.1	19.1	324456	8.2	20.6	545109	8.2	21.5	432467	8.3	20.4	151268	8.4	19.1
417715	8.1	20.7	301184	8.1	21.9	126150	8.2	17.9	273731	8.2	21.0	431538	8.3	20.5	40326	8.4	18.1
259045	8.1	21.8	424515	8.1	20.1	212840	8.2	21.1	117089	8.2	18.1	358076	8.3	20.2	157699	8.4	19.3
162152	8.1	20.1	17027	8.1	17.3	148923	8.2	19.8	7392	8.2	15.9	242454	8.3	19.7	112798	8.4	20.1
215199	8.1	19.4	327250	8.1	21.2	180846	8.2	19.5	268499	8.2	20.7	492463	8.3	20.1	20470	8.4	17.6
4700	8.1	16.7	412579	8.1	20.7	234175	8.2	19.4	282205	8.2	19.8	51814	8.3	17.2	492126	8.4	20.2
104842	8.1	18.9	146436	8.1	19.9	543569	8.2	20.9	294480	8.2	20.4	296005	8.3	21.4	337025	8.4	21.8
152661	8.1	20.1	109885	8.1	19.3	435344	8.2	20.8	237622	8.2	20.2	536929	8.3	21.5	542428	8.4	20.2
433232	8.1	20.9	119673	8.1	19.1	343675	8.2	20.0	255832	8.2	19.9	271192	8.3	20.0	276610	8.4	19.9
378718	8.1	21.0	234162	8.1	19.0	25112	8.2	18.6	473655	8.2	21.5	159204	8.3	19.8	90368	8.4	18.8
463996	8.1	20.9	148511	8.1	20.3	209019	8.2	19.9	226938	8.2	20.0	419027	8.3	21.0	276330	8.4	20.9
494884	8.1	19.9	136516	8.1	19.9	279201	8.2	20.5	343303	8.2	19.7	430445	8.3	20.8	366887	8.4	21.4
88477	8.1	18.0	415350	8.1	20.1	544054	8.2	21.0	136075	8.3	19.9	538435	8.3	20.3	247281	8.4	20.3
530679	8.1	21.0	282610	8.1	19.7	340608	8.2	20.9	189461	8.3	19.9	57602	8.3	19.7	29124	8.4	19.0
523370	8.1	20.1	482946	8.1	19.9	402092	8.2	21.0	269158	8.3	20.0	496657	8.3	19.6	86376	8.4	19.1
467512	8.1	20.2	461971	8.1	21.6	527894	8.2	19.6	180019	8.3	20.2	62464	8.3	18.7	113518	8.4	19.5
142578	8.1	20.9	294377	8.1	20.3	100157	8.2	20.0	266314	8.3	21.8	428096	8.3	20.6	120989	8.4	20.3
426036	8.1	19.9	124706	8.1	19.8	28089	8.2	18.4	529396	8.3	20.5	134779	8.3	19.0	295107	8.4	19.6
484283	8.1	19.4	165311	8.1	19.8	264746	8.2	20.7	311033	8.3	19.2	232740	8.3	20.2	427498	8.4	20.2
217067	8.1	20.6	15097	8.1	16.5	377315	8.2	18.7	140451	8.3	20.1	174016	8.3	19.5	544286	8.4	21.7
97162	8.1	19.0	145229	8.1	19.2	431548	8.2	21.2	531454	8.3	21.4	493815	8.3	19.8	384538	8.4	20.1
259292	8.1	18.9	375421	8.1	19.0	221101	8.2	20.8	285584	8.3	21.3	240158	8.3	20.3	109609	8.4	19.8
427342	8.1	20.1	211833	8.1	19.8	242124	8.2	20.9	495799	8.3	19.8	31789	8.3	17.5	17829	8.4	17.9
506278	8.1	21.4	183698	8.1	19.7	101948	8.2	20.1	389221	8.3	20.9	384892	8.3	21.2	60821	8.4	19.1
519876	8.1	20.5	144748	8.1	19.5	447197	8.2	21.8	139499	8.3	20.2	429014	8.3	20.3	349958	8.4	20.9
214431	8.1	20.5	377185	8.1	20.8	375410	8.2	20.8	170096	8.3	19.8	334651	8.3	21.0	342835	8.4	20.0
419140	8.1	20.9	532108	8.1	21.4	142813	8.2	20.9	251259	8.3	20.7	543481	8.3	20.4	58389	8.4	18.8
52124	8.1	20.1	112	8.1	13.0	171439	8.2	18.9	52127	8.3	18.7	19728	8.3	16.8	407529	8.4	21.5
536093	8.1	20.6	288336	8.1	19.7	150848	8.2	19.9	230078	8.3	19.5	421503	8.3	20.0	525600	8.4	20.0
528842	8.1	21.2	117170	8.1	19.3	37825	8.2	17.3	34966	8.3	18.2	345625	8.3	21.3	57026	8.4	18.0
121966	8.1	18.0	125779	8.1	19.3	175407	8.2	19.5	466896	8.3	21.7	204383	8.3	20.8	190170	8.4	19.7
293597	8.1	19.5	496933	8.1	22.2	500535	8.2	21.3	148771	8.3	20.5	522446	8.3	20.8	426486	8.4	20.4
192911	8.1	20.0	291246	8.1	20.8	89749	8.2	18.3	180533	8.3	20.5	452214	8.3	20.9	52192	8.4	16.8
519601	8.1	20.5	316486	8.1	19.2	21687	8.2	18.1	283199	8.3	20.3	362243	8.3	20.0	439248		

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
378945	8.4	20.1	503153	8.5	20.7	465993	8.5	20.1	501287	8.6	21.2	244	8.7	14.7	127919	8.7	18.8
337512	8.4	21.0	544000	8.5	21.4	222484	8.5	20.3	192378	8.6	19.6	425510	8.7	19.6	283542	8.7	20.5
399191	8.4	20.0	494568	8.5	20.6	331460	8.5	20.1	90923	8.6	19.9	281297	8.7	19.8	42676	8.7	18.3
61010	8.4	19.2	345092	8.5	19.1	173288	8.5	19.1	538683	8.6	20.9	212552	8.7	19.1	496562	8.7	20.1
462045	8.4	21.9	322495	8.5	20.0	37149	8.5	17.3	192737	8.6	19.4	102757	8.7	19.1	532771	8.7	21.4
13336	8.4	18.5	93595	8.5	18.8	461730	8.5	20.4	520939	8.6	20.2	543378	8.7	20.5	262645	8.7	19.4
409541	8.4	20.6	109360	8.5	19.3	239904	8.5	20.2	175779	8.6	20.0	135262	8.7	19.5	67045	8.7	19.5
171191	8.4	19.5	236898	8.5	20.0	344267	8.5	21.5	273390	8.6	20.3	421619	8.7	20.3	203133	8.7	19.3
148774	8.4	19.8	384170	8.5	20.6	281798	8.5	20.2	125931	8.6	19.5	203523	8.7	20.4	500539	8.7	21.0
172379	8.4	20.2	544588	8.5	21.3	288685	8.6	20.3	460380	8.6	21.0	158956	8.7	20.2	431160	8.7	20.3
30689	8.4	18.1	104181	8.5	19.8	117667	8.6	20.4	541323	8.6	21.2	237224	8.7	20.9	490663	8.7	20.4
110921	8.4	19.4	429956	8.5	20.2	4657	8.6	17.8	498440	8.6	22.6	246500	8.7	19.6	337731	8.7	21.6
142349	8.4	20.0	261411	8.5	19.7	532553	8.6	21.1	51969	8.6	19.3	13375	8.7	17.4	151601	8.7	20.9
325221	8.4	20.5	302517	8.5	19.3	456449	8.6	21.8	172338	8.6	19.2	492425	8.7	20.6	538547	8.7	21.1
448151	8.4	22.2	76775	8.5	18.9	502739	8.6	21.1	97825	8.6	19.7	459650	8.7	20.2	462873	8.7	21.9
391447	8.4	19.7	346993	8.5	19.8	175571	8.6	19.5	8473	8.6	18.1	292870	8.7	20.7	312212	8.7	20.6
423444	8.4	20.8	544198	8.5	21.6	165518	8.6	19.0	202356	8.6	19.8	100022	8.7	19.5	82028	8.7	18.8
374183	8.4	20.7	470434	8.5	21.3	81326	8.6	19.6	14595	8.6	18.9	544984	8.7	20.2	59177	8.8	19.1
192415	8.4	19.0	85768	8.5	17.5	137163	8.6	18.1	447061	8.6	21.9	339702	8.7	19.8	441841	8.8	20.7
169945	8.4	20.2	8624	8.5	18.1	354565	8.6	20.8	530803	8.6	21.3	380496	8.7	20.8	30126	8.8	17.4
145406	8.4	19.9	89971	8.5	19.2	279346	8.6	19.9	401218	8.6	20.4	298642	8.7	18.6	239787	8.8	19.5
11234	8.4	16.9	299576	8.5	19.6	290178	8.6	20.3	101121	8.6	18.9	397137	8.7	20.5	140293	8.8	19.2
49891	8.4	17.6	397950	8.5	21.5	464025	8.6	20.9	340706	8.6	20.1	76869	8.7	18.4	383813	8.8	20.0
433392	8.4	20.7	236982	8.5	19.7	170325	8.6	19.2	31626	8.6	17.7	132189	8.7	18.8	531311	8.8	20.9
234826	8.4	19.9	123654	8.5	19.7	463329	8.6	20.3	3488	8.6	17.6	316815	8.7	21.3	157541	8.8	18.7
402123	8.4	20.8	105780	8.5	19.0	443229	8.6	20.8	90563	8.6	18.7	285113	8.7	20.4	47464	8.8	17.7
318872	8.4	18.8	537859	8.5	19.5	308284	8.6	20.0	87154	8.6	19.7	534662	8.7	21.3	350602	8.8	21.7
38734	8.4	19.6	30767	8.5	18.8	82158	8.6	22.1	151039	8.6	20.5	284190	8.7	19.8	302483	8.8	19.2
346505	8.4	20.4	456337	8.5	21.5	447085	8.6	21.5	109385	8.6	18.9	269028	8.7	21.7	384791	8.8	21.0
172599	8.4	18.6	43088	8.5	18.6	33318	8.6	18.0	27144	8.6	17.8	370747	8.7	19.9	7233	8.8	15.2
380350	8.4	21.2	199945	8.5	19.5	225862	8.6	20.4	67057	8.6	18.8	482232	8.7	20.7	343053	8.8	20.5
278912	8.4	20.1	490331	8.5	21.2	413979	8.6	20.6	466753	8.6	20.9	191354	8.7	20.1	529292	8.8	20.8
532203	8.4	21.2	524645	8.5	21.6	402084	8.6	21.6	148390	8.6	19.0	55170	8.7	18.9	167013	8.8	19.9
522677	8.4	20.9	448299	8.5	21.6	376486	8.6	20.4	290561	8.6	20.5	247139	8.7	20.7	253374	8.8	20.0
36124	8.4	17.6	14865	8.5	17.6	272148	8.6	18.3	65531	8.6	19.3	187471	8.7	20.4	68590	8.8	18.8
323171	8.4	19.3	147255	8.5	19.9	327452	8.6	19.8	14949	8.6	16.9	419053	8.7	21.2	415531	8.8	21.0
473940	8.4	21.3	152773	8.5	19.4	274653	8.6	20.4	397031	8.6	20.7	200706	8.7	21.2	498070	8.8	21.1
52713	8.4	17.5	290127	8.5	19.9	185225	8.6	21.0	79736	8.6	20.0	163475	8.7	19.3	425809	8.8	21.8
326432	8.4	20.7	9367	8.5	17.5	455542	8.6	19.9	484982	8.6	21.5	327309	8.7	20.5	372986	8.8	21.1
91348	8.4	17.6	426412	8.5	21.4	128024	8.6	18.3	442702	8.6	20.7	495131	8.7	19.9	276197	8.8	20.3
134180	8.4	19.6	309388	8.5	20.8	325840	8.6	21.1	169197	8.6	19.7	340016	8.7	20.4	163637	8.8	19.6
135697	8.4	18.9	42816	8.5	19.2	466018	8.6	20.0	413942	8.6	21.2	173919	8.7	20.2	496063	8.8	21.9
450132	8.4	20.7	79158	8.5	19.1	400811	8.6	20.2	176020	8.6	19.8	70197	8.7	19.5	164814	8.8	18.7
58072	8.4	19.9	246163	8.5	20.4	155400	8.6	20.5	34273	8.6	18.5	2221	8.7	16.3	267461	8.8	19.5
179272	8.4	19.9	496375	8.5	20.7	534895	8.6	20.2	335885	8.6	20.6	245552	8.7	19.3	498213	8.8	21.9
364791	8.4	20.2	524231	8.5	21.4	9003	8.6	17.3	175029	8.6	20.1	378311	8.7	19.3	533026	8.8	21.5
426030	8.4	20.3	51796	8.5	17.5	432429	8.6	20.3	6978	8.6	16.2	71708	8.7	18.6	535801	8.8	21.7
153076	8.4	20.0	317600	8.5	20.4	371229	8.6	20.5	145401	8.6	19.3	313554	8.7	18.9	529308	8.8	20.8
62335	8.4	17.9	500551	8.5	21.6	166769	8.6	20.4	495686	8.6	21.1	285502	8.7	19.5	64605	8.8	19.5
274211	8.4	20.0	64510	8.5	18.5	524855	8.6	21.3	413544	8.6	21.0	378719	8.7	20.5	328745	8.8	20.2
366850	8.4	20.7	398166	8.5	19.0	340658	8.6	20.9	372636	8.6	20.8	24697	8.7	17.8	208980	8.8	19.9
247238	8.4	20.1	86392	8.5	18.7	228223	8.6	18.8	333445	8.6	19.6	236128	8.7	20.4	48598	8.8	18.6
453332	8.5	21.2	531692	8.5	20.5	233261	8.6	20.0	204359	8.6	20.6	333772	8.7	19.5	122940	8.8	18.6
180897	8.5	19.9	454269	8.5	19.4	428970	8.6	20.7	123037	8.7	18.3	535284	8.7	21.0	236692	8.8	20.2
294228	8.5	20.6	192269	8.5	18.5	541826	8.6	20.7	63799	8.7	19.9	527223	8.7	21.0	109450	8.8	20.1
274912	8.5	20.3	157730	8.5	20.8	184101	8.6	19.3	337667	8.7	20.5	530548	8.7	21.1	17688	8.8	18.3
190881	8.5	19.1	286653	8.5	18.6	426969	8.6	19.6	421827	8.7	20.2	364868	8.7	19.9	455211	8.8	20.3
94480	8.5	17.8	531903	8.5	22.3	411826	8.6	20.6	543522	8.7	21.0	52367	8.7	18.9	122043	8.8	17.4
194341	8.5	20.4	8701	8.5	16.8	197075	8.6	20.5	496524	8.7	19.7	278585	8.7	20.8	287379	8.8	21.1
273418	8.5	21.2	28891	8.5	18.9	208985	8.6	20.9	496568	8.7	20.5	142936	8.7	20.2	498583	8.8	21.3
337839	8.5	21.8	464908	8.5	21.3	27077	8.6	19.0	16487	8.7	16.4	408088	8.7	20.0	166674	8.8	19.6
83436	8.5	18.6	128262	8.5	19.4	16276	8.6	16.9	399607	8.7	20.8	459077	8.7	20.0	490328	8.8	20.8
507522	8.5	20.3	436831	8.5	20.4	359185	8.6	20.9	151078	8.7	19.2	185503	8.7	21.0	247099	8.8	20.6
205589	8.5	20.2	804	8.5	12.0	135301	8.6	20.0	310430	8.7	19.8	424912	8.7	20.1	370734	8.8	20.4
166734	8.5	20.2	412909	8.5	20.0	3759	8.6	16.2	205526	8.7	19.5	540090	8.7	20.3	105056	8.8	19.1
49438	8.5	17.3	464093	8.5	21.2	441610	8.6	21.8	452992	8.7	19.7	292268	8.7	21.0	218809	8.8	20.0
123353	8.5	18.1	244224	8.5	20.1	527045	8.6	22.0	305842	8.7	20.0	23798	8.7	16.9	427545	8.8	19.6
238423	8.5	19.7	456532	8.5	21.1	461712	8.6	21.1	100370	8.7	19.0	388696	8.7	21.0	170105	8.8	20.0
279038	8.5	20.0	132270	8.5	18.5	256897	8.6	20.1	413679	8.7	21.3	343140	8.7	19.6	264694	8.8	21.0
498258	8.5	22.3	35213	8.5	18.6	135239	8.6	19.7	155659	8.7	18.9	148979	8.7	19.8	140459	8.8	19.7
299490	8.5	19.7	88088	8.5	19.1	69795	8.6	19.1	111827	8.7	18.8	416697	8.7	21.9	415156	8.8	20.9
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LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
526270	8.8	21.0	340814	8.9	20.2	85144	8.9	18.5	260915	8.9	20.2	208367	9.1	19.8	73794	9.1	18.7
522520	8.8	20.6	91515	8.9	19.0	500840	8.9	24.0	114074	8.9	20.4	452547	9.1	22.0	464696	9.1	20.8
538146	8.8	20.8	105699	8.9	17.6	431534	8.9	19.5	466443	8.9	20.9	348895	9.1	20.4	160371	9.1	19.1
544880	8.8	20.2	91655	8.9	19.9	407563	8.9	21.0	360119	8.9	21.4	144598	9.1	18.8	417791	9.1	20.8
428974	8.8	19.4	337697	8.9	20.6	377138	8.9	19.3	348828	8.9	21.5	448320	9.1	21.1	217089	9.1	20.4
422883	8.8	21.1	76280	8.9	18.6	205321	8.9	20.8	244560	8.9	20.1	110723	9.1	19.6	166666	9.1	19.9
52735	8.8	18.3	429171	8.9	22.5	411469	8.9	21.5	78532	8.9	18.9	397091	9.1	20.6	351459	9.1	20.8
369427	8.8	20.0	13628	8.9	16.7	338264	8.9	21.4	174473	8.9	20.9	40845	9.1	19.2	193045	9.1	19.4
239911	8.8	20.5	526489	8.9	21.6	69244	8.9	17.5	327856	8.9	20.9	290303	9.1	19.6	407309	9.1	21.7
45422	8.8	18.4	93601	8.9	19.9	210677	8.9	19.8	55470	8.9	19.4	369583	9.1	20.7	146375	9.1	20.0
531224	8.8	22.8	429868	8.9	20.0	73526	8.9	18.7	304793	8.9	19.2	281124	9.1	18.5	33069	9.1	18.2
471107	8.8	20.8	389896	8.9	21.9	170057	8.9	19.8	459222	9.0	20.2	277995	9.1	20.6	202129	9.1	20.1
132385	8.8	18.9	367208	8.9	20.9	63733	8.9	18.4	433567	9.0	19.9	544219	9.1	21.7	60276	9.1	19.0
98018	8.8	18.5	406682	8.9	21.2	410510	8.9	20.4	527391	9.0	21.0	47525	9.1	18.3	521992	9.1	20.8
315626	8.8	20.7	347904	8.9	21.1	117139	8.9	18.8	119723	9.0	19.0	272909	9.1	20.4	502090	9.1	20.8
284663	8.8	20.6	132207	8.9	19.7	19994	8.9	18.0	52661	9.0	18.0	183979	9.1	19.1	245034	9.1	20.3
189458	8.8	20.3	441421	8.9	20.6	495483	8.9	20.1	311887	9.0	19.7	32615	9.1	18.1	411915	9.1	20.7
459308	8.8	21.1	457095	8.9	20.7	319811	8.9	20.5	224477	9.0	19.9	537927	9.1	20.0	115871	9.1	19.2
6137	8.8	16.5	158849	8.9	20.1	406154	8.9	22.0	226910	9.0	20.5	196555	9.1	19.4	383041	9.1	20.1
440720	8.8	21.4	536854	8.9	20.7	223845	8.9	20.6	446856	9.0	21.1	49475	9.1	18.6	192517	9.1	19.8
378902	8.8	19.9	184154	8.9	19.2	205001	8.9	19.8	308219	9.0	21.3	18074	9.1	17.6	20871	9.1	17.9
341758	8.8	20.5	33299	8.9	17.8	335630	8.9	19.8	399558	9.0	20.6	526873	9.1	20.6	244195	9.1	20.2
236311	8.8	20.2	433524	8.9	21.7	84559	8.9	19.2	449700	9.0	19.6	350305	9.1	20.4	529427	9.1	21.2
5979	8.8	16.7	116585	8.9	20.0	281308	8.9	20.4	378904	9.0	20.0	10350	9.1	17.4	242327	9.1	20.2
132810	8.8	18.9	366612	8.9	20.1	543903	8.9	21.0	31762	9.0	17.4	208496	9.1	20.6	162689	9.1	20.2
339612	8.8	20.1	417766	8.9	20.9	331621	8.9	20.1	81220	9.0	18.2	465717	9.1	21.5	94041	9.1	20.0
343505	8.8	19.9	168367	8.9	20.0	114096	8.9	18.8	290948	9.0	20.4	488546	9.1	21.3	343620	9.1	19.9
379029	8.8	21.6	445147	8.9	21.6	157691	8.9	20.9	39984	9.0	18.0	455768	9.1	20.1	294362	9.1	20.5
344251	8.8	21.2	30454	8.9	18.4	543921	8.9	21.9	363178	9.0	20.8	427297	9.1	19.5	517646	9.1	21.5
382844	8.8	21.7	132347	8.9	18.1	391419	8.9	20.0	198882	9.0	19.5	388795	9.1	21.5	115390	9.1	19.6
165709	8.8	19.4	283970	8.9	21.6	354217	8.9	19.3	535415	9.0	21.3	132852	9.1	19.6	26141	9.1	18.5
484620	8.8	22.1	134379	8.9	20.6	295956	8.9	20.5	8229	9.0	18.3	41219	9.1	18.6	174327	9.1	19.2
83014	8.8	20.0	535749	8.9	21.2	389351	8.9	20.1	350708	9.0	20.6	347925	9.1	20.5	462878	9.1	21.1
536957	8.8	20.4	120725	8.9	20.2	204357	8.9	20.7	410525	9.0	20.0	377297	9.1	19.7	436358	9.1	20.3
268535	8.8	19.8	464682	8.9	21.9	36672	8.9	18.9	284814	9.0	20.0	78503	9.1	19.4	491025	9.1	20.7
413102	8.8	20.8	534248	8.9	22.9	65207	8.9	18.5	120309	9.0	19.3	127044	9.1	19.7	328743	9.1	20.3
411217	8.8	21.5	298942	8.9	18.8	29698	8.9	17.2	532356	9.0	21.7	336938	9.1	20.5	495161	9.1	19.6
5483	8.8	15.6	393711	8.9	20.5	262735	8.9	20.5	81050	9.0	19.4	443843	9.1	23.6	2817	9.1	17.2
232391	8.8	19.0	167611	8.9	19.7	429747	8.9	20.4	246738	9.0	20.9	108943	9.1	19.5	350755	9.2	21.3
136648	8.8	20.0	420733	8.9	19.9	533991	8.9	21.8	167675	9.0	20.6	125185	9.1	19.6	453159	9.2	21.2
264206	8.8	19.4	285311	8.9	21.3	394827	8.9	20.5	438342	9.0	20.4	75144	9.1	18.0	51237	9.2	18.5
544556	8.8	20.7	369092	8.9	19.8	410027	8.9	21.2	385896	9.0	20.6	217790	9.1	20.1	83508	9.2	18.9
222724	8.8	20.0	278667	8.9	20.6	170782	8.9	19.4	458329	9.0	19.8	359414	9.1	19.4	400595	9.2	20.9
77901	8.8	17.8	421994	8.9	20.9	244156	8.9	19.6	104314	9.0	18.2	544116	9.1	20.5	229739	9.2	20.2
496746	8.8	20.7	245722	8.9	20.4	502859	8.9	20.8	37957	9.0	17.7	386174	9.1	21.6	348156	9.2	20.2
135480	8.8	19.3	286442	8.9	20.7	490327	8.9	20.5	150761	9.0	20.0	465768	9.1	21.2	468836	9.2	21.5
468533	8.8	20.6	44469	8.9	19.1	244987	8.9	19.8	405035	9.0	21.8	434890	9.1	20.8	80991	9.2	19.8
354090	8.8	20.8	348602	8.9	20.6	208954	8.9	20.1	492858	9.0	19.3	271776	9.1	20.4	348592	9.2	20.1
319857	8.8	20.3	140966	8.9	20.0	301648	8.9	19.5	344285	9.0	20.5	500831	9.1	24.3	35401	9.2	19.1
459174	8.8	21.0	36878	8.9	18.8	159592	8.9	18.9	166635	9.0	20.6	190777	9.1	20.8	15408	9.2	17.3
345624	8.8	20.2	262872	8.9	21.0	166981	8.9	20.0	350839	9.0	20.7	143402	9.1	19.3	120047	9.2	19.7
147288	8.8	19.9	158503	8.9	19.7	243378	8.9	20.4	7309	9.0	15.2	459981	9.1	22.0	300055	9.2	20.8
71031	8.8	18.8	303257	8.9	19.8	534012	8.9	22.0	423621	9.0	21.6	7413	9.1	18.3	330951	9.2	21.3
200850	8.8	18.5	506819	8.9	21.6	152795	8.9	18.7	118679	9.0	18.9	421245	9.1	20.6	67856	9.2	18.1
497762	8.8	21.3	528791	8.9	21.5	140968	8.9	20.1	15349	9.0	18.2	456429	9.1	20.3	62346	9.2	19.3
242184	8.8	19.5	234535	8.9	20.2	433199	8.9	20.5	544616	9.0	20.7	307610	9.1	20.8	198450	9.2	20.5
336046	8.8	19.2	2649	8.9	16.2	486174	8.9	21.2	437467	9.0	20.6	169173	9.1	20.3	34364	9.2	18.3
22290	8.9	18.7	213334	8.9	20.9	448763	8.9	21.7	204817	9.0	19.7	412139	9.1	20.2	52178	9.2	18.5
129790	8.9	18.3	311604	8.9	21.5	154737	8.9	19.3	419666	9.0	21.3	104983	9.1	18.7	88426	9.2	19.4
160	8.9	13.0	93653	8.9	18.9	185196	8.9	19.9	266646	9.0	19.2	338341	9.1	19.4	345175	9.2	21.3
19486	8.9	17.1	27909	8.9	19.2	426850	8.9	20.7	114272	9.0	18.5	367519	9.1	20.5	317541	9.2	20.7
53879	8.9	17.6	225199	8.9	20.1	473717	8.9	21.7	243050	9.0	19.6	36537	9.1	20.0	492616	9.2	19.9
33765	8.9	16.8	136766	8.9	19.9	233546	8.9	19.9	137050	9.0	19.9	419710	9.1	21.4	428969	9.2	20.9
201061	8.9	18.5	338219	8.9	21.0	375825	8.9	20.3	425138	9.0	19.4	353826	9.1	20.1	87015	9.2	17.7
366841	8.9	21.1	353881	8.9	20.9	543709	8.9	19.8	429873	9.0	20.5	532131	9.1	20.7	432210	9.2	20.1
417051	8.9	21.3	215197	8.9	20.0	66608	8.9	18.4	348407	9.0	20.1	296282	9.1	20.2	538284	9.2	21.3
7683	8.9	17.1	500476	8.9	22.0	321064	8.9	20.1	47643	9.0	19.0	380709	9.1	19.6	194733	9.2	19.6
500571	8.9	21.1	210406	8.9	19.5	529084	8.9	22.0	419254	9.0	21.1	166723	9.1	19.7	246186	9.2	20.2
8872	8.9	17.2	191798	8.9	19.9	176452	8.9	20.9	2917	9.0	16.4	622	9.1	14.6	204656	9.2	18.7
502678	8.9	21.2	28928	8.9	18.1	477968	8.9	19.8	345633	9.0	20.0	367201	9.1	20.9	540341	9.2	20.3
28444	8.9	16.9	428916	8.9	21.5	279126	8.9	21.3	423404	9.0	20.9	413093	9.1	22.0	383636	9.2	20.5
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LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
500404	9.2	21.0	185311	9.2	19.7	219074	9.3	20.7	340571	9.4	20.0	119582	9.4	18.8	532213	9.5	22.1
527448	9.2	21.6	412022	9.2	21.4	238713	9.3	19.2	23843	9.4	18.3	239690	9.4	20.5	425601	9.5	19.8
284747	9.2	19.7	138185	9.3	20.7	460088	9.3	21.1	174480	9.4	19.7	110152	9.4	19.0	196626	9.5	18.6
264171	9.2	20.7	204297	9.3	19.4	321785	9.3	21.1	12676	9.4	18.6	496100	9.4	21.7	83767	9.5	18.8
388411	9.2	20.2	296097	9.3	20.4	229121	9.3	19.5	531468	9.4	21.1	405173	9.4	21.2	492651	9.5	20.7
536709	9.2	21.5	165715	9.3	19.6	385390	9.3	21.7	30177	9.4	16.7	472714	9.4	20.6	62569	9.5	18.9
211435	9.2	21.0	91812	9.3	19.6	68854	9.3	17.9	300368	9.4	20.2	507140	9.4	19.9	405363	9.5	20.2
363549	9.2	19.4	269069	9.3	20.1	496914	9.3	21.9	153931	9.4	19.8	241402	9.5	20.3	393526	9.5	20.2
399593	9.2	21.4	534255	9.3	21.5	249513	9.3	19.6	483486	9.4	22.0	157807	9.5	20.0	400293	9.5	20.8
434323	9.2	19.1	491426	9.3	20.6	526017	9.3	20.5	67857	9.4	18.8	134598	9.5	19.6	219810	9.5	20.4
432183	9.2	20.9	170568	9.3	20.5	246814	9.3	19.9	126383	9.4	18.9	35865	9.5	17.3	544287	9.5	20.5
246805	9.2	20.7	367794	9.3	20.6	338367	9.3	19.9	535043	9.4	21.3	502719	9.5	21.4	519953	9.5	20.6
501441	9.2	20.5	153475	9.3	18.8	136111	9.3	19.5	457251	9.4	19.8	45874	9.5	18.2	130943	9.5	19.2
315342	9.2	19.5	488550	9.3	21.7	246417	9.3	20.3	524211	9.4	22.2	170347	9.5	20.5	484033	9.5	20.4
462856	9.2	22.3	81811	9.3	18.5	163450	9.3	19.8	346918	9.4	20.2	450304	9.5	21.7	153592	9.5	19.4
207628	9.2	19.5	497098	9.3	21.1	490355	9.3	20.7	150319	9.4	19.9	526072	9.5	20.7	337575	9.5	20.5
11731	9.2	16.5	20215	9.3	19.5	179867	9.3	20.8	458866	9.4	21.2	17784	9.5	18.0	381660	9.5	20.9
121863	9.2	20.1	138597	9.3	20.4	378592	9.3	20.5	142609	9.4	19.8	490129	9.5	21.7	529924	9.5	22.7
291062	9.2	20.5	11268	9.3	17.6	461262	9.3	20.0	524062	9.4	20.7	503293	9.5	21.4	303461	9.5	21.0
396862	9.2	21.0	172482	9.3	19.6	207128	9.3	20.7	155105	9.4	19.3	333503	9.5	19.9	13503	9.5	17.4
519285	9.2	22.0	344338	9.3	20.7	300846	9.3	19.9	172408	9.4	19.5	522272	9.5	19.7	297326	9.5	19.9
412667	9.2	20.0	349003	9.3	20.3	273970	9.3	20.0	283982	9.4	20.1	527613	9.5	21.9	109969	9.5	20.0
464076	9.2	21.3	538535	9.3	21.5	92654	9.3	19.7	49582	9.4	17.7	495920	9.5	22.5	21574	9.5	17.5
375669	9.2	20.3	216982	9.3	19.9	121531	9.3	20.2	543313	9.4	22.1	465984	9.5	21.3	68532	9.5	19.2
283129	9.2	20.7	518769	9.3	21.4	183469	9.3	20.6	15625	9.4	17.4	417569	9.5	21.3	419459	9.5	20.9
170313	9.2	20.7	124995	9.3	19.3	218696	9.3	19.9	458835	9.4	20.8	463247	9.5	20.5	58234	9.5	19.1
230508	9.2	20.9	203034	9.3	19.7	326282	9.3	19.6	443612	9.4	20.3	239223	9.5	20.0	31683	9.5	17.7
292635	9.2	21.2	531443	9.3	22.7	314964	9.3	19.6	278274	9.4	19.1	530536	9.5	20.7	189670	9.5	20.1
20312	9.2	17.8	224802	9.3	19.6	345152	9.3	20.7	535122	9.4	21.1	466306	9.5	21.2	179133	9.5	19.9
431608	9.2	20.8	517175	9.3	20.8	49908	9.3	16.8	222829	9.4	19.4	211866	9.5	19.5	425351	9.5	20.1
324623	9.2	21.1	532292	9.3	21.6	351754	9.3	21.5	343114	9.4	21.0	11530	9.5	17.4	260967	9.5	20.9
409868	9.2	22.2	97628	9.3	18.2	457789	9.3	19.5	486256	9.4	21.1	256337	9.5	19.4	124243	9.5	19.8
366155	9.2	20.5	203842	9.3	20.1	178884	9.3	19.6	106596	9.4	20.1	530642	9.5	20.4	145292	9.5	19.7
350767	9.2	21.7	152354	9.3	20.0	85714	9.3	19.3	145655	9.4	19.5	529241	9.5	21.8	263606	9.5	20.5
493906	9.2	21.5	440515	9.3	22.5	342949	9.3	20.4	484964	9.4	21.3	419505	9.5	20.8	34835	9.5	19.1
212468	9.2	20.2	253150	9.3	20.4	255998	9.3	18.8	212967	9.4	19.5	208256	9.5	21.2	187412	9.5	20.0
542855	9.2	20.6	374581	9.3	19.1	422732	9.3	21.8	126642	9.4	18.2	248104	9.5	20.6	190070	9.5	19.7
352791	9.2	19.9	55716	9.3	18.3	529417	9.3	21.5	451686	9.4	20.2	1573	9.5	16.3	440721	9.5	21.6
462290	9.2	20.6	466178	9.3	20.1	525734	9.3	21.5	461072	9.4	20.7	114366	9.5	19.8	116583	9.5	19.7
109780	9.2	18.1	225440	9.3	19.1	489368	9.3	20.8	274747	9.4	19.1	314863	9.5	19.9	118874	9.5	19.7
380933	9.2	20.5	536293	9.3	21.6	200440	9.3	20.5	219780	9.4	20.3	214887	9.5	20.7	383019	9.5	20.2
486158	9.2	21.5	494002	9.3	21.0	32830	9.3	18.3	83146	9.4	19.1	325850	9.5	20.9	256109	9.5	20.1
70210	9.2	19.7	253267	9.3	20.9	301078	9.3	18.8	430973	9.4	20.2	396877	9.5	21.0	122489	9.6	19.4
159620	9.2	19.5	415515	9.3	20.9	288397	9.4	21.0	338170	9.4	20.7	208502	9.5	18.9	496029	9.6	20.1
137043	9.2	20.8	523914	9.3	21.2	309088	9.4	19.0	162816	9.4	20.3	535391	9.5	21.5	49279	9.6	19.4
331228	9.2	20.6	458787	9.3	20.1	148565	9.4	19.8	41394	9.4	18.3	489213	9.5	20.0	435942	9.6	20.8
349124	9.2	20.0	453826	9.3	20.7	368071	9.4	20.5	502508	9.4	20.5	40981	9.5	18.7	176275	9.6	19.1
544155	9.2	21.7	371210	9.3	20.8	190477	9.4	19.5	502654	9.4	20.1	124723	9.5	19.9	270183	9.6	20.3
346892	9.2	21.8	122283	9.3	19.8	379386	9.4	21.4	33112	9.4	17.9	272616	9.5	21.7	355972	9.6	20.4
68928	9.2	18.6	343110	9.3	20.5	524202	9.4	20.2	489198	9.4	20.2	77717	9.5	19.0	421986	9.6	20.2
216532	9.2	19.8	135242	9.3	18.9	58714	9.4	19.4	327385	9.4	20.7	237688	9.5	20.4	167092	9.6	19.8
433569	9.2	20.2	217086	9.3	19.9	278909	9.4	21.1	51334	9.4	18.9	184931	9.5	19.3	412725	9.6	21.8
403882	9.2	20.9	242972	9.3	20.2	289080	9.4	19.0	176011	9.4	20.6	141101	9.5	20.2	166818	9.6	19.4
265757	9.2	20.3	202573	9.3	20.0	62186	9.4	18.8	243784	9.4	18.9	104791	9.5	18.8	385294	9.6	21.9
10805	9.2	17.3	174511	9.3	21.1	258962	9.4	21.6	213639	9.4	20.4	1727	9.5	15.4	425818	9.6	21.9
244589	9.2	20.0	355953	9.3	21.3	410106	9.4	21.3	53837	9.4	18.8	242391	9.5	21.2	115106	9.6	20.3
438071	9.2	21.6	33209	9.3	18.4	170262	9.4	19.3	228738	9.4	20.5	272629	9.5	20.3	145782	9.6	18.8
97821	9.2	19.1	423554	9.3	21.3	263730	9.4	20.2	368608	9.4	20.0	56160	9.5	18.3	340903	9.6	20.5
444646	9.2	20.0	70019	9.3	18.1	191938	9.4	19.5	543287	9.4	20.7	371682	9.5	20.6	337644	9.6	20.3
337218	9.2	20.1	256027	9.3	20.9	15829	9.4	18.4	416552	9.4	21.0	64511	9.5	17.8	176013	9.6	19.1
64795	9.2	18.9	298930	9.3	19.4	385012	9.4	20.8	32124	9.4	17.7	120025	9.5	19.2	531345	9.6	22.0
156483	9.2	19.8	495734	9.3	19.7	212575	9.4	21.0	50728	9.4	18.0	535377	9.5	20.8	182996	9.6	18.3
468597	9.2	21.4	144427	9.3	18.7	285792	9.4	20.1	536610	9.4	20.9	319739	9.5	21.4	458122	9.6	20.3
130450	9.2	19.8	527680	9.3	22.1	499041	9.4	20.9	309284	9.4	20.1	483430	9.5	20.8	88939	9.6	17.9
110025	9.2	18.3	367174	9.3	21.3	6777	9.4	18.5	538971	9.4	20.4	136657	9.5	20.2	184095	9.6	18.4
265681	9.2	20.4	124616	9.3	20.3	69823	9.4	18.9	411707	9.4	19.8	121480	9.5	19.6	484960	9.6	21.3
541991	9.2	20.3	218695	9.3	20.7	462061	9.4	22.4	100576	9.4	19.1	444428	9.5	22.4	383775	9.6	20.9
292869	9.2	21.0	221158	9.3	19.5	213757	9.4	19.6	59834	9.4	19.3	108673	9.5	18.7	502810	9.6	21.2
210205	9.2	20.5	120054	9.3	19.6	228777	9.4	20.6	433700	9.4	20.1	408254	9.5	19.2	96057	9.6	18.9
191997	9.2	20.4	2986	9.3	16.9	180205	9.4	20.2	159222	9.4	19.5	68195	9.5	19.0	426938	9.6	20.7
6654	9.2	18.5	152400	9.3	19.3	159013	9.4	19.9	538043	9.4	20.5	383755	9.5	21.3	23991		

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
9461	9.6	17.9	442603	9.7	21.1	454985	9.7	21.0	430488	9.8	20.6	53836	9.9	19.8	53747	9.9	17.3
159906	9.6	19.8	462693	9.7	21.1	64482	9.7	19.1	170303	9.8	20.2	11031	9.9	17.2	165312	9.9	20.3
458972	9.6	20.2	259865	9.7	19.6	445813	9.7	20.6	243019	9.8	20.1	473856	9.9	20.7	284413	9.9	20.7
456682	9.6	21.3	302413	9.7	19.3	129319	9.7	18.6	350371	9.8	21.2	143744	9.9	17.7	455102	9.9	20.7
334571	9.6	20.9	543338	9.7	21.0	209918	9.7	19.8	44383	9.8	18.1	77967	9.9	18.9	426953	9.9	20.4
131880	9.6	19.2	494157	9.7	21.3	436721	9.7	19.1	526991	9.8	21.5	136993	9.9	23.1	106328	9.9	19.1
167015	9.6	18.7	162951	9.7	20.4	516556	9.7	20.6	423209	9.8	22.0	292585	9.9	19.9	545082	9.9	21.0
113696	9.6	18.3	147902	9.7	18.9	277974	9.7	20.2	511580	9.8	19.9	532214	9.9	21.8	92572	9.9	18.5
221728	9.6	20.1	360220	9.7	20.9	113654	9.7	19.0	345706	9.8	19.9	283027	9.9	20.7	468509	9.9	21.0
184078	9.6	19.5	484140	9.7	21.7	165564	9.7	20.3	495902	9.8	20.8	154821	9.9	18.7	491307	9.9	19.9
221093	9.6	20.1	264662	9.7	20.9	416991	9.7	21.4	465911	9.8	20.6	344353	9.9	21.0	341440	9.9	20.2
459136	9.6	21.1	280462	9.7	19.0	322859	9.7	20.4	313089	9.8	21.1	174038	9.9	19.5	397212	9.9	19.4
417719	9.6	20.1	56469	9.7	17.8	397068	9.7	20.7	236974	9.8	20.5	109367	9.9	19.6	229684	9.9	20.3
496157	9.6	20.2	273613	9.7	19.6	83066	9.7	19.8	68701	9.8	18.5	459050	9.9	20.6	322118	9.9	20.5
219658	9.6	21.1	447273	9.7	21.8	113880	9.7	19.5	88174	9.8	19.8	85129	9.9	19.9	195391	9.9	19.2
169279	9.6	20.3	544910	9.7	21.6	224367	9.7	20.4	242657	9.8	19.7	256056	9.9	19.1	120127	9.9	19.3
191849	9.6	20.1	152948	9.7	19.1	433302	9.7	20.1	245145	9.8	19.1	271226	9.9	21.1	461441	9.9	19.7
306536	9.6	19.8	28570	9.7	17.9	371253	9.7	20.2	506872	9.8	22.1	282591	9.9	19.9	375211	9.9	20.5
64867	9.6	18.4	26789	9.7	18.1	225275	9.7	21.1	265571	9.8	21.0	208221	9.9	20.1	544490	9.9	20.2
421425	9.6	20.0	499037	9.7	20.9	232412	9.7	19.9	268488	9.8	19.9	184874	9.9	19.4	515741	9.9	20.6
294213	9.6	20.4	13696	9.7	17.0	459100	9.7	20.7	444398	9.8	22.1	322281	9.9	19.8	147200	9.9	19.7
185215	9.6	20.8	524986	9.7	21.9	489911	9.7	22.6	204104	9.8	20.6	217004	9.9	19.2	371820	9.9	20.4
514603	9.6	20.5	361638	9.7	21.2	433575	9.7	20.9	138955	9.8	20.0	199892	9.9	18.4	370804	9.9	21.1
329514	9.6	21.9	79190	9.7	19.4	452325	9.7	21.3	413927	9.8	21.7	262541	9.9	21.6	340692	9.9	20.4
271816	9.6	21.0	111650	9.7	18.1	522577	9.7	20.6	402991	9.8	20.2	56871	9.9	19.5	472304	9.9	19.3
47261	9.6	17.4	52394	9.7	18.7	78525	9.7	19.5	66230	9.8	18.0	22537	9.9	18.1	274813	9.9	19.9
57147	9.6	19.0	16509	9.7	18.6	122969	9.7	19.6	310056	9.8	20.2	315387	9.9	21.7	534749	9.9	20.4
448254	9.6	21.4	207980	9.7	20.6	150235	9.7	20.3	315496	9.8	20.8	310952	9.9	21.7	284934	9.9	21.1
98572	9.6	18.2	280814	9.7	20.4	89320	9.7	20.5	443560	9.8	20.5	273336	9.9	21.1	319787	9.9	20.4
156442	9.6	19.0	94308	9.7	19.1	55091	9.7	19.5	254703	9.8	20.2	93159	9.9	18.5	206141	9.9	19.8
112422	9.6	18.2	210695	9.7	20.5	170137	9.7	19.6	30491	9.8	18.9	187305	9.9	19.6	452525	9.9	21.5
48103	9.6	18.7	209462	9.7	19.7	366878	9.7	19.6	230480	9.8	20.3	428364	9.9	21.1	293596	9.9	19.7
290377	9.6	21.0	270443	9.7	21.9	544933	9.8	22.1	173383	9.8	19.4	288562	9.9	19.0	419843	9.9	20.3
464171	9.6	20.1	538793	9.7	20.7	482240	9.8	20.8	189390	9.8	20.1	405521	9.9	20.2	12313	9.9	18.2
431374	9.6	20.4	318759	9.7	19.9	184815	9.8	19.8	158978	9.8	20.7	125980	9.9	18.0	459179	9.9	20.8
387278	9.6	21.2	301222	9.7	19.7	312810	9.8	20.1	207071	9.8	19.1	359336	9.9	20.7	345749	9.9	20.5
344364	9.6	20.0	402267	9.7	22.7	414896	9.8	21.2	504152	9.8	20.8	143022	9.9	19.7	348686	9.9	20.4
21966	9.6	17.9	113227	9.7	19.3	39206	9.8	19.0	285936	9.8	21.0	99982	9.9	19.1	327315	9.9	21.2
411456	9.6	21.1	192526	9.7	20.2	410600	9.8	19.9	85103	9.8	19.0	270001	9.9	20.8	261183	9.9	19.7
84872	9.6	18.9	324518	9.7	21.3	46589	9.8	18.2	49941	9.8	18.5	61409	9.9	19.0	425203	9.9	21.2
165072	9.6	18.5	432227	9.7	20.7	430622	9.8	20.3	79301	9.8	19.0	26293	9.9	16.6	182685	9.9	19.5
542405	9.6	20.7	159873	9.7	19.5	288629	9.8	20.4	258200	9.8	20.2	143305	9.9	20.4	380949	9.9	20.8
27482	9.6	18.1	453391	9.7	20.9	453923	9.8	21.4	258830	9.8	20.3	222800	9.9	19.5	543781	9.9	21.3
498162	9.6	21.5	269319	9.7	21.7	372914	9.8	20.8	67750	9.8	18.3	312110	9.9	22.3	439700	9.9	20.9
337211	9.6	19.7	299964	9.7	20.5	324547	9.8	20.1	99322	9.8	18.9	419419	9.9	19.8	246096	9.9	19.3
34204	9.6	18.3	431294	9.7	20.1	426977	9.8	20.4	373302	9.8	20.2	215063	9.9	20.3	43607	9.9	16.6
266429	9.6	20.3	428371	9.7	20.4	422596	9.8	21.0	532992	9.8	20.7	17090	9.9	18.0	462892	9.9	20.4
24597	9.6	18.5	183452	9.7	18.8	210982	9.8	20.8	242959	9.8	20.0	159891	9.9	20.2	327408	9.9	20.8
486020	9.6	20.7	138896	9.7	19.1	467128	9.8	19.9	144659	9.8	19.3	430397	9.9	20.2	377380	9.9	19.7
236392	9.6	20.2	409972	9.7	20.7	246469	9.8	20.7	498700	9.8	21.4	155411	9.9	20.1	489515	9.9	20.5
459828	9.6	20.3	325178	9.7	20.6	467437	9.8	22.2	192057	9.8	19.5	173997	9.9	20.3	536371	9.9	20.6
334642	9.6	21.6	388825	9.7	20.3	3886178	9.8	20.7	159869	9.8	20.2	50780	9.9	18.5	432130	9.9	21.5
48813	9.6	19.2	461431	9.7	20.0	333103	9.8	21.3	98240	9.8	18.0	5118	9.9	15.5	456696	9.9	21.4
134426	9.6	19.8	351745	9.7	19.6	126631	9.8	19.8	423578	9.8	21.4	128526	9.9	19.5	2765	9.9	17.0
525670	9.6	21.1	183389	9.7	20.6	524762	9.8	22.0	31827	9.8	15.9	55479	9.9	17.1	468049	9.9	21.4
178645	9.6	18.1	77904	9.7	18.1	204791	9.8	18.8	283501	9.8	19.4	42129	9.9	19.1	24058	9.9	18.4
114130	9.6	19.4	49393	9.7	17.7	163897	9.8	19.1	57092	9.8	19.8	84186	9.9	19.7	265751	9.9	19.9
62472	9.6	18.4	157532	9.7	19.6	131854	9.8	19.2	155615	9.8	18.6	467054	9.9	21.6	308020	9.9	20.9
154189	9.6	18.0	289129	9.7	20.7	258153	9.8	22.4	28454	9.8	17.1	542292	9.9	21.4	7156	9.9	17.7
686	9.6	12.9	540128	9.7	21.2	430658	9.8	21.6	182954	9.8	18.8	335217	9.9	20.0	301699	9.9	19.5
323141	9.6	19.2	411692	9.7	21.1	544738	9.8	21.1	81151	9.8	19.2	373356	9.9	20.5	526523	9.9	21.2
523976	9.6	20.5	347435	9.7	20.8	306932	9.8	20.3	206852	9.8	19.7	534886	9.9	22.3	264537	9.9	21.2
331226	9.6	20.6	534234	9.7	22.0	485058	9.8	21.7	534008	9.8	21.2	229118	9.9	20.6	279625	9.9	20.2
122300	9.6	20.0	413116	9.7	20.9	503732	9.8	21.0	148549	9.8	19.5	485390	9.9	19.4	543393	9.9	19.3
204253	9.6	19.5	313833	9.7	19.1	3433	9.8	16.5	205348	9.8	20.3	415834	9.9	20.3	81025	9.9	18.4
498998	9.6	20.9	124666	9.7	19.9	210341	9.8	20.4	431272	9.8	20.6	76452	9.9	18.3	54828	9.9	19.8
468833	9.6	20.5	535356	9.7	20.8	204025	9.8	20.1	493476	9.8	20.6	534734	9.9	21.4	388682	9.9	21.7
56049	9.6	19.3	425399	9.7	20.0	241638	9.8	17.9	56815	9.8	18.2	461963	9.9	21.7	222533	9.9	21.1
495124	9.6	19.6	100687	9.7	19.1	514331	9.8	20.0	331258	9.8	21.1	13976	9.9	17.1	240297	9.9	19.2
220344	9.6	19.5	91432	9.7	19.1	84449	9.8	19.8	219337	9.8	19.5	498173	9.9	22.3	222312	9.9	20.1
113865	9.6	19.3	258222	9.7	21.5	173026	9.8	19.7	9957	9.9	16.6	316712	9.9	20.9	179017	10.0	19.

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
194694	10.0	20.6	311701	10.1	20.3	524622	10.1	21.5	164611	10.2	19.5	57567	10.3	19.7	64598	10.3	17.3
544526	10.0	20.3	228656	10.1	18.5	300585	10.1	20.3	90629	10.2	18.5	183320	10.3	19.9	346962	10.3	21.5
160762	10.0	20.5	128214	10.1	19.5	429942	10.1	19.8	457183	10.2	19.3	166325	10.3	19.3	139698	10.3	19.9
121626	10.0	19.7	269153	10.1	19.5	543982	10.1	21.1	225590	10.2	20.3	500692	10.3	21.5	529397	10.3	21.6
173742	10.0	20.0	525170	10.1	21.0	321146	10.1	20.6	130534	10.2	20.5	214113	10.3	19.8	525601	10.3	19.8
544991	10.0	20.1	536363	10.1	21.7	10754	10.1	17.1	210778	10.2	20.6	37793	10.3	17.4	534487	10.3	19.7
110988	10.0	19.4	368187	10.1	20.0	5193	10.1	16.7	246168	10.2	20.1	83795	10.3	18.6	538747	10.3	21.2
168518	10.0	20.4	224606	10.1	19.4	321155	10.1	20.7	143247	10.2	19.2	419051	10.3	21.7	37	10.3	11.5
337819	10.0	20.8	405961	10.1	21.0	341378	10.1	20.5	525197	10.2	22.1	149518	10.3	19.3	153982	10.3	20.5
156511	10.0	20.3	108876	10.1	20.1	367194	10.1	20.1	248026	10.2	20.5	456487	10.3	21.2	359208	10.3	18.5
148396	10.0	20.2	193860	10.1	20.0	309406	10.1	21.2	324415	10.2	21.8	91701	10.3	19.8	263676	10.3	19.9
496155	10.0	20.4	319531	10.1	19.9	524265	10.1	22.7	536856	10.2	20.1	464635	10.3	20.5	339617	10.3	19.0
500367	10.0	21.1	40658	10.1	19.1	280867	10.1	20.7	113850	10.2	19.3	3677	10.3	16.3	458513	10.3	19.8
85615	10.0	17.7	237656	10.1	19.0	454306	10.1	20.8	173062	10.2	19.5	414897	10.3	21.8	132417	10.3	19.1
448234	10.0	21.5	431257	10.1	20.0	377378	10.1	20.1	381612	10.2	20.7	343193	10.3	20.1	386968	10.3	20.3
96889	10.0	18.4	122533	10.1	20.2	415905	10.1	21.3	523669	10.2	22.1	53067	10.3	16.2	104755	10.3	18.7
535301	10.0	20.7	384984	10.1	20.2	201342	10.1	19.2	135362	10.2	19.3	496816	10.3	23.8	246340	10.3	21.0
27913	10.0	18.5	527519	10.1	23.2	450202	10.1	19.2	536256	10.2	20.2	498320	10.3	20.8	502209	10.3	21.4
325234	10.0	20.5	123838	10.1	18.3	300236	10.1	20.5	15587	10.2	18.6	538278	10.3	20.2	194642	10.3	21.3
34105	10.0	18.1	7495	10.1	18.0	405391	10.1	20.9	83788	10.2	19.8	143230	10.3	19.7	519158	10.3	21.7
91456	10.0	18.1	290542	10.1	20.8	187205	10.1	19.6	112781	10.2	19.5	97449	10.3	19.3	270854	10.3	22.4
64148	10.0	18.3	355904	10.1	21.0	334687	10.1	21.1	475079	10.2	20.1	20434	10.3	17.3	44251	10.3	18.2
181975	10.0	20.3	441905	10.1	20.4	325220	10.1	20.9	22930	10.2	17.7	485024	10.3	21.7	25638	10.3	17.8
210611	10.0	21.1	132266	10.1	18.5	306782	10.1	19.4	149501	10.2	19.7	543890	10.3	21.2	396621	10.3	20.9
63619	10.0	17.9	234537	10.1	20.6	521146	10.1	21.0	211509	10.2	19.3	29725	10.3	17.4	73979	10.3	18.2
490060	10.0	21.6	76253	10.1	18.3	388347	10.1	20.8	165419	10.2	19.3	329098	10.3	21.1	58862	10.3	17.2
375966	10.0	20.5	464937	10.1	20.8	166882	10.1	19.0	324494	10.2	20.5	218023	10.3	19.2	121040	10.3	18.7
518652	10.0	21.1	471506	10.1	20.8	136073	10.1	19.3	324429	10.2	21.1	12993	10.3	18.3	89152	10.3	19.0
350705	10.0	21.8	457000	10.1	21.0	205491	10.1	19.8	365793	10.2	20.5	226780	10.3	20.0	328712	10.3	20.3
146291	10.0	18.2	294343	10.1	20.1	511695	10.2	20.2	29277	10.2	19.0	213888	10.3	20.0	10309	10.3	18.5
61941	10.0	17.2	173129	10.1	18.2	70202	10.2	17.1	95340	10.2	20.0	468905	10.3	20.1	543285	10.3	20.5
416941	10.0	21.0	90347	10.1	19.1	34106	10.2	16.9	419951	10.2	21.3	284335	10.3	19.6	326357	10.3	19.9
247670	10.0	20.5	26631	10.1	17.8	93001	10.2	19.4	331340	10.2	20.9	332152	10.3	20.3	88883	10.3	19.4
432928	10.0	20.3	501978	10.1	20.7	98163	10.2	18.3	164581	10.2	20.4	231780	10.3	20.7	145709	10.3	19.6
542318	10.0	21.5	350853	10.1	19.3	378851	10.2	21.1	542244	10.2	20.7	106940	10.3	18.5	205620	10.3	19.3
492497	10.0	20.4	107654	10.1	19.2	114277	10.2	20.1	130677	10.2	19.3	240509	10.3	19.8	350107	10.3	20.5
55840	10.0	18.9	372645	10.1	20.5	453896	10.2	21.7	429901	10.2	20.5	537088	10.3	20.7	410034	10.3	20.1
461760	10.0	19.6	179791	10.1	20.4	495918	10.2	21.0	51740	10.2	18.5	524483	10.3	21.5	386834	10.3	19.8
21573	10.0	17.2	300134	10.1	20.0	248820	10.2	19.9	246372	10.2	20.9	439845	10.3	21.6	56080	10.3	18.3
529413	10.0	21.7	171764	10.1	20.6	149233	10.2	20.0	110879	10.2	20.8	402868	10.3	21.7	173393	10.3	20.0
447059	10.0	21.8	510031	10.1	20.2	437871	10.2	23.2	536992	10.2	21.3	155345	10.3	19.7	233737	10.3	19.7
155051	10.0	19.9	135375	10.1	20.0	258159	10.2	22.1	366871	10.2	20.7	387206	10.3	20.7	14339	10.3	15.7
264461	10.0	19.3	128368	10.1	18.6	225374	10.2	19.8	245747	10.2	19.3	413074	10.3	21.7	11632	10.3	16.7
154374	10.0	19.2	38948	10.1	18.5	402046	10.2	20.7	241071	10.2	19.9	41549	10.3	18.6	223773	10.3	20.3
127132	10.0	19.2	188142	10.1	19.7	129187	10.2	19.9	387214	10.2	21.2	56166	10.3	20.4	442186	10.3	19.9
349113	10.0	19.0	82866	10.1	18.7	381329	10.2	21.1	14832	10.2	17.6	473887	10.3	20.3	258326	10.3	19.6
7249	10.0	17.8	436287	10.1	20.5	167137	10.2	18.8	163696	10.2	17.5	400539	10.3	20.7	130845	10.3	18.8
523704	10.0	22.2	257725	10.1	19.7	306238	10.2	20.0	126882	10.2	18.1	138052	10.3	19.3	220556	10.3	18.8
371173	10.0	20.5	183511	10.1	19.3	467161	10.2	20.6	386535	10.2	20.1	157925	10.3	20.0	140496	10.3	19.7
288428	10.0	19.7	379723	10.1	20.8	101706	10.2	19.0	385257	10.2	19.8	433632	10.3	20.6	50380	10.4	17.2
455397	10.0	20.9	429332	10.1	20.2	312043	10.2	21.4	276344	10.2	20.2	64099	10.3	20.1	49588	10.4	19.9
259111	10.0	21.0	334635	10.1	21.4	427439	10.2	21.9	32393	10.2	19.1	175626	10.3	20.9	464111	10.4	20.8
455576	10.0	21.3	229590	10.1	19.6	442621	10.2	21.0	154697	10.2	18.9	188583	10.3	19.4	243838	10.4	20.2
81388	10.0	18.1	528721	10.1	20.8	141409	10.2	20.4	498899	10.2	21.5	543454	10.3	21.2	205270	10.4	20.2
429321	10.0	19.9	38351	10.1	18.7	210443	10.2	20.0	498821	10.2	20.5	111737	10.3	19.8	292443	10.4	20.6
32026	10.0	19.1	146372	10.1	19.1	157914	10.2	18.6	517198	10.2	20.1	538989	10.3	21.0	496904	10.4	21.8
105228	10.1	19.9	253213	10.1	20.4	194050	10.2	20.6	451712	10.2	20.3	229288	10.3	18.9	285658	10.4	20.0
545001	10.1	21.6	341413	10.1	20.3	449167	10.2	21.5	293140	10.2	21.0	313700	10.3	21.2	413850	10.4	19.2
201027	10.1	20.6	414845	10.1	21.5	350123	10.2	21.3	245724	10.2	20.7	215014	10.3	20.5	403657	10.4	20.8
131851	10.1	17.8	452963	10.1	19.1	541495	10.2	20.1	425341	10.2	20.3	163604	10.3	19.6	125603	10.4	18.8
534665	10.1	20.9	166788	10.1	20.4	527671	10.2	24.3	430473	10.2	20.9	492665	10.3	21.1	138267	10.4	19.5
420293	10.1	20.0	381669	10.1	20.8	282490	10.2	20.1	349462	10.2	20.8	313815	10.3	20.6	343605	10.4	19.9
152452	10.1	19.4	309383	10.1	19.5	336561	10.2	20.2	406112	10.2	20.2	369396	10.3	21.5	524624	10.4	20.9
544864	10.1	20.4	503567	10.1	20.3	524243	10.2	19.8	142904	10.2	19.3	153511	10.3	18.9	76553	10.4	18.4
341596	10.1	20.2	333400	10.1	21.7	108773	10.2	18.7	388837	10.2	20.6	183501	10.3	19.8	503136	10.4	20.3
224656	10.1	20.3	472778	10.1	19.4	114090	10.2	20.2	322596	10.2	20.6	419420	10.3	20.6	364416	10.4	19.8
531400	10.1	20.4	140483	10.1	19.4	443391	10.2	21.3	15069	10.2	18.2	8906	10.3	18.3	135246	10.4	19.4
175701	10.1	20.7	184744	10.1	18.4	19820	10.2	18.7	308752	10.2	20.2	69337	10.3	18.1	536303	10.4	21.1
56873	10.1	18.0	193910	10.1	18.8	206265	10.2	20.0	33071								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
185657	10.4	19.1	382278	10.5	20.3	30236	10.5	17.7	58428	10.6	18.9	451001	10.6	21.0	15666	10.7	18.3
203138	10.4	20.1	247694	10.5	20.1	374055	10.5	20.9	398152	10.6	20.4	293775	10.6	20.2	377350	10.7	20.2
278900	10.4	20.3	527353	10.5	21.1	15174	10.5	17.6	371767	10.6	20.4	192366	10.6	19.6	168396	10.7	19.9
166954	10.4	19.2	448059	10.5	21.1	456927	10.5	20.5	409927	10.6	21.7	233839	10.6	20.6	132150	10.7	20.7
526768	10.4	21.0	327472	10.5	20.1	245961	10.5	19.7	325920	10.6	21.5	16892	10.6	16.9	317019	10.7	20.0
407436	10.4	21.1	32036	10.5	18.1	466275	10.5	21.1	433794	10.6	20.3	384153	10.6	21.1	19058	10.7	18.4
432188	10.4	20.1	115586	10.5	19.5	6500	10.5	18.0	220590	10.6	19.3	238447	10.6	20.6	208434	10.7	20.0
504413	10.4	21.8	6945	10.5	17.3	186570	10.5	19.9	409575	10.6	20.8	471190	10.6	20.9	300289	10.7	20.7
301223	10.4	20.9	209381	10.5	19.7	433179	10.5	20.7	426687	10.6	20.6	311732	10.6	20.3	361665	10.7	21.3
104594	10.4	19.2	411190	10.5	21.1	273168	10.5	19.8	193822	10.6	19.7	38792	10.6	18.7	498071	10.7	21.7
344843	10.4	19.0	525689	10.5	22.1	525021	10.5	22.0	348533	10.6	20.0	153945	10.6	19.7	284862	10.7	20.0
522405	10.4	20.9	324587	10.5	21.0	413703	10.5	21.9	152594	10.6	20.3	267294	10.6	21.1	538727	10.7	20.7
238487	10.4	19.7	212445	10.5	19.2	338400	10.5	20.5	424692	10.6	20.9	262558	10.6	19.3	337782	10.7	20.7
54415	10.4	17.8	408573	10.5	20.3	421881	10.5	21.3	256086	10.6	20.7	149642	10.6	18.4	526623	10.7	22.2
142996	10.4	17.5	218641	10.5	21.3	325240	10.5	19.4	249700	10.6	19.4	244148	10.6	20.3	149322	10.7	19.8
19417	10.4	17.9	148378	10.5	19.9	226905	10.5	18.8	169633	10.6	18.7	229175	10.6	20.5	202066	10.7	20.1
427243	10.4	20.9	533232	10.5	20.7	258543	10.5	19.1	87458	10.6	19.5	458630	10.6	19.6	306934	10.7	20.4
367170	10.4	19.9	412532	10.5	20.4	317166	10.5	21.1	154281	10.6	19.6	542870	10.6	20.9	10236	10.7	17.0
61532	10.4	19.4	131373	10.5	19.1	31689	10.5	18.0	205660	10.6	20.1	169979	10.6	17.8	426140	10.7	19.4
376370	10.4	20.6	532234	10.5	21.9	34757	10.5	18.5	502141	10.6	20.7	151563	10.6	20.3	322864	10.7	20.6
296637	10.4	21.3	169855	10.5	19.8	437551	10.5	20.6	526660	10.6	23.0	542854	10.6	19.7	460997	10.7	21.1
37444	10.4	17.7	341871	10.5	20.2	98142	10.5	19.3	417236	10.6	20.4	229559	10.6	21.0	167622	10.7	20.4
230487	10.4	19.4	299338	10.5	20.3	431153	10.5	20.9	243997	10.6	20.2	496533	10.6	19.3	412395	10.7	20.3
108961	10.4	19.2	202768	10.5	19.2	167032	10.5	20.5	16571	10.6	16.9	324729	10.7	19.7	178947	10.7	19.5
498034	10.4	20.4	435548	10.5	22.7	167084	10.5	19.5	82201	10.6	19.0	156209	10.7	19.6	508870	10.7	20.4
489628	10.4	21.2	269129	10.5	20.0	417083	10.5	20.5	465887	10.6	21.7	109236	10.7	19.7	146967	10.7	19.6
194476	10.4	19.3	80052	10.5	17.7	409580	10.5	20.9	259376	10.6	18.9	375913	10.7	20.8	286225	10.7	21.1
74536	10.4	18.4	340656	10.5	20.7	81862	10.5	18.8	200464	10.6	19.4	307794	10.7	19.4	432550	10.7	20.8
529353	10.4	22.4	144740	10.5	19.4	107270	10.5	18.7	305603	10.6	20.7	359184	10.7	19.7	92635	10.7	18.8
519593	10.4	20.7	534246	10.5	21.4	88286	10.5	18.0	235952	10.6	19.5	399616	10.7	21.0	435395	10.7	19.8
96543	10.4	18.8	519490	10.5	21.0	188299	10.5	19.4	543635	10.6	20.7	223508	10.7	21.1	314780	10.7	20.4
133408	10.4	19.9	333250	10.5	20.0	14418	10.5	18.4	250994	10.6	19.4	160734	10.7	19.6	532895	10.7	21.5
122915	10.4	20.3	408936	10.5	20.4	257515	10.5	19.0	448141	10.6	21.8	209921	10.7	19.1	458872	10.7	20.8
532325	10.4	21.8	283936	10.5	20.7	416940	10.5	21.9	245933	10.6	20.4	525596	10.7	23.5	129337	10.7	19.7
385052	10.4	20.6	350683	10.5	21.2	472528	10.5	20.7	463914	10.6	19.8	196664	10.7	19.9	243000	10.7	20.1
354219	10.4	19.5	27637	10.5	17.9	414916	10.5	20.7	285628	10.6	20.1	385962	10.7	19.4	201972	10.7	19.6
228377	10.4	20.6	500501	10.5	21.4	501097	10.5	20.9	7818	10.6	18.7	350545	10.7	22.2	333819	10.7	18.8
343210	10.4	21.2	283413	10.5	20.2	90293	10.5	19.0	508448	10.6	20.0	366380	10.7	21.9	514761	10.7	21.2
19261	10.4	15.7	113772	10.5	19.2	188255	10.5	18.5	125093	10.6	19.6	379098	10.7	20.6	289017	10.7	20.8
485039	10.4	21.6	437498	10.5	20.6	238325	10.5	20.8	76438	10.6	18.9	448467	10.7	19.5	149010	10.7	20.3
468985	10.4	20.9	243761	10.5	20.5	238424	10.5	19.3	491614	10.6	20.7	485101	10.7	19.7	204198	10.7	20.7
11682	10.4	15.6	545041	10.5	21.9	45664	10.5	17.3	128633	10.6	19.4	461747	10.7	21.2	466672	10.7	21.1
12052	10.4	17.4	163652	10.5	19.5	204138	10.5	19.2	197999	10.6	18.9	107487	10.7	19.9	497669	10.7	21.5
355968	10.4	20.6	390286	10.5	20.2	28781	10.5	19.0	264656	10.6	21.1	160180	10.7	19.6	187798	10.7	18.6
14276	10.4	16.6	79160	10.5	18.0	37572	10.5	20.6	284206	10.6	20.8	90457	10.7	18.2	54330	10.7	18.0
298919	10.4	20.2	90013	10.5	19.8	7015	10.5	16.3	61774	10.6	19.3	113173	10.7	19.2	95394	10.7	19.7
203406	10.4	20.2	200982	10.5	21.0	320494	10.5	20.3	211533	10.6	19.7	109530	10.7	19.8	37965	10.7	18.4
378892	10.4	21.4	214785	10.5	20.3	113088	10.5	20.0	409254	10.6	19.4	225014	10.7	20.1	156560	10.7	19.5
150794	10.4	20.8	426225	10.5	20.3	295318	10.5	20.7	523501	10.6	21.6	323091	10.7	21.9	490660	10.7	20.1
465725	10.4	21.2	151551	10.5	19.8	324522	10.5	19.5	181681	10.6	19.9	430856	10.7	20.3	392258	10.7	20.4
36875	10.4	19.1	190411	10.5	20.1	383767	10.5	21.9	288747	10.6	21.2	123393	10.7	18.4	8680	10.7	18.3
136868	10.4	18.2	125277	10.5	19.2	473955	10.5	20.5	288541	10.6	19.7	459018	10.7	20.0	64339	10.7	19.2
538428	10.4	20.3	233622	10.5	20.9	231084	10.5	19.6	57943	10.6	17.8	498253	10.7	20.3	324608	10.7	20.9
182430	10.4	20.3	490268	10.5	20.0	150157	10.5	18.8	96674	10.6	17.2	105409	10.7	20.3	537989	10.7	19.7
178148	10.4	18.7	236960	10.5	19.8	113513	10.6	18.9	318302	10.6	20.9	348818	10.7	19.8	467238	10.7	20.1
15574	10.4	18.6	263382	10.5	19.2	265744	10.6	20.1	35186	10.6	18.5	543897	10.7	21.4	334934	10.7	19.9
136419	10.4	18.5	300382	10.5	21.5	375375	10.6	22.2	341449	10.6	20.3	303859	10.7	19.9	467898	10.7	20.9
527231	10.4	20.8	434826	10.5	20.6	42330	10.6	18.6	271105	10.6	20.2	340820	10.7	21.0	32949	10.7	19.3
241223	10.4	20.7	251107	10.5	20.3	378850	10.6	20.7	534493	10.6	21.0	304899	10.7	20.4	460181	10.7	21.8
26734	10.4	17.5	118308	10.5	19.3	387178	10.6	21.0	309268	10.6	21.2	410019	10.7	21.5	425360	10.7	20.5
64110	10.4	18.5	70408	10.5	19.4	530533	10.6	21.4	149186	10.6	19.4	355874	10.7	21.4	208501	10.7	20.7
334084	10.4	21.0	175061	10.5	19.8	202539	10.6	18.8	182161	10.6	19.1	52596	10.7	20.0	399681	10.7	20.7
6267	10.4	17.0	244197	10.5	20.2	525140	10.6	21.0	258519	10.6	20.0	50019	10.7	17.7	419307	10.7	20.4
363229	10.4	20.2	208262	10.5	20.6	76794	10.6	17.4	456977	10.6	21.9	527135	10.7	22.7	186861	10.7	20.1
54118	10.4	18.3	17861	10.5	17.0	218026	10.6	20.1	343095	10.6	20.2	132331	10.7	17.8	424999	10.7	21.1
407299	10.4	20.8	500256	10.5	20.6	407453	10.6	20.1	445777	10.6	20.1	88547	10.7	18.3	55585	10.7	19.0
88481	10.4	19.3	2291	10.5	15.6	315664	10.6	20.5	1745	10.6	16.0	31101	10.7	18.1	228180	10.7	20.4
367340	10.4	19.6	491066	10.5	21.0	307602	10.6	20.4	217495	10.6	20.2	412407	10.7	19.6	151022	10.7	20.3
347509	10.4	19.3	274967	10.5	20.6	252431	10.6	19.8	238476</								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
420692	10.8	20.5	502663	10.8	20.6	235404	10.9	21.1	204948	10.9	19.1	361715	11.0	19.9	517811	11.1	20.6
108791	10.8	19.1	54561	10.8	19.1	541982	10.9	22.3	350828	10.9	18.1	129215	11.0	19.0	288516	11.1	19.8
369164	10.8	20.5	346000	10.8	20.7	502631	10.9	20.6	147817	10.9	19.6	325204	11.0	19.8	15528	11.1	17.2
500391	10.8	21.4	86367	10.8	20.3	255930	10.9	20.6	280256	10.9	19.5	161613	11.0	20.2	276742	11.1	20.1
118577	10.8	18.9	128163	10.8	19.4	186103	10.9	19.8	495616	10.9	21.4	359751	11.0	21.2	222267	11.1	20.4
375333	10.8	21.1	110992	10.8	20.2	328681	10.9	20.8	207674	10.9	19.9	95186	11.0	18.5	410586	11.1	19.1
90581	10.8	18.2	94180	10.8	18.4	436288	10.9	20.3	429965	10.9	20.8	243821	11.0	19.5	122066	11.1	19.9
454756	10.8	20.9	262916	10.8	20.9	95322	10.9	19.1	79775	10.9	19.8	241075	11.0	20.0	399334	11.1	20.6
238010	10.8	20.7	341456	10.8	21.3	436303	10.9	20.1	466992	10.9	19.0	86015	11.0	18.4	381255	11.1	21.0
331199	10.8	20.6	482875	10.8	21.2	462924	10.9	19.6	93777	10.9	19.7	12771	11.0	16.4	280140	11.1	20.7
522292	10.8	21.3	247339	10.8	20.7	113662	10.9	19.4	452356	10.9	22.0	527355	11.0	21.6	1428	11.1	15.0
241540	10.8	18.5	225232	10.8	18.8	412867	10.9	20.5	366961	10.9	21.6	527619	11.0	22.1	182379	11.1	19.5
110830	10.8	18.4	372721	10.8	20.8	82683	10.9	19.7	292086	10.9	20.8	35614	11.0	18.1	210417	11.1	21.6
251994	10.8	19.9	229216	10.8	19.2	401017	10.9	20.5	528614	10.9	22.2	505032	11.0	21.3	414773	11.1	22.5
425060	10.8	21.6	534089	10.8	21.1	101042	10.9	17.9	419751	10.9	20.3	85620	11.0	18.6	497805	11.1	22.1
199301	10.8	21.1	422108	10.8	20.9	400535	10.9	21.1	350743	10.9	21.1	222965	11.0	18.7	405063	11.1	21.7
401037	10.8	20.5	497811	10.8	22.5	284344	10.9	20.3	197879	10.9	20.6	486786	11.0	21.2	307636	11.1	19.9
284990	10.8	20.7	294679	10.8	20.8	412225	10.9	19.9	461210	10.9	20.0	179699	11.0	20.8	138084	11.1	18.9
160982	10.8	18.3	151884	10.8	19.4	221948	10.9	19.7	163655	10.9	20.6	90014	11.0	20.0	319601	11.1	21.4
84281	10.8	20.8	515731	10.8	20.0	47156	10.9	19.3	247601	10.9	21.0	449220	11.0	21.6	129746	11.1	23.0
542146	10.8	20.6	474007	10.8	20.2	353714	10.9	20.6	28872	10.9	18.6	428874	11.0	21.7	29791	11.1	17.5
436374	10.8	20.8	345716	10.8	21.3	206808	10.9	20.6	183344	10.9	20.8	290910	11.0	20.7	308159	11.1	20.8
503804	10.8	20.4	139673	10.8	20.0	504171	10.9	21.6	119674	10.9	20.5	502084	11.1	21.1	168374	11.1	21.0
33669	10.8	18.0	154272	10.8	20.3	427407	10.9	21.3	301301	10.9	19.7	135517	11.1	20.4	179233	11.1	19.9
16449	10.8	18.0	179925	10.8	20.0	7689	10.9	17.9	81062	10.9	19.6	99287	11.1	20.5	497283	11.1	21.3
61495	10.8	18.0	396253	10.8	21.0	83450	10.9	18.9	121016	10.9	19.9	122310	11.1	19.1	99536	11.1	18.2
92582	10.8	19.2	266849	10.8	20.9	258056	10.9	19.4	406102	10.9	22.1	433937	11.1	21.2	224633	11.1	20.9
481447	10.8	21.6	147021	10.8	20.2	383669	10.9	20.7	181710	10.9	19.7	216199	11.1	20.1	367190	11.1	20.3
175730	10.8	19.3	45732	10.9	17.8	424737	10.9	20.6	475956	10.9	19.5	520013	11.1	21.0	271235	11.1	20.2
292533	10.8	21.3	205306	10.9	20.3	375748	10.9	20.6	441415	10.9	19.7	51342	11.1	18.4	532123	11.1	20.5
94881	10.8	18.3	153868	10.9	20.2	123349	10.9	20.4	16761	10.9	18.6	169149	11.1	19.2	143347	11.1	20.5
498262	10.8	22.3	543951	10.9	21.6	60615	10.9	18.3	438898	10.9	21.4	327896	11.1	20.9	350798	11.1	19.3
343076	10.8	20.4	260805	10.9	19.9	383805	10.9	20.8	55932	10.9	18.9	150839	11.1	19.4	315651	11.1	20.1
114501	10.8	19.0	337348	10.9	20.9	430089	10.9	21.1	413086	10.9	21.2	465085	11.1	22.5	391406	11.1	20.3
364348	10.8	20.9	486894	10.9	20.3	388421	10.9	21.2	246569	10.9	20.8	64156	11.1	18.4	455450	11.1	21.4
14207	10.8	16.4	506236	10.9	20.0	110553	10.9	19.5	14724	10.9	18.5	529697	11.1	20.7	78458	11.1	16.8
217979	10.8	20.2	416936	10.9	21.5	50985	10.9	18.1	78861	10.9	19.6	159566	11.1	19.6	374110	11.1	20.4
15582	10.8	19.2	139422	10.9	20.3	81671	10.9	19.2	232921	10.9	20.4	32435	11.1	17.8	453021	11.1	21.6
464150	10.8	19.3	415791	10.9	22.7	447133	10.9	21.1	320978	10.9	19.4	425496	11.1	19.9	372487	11.1	20.2
136383	10.8	19.2	503097	10.9	20.2	193179	10.9	20.0	497806	10.9	22.2	338200	11.1	20.3	22801	11.1	19.4
8122	10.8	17.5	77872	10.9	18.5	267612	10.9	20.9	212783	10.9	19.5	67448	11.1	19.0	434327	11.1	19.2
271309	10.8	20.6	15274	10.9	18.2	353808	10.9	21.0	19431	10.9	17.1	455361	11.1	22.1	21163	11.1	18.5
7332	10.8	16.2	37929	10.9	17.3	348931	10.9	21.0	54481	10.9	17.8	430146	11.1	21.2	204536	11.1	19.2
503687	10.8	21.0	269140	10.9	20.8	262809	10.9	21.0	374092	10.9	21.5	121953	11.1	18.6	187751	11.1	19.9
414493	10.8	20.7	320622	10.9	21.4	415023	10.9	20.6	258435	10.9	20.0	107149	11.1	18.6	219349	11.1	19.8
243520	10.8	20.3	199494	10.9	20.1	464961	10.9	21.4	268491	10.9	20.8	294978	11.1	20.7	172790	11.1	19.2
192202	10.8	19.7	243360	10.9	20.5	417274	10.9	20.9	128000	10.9	19.3	380407	11.1	21.6	24453	11.1	18.0
487434	10.8	20.0	96161	10.9	20.2	28476	10.9	18.1	46605	10.9	18.3	432986	11.1	20.1	413051	11.1	21.8
411572	10.8	20.5	431515	10.9	20.5	212016	10.9	20.7	540307	10.9	21.8	339776	11.1	20.4	524117	11.1	22.2
457149	10.8	21.0	377331	10.9	20.8	62834	10.9	18.5	347001	10.9	20.7	463765	11.1	21.6	535839	11.1	21.3
367796	10.8	20.8	142516	10.9	19.5	253181	10.9	19.8	174892	10.9	19.9	397039	11.1	20.9	544472	11.1	21.6
333451	10.8	20.4	350829	10.9	20.4	253142	10.9	20.3	538571	10.9	21.0	492413	11.1	20.2	537265	11.1	20.7
152725	10.8	20.4	8091	10.9	16.1	498105	10.9	20.0	171962	10.9	19.9	163433	11.1	19.5	243971	11.1	20.4
322327	10.8	20.4	235600	10.9	20.2	433732	10.9	22.0	32867	10.9	19.1	104392	11.1	19.5	1798	11.1	16.1
40330	10.8	18.5	317089	10.9	20.1	425337	10.9	20.7	296670	10.9	20.5	299092	11.1	19.3	7139	11.1	17.1
119479	10.8	19.4	355929	10.9	21.1	457067	10.9	19.7	14266	10.9	16.2	13602	11.1	18.5	226008	11.1	19.8
375037	10.8	20.1	496688	10.9	20.0	292333	10.9	20.4	345589	10.9	21.2	266730	11.1	20.3	436910	11.1	20.6
56772	10.8	19.4	101785	10.9	17.7	35041	10.9	19.3	220586	10.9	19.6	363298	11.1	20.6	299304	11.1	20.2
412365	10.8	19.6	261945	10.9	19.0	146653	10.9	18.9	55948	10.9	18.9	183370	11.1	19.7	208761	11.1	18.9
274895	10.8	19.9	370724	10.9	21.7	354979	10.9	20.2	170373	10.9	21.0	343633	11.1	20.2	264773	11.1	19.1
415786	10.8	21.7	529149	10.9	21.5	536542	10.9	20.3	49461	10.9	18.0	443802	11.1	22.7	77963	11.1	18.6
174011	10.8	20.0	396598	10.9	19.6	53020	10.9	17.8	367951	10.9	20.0	526747	11.1	22.3	205904	11.1	20.1
19909	10.8	18.5	345603	10.9	21.0	465129	10.9	22.4	34651	11.0	18.7	419367	11.1	19.8	259030	11.1	22.0
464038	10.8	20.9	86552	10.9	18.4	28902	10.9	17.2	338941	11.0	19.2	29600	11.1	17.9	194076	11.1	20.3
436732	10.8	19.7	100258	10.9	20.2	140573	10.9	19.1	207617	11.0	20.1	527574	11.1	20.7	484045	11.1	20.1
307	10.8	14.8	347012	10.9	20.4	461744	10.9	20.8	315769	11.0	19.0	503839	11.1	20.5	408993	11.1	21.2
544637	10.8	21.3	453969	10.9	21.3	543290	10.9	21.4	117706	11.0	19.1	210924	11.1	20.5	309439	11.2	20.3
344407	10.8	20.6	20203	10.9	18.6	489739	10.9	20.4	36074	11.0	18.1	93816	11.1	19.3	383730	11.2	22.1
498096	10.8	22.0	53112	10.9	18.9	42842	10.9	18.6	437656	11.0							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
27481	11.2	18.3	112548	11.2	19.5	194761	11.3	20.1	274517	11.3	19.6	295615	11.4	19.2	125099	11.5	19.8
30308	11.2	17.9	461773	11.2	20.3	416044	11.3	21.1	490289	11.3	21.1	462023	11.4	21.4	276005	11.5	19.2
222834	11.2	20.7	302072	11.2	20.9	249297	11.3	19.8	354545	11.3	20.2	252471	11.4	21.1	83670	11.5	19.8
465954	11.2	21.6	295975	11.2	20.0	360785	11.3	19.2	203813	11.3	20.2	234414	11.4	20.9	504080	11.5	20.1
463237	11.2	21.0	336577	11.2	21.1	489257	11.3	21.2	122947	11.3	19.9	437273	11.4	20.9	372461	11.5	20.6
202537	11.2	19.8	8991	11.2	15.7	3256	11.3	16.7	118302	11.3	19.8	431198	11.4	21.4	28668	11.5	17.7
345606	11.2	20.9	497117	11.2	18.9	370813	11.3	21.2	503542	11.3	20.9	410745	11.4	19.6	527674	11.5	23.4
1743	11.2	15.0	243154	11.2	20.0	386177	11.3	20.8	341648	11.3	21.6	170148	11.4	20.4	267032	11.5	20.3
238449	11.2	20.1	51870	11.2	18.9	344271	11.3	21.6	462863	11.3	21.7	209008	11.4	20.4	178263	11.5	20.8
384206	11.2	20.6	143150	11.2	19.8	164374	11.3	20.8	104270	11.3	19.6	542348	11.4	21.2	489020	11.5	20.7
283620	11.2	21.2	204870	11.2	19.9	312836	11.3	19.7	480024	11.3	20.2	531118	11.4	21.1	207627	11.5	20.0
488907	11.2	22.0	167667	11.2	19.2	318005	11.3	20.0	526022	11.3	21.6	265380	11.4	21.0	309522	11.5	19.6
372020	11.2	20.6	100023	11.2	19.7	463719	11.3	21.7	146601	11.4	19.4	160838	11.4	20.7	307850	11.5	19.6
240539	11.2	20.0	417118	11.2	20.7	422630	11.3	21.1	381607	11.4	20.3	230973	11.4	21.2	408649	11.5	20.3
374958	11.2	19.4	157842	11.2	19.8	180999	11.3	19.2	354521	11.4	20.5	208329	11.4	20.5	210390	11.5	20.4
499189	11.2	21.5	259187	11.2	20.6	189377	11.3	20.0	131307	11.4	18.9	88993	11.4	19.2	345527	11.5	20.4
135497	11.2	19.4	498246	11.2	22.3	502446	11.3	20.1	474179	11.4	18.0	135267	11.4	19.8	67374	11.5	19.3
309596	11.2	20.5	222338	11.2	21.3	27995	11.3	16.4	340584	11.4	21.7	21123	11.4	18.6	120916	11.5	18.1
465160	11.2	20.4	298784	11.2	20.5	199512	11.3	20.5	461959	11.4	21.5	229095	11.4	20.9	204312	11.5	20.5
138173	11.2	19.3	504834	11.2	19.9	258644	11.3	20.7	195029	11.4	20.5	27229	11.4	17.6	168363	11.5	19.0
348700	11.2	20.2	46626	11.2	18.5	531213	11.3	20.3	505099	11.4	21.1	519493	11.4	22.1	253998	11.5	19.6
520884	11.2	21.4	331502	11.2	20.1	485099	11.3	19.4	165318	11.4	20.0	212812	11.4	20.2	225996	11.5	20.0
542102	11.2	19.9	238378	11.2	19.5	414908	11.3	21.6	236691	11.4	19.7	421515	11.4	20.9	427313	11.5	20.2
175488	11.2	20.0	544342	11.2	22.1	386185	11.3	21.5	241188	11.4	20.6	350298	11.4	20.9	523705	11.5	22.0
541756	11.2	22.0	385417	11.2	21.3	293986	11.3	20.9	315643	11.4	20.3	465987	11.4	21.4	296791	11.5	20.4
382741	11.2	20.7	130759	11.2	20.0	486831	11.3	20.8	130251	11.4	19.6	501389	11.4	21.1	35439	11.5	17.3
419083	11.2	20.6	267432	11.2	21.1	52732	11.3	18.1	444324	11.4	21.9	192910	11.4	20.1	9599	11.5	16.9
411792	11.2	20.6	381205	11.2	21.6	489209	11.3	19.8	295140	11.4	20.7	257834	11.4	19.7	286072	11.5	21.2
250154	11.2	18.5	126643	11.2	19.9	399584	11.3	20.9	196226	11.4	19.6	468586	11.4	20.9	283928	11.5	20.7
486119	11.2	21.1	68484	11.2	19.3	94888	11.3	19.4	174503	11.4	21.3	146464	11.4	18.9	368451	11.5	20.3
488187	11.2	19.6	466701	11.2	21.4	96108	11.3	18.8	336623	11.4	21.2	52865	11.4	19.3	525526	11.5	19.8
84010	11.2	19.5	417575	11.2	19.2	341645	11.3	20.8	324764	11.4	19.9	518167	11.4	21.0	306807	11.5	19.8
38673	11.2	19.3	64124	11.2	19.0	461981	11.3	22.1	432056	11.4	20.9	285071	11.4	19.8	386837	11.5	20.8
13673	11.2	18.9	138671	11.2	20.0	85070	11.3	19.9	467194	11.4	21.8	279400	11.4	20.5	155956	11.5	18.9
209210	11.2	20.2	532268	11.2	21.3	163684	11.3	20.7	354844	11.4	21.7	175807	11.4	19.5	423667	11.5	21.1
143097	11.2	18.9	317844	11.3	20.8	194280	11.3	20.8	359232	11.4	20.3	368627	11.4	20.2	445916	11.5	22.0
343083	11.2	21.2	27967	11.3	18.6	350590	11.3	20.1	167117	11.4	20.2	526622	11.4	22.0	385938	11.5	19.8
28791	11.2	19.1	449587	11.3	21.1	138436	11.3	19.7	128005	11.4	19.5	80897	11.4	19.0	335253	11.5	19.6
380687	11.2	20.4	535932	11.3	21.6	131279	11.3	18.5	7920	11.4	17.1	108937	11.4	19.3	256781	11.5	19.3
87383	11.2	19.6	531583	11.3	21.3	343075	11.3	21.1	29034	11.4	18.0	150175	11.4	19.3	31020	11.5	18.2
277554	11.2	20.3	64500	11.3	19.1	95764	11.3	18.0	125861	11.4	19.8	249316	11.4	20.0	421242	11.5	20.7
459979	11.2	21.6	201029	11.3	20.8	503742	11.3	21.5	20451	11.4	16.2	450905	11.4	20.6	4520	11.5	16.3
177993	11.2	20.1	163213	11.3	18.8	203494	11.3	20.2	283173	11.4	20.2	431167	11.4	20.9	44650	11.5	18.6
289742	11.2	19.2	184091	11.3	19.7	433606	11.3	20.9	342893	11.4	20.9	237472	11.4	19.3	134296	11.5	18.7
399601	11.2	20.2	406214	11.3	20.8	159681	11.3	18.6	516920	11.4	20.2	160572	11.4	19.8	63803	11.5	19.6
435019	11.2	20.0	59497	11.3	19.0	541609	11.3	19.2	79894	11.4	19.3	95874	11.4	19.0	366900	11.5	20.7
126456	11.2	20.2	159618	11.3	18.7	434331	11.3	20.4	194291	11.4	19.8	50983	11.4	18.0	356342	11.5	19.3
388405	11.2	20.3	453827	11.3	21.7	200319	11.3	19.1	293835	11.4	20.7	448274	11.4	20.6	26924	11.5	19.1
279907	11.2	20.3	456934	11.3	22.3	450446	11.3	20.8	209080	11.4	19.5	452042	11.4	19.8	89401	11.5	19.3
30945	11.2	17.6	86805	11.3	18.3	447179	11.3	21.1	532605	11.4	21.2	465988	11.4	21.1	143335	11.5	18.8
82036	11.2	18.9	397	11.3	13.6	529564	11.3	19.8	31230	11.4	18.0	145339	11.4	19.3	411422	11.5	20.2
314195	11.2	20.2	444317	11.3	21.4	189047	11.3	18.9	215709	11.4	19.5	276605	11.4	20.0	490295	11.5	20.6
496585	11.2	21.5	21692	11.3	17.7	7206	11.3	17.3	85453	11.4	19.1	64175	11.4	18.5	84221	11.5	19.9
459166	11.2	20.4	39646	11.3	20.0	66203	11.3	18.0	355933	11.4	20.4	281717	11.4	19.8	507767	11.5	21.1
351530	11.2	20.3	265773	11.3	20.4	95106	11.3	19.6	258258	11.4	20.1	149483	11.5	20.9	335567	11.5	20.0
88145	11.2	19.8	298960	11.3	21.0	177104	11.3	18.9	367554	11.4	20.1	198720	11.5	20.4	3760	11.5	14.9
419152	11.2	21.0	265949	11.3	19.7	21631	11.3	17.3	509233	11.4	21.2	76938	11.5	20.0	188993	11.5	19.0
265629	11.2	20.6	40016	11.3	19.2	358086	11.3	20.1	55426	11.4	18.4	119627	11.5	18.6	34944	11.5	17.2
241170	11.2	19.7	234542	11.3	19.6	522694	11.3	21.3	366908	11.4	21.2	366064	11.5	20.8	309894	11.5	20.3
461697	11.2	22.0	533969	11.3	20.9	451106	11.3	21.2	129819	11.4	19.2	230426	11.5	20.7	544355	11.5	21.7
490055	11.2	21.7	235947	11.3	20.3	166729	11.3	19.7	431909	11.4	22.2	498378	11.5	21.4	465848	11.5	22.2
31070	11.2	18.8	255986	11.3	21.0	371729	11.3	18.9	350671	11.4	20.6	309203	11.5	22.7	294010	11.5	20.8
433206	11.2	20.1	160991	11.3	19.0	497923	11.3	21.3	386198	11.4	22.1	431988	11.5	20.3	453092	11.5	21.6
368793	11.2	21.1	498666	11.3	21.2	201182	11.3	21.0	301114	11.4	19.7	462629	11.5	21.8	149234	11.5	20.7
409848	11.2	21.0	452517	11.3	22.0	493412	11.3	20.7	171965	11.4	19.2	258251	11.5	20.7	430330	11.5	20.8
98181	11.2	18.2	194019	11.3	20.6	89609	11.3	19.5	99414	11.4	19.8	211470	11.5	19.5	209376	11.5	19.8
202366	11.2	19.8	137988	11.3	19.0	5726	11.3	15.7	367512	11.4	21.1	502664	11.5	20.8	340972	11.5	21.0
288628	11.2	19.6	467004	11.3	21.0	351731	11.3	20.9	19037	11.4	18.9	63734	11.5	19.3	140340	11.5	20.4
148493	11.2	19.2	110582	11.3	18.2	457064	11.3	20.3	437499								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
243370	11.5	19.0	101141	11.6	19.9	98307	11.7	18.8	388787	11.7	20.7	527801	11.8	22.5	351617	11.9	20.3
124468	11.5	19.4	281697	11.6	21.3	136558	11.7	19.4	386575	11.7	20.4	92628	11.8	20.3	226751	11.9	20.9
129584	11.5	21.1	200196	11.6	19.7	159671	11.7	19.4	85067	11.7	18.7	383832	11.8	19.8	542985	11.9	20.1
406718	11.5	21.3	529971	11.6	21.9	70652	11.7	19.3	70938	11.8	18.2	77687	11.8	19.2	495160	11.9	20.8
203858	11.5	20.1	57641	11.6	19.9	386864	11.7	20.7	413195	11.8	21.1	200724	11.8	20.7	315486	11.9	19.9
277883	11.5	20.2	369163	11.6	20.7	36323	11.7	18.3	447337	11.8	21.9	369622	11.8	21.2	466750	11.9	21.3
319515	11.5	21.6	201047	11.6	19.4	238964	11.7	19.3	432065	11.8	21.1	118470	11.8	17.3	330106	11.9	20.9
219851	11.5	20.1	145148	11.6	19.2	397875	11.7	20.4	534839	11.8	21.0	378908	11.8	20.6	63746	11.9	19.1
341428	11.5	20.0	283397	11.6	20.2	184545	11.7	20.6	502123	11.8	20.6	225977	11.8	19.7	343318	11.9	20.1
143514	11.5	19.9	497301	11.6	20.3	34431	11.7	20.1	66445	11.8	19.3	529139	11.8	21.1	450481	11.9	20.7
347009	11.5	20.2	381992	11.6	20.1	216713	11.7	20.3	528860	11.8	22.3	457174	11.8	20.3	284101	11.9	19.5
386269	11.5	20.4	53127	11.6	18.3	151214	11.7	19.5	195824	11.8	20.2	152589	11.8	19.5	198531	11.9	20.8
440660	11.5	21.4	532970	11.6	21.2	461275	11.7	21.0	40324	11.8	18.9	66209	11.8	19.3	187246	11.9	19.8
346861	11.5	19.7	498564	11.6	20.2	98925	11.7	18.6	173500	11.8	19.8	265885	11.8	19.5	294825	11.9	20.2
56983	11.5	19.4	316654	11.6	19.6	20775	11.7	18.8	422634	11.8	21.1	226730	11.8	20.9	160807	11.9	19.9
466844	11.5	21.1	409232	11.6	19.8	431596	11.7	21.2	535418	11.8	21.5	251752	11.8	20.6	396230	11.9	20.6
262544	11.5	20.5	169305	11.6	20.1	324484	11.7	21.4	540168	11.8	21.3	228352	11.8	20.0	185249	11.9	21.0
341676	11.6	19.7	360804	11.6	20.3	264690	11.7	21.0	379471	11.8	19.5	188201	11.8	18.4	352755	11.9	21.1
459149	11.6	19.9	384172	11.6	20.1	116465	11.7	19.7	357585	11.8	20.8	527020	11.8	21.3	50815	11.9	18.1
237651	11.6	19.8	490176	11.6	21.8	257002	11.7	20.5	91226	11.8	19.1	221524	11.8	20.4	376139	11.9	20.7
538164	11.6	20.8	32907	11.6	18.0	62846	11.7	18.3	494177	11.8	20.5	144710	11.8	18.9	350609	11.9	21.2
177457	11.6	20.0	502745	11.6	20.5	490000	11.7	21.7	462957	11.8	20.7	488035	11.8	20.9	144193	11.9	18.2
367802	11.6	21.2	294433	11.6	19.6	371911	11.7	19.6	391535	11.8	21.8	16440	11.8	17.1	439511	11.9	20.6
465173	11.6	21.3	504320	11.6	21.1	167053	11.7	20.3	455754	11.8	19.8	281426	11.8	19.9	306052	11.9	18.8
107613	11.6	19.0	413748	11.6	21.3	208723	11.7	18.9	244992	11.8	20.5	471460	11.8	19.6	201484	11.9	18.9
140951	11.6	18.4	283207	11.6	20.5	448228	11.7	20.8	310441	11.8	19.5	500563	11.8	20.8	410385	11.9	20.3
313607	11.6	21.5	338199	11.6	20.8	85411	11.7	19.6	369367	11.8	21.9	85104	11.8	19.4	488956	11.9	22.0
474709	11.6	19.6	75519	11.6	17.3	37821	11.7	18.1	185220	11.8	20.3	488138	11.8	21.0	148521	11.9	20.7
186035	11.6	20.3	38486	11.6	18.6	343767	11.7	19.3	432929	11.8	20.5	208224	11.8	20.5	25198	11.9	18.8
197114	11.6	20.9	455134	11.6	21.4	371216	11.7	21.8	458425	11.8	21.4	311590	11.8	20.3	90579	11.9	17.8
538558	11.6	21.0	345163	11.6	20.5	454845	11.7	20.7	130161	11.8	19.9	410049	11.8	20.6	187573	11.9	19.9
417646	11.6	21.6	339481	11.6	19.7	417113	11.7	20.0	105714	11.8	20.1	443932	11.8	21.5	432061	11.9	21.1
181847	11.6	19.7	141531	11.6	19.2	85446	11.7	18.8	87883	11.8	17.6	289178	11.8	21.7	385626	11.9	20.6
455988	11.6	20.4	210172	11.6	20.2	327375	11.7	21.2	109173	11.8	19.4	416969	11.9	21.0	500413	11.9	20.7
336031	11.6	20.7	365559	11.6	18.6	350638	11.7	21.3	501378	11.8	20.5	395298	11.9	20.0	386243	11.9	21.0
238899	11.6	20.4	456811	11.6	21.8	245571	11.7	20.4	55182	11.8	17.5	233186	11.9	20.7	211685	11.9	20.3
169386	11.6	20.7	292865	11.6	19.5	198880	11.7	19.9	107412	11.8	19.4	156714	11.9	19.3	143073	11.9	20.1
247667	11.6	20.8	416672	11.6	20.0	104160	11.7	18.6	109937	11.8	20.6	112064	11.9	18.3	296350	11.9	19.9
199308	11.6	20.9	8583	11.6	18.4	51950	11.7	18.8	145375	11.8	19.9	482465	11.9	20.9	10379	11.9	17.7
304855	11.6	21.4	246254	11.6	19.9	412965	11.7	20.8	126459	11.8	18.9	295777	11.9	19.2	1302	11.9	16.0
185738	11.6	20.1	208223	11.6	20.3	182532	11.7	19.7	451759	11.8	21.3	445029	11.9	21.4	495898	11.9	21.4
306122	11.6	19.4	415903	11.6	22.2	543349	11.7	21.6	28862	11.8	17.3	225593	11.9	20.8	337753	11.9	20.3
379085	11.6	20.3	223786	11.7	19.5	95747	11.7	17.2	314755	11.8	20.2	362360	11.9	19.9	83128	11.9	18.7
132209	11.6	19.9	116838	11.7	18.7	62481	11.7	18.8	98341	11.8	18.2	168484	11.9	19.4	104103	11.9	18.9
432500	11.6	20.8	431574	11.7	21.3	337042	11.7	21.4	348583	11.8	23.7	109396	11.9	18.8	89148	11.9	20.0
204182	11.6	20.4	210434	11.7	19.8	117276	11.7	19.6	530077	11.8	21.9	459367	11.9	19.7	503006	11.9	20.1
96920	11.6	19.8	184935	11.7	19.9	285608	11.7	21.2	70261	11.8	18.0	128770	11.9	19.7	305819	11.9	21.4
250156	11.6	20.1	538145	11.7	20.7	313820	11.7	20.5	145234	11.8	20.3	356492	11.9	20.4	408973	11.9	21.6
145723	11.6	17.5	52425	11.7	17.4	350777	11.7	18.6	290723	11.8	20.0	319805	11.9	21.5	394428	11.9	19.7
89663	11.6	19.6	510306	11.7	19.7	142924	11.7	20.4	166824	11.8	19.2	191258	11.9	19.6	102257	11.9	19.2
211455	11.6	19.6	83061	11.7	18.8	428399	11.7	19.9	284133	11.8	21.6	389319	11.9	20.1	222788	11.9	21.5
25801	11.6	18.1	288950	11.7	21.2	380085	11.7	20.7	56630	11.8	18.2	13990	11.9	18.3	321605	11.9	20.5
359697	11.6	21.0	448260	11.7	20.5	275069	11.7	20.9	19370	11.8	17.0	255810	11.9	20.9	315562	11.9	19.9
385935	11.6	20.3	31319	11.7	17.3	5252	11.7	16.3	312003	11.8	21.3	343147	11.9	21.1	17802	11.9	17.6
524344	11.6	21.4	327889	11.7	21.2	314861	11.7	19.7	204976	11.8	20.0	6431	11.9	16.3	245223	11.9	21.1
445951	11.6	21.2	169403	11.7	19.7	30765	11.7	20.5	19064	11.8	18.0	371768	11.9	20.3	76366	11.9	18.7
449641	11.6	21.1	428453	11.7	20.7	208546	11.7	19.8	82438	11.8	18.2	61412	11.9	20.2	25367	11.9	18.3
537080	11.6	20.8	363561	11.7	20.0	259266	11.7	20.1	52083	11.8	20.3	143127	11.9	17.8	531141	11.9	22.4
16250	11.6	18.4	208282	11.7	19.4	276297	11.7	20.2	342884	11.8	20.8	434912	11.9	20.8	464491	11.9	21.2
460954	11.6	20.7	505009	11.7	20.7	76804	11.7	18.9	194013	11.8	20.6	53642	11.9	18.5	18996	11.9	16.5
6587	11.6	17.1	20890	11.7	19.0	389192	11.7	21.6	397150	11.8	21.7	284905	11.9	20.6	457046	11.9	21.4
460186	11.6	21.1	71677	11.7	18.7	302006	11.7	20.2	383342	11.8	20.2	3479	11.9	15.6	404867	11.9	19.8
41184	11.6	18.7	290909	11.7	20.5	14858	11.7	17.6	173853	11.8	20.1	498801	11.9	21.1	131731	11.9	20.1
20843	11.6	17.1	420986	11.7	18.1	436709	11.7	19.3	77862	11.8	18.6	181261	11.9	18.3	95832	11.9	17.8
384143	11.6	21.0	153093	11.7	20.0	68455	11.7	19.6	355940	11.8	20.7	399443	11.9	19.5	525236	11.9	21.1
53276	11.6	18.0	235963	11.7	19.2	132844	11.7	19.5	306767	11.8	19.9	376861	11.9	20.8	205291	11.9	20.9
445062	11.6	21.7	315350	11.7	21.6	465198	11.7	20.7	84187	11.8	20.0	292462	11.9	19.9	38962	11.9	18.1
35143	11.6	18.1	140106	11.7	19.4	381678	11.7	21.3	86915	11.8	18.5	233482	11.9	19.4	292238	11.9	21.5
343343	11.6	20.0	461688	11.7	21.1	206168	11.7	18.8	433251	11.8							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
330807	11.9	19.6	133947	12.0	18.7	460179	12.1	22.1	358485	12.1	21.2	533981	12.2	21.3	68659	12.3	18.3
326476	11.9	20.1	83908	12.0	18.9	435321	12.1	20.8	349001	12.1	20.4	525124	12.2	22.2	211442	12.3	19.8
321970	11.9	21.1	297585	12.0	19.6	456994	12.1	20.8	351604	12.1	20.0	368814	12.2	21.1	282851	12.3	19.0
7557	11.9	17.3	1504	12.0	14.6	341411	12.1	21.0	5532	12.1	16.4	56090	12.2	17.5	86424	12.3	17.8
499011	11.9	20.9	449230	12.0	21.2	427432	12.1	21.3	138768	12.1	19.5	404325	12.2	20.5	355340	12.3	19.8
544347	11.9	21.6	29426	12.0	17.7	386643	12.1	21.0	61823	12.1	19.9	435341	12.2	21.8	179939	12.3	20.8
70298	11.9	20.1	397051	12.0	20.1	340673	12.1	20.9	110383	12.2	19.7	427566	12.2	20.4	388433	12.3	19.9
125219	11.9	18.3	148143	12.0	21.0	535332	12.1	21.3	542999	12.2	21.3	159535	12.2	19.4	453602	12.3	19.6
157480	11.9	20.8	531663	12.0	22.2	526544	12.1	22.1	135119	12.2	19.5	357584	12.2	19.1	83643	12.3	19.2
532903	11.9	21.1	63892	12.0	17.8	497920	12.1	21.3	529128	12.2	20.0	413057	12.2	21.2	503847	12.3	20.2
461996	11.9	21.0	82891	12.0	17.2	288608	12.1	18.7	456306	12.2	21.8	29779	12.2	18.2	380339	12.3	20.3
514318	11.9	20.9	180649	12.0	19.4	536884	12.1	20.8	375921	12.2	20.9	10558	12.2	17.3	353468	12.3	19.6
453314	11.9	22.0	288712	12.0	20.4	432194	12.1	21.6	53388	12.2	18.7	180538	12.2	19.7	428420	12.3	20.7
377806	11.9	20.0	83961	12.0	17.3	390761	12.1	20.7	143679	12.2	19.8	330980	12.2	20.4	153769	12.3	20.6
348560	11.9	20.9	396619	12.0	20.9	69802	12.1	19.1	272623	12.2	20.2	225298	12.2	20.4	154920	12.3	19.0
206731	11.9	19.8	4130	12.0	16.5	8684	12.1	17.4	194637	12.2	20.3	127800	12.2	18.9	502871	12.3	21.2
407483	11.9	20.8	127555	12.0	19.5	83025	12.1	18.7	264186	12.2	20.4	164824	12.2	19.8	11064	12.3	18.5
119450	11.9	19.0	399247	12.0	20.5	258247	12.1	20.7	130826	12.2	19.8	121342	12.2	18.5	155642	12.3	19.5
300312	11.9	19.2	435231	12.0	21.3	459964	12.1	21.4	343145	12.2	20.6	268456	12.2	21.0	265642	12.3	20.3
346088	11.9	20.3	110652	12.0	19.8	496551	12.1	20.9	21244	12.2	17.6	435348	12.2	21.7	172003	12.3	19.6
200808	11.9	21.3	426338	12.0	20.2	455298	12.1	21.1	100223	12.2	19.6	456565	12.2	21.3	221108	12.3	19.7
534838	11.9	20.9	301216	12.0	20.7	189374	12.1	19.8	387305	12.2	21.2	389655	12.2	19.4	186155	12.3	20.1
347431	11.9	20.5	371239	12.0	21.2	224552	12.1	19.5	543294	12.2	20.0	42934	12.2	18.9	239802	12.3	19.0
93124	11.9	18.6	124137	12.0	19.3	313841	12.1	20.4	426774	12.2	20.6	55165	12.2	19.0	144339	12.3	20.0
67952	11.9	19.5	117939	12.0	19.9	81775	12.1	18.8	35016	12.2	19.0	235021	12.2	19.0	209113	12.3	20.3
88314	11.9	19.4	423111	12.0	21.3	514082	12.1	21.1	252020	12.2	19.1	422486	12.2	20.6	142662	12.3	19.0
451451	11.9	21.7	285089	12.0	20.4	332796	12.1	20.3	531574	12.2	23.3	294143	12.2	20.5	211194	12.3	19.2
437811	11.9	22.0	383396	12.0	20.3	192295	12.1	20.6	183237	12.2	21.0	318019	12.2	20.4	322369	12.3	20.1
255095	11.9	20.9	24378	12.0	18.9	344547	12.1	21.4	377260	12.2	19.5	331405	12.2	20.5	544403	12.3	20.7
59195	11.9	19.5	212574	12.0	19.5	498999	12.1	21.5	204199	12.2	20.4	201234	12.2	19.9	49280	12.3	18.9
317780	11.9	19.3	429919	12.0	20.4	536920	12.1	22.6	406150	12.2	21.2	443408	12.2	20.6	527187	12.3	22.5
333230	11.9	20.2	128545	12.0	19.9	535079	12.1	20.9	117000	12.2	18.9	358528	12.2	20.8	359177	12.3	20.2
428415	11.9	20.8	301703	12.0	19.9	36005	12.1	18.8	258408	12.2	20.5	178621	12.2	19.0	216892	12.3	19.4
156402	11.9	19.8	317422	12.0	20.8	470872	12.1	20.2	518654	12.2	20.1	471773	12.2	21.2	346953	12.3	19.7
146711	11.9	19.7	423471	12.0	21.8	284792	12.1	20.1	299945	12.2	21.4	451735	12.2	21.3	327389	12.3	20.5
182905	11.9	20.2	292209	12.0	20.8	302909	12.1	19.8	444140	12.2	21.5	265654	12.2	20.5	372567	12.3	21.0
20873	11.9	17.6	191932	12.0	19.4	400582	12.1	20.7	154909	12.2	19.8	509266	12.2	21.3	19812	12.3	18.1
169937	11.9	20.6	318849	12.0	20.3	132005	12.1	18.5	231571	12.2	20.9	108821	12.2	20.6	63707	12.3	18.6
306223	11.9	21.6	56175	12.0	17.5	138856	12.1	20.1	308819	12.2	20.1	534836	12.2	23.5	526124	12.3	22.1
537860	11.9	21.2	453047	12.0	21.8	55808	12.1	18.9	208688	12.2	19.3	32761	12.2	18.7	501449	12.3	21.1
147317	11.9	20.5	222774	12.0	19.1	340627	12.1	21.3	35643	12.2	17.9	325122	12.2	19.3	345341	12.3	21.0
324486	11.9	20.9	148707	12.0	19.6	115216	12.1	18.2	534595	12.2	20.6	456866	12.2	21.4	77850	12.3	18.8
88936	11.9	18.4	322828	12.0	21.0	420548	12.1	19.6	243910	12.2	20.2	324568	12.2	21.1	325011	12.3	21.0
78220	11.9	19.2	268615	12.0	21.1	432909	12.1	21.1	533994	12.2	20.8	468995	12.2	21.3	343011	12.3	20.6
33960	11.9	18.1	183995	12.0	20.0	36290	12.1	19.0	500576	12.2	21.3	490276	12.2	20.5	279104	12.3	20.4
258529	11.9	20.1	32513	12.0	18.8	242975	12.1	19.6	533593	12.2	20.9	234447	12.2	20.5	205557	12.3	20.5
171376	11.9	20.2	131358	12.0	19.7	167097	12.1	20.3	64580	12.2	18.9	320716	12.2	21.4	173944	12.3	21.0
383793	11.9	19.8	246230	12.1	20.2	531238	12.1	20.6	144262	12.2	19.7	208175	12.2	20.6	409917	12.3	23.0
34064	11.9	17.4	210558	12.1	19.2	538280	12.1	20.9	298905	12.2	21.5	435980	12.2	20.0	177082	12.3	19.3
538268	11.9	20.7	494256	12.1	20.4	292779	12.1	20.6	130952	12.2	18.9	465678	12.2	22.0	499468	12.3	20.1
204986	11.9	19.5	177378	12.1	18.9	543315	12.1	21.1	194437	12.2	20.7	292948	12.2	21.1	990	12.3	16.1
269614	11.9	20.6	267207	12.1	20.1	244184	12.1	20.6	375507	12.2	20.5	390022	12.2	20.3	422502	12.3	19.8
495642	11.9	21.1	501207	12.1	21.4	173148	12.1	19.8	421230	12.2	20.1	421529	12.2	20.6	125965	12.3	19.2
130473	11.9	19.2	346280	12.1	19.2	90024	12.1	19.7	8640	12.2	17.9	258112	12.2	21.4	74462	12.3	19.4
464023	11.9	20.5	524844	12.1	20.6	324530	12.1	20.2	249414	12.2	20.7	496408	12.2	20.4	232265	12.3	20.4
116828	11.9	18.9	156825	12.1	19.7	472668	12.1	21.3	465898	12.2	21.9	432910	12.2	20.2	30519	12.3	18.5
136555	11.9	19.8	326417	12.1	20.7	231095	12.1	19.3	208264	12.2	20.4	463837	12.2	21.4	31329	12.3	18.4
414820	11.9	20.6	383765	12.1	21.7	256320	12.1	20.2	502493	12.2	21.3	181686	12.2	19.8	37474	12.3	19.8
272708	11.9	21.0	349041	12.1	21.4	283017	12.1	20.2	524649	12.2	21.9	354505	12.2	20.0	14464	12.3	17.7
130703	11.9	19.5	275671	12.1	20.8	417245	12.1	21.6	206403	12.2	19.6	239	12.2	15.6	95534	12.3	19.3
420303	11.9	19.7	524606	12.1	22.2	413089	12.1	20.6	487539	12.2	21.0	148898	12.2	19.7	242113	12.3	20.9
155943	11.9	19.9	243125	12.1	19.9	150928	12.1	19.0	238937	12.2	20.4	32499	12.2	17.2	196886	12.3	19.6
374569	11.9	20.1	110425	12.1	19.8	464933	12.1	21.1	322128	12.2	20.2	522490	12.2	20.1	431953	12.3	19.4
208455	11.9	19.5	31321	12.1	18.3	221245	12.1	19.6	283012	12.2	20.0	45725	12.2	18.0	413971	12.3	21.8
506252	11.9	20.0	63514	12.1	19.2	197092	12.1	20.3	122150	12.2	19.4	313812	12.2	21.0	39114	12.3	19.0
542621	11.9	21.2	59884	12.1	19.0	291300	12.1	21.0	297464	12.2	20.9	349299	12.2	20.6	87913	12.3	18.3
282541	11.9	21.0	319721	12.1	20.9	89003	12.1	18.7	19836	12.2	18.4	532993	12.2	21.9	82140	12.3	18.7
417398	11.9	20.3	239501	12.1	20.7	32191	12.1	17.5	327445	12.2	20.2	320738	12.2	20.5	54599	12.3	19.0
360182	11.9	20.3	419607	12.1	21.6	90733	12.1	19.3	147415								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
465918	12.3	22.3	212412	12.4	20.0	156612	12.5	19.9	233660	12.5	20.1	200959	12.6	19.5	203619	12.7	21.2
317926	12.3	19.0	338443	12.4	19.7	251227	12.5	20.6	395722	12.5	21.3	511758	12.6	19.3	163784	12.7	20.1
435389	12.3	20.6	120528	12.4	19.6	102048	12.5	19.6	139644	12.5	20.2	3267	12.6	17.4	143529	12.7	19.5
456358	12.3	20.8	292658	12.4	20.0	337550	12.5	21.1	348985	12.5	21.0	263318	12.6	20.0	384202	12.7	20.8
210188	12.3	20.5	461346	12.4	21.6	491893	12.5	20.9	177637	12.5	18.5	239044	12.6	18.5	456570	12.7	20.9
11896	12.3	17.3	445926	12.4	20.7	233479	12.5	19.8	258212	12.5	21.1	397033	12.6	20.5	317595	12.7	20.2
20047	12.3	18.3	323139	12.4	20.6	491936	12.5	21.6	373426	12.5	21.1	150703	12.6	19.5	49507	12.7	18.4
373848	12.3	19.0	437501	12.4	20.8	54586	12.5	19.5	332173	12.5	20.4	12386	12.6	18.6	489286	12.7	21.4
343289	12.3	21.2	14049	12.4	18.0	215539	12.5	20.1	39308	12.5	19.4	427707	12.6	19.9	144491	12.7	18.4
273769	12.3	20.8	500375	12.4	20.9	531337	12.5	21.2	309464	12.5	19.6	518163	12.6	21.1	411464	12.7	21.5
520823	12.3	20.8	173133	12.4	20.1	176449	12.5	19.6	66759	12.5	18.4	266295	12.6	21.4	526067	12.7	21.8
464978	12.3	21.5	194722	12.4	19.0	98453	12.5	17.9	416763	12.5	19.3	37128	12.6	17.2	1254	12.7	15.0
381216	12.3	20.5	81554	12.4	18.7	160732	12.5	19.4	426720	12.5	21.1	493728	12.6	21.4	155989	12.7	20.1
75812	12.3	17.7	544395	12.4	21.8	120216	12.5	20.7	414011	12.5	19.9	495685	12.6	21.0	306366	12.7	20.7
352637	12.3	20.0	17878	12.4	16.6	526677	12.5	22.4	114708	12.5	18.7	170807	12.6	19.5	167346	12.7	18.5
183421	12.3	19.6	530542	12.4	20.9	83895	12.5	18.8	278164	12.5	19.2	459125	12.6	20.5	168553	12.7	19.6
418886	12.3	19.0	51335	12.4	18.5	500559	12.5	22.3	141706	12.5	18.9	357603	12.6	19.6	167741	12.7	21.0
222245	12.3	19.2	448113	12.4	20.7	36761	12.5	17.3	283567	12.5	21.7	321222	12.6	19.7	500677	12.7	21.3
429025	12.3	20.9	53015	12.4	19.3	384850	12.5	20.8	157981	12.5	19.3	206142	12.6	21.5	238432	12.7	18.7
8412	12.3	19.2	405308	12.4	20.8	283536	12.5	20.4	214917	12.5	20.6	499608	12.6	19.7	26169	12.7	17.2
327858	12.3	20.6	428950	12.4	20.2	322378	12.5	19.5	430769	12.5	22.0	369859	12.6	20.6	302065	12.7	21.2
7562	12.3	16.8	112185	12.4	19.1	18345	12.5	18.7	241098	12.5	19.2	110341	12.6	20.7	184163	12.7	19.7
156843	12.3	19.4	483460	12.4	19.4	162807	12.5	19.7	296918	12.5	20.5	453300	12.6	20.2	142380	12.7	20.4
344307	12.3	21.9	155850	12.4	18.4	492190	12.5	20.4	335509	12.5	20.3	123410	12.6	19.5	57648	12.7	18.6
464690	12.3	21.1	466574	12.4	21.7	135352	12.5	19.6	271390	12.5	20.5	88800	12.6	18.5	104856	12.7	18.5
212513	12.3	20.0	299880	12.4	20.6	319812	12.5	20.8	96578	12.5	19.4	170458	12.6	20.0	254008	12.7	19.5
348572	12.3	21.0	426908	12.4	19.9	542673	12.5	20.2	341270	12.5	20.3	12195	12.6	17.4	496505	12.7	20.1
117286	12.3	20.0	448155	12.4	20.4	40647	12.5	17.5	224503	12.5	20.5	472588	12.6	20.0	524308	12.7	20.2
14376	12.3	16.4	238166	12.4	19.6	312027	12.5	20.1	323474	12.5	20.1	195074	12.6	19.9	234408	12.7	19.5
121647	12.3	19.6	498788	12.4	21.3	299604	12.5	20.2	79486	12.5	19.5	363245	12.6	20.5	22791	12.7	18.4
328675	12.3	20.4	97009	12.4	20.4	384959	12.5	21.0	171923	12.5	21.0	508169	12.6	20.0	532423	12.7	21.6
427540	12.3	20.5	292911	12.4	21.6	170147	12.5	20.1	93686	12.5	20.0	416955	12.6	19.9	468665	12.7	20.3
130783	12.3	18.7	496485	12.4	21.4	170271	12.5	20.3	241420	12.5	20.4	534983	12.6	20.5	140577	12.7	19.7
274321	12.3	20.4	206225	12.4	20.0	302933	12.5	19.2	529576	12.5	20.9	350441	12.6	21.4	218684	12.7	21.2
105881	12.4	20.1	463335	12.4	20.1	495841	12.5	21.3	525595	12.5	23.0	189459	12.6	21.2	528590	12.7	22.0
167176	12.4	20.2	240059	12.4	20.9	117960	12.5	19.6	384597	12.6	20.0	458826	12.6	21.3	413598	12.7	19.6
538670	12.4	21.8	413912	12.4	20.2	137100	12.5	18.0	51340	12.6	18.9	392194	12.6	20.9	58246	12.7	18.5
380048	12.4	21.4	18197	12.4	17.1	1439	12.5	16.2	431567	12.6	21.6	419176	12.6	20.7	335002	12.7	20.5
526691	12.4	21.4	533796	12.4	20.9	417022	12.5	20.3	285349	12.6	21.0	162600	12.6	19.6	5822	12.7	17.4
513105	12.4	20.6	340834	12.4	20.1	120685	12.5	20.6	126348	12.6	19.9	524990	12.6	21.1	53856	12.7	18.9
468231	12.4	20.8	241692	12.4	20.3	212400	12.5	19.1	328585	12.6	19.6	279863	12.6	19.7	381668	12.7	20.9
90568	12.4	19.8	2771	12.4	15.9	292424	12.5	20.6	39479	12.6	18.9	496720	12.6	21.9	470037	12.7	21.2
87757	12.4	19.6	384553	12.4	19.6	285619	12.5	19.9	31870	12.6	17.6	382789	12.6	22.6	465193	12.7	20.7
377550	12.4	19.9	239680	12.4	20.4	398212	12.5	21.0	188016	12.6	20.9	34914	12.6	19.4	526135	12.7	20.3
34497	12.4	17.9	323060	12.4	22.4	455014	12.5	21.6	118197	12.6	20.1	439753	12.6	20.4	530200	12.7	21.1
98020	12.4	19.1	340799	12.4	20.3	323953	12.5	20.0	444364	12.6	21.1	287425	12.6	21.0	346724	12.7	20.7
167593	12.4	19.4	81419	12.4	18.3	413106	12.5	21.6	187175	12.6	19.8	456693	12.6	21.2	528763	12.7	22.0
303424	12.4	20.1	534034	12.4	22.0	39552	12.5	18.6	27824	12.6	18.8	140660	12.6	18.2	157137	12.7	18.4
288990	12.4	19.9	328735	12.4	19.5	85998	12.5	17.9	17077	12.6	17.9	269934	12.6	20.7	493758	12.7	21.1
302458	12.4	20.4	525077	12.4	20.9	89083	12.5	18.9	267490	12.6	19.5	459341	12.6	19.7	118474	12.7	19.6
55647	12.4	19.7	327981	12.4	20.1	489522	12.5	20.8	337899	12.6	20.3	114426	12.6	18.8	429184	12.7	21.9
234041	12.4	20.5	511584	12.4	20.4	433111	12.5	21.5	325228	12.6	20.8	437230	12.6	21.3	534722	12.7	21.2
256296	12.4	20.7	390553	12.4	21.0	290393	12.5	20.0	371664	12.6	20.2	254863	12.6	18.9	84793	12.7	18.8
286340	12.4	20.4	432508	12.4	20.6	21030	12.5	18.1	370831	12.6	20.7	8159	12.6	18.0	385301	12.7	21.8
206086	12.4	19.8	509207	12.4	21.2	203449	12.5	20.3	350020	12.6	20.2	343648	12.6	20.1	66870	12.7	18.4
465953	12.4	20.7	305941	12.4	19.9	525580	12.5	20.5	292516	12.6	20.4	269175	12.6	20.9	151902	12.7	19.8
245749	12.4	20.5	130773	12.4	18.9	405315	12.5	20.2	428483	12.6	19.5	541104	12.6	19.8	536921	12.7	22.7
151667	12.4	19.9	272925	12.4	21.4	412805	12.5	19.9	336008	12.6	21.0	14983	12.6	18.6	216206	12.7	19.7
89374	12.4	18.4	266297	12.4	19.7	276276	12.5	21.5	533680	12.6	20.8	52692	12.6	15.9	465673	12.7	22.1
143661	12.4	20.6	291767	12.4	19.1	351869	12.5	21.0	318189	12.6	20.3	523715	12.6	21.9	421003	12.7	21.1
241085	12.4	20.5	160804	12.4	19.4	309348	12.5	21.9	229608	12.6	19.0	58624	12.6	18.9	378320	12.7	19.2
303529	12.4	21.7	350019	12.4	20.9	264248	12.5	22.0	362074	12.6	20.9	500717	12.6	20.6	97885	12.7	19.4
440403	12.4	21.3	96991	12.4	19.2	401119	12.5	20.7	337871	12.6	21.5	502843	12.6	20.7	167062	12.7	20.3
141556	12.4	19.0	533008	12.4	21.6	119098	12.5	18.6	403004	12.6	20.4	271719	12.6	20.6	341377	12.7	20.9
242951	12.4	20.4	345662	12.4	21.4	321541	12.5	21.0	474067	12.6	20.6	281141	12.6	20.0	126115	12.7	20.2
154358	12.4	20.1	28333	12.4	17.8	20385	12.5	17.5	280780	12.6	20.9	110065	12.7	18.2	419202	12.7	22.1
397838	12.4	20.5	371695	12.4	20.2	443638	12.5	20.6	369446	12.6	20.9	173826	12.7	20.8	209664	12.7	19.0
153809	12.4	19.5	29979	12.4	18.1	235296	12.5	18.9	381199	12.6	20.9	301358	12.7	20.9	223779	12.7	20.4
93331	12.4	20.4	290914	12.4	20.5	55129	12.5	18.9	53906								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
325715	12.7	21.2	315641	12.8	20.6	429324	12.8	20.3	527780	12.9	20.8	58138	12.9	20.1	531340	13.1	21.4
186152	12.7	20.3	4685	12.8	17.6	272568	12.9	21.1	304587	12.9	19.8	354395	12.9	19.8	417109	13.1	20.9
535347	12.7	21.4	461169	12.8	21.5	425251	12.9	21.4	48277	12.9	18.0	424647	12.9	20.9	489757	13.1	21.4
92445	12.7	18.4	327958	12.8	20.6	464368	12.9	21.3	136147	12.9	19.5	242579	12.9	20.6	411527	13.1	20.8
256218	12.7	20.8	64697	12.8	18.4	352744	12.9	20.1	467142	12.9	20.6	292614	12.9	19.5	62066	13.1	18.4
496665	12.7	19.6	190334	12.8	20.6	208398	12.9	20.9	260110	12.9	19.7	349657	12.9	20.9	518846	13.1	20.5
268156	12.7	20.8	222151	12.8	19.1	468919	12.9	21.0	496369	12.9	21.4	489171	12.9	19.9	340833	13.1	20.6
85702	12.7	19.1	309255	12.8	19.2	226201	12.9	20.6	126284	12.9	18.5	358563	12.9	20.2	541865	13.1	21.5
530112	12.7	20.7	444331	12.8	21.4	39568	12.9	19.6	262221	12.9	20.5	205670	12.9	20.5	337721	13.1	21.2
218360	12.7	19.0	418367	12.8	19.4	544518	12.9	19.9	497831	12.9	21.0	544497	12.9	21.8	190840	13.1	20.2
266997	12.7	19.9	433041	12.8	20.6	491725	12.9	20.9	34460	12.9	18.5	491869	12.9	21.6	384160	13.1	21.3
508976	12.7	20.3	155815	12.8	20.2	366853	12.9	20.5	22100	12.9	18.0	406514	12.9	20.6	392524	13.1	20.6
373382	12.7	20.4	97861	12.8	20.0	191586	12.9	19.9	434443	12.9	20.3	145825	12.9	21.5	464352	13.1	20.9
426328	12.7	19.7	43961	12.8	18.8	60406	12.9	18.9	433013	12.9	20.7	119883	12.9	19.5	432217	13.1	21.0
29787	12.7	18.2	302937	12.8	20.0	123023	12.9	18.8	355881	12.9	20.8	4764	12.9	16.8	256247	13.1	20.7
80294	12.7	19.2	128093	12.8	19.7	68382	12.9	18.5	380016	12.9	20.4	31962	12.9	17.3	17285	13.1	17.4
117263	12.7	19.1	451438	12.8	21.2	166978	12.9	19.0	351616	12.9	21.1	373764	12.9	20.4	304540	13.1	19.5
543916	12.7	21.8	46464	12.8	19.4	378539	12.9	20.5	281847	12.9	19.8	239794	12.9	20.2	141154	13.1	19.2
32858	12.7	18.1	469020	12.8	20.4	463282	12.9	23.1	403683	12.9	21.4	364600	12.9	20.7	306333	13.1	19.6
108410	12.7	19.3	424343	12.8	20.9	1373	12.9	18.1	233443	12.9	20.6	455396	12.9	22.6	390215	13.1	20.2
500745	12.7	22.0	405034	12.8	21.1	227563	12.9	20.1	65148	12.9	18.9	330099	12.9	21.8	208476	13.1	19.5
5873	12.7	16.9	244090	12.8	19.8	306111	12.9	19.8	329404	12.9	19.8	194669	12.9	19.4	208261	13.1	20.7
469240	12.7	20.5	541147	12.8	19.6	529768	12.9	20.8	121412	12.9	19.5	143356	13.0	19.7	387832	13.1	19.2
350630	12.7	21.0	338909	12.8	20.3	133864	12.9	18.9	6778	12.9	16.9	54278	13.0	17.7	292683	13.1	21.2
309381	12.7	19.8	205326	12.8	19.9	267761	12.9	19.5	306017	12.9	20.9	355314	13.0	20.0	285951	13.1	21.1
360802	12.7	19.3	341063	12.8	19.0	544059	12.9	21.1	50951	12.9	19.1	388271	13.0	22.0	336725	13.1	20.7
56299	12.7	18.3	462943	12.8	21.2	375847	12.9	21.0	136473	12.9	19.3	389985	13.0	19.7	164339	13.1	19.8
304936	12.7	22.0	283915	12.8	19.2	299791	12.9	21.4	152890	12.9	20.5	542123	13.0	21.0	210310	13.1	19.2
323987	12.7	20.6	274169	12.8	20.1	210973	12.9	20.5	490150	12.9	21.5	499083	13.0	20.4	305394	13.1	20.9
232843	12.7	20.6	44868	12.8	18.2	43598	12.9	18.9	127735	12.9	18.0	239421	13.0	19.4	53916	13.1	18.6
164311	12.7	20.0	6084	12.8	17.3	504164	12.9	20.7	28305	12.9	18.6	42110	13.0	18.9	270240	13.1	20.7
529063	12.7	22.5	207592	12.8	20.7	208944	12.9	20.2	532407	12.9	21.0	90936	13.0	19.0	172042	13.1	20.1
421111	12.7	20.4	344348	12.8	20.4	500223	12.9	20.7	272912	12.9	20.5	221105	13.0	19.1	288674	13.1	20.3
499989	12.7	21.9	90539	12.8	19.1	59652	12.9	18.5	377159	12.9	21.3	376322	13.0	20.7	413686	13.1	20.8
408697	12.7	19.9	55295	12.8	19.2	329983	12.9	21.3	176168	12.9	18.4	530250	13.0	21.3	32561	13.1	19.4
458422	12.8	19.8	316577	12.8	20.8	111120	12.9	18.8	11660	12.9	18.2	240860	13.0	20.2	324534	13.1	20.2
201486	12.8	18.7	23727	12.8	17.0	278760	12.9	20.6	259191	12.9	20.2	11021	13.0	17.6	50135	13.1	19.0
436707	12.8	21.1	64081	12.8	19.1	460258	12.9	20.4	105460	12.9	19.7	167681	13.0	20.1	163375	13.1	19.3
56548	12.8	18.7	453150	12.8	21.4	325246	12.9	20.9	543534	12.9	21.3	247103	13.0	19.3	349908	13.1	19.8
240071	12.8	19.8	88731	12.8	19.2	63911	12.9	19.1	208442	12.9	20.7	190324	13.0	20.0	41179	13.1	18.7
489030	12.8	21.7	33914	12.8	18.6	98504	12.9	19.6	532450	12.9	21.1	398342	13.0	21.0	319825	13.1	20.5
182121	12.8	19.4	207651	12.8	19.4	497276	12.9	21.0	535933	12.9	21.3	169353	13.0	19.6	327882	13.1	20.1
532799	12.8	21.1	135244	12.8	19.4	3202	12.9	16.8	114161	12.9	19.9	432165	13.0	21.2	146096	13.1	20.2
68449	12.8	19.8	534763	12.8	21.2	235048	12.9	19.7	170402	12.9	19.8	455155	13.0	20.7	406228	13.1	21.5
36759	12.8	17.1	202710	12.8	19.1	299407	12.9	18.8	509387	12.9	20.7	354706	13.0	19.6	142463	13.1	20.6
145721	12.8	19.5	381637	12.8	20.7	241298	12.9	20.8	353443	12.9	20.9	302259	13.0	20.5	468256	13.1	20.7
530326	12.8	21.1	246016	12.8	20.5	246398	12.9	21.0	181896	12.9	19.2	216076	13.0	21.3	26335	13.1	18.0
80300	12.8	19.7	530029	12.8	22.4	288765	12.9	19.6	349238	12.9	20.9	136347	13.0	19.8	109339	13.1	19.7
529389	12.8	19.8	432176	12.8	20.6	149923	12.9	20.3	34235	12.9	17.3	285887	13.0	20.9	427379	13.1	21.2
69011	12.8	19.5	231952	12.8	20.4	163499	12.9	20.4	455306	12.9	20.8	356957	13.0	20.5	283094	13.1	20.6
235689	12.8	20.5	210881	12.8	20.4	455227	12.9	21.0	496416	12.9	20.5	62435	13.0	18.8	56738	13.1	18.9
523697	12.8	21.9	268100	12.8	20.4	88166	12.9	19.7	429043	12.9	20.8	407013	13.0	21.3	379129	13.1	20.2
96869	12.8	18.7	290227	12.8	20.4	292131	12.9	20.6	338928	12.9	19.3	426475	13.0	21.0	505035	13.1	21.2
175990	12.8	20.4	292143	12.8	20.6	249690	12.9	20.0	376161	12.9	21.2	376606	13.0	19.8	450246	13.1	19.1
497789	12.8	21.3	318069	12.8	19.0	459141	12.9	20.7	400307	12.9	20.5	496288	13.0	21.1	459712	13.1	19.7
264426	12.8	20.3	341274	12.8	21.1	459108	12.9	21.9	497851	12.9	21.1	25513	13.0	16.8	473002	13.1	20.1
82450	12.8	19.3	61943	12.8	18.2	508223	12.9	21.0	370766	12.9	21.8	58494	13.0	18.6	204190	13.1	19.7
41835	12.8	18.8	503752	12.8	20.6	82124	12.9	16.9	518220	12.9	20.4	61641	13.0	18.2	432231	13.1	19.5
136028	12.8	19.3	437602	12.8	20.8	100078	12.9	19.7	329373	12.9	20.8	317061	13.0	20.1	425012	13.1	20.5
398019	12.8	21.7	143743	12.8	19.6	145245	12.9	19.0	16094	12.9	18.5	60707	13.0	19.0	331921	13.1	20.9
42977	12.8	18.9	136090	12.8	19.5	534819	12.9	20.1	405373	12.9	20.3	430004	13.0	22.4	543257	13.1	20.4
532355	12.8	21.3	140881	12.8	20.3	541595	12.9	21.3	351596	12.9	21.5	266428	13.0	20.3	544834	13.1	20.4
504213	12.8	21.7	280763	12.8	19.9	392251	12.9	21.6	469162	12.9	20.3	62136	13.0	18.6	74492	13.1	18.8
381950	12.8	18.9	109365	12.8	20.3	434942	12.9	20.9	495515	12.9	19.9	369434	13.0	21.8	287166	13.1	21.0
323154	12.8	19.8	526147	12.8	20.7	30135	12.9	17.2	79779	12.9	20.4	203910	13.0	19.0	34855	13.1	18.4
47217	12.8	18.1	51093	12.8	17.2	467085	12.9	20.4	181687	12.9	20.2	430467	13.0	21.3	135142	13.1	19.8
519598	12.8	20.8	103308	12.8	19.8	93123	12.9	19.1	296132	12.9	21.3	25371	13.0	18.9	191257	13.1	19.8
170249	12.8	20.0	109604	12.8	19.2	60393	12.9	17.1	440682	12.9	21.2	24790	13.0	18.4	288286	13.1	19.8
253056	12.8	20.5	367365	12.8	20.5	27494	12.9	16.9	334875	12.9							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
25847	13.1	18.1	433081	13.2	20.6	370709	13.2	21.1	513385	13.3	20.7	207948	13.4	20.4	233119	13.4	21.3
170697	13.1	20.3	169219	13.2	20.2	297930	13.2	19.6	29864	13.3	17.0	158847	13.4	18.8	84789	13.4	19.8
168028	13.1	19.7	269390	13.2	22.0	532640	13.2	21.1	301543	13.3	20.4	262850	13.4	20.1	350584	13.4	20.6
167948	13.1	19.6	163420	13.2	19.3	346167	13.2	21.7	327282	13.3	20.7	156831	13.4	18.5	171303	13.4	20.0
157607	13.1	18.3	5887	13.2	16.6	530747	13.2	21.8	206236	13.3	20.2	159433	13.4	19.4	166588	13.4	20.9
519507	13.1	21.1	381630	13.2	20.1	204465	13.2	20.2	323452	13.3	18.9	536071	13.4	20.6	506659	13.4	20.7
459278	13.1	20.8	104005	13.2	19.6	53311	13.2	22.9	329992	13.3	20.5	278106	13.4	19.8	508861	13.4	25.2
544647	13.1	21.3	221335	13.2	20.2	531653	13.2	21.3	534906	13.3	21.6	160829	13.4	20.4	221150	13.4	20.2
429828	13.1	21.0	97812	13.2	18.9	363522	13.2	21.0	525313	13.3	20.7	430111	13.4	20.7	135213	13.4	19.4
305860	13.1	19.7	489659	13.2	20.6	29796	13.2	16.7	465663	13.3	21.7	243839	13.4	19.9	226255	13.4	19.8
230818	13.1	19.2	301308	13.2	21.5	537896	13.2	19.5	37818	13.3	19.5	459241	13.4	20.3	292254	13.4	21.2
138357	13.1	18.5	78739	13.2	18.9	465769	13.2	21.1	354542	13.3	21.6	106228	13.4	19.9	461700	13.4	21.3
225548	13.1	19.9	440424	13.2	20.7	147223	13.2	19.0	544960	13.3	21.2	525765	13.4	22.1	535159	13.4	22.5
98565	13.1	20.3	281380	13.2	19.7	506453	13.2	22.4	292298	13.3	20.7	94958	13.4	19.4	238687	13.4	19.5
327308	13.1	20.8	306860	13.2	20.5	155255	13.2	20.0	488485	13.3	20.5	352065	13.4	21.3	527095	13.4	20.9
415280	13.1	20.4	21624	13.2	18.2	221753	13.2	19.9	284627	13.3	20.9	415464	13.4	21.1	12026	13.5	18.0
61584	13.1	17.8	369298	13.2	21.1	543980	13.2	21.7	258064	13.3	19.0	528788	13.4	21.7	55947	13.5	17.9
514589	13.1	20.7	532448	13.2	20.9	498902	13.3	21.9	420028	13.3	20.6	34675	13.4	18.4	93782	13.5	18.9
372651	13.1	21.0	380404	13.2	20.6	15505	13.3	16.6	13907	13.3	17.7	264548	13.4	21.4	456408	13.5	20.8
397447	13.1	20.1	286164	13.2	20.2	148954	13.3	19.5	497279	13.3	21.4	286083	13.4	21.4	52238	13.5	17.9
526530	13.1	20.8	432074	13.2	22.2	456731	13.3	22.0	101552	13.3	19.6	27053	13.4	18.3	30109	13.5	18.1
48895	13.1	16.8	370725	13.2	21.6	175999	13.3	20.4	237669	13.3	20.0	202898	13.4	19.4	268879	13.5	19.3
65953	13.1	17.3	213351	13.2	20.4	383799	13.3	20.8	537030	13.3	20.4	286600	13.4	19.3	495890	13.5	20.5
257658	13.1	20.2	461032	13.2	20.7	319088	13.3	19.4	132799	13.3	19.9	286073	13.4	20.7	146331	13.5	19.9
402509	13.1	20.2	173929	13.2	20.5	82248	13.3	16.9	238740	13.3	19.4	368779	13.4	21.4	269585	13.5	20.8
380352	13.1	20.9	292830	13.2	20.2	497809	13.3	20.8	31616	13.3	16.9	136546	13.4	19.0	473719	13.5	18.3
341880	13.1	19.9	544512	13.2	20.1	381250	13.3	21.3	526853	13.3	20.7	14136	13.4	17.5	283115	13.5	20.6
12949	13.1	16.5	80163	13.2	19.1	95368	13.3	20.0	492407	13.3	19.8	500428	13.4	22.0	144426	13.5	19.3
498776	13.1	20.4	302031	13.2	21.0	176854	13.3	20.3	109090	13.3	19.3	39074	13.4	18.4	215486	13.5	20.0
448252	13.1	21.2	226779	13.2	20.0	216798	13.3	20.7	457145	13.3	19.1	199143	13.4	19.4	173398	13.5	20.4
500452	13.1	21.4	225189	13.2	20.2	214871	13.3	20.3	240732	13.3	20.4	534466	13.4	21.5	495632	13.5	19.7
31278	13.1	19.2	128451	13.2	19.5	147960	13.3	18.9	170127	13.3	19.4	96021	13.4	20.1	29161	13.5	17.0
347694	13.1	20.9	444429	13.2	20.8	23200	13.3	17.3	495407	13.3	21.7	16563	13.4	17.6	93577	13.5	19.9
135046	13.1	18.7	138816	13.2	19.9	188653	13.3	20.5	387038	13.3	19.9	321426	13.4	20.2	341882	13.5	20.1
432039	13.1	21.3	436658	13.2	20.8	214827	13.3	19.8	322821	13.3	20.9	258086	13.4	20.4	81793	13.5	19.2
538566	13.1	21.2	486121	13.2	22.0	445124	13.3	21.7	50541	13.3	18.8	360449	13.4	20.1	167684	13.5	19.4
118231	13.1	20.8	65952	13.2	18.9	349020	13.3	20.5	109646	13.3	20.1	125584	13.4	19.1	538781	13.5	21.2
9412	13.1	17.3	500448	13.2	20.6	424638	13.3	20.9	204871	13.3	20.6	402098	13.4	21.2	64177	13.5	18.5
159739	13.1	19.1	460415	13.2	20.0	1617	13.3	15.1	279614	13.3	18.5	30258	13.4	17.8	98734	13.5	19.6
132025	13.1	19.5	187737	13.2	20.2	154774	13.3	20.0	70887	13.3	18.8	105919	13.4	19.5	239301	13.5	19.9
32704	13.1	16.4	286672	13.2	20.3	496671	13.3	19.8	283929	13.3	20.8	208967	13.4	20.8	84979	13.5	19.1
534715	13.1	21.5	284388	13.2	20.3	285774	13.3	19.7	334944	13.3	20.6	41746	13.4	18.9	53789	13.5	19.6
201525	13.1	19.0	27346	13.2	20.3	503601	13.3	20.5	296458	13.3	20.3	437591	13.4	21.1	504135	13.5	21.5
209088	13.1	19.9	312570	13.2	19.6	6959	13.3	16.4	511576	13.3	20.8	172523	13.4	20.2	421025	13.5	20.4
456760	13.1	20.1	286259	13.2	20.5	282201	13.3	20.1	253044	13.3	21.2	262922	13.4	19.5	19589	13.5	17.3
163587	13.1	19.6	529107	13.2	22.2	330859	13.3	21.5	108867	13.3	19.3	517631	13.4	21.5	509664	13.5	20.0
338311	13.1	20.3	526101	13.2	22.3	345364	13.3	21.3	94691	13.3	19.2	230902	13.4	20.4	9000	13.5	16.1
97673	13.1	18.3	307600	13.2	20.4	458830	13.3	21.3	63592	13.3	19.1	238338	13.4	19.8	140447	13.5	20.6
413712	13.1	21.0	292073	13.2	20.6	500010	13.3	21.6	492044	13.3	20.5	240283	13.4	20.2	88041	13.5	19.1
443955	13.1	19.5	226612	13.2	19.7	208364	13.3	20.7	170863	13.3	19.1	541897	13.4	21.2	292210	13.5	20.4
375649	13.1	21.3	544042	13.2	21.4	411798	13.3	20.8	377170	13.3	20.6	57013	13.4	18.7	264688	13.5	21.1
423447	13.1	21.2	328721	13.2	20.6	354936	13.3	20.6	243110	13.3	20.4	436678	13.4	20.3	17305	13.5	18.0
500733	13.1	21.3	329320	13.2	20.6	372589	13.3	21.0	527332	13.3	21.9	55123	13.4	19.4	32054	13.5	17.0
359104	13.1	20.0	292792	13.2	20.7	130463	13.3	19.4	283535	13.3	20.9	542887	13.4	20.4	125932	13.5	19.4
47810	13.2	19.5	192323	13.2	19.8	538302	13.3	21.1	271289	13.3	20.6	222325	13.4	19.8	419480	13.5	19.8
423514	13.2	20.8	498815	13.2	21.3	179902	13.3	20.1	209753	13.3	20.3	246312	13.4	20.8	58791	13.5	18.5
238410	13.2	19.2	128426	13.2	20.0	231983	13.3	20.0	70260	13.3	19.6	299905	13.4	20.2	438417	13.5	21.0
53839	13.2	18.7	49109	13.2	18.9	103242	13.3	18.0	327310	13.3	20.3	218371	13.4	19.8	544577	13.5	19.8
151114	13.2	20.1	52240	13.2	18.5	288806	13.3	18.5	189527	13.3	19.4	410014	13.4	21.7	337413	13.5	19.8
22320	13.2	17.5	426243	13.2	20.6	155350	13.3	20.0	340116	13.4	20.1	350656	13.4	20.8	93589	13.5	19.3
526003	13.2	21.8	18961	13.2	19.2	307461	13.3	21.6	544682	13.4	20.7	1392	13.4	16.5	414875	13.5	20.8
187757	13.2	20.1	455400	13.2	20.9	142562	13.3	20.1	149488	13.4	19.6	283599	13.4	20.6	45695	13.5	19.0
529277	13.2	22.4	129479	13.2	19.6	130539	13.3	19.6	236219	13.4	20.7	20577	13.4	18.0	321306	13.5	20.4
26885	13.2	17.0	193266	13.2	20.4	151020	13.3	19.5	490651	13.4	20.1	529150	13.4	20.5	125930	13.5	19.3
283948	13.2	20.8	472749	13.2	20.3	381634	13.3	21.4	324447	13.4	21.7	148483	13.4	19.0	501403	13.5	22.4
382697	13.2	21.4	103342	13.2	19.7	216083	13.3	20.4	455794	13.4	21.5	434808	13.4	20.8	370819	13.5	21.5
164800	13.2	18.4	203501	13.2	19.5	417299	13.3	20.0	262651	13.4	21.2	299310	13.4	20.6	433262	13.5	20.2
282642	13.2	20.4	111281	13.2	19.0	110903	13.3	19.2	403592	13.4	20.6	445032	13.4	21.3	424808	13.5	20.9
441633	13.2	22.0	433837	13.2	20.4	79994	13.3	19.1	237430								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
509194	13.5	22.3	78541	13.6	19.0	126267	13.6	19.3	197106	13.7	20.6	376405	13.8	19.6	135122	13.8	19.5
368273	13.5	20.8	430285	13.6	20.7	271120	13.6	19.8	427734	13.7	21.1	33255	13.8	18.0	434937	13.8	20.0
498395	13.5	21.7	35579	13.6	18.4	359238	13.6	20.0	133456	13.7	19.7	466196	13.8	20.3	122843	13.8	19.8
330101	13.5	20.8	239878	13.6	19.9	93603	13.6	19.4	113722	13.7	19.8	1568	13.8	16.1	253228	13.8	20.4
409918	13.5	21.1	55772	13.6	18.8	142690	13.6	19.9	471880	13.7	21.0	82631	13.8	18.4	435968	13.8	21.0
205435	13.5	18.8	496404	13.6	21.2	419036	13.6	20.7	294883	13.7	21.2	190407	13.8	19.7	369397	13.8	21.4
53978	13.5	18.4	430692	13.6	22.6	500331	13.6	21.4	108449	13.7	19.1	375343	13.8	20.9	531772	13.8	21.0
177425	13.5	19.7	109301	13.6	19.0	534101	13.6	22.0	160900	13.7	21.3	193868	13.8	19.7	338948	13.8	20.0
227966	13.5	19.7	318081	13.6	17.2	52685	13.6	18.1	138634	13.7	20.2	180247	13.8	20.6	311358	13.8	20.1
71644	13.5	18.1	432113	13.6	20.6	319737	13.6	21.2	84730	13.7	19.4	462017	13.8	22.7	210133	13.8	20.1
453318	13.5	22.4	179053	13.6	19.6	374006	13.6	22.6	531942	13.7	22.4	149328	13.8	19.6	207865	13.8	19.0
88165	13.5	19.3	71755	13.6	18.8	379006	13.6	21.0	31407	13.7	17.5	304880	13.8	21.7	48767	13.8	18.8
186669	13.5	19.9	108564	13.6	18.7	429743	13.6	19.5	108918	13.7	18.8	472582	13.8	21.1	79799	13.8	19.3
537010	13.5	20.9	192732	13.6	20.6	1420	13.6	15.8	113885	13.7	19.2	55950	13.8	18.8	246414	13.8	19.5
63888	13.5	18.7	380565	13.6	20.6	427730	13.6	21.7	195112	13.7	20.3	291356	13.8	21.3	323473	13.8	19.5
590	13.5	14.6	534343	13.6	21.8	122419	13.6	20.2	170832	13.7	19.9	434192	13.8	21.1	96011	13.8	20.3
400309	13.5	20.5	312281	13.6	20.2	14572	13.6	18.1	29531	13.7	17.8	315516	13.8	20.4	488506	13.8	20.8
401510	13.5	20.5	18047	13.6	17.1	212871	13.6	20.9	90087	13.7	18.8	336387	13.8	20.0	544711	13.8	21.4
341514	13.5	20.9	252430	13.6	20.9	118108	13.6	20.5	347928	13.7	20.7	17484	13.8	18.7	51341	13.8	18.9
306503	13.5	21.4	498229	13.6	21.0	368782	13.6	20.4	297457	13.7	21.2	362326	13.8	20.4	401021	13.8	20.7
230496	13.5	20.2	272774	13.6	20.1	174440	13.6	19.1	386553	13.7	20.2	307379	13.8	19.6	374147	13.8	20.2
232130	13.5	19.5	498807	13.6	21.5	343221	13.6	20.7	543991	13.7	20.8	282159	13.8	19.6	420043	13.8	22.8
387174	13.5	21.2	87681	13.6	18.4	505291	13.6	19.6	411914	13.7	21.1	346098	13.8	20.9	51042	13.8	18.2
90158	13.5	18.3	65096	13.6	19.4	64299	13.6	20.1	228588	13.7	20.6	46582	13.8	19.2	419908	13.8	21.5
268550	13.5	20.5	335912	13.6	21.3	75083	13.6	18.7	154124	13.7	19.8	221968	13.8	20.3	359713	13.8	21.1
389631	13.5	19.9	268593	13.6	20.9	503199	13.6	20.7	376580	13.7	20.5	232433	13.8	19.1	292744	13.8	21.0
128507	13.5	20.9	145779	13.6	18.0	163361	13.6	19.7	51778	13.7	17.3	532910	13.8	22.1	533911	13.8	21.4
282176	13.5	19.4	469000	13.6	21.1	164172	13.6	20.1	17564	13.7	18.7	6914	13.8	14.8	133528	13.8	19.7
426354	13.5	20.4	377368	13.6	20.1	457102	13.6	21.5	529326	13.7	22.0	292885	13.8	21.0	458847	13.8	21.4
170408	13.5	20.5	534681	13.6	21.5	233247	13.6	20.6	19061	13.7	18.8	69147	13.8	17.9	291298	13.8	20.5
534598	13.5	22.0	506637	13.6	21.4	82050	13.6	17.8	440242	13.7	22.8	12129	13.8	16.8	183258	13.8	20.2
82980	13.5	20.5	96697	13.6	17.8	338102	13.6	20.2	172392	13.7	19.4	111054	13.8	19.9	143486	13.8	18.7
6784	13.5	17.4	202304	13.6	20.9	220463	13.7	19.7	337734	13.7	21.2	253916	13.8	19.2	134068	13.8	19.6
534562	13.5	22.5	130862	13.6	19.2	108695	13.7	20.2	485549	13.7	20.1	246277	13.8	20.9	463006	13.8	19.9
455498	13.5	22.0	262819	13.6	20.2	528371	13.7	21.3	307627	13.7	19.8	303311	13.8	19.8	409892	13.8	19.9
299336	13.5	20.0	376284	13.6	20.1	372431	13.7	20.7	300141	13.7	21.5	383750	13.8	20.1	263974	13.8	18.7
5905	13.5	17.0	381510	13.6	20.8	174242	13.7	20.3	245693	13.7	19.9	30494	13.8	17.5	23034	13.8	17.5
61753	13.5	19.5	462861	13.6	21.6	253141	13.7	20.6	135363	13.7	19.0	125908	13.8	19.2	375849	13.8	20.6
356489	13.5	19.6	109300	13.6	19.5	427006	13.7	21.5	116231	13.7	19.3	487669	13.8	21.2	491698	13.8	22.1
187351	13.5	20.1	396741	13.6	20.4	390696	13.7	22.1	5008	13.7	15.1	404510	13.8	20.1	470021	13.9	22.1
377266	13.5	21.3	426578	13.6	21.2	111632	13.7	19.6	423622	13.7	20.1	538451	13.8	21.2	233907	13.9	20.4
500047	13.5	20.9	363587	13.6	19.8	1218	13.7	15.9	17653	13.7	18.1	513876	13.8	20.7	412682	13.9	20.4
306445	13.5	21.5	61405	13.6	19.3	531436	13.7	22.6	109438	13.7	19.1	37560	13.8	18.4	495843	13.9	21.1
22602	13.5	17.5	129691	13.6	20.4	364447	13.7	20.9	202142	13.7	20.3	94515	13.8	18.8	433673	13.9	19.9
170468	13.5	19.2	271090	13.6	20.6	409002	13.7	21.5	351468	13.7	20.7	119763	13.8	19.7	108785	13.9	19.5
327267	13.5	20.9	222588	13.6	19.6	98472	13.7	19.0	13564	13.7	18.3	230811	13.8	19.0	337640	13.9	20.3
225021	13.5	19.4	406662	13.6	20.7	56042	13.7	17.1	225302	13.7	21.2	304111	13.8	20.9	133464	13.9	18.9
449139	13.5	21.7	296181	13.6	20.3	321245	13.7	21.1	166709	13.7	19.4	94804	13.8	18.7	390966	13.9	20.8
202775	13.5	20.2	389735	13.6	21.4	33221	13.7	16.7	324551	13.7	20.3	244730	13.8	20.4	319181	13.9	20.6
62202	13.5	18.4	532792	13.6	21.6	133957	13.7	20.6	296180	13.7	20.0	503212	13.8	20.9	194312	13.9	20.9
9908	13.5	17.7	441859	13.6	21.1	206905	13.7	18.9	21603	13.7	17.1	351952	13.8	21.1	155621	13.9	20.4
18518	13.5	18.1	232437	13.6	19.9	323836	13.7	20.7	155088	13.7	19.7	244248	13.8	20.8	129764	13.9	17.5
264949	13.5	20.7	135293	13.6	20.1	104285	13.7	18.5	364705	13.7	22.2	368570	13.8	18.5	58328	13.9	19.2
358072	13.5	20.6	428942	13.6	21.7	261535	13.7	19.5	108512	13.7	18.8	312525	13.8	19.4	307292	13.9	20.4
405122	13.6	18.0	468033	13.6	21.2	503175	13.7	20.9	116273	13.7	20.6	411848	13.8	21.1	165096	13.9	20.4
193375	13.6	20.0	6282	13.6	18.3	33716	13.7	17.2	377156	13.7	21.5	470263	13.8	20.7	417574	13.9	21.0
96661	13.6	17.0	190810	13.6	19.4	307678	13.7	21.6	545097	13.7	20.0	343612	13.8	20.3	39315	13.9	18.2
18208	13.6	19.7	450541	13.6	21.1	268582	13.7	19.9	495543	13.7	21.1	123823	13.8	20.2	39186	13.9	18.8
528246	13.6	21.4	22850	13.6	19.1	532222	13.7	20.5	375742	13.7	21.0	222385	13.8	19.7	332801	13.9	20.9
298864	13.6	20.7	227339	13.6	20.7	79870	13.7	19.3	208961	13.7	19.5	219376	13.8	20.1	202070	13.9	18.8
173829	13.6	20.0	435350	13.6	21.8	418292	13.7	19.0	381652	13.7	20.2	346233	13.8	22.3	232089	13.9	19.9
305973	13.6	19.9	234189	13.6	19.1	226602	13.7	19.9	388071	13.7	20.3	317525	13.8	20.5	375492	13.9	20.1
233003	13.6	19.2	16621	13.6	17.9	379442	13.7	21.2	525735	13.7	22.1	106815	13.8	19.4	25928	13.9	17.7
423277	13.6	22.0	306622	13.6	21.4	233744	13.7	20.0	166846	13.7	20.6	317630	13.8	19.1	527176	13.9	21.0
527480	13.6	21.4	372667	13.6	21.1	340492	13.7	20.4	319657	13.7	21.1	166961	13.8	19.1	271302	13.9	20.4
217532	13.6	20.5	154346	13.6	20.0	346245	13.7	20.6	455589	13.7	21.8	343159	13.8	19.9	421581	13.9	19.9
200951	13.6	20.0	313892	13.6	20.0	411369	13.7	21.9	140070	13.7	20.1	538585	13.8	21.4	162466	13.9	19.1
421085	13.6	20.4	97840	13.6	19.6	173991	13.7	20.8	350615	13.7	22.3	151172	13.8	20.2	17139	13.9	17.6
429302	13.6	20.1	106347	13.6	19.9	153883	13.7	20.2	38655	13.7							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
425017	13.9	20.4	61964	13.9	18.9	354164	14.0	19.6	429388	14.1	20.5	472574	14.2	20.8	349107	14.3	20.7
47174	13.9	17.0	525533	13.9	20.2	506598	14.0	21.3	121120	14.1	19.1	224938	14.2	20.6	529390	14.3	21.8
393632	13.9	19.4	140510	13.9	19.0	87001	14.0	19.9	233879	14.1	20.4	544321	14.2	21.8	269375	14.3	19.3
44842	13.9	17.7	306155	13.9	20.1	368604	14.0	21.6	279689	14.1	20.2	142615	14.2	19.6	17910	14.3	18.1
29912	13.9	17.5	243030	13.9	20.1	449849	14.0	20.1	456733	14.1	21.3	275383	14.2	21.0	87708	14.3	19.7
255844	13.9	20.3	145399	13.9	19.3	81295	14.0	19.9	267463	14.1	20.4	17827	14.2	17.2	161238	14.3	20.5
78585	13.9	19.2	221234	13.9	20.6	505033	14.0	21.7	47581	14.1	18.2	282315	14.2	19.5	346872	14.3	21.2
341493	13.9	20.0	352874	13.9	20.8	386204	14.0	20.9	327301	14.1	20.4	244625	14.2	20.5	369082	14.3	19.5
398668	13.9	21.2	267595	13.9	19.7	335877	14.0	21.0	269141	14.1	20.2	538768	14.2	21.4	109262	14.3	19.0
372026	13.9	19.8	87974	13.9	17.5	385940	14.0	20.9	243148	14.1	20.1	335944	14.2	20.7	229962	14.3	20.9
441839	13.9	22.0	532276	13.9	22.3	378813	14.0	21.3	168020	14.1	19.5	523825	14.2	20.6	206174	14.3	19.9
151061	13.9	19.6	189435	13.9	19.8	62741	14.0	18.8	430646	14.1	20.9	432531	14.2	19.8	182666	14.3	19.9
208181	13.9	19.9	89093	13.9	17.5	333045	14.0	21.0	58716	14.1	19.2	385058	14.2	20.5	543694	14.3	21.9
367777	13.9	21.0	201477	13.9	18.8	321710	14.0	19.5	331404	14.1	19.4	3815	14.2	15.2	85313	14.3	18.5
83964	13.9	18.2	299585	13.9	19.7	452585	14.0	20.5	433715	14.1	21.6	540609	14.2	21.4	232716	14.3	20.4
365013	13.9	20.5	88856	13.9	19.4	351606	14.0	19.6	437827	14.1	20.8	492412	14.2	20.6	491849	14.3	21.3
362088	13.9	21.8	199837	13.9	19.7	385655	14.0	19.3	457140	14.1	20.4	394403	14.2	20.4	378948	14.3	21.2
241178	13.9	19.1	506309	13.9	19.9	55423	14.0	19.1	256344	14.1	21.2	14477	14.2	17.9	371235	14.3	20.7
63631	13.9	19.4	310426	13.9	20.2	225133	14.0	20.1	120159	14.1	19.2	21785	14.2	19.4	291439	14.3	20.4
31071	13.9	18.3	279472	13.9	19.5	525707	14.0	21.4	330141	14.1	19.7	34630	14.2	17.5	176301	14.3	20.8
129388	13.9	19.9	295865	13.9	20.7	486086	14.0	21.6	238513	14.1	19.9	529842	14.2	21.2	13798	14.3	18.0
504671	13.9	20.9	36377	13.9	17.6	375450	14.0	21.0	63524	14.1	18.6	536715	14.2	19.8	32248	14.3	16.1
222001	13.9	18.7	413823	13.9	20.4	256439	14.0	20.7	521126	14.1	20.9	109816	14.2	19.5	5373	14.3	17.1
371193	13.9	21.4	368740	13.9	20.6	418371	14.0	18.8	29138	14.1	18.9	86656	14.2	18.7	388395	14.3	21.4
493387	13.9	20.5	393878	13.9	20.3	279556	14.0	19.7	474044	14.1	20.6	367358	14.2	19.5	129396	14.3	20.7
538274	13.9	20.4	299462	13.9	20.2	448114	14.0	20.7	452956	14.1	20.4	421265	14.2	21.0	470726	14.3	19.8
532870	13.9	23.1	538653	13.9	20.6	456978	14.0	21.8	292493	14.1	21.0	543621	14.2	21.1	405322	14.3	20.4
167678	13.9	19.3	320892	13.9	20.8	325858	14.0	20.9	281260	14.1	20.1	168749	14.2	20.1	221277	14.3	20.3
223640	13.9	19.5	169114	13.9	19.3	210977	14.0	20.9	189757	14.1	20.1	434934	14.2	20.7	238079	14.3	19.7
57708	13.9	19.1	151543	13.9	20.2	541223	14.0	20.7	331824	14.1	21.0	359153	14.2	20.8	536691	14.3	21.1
429128	13.9	20.5	496109	13.9	21.0	299520	14.0	20.2	86869	14.1	19.0	46049	14.2	19.2	10429	14.3	17.8
83525	13.9	18.7	534950	13.9	21.4	224039	14.0	18.9	329612	14.1	18.9	161896	14.2	20.4	432917	14.3	19.9
456734	13.9	21.8	532109	13.9	20.3	530556	14.0	20.8	262876	14.1	20.6	445065	14.2	20.7	402935	14.3	19.9
414832	13.9	21.1	307239	13.9	18.8	137181	14.0	18.3	348586	14.1	21.0	154068	14.2	19.2	492293	14.3	22.0
88746	13.9	18.7	122778	13.9	19.0	65034	14.0	18.7	421194	14.1	21.4	465919	14.2	22.0	461597	14.3	20.7
212709	13.9	21.0	435284	13.9	21.7	118984	14.0	18.9	246073	14.1	20.2	319740	14.2	20.1	541574	14.3	21.9
155236	13.9	19.4	233453	13.9	20.5	153981	14.0	20.2	66490	14.1	20.0	338408	14.2	20.4	540044	14.3	21.0
232527	13.9	20.4	139738	13.9	18.9	185146	14.0	21.4	116182	14.1	19.5	507346	14.2	21.0	459372	14.3	20.8
34487	13.9	17.5	52132	13.9	19.6	508212	14.0	21.3	529854	14.1	22.8	431525	14.2	21.1	534835	14.3	20.6
20480	13.9	18.6	471662	13.9	21.6	285609	14.0	20.5	330147	14.1	20.1	221882	14.2	19.8	105742	14.3	18.8
285506	13.9	20.7	444258	13.9	21.3	245048	14.0	19.8	462669	14.1	20.3	145817	14.2	19.8	218633	14.3	21.0
389602	13.9	19.5	488858	13.9	21.7	483837	14.0	20.8	424946	14.1	21.3	221051	14.2	21.0	500415	14.3	21.5
271145	13.9	20.5	317492	13.9	21.3	419401	14.0	20.8	277734	14.1	20.8	111049	14.2	18.6	328927	14.3	21.2
97965	13.9	18.9	426564	13.9	21.1	374565	14.1	21.2	333809	14.1	19.5	454366	14.2	19.7	209473	14.3	20.6
215160	13.9	19.6	332806	13.9	20.1	370830	14.1	21.3	331270	14.1	20.7	200019	14.2	19.2	156296	14.3	20.7
125627	13.9	20.7	310962	13.9	21.3	306091	14.1	19.5	170293	14.1	19.1	18331	14.2	16.8	16637	14.3	17.1
231155	13.9	20.1	451961	13.9	19.5	414884	14.1	21.5	93934	14.1	20.0	490262	14.2	21.4	162964	14.3	20.7
396802	13.9	20.3	54625	13.9	19.4	127293	14.1	19.1	495009	14.1	21.2	524395	14.2	21.2	192263	14.3	18.6
123494	13.9	19.5	409984	13.9	21.2	342900	14.1	20.5	494220	14.1	21.5	464955	14.2	21.9	307217	14.3	19.1
411319	13.9	20.9	228747	13.9	19.9	108264	14.1	18.8	113656	14.1	19.5	135149	14.2	19.4	499890	14.3	21.5
527689	13.9	21.4	164152	13.9	19.4	136046	14.1	19.8	450530	14.1	20.1	169343	14.2	19.9	60450	14.3	18.6
280861	13.9	19.4	199116	13.9	19.3	542304	14.1	20.7	376180	14.1	20.9	88504	14.2	18.5	412652	14.3	20.4
540099	13.9	21.0	19002	13.9	17.8	234153	14.1	19.7	299008	14.1	21.1	118276	14.2	19.6	203271	14.3	19.1
296135	13.9	20.8	423186	13.9	19.2	103837	14.1	18.6	205290	14.1	20.1	351621	14.2	20.8	238375	14.3	19.9
223710	13.9	20.2	346809	13.9	20.7	339509	14.1	20.1	526803	14.1	22.4	177859	14.2	20.6	401990	14.3	21.6
496239	13.9	18.4	521158	13.9	20.3	200715	14.1	20.3	4920	14.1	17.2	490260	14.2	21.4	44767	14.3	19.0
498992	13.9	20.8	464430	13.9	22.3	287639	14.1	20.4	209451	14.2	20.1	290911	14.2	19.9	353904	14.3	20.8
370797	13.9	20.5	392482	13.9	20.5	58505	14.1	18.1	447334	14.2	22.1	370207	14.2	20.3	266298	14.3	20.4
526869	13.9	20.1	212006	13.9	20.9	402030	14.1	21.2	213180	14.2	18.9	290213	14.2	19.8	486818	14.3	19.3
285982	13.9	21.3	186214	13.9	19.3	81975	14.1	19.6	279981	14.2	21.0	319537	14.2	20.7	403807	14.3	20.2
238762	13.9	19.8	25918	14.0	17.9	60941	14.1	18.2	109335	14.2	20.2	239593	14.2	20.5	80330	14.3	18.7
430474	13.9	21.7	364418	14.0	20.9	525702	14.1	21.5	530755	14.2	21.4	348550	14.2	20.7	21753	14.3	18.5
248013	13.9	20.5	19208	14.0	18.6	203808	14.1	20.3	73996	14.2	19.3	128715	14.2	20.1	39883	14.3	18.1
307022	13.9	20.9	74548	14.0	17.8	254043	14.1	18.8	182603	14.2	20.1	116364	14.2	19.2	28044	14.3	16.9
374168	13.9	20.9	109107	14.0	20.0	360543	14.1	20.7	26406	14.2	16.8	158501	14.2	20.1	186005	14.3	20.5
433221	13.9	20.9	200830	14.0	20.9	36650	14.1	18.8	34331	14.2	18.1	503159	14.2	21.4	277323	14.3	19.6
287382	13.9	19.9	31604	14.0	17.0	453950	14.1	19.8	40386	14.2	18.3	66760	14.2	18.5	298377	14.3	20.3
173694	13.9	20.4	401903	14.0	20.5	456658	14.1	21.4	409859	14.2	21.4	406505	14.2	20.7	151970	14.3	19.8
525087	13.9	22.1	245899	14.0	20.1	229174	14.1	20.9	3								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
94635	14.3	17.8	495485	14.4	21.0	62917	14.4	18.5	419948	14.5	21.2	28647	14.6	18.4	310268	14.6	20.2
526609	14.3	22.3	492758	14.4	21.0	376431	14.4	19.0	65074	14.5	20.0	456601	14.6	20.5	14703	14.6	16.6
393978	14.3	21.3	77905	14.4	18.8	188079	14.4	19.4	103440	14.5	19.9	170125	14.6	19.1	387593	14.6	21.4
354206	14.3	20.2	76346	14.4	18.5	354681	14.4	21.3	163003	14.5	19.8	333282	14.6	20.8	266335	14.6	21.5
455271	14.3	19.9	346911	14.4	20.0	235279	14.4	20.0	192835	14.5	19.5	28268	14.6	18.1	237394	14.6	20.2
305003	14.3	20.8	531761	14.4	20.8	496380	14.4	20.4	85842	14.5	18.9	24499	14.6	17.9	339024	14.6	20.1
505305	14.3	22.0	98032	14.4	18.9	354138	14.4	21.6	435337	14.5	21.2	241949	14.6	20.0	229189	14.6	20.2
258357	14.3	20.4	367156	14.4	19.2	267481	14.4	19.4	78558	14.5	18.6	439853	14.6	21.8	508220	14.6	20.4
400292	14.3	20.4	196973	14.4	19.0	409453	14.4	21.5	26688	14.5	18.4	341822	14.6	22.1	187304	14.6	19.4
480661	14.3	20.2	282813	14.4	20.8	506347	14.5	20.3	450536	14.5	21.8	416034	14.6	20.7	152380	14.6	19.5
277833	14.3	20.7	388040	14.4	19.9	259826	14.5	21.0	50873	14.5	18.2	325572	14.6	20.2	93166	14.6	18.6
363117	14.3	20.1	310986	14.4	21.5	532545	14.5	22.6	250239	14.5	20.4	459171	14.6	21.0	115487	14.6	19.3
369330	14.3	20.1	208456	14.4	19.8	381207	14.5	21.6	125449	14.5	19.6	297154	14.6	20.8	118038	14.6	19.9
416886	14.3	20.9	318042	14.4	20.4	76487	14.5	18.3	360750	14.5	22.0	253225	14.6	20.4	94378	14.6	19.2
29823	14.3	16.6	527157	14.4	22.6	320390	14.5	20.9	190412	14.5	19.9	428954	14.6	20.8	433151	14.6	20.3
497520	14.3	20.1	234670	14.4	19.4	467068	14.5	21.0	166805	14.5	19.0	235554	14.6	19.3	337648	14.6	21.6
132345	14.3	18.7	227915	14.4	20.3	417634	14.5	23.1	536304	14.5	21.3	236240	14.6	19.9	535239	14.6	19.8
102738	14.3	19.0	488889	14.4	22.3	197340	14.5	19.8	79648	14.5	20.4	159987	14.6	18.3	321845	14.6	21.2
540257	14.3	21.3	8117	14.4	17.2	213793	14.5	19.4	223821	14.5	20.6	160765	14.6	19.8	128776	14.6	18.7
173693	14.3	20.4	162732	14.4	20.9	116689	14.5	19.7	200746	14.5	20.0	536750	14.6	20.5	57562	14.6	18.0
381285	14.3	20.6	307514	14.4	20.3	343060	14.5	20.7	498437	14.5	21.4	10424	14.6	17.3	84342	14.6	19.8
455093	14.3	20.8	185009	14.4	19.8	340697	14.5	21.1	58092	14.5	19.4	432224	14.6	20.7	525825	14.6	21.8
98685	14.3	19.9	70379	14.4	16.4	379055	14.5	20.9	166772	14.5	20.0	473919	14.6	20.5	433069	14.6	21.2
171914	14.3	20.0	113901	14.4	19.9	385910	14.5	20.4	253918	14.5	19.4	372613	14.6	22.6	278731	14.6	20.8
131945	14.3	19.5	416777	14.4	21.3	76812	14.5	19.5	76239	14.5	18.6	444426	14.6	22.1	510521	14.6	20.9
333794	14.3	20.0	149424	14.4	18.8	125329	14.5	19.8	306335	14.5	21.8	63481	14.6	19.5	495904	14.6	21.3
377160	14.3	21.2	185042	14.4	20.5	240770	14.5	19.9	502862	14.5	20.8	140523	14.6	19.9	116892	14.7	18.7
534754	14.3	20.2	62668	14.4	19.9	116475	14.5	19.8	147283	14.5	20.5	96696	14.6	17.7	465646	14.7	21.5
236832	14.3	20.3	519535	14.4	20.8	181784	14.5	20.2	61339	14.5	18.6	196446	14.6	18.7	175429	14.7	20.4
233144	14.3	20.9	20040	14.4	19.4	338312	14.5	19.4	32226	14.5	17.0	400533	14.6	21.6	285661	14.7	20.0
371256	14.3	20.8	93249	14.4	18.4	62555	14.5	18.3	205532	14.5	20.3	255822	14.6	21.8	6551	14.7	17.8
342954	14.3	20.2	64069	14.4	18.9	225039	14.5	20.2	323685	14.5	20.0	65931	14.6	18.4	429092	14.7	21.9
538452	14.3	21.0	289859	14.4	18.7	425493	14.5	20.1	149222	14.5	20.3	124467	14.6	19.8	27789	14.7	17.2
363394	14.3	20.6	57736	14.4	18.0	484932	14.5	22.2	428918	14.5	21.1	328633	14.6	20.8	377895	14.7	20.6
33273	14.3	18.7	332720	14.4	20.8	179723	14.5	20.5	293124	14.5	21.4	294261	14.6	21.0	282485	14.7	19.1
399102	14.3	19.6	341761	14.4	19.9	192024	14.5	20.1	536961	14.5	20.6	82548	14.6	19.5	29063	14.7	18.3
413092	14.3	21.8	384262	14.4	20.7	148959	14.5	20.8	544327	14.5	21.7	21744	14.6	17.0	358532	14.7	20.3
331481	14.3	20.2	206249	14.4	20.0	209389	14.5	19.8	258705	14.5	20.0	17358	14.6	17.2	96718	14.7	17.9
527241	14.3	22.2	391374	14.4	20.5	340665	14.5	20.0	161022	14.5	19.7	530682	14.6	20.8	33029	14.7	19.6
116084	14.3	18.9	33267	14.4	17.5	462814	14.5	21.2	63116	14.5	19.4	409008	14.6	21.3	456945	14.7	21.3
167748	14.3	20.8	218323	14.4	20.4	456326	14.5	20.0	30307	14.5	17.6	248999	14.6	19.0	11718	14.7	18.6
441861	14.3	21.6	138007	14.4	19.1	171635	14.5	20.1	39314	14.5	19.2	62410	14.6	18.0	298879	14.7	20.8
500140	14.4	18.7	522451	14.4	20.7	325152	14.5	20.4	529112	14.5	21.8	249382	14.6	19.5	212705	14.7	21.2
153966	14.4	20.1	15523	14.4	17.4	333067	14.5	21.9	329995	14.5	20.8	146411	14.6	19.6	186475	14.7	18.3
416568	14.4	20.2	525452	14.4	19.6	455777	14.5	19.4	307644	14.5	19.5	176985	14.6	19.2	79607	14.7	19.9
534921	14.4	21.5	534519	14.4	22.2	274449	14.5	20.6	194747	14.5	21.2	350324	14.6	20.4	153799	14.7	19.6
452888	14.4	21.5	90970	14.4	19.9	381661	14.5	21.3	76042	14.5	19.6	403533	14.6	19.7	285514	14.7	19.6
355978	14.4	19.6	155454	14.4	18.5	353276	14.5	19.6	85772	14.5	19.1	453200	14.6	20.4	299292	14.7	19.9
109568	14.4	19.5	504015	14.4	20.1	427002	14.5	19.5	519915	14.5	21.0	386207	14.6	21.1	426539	14.7	20.2
421726	14.4	21.0	262766	14.4	20.5	23498	14.5	18.1	491203	14.5	20.7	113313	14.6	19.8	201882	14.7	19.7
139869	14.4	20.3	365595	14.4	20.6	246918	14.5	19.4	240753	14.5	20.6	368774	14.6	21.5	386516	14.7	20.7
419097	14.4	21.4	229082	14.4	20.1	491565	14.5	22.5	76433	14.5	18.9	544034	14.6	21.0	198985	14.7	20.4
65795	14.4	20.6	484131	14.4	21.1	86558	14.5	19.2	230939	14.5	21.0	368178	14.6	19.5	236009	14.7	20.3
338383	14.4	21.1	351741	14.4	21.5	209028	14.5	18.6	529319	14.5	21.8	52399	14.6	19.2	94796	14.7	19.0
329089	14.4	20.3	355882	14.4	20.7	387198	14.5	21.6	418357	14.5	20.0	343131	14.6	19.5	165662	14.7	19.0
50219	14.4	17.1	10133	14.4	16.3	65914	14.5	18.7	461428	14.5	20.9	534162	14.6	20.1	141127	14.7	19.8
241478	14.4	20.5	484909	14.4	21.3	354016	14.5	20.4	528711	14.5	21.4	424709	14.6	20.7	236013	14.7	20.4
348925	14.4	20.9	87079	14.4	18.7	297743	14.5	20.9	245826	14.5	19.9	186057	14.6	20.1	472513	14.7	20.0
444209	14.4	20.9	431592	14.4	21.0	535528	14.5	21.5	497793	14.6	22.3	543627	14.6	20.6	317033	14.7	20.1
285780	14.4	20.7	158045	14.4	19.0	571105	14.5	19.4	494866	14.6	21.3	155442	14.6	19.8	51714	14.7	18.7
362969	14.4	21.0	74468	14.4	19.1	121043	14.5	20.2	186237	14.6	19.1	282585	14.6	20.2	211552	14.7	20.2
140517	14.4	19.6	219396	14.4	19.0	530109	14.5	21.6	541912	14.6	21.8	82562	14.6	19.6	529340	14.7	21.8
138547	14.4	18.7	389782	14.4	19.6	422560	14.5	20.9	366902	14.6	21.9	288475	14.6	20.4	245000	14.7	20.6
11041	14.4	18.6	89636	14.4	19.5	26963	14.5	19.2	131791	14.6	20.8	212332	14.6	20.5	277510	14.7	20.0
413629	14.4	20.9	133450	14.4	19.6	29620	14.5	19.1	330408	14.6	21.7	144549	14.6	19.8	458365	14.7	21.9
538465	14.4	21.1	421124	14.4	20.6	28804	14.5	18.2	194206	14.6	20.6	116086	14.6	19.3	4403	14.7	15.9
111472	14.4	19.1	545020	14.4	21.4	400765	14.5	20.7	85206	14.6	19.5	325353	14.6	20.4	521125	14.7	20.8
280470	14.4	18.9	448166	14.4	20.8	227780	14.5	19.9	543837	14.6	20.3	96459	14.6	18.0	165454	14.7	19.5
353813	14.4	19.4	22176	14.4	17.1	304118	14.5	19.6	142213	1							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
541564	14.7	21.1	10104	14.8	18.3	538996	14.8	20.4	424694	14.9	21.4	75909	14.9	19.4	15400	15.0	18.6
97559	14.7	19.5	226639	14.8	19.7	113792	14.8	18.8	249833	14.9	20.4	321736	14.9	19.3	349505	15.0	21.0
354045	14.7	21.2	88741	14.8	18.2	423676	14.8	21.6	68939	14.9	19.0	223266	14.9	18.9	150917	15.0	18.6
505335	14.7	19.9	90452	14.8	19.4	210541	14.8	21.2	413512	14.9	20.5	238876	14.9	20.3	64895	15.0	18.3
329926	14.7	20.1	461960	14.8	20.3	94713	14.8	20.7	170230	14.9	20.6	352046	14.9	19.9	388864	15.0	19.6
288433	14.7	20.0	26551	14.8	17.9	386154	14.8	21.9	519612	14.9	20.7	368274	14.9	20.5	163347	15.0	19.3
432835	14.7	20.1	382279	14.8	20.3	436951	14.8	21.4	55763	14.9	19.0	81676	14.9	19.2	310435	15.0	20.7
238340	14.7	20.7	245937	14.8	20.1	453138	14.8	21.4	321202	14.9	19.6	6379	14.9	15.5	119483	15.0	19.3
163007	14.7	19.5	76364	14.8	17.1	429885	14.8	20.4	205336	14.9	19.8	415759	14.9	21.7	207527	15.0	19.4
139424	14.7	19.9	466639	14.8	21.6	164610	14.8	19.9	147011	14.9	18.9	290071	14.9	19.8	15555	15.0	18.1
61829	14.7	19.6	213376	14.8	21.0	484731	14.8	20.3	4421	14.9	16.6	427679	14.9	20.7	296178	15.0	20.1
540365	14.7	22.1	159982	14.8	19.8	222256	14.8	19.8	114780	14.9	18.1	224449	14.9	19.9	283522	15.0	21.0
446742	14.7	21.4	52744	14.8	18.2	146565	14.8	19.5	334414	14.9	20.4	110018	14.9	18.5	446062	15.0	20.7
334933	14.7	20.6	200421	14.8	20.2	315597	14.8	20.7	133841	14.9	19.7	240796	14.9	19.9	325236	15.0	19.9
284725	14.7	20.5	18552	14.8	18.0	54267	14.8	18.0	183573	14.9	19.2	351004	14.9	18.7	306228	15.0	19.4
409636	14.7	21.8	90566	14.8	18.0	429226	14.8	21.4	341382	14.9	20.9	33066	14.9	18.1	500362	15.0	22.4
157378	14.7	19.7	416883	14.8	21.2	222691	14.8	20.1	246614	14.9	20.6	381701	14.9	20.9	246665	15.0	19.5
145259	14.7	18.5	142614	14.8	19.1	109629	14.8	18.9	166830	14.9	19.7	234231	14.9	19.0	154680	15.0	18.8
432214	14.7	21.4	164218	14.8	19.7	316738	14.8	21.1	417035	14.9	21.3	244044	14.9	20.7	350778	15.0	20.5
345884	14.7	20.9	433555	14.8	20.8	331617	14.8	20.7	396530	14.9	19.6	235699	14.9	20.2	421552	15.0	20.3
532054	14.7	20.4	426325	14.8	20.3	524254	14.8	21.8	81356	14.9	19.2	247693	14.9	21.2	226896	15.0	19.9
500932	14.7	20.8	536088	14.8	20.7	311023	14.8	20.4	419929	14.9	19.8	397540	14.9	20.9	151016	15.0	19.8
4363	14.7	17.3	392483	14.8	20.4	502154	14.8	21.4	498733	14.9	21.3	464184	14.9	20.2	371996	15.0	19.3
63745	14.7	19.1	367549	14.8	20.6	201145	14.8	19.9	350423	14.9	20.6	239505	14.9	19.6	524343	15.0	22.4
422232	14.7	20.9	364756	14.8	22.1	61022	14.8	19.0	521262	14.9	20.8	144814	14.9	19.8	23800	15.0	18.2
525917	14.7	21.4	532280	14.8	21.0	196542	14.8	19.2	370029	14.9	18.7	41221	14.9	17.8	320035	15.0	20.2
385907	14.7	20.2	224593	14.8	20.7	159675	14.8	19.8	34883	14.9	18.6	187446	14.9	20.5	226594	15.0	20.4
220589	14.7	19.4	278049	14.8	20.7	535056	14.8	21.5	123119	14.9	18.5	173254	14.9	20.1	525804	15.0	21.1
334666	14.7	20.5	425416	14.8	20.2	285694	14.8	21.6	73856	14.9	19.6	324	14.9	11.6	125217	15.0	19.8
368969	14.7	19.6	144602	14.8	19.3	80846	14.8	18.0	544316	14.9	20.4	334390	14.9	20.3	104564	15.0	18.4
426302	14.7	20.9	413084	14.8	21.9	387033	14.8	21.3	161101	14.9	19.6	286414	14.9	20.3	468444	15.1	22.0
265741	14.7	20.9	180527	14.8	19.9	270551	14.8	19.9	274339	14.9	20.7	148514	14.9	20.4	2266	15.1	16.3
296337	14.7	20.4	247660	14.8	20.3	168293	14.8	20.8	35675	14.9	17.7	298971	14.9	21.1	286373	15.1	21.2
111664	14.7	18.2	280849	14.8	20.3	144621	14.9	19.6	3807	14.9	15.1	244610	14.9	20.7	366955	15.1	21.8
426337	14.7	19.9	242307	14.8	20.5	219824	14.9	19.7	466794	14.9	21.9	148531	14.9	20.3	530152	15.1	21.4
160930	14.7	18.7	166860	14.8	19.4	197994	14.9	20.6	81713	14.9	18.7	312059	14.9	21.0	345082	15.1	19.7
327933	14.7	20.6	330335	14.8	21.2	296912	14.9	19.0	59361	14.9	19.2	417780	14.9	20.7	544199	15.1	19.9
399713	14.7	20.6	152665	14.8	20.2	503198	14.9	20.8	327332	14.9	20.8	80375	14.9	19.8	52708	15.1	19.4
266077	14.7	19.7	119651	14.8	18.1	111496	14.9	19.0	59020	14.9	19.1	494713	14.9	21.8	340760	15.1	20.2
437276	14.7	21.4	262638	14.8	19.0	360560	14.9	20.1	231058	14.9	20.0	24459	14.9	18.8	207101	15.1	19.8
221159	14.7	21.5	462674	14.8	20.8	40472	14.9	18.4	453049	14.9	21.4	456788	14.9	22.0	342977	15.1	20.6
497261	14.7	20.9	272978	14.8	20.2	92495	14.9	17.5	463833	14.9	21.4	494726	14.9	21.2	51035	15.1	18.2
385939	14.7	21.0	338971	14.8	20.4	259073	14.9	21.8	210478	14.9	20.3	241073	14.9	20.2	431561	15.1	21.3
171873	14.7	20.6	527721	14.8	22.2	51206	14.9	18.6	94724	14.9	19.0	209776	14.9	21.0	100483	15.1	20.5
487240	14.7	19.8	291007	14.8	20.6	461423	14.9	20.4	500506	14.9	21.3	166973	14.9	19.0	213896	15.1	21.4
112112	14.7	18.6	44016	14.8	18.1	369357	14.9	20.9	327836	14.9	21.5	502892	14.9	20.7	196541	15.1	19.8
164	14.7	13.3	11886	14.8	18.7	39330	14.9	19.3	523891	14.9	22.7	273137	14.9	20.1	5529	15.1	15.8
350202	14.7	19.5	497952	14.8	21.5	423262	14.9	21.1	88760	14.9	19.2	123332	14.9	19.0	220572	15.1	19.4
159256	14.7	21.2	6433	14.8	18.4	455233	14.9	21.4	314807	14.9	20.2	465446	14.9	20.9	552124	15.1	20.5
90312	14.7	19.7	185943	14.8	18.9	286443	14.9	21.0	132185	14.9	20.1	45525	14.9	18.6	522704	15.1	21.2
272828	14.7	21.3	79264	14.8	18.7	247938	14.9	18.9	315238	14.9	21.1	539969	14.9	20.8	162645	15.1	19.8
76137	14.7	18.3	265634	14.8	20.5	495034	14.9	21.2	399648	14.9	21.0	504237	14.9	21.1	300938	15.1	21.3
423124	14.7	21.3	337838	14.8	20.2	506689	14.9	21.4	340803	14.9	21.7	33175	14.9	18.6	292789	15.1	20.2
537053	14.7	20.9	96149	14.8	19.5	164562	14.9	19.5	268446	14.9	21.3	90137	14.9	18.7	377430	15.1	20.6
285621	14.7	20.0	360570	14.8	20.6	210720	14.9	19.8	437264	14.9	21.5	273740	14.9	20.1	534544	15.1	22.1
447118	14.7	21.8	153118	14.8	20.0	330057	14.9	21.2	423790	14.9	19.9	413573	15.0	20.6	204303	15.1	20.5
397140	14.7	21.5	67878	14.8	18.8	354556	14.9	22.0	511001	14.9	19.7	138937	15.0	20.6	253972	15.1	19.6
148972	14.7	19.4	234050	14.8	20.8	55172	14.9	18.3	28633	14.9	18.8	530712	15.0	21.6	369278	15.1	19.8
448300	14.7	21.3	532255	14.8	21.3	380408	14.9	19.5	340899	14.9	20.8	340613	15.0	20.7	289956	15.1	20.7
503812	14.8	19.8	460196	14.8	21.1	222816	14.9	20.3	219832	14.9	19.3	407553	15.0	20.9	174000	15.1	20.3
372687	14.8	21.0	389991	14.8	20.6	410539	14.9	20.6	187827	14.9	20.0	28321	15.0	17.7	42779	15.1	18.1
179140	14.8	19.2	498969	14.8	21.5	449192	14.9	21.0	490046	14.9	21.9	538144	15.0	21.2	113739	15.1	19.5
154309	14.8	20.5	535960	14.8	22.1	237978	14.9	20.9	278296	14.9	20.5	79721	15.0	17.9	60767	15.1	17.6
147589	14.8	18.7	435351	14.8	21.1	505909	14.9	20.4	531719	14.9	21.6	253814	15.0	18.9	81511	15.1	19.3
278108	14.8	20.8	492111	14.8	19.7	264614	14.9	21.3	448211	14.9	22.0	310383	15.0	21.4	121971	15.1	18.5
207864	14.8	20.4	203574	14.8	20.9	291434	14.9	20.5	51962	14.9	18.3	426570	15.0	21.2	221270	15.1	19.7
423146	14.8	20.1	35147	14.8	19.9	539809	14.9	19.9	214710	14.9	20.9	538824	15.0	21.4	495109	15.1	21.2
417852	14.8	20.3	272577	14.8	20.1	160098	14.9	19.6	416581	14.9	20.6	224831	15.0	20.6	530699	15.1	21.5
170732	14.8	19.7	173993	14.8	19.2	50834	14.9	17.9	422181								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
97012	15.1	20.2	258536	15.2	19.4	197254	15.2	19.3	133997	15.3	20.6	3314	15.4	15.8	354502	15.4	21.2
205879	15.1	19.8	425061	15.2	21.7	470937	15.2	20.8	356007	15.3	20.4	316742	15.4	20.0	463528	15.4	21.0
23912	15.1	17.7	105414	15.2	19.3	146065	15.2	18.7	526720	15.3	20.8	441606	15.4	20.7	113109	15.4	19.8
96719	15.1	17.9	462880	15.2	21.9	512345	15.2	20.6	168153	15.3	19.0	516603	15.4	19.7	416929	15.4	20.9
94513	15.1	18.6	519022	15.2	19.9	464826	15.2	20.7	299059	15.3	19.9	118	15.4	12.7	453035	15.4	21.4
486829	15.1	20.6	125983	15.2	18.7	513036	15.2	22.1	81532	15.3	18.0	57229	15.4	19.4	534373	15.4	20.8
324495	15.1	20.8	75195	15.2	19.3	535559	15.2	20.8	375002	15.3	20.2	35905	15.4	18.0	249603	15.4	19.3
146398	15.1	20.2	424735	15.2	21.9	22807	15.2	17.6	121601	15.3	19.8	386883	15.4	20.0	24446	15.4	18.4
168013	15.1	19.1	415556	15.2	19.8	75726	15.2	18.8	527150	15.3	21.8	8678	15.4	17.7	398525	15.4	19.9
194978	15.1	20.8	114928	15.2	20.9	368998	15.2	20.7	34605	15.3	17.8	543871	15.4	21.3	319662	15.4	20.5
467351	15.1	18.0	462706	15.2	21.0	16717	15.2	18.9	535357	15.3	21.6	426524	15.4	20.6	115933	15.4	20.6
200590	15.1	20.1	215865	15.2	20.5	284652	15.2	20.1	463864	15.3	19.9	419456	15.4	20.2	525773	15.4	22.0
131780	15.1	21.1	486008	15.2	21.0	32795	15.2	19.8	325824	15.3	21.1	201659	15.4	20.5	14658	15.4	17.0
146815	15.1	19.2	300174	15.2	19.7	344538	15.2	21.2	310023	15.3	21.6	245472	15.4	20.7	29841	15.4	18.9
380497	15.1	21.9	110006	15.2	19.4	347642	15.2	20.3	410650	15.3	24.9	189988	15.4	18.6	34340	15.4	18.9
222297	15.1	21.1	411389	15.2	21.5	418352	15.2	19.9	437606	15.3	20.2	66859	15.4	19.2	217928	15.4	19.5
473699	15.1	20.4	453284	15.2	22.4	222887	15.2	20.4	335010	15.3	22.4	148822	15.4	21.0	450164	15.4	20.3
176717	15.1	21.1	338892	15.2	21.2	467654	15.2	21.5	125464	15.3	19.9	56641	15.4	18.2	529291	15.5	22.6
381628	15.1	21.3	321777	15.2	20.2	52840	15.2	18.4	487563	15.3	21.4	26153	15.4	18.6	186293	15.5	20.8
58153	15.1	19.5	361221	15.2	20.3	394796	15.2	20.1	297897	15.3	20.5	461271	15.4	21.1	538808	15.5	21.1
249767	15.1	20.0	204608	15.2	21.1	471697	15.2	21.2	544053	15.3	20.7	311108	15.4	19.2	89733	15.5	18.6
94926	15.1	19.0	52550	15.2	17.7	462853	15.2	21.3	135475	15.3	19.7	62252	15.4	19.0	13623	15.5	17.5
334695	15.1	19.4	319661	15.2	21.9	465752	15.2	21.1	39709	15.3	18.7	213783	15.4	20.7	203247	15.5	20.7
108684	15.1	19.0	470871	15.2	19.6	52946	15.2	17.3	462299	15.3	21.1	526219	15.4	21.3	393629	15.5	19.7
42269	15.1	18.7	292458	15.2	20.1	162799	15.2	19.7	428816	15.3	21.3	160798	15.4	19.5	431570	15.5	21.6
163630	15.1	19.9	503816	15.2	19.6	526228	15.2	21.1	278495	15.3	20.1	328278	15.4	20.4	174027	15.5	20.4
240519	15.1	20.1	161575	15.2	19.7	535688	15.2	23.2	301882	15.3	20.2	272893	15.4	20.9	132350	15.5	19.6
190069	15.1	19.4	501348	15.2	21.1	152003	15.2	20.2	59203	15.3	19.3	292441	15.4	20.5	31599	15.5	17.2
535158	15.1	20.4	152619	15.2	20.5	23861	15.2	18.4	140897	15.3	19.0	181723	15.4	20.2	245875	15.5	20.0
296002	15.1	20.9	148015	15.2	19.9	471860	15.3	20.0	463625	15.3	20.3	501456	15.4	21.2	244619	15.5	21.0
95660	15.1	19.6	289255	15.2	21.0	163510	15.3	20.3	467373	15.3	20.3	500410	15.4	21.9	330463	15.5	20.6
67479	15.1	18.8	528021	15.2	20.6	483962	15.3	19.8	47080	15.3	18.9	366210	15.4	20.8	129608	15.5	20.6
391430	15.1	19.4	498773	15.2	20.8	428696	15.3	21.2	492730	15.3	20.3	530552	15.4	21.4	181711	15.5	20.9
455862	15.1	20.7	94288	15.2	20.9	103933	15.3	19.3	415907	15.3	21.5	83715	15.4	19.6	134748	15.5	20.3
381659	15.1	19.3	388378	15.2	21.3	441414	15.3	20.6	309269	15.3	21.2	210897	15.4	21.2	284195	15.5	20.2
166903	15.1	20.1	413045	15.2	20.8	243609	15.3	20.7	295963	15.3	21.4	3631	15.4	15.6	497243	15.5	20.4
439239	15.1	20.2	309230	15.2	20.5	97064	15.3	19.5	194058	15.3	20.1	164702	15.4	18.9	545115	15.5	21.0
435352	15.1	20.3	246371	15.2	20.5	292319	15.3	20.1	277239	15.3	19.5	491820	15.4	20.7	484662	15.5	20.6
55140	15.1	17.9	456277	15.2	21.5	28235	15.3	18.8	210964	15.3	19.9	329009	15.4	21.3	491633	15.5	20.8
228730	15.1	19.4	276817	15.2	20.4	243075	15.3	19.6	260032	15.3	20.1	282596	15.4	19.4	186067	15.5	19.5
117047	15.1	18.7	340618	15.2	21.4	542335	15.3	21.3	8613	15.3	18.2	310203	15.4	20.3	324475	15.5	21.2
500332	15.1	21.8	122272	15.2	20.3	69858	15.3	18.7	536844	15.3	20.8	308817	15.4	19.7	80951	15.5	17.9
439865	15.1	21.1	337617	15.2	21.2	304099	15.3	19.3	541071	15.3	20.2	527136	15.4	21.6	341752	15.5	20.8
504669	15.1	19.8	8272	15.2	17.1	76410	15.3	18.0	498079	15.3	21.8	461765	15.4	20.4	486	15.5	13.2
367569	15.1	21.5	42578	15.2	19.1	108747	15.3	20.1	532783	15.3	21.2	91288	15.4	18.6	186062	15.5	19.4
444427	15.1	21.9	144489	15.2	19.5	322288	15.3	20.5	60032	15.3	19.6	534843	15.4	20.9	168506	15.5	19.7
505678	15.1	20.1	525061	15.2	19.9	110117	15.3	19.2	93210	15.3	19.5	379004	15.4	21.5	484946	15.5	22.3
538141	15.1	21.0	375994	15.2	21.5	543435	15.3	21.8	407489	15.3	20.8	309468	15.4	18.3	23694	15.5	18.3
104361	15.1	19.2	437505	15.2	20.8	256851	15.3	20.3	310887	15.3	20.7	17418	15.4	19.1	60126	15.5	19.2
520746	15.1	21.1	309248	15.2	20.6	16913	15.3	17.5	247385	15.3	19.4	17602	15.4	19.0	468351	15.5	20.3
490299	15.1	20.8	493347	15.2	20.2	402625	15.3	21.7	453983	15.3	20.8	133085	15.4	19.0	522062	15.5	20.2
11764	15.1	17.5	167551	15.2	20.5	436981	15.3	21.1	157193	15.3	19.5	326445	15.4	20.8	421664	15.5	19.8
154524	15.1	19.0	60799	15.2	18.6	265505	15.3	20.8	169381	15.3	20.0	240012	15.4	20.6	402916	15.5	21.2
174520	15.1	20.6	530641	15.2	20.9	341701	15.3	20.8	530091	15.3	20.6	362361	15.4	20.0	374552	15.5	20.6
534736	15.1	21.1	523695	15.2	21.9	335662	15.3	21.2	147217	15.3	20.0	235026	15.4	20.5	296827	15.5	20.5
451029	15.1	21.3	388688	15.2	20.9	73880	15.3	18.6	42362	15.3	18.9	369812	15.4	20.2	353386	15.5	19.5
136101	15.1	19.6	383379	15.2	20.9	104989	15.3	19.1	27633	15.3	18.2	292863	15.4	20.1	292025	15.5	20.3
390657	15.1	21.5	182573	15.2	20.3	28856	15.3	18.2	396870	15.3	19.9	490095	15.4	21.4	427973	15.5	21.6
520966	15.1	20.9	270009	15.2	21.0	109742	15.3	18.5	464010	15.3	20.7	236102	15.4	20.4	514308	15.5	21.0
392243	15.1	20.9	295957	15.2	20.2	161287	15.3	18.6	394028	15.3	21.1	212066	15.4	19.3	331911	15.5	20.0
11273	15.1	18.0	256045	15.2	20.7	496379	15.3	21.2	449332	15.3	20.8	411350	15.4	21.4	469783	15.5	20.7
124875	15.1	19.1	462999	15.2	20.2	56311	15.3	18.9	141294	15.3	20.3	500720	15.4	22.6	422794	15.5	21.8
162640	15.1	20.5	531466	15.2	21.6	283498	15.3	20.8	489142	15.3	20.4	473884	15.4	20.3	122808	15.5	19.4
532661	15.1	21.5	123459	15.2	20.1	417617	15.3	21.5	205345	15.3	20.4	488733	15.4	21.2	117368	15.5	19.1
520956	15.1	21.4	168999	15.2	20.4	79462	15.3	21.1	457905	15.3	21.4	273347	15.4	20.2	353308	15.5	20.2
496603	15.1	21.3	502080	15.2	21.1	307720	15.3	19.5	226911	15.3	20.2	281647	15.4	20.7	385878	15.5	21.1
52882	15.1	19.5	434790	15.2	21.1	496843	15.3	20.9	83748	15.3	18.5	253111	15.4	21.0	295958	15.5	20.7
237427	15.1	19.1	95052	15.2	20.1	234861	15.3	21.1	375988	15.3	20.4	94752	15.4	18.9	412611	15.5	19.9
232260	15.2	19.9	161995	15.2	18.5	330435	15.3	20.7	365071								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
527679	15.5	21.0	497891	15.6	21.5	170851	15.6	20.8	217813	15.7	19.8	495444	15.8	20.5	207943	15.8	19.8
223013	15.5	19.8	416849	15.6	20.0	462982	15.6	21.3	104256	15.7	18.4	489049	15.8	21.5	359073	15.8	19.8
127444	15.5	18.6	83744	15.6	19.7	140667	15.6	19.4	264673	15.7	21.6	60726	15.8	18.6	82882	15.8	18.4
409205	15.5	20.7	53131	15.6	18.8	456278	15.6	21.1	114437	15.7	19.4	115935	15.8	18.6	208392	15.8	20.5
318040	15.5	19.5	197347	15.6	20.0	48499	15.6	18.2	443658	15.7	19.7	417135	15.8	21.4	130289	15.8	19.3
144289	15.5	18.4	428378	15.6	19.5	466135	15.7	20.9	430882	15.7	19.7	299305	15.8	20.7	144605	15.8	19.7
366294	15.5	20.1	458924	15.6	22.1	473047	15.7	20.6	50893	15.7	19.2	366435	15.8	21.1	280779	15.8	20.3
336449	15.5	20.1	408742	15.6	19.9	409019	15.7	20.7	61021	15.7	19.4	168694	15.8	19.2	31629	15.8	18.4
93487	15.5	19.2	537998	15.6	21.2	318438	15.7	19.5	88494	15.7	17.6	336310	15.8	20.5	183375	15.8	19.7
491694	15.5	21.2	260911	15.6	21.0	255764	15.7	21.3	389828	15.7	21.0	440501	15.8	20.8	226750	15.9	21.3
171326	15.5	18.4	235394	15.6	21.2	370833	15.7	21.5	535259	15.7	21.4	323120	15.8	20.2	287322	15.9	21.9
209003	15.5	18.8	177074	15.6	19.8	383679	15.7	22.0	239975	15.7	20.0	278058	15.8	19.4	44644	15.9	18.6
536189	15.5	21.6	350372	15.6	21.4	530637	15.7	21.2	385647	15.7	20.8	171164	15.8	20.5	33664	15.9	17.8
273624	15.5	20.7	407562	15.6	21.4	401844	15.7	21.9	301193	15.7	18.8	140859	15.8	20.9	88698	15.9	19.0
131974	15.5	19.5	276326	15.6	19.8	268359	15.7	20.8	423257	15.7	20.8	150231	15.8	20.6	173314	15.9	20.0
273454	15.5	20.5	135306	15.6	20.7	519948	15.7	21.1	220581	15.7	19.3	136905	15.8	19.5	524342	15.9	21.1
90006	15.5	18.7	163408	15.6	20.1	186545	15.7	21.5	500724	15.7	20.9	74554	15.8	18.9	191998	15.9	20.5
204369	15.5	19.1	150880	15.6	19.6	268020	15.7	19.9	425431	15.7	20.4	462047	15.8	20.6	534262	15.9	22.3
495222	15.5	19.2	462621	15.6	21.6	252782	15.7	19.3	199271	15.7	20.2	113525	15.8	19.9	145657	15.9	20.2
497740	15.5	21.0	252247	15.6	20.7	318009	15.7	19.7	160101	15.7	18.8	78565	15.8	18.5	391979	15.9	20.7
194551	15.5	20.8	468893	15.6	20.2	332695	15.7	21.0	338983	15.7	19.0	494559	15.8	20.3	131738	15.9	19.1
170120	15.5	20.6	114852	15.6	19.7	397120	15.7	20.5	246972	15.7	19.8	99338	15.8	18.5	464172	15.9	20.8
340765	15.5	20.4	209477	15.6	19.3	498874	15.7	21.2	238452	15.7	20.6	188959	15.8	20.6	531763	15.9	22.6
262589	15.5	21.3	169646	15.6	19.1	538330	15.7	20.8	19761	15.7	16.5	368714	15.8	20.2	306133	15.9	19.0
49759	15.5	17.8	375486	15.6	20.9	63800	15.7	19.4	532839	15.7	20.2	345699	15.8	21.5	24600	15.9	19.1
70326	15.5	19.0	109332	15.6	20.8	344317	15.7	20.4	474114	15.7	20.5	543433	15.8	20.0	65859	15.9	18.7
273366	15.5	21.3	138385	15.6	18.0	127895	15.7	19.2	241122	15.7	19.4	143065	15.8	19.8	528724	15.9	21.3
299331	15.5	20.2	272483	15.6	20.5	259126	15.7	20.8	134747	15.7	19.5	253971	15.8	19.8	263759	15.9	19.9
171225	15.5	20.2	165929	15.6	18.8	299511	15.7	19.6	277530	15.7	20.7	37748	15.8	19.4	338899	15.9	20.4
95644	15.5	19.4	187106	15.6	19.5	144810	15.7	19.7	425181	15.7	20.0	536566	15.8	21.7	19273	15.9	18.8
371300	15.5	21.1	245802	15.6	19.1	106579	15.7	20.3	145586	15.7	19.4	237053	15.8	20.4	204420	15.9	20.7
422751	15.5	21.1	206715	15.6	20.3	21649	15.7	18.2	88966	15.7	19.3	226899	15.8	20.5	83567	15.9	19.2
413373	15.5	20.5	529478	15.6	20.9	360787	15.7	20.5	244624	15.7	20.5	429087	15.8	22.6	192091	15.9	19.8
336606	15.5	20.8	440936	15.6	21.3	409863	15.7	21.8	130986	15.7	20.7	391433	15.8	19.9	470363	15.9	20.1
343641	15.5	21.0	147340	15.6	20.3	136950	15.7	18.8	244096	15.7	20.3	246795	15.8	20.4	246989	15.9	20.1
51150	15.5	17.5	401449	15.6	19.9	456776	15.7	21.9	196834	15.7	20.0	432212	15.8	21.1	45646	15.9	18.3
158180	15.5	20.8	96624	15.6	18.5	11643	15.7	18.7	414505	15.7	20.7	316791	15.8	20.2	490041	15.9	22.2
484692	15.5	21.1	20147	15.6	18.4	216737	15.7	20.4	492613	15.8	20.2	434957	15.8	20.8	130224	15.9	19.7
70817	15.5	19.8	110606	15.6	18.8	13510	15.7	16.9	419540	15.8	21.4	917	15.8	14.9	165748	15.9	20.1
441563	15.5	21.7	467323	15.6	21.3	108977	15.7	18.4	416983	15.8	21.1	464590	15.8	21.0	406673	15.9	20.7
256372	15.5	20.5	496949	15.6	21.5	309861	15.7	21.1	171998	15.8	19.5	139666	15.8	19.0	75196	15.9	18.4
288571	15.5	19.5	122784	15.6	18.9	199684	15.7	20.0	249534	15.8	20.7	200974	15.8	20.2	417206	15.9	20.9
427717	15.5	20.1	30422	15.6	17.8	26872	15.7	19.6	496591	15.8	21.1	6185	15.8	16.5	494054	15.9	21.6
340659	15.5	20.9	218651	15.6	21.0	292618	15.7	21.4	95397	15.8	19.5	366408	15.8	20.6	497812	15.9	21.0
386957	15.5	20.3	368257	15.6	20.4	534813	15.7	22.2	52673	15.8	17.8	437558	15.8	21.7	535275	15.9	21.3
459293	15.5	19.6	265624	15.6	20.6	130917	15.7	18.2	403003	15.8	19.9	544388	15.8	22.3	231802	15.9	20.0
416947	15.5	20.1	476659	15.6	19.9	145361	15.7	19.9	171339	15.8	19.3	283931	15.8	20.8	419101	15.9	21.3
416956	15.6	21.4	269054	15.6	20.3	469007	15.7	20.0	441438	15.8	19.9	423927	15.8	20.3	440402	15.9	21.5
430895	15.6	21.1	298350	15.6	19.9	229156	15.7	20.2	256251	15.8	20.5	371228	15.8	20.8	140740	15.9	19.9
16781	15.6	18.3	498981	15.6	21.2	304839	15.7	20.9	306659	15.8	20.1	83196	15.8	20.2	387257	15.9	21.3
529288	15.6	21.7	362170	15.6	21.8	80843	15.7	19.5	311326	15.8	19.9	322615	15.8	21.5	499463	15.9	21.2
102501	15.6	19.7	316658	15.6	20.2	498634	15.7	21.6	414187	15.8	19.5	262746	15.8	19.4	68499	15.9	19.2
201716	15.6	20.1	304864	15.6	20.7	384183	15.7	20.9	190487	15.8	19.5	183459	15.8	20.8	284394	15.9	21.2
329023	15.6	19.5	293653	15.6	20.3	535779	15.7	21.2	6261	15.8	18.4	173256	15.8	20.7	76263	15.9	18.7
453302	15.6	22.5	114982	15.6	19.1	493799	15.7	20.7	282096	15.8	20.5	115473	15.8	18.7	41639	15.9	19.0
544346	15.6	19.9	81968	15.6	18.7	178765	15.7	20.1	405090	15.8	21.4	84651	15.8	19.3	334598	15.9	19.8
21136	15.6	18.5	504282	15.6	21.3	166958	15.7	18.0	327447	15.8	20.1	230350	15.8	20.1	236247	15.9	20.5
109834	15.6	20.6	433531	15.6	21.1	154904	15.7	20.0	373939	15.8	20.6	51988	15.8	17.4	61265	15.9	19.2
202549	15.6	20.6	54907	15.6	17.7	533862	15.7	20.9	134489	15.8	18.6	89130	15.8	19.2	320790	15.9	21.1
439807	15.6	19.7	439777	15.6	20.5	380502	15.7	20.8	450727	15.8	20.4	75608	15.8	16.8	253243	15.9	21.3
188349	15.6	19.7	341463	15.6	21.4	502734	15.7	20.7	90018	15.8	19.7	439781	15.8	20.7	497711	15.9	21.3
17446	15.6	16.5	206079	15.6	19.6	142502	15.7	20.4	242031	15.8	20.7	93018	15.8	19.1	168194	15.9	18.9
465188	15.6	20.5	181682	15.6	20.2	234466	15.7	20.4	341819	15.8	20.1	418231	15.8	20.0	426286	15.9	21.7
136722	15.6	20.6	294832	15.6	20.1	498380	15.7	22.0	17524	15.8	18.2	544325	15.8	21.2	9248	15.9	18.0
217491	15.6	20.7	387451	15.6	20.2	282529	15.7	19.3	61567	15.8	19.9	535574	15.8	21.2	25654	15.9	17.7
321924	15.6	20.8	153946	15.6	19.6	20174	15.7	19.0	434876	15.8	21.7	140387	15.8	20.4	131720	15.9	20.3
134750	15.6	19.1	528424	15.6	20.2	535583	15.7	21.0	214068	15.8	19.3	38760	15.8	18.9	132863	15.9	19.6
94836	15.6	20.6	336035	15.6	20.7	536317	15.7	21.2	114413	15.8	20.1	465735	15.8	21.5	536649	15.9	21.3
489548	15.6	20.5	296487	15.6	19.8	42456	15.7	19.8	15								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
101845	15.9	18.4	163535	15.9	19.4	433631	16.0	20.1	151329	16.1	19.4	524303	16.1	22.0	258965	16.2	20.9
112122	15.9	18.5	495865	15.9	19.4	430369	16.0	21.0	245194	16.1	20.0	448159	16.1	20.4	5164	16.2	17.9
6592	15.9	17.9	543293	15.9	20.8	202935	16.0	20.7	284162	16.1	20.9	178957	16.1	19.1	406224	16.2	22.2
253299	15.9	21.6	503046	15.9	20.1	200174	16.0	18.7	271861	16.1	20.4	468887	16.2	20.1	498093	16.2	21.5
305658	15.9	20.8	108940	15.9	20.2	420065	16.0	20.6	386563	16.1	20.4	242153	16.2	19.8	160161	16.2	20.1
105177	15.9	19.1	152058	15.9	19.8	31229	16.0	19.1	23728	16.1	17.3	415265	16.2	20.6	54729	16.2	18.2
182163	15.9	19.8	500004	15.9	20.7	54229	16.0	18.4	423783	16.1	21.4	405993	16.2	21.9	340539	16.2	20.1
190118	15.9	19.5	10867	15.9	17.9	261219	16.0	20.4	421702	16.1	20.8	55267	16.2	19.0	327015	16.2	20.5
459170	15.9	21.3	172761	15.9	18.7	101977	16.0	17.9	532488	16.1	21.2	68480	16.2	18.3	330040	16.2	19.8
254765	15.9	20.1	356989	15.9	20.3	178200	16.0	19.6	80421	16.1	19.1	472502	16.2	20.6	278313	16.2	20.5
280622	15.9	21.0	19638	15.9	18.3	310868	16.0	19.4	387863	16.1	19.9	246803	16.2	18.9	315529	16.2	20.7
27592	15.9	18.6	326430	15.9	20.1	459978	16.0	21.8	377499	16.1	20.8	46358	16.2	19.2	239786	16.2	20.3
78164	15.9	19.2	337035	15.9	21.1	12018	16.0	17.2	300075	16.1	20.4	370703	16.2	21.2	500728	16.2	21.2
416827	15.9	20.5	543722	15.9	20.1	534841	16.0	21.0	430817	16.1	20.5	461820	16.2	20.2	397003	16.2	19.2
47797	15.9	17.8	450476	15.9	21.2	18794	16.0	17.6	464156	16.1	20.3	288984	16.2	20.9	389895	16.2	19.8
8168	15.9	16.7	299623	15.9	20.8	175502	16.0	20.4	241542	16.1	19.7	428927	16.2	21.1	222471	16.2	20.2
96019	15.9	20.4	319911	15.9	19.6	138227	16.0	18.8	117009	16.1	18.1	77865	16.2	17.8	269137	16.2	20.1
443873	15.9	20.6	456869	15.9	21.4	509052	16.0	20.9	300266	16.1	20.2	68365	16.2	19.6	526513	16.2	21.2
119042	15.9	18.3	322872	15.9	21.0	229747	16.0	19.6	491765	16.1	22.5	98680	16.2	19.8	495112	16.2	22.0
315583	15.9	20.5	240079	15.9	20.8	503310	16.0	21.0	48412	16.1	18.5	267453	16.2	19.1	374166	16.2	19.1
182584	15.9	20.7	403776	15.9	20.2	337423	16.0	21.4	136097	16.1	19.3	194549	16.2	20.2	379069	16.2	20.4
272493	15.9	21.0	374085	15.9	20.6	544306	16.0	21.4	160301	16.1	19.3	86816	16.2	17.9	329613	16.2	19.1
198888	15.9	20.0	68054	15.9	19.6	544522	16.0	20.2	275193	16.1	20.6	444175	16.2	19.4	534057	16.2	20.4
284798	15.9	20.1	80505	15.9	19.1	18319	16.0	18.5	297736	16.1	20.3	462909	16.2	20.0	149635	16.2	19.9
364888	15.9	20.2	292308	15.9	20.6	501429	16.0	21.2	496056	16.1	21.5	523663	16.2	23.4	484143	16.2	21.2
327912	15.9	20.2	151794	15.9	18.5	534271	16.0	21.1	96424	16.1	17.4	164648	16.2	20.5	142864	16.2	20.1
142098	15.9	19.4	495636	15.9	19.0	196687	16.0	19.4	530811	16.1	21.8	345372	16.2	20.1	255943	16.2	19.2
372984	15.9	20.4	89808	15.9	19.0	454305	16.0	20.8	79992	16.1	18.4	70634	16.2	19.1	500335	16.2	20.9
194389	15.9	20.6	61755	15.9	18.8	416268	16.0	20.1	233113	16.1	19.6	113950	16.2	19.6	407789	16.2	21.1
248076	15.9	19.5	164533	15.9	20.6	434414	16.0	19.6	483536	16.1	20.4	9405	16.2	17.5	330453	16.2	20.8
46314	15.9	18.8	257421	15.9	20.6	247058	16.0	20.3	458247	16.1	21.9	494665	16.2	20.6	165660	16.2	19.2
366231	15.9	20.7	276876	15.9	20.7	84489	16.0	19.2	69207	16.1	19.9	432171	16.2	20.2	310405	16.2	21.0
172409	15.9	20.6	83910	15.9	19.1	169313	16.0	20.2	161867	16.1	20.3	354857	16.2	20.8	158109	16.2	20.4
349672	15.9	19.5	364171	15.9	22.9	226721	16.0	19.9	182473	16.1	19.4	248947	16.2	19.3	299240	16.2	19.1
385260	15.9	21.6	511719	15.9	20.1	495531	16.0	19.7	448463	16.1	20.0	352673	16.2	20.3	314763	16.2	21.2
447281	15.9	20.8	408793	15.9	18.6	218750	16.0	19.9	239731	16.1	19.5	460250	16.2	21.5	361984	16.2	19.9
258192	15.9	21.5	518166	15.9	20.5	85611	16.0	18.9	241725	16.1	19.9	246319	16.2	20.9	169125	16.2	19.7
336037	15.9	20.8	158526	15.9	17.9	466982	16.0	21.4	16667	16.1	17.9	45130	16.2	17.0	130726	16.2	19.4
264689	15.9	19.9	160540	15.9	21.3	56141	16.0	17.9	359611	16.1	20.5	452470	16.2	19.0	56793	16.2	18.5
79305	15.9	17.9	443878	15.9	21.9	60268	16.0	18.0	358123	16.1	19.8	534033	16.2	22.1	470477	16.2	20.8
392487	15.9	19.3	498360	15.9	20.7	219688	16.0	18.9	309760	16.1	19.9	500321	16.2	21.1	410605	16.2	20.2
42279	15.9	18.0	468503	15.9	19.3	382219	16.0	19.4	193777	16.1	18.9	448221	16.2	21.0	30705	16.2	17.6
77797	15.9	17.0	534804	15.9	22.3	363552	16.0	20.9	8152	16.1	18.4	77841	16.2	18.7	118593	16.2	17.7
122124	15.9	18.6	220220	15.9	19.4	178726	16.0	20.6	292234	16.1	20.6	518848	16.2	21.1	349616	16.2	19.9
285360	15.9	20.4	258176	15.9	21.6	392477	16.0	20.7	543743	16.1	21.8	491913	16.2	20.9	350703	16.3	21.1
41642	15.9	19.7	162925	15.9	19.5	139388	16.0	18.4	414576	16.1	21.1	510535	16.2	19.7	406910	16.3	20.6
50642	15.9	17.9	325426	15.9	20.1	420485	16.0	19.8	156559	16.1	19.7	299251	16.2	20.0	61435	16.3	18.4
322904	15.9	20.4	157995	15.9	18.4	330955	16.0	20.6	343380	16.1	20.0	326231	16.2	20.9	138681	16.3	19.7
60984	15.9	19.2	328741	15.9	20.4	323939	16.0	20.9	476764	16.1	22.0	445071	16.2	21.2	137018	16.3	19.6
100698	15.9	19.5	366011	15.9	20.8	432137	16.0	20.8	403344	16.1	20.9	447341	16.2	20.4	363499	16.3	21.5
526724	15.9	21.5	354046	15.9	21.4	119770	16.0	19.4	148564	16.1	20.9	378802	16.2	20.5	310301	16.3	21.9
135127	15.9	19.9	33197	15.9	18.3	8682	16.1	16.7	210268	16.1	20.2	123486	16.2	19.6	85708	16.3	19.1
284193	15.9	20.6	436661	15.9	21.2	13177	16.1	17.3	489654	16.1	20.7	116682	16.2	18.6	320777	16.3	19.9
289066	15.9	20.6	361541	15.9	20.3	497701	16.1	21.9	294580	16.1	20.8	468819	16.2	20.8	299350	16.3	19.7
126090	15.9	19.2	132210	15.9	18.6	212638	16.1	20.1	91305	16.1	19.0	27508	16.2	17.0	379047	16.3	21.5
268525	15.9	20.6	533982	15.9	21.1	327327	16.1	20.8	84509	16.1	19.5	262816	16.2	21.0	140402	16.3	19.9
412517	15.9	20.8	279202	15.9	20.5	289834	16.1	20.2	193974	16.1	20.6	179207	16.2	19.2	165567	16.3	21.2
185429	15.9	19.9	85913	15.9	19.3	139613	16.1	19.7	153999	16.1	19.7	363155	16.2	20.4	375331	16.3	19.7
457237	15.9	20.5	359090	15.9	21.1	495615	16.1	14.7	29619	16.1	19.1	135680	16.2	18.4	343127	16.3	20.4
293709	15.9	20.7	331241	16.0	20.3	153800	16.1	20.6	374483	16.1	20.7	430414	16.2	20.1	117274	16.3	19.5
145838	15.9	18.8	418202	16.0	19.7	95536	16.1	19.9	292750	16.1	20.8	2726	16.2	16.3	94884	16.3	19.4
463680	15.9	22.2	544794	16.0	21.8	26602	16.1	17.5	367453	16.1	21.0	378866	16.2	20.9	365914	16.3	20.1
424650	15.9	19.6	391020	16.0	20.6	334649	16.1	21.0	350635	16.1	20.8	409471	16.2	21.5	529828	16.3	20.2
232363	15.9	20.7	232377	16.0	19.8	113708	16.1	19.2	223492	16.1	20.3	101254	16.2	19.2	297113	16.3	20.0
381238	15.9	21.2	159249	16.0	20.3	497915	16.1	20.8	6168	16.1	16.9	354906	16.2	21.1	281704	16.3	20.7
501119	15.9	21.4	218625	16.0	19.8	490081	16.1	20.8	205339	16.1	18.8	58622	16.2	18.8	141135	16.3	19.1
498342	15.9	21.6	216546	16.0	19.8	341229	16.1	19.9	32773	16.1	19.2	225611	16.2	19.9	498882	16.3	21.8
203487	15.9	21.1	449546	16.0	19.5	207807	16.1	20.4	41819	16.1	17.9	235632	16.2	19.8	323146	16.3	20.6
134869	15.9	20.2	194737	16.0	20.4	335561	16.1	19.7	435978								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
350775	16.3	20.1	109600	16.4	20.1	500349	16.4	21.6	60201	16.5	18.8	420363	16.6	19.2	395956	16.6	21.7
25364	16.3	17.9	194440	16.4	20.1	428148	16.4	20.4	337400	16.5	21.6	105656	16.6	19.5	250131	16.6	19.3
369996	16.3	21.2	168516	16.4	20.0	29302	16.4	18.6	131913	16.5	18.8	533010	16.6	22.3	136634	16.6	18.9
462280	16.3	19.6	265762	16.4	20.3	203125	16.4	20.1	150876	16.5	20.2	528522	16.6	21.4	10942	16.6	18.8
433933	16.3	19.8	147254	16.4	19.7	200927	16.4	21.3	244075	16.5	19.8	406005	16.6	20.3	225616	16.6	20.5
327934	16.3	20.8	84808	16.4	19.6	298979	16.4	21.4	268169	16.5	19.0	206257	16.6	20.1	484285	16.6	19.9
423315	16.3	20.9	22025	16.4	17.2	79859	16.4	20.0	524237	16.5	21.2	253175	16.6	21.6	9942	16.6	17.8
99417	16.3	19.6	60533	16.4	18.7	99921	16.4	19.2	468897	16.5	20.9	63680	16.6	19.5	466344	16.6	20.0
406478	16.3	21.1	38350	16.4	18.2	159003	16.4	20.5	313822	16.5	19.7	217431	16.6	20.9	73678	16.6	19.7
422498	16.3	19.4	58629	16.4	20.3	219799	16.4	20.0	57319	16.5	19.6	191968	16.6	19.0	145686	16.6	20.7
243421	16.3	18.9	497791	16.4	22.3	9795	16.4	18.1	511000	16.5	20.4	498377	16.6	20.2	81670	16.6	18.1
196718	16.3	19.4	89676	16.4	19.3	317580	16.4	21.4	203433	16.5	20.6	405939	16.6	22.1	189004	16.6	20.5
235679	16.3	19.2	128584	16.4	19.4	47538	16.4	17.8	475513	16.5	22.3	426201	16.6	20.5	204405	16.6	19.6
95513	16.3	19.5	8829	16.4	16.9	317082	16.4	19.8	222330	16.5	19.7	525767	16.6	21.8	469102	16.6	20.1
31217	16.3	17.5	492544	16.4	21.0	22518	16.4	18.3	127212	16.5	19.7	293965	16.6	19.0	81506	16.6	18.4
245714	16.3	20.4	337095	16.4	21.7	101655	16.4	19.7	531634	16.5	20.3	457540	16.6	21.7	151165	16.6	20.0
289117	16.3	19.3	267431	16.4	20.6	268447	16.4	21.4	91212	16.5	17.9	502833	16.6	19.8	304288	16.6	20.7
62760	16.3	17.6	407924	16.4	19.9	3918	16.4	15.9	206250	16.5	20.4	269761	16.6	20.7	345550	16.6	20.3
180068	16.3	20.1	535039	16.4	21.1	419711	16.4	20.2	28648	16.5	18.4	524116	16.6	21.8	461692	16.6	20.7
20233	16.3	16.9	2931	16.4	15.6	57755	16.4	18.5	319536	16.5	21.9	431634	16.6	21.1	341820	16.6	20.2
495913	16.3	21.2	244756	16.4	20.5	424733	16.4	19.8	26900	16.5	17.4	159167	16.6	20.4	271144	16.6	20.3
407883	16.3	20.8	267270	16.4	23.8	225236	16.4	20.0	369389	16.5	20.9	401758	16.6	19.8	212302	16.6	19.8
38958	16.3	19.1	108874	16.4	18.5	179969	16.4	20.1	326689	16.5	21.3	430773	16.6	21.8	478418	16.6	21.2
269830	16.3	20.2	536584	16.4	21.4	385190	16.4	20.5	298858	16.5	20.4	542893	16.6	19.3	503114	16.6	19.9
134156	16.3	20.0	227501	16.4	19.9	110127	16.4	19.4	28021	16.5	18.9	199958	16.6	19.6	173812	16.6	19.2
365056	16.3	19.5	461092	16.4	20.7	541110	16.4	21.2	454028	16.5	20.3	385120	16.6	19.8	367534	16.6	21.1
373982	16.3	21.5	375405	16.4	20.6	459072	16.4	19.7	102221	16.5	20.3	23973	16.6	16.7	419259	16.6	20.9
249524	16.3	19.4	370790	16.4	21.1	8961	16.4	17.4	53125	16.5	19.4	282129	16.6	19.9	137982	16.6	19.0
67303	16.3	18.6	77121	16.4	18.8	348717	16.4	19.7	287648	16.5	19.5	279230	16.6	20.3	538716	16.6	20.5
228571	16.3	20.6	40880	16.4	19.4	10469	16.4	17.7	96442	16.5	19.2	202772	16.6	20.3	521051	16.6	20.3
198670	16.3	21.3	273875	16.4	19.6	123151	16.4	18.8	154453	16.5	21.5	205633	16.6	19.6	187586	16.6	19.6
362687	16.3	20.6	23022	16.4	18.1	61013	16.4	17.6	179153	16.5	19.6	360091	16.6	20.6	196577	16.6	19.3
539814	16.3	20.3	529383	16.4	20.3	6935	16.4	17.4	117849	16.5	20.4	266375	16.6	20.5	497803	16.6	21.2
147377	16.3	20.0	378865	16.4	21.1	536772	16.4	19.7	133990	16.5	19.5	202175	16.6	19.2	405182	16.6	21.8
544545	16.3	21.0	383843	16.4	19.5	204855	16.5	18.7	500451	16.5	21.9	150802	16.6	19.2	377834	16.6	20.9
425018	16.3	20.4	505004	16.4	20.6	85937	16.5	18.2	500399	16.5	21.2	427198	16.6	20.7	444647	16.6	21.2
387161	16.3	21.5	59678	16.4	18.5	394373	16.5	19.5	394421	16.5	19.1	229177	16.6	20.8	424066	16.6	20.3
52196	16.3	18.2	348266	16.4	21.1	5455	16.5	16.4	375984	16.5	20.6	358656	16.6	19.4	330034	16.6	20.4
391787	16.3	19.8	535878	16.4	21.0	336413	16.5	20.7	341296	16.5	21.0	190021	16.6	18.9	528365	16.6	21.6
385063	16.3	20.2	526874	16.4	20.0	529891	16.5	18.6	460056	16.5	21.7	453813	16.6	20.7	444242	16.6	21.2
27990	16.3	17.1	503460	16.4	20.2	544691	16.5	20.5	431580	16.5	20.2	440670	16.6	21.5	417696	16.6	20.3
28965	16.3	18.2	246012	16.4	20.6	155424	16.5	20.0	36915	16.5	18.5	345235	16.6	21.0	496516	16.6	20.7
155982	16.3	19.2	524171	16.4	21.3	37382	16.5	17.2	433687	16.5	20.5	135331	16.6	19.1	466922	16.6	20.7
209424	16.3	20.2	136253	16.4	19.1	455191	16.5	21.2	60136	16.5	17.9	443238	16.6	20.2	465695	16.6	21.2
47105	16.3	17.6	122718	16.4	19.2	214652	16.5	20.6	132840	16.5	20.1	290392	16.6	20.6	423515	16.6	21.3
419319	16.3	22.1	490096	16.4	21.4	168492	16.5	19.6	113601	16.5	19.9	317614	16.6	20.5	355951	16.6	19.1
245070	16.3	20.5	46	16.4	11.9	465777	16.5	20.9	278810	16.5	20.9	229999	16.6	20.3	411505	16.6	22.1
503489	16.3	19.4	85947	16.4	17.4	114557	16.5	18.7	402982	16.5	21.0	116985	16.6	18.9	435247	16.7	21.4
531615	16.3	22.6	348832	16.4	20.9	40773	16.5	18.4	114584	16.5	19.0	84845	16.6	18.3	453404	16.7	22.3
152305	16.3	20.2	338974	16.4	20.2	56262	16.5	17.6	490335	16.5	22.3	238825	16.6	19.3	39197	16.7	16.7
88505	16.3	18.5	456709	16.4	21.2	111418	16.5	19.9	324525	16.5	21.3	49878	16.6	17.8	168887	16.7	19.8
501381	16.3	20.5	248832	16.4	20.4	170859	16.5	19.4	536234	16.5	20.5	377240	16.6	20.8	455762	16.7	20.3
301318	16.3	19.9	82053	16.4	19.2	503113	16.5	20.9	271085	16.5	19.4	522030	16.6	19.5	85607	16.7	19.0
332436	16.3	19.7	3471	16.4	16.3	269628	16.5	20.3	337609	16.5	20.4	122036	16.6	18.2	529131	16.7	21.9
138853	16.3	19.1	408046	16.4	20.9	298688	16.5	19.1	200632	16.5	19.7	532698	16.6	21.4	180650	16.7	18.2
2523	16.3	15.4	120932	16.4	18.9	177377	16.5	19.0	47957	16.5	18.5	351571	16.6	20.5	471618	16.7	20.4
134258	16.3	20.3	110311	16.4	20.9	506459	16.5	18.6	367196	16.5	20.1	503053	16.6	20.4	241472	16.7	19.3
77779	16.3	18.4	496965	16.4	22.3	510564	16.5	21.1	134481	16.5	19.3	226724	16.6	20.0	465400	16.7	19.8
408559	16.3	18.8	511826	16.4	20.5	426864	16.5	20.6	245987	16.5	20.0	495676	16.6	19.5	452495	16.7	19.5
104391	16.3	18.7	171983	16.4	20.7	220191	16.5	19.5	61474	16.5	19.0	121019	16.6	19.6	38742	16.7	19.7
111549	16.3	18.8	529967	16.4	21.8	398320	16.5	20.3	255836	16.5	20.0	94592	16.6	19.5	92804	16.7	19.2
160368	16.3	18.9	33232	16.4	17.8	326980	16.5	18.9	155767	16.5	19.6	145287	16.6	18.8	86033	16.7	19.4
339629	16.3	20.2	340865	16.4	20.2	83534	16.5	18.7	74515	16.5	18.3	10107	16.6	18.6	98098	16.7	18.9
209356	16.3	19.8	71331	16.4	19.2	282212	16.5	19.8	114178	16.5	19.4	344245	16.6	21.1	207345	16.7	20.2
302983	16.3	21.3	275183	16.4	20.7	119986	16.5	18.8	95355	16.5	18.1	374573	16.6	22.1	535338	16.7	22.0
41049	16.3	17.8	238957	16.4	19.6	421651	16.5	21.2	143030	16.5	20.0	500421	16.6	21.4	530227	16.7	22.1
388302	16.3	21.5	221392	16.4	20.3	396630	16.5	21.1	413676	16.5	20.9	535937	16.6	21.3	278174	16.7	21.0
413907	16.4	21.3	534630	16.4	21.1	179594	16.5	18.5	41435	16.5	17.7	220769	16.6	19.4	244025	16.7	20.4
377210	16.4	21.1	426554	16.4	21.1	544708	16.5	20.2	490359	16.5	20.7</						

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
110646	16.7	19.2	10968	16.7	17.8	322220	16.8	20.5	398652	16.9	20.8	203739	16.9	20.2	236309	17.0	19.8
85961	16.7	18.7	263721	16.7	18.1	113794	16.8	18.8	258209	16.9	19.0	432166	16.9	20.6	413998	17.0	20.4
164565	16.7	19.4	510439	16.7	21.4	289897	16.8	20.5	130531	16.9	19.8	286209	16.9	20.1	90712	17.0	19.6
530307	16.7	21.5	538679	16.7	21.0	230935	16.8	20.3	30967	16.9	17.8	168130	16.9	18.6	1292	17.0	14.4
535738	16.7	20.3	158532	16.7	19.4	57101	16.8	19.5	392594	16.9	20.8	149540	16.9	18.8	503140	17.0	20.6
524311	16.7	19.5	300190	16.8	19.3	144642	16.8	19.5	501428	16.9	22.0	135129	16.9	19.4	463503	17.0	20.5
229386	16.7	19.4	427655	16.8	21.2	163561	16.8	19.4	524321	16.9	22.4	289092	16.9	21.4	393239	17.0	21.4
118039	16.7	20.1	372631	16.8	20.9	109762	16.8	18.5	523152	16.9	20.1	172508	16.9	20.5	467692	17.0	20.5
496600	16.7	21.0	354987	16.8	19.2	8316	16.8	16.3	499628	16.9	20.0	224403	16.9	20.8	204340	17.0	20.2
274286	16.7	20.5	358700	16.8	20.6	43828	16.8	18.1	284852	16.9	20.4	536533	16.9	21.1	239243	17.0	19.0
491162	16.7	20.7	400277	16.8	20.4	88522	16.8	20.0	337882	16.9	21.5	233486	16.9	19.8	210920	17.0	20.1
37480	16.7	18.4	465963	16.8	21.1	186129	16.8	20.3	368611	16.9	20.3	244159	16.9	20.2	429358	17.0	19.3
134773	16.7	19.6	530628	16.8	20.3	492032	16.8	19.9	323439	16.9	20.2	499151	16.9	20.1	471448	17.0	19.6
188037	16.7	19.4	111733	16.8	18.3	340663	16.8	21.0	35170	16.9	17.9	320800	16.9	20.4	299441	17.0	20.4
138832	16.7	20.4	200775	16.8	18.9	100837	16.8	18.4	299968	16.9	20.2	542097	16.9	20.6	329406	17.0	20.7
372896	16.7	20.1	260828	16.8	21.7	173825	16.8	20.7	519353	16.9	20.6	534400	16.9	19.9	443891	17.0	20.9
133202	16.7	19.1	10321	16.8	16.8	413920	16.8	20.7	113891	16.9	19.5	264723	16.9	19.4	369534	17.0	21.0
412526	16.7	20.4	498958	16.8	20.9	206268	16.8	20.0	136031	16.9	19.3	204879	16.9	19.7	279865	17.0	20.1
268531	16.7	20.5	363581	16.8	21.3	82454	16.8	19.3	450175	16.9	21.5	450337	16.9	22.1	499476	17.0	20.9
78898	16.7	19.5	542312	16.8	21.5	335767	16.8	20.7	461966	16.9	22.0	208062	16.9	19.5	324581	17.0	20.2
496333	16.7	21.1	80211	16.8	18.7	302083	16.8	21.0	419221	16.9	19.6	460169	16.9	19.9	240866	17.0	19.8
236672	16.7	19.9	346198	16.8	20.2	362635	16.8	21.1	228733	16.9	20.4	169863	16.9	19.2	236905	17.0	19.7
146484	16.7	19.3	20493	16.8	18.2	57205	16.8	19.1	238111	16.9	19.2	242095	16.9	20.2	20726	17.0	16.7
326084	16.7	21.8	320962	16.8	19.4	328271	16.8	20.3	507624	16.9	20.3	145090	16.9	19.6	75856	17.0	18.8
295726	16.7	19.7	388628	16.8	20.7	400362	16.8	20.9	414851	16.9	21.4	345690	16.9	20.5	6582	17.0	17.9
133118	16.7	18.8	499941	16.8	21.3	257819	16.8	19.3	191035	16.9	20.0	488475	16.9	21.0	275678	17.0	20.1
151871	16.7	19.4	244628	16.8	21.2	251355	16.8	18.8	295132	16.9	20.2	348968	16.9	21.5	189784	17.0	19.3
64961	16.7	19.6	143405	16.8	19.4	545037	16.8	21.5	413138	16.9	21.2	144818	16.9	19.2	11011	17.0	17.7
460626	16.7	20.8	200374	16.8	20.2	409954	16.8	19.4	448273	16.9	21.5	105024	16.9	18.9	327320	17.0	19.4
166179	16.7	18.7	434930	16.8	21.1	404137	16.8	20.1	167026	16.9	18.9	290987	16.9	20.1	538126	17.0	19.7
191671	16.7	20.1	252227	16.8	20.4	375449	16.8	21.2	526226	16.9	21.9	232372	16.9	20.2	459366	17.0	20.0
118815	16.7	18.5	86514	16.8	17.9	176840	16.8	20.7	176513	16.9	20.8	527342	16.9	22.0	534803	17.0	19.7
155281	16.7	20.9	101773	16.8	19.5	272855	16.8	19.8	532749	16.9	22.4	186562	16.9	20.6	422228	17.0	21.6
435956	16.7	21.0	535647	16.8	20.9	338271	16.8	20.5	390814	16.9	19.0	336003	16.9	20.0	32541	17.0	17.9
31833	16.7	17.0	339901	16.8	20.0	398119	16.8	19.3	279601	16.9	20.3	456980	16.9	21.2	165257	17.0	18.6
104115	16.7	19.7	92600	16.8	18.3	401383	16.8	20.1	224686	16.9	20.5	76574	16.9	18.7	79253	17.0	19.1
298790	16.7	19.9	18297	16.8	18.2	35892	16.8	17.3	500277	16.9	21.7	153348	16.9	18.8	367924	17.0	19.7
409461	16.7	20.9	327932	16.8	21.0	70192	16.8	18.2	529321	16.9	21.4	490823	16.9	20.2	14078	17.0	17.6
152470	16.7	18.7	421953	16.8	19.2	432923	16.8	20.1	381170	16.9	19.5	185737	16.9	19.9	298943	17.1	20.9
486712	16.7	21.4	131865	16.8	19.8	33573	16.8	17.1	327884	16.9	19.8	122597	16.9	19.8	203268	17.1	20.5
349519	16.7	20.9	425927	16.8	20.2	224315	16.8	20.1	532977	16.9	21.9	169941	16.9	19.8	313628	17.1	20.6
190433	16.7	19.7	453971	16.8	19.8	156730	16.8	19.7	492650	16.9	21.3	179949	16.9	20.2	480232	17.1	20.1
296715	16.7	20.9	412219	16.8	20.1	88019	16.8	19.0	150843	16.9	20.2	291098	16.9	18.6	473125	17.1	21.5
140943	16.7	19.8	347860	16.8	19.5	414824	16.8	21.4	531430	16.9	22.2	155214	16.9	19.8	32163	17.1	17.4
178141	16.7	19.4	451718	16.8	20.6	1946	16.8	15.1	431258	16.9	20.0	39113	16.9	18.5	280654	17.1	21.0
497879	16.7	21.1	17476	16.8	18.1	13967	16.8	17.1	189469	16.9	19.1	220613	16.9	19.3	182369	17.1	20.6
26648	16.7	18.6	186681	16.8	17.9	105453	16.8	19.4	91666	16.9	19.2	250187	16.9	20.6	59578	17.1	18.3
525471	16.7	21.0	199030	16.8	21.4	456312	16.8	21.7	256074	16.9	20.7	458283	16.9	21.7	142882	17.1	19.0
176641	16.7	20.0	57748	16.8	17.7	239562	16.8	19.5	353234	16.9	20.7	357356	16.9	20.0	542433	17.1	20.9
500600	16.7	21.1	401983	16.8	22.3	5500	16.8	16.6	536116	16.9	21.3	378811	16.9	20.4	239850	17.1	17.9
300120	16.7	21.2	412488	16.8	20.0	239546	16.8	20.2	318880	16.9	19.5	82481	16.9	19.4	57149	17.1	19.3
526792	16.7	22.3	413897	16.8	20.4	343069	16.9	19.9	98416	16.9	17.6	45524	16.9	18.1	366942	17.1	20.9
169280	16.7	19.6	140531	16.8	19.2	1839	16.9	16.4	469120	16.9	19.9	117988	16.9	18.3	181236	17.1	19.5
144187	16.7	18.7	29301	16.8	17.6	218923	16.9	19.6	151145	16.9	20.2	64336	16.9	18.9	237477	17.1	20.5
520062	16.7	21.0	119231	16.8	19.5	371039	16.9	20.7	399962	16.9	20.4	496924	16.9	20.7	525468	17.1	21.0
369297	16.7	19.8	490258	16.8	20.9	322836	16.9	20.6	451015	16.9	21.9	309181	16.9	19.5	63442	17.1	17.9
79495	16.7	18.4	305056	16.8	21.0	376151	16.9	20.5	173811	16.9	20.8	35813	16.9	18.2	419225	17.1	20.5
459937	16.7	20.8	451664	16.8	20.5	165491	16.9	19.3	129472	16.9	20.3	366849	16.9	21.1	240540	17.1	20.1
464490	16.7	21.1	506024	16.8	20.4	190184	16.9	20.0	55169	16.9	19.3	525693	16.9	21.0	276217	17.1	20.5
57592	16.7	18.3	468169	16.8	20.9	126995	16.9	19.3	109404	16.9	18.4	64085	16.9	18.3	20927	17.1	18.6
3926	16.7	17.2	480803	16.8	20.1	327946	16.9	19.9	265734	16.9	21.0	194399	16.9	20.3	2833	17.1	15.6
387596	16.7	21.7	124733	16.8	19.7	430337	16.9	21.3	154685	16.9	19.2	385103	16.9	20.9	545030	17.1	21.4
286406	16.7	20.2	146117	16.8	18.7	253295	16.9	21.2	417563	16.9	21.0	295043	16.9	20.0	238106	17.1	19.3
286903	16.7	19.6	152911	16.8	19.4	532478	16.9	21.9	321863	16.9	21.0	544114	16.9	21.8	237710	17.1	19.2
72377	16.7	19.3	207331	16.8	18.6	204610	16.9	19.7	528776	16.9	21.5	303431	16.9	20.9	528541	17.1	20.6
5634	16.7	16.4	149920	16.8	19.6	321280	16.9	19.6	48575	16.9	18.2	404851	16.9	20.0	285784	17.1	21.0
340376	16.7	21.1	135094	16.8	19.5	38414	16.9	19.2	244062	16.9	20.6	104328	16.9	18.8	334185	17.1	20.6
199490	16.7	20.4	197138	16.8	19.4	171540	16.9	19.3	519996	16.9	21.6	36919	16.9	17.4	63036	17.1	17.5
360225	16.7	20.5	82101	16.8	18.4	491902	16.9	21.5	1196								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
275612	17.1	18.0	372689	17.2	20.6	82022	17.2	18.9	431276	17.3	20.5	244738	17.4	19.1	531646	17.4	20.7
38005	17.1	17.3	491924	17.2	20.4	248411	17.2	18.9	422957	17.3	22.2	233513	17.4	19.1	426797	17.4	20.5
95100	17.1	19.5	448281	17.2	21.2	29341	17.2	18.9	105707	17.3	19.1	168327	17.4	19.4	237316	17.4	20.1
372522	17.1	20.9	247334	17.2	19.7	299943	17.2	20.2	534842	17.3	21.6	386273	17.4	20.2	511564	17.4	20.3
186023	17.1	19.9	538351	17.2	21.0	475182	17.2	20.1	474099	17.3	20.8	171526	17.4	20.0	408882	17.4	21.6
371059	17.1	18.3	294966	17.2	19.9	31930	17.2	18.0	363556	17.3	19.9	458956	17.4	20.4	172325	17.4	19.4
344381	17.1	21.1	351673	17.2	21.6	43696	17.2	17.7	366093	17.3	20.1	476	17.4	12.0	489697	17.4	20.2
105602	17.1	19.0	490350	17.2	20.8	205899	17.2	18.9	441853	17.3	21.2	245947	17.4	20.0	83944	17.4	18.4
155678	17.1	18.6	426963	17.2	20.9	353239	17.2	20.6	82503	17.3	18.4	507479	17.4	21.3	363137	17.4	18.5
36560	17.1	18.8	104482	17.2	19.1	290248	17.2	20.6	276278	17.3	19.8	299955	17.4	20.3	55203	17.4	18.2
78282	17.1	19.2	224992	17.2	19.8	135243	17.2	20.0	10926	17.3	18.5	165604	17.4	19.7	501003	17.4	21.2
122455	17.1	19.9	34823	17.2	18.8	402494	17.2	18.7	61639	17.3	18.6	17164	17.4	17.1	132847	17.4	19.2
399981	17.1	19.7	284328	17.2	19.6	449176	17.2	21.7	263481	17.3	19.6	502818	17.4	20.1	398134	17.4	20.6
292528	17.1	21.8	495442	17.2	20.8	299268	17.2	20.8	378787	17.3	20.5	423421	17.4	20.3	504824	17.4	20.8
292454	17.1	20.6	37407	17.2	17.9	474828	17.2	20.1	398697	17.3	20.0	21773	17.4	19.0	464159	17.4	21.6
144803	17.1	19.6	285880	17.2	20.6	375016	17.2	20.2	426275	17.3	20.4	408647	17.4	19.4	5142	17.4	17.3
3359	17.1	17.0	235578	17.2	18.2	282874	17.2	18.8	198870	17.3	19.8	500257	17.4	19.7	203560	17.4	19.7
462331	17.1	20.7	345679	17.2	21.7	282238	17.2	20.0	388262	17.3	20.3	404934	17.4	19.7	212793	17.4	19.7
14271	17.1	17.5	426818	17.2	20.9	421882	17.2	20.3	352688	17.3	20.9	544598	17.4	21.3	496233	17.4	21.0
324730	17.1	19.8	357055	17.2	20.0	171946	17.3	20.2	369577	17.3	20.8	5691	17.4	16.4	240522	17.4	19.6
489203	17.1	20.8	109337	17.2	19.7	436286	17.3	20.6	531477	17.3	22.5	389783	17.4	19.9	210945	17.4	19.7
93315	17.1	19.4	51861	17.2	18.3	187723	17.3	20.0	270146	17.3	21.3	544602	17.4	21.6	459905	17.4	20.7
174847	17.1	17.7	35834	17.2	16.3	366246	17.3	19.3	503182	17.3	20.1	92794	17.4	19.2	318030	17.4	20.4
119428	17.1	18.2	330911	17.2	20.5	61679	17.3	19.9	348416	17.3	20.0	171885	17.4	19.8	510568	17.4	20.9
28387	17.1	17.5	11986	17.2	16.7	337778	17.3	20.5	318271	17.3	21.0	182714	17.4	20.4	317150	17.4	21.5
142767	17.1	19.3	10249	17.2	18.1	334948	17.3	19.9	53508	17.3	17.8	525766	17.4	20.8	65453	17.4	18.3
276935	17.1	20.4	345329	17.2	20.2	247590	17.3	21.1	169982	17.3	20.4	130739	17.4	19.4	401605	17.4	20.2
88590	17.1	18.8	199088	17.2	20.8	79304	17.3	18.5	218653	17.3	19.1	153267	17.4	21.6	292823	17.4	20.7
267434	17.1	20.8	370472	17.2	20.7	258401	17.3	20.2	381913	17.3	19.9	290043	17.4	20.7	341781	17.4	20.8
447252	17.1	21.0	373543	17.2	20.6	120619	17.3	19.8	529727	17.3	20.1	59730	17.4	18.8	227913	17.4	20.1
543369	17.1	21.6	245990	17.2	20.2	299817	17.3	19.4	159961	17.3	20.1	340766	17.4	21.2	533064	17.4	22.4
254638	17.1	20.7	238081	17.2	19.7	280374	17.3	20.4	48694	17.3	16.9	435883	17.4	21.3	187873	17.5	19.6
55453	17.1	18.7	241325	17.2	20.0	123369	17.3	19.4	88311	17.3	19.0	531996	17.4	21.3	104055	17.5	19.4
435251	17.1	21.3	457146	17.2	20.7	449249	17.3	20.5	414868	17.3	20.9	312280	17.4	21.0	289284	17.5	20.3
320419	17.1	20.4	232821	17.2	19.5	345653	17.3	20.0	204588	17.3	19.9	346782	17.4	20.3	95094	17.5	19.2
433573	17.1	21.0	215799	17.2	19.7	311067	17.3	20.7	401379	17.3	20.0	544930	17.4	21.0	101855	17.5	17.6
544010	17.1	21.3	82805	17.2	18.2	372816	17.3	19.5	82332	17.3	18.9	449477	17.4	19.9	35327	17.5	19.7
271751	17.1	20.6	260738	17.2	20.8	534854	17.3	22.2	465745	17.3	21.3	391669	17.4	21.0	67421	17.5	19.9
298775	17.1	20.3	28125	17.2	16.8	434065	17.3	20.5	335730	17.3	20.6	433899	17.4	20.6	432180	17.5	20.8
208451	17.1	20.5	469726	17.2	20.5	248427	17.3	19.6	241184	17.3	19.0	155065	17.4	19.0	284219	17.5	20.3
500015	17.1	20.5	345101	17.2	20.9	345601	17.3	21.0	529309	17.3	21.2	54336	17.4	18.6	242778	17.5	20.2
200856	17.1	20.9	424980	17.2	21.0	118392	17.3	18.6	363135	17.3	21.4	542273	17.4	22.2	203550	17.5	20.2
270600	17.1	19.7	495249	17.2	20.3	192597	17.3	20.5	157004	17.3	18.9	461247	17.4	20.7	18837	17.5	17.8
487863	17.1	20.3	19613	17.2	17.7	89556	17.3	19.2	194574	17.3	20.4	450989	17.4	20.4	490428	17.5	22.0
146888	17.1	19.7	326421	17.2	21.2	387440	17.3	21.3	435938	17.3	21.7	204969	17.4	21.2	200807	17.5	18.9
225553	17.1	20.0	267188	17.2	21.7	543919	17.3	21.9	58926	17.3	19.6	135136	17.4	19.9	226766	17.5	20.0
158283	17.1	19.8	129552	17.2	20.3	57716	17.3	19.8	484214	17.3	21.9	366464	17.4	20.5	509017	17.5	20.5
237358	17.1	20.6	259947	17.2	20.9	372533	17.3	19.7	210385	17.3	21.0	346703	17.4	20.1	6424	17.5	17.1
5130	17.1	16.6	337825	17.2	21.0	500017	17.3	21.0	152530	17.3	20.9	5174	17.4	16.4	372458	17.5	20.9
102095	17.1	19.0	181874	17.2	23.6	410015	17.3	19.8	383591	17.3	19.3	182332	17.4	19.8	492238	17.5	20.8
16212	17.1	17.8	352389	17.2	20.9	527658	17.3	21.2	368577	17.3	21.5	334873	17.4	20.6	126189	17.5	20.0
497954	17.1	20.9	61546	17.2	17.4	401989	17.3	21.4	482791	17.3	20.2	464986	17.4	20.5	337416	17.5	21.5
532463	17.1	21.7	403022	17.2	21.3	532075	17.3	21.3	150304	17.3	18.7	148571	17.4	20.6	527535	17.5	20.8
224523	17.1	20.2	16351	17.2	18.8	318816	17.3	19.8	31255	17.3	18.2	350269	17.4	20.6	86393	17.5	19.2
533030	17.1	22.0	288893	17.2	20.2	500529	17.3	21.6	6807	17.3	17.8	503102	17.4	20.7	202133	17.5	20.1
53232	17.1	18.1	351922	17.2	21.2	44625	17.3	18.9	124978	17.3	19.3	205292	17.4	20.3	410039	17.5	21.4
491047	17.1	20.6	330881	17.2	20.1	400306	17.3	20.3	486361	17.3	19.7	396182	17.4	19.8	530074	17.5	20.9
14557	17.1	17.9	66314	17.2	18.1	402961	17.3	20.9	180584	17.3	20.3	482084	17.4	20.6	283983	17.5	20.6
132013	17.1	18.5	499133	17.2	21.4	486909	17.3	19.3	72926	17.3	18.8	111365	17.4	19.5	536230	17.5	21.3
388148	17.1	20.6	203381	17.2	20.5	530027	17.3	19.7	285631	17.3	20.5	169394	17.4	20.3	208474	17.5	20.5
400255	17.1	20.7	248696	17.2	20.7	241432	17.3	20.9	67451	17.3	17.7	163502	17.4	20.5	508582	17.5	21.1
172478	17.1	19.9	179985	17.2	19.8	498879	17.3	20.7	112382	17.3	19.0	73671	17.4	17.8	200659	17.5	20.2
7874	17.1	16.7	173874	17.2	19.4	462901	17.3	21.1	425304	17.3	21.0	124573	17.4	19.1	101768	17.5	18.0
527727	17.1	20.9	312038	17.2	20.9	145621	17.3	20.5	415960	17.3	20.6	203887	17.4	20.2	31333	17.5	18.3
123413	17.1	19.3	318904	17.2	21.1	173714	17.3	20.6	310777	17.4	21.7	406539	17.4	21.1	425134	17.5	21.3
49579	17.2	17.7	465660	17.2	21.6	363231	17.3	20.1	109288	17.4	19.5	213256	17.4	19.3	400605	17.5	20.1
523895	17.2	20.9	364719	17.2	21.8	409920	17.3	20.3	259962	17.4	20.1	387505	17.4	17.7	346826	17.5	19.8
60993	17.2	18.1	369817	17.2	21.3	388379	17.3	20.9	340725	17.4	20.0	151663	17.4	19.1	32808	17.5	18.0
83833	17.2	17.9	402096	17.2	21.6	117122	17.3	20.1	448109								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
148852	17.5	19.7	145312	17.5	18.7	435957	17.6	20.2	429059	17.7	20.7	500592	17.8	21.0	445927	17.8	20.8
367513	17.5	19.6	45536	17.6	18.4	311969	17.6	21.1	57115	17.7	19.2	28277	17.8	17.7	246530	17.8	20.1
6678	17.5	16.5	162849	17.6	20.8	105105	17.6	19.0	57215	17.7	18.5	142877	17.8	19.1	448123	17.8	20.5
270280	17.5	21.4	361681	17.6	20.7	151642	17.6	19.0	171967	17.7	19.9	283572	17.8	21.1	206776	17.8	21.2
490265	17.5	21.0	132401	17.6	19.7	138337	17.6	19.0	90681	17.7	17.9	223011	17.8	20.2	297421	17.8	20.5
131102	17.5	20.0	240042	17.6	20.8	237793	17.6	18.9	217960	17.7	20.1	526973	17.8	20.8	543969	17.8	21.1
55389	17.5	17.6	203870	17.6	19.0	526629	17.6	21.8	101615	17.7	19.2	536719	17.8	20.2	356939	17.8	19.8
173019	17.5	20.7	114199	17.6	19.5	246717	17.6	20.0	88390	17.7	18.5	499449	17.8	20.6	263632	17.8	19.5
418879	17.5	21.0	500700	17.6	22.1	221369	17.6	20.0	325885	17.7	21.3	431320	17.8	20.3	306865	17.8	21.2
344095	17.5	20.1	62623	17.6	18.2	338147	17.6	21.5	189027	17.7	18.5	218010	17.8	20.4	490205	17.8	21.4
456799	17.5	18.5	161979	17.6	19.9	451912	17.6	20.2	492017	17.7	20.5	387842	17.8	19.6	212948	17.8	21.5
491942	17.5	21.0	132002	17.6	20.0	178276	17.6	19.4	544944	17.7	20.8	16224	17.8	17.3	435989	17.8	20.4
149947	17.5	19.5	379440	17.6	21.3	369376	17.6	21.1	350066	17.7	19.6	335198	17.8	20.5	170123	17.8	19.5
170787	17.5	18.9	405924	17.6	19.5	288797	17.6	20.3	88918	17.7	19.0	368804	17.8	20.8	544314	17.8	21.2
270484	17.5	19.6	181753	17.6	19.3	21845	17.6	17.0	300001	17.7	20.9	454336	17.8	21.4	491734	17.8	20.7
354816	17.5	20.6	497829	17.6	18.9	58254	17.6	18.7	54115	17.7	19.0	491948	17.8	20.6	29010	17.8	17.6
105339	17.5	21.1	385963	17.6	21.1	385963	17.6	20.8	298968	17.7	21.2	423229	17.8	20.2	454369	17.8	20.0
18643	17.5	17.1	271652	17.6	20.2	124139	17.6	17.4	225377	17.7	19.9	344509	17.8	20.3	122875	17.8	19.7
303394	17.5	20.2	527167	17.6	21.4	354916	17.6	21.2	215711	17.7	20.4	47017	17.8	18.0	17442	17.8	18.9
306552	17.5	19.3	537286	17.6	20.8	219360	17.6	20.2	538463	17.7	20.7	301161	17.8	20.7	19241	17.8	18.2
74807	17.5	19.6	40621	17.6	19.0	277000	17.6	20.7	62899	17.7	17.5	23540	17.8	17.4	110043	17.8	19.8
350618	17.5	20.9	536012	17.6	20.8	122250	17.6	19.1	327867	17.7	20.8	378300	17.8	20.0	419168	17.8	21.5
195866	17.5	20.1	190776	17.6	20.1	380401	17.6	20.7	315639	17.7	19.9	534738	17.8	21.6	124521	17.8	19.7
39702	17.5	18.3	305669	17.6	19.2	305887	17.7	20.5	397861	17.7	20.5	61910	17.8	19.6	93752	17.8	18.0
144259	17.5	18.8	19805	17.6	19.1	464138	17.7	20.1	386119	17.7	20.0	231673	17.8	17.8	29069	17.8	16.4
415083	17.5	19.8	127902	17.6	19.3	388306	17.7	21.1	508033	17.7	20.4	498405	17.8	21.3	33554	17.9	17.2
148861	17.5	19.6	227384	17.6	20.0	536997	17.7	21.1	274367	17.7	20.5	515736	17.8	20.7	526215	17.9	21.5
241078	17.5	20.5	5120	17.6	17.4	544642	17.7	20.1	414244	17.7	17.8	40080	17.8	18.1	523862	17.9	21.7
471130	17.5	20.8	259996	17.6	18.5	169337	17.7	20.1	387082	17.7	21.5	142304	17.8	20.4	383743	17.9	21.0
388705	17.5	22.5	285602	17.6	20.6	150949	17.7	20.5	378933	17.7	19.8	308413	17.8	20.9	390189	17.9	20.2
450994	17.5	20.9	445589	17.6	21.6	384825	17.7	21.6	451569	17.7	20.1	141049	17.8	20.0	111876	17.9	18.9
311021	17.5	19.5	179513	17.6	21.6	369323	17.7	21.0	266525	17.7	20.1	434873	17.8	20.8	192379	17.9	19.8
296776	17.5	20.3	517230	17.6	22.1	506693	17.7	22.2	171236	17.7	19.5	534880	17.8	20.3	344548	17.9	20.6
120613	17.5	19.4	365990	17.6	20.0	522195	17.7	19.2	249112	17.7	20.3	485429	17.8	20.3	391397	17.9	19.7
117920	17.5	20.3	285874	17.6	20.7	235528	17.7	19.7	501433	17.7	20.6	109765	17.8	20.2	49617	17.9	18.4
268296	17.5	21.1	421301	17.6	20.9	533055	17.7	21.3	601116	17.7	19.4	381252	17.8	19.5	32425	17.9	18.4
419867	17.5	20.3	466346	17.6	20.3	406221	17.7	22.6	417228	17.7	21.1	58393	17.8	20.9	518439	17.9	20.8
302359	17.5	18.4	496226	17.6	20.4	240037	17.7	20.8	209796	17.7	19.8	389923	17.8	21.7	258279	17.9	19.9
343108	17.5	20.5	437124	17.6	20.6	448328	17.7	22.1	327353	17.7	20.6	29303	17.8	17.5	209442	17.9	20.4
190156	17.5	20.0	115249	17.6	19.5	276844	17.7	19.5	428748	17.7	20.2	78749	17.8	18.5	268112	17.9	20.2
534154	17.5	20.1	238086	17.6	20.0	500516	17.7	21.4	14652	17.7	18.0	202827	17.8	19.9	450477	17.9	20.6
33278	17.5	17.5	245996	17.6	19.8	53660	17.7	18.1	149614	17.7	18.7	70147	17.8	17.7	3240	17.9	16.8
221881	17.5	18.8	244155	17.6	19.7	516157	17.7	21.2	290278	17.7	21.3	398396	17.8	20.4	393842	17.9	20.7
76600	17.5	19.3	253198	17.6	19.9	471866	17.7	20.4	400597	17.7	19.9	48249	17.8	18.9	147237	17.9	20.4
57699	17.5	18.8	160774	17.6	19.0	17117	17.7	16.6	61628	17.7	18.0	432160	17.8	21.3	113288	17.9	19.5
524223	17.5	21.6	350636	17.6	21.1	336611	17.7	20.7	534232	17.7	21.0	231794	17.8	20.3	467700	17.9	20.7
146811	17.5	18.6	534268	17.6	22.3	32107	17.7	18.7	258554	17.7	20.8	346128	17.8	21.5	541828	17.9	20.4
65446	17.5	18.8	329020	17.6	20.5	445281	17.7	20.9	532209	17.7	21.0	500412	17.8	21.4	456648	17.9	21.4
51724	17.5	17.9	277488	17.6	21.1	498041	17.7	20.5	241438	17.7	20.1	317638	17.8	17.7	369829	17.9	20.4
472726	17.5	20.6	245056	17.6	18.7	519929	17.7	20.8	320932	17.7	20.0	293450	17.8	19.2	204145	17.9	19.9
534727	17.5	20.8	350738	17.6	21.3	424978	17.7	20.3	17625	17.7	19.8	497655	17.8	20.4	30664	17.9	17.6
264493	17.5	21.1	11372	17.6	17.6	459145	17.7	21.2	304656	17.7	19.4	176636	17.8	19.6	418412	17.9	20.6
165777	17.5	19.8	115154	17.6	19.1	470257	17.7	21.2	95449	17.7	19.8	233466	17.8	20.9	39918	17.9	17.1
464943	17.5	21.4	171669	17.6	19.5	148605	17.7	20.6	325997	17.7	20.0	172059	17.8	19.4	427471	17.9	21.1
26458	17.5	17.6	312333	17.6	20.2	432120	17.7	21.2	510	17.7	12.5	472463	17.8	20.7	80264	17.9	19.4
464071	17.5	21.2	206215	17.6	19.3	498837	17.7	21.0	399128	17.7	18.9	11244	17.8	18.2	169642	17.9	19.2
90812	17.5	19.8	473296	17.6	21.3	7775	17.7	17.8	372942	17.7	20.5	54672	17.8	18.9	527662	17.9	20.6
535292	17.5	21.5	82665	17.6	19.9	159173	17.7	20.5	207370	17.7	19.7	143137	17.8	20.2	500695	17.9	22.8
373933	17.5	20.8	135279	17.6	19.8	8209	17.7	15.8	156285	17.8	19.7	2367	17.8	15.5	334874	17.9	20.1
294354	17.5	20.2	208668	17.6	18.7	14922	17.7	17.8	284753	17.8	20.0	26055	17.8	18.2	9303	17.9	17.7
281495	17.5	20.2	250236	17.6	19.8	108936	17.7	19.7	320634	17.8	19.7	128831	17.8	19.3	370758	17.9	20.8
385042	17.5	21.5	526978	17.6	20.8	306376	17.7	22.7	492630	17.8	19.8	249444	17.8	19.5	436902	17.9	20.9
137058	17.5	20.5	161723	17.6	20.2	81567	17.7	18.6	507602	17.8	21.4	268502	17.8	20.7	469109	17.9	21.0
12029	17.5	16.5	165313	17.6	19.1	205779	17.7	20.4	418825	17.8	19.9	289918	17.8	19.5	264556	17.9	21.4
247146	17.5	20.7	230863	17.6	18.4	225712	17.7	19.0	450436	17.8	19.8	230455	17.8	19.8	181071	17.9	19.9
169141	17.5	19.7	286155	17.6	18.8	291637	17.7	18.1	57015	17.8	17.4	464988	17.8	21.9	159849	17.9	19.4
246707	17.5	20.3	31792	17.6	18.2	18280	17.7	17.8	343134	17.8	21.2	128009	17.8	18.7	329848	17.9	20.0
3353	17.5	14.7	52323	17.6	19.5	532494	17.7	21.3	527565	17.8	20.9	233736	17.8	20.3	95578	17.9	19.7
341653	17.5	20.9	8491	17.6	17.7	429846	17.7	19.5	428737	17.8							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
502975	17.9	20.4	22708	17.9	17.8	237283	18.0	20.5	114046	18.1	19.5	316501	18.1	19.1	366931	18.2	20.5
134784	17.9	20.0	34484	17.9	16.3	384826	18.0	20.7	55562	18.1	18.1	93372	18.1	19.6	289171	18.2	21.6
84712	17.9	18.0	11130	17.9	18.1	125036	18.0	19.4	469150	18.1	19.9	370812	18.2	21.2	210258	18.2	20.6
456483	17.9	20.1	408729	17.9	21.2	121039	18.0	19.9	67863	18.1	18.6	95496	18.2	20.0	409231	18.2	19.7
317637	17.9	19.6	11433	17.9	16.4	466913	18.0	20.8	34392	18.1	17.4	355891	18.2	21.4	444413	18.2	21.2
525949	17.9	21.2	345580	17.9	20.9	276324	18.0	21.2	170808	18.1	19.4	489946	18.2	20.5	105639	18.2	18.3
350711	17.9	20.4	442697	17.9	21.0	96231	18.0	19.1	141389	18.1	19.5	280231	18.2	20.4	34824	18.2	18.8
390014	17.9	21.0	33842	17.9	19.1	55363	18.0	18.9	68671	18.1	19.0	454925	18.2	20.8	241241	18.2	20.0
114021	17.9	19.8	206795	17.9	20.7	241375	18.0	20.4	277814	18.1	20.5	158536	18.2	18.9	455166	18.2	19.6
425511	17.9	19.6	262568	17.9	20.4	306454	18.0	21.1	360535	18.1	20.7	128003	18.2	19.3	431441	18.2	20.9
206267	17.9	19.5	493822	17.9	21.5	323870	18.0	20.7	167144	18.1	19.4	357233	18.2	19.1	378275	18.2	20.4
369997	17.9	21.2	199009	17.9	20.0	536154	18.0	20.6	538494	18.1	20.1	487726	18.2	21.4	431482	18.2	21.4
141128	17.9	20.4	293188	17.9	19.9	406846	18.0	19.0	144406	18.1	19.5	29653	18.2	19.1	458249	18.2	21.3
248872	17.9	18.8	415939	17.9	22.0	38654	18.0	19.1	18188	18.1	18.7	7684	18.2	16.5	486167	18.2	20.4
469806	17.9	20.8	218659	17.9	19.9	179138	18.0	19.9	405180	18.1	22.1	28357	18.2	17.4	274307	18.2	20.3
214761	17.9	20.4	536987	17.9	21.7	388368	18.0	21.4	241397	18.1	19.4	133009	18.2	19.1	109511	18.2	19.3
433000	17.9	21.6	530924	17.9	21.4	498237	18.0	21.8	258449	18.1	20.8	125062	18.2	19.3	142856	18.2	19.2
203473	17.9	20.1	423093	17.9	20.4	58908	18.0	18.3	487702	18.1	21.2	218925	18.2	20.2	372448	18.2	21.0
412804	17.9	20.0	318082	17.9	19.1	424139	18.0	18.9	491154	18.1	21.3	180644	18.2	19.8	378786	18.2	21.0
324574	17.9	20.0	282663	17.9	19.8	153331	18.0	19.3	506310	18.1	19.5	332935	18.2	21.0	361663	18.2	20.6
298866	17.9	19.7	29494	17.9	17.5	427374	18.0	21.0	535004	18.1	21.1	351513	18.2	20.0	120137	18.2	19.2
249266	17.9	22.0	272985	17.9	20.0	150142	18.0	18.4	362627	18.1	21.2	50964	18.2	16.8	50438	18.2	18.2
462087	17.9	21.1	231160	17.9	19.9	117172	18.0	19.3	155301	18.1	20.2	360416	18.2	19.0	243266	18.2	19.5
249701	17.9	19.2	247950	17.9	18.2	431458	18.0	21.3	90838	18.1	18.8	419679	18.2	19.8	305707	18.2	21.4
435916	17.9	21.5	203080	17.9	19.2	34464	18.0	18.3	136998	18.1	20.0	37747	18.2	19.9	257523	18.2	20.5
372590	17.9	20.7	413896	17.9	21.1	501531	18.0	21.1	533915	18.1	20.4	135466	18.2	20.1	426852	18.2	20.3
322793	17.9	18.4	215942	17.9	20.1	322819	18.0	20.2	354860	18.1	20.7	193923	18.2	19.2	140021	18.2	19.9
9503	17.9	17.7	12338	17.9	16.7	203539	18.0	20.0	66836	18.1	18.9	427487	18.2	21.5	341811	18.2	21.2
59526	17.9	17.3	106576	17.9	18.0	15179	18.0	17.8	57753	18.1	19.5	461758	18.2	19.0	393301	18.2	20.2
8214	17.9	16.4	72201	17.9	19.8	378818	18.0	20.3	486761	18.1	20.3	92777	18.2	19.6	815	18.2	14.4
105912	17.9	19.2	361645	17.9	19.7	182675	18.0	19.8	32942	18.1	18.7	415925	18.2	21.2	432459	18.2	19.6
191961	17.9	20.0	235075	17.9	18.9	140399	18.0	19.8	171534	18.1	18.7	197020	18.2	20.3	427738	18.2	21.0
464545	17.9	21.7	316614	17.9	19.9	155986	18.0	19.8	393248	18.1	21.8	62632	18.2	19.2	103011	18.3	19.5
354963	17.9	20.6	536037	17.9	21.2	104734	18.0	19.2	404117	18.1	19.8	428372	18.2	20.5	544301	18.3	21.2
310137	17.9	20.0	24464	17.9	17.8	238428	18.0	19.8	69771	18.1	18.5	293497	18.2	19.3	391546	18.3	21.6
169398	17.9	19.7	22876	17.9	18.1	55954	18.0	18.3	358476	18.1	20.7	142945	18.2	19.3	288626	18.3	19.4
544070	17.9	20.2	305872	17.9	20.4	417055	18.0	21.1	544480	18.1	21.1	266438	18.2	19.7	168511	18.3	19.0
25881	17.9	18.4	432524	17.9	20.2	161916	18.0	19.6	498903	18.1	21.1	495242	18.2	20.7	87661	18.3	18.8
503190	17.9	20.3	97361	17.9	19.8	321354	18.0	19.8	442730	18.1	21.5	502628	18.2	21.2	497802	18.3	20.7
498673	17.9	20.8	467684	17.9	21.0	525979	18.0	20.8	337678	18.1	20.4	33708	18.2	18.1	153194	18.3	19.3
175939	17.9	20.3	461207	17.9	21.6	346875	18.0	20.1	324448	18.1	21.5	518653	18.2	20.7	362131	18.3	21.7
188276	17.9	20.4	231405	17.9	20.8	290539	18.1	19.8	513521	18.1	20.0	377531	18.2	20.7	430998	18.3	21.2
268554	17.9	20.3	51692	17.9	18.4	287853	18.1	19.6	82049	18.1	18.8	111187	18.2	20.1	448061	18.3	19.7
416975	17.9	21.7	131740	17.9	19.5	344329	18.1	20.5	380668	18.1	20.8	91516	18.2	18.8	374099	18.3	21.3
96655	17.9	17.8	2967	17.9	16.2	104510	18.1	19.6	488654	18.1	21.2	406440	18.2	20.4	197069	18.3	19.9
63897	17.9	19.0	316697	17.9	19.7	122745	18.1	19.4	496716	18.1	20.9	285741	18.2	19.8	463848	18.3	19.8
349647	17.9	19.9	462875	17.9	21.4	126161	18.1	19.5	21414	18.1	17.8	527232	18.2	21.7	462697	18.3	20.1
17011	17.9	16.9	90818	17.9	19.6	524242	18.1	21.7	422593	18.1	21.3	531433	18.2	20.9	293396	18.3	19.4
262768	17.9	19.1	543472	17.9	20.6	61267	18.1	18.5	341717	18.1	19.0	110766	18.2	18.9	507310	18.3	20.7
99587	17.9	18.1	110714	17.9	19.6	529953	18.1	21.8	417078	18.1	20.6	109591	18.2	19.1	258453	18.3	19.5
241045	17.9	19.3	351760	17.9	20.9	45724	18.1	18.0	105824	18.1	20.1	331791	18.2	19.9	143646	18.3	18.7
182181	17.9	20.9	309262	17.9	21.1	323165	18.1	18.7	160803	18.1	20.4	49368	18.2	18.7	14191	18.3	15.6
1829	17.9	15.7	455937	17.9	19.8	158214	18.1	18.2	217063	18.1	19.6	380245	18.2	20.8	145504	18.3	18.9
463284	17.9	19.5	55960	17.9	18.5	131789	18.1	19.7	79256	18.1	18.9	515229	18.2	20.7	35319	18.3	17.9
182525	17.9	19.9	206831	17.9	19.3	142806	18.1	18.5	406565	18.1	21.6	97341	18.2	19.5	135447	18.3	20.2
109429	17.9	19.2	64459	17.9	17.5	433853	18.1	21.1	256796	18.1	21.3	188100	18.2	19.7	241563	18.3	19.9
132060	17.9	19.5	156211	17.9	19.6	302073	18.1	20.7	412677	18.1	20.2	415754	18.2	19.4	25544	18.3	17.2
17691	17.9	18.8	110097	17.9	19.5	498127	18.1	21.9	105197	18.1	17.2	152372	18.2	19.7	309310	18.3	20.3
47455	17.9	19.1	98866	17.9	19.1	27133	18.1	17.2	454800	18.1	21.4	412119	18.2	18.9	136965	18.3	19.6
383664	17.9	20.7	146417	17.9	19.7	210358	18.1	20.0	455824	18.1	20.7	147516	18.2	18.0	290183	18.3	20.2
371225	17.9	21.5	184980	17.9	19.3	12331	18.1	16.6	427528	18.1	20.1	241051	18.2	20.0	218652	18.3	21.0
527307	17.9	21.9	38894	17.9	19.3	504142	18.1	21.0	281071	18.1	19.7	486738	18.2	20.1	273376	18.3	21.0
448164	17.9	20.1	418174	18.0	19.7	140185	18.1	19.6	298980	18.1	20.7	203403	18.2	19.2	23170	18.3	18.9
529048	17.9	21.7	100430	18.0	18.9	384237	18.1	19.6	171324	18.1	20.7	4368	18.2	16.1	109717	18.3	19.1
381947	17.9	19.7	347679	18.0	21.5	240055	18.1	19.9	206972	18.1	20.7	140910	18.2	19.4	462042	18.3	19.8
465444	17.9	20.9	131927	18.0	18.8	468384	18.1	20.2	430606	18.1	21.0	333866	18.2	20.9	529622	18.3	20.0
486733	17.9	21.0	222349	18.0	20.5	298950	18.1	19.0	507708	18.1	19.5	421272	18.2	20.1	507337	18.3	20.9
109260	17.9	20.0	412650	18.0	20.0	384983	18.1	19.0	490578	18.1	22.1	250248	18.2	20.7	331300	18.3	20.9
542614	17.9	21.1	527472	18.0	20.6	154067	18.1	20.1	338172	1							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
182550	18.3	19.6	360428	18.3	19.1	457061	18.4	20.2	544097	18.5	21.5	496942	18.5	22.7	436342	18.6	20.6
444373	18.3	22.0	536908	18.3	20.4	366867	18.4	20.6	378345	18.5	19.1	266821	18.5	19.8	498749	18.6	21.2
527649	18.3	21.7	22762	18.4	18.5	284898	18.4	20.2	133339	18.5	19.9	51193	18.5	19.0	244243	18.6	20.0
244309	18.3	19.1	411776	18.4	20.5	509256	18.4	21.1	183312	18.5	21.4	111429	18.5	18.0	483902	18.6	20.5
233725	18.3	20.0	347128	18.4	20.0	146089	18.4	18.3	431839	18.5	21.4	88662	18.5	18.9	427763	18.6	21.5
536756	18.3	20.8	532850	18.4	21.4	268431	18.4	20.7	28187	18.5	16.8	534638	18.5	21.2	51138	18.6	18.1
171968	18.3	19.6	181854	18.4	21.4	58207	18.4	19.5	302924	18.5	19.8	375300	18.5	20.6	74246	18.6	19.2
229701	18.3	21.6	140862	18.4	19.0	472357	18.4	19.3	521993	18.5	21.1	531773	18.5	20.6	355242	18.6	20.6
122492	18.3	18.7	343869	18.4	19.9	304900	18.4	20.3	124371	18.5	19.8	4373	18.5	16.9	70316	18.6	20.2
199233	18.3	18.7	271125	18.4	20.0	379065	18.4	20.6	533882	18.5	20.9	327951	18.5	19.8	493693	18.6	20.4
503156	18.3	21.0	119605	18.4	19.1	359900	18.4	19.4	295362	18.5	20.3	276932	18.6	19.5	381162	18.6	19.5
332134	18.3	20.7	246278	18.4	20.7	379963	18.4	19.7	363164	18.5	19.6	544670	18.6	21.8	54592	18.6	18.4
226029	18.3	19.7	153089	18.4	19.6	266231	18.4	20.1	242450	18.5	16.8	248614	18.6	21.2	58209	18.6	19.8
256463	18.3	20.5	297398	18.4	20.7	201974	18.4	18.6	98131	18.5	19.8	453081	18.6	21.6	182015	18.6	19.5
131924	18.3	19.0	206990	18.4	20.2	371136	18.4	20.4	282936	18.5	20.0	106090	18.6	19.3	380481	18.6	20.1
328977	18.3	21.3	439769	18.4	19.3	309433	18.4	19.5	82329	18.5	17.6	251108	18.6	18.8	505308	18.6	21.3
182412	18.3	19.9	433969	18.4	20.1	465968	18.4	21.1	200496	18.5	19.8	314220	18.6	19.5	520107	18.6	20.4
40531	18.3	18.9	84847	18.4	19.9	233171	18.4	20.3	226875	18.5	20.1	414946	18.6	20.1	532158	18.6	21.0
160103	18.3	19.1	153356	18.4	18.7	535075	18.4	21.1	386187	18.5	21.0	198953	18.6	19.9	381533	18.6	19.8
100150	18.3	17.8	105102	18.4	17.5	55049	18.4	18.8	174223	18.5	19.3	49778	18.6	18.2	498767	18.6	20.6
52152	18.3	19.5	524328	18.4	21.7	43403	18.4	19.0	191848	18.5	20.2	22081	18.6	18.3	544676	18.6	20.9
78614	18.3	19.1	207800	18.4	19.9	280839	18.4	19.6	141317	18.5	19.8	433630	18.6	20.9	61613	18.6	18.0
71538	18.3	18.3	522502	18.4	20.4	486817	18.4	20.7	29895	18.5	17.0	504262	18.6	22.4	422263	18.6	21.8
431760	18.3	21.6	468832	18.4	20.8	152916	18.4	20.3	535205	18.5	20.4	422145	18.6	19.4	156051	18.6	18.6
299343	18.3	20.6	453578	18.4	20.0	518867	18.4	20.8	189443	18.5	19.2	140668	18.6	19.0	65928	18.6	18.2
366874	18.3	20.3	368705	18.4	21.1	371181	18.4	20.2	202114	18.5	20.3	489578	18.6	21.3	234201	18.6	19.2
495716	18.3	19.4	260049	18.4	20.4	493731	18.4	20.5	17261	18.5	17.6	469131	18.6	20.7	27722	18.6	17.9
327372	18.3	20.0	232270	18.4	20.3	284391	18.4	19.8	422773	18.5	20.8	21577	18.6	17.7	96247	18.6	19.6
465978	18.3	20.8	396786	18.4	19.7	109755	18.4	19.6	460661	18.5	20.8	142714	18.6	19.4	63782	18.6	19.1
448179	18.3	21.7	315669	18.4	20.7	222309	18.4	20.0	222247	18.5	19.8	276546	18.6	20.5	185929	18.6	18.4
298312	18.3	19.3	442301	18.4	20.1	460936	18.4	20.4	50732	18.5	18.4	42377	18.6	18.0	512941	18.6	20.6
7618	18.3	17.5	156749	18.4	20.6	265007	18.4	20.1	285625	18.5	21.1	543626	18.6	21.5	264703	18.6	19.9
205333	18.3	20.0	435937	18.4	21.5	527235	18.4	21.0	361610	18.5	21.3	210771	18.6	20.3	472307	18.6	19.6
296169	18.3	20.2	419500	18.4	19.7	212533	18.4	20.9	396811	18.5	21.3	371781	18.6	20.2	41887	18.6	18.5
538004	18.3	20.0	89666	18.4	19.3	522648	18.4	20.5	222334	18.5	21.1	239527	18.6	20.9	198463	18.6	20.1
217927	18.3	19.8	496717	18.4	21.0	57425	18.4	19.8	227996	18.5	20.6	162702	18.6	19.8	29112	18.6	19.6
377846	18.3	20.0	482765	18.4	18.9	11334	18.4	16.7	535298	18.5	20.4	267224	18.6	20.3	489624	18.6	22.0
136842	18.3	19.1	423259	18.4	20.8	209379	18.4	19.5	41246	18.5	18.6	341364	18.6	21.1	459672	18.6	19.6
507533	18.3	22.0	271876	18.4	20.5	37041	18.4	18.9	348476	18.5	20.6	37561	18.6	18.8	538396	18.6	19.6
294535	18.3	20.1	160773	18.4	20.2	424922	18.4	20.1	330707	18.5	18.7	140327	18.6	19.2	386897	18.6	20.3
463382	18.3	20.8	83312	18.4	19.8	321634	18.4	20.2	140884	18.5	19.4	271178	18.6	19.5	385285	18.6	20.5
173423	18.3	18.9	289128	18.4	21.3	116007	18.4	19.0	228702	18.5	20.4	292654	18.6	21.0	504228	18.6	21.3
502010	18.3	20.9	541974	18.4	20.8	529166	18.4	21.7	496578	18.5	20.7	235928	18.6	19.3	55200	18.6	19.5
219923	18.3	20.1	293541	18.4	19.0	511578	18.4	20.4	2410	18.5	14.8	437109	18.6	21.1	407948	18.6	21.4
76614	18.3	18.6	353478	18.4	21.0	128896	18.4	20.0	245165	18.5	19.4	306312	18.6	20.6	170256	18.6	19.5
330067	18.3	20.4	350326	18.4	21.0	290518	18.4	19.5	262838	18.5	21.0	118920	18.6	19.2	456673	18.6	21.2
237528	18.3	19.9	532611	18.4	21.6	500434	18.4	21.9	433730	18.5	19.9	310910	18.6	20.7	106128	18.6	19.3
443800	18.3	21.4	382748	18.4	20.9	418248	18.4	20.5	130676	18.5	19.5	252375	18.6	20.4	161928	18.6	20.3
275008	18.3	20.8	32420	18.4	18.8	310991	18.4	21.5	530259	18.5	20.9	98066	18.6	18.5	365232	18.6	20.4
171072	18.3	20.9	289512	18.4	20.4	450405	18.4	21.7	330472	18.5	20.0	27651	18.6	19.0	49829	18.6	17.6
285304	18.3	21.3	495584	18.4	21.9	307665	18.4	19.9	105875	18.5	19.1	89723	18.6	18.7	338196	18.6	20.8
213776	18.3	20.4	317171	18.4	19.4	122227	18.4	17.1	395740	18.5	21.1	393909	18.6	19.5	288766	18.6	20.8
378856	18.3	19.9	107766	18.4	18.2	448983	18.4	20.5	205020	18.5	20.8	425484	18.6	20.7	402166	18.6	20.8
180229	18.3	20.2	244622	18.4	19.3	291900	18.4	21.8	498858	18.5	20.8	461285	18.6	20.9	492204	18.6	19.9
100537	18.3	20.1	456830	18.4	21.1	235587	18.4	19.6	524745	18.5	21.4	249265	18.6	19.7	427850	18.6	19.6
141106	18.3	19.5	4312	18.4	16.8	101961	18.4	18.3	403017	18.5	21.2	135341	18.6	19.5	413944	18.6	21.0
409025	18.3	19.5	444439	18.4	21.0	417650	18.4	20.5	189834	18.5	19.0	146392	18.6	19.5	263438	18.6	20.0
110853	18.3	19.0	543322	18.4	21.8	543386	18.4	21.0	251019	18.5	19.9	124402	18.6	19.2	454596	18.6	19.8
142390	18.3	18.4	504387	18.4	20.8	179101	18.4	19.3	211568	18.5	20.9	347738	18.6	20.0	378728	18.6	20.5
170128	18.3	20.0	125076	18.4	19.4	3438	18.5	16.5	90269	18.5	18.5	257630	18.6	20.1	414888	18.6	21.0
208342	18.3	20.7	51365	18.4	17.7	535679	18.5	22.6	263598	18.5	20.2	73649	18.6	19.1	232274	18.6	20.1
100135	18.3	20.0	14030	18.4	18.2	500505	18.5	21.3	160094	18.5	19.5	402215	18.6	20.4	243124	18.6	18.7
31469	18.3	16.3	515755	18.4	20.0	529429	18.5	22.0	110504	18.5	19.7	456573	18.6	20.8	363477	18.6	20.5
4367	18.3	17.9	434837	18.4	21.8	287559	18.5	19.9	197945	18.5	19.6	488564	18.6	21.2	530569	18.6	21.7
289190	18.3	20.7	505559	18.4	21.1	322848	18.5	19.7	226819	18.5	19.6	347627	18.6	20.9	372457	18.6	21.2
55540	18.3	18.8	211514	18.4	20.4	8638	18.5	17.5	411372	18.5	21.1	428868	18.6	20.3	423618	18.6	21.0
96406	18.3	19.4	200702	18.4	21.0	167027	18.5	19.9	105115	18.5	18.1	132370	18.6	19.5	328602	18.6	19.2
208277	18.3	19.7	264497	18.4	20.3	343573	18.5	19.8	381655	18.5	19.8	327276	18.6	20.0	274340	18.6	20.2
270284	18.3	21.1	431744	18.4	21.2	151010	18.5	19.4</									

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
140877	18.7	20.4	545002	18.7	19.4	522060	18.8	19.6	258118	18.9	20.1	88606	18.9	19.4	330465	19.0	20.5
64330	18.7	19.0	196268	18.7	18.7	531931	18.8	21.3	94853	18.9	19.5	34627	18.9	18.5	219387	19.0	21.0
384960	18.7	21.0	384208	18.7	20.9	43256	18.8	18.5	498589	18.9	20.7	153168	18.9	19.1	290398	19.0	19.6
242631	18.7	20.4	503237	18.7	20.0	372909	18.8	20.0	177214	18.9	19.9	87695	18.9	18.1	283419	19.0	20.2
171977	18.7	21.2	14188	18.7	17.6	353845	18.8	19.9	539273	18.9	21.4	192314	18.9	19.7	453207	19.0	20.7
456040	18.7	20.9	148789	18.7	19.5	89549	18.8	19.1	58723	18.9	20.4	503109	18.9	21.1	321248	19.0	20.9
331063	18.7	20.5	68942	18.7	19.2	180014	18.8	20.0	417765	18.9	20.7	147310	18.9	19.4	238750	19.0	20.1
330037	18.7	21.0	222292	18.7	18.9	464619	18.8	21.0	53328	18.9	18.9	254015	18.9	19.1	28228	19.0	18.3
92641	18.7	18.8	427723	18.7	19.7	202049	18.8	19.2	394884	18.9	20.1	415810	18.9	20.1	160760	19.0	19.4
509011	18.7	20.7	201134	18.7	19.1	423108	18.8	20.9	164968	18.9	19.7	110663	18.9	17.8	498883	19.0	21.0
107218	18.7	19.7	428451	18.7	20.8	28148	18.8	18.9	281412	18.9	20.1	414821	18.9	20.7	72048	19.0	18.5
133423	18.7	19.4	199677	18.7	19.5	253249	18.8	21.0	294099	18.9	20.0	253237	18.9	20.3	177889	19.0	19.6
505096	18.7	19.8	491419	18.7	20.2	448267	18.8	21.4	17145	18.9	18.3	302520	18.9	19.2	85582	19.0	18.7
170402	18.7	19.4	327464	18.7	20.1	495633	18.8	20.5	503139	18.9	20.6	453927	18.9	20.7	319777	19.0	19.2
167898	18.7	18.8	157766	18.7	19.8	48593	18.8	18.7	58090	18.9	20.0	467067	18.9	20.7	32325	19.0	17.8
487771	18.7	21.0	188478	18.7	19.1	242348	18.8	20.5	527242	18.9	21.5	371251	18.9	19.9	181119	19.0	20.1
465665	18.7	22.0	105020	18.7	18.4	401944	18.8	19.1	108032	18.9	18.6	147084	18.9	21.0	140205	19.0	19.8
284651	18.7	20.4	9810	18.7	17.1	435418	18.8	20.5	116750	18.9	18.9	494208	18.9	21.1	119936	19.0	19.1
435266	18.7	21.6	458409	18.7	20.3	54838	18.8	19.7	285706	18.9	21.4	375366	18.9	21.1	529182	19.0	21.7
221972	18.7	20.8	430384	18.7	21.0	8724	18.8	18.3	435964	18.9	20.5	371192	18.9	20.4	155069	19.0	19.8
162198	18.7	18.4	307050	18.7	21.3	454126	18.8	20.6	487760	18.9	20.4	384949	18.9	21.3	415909	19.0	22.1
81955	18.7	18.5	293791	18.7	19.6	209596	18.8	19.3	48872	18.9	17.5	162021	18.9	20.2	503002	19.0	20.8
289173	18.7	21.0	467772	18.7	20.1	452330	18.8	19.0	23495	18.9	18.2	372498	18.9	19.5	104552	19.0	18.9
497735	18.7	21.7	201326	18.7	19.8	352034	18.8	19.7	534588	18.9	21.1	464329	18.9	20.6	407289	19.0	20.1
60165	18.7	17.7	500012	18.7	21.5	330045	18.8	20.7	22407	18.9	18.5	231470	18.9	20.3	117929	19.0	20.0
217949	18.7	19.3	271853	18.7	21.1	162706	18.8	19.4	431635	18.9	21.1	262880	18.9	21.0	368729	19.0	21.4
489918	18.7	20.7	280189	18.7	19.9	358053	18.8	20.9	432084	18.9	21.3	366097	18.9	19.9	88378	19.0	18.8
4819	18.7	16.5	491950	18.7	21.8	224985	18.8	19.9	526237	18.9	21.8	81823	18.9	18.7	147937	19.0	20.2
382867	18.7	19.0	348984	18.7	21.4	240842	18.8	19.2	81264	18.9	19.3	423718	18.9	20.1	129788	19.0	18.3
529341	18.7	20.9	88734	18.7	18.6	46728	18.8	18.4	410524	18.9	20.3	502439	18.9	20.4	125373	19.0	18.6
368585	18.7	20.9	116361	18.7	18.5	269773	18.8	20.4	431219	18.9	20.8	374165	18.9	20.4	115742	19.0	19.6
459754	18.7	20.3	174472	18.7	19.0	265774	18.8	20.3	500450	18.9	21.8	346094	18.9	20.3	192772	19.0	19.5
462056	18.7	21.8	422239	18.8	20.5	65533	18.8	19.6	323507	18.9	19.7	18172	18.9	20.9	382557	19.0	21.0
432229	18.7	21.2	365965	18.8	20.5	354697	18.8	20.6	148581	18.9	19.5	341373	18.9	21.1	211799	19.0	19.6
318011	18.7	20.4	385437	18.8	22.2	486230	18.8	20.3	498278	18.9	21.3	122246	18.9	19.8	462093	19.0	19.7
297489	18.7	19.9	491899	18.8	21.5	273371	18.8	21.1	101611	18.9	18.3	40716	18.9	18.4	134212	19.0	19.3
15733	18.7	17.6	153074	18.8	18.3	217085	18.8	20.6	259325	18.9	18.7	497767	18.9	21.6	419766	19.0	21.6
34929	18.7	19.0	437448	18.8	20.3	534423	18.8	21.6	415004	18.9	21.5	354962	18.9	19.3	157183	19.0	19.5
389121	18.7	21.0	66817	18.8	19.0	112555	18.8	19.1	337480	18.9	21.2	97533	18.9	19.3	131672	19.0	19.7
93999	18.7	19.4	265768	18.8	20.3	324080	18.8	19.9	344568	18.9	20.6	511718	18.9	20.4	183427	19.0	19.4
532431	18.7	21.5	450051	18.8	20.3	199013	18.8	19.6	150429	18.9	19.0	125897	18.9	19.9	57646	19.0	19.1
466278	18.7	21.0	122397	18.8	19.9	171981	18.8	20.1	280877	18.9	19.9	83448	18.9	19.0	77852	19.0	18.7
236021	18.7	19.4	53410	18.8	18.6	161817	18.8	19.3	270822	18.9	21.4	492459	18.9	20.5	182311	19.0	20.0
232815	18.7	20.6	36854	18.8	17.9	196165	18.8	20.4	385892	18.9	20.8	85626	18.9	18.8	73016	19.0	18.3
18438	18.7	18.1	241873	18.8	20.1	107408	18.8	19.8	413199	18.9	21.7	325282	18.9	19.5	43662	19.0	17.5
291245	18.7	20.4	431455	18.8	20.9	301225	18.8	21.0	544329	18.9	18.7	413129	18.9	22.5	29328	19.0	17.4
188788	18.7	19.4	465683	18.8	21.3	150103	18.8	20.3	218041	18.9	20.2	127049	18.9	18.1	380972	19.0	21.1
529378	18.7	20.5	40685	18.8	18.9	75321	18.8	19.2	317536	18.9	21.7	473810	18.9	20.5	402017	19.0	21.1
451894	18.7	20.1	48620	18.8	19.3	292417	18.8	20.3	184484	18.9	20.1	56605	18.9	18.0	241723	19.0	19.1
456051	18.7	23.3	320366	18.8	19.9	382828	18.8	20.5	492925	18.9	19.8	241631	18.9	18.9	229779	19.0	20.2
540930	18.7	20.2	334628	18.8	21.8	122055	18.8	19.3	166858	18.9	20.3	502999	18.9	20.7	225175	19.0	19.7
528562	18.7	21.6	129262	18.8	19.7	173467	18.8	19.9	201466	18.9	18.7	51260	18.9	18.0	194033	19.0	20.2
538275	18.7	20.6	127097	18.8	19.2	19330	18.8	17.2	357129	18.9	22.2	23066	18.9	18.7	307402	19.1	20.1
93834	18.7	19.3	524312	18.8	21.5	50027	18.8	18.5	10307	18.9	18.4	12123	18.9	18.2	11776	19.1	18.5
89675	18.7	20.0	361413	18.8	20.6	1176	18.8	15.7	418987	18.9	20.5	430141	18.9	21.3	106532	19.1	18.8
7789	18.7	17.4	35388	18.8	19.2	194716	18.8	20.8	116282	18.9	19.3	210463	18.9	19.8	200565	19.1	19.1
378855	18.7	20.9	264714	18.8	20.4	340791	18.8	19.9	273888	18.9	19.7	456634	18.9	19.9	288837	19.1	20.9
203387	18.7	18.8	501390	18.8	21.2	286232	18.8	20.4	348918	18.9	21.6	57393	18.9	18.6	116793	19.1	19.2
464689	18.7	21.4	81164	18.8	18.7	284384	18.8	20.4	292667	18.9	21.0	89719	18.9	18.9	417809	19.1	20.7
417107	18.7	20.7	329807	18.8	19.9	268749	18.8	20.7	466810	18.9	20.7	69050	18.9	17.7	38668	19.1	17.6
384938	18.7	20.3	337408	18.8	22.0	367381	18.8	20.1	112857	18.9	19.2	402919	18.9	20.9	421465	19.1	19.5
122577	18.7	19.8	216016	18.8	18.8	4259	18.8	16.6	5591	18.9	17.3	74308	18.9	18.0	158195	19.1	19.0
428011	18.7	21.0	532145	18.8	21.6	391085	18.8	20.0	63929	18.9	19.9	516897	18.9	21.0	109317	19.1	19.3
146627	18.7	19.6	262411	18.8	20.8	27261	18.8	17.8	274444	18.9	19.9	148395	18.9	19.8	543760	19.1	20.3
34699	18.7	19.0	258966	18.8	21.5	467356	18.8	20.3	344043	18.9	20.2	13422	18.9	18.4	448317	19.1	21.5
338932	18.7	19.1	459239	18.8	19.9	470924	18.8	20.0	373937	18.9	21.0	252393	18.9	20.0	289450	19.1	20.0
141425	18.7	19.7	279681	18.8	20.0	323756	18.8	20.9	226839	18.9	20.2	385903	18.9	20.4	367523	19.1	21.0
89421	18.7	19.5	229083	18.8	19.3	424125	18.9	21.1	544120	18.9	21.4	181415	18.9	20.4	426303	19.1	20.4
392266	18.7	20.7	80952	18.8	19.0	496331	18.9	19.4	412664	18.9							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
367973	19.1	19.8	37099	19.1	17.1	5964	19.2	18.0	146377	19.3	19.8	473436	19.3	21.9	337048	19.4	21.6
82057	19.1	17.5	491247	19.1	21.3	543273	19.2	20.4	166164	19.3	18.4	14460	19.3	17.2	431565	19.4	21.3
416939	19.1	21.5	292716	19.1	20.3	525695	19.2	20.9	294511	19.3	20.8	353466	19.3	19.3	66403	19.4	17.7
401627	19.1	20.4	105654	19.1	20.1	368760	19.2	20.9	80117	19.3	18.2	353	19.3	16.0	23037	19.4	18.3
74520	19.1	18.1	114355	19.1	19.4	461689	19.2	21.5	432136	19.3	21.0	529421	19.3	21.7	161605	19.4	19.8
226855	19.1	20.7	403977	19.2	21.0	96890	19.2	18.4	12339	19.3	16.1	214876	19.3	20.9	330984	19.4	20.2
29027	19.1	19.0	294593	19.2	20.4	454958	19.2	19.3	113204	19.3	19.5	155450	19.4	17.7	463805	19.4	21.2
90156	19.1	18.2	541548	19.2	20.9	362085	19.2	21.0	31269	19.3	17.8	323431	19.4	19.7	52549	19.4	18.8
508159	19.1	20.6	317788	19.2	19.1	38373	19.2	18.1	136476	19.3	18.7	380475	19.4	20.1	132374	19.4	19.4
423147	19.1	20.3	297450	19.2	20.3	326996	19.2	19.0	103517	19.3	19.0	528653	19.4	21.0	285075	19.4	19.9
240237	19.1	19.8	451069	19.2	21.1	421564	19.2	21.5	243756	19.3	20.3	175527	19.4	19.2	290658	19.4	20.5
306914	19.1	20.8	387688	19.2	21.0	207626	19.2	19.3	233599	19.3	20.4	532696	19.4	21.8	9127	19.4	17.7
500470	19.1	21.6	125354	19.2	20.2	73036	19.2	18.2	81677	19.3	18.0	456076	19.4	20.0	291553	19.4	20.7
503155	19.1	21.5	166970	19.2	19.8	124983	19.2	18.0	378784	19.3	20.2	448768	19.4	22.0	531206	19.4	20.5
322822	19.1	20.4	79075	19.2	19.0	191952	19.2	19.4	37312	19.3	18.0	322846	19.4	20.3	212517	19.4	19.7
427101	19.1	20.6	166316	19.2	18.6	272137	19.2	19.7	55084	19.3	18.6	30429	19.4	17.9	55523	19.4	17.8
13059	19.1	16.8	497539	19.2	21.1	387307	19.2	19.8	285240	19.3	21.9	380017	19.4	20.9	466172	19.4	20.5
201829	19.1	18.8	329615	19.2	19.2	341593	19.2	19.9	6944	19.3	16.7	272618	19.4	21.0	84928	19.4	19.5
64439	19.1	18.9	323998	19.2	19.8	268965	19.2	20.7	91466	19.3	19.8	17355	19.4	18.9	337931	19.4	21.8
448227	19.1	20.9	526059	19.2	21.3	199498	19.2	20.3	79200	19.3	18.6	341833	19.4	21.6	489726	19.4	21.8
278017	19.1	19.8	140307	19.2	21.3	55616	19.2	18.5	237601	19.3	19.9	443216	19.4	20.7	483463	19.4	20.0
337923	19.1	21.5	422764	19.2	22.1	375330	19.2	20.3	499813	19.3	21.1	226063	19.4	19.5	498794	19.4	21.0
423555	19.1	21.2	501186	19.2	20.3	367938	19.2	20.9	500446	19.3	21.2	350687	19.4	20.4	372669	19.4	20.6
417207	19.1	21.3	350641	19.2	20.7	123138	19.2	18.2	534085	19.3	21.3	525510	19.4	20.8	299317	19.4	20.2
93417	19.1	18.7	203115	19.2	20.3	311725	19.2	19.6	432157	19.3	20.6	332890	19.4	20.1	265823	19.4	20.7
229218	19.1	20.1	231567	19.2	20.2	524270	19.2	21.2	138615	19.3	19.1	17286	19.4	17.3	206219	19.4	20.6
202379	19.1	20.5	96095	19.2	19.8	59504	19.2	18.2	4008	19.3	16.7	428528	19.4	21.0	190400	19.4	19.8
198641	19.1	20.6	354124	19.2	21.0	359013	19.2	21.9	42419	19.3	18.6	497877	19.4	20.6	232772	19.4	20.2
63972	19.1	18.7	166746	19.2	19.0	273068	19.2	19.4	293419	19.3	20.4	529745	19.4	20.9	532816	19.4	20.7
394805	19.1	20.7	215530	19.2	19.7	529281	19.2	22.4	282895	19.3	19.9	372554	19.4	20.2	28030	19.4	19.6
111888	19.1	19.8	320542	19.2	20.2	514104	19.2	21.1	369270	19.3	20.5	389621	19.4	19.3	524209	19.4	20.9
350790	19.1	20.4	372978	19.2	21.0	430046	19.2	21.2	99383	19.3	17.4	473874	19.4	20.1	425746	19.4	20.8
464649	19.1	20.3	76480	19.2	18.3	16805	19.2	17.5	271838	19.3	20.2	324454	19.4	20.0	415192	19.4	20.3
118378	19.1	23.6	138200	19.2	19.7	406097	19.2	22.2	226762	19.3	20.3	173818	19.4	20.2	196576	19.4	19.5
90267	19.1	18.9	106318	19.2	18.9	499081	19.2	21.5	528530	19.3	22.1	381245	19.4	21.2	466703	19.4	20.6
326923	19.1	20.5	278856	19.2	20.3	405905	19.2	19.8	15846	19.3	17.4	61950	19.4	19.4	321850	19.4	21.3
30397	19.1	18.5	415838	19.2	20.4	143307	19.2	20.8	374108	19.3	21.6	167561	19.4	19.1	232334	19.4	19.5
341460	19.1	20.5	97147	19.2	19.1	345570	19.2	20.6	107232	19.3	19.4	84137	19.4	19.5	314781	19.4	20.7
497001	19.1	21.4	343601	19.2	20.8	355844	19.2	20.7	260524	19.3	19.7	341315	19.4	20.5	166206	19.4	18.5
296758	19.1	21.5	288439	19.2	20.0	203308	19.2	19.0	83626	19.3	18.6	286251	19.4	20.1	22840	19.4	18.5
317142	19.1	19.5	444182	19.2	19.6	273931	19.2	19.7	492670	19.3	20.1	60350	19.4	17.7	194078	19.4	19.8
62999	19.1	18.6	529144	19.2	22.1	44712	19.2	18.1	217106	19.3	21.0	105165	19.4	19.7	498938	19.4	20.3
327463	19.1	21.0	345221	19.2	20.6	284826	19.2	19.7	345180	19.3	21.3	359755	19.4	18.8	222970	19.4	20.6
139634	19.1	19.6	87488	19.2	18.0	492034	19.2	19.5	100289	19.3	19.4	455214	19.4	19.9	304073	19.4	19.7
31778	19.1	17.9	483508	19.2	22.7	292756	19.2	20.4	104179	19.3	18.5	106754	19.4	19.4	330029	19.4	20.6
164424	19.1	18.5	58040	19.2	18.6	253091	19.2	20.6	99722	19.3	18.4	84824	19.4	20.0	113404	19.4	18.6
162961	19.1	19.6	197948	19.2	18.9	239732	19.2	19.6	96425	19.3	18.1	204330	19.4	20.1	351446	19.4	19.1
393415	19.1	21.2	37372	19.2	18.5	432936	19.3	20.0	423532	19.3	22.1	534645	19.4	21.2	74978	19.4	17.8
403792	19.1	20.0	228742	19.2	19.8	461805	19.3	20.7	508255	19.3	20.4	26791	19.4	18.4	538054	19.4	19.7
182487	19.1	19.4	178901	19.2	19.7	70225	19.3	18.4	446115	19.3	21.3	99763	19.4	18.6	320722	19.5	19.9
520015	19.1	20.9	170854	19.2	19.4	88058	19.3	19.6	35674	19.3	18.2	261347	19.4	20.4	454489	19.5	19.9
470905	19.1	20.7	508200	19.2	20.5	6391	19.3	17.5	463647	19.3	20.0	538771	19.4	20.9	343096	19.5	20.5
408283	19.1	19.5	430051	19.2	21.5	434992	19.3	21.3	12586	19.3	17.8	142887	19.4	20.0	51280	19.5	19.1
348842	19.1	20.7	461779	19.2	19.7	363591	19.3	20.0	537009	19.3	21.1	150913	19.4	19.1	54681	19.5	18.6
205229	19.1	19.5	284393	19.2	20.2	221186	19.3	20.2	295397	19.3	19.3	530325	19.4	20.8	529263	19.5	21.4
345216	19.1	20.1	309228	19.2	21.1	246378	19.3	20.5	490333	19.3	21.0	382271	19.4	19.5	132019	19.5	19.7
171910	19.1	20.4	209677	19.2	20.0	415159	19.3	19.7	68403	19.3	18.2	300194	19.4	20.3	194765	19.5	19.2
498609	19.1	19.8	528705	19.2	21.1	377305	19.3	18.5	513891	19.3	20.6	406175	19.4	21.8	118527	19.5	19.4
384991	19.1	19.8	465289	19.2	20.9	496253	19.3	20.8	463270	19.3	19.5	368767	19.4	20.9	367889	19.5	19.5
338031	19.1	18.5	381936	19.2	20.0	362144	19.3	21.2	152297	19.3	19.9	211827	19.4	20.1	110012	19.5	19.3
6972	19.1	16.3	207135	19.2	18.7	448240	19.3	21.8	135100	19.3	19.4	306306	19.4	20.0	464992	19.5	21.3
386573	19.1	20.7	543763	19.2	20.8	408991	19.3	21.0	497500	19.3	19.4	88819	19.4	18.8	500616	19.5	20.6
151187	19.1	19.4	144554	19.2	19.1	412346	19.3	19.5	340236	19.3	20.0	289153	19.4	20.6	349525	19.5	20.9
83683	19.1	19.8	40540	19.2	17.8	207964	19.3	20.3	91468	19.3	19.9	69036	19.4	18.2	535478	19.5	19.7
57582	19.1	19.4	93772	19.2	18.6	141241	19.3	19.9	103518	19.3	20.5	202282	19.4	20.3	510935	19.5	20.7
165395	19.1	19.7	170428	19.2	20.4	406923	19.3	20.0	421098	19.3	19.7	269931	19.4	20.1	269239	19.5	19.7
17555	19.1	19.6	190089	19.2	19.7	470930	19.3	20.4	449547	19.3	19.3	135171	19.4	19.9	503173	19.5	20.7
18148	19.1	17.4	185817	19.2	18.9	467529	19.3	19.6	498350	19.3	22.2	202517	19.4	20.3	341604	19.5	20.5
332896	19.1	19.4	498129	19.2	21.7	22859	19.3	17.6	498224	19.3							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
220569	19.5	19.3	83801	19.5	20.0	215038	19.6	20.4	8043	19.6	17.3	332887	19.7	20.3	472374	19.8	20.5
350351	19.5	20.1	221440	19.5	19.9	285889	19.6	20.2	284135	19.6	20.1	440988	19.7	20.3	275243	19.8	20.0
427383	19.5	21.2	235071	19.5	19.3	446868	19.6	21.2	360791	19.6	20.3	144655	19.7	19.2	336659	19.8	19.9
484713	19.5	21.4	229227	19.5	19.0	47046	19.6	18.6	203791	19.6	20.9	211461	19.7	20.1	242948	19.8	20.5
294909	19.5	21.0	291094	19.5	19.2	433195	19.6	20.5	456790	19.6	21.8	471318	19.7	21.5	400558	19.8	20.7
371263	19.5	21.1	460787	19.5	21.1	118746	19.6	19.4	93700	19.6	19.6	363785	19.7	21.6	398333	19.8	21.0
200954	19.5	19.7	262961	19.5	20.6	542247	19.6	20.5	103760	19.6	18.8	193882	19.7	20.5	51034	19.8	17.5
396631	19.5	20.8	545116	19.5	20.4	27927	19.6	17.9	276914	19.6	19.7	124805	19.7	19.4	212666	19.8	19.9
160118	19.5	18.8	325927	19.5	20.3	14514	19.6	17.1	351787	19.6	18.7	83227	19.7	19.1	201429	19.8	19.7
505066	19.5	21.2	118368	19.5	19.4	207992	19.6	20.1	234156	19.6	19.8	292849	19.7	18.7	386135	19.8	21.7
190349	19.5	19.0	461734	19.5	21.5	138828	19.6	19.3	348531	19.7	21.4	372709	19.7	19.7	205527	19.8	19.9
311653	19.5	19.1	199861	19.5	20.0	344589	19.6	20.7	344247	19.7	19.9	403582	19.7	21.1	147658	19.8	19.5
191793	19.5	20.1	350607	19.5	20.5	279337	19.6	20.7	421312	19.7	21.0	212987	19.7	21.2	71924	19.8	18.9
527738	19.5	21.0	174558	19.5	18.9	286244	19.6	21.1	469119	19.7	20.1	392911	19.7	21.0	57168	19.8	19.4
18213	19.5	16.9	245930	19.5	18.9	399604	19.6	20.7	162705	19.7	20.6	458841	19.7	21.3	326423	19.8	19.9
243434	19.5	20.2	293549	19.5	19.8	231736	19.6	19.7	316559	19.7	20.4	124836	19.7	19.6	431140	19.8	20.3
54018	19.5	20.3	519359	19.5	20.1	318145	19.6	18.6	109058	19.7	20.7	196920	19.7	19.5	710107	19.8	20.3
344590	19.5	20.3	136188	19.5	21.0	266096	19.6	21.4	399296	19.7	19.4	401432	19.7	20.3	29176	19.8	18.6
219338	19.5	18.9	235038	19.5	19.0	147303	19.6	19.1	486911	19.7	19.6	388865	19.7	19.1	536831	19.8	19.3
59146	19.5	18.4	411744	19.5	20.7	490141	19.6	20.8	186227	19.7	20.0	434929	19.7	21.6	210968	19.8	20.1
34225	19.5	18.2	222587	19.5	20.5	464107	19.6	19.8	125241	19.7	19.3	169276	19.7	20.0	100912	19.8	19.0
206802	19.5	20.5	57246	19.5	19.0	383694	19.6	21.5	316638	19.7	20.5	295602	19.7	21.2	91398	19.8	18.4
386215	19.5	20.3	196513	19.5	18.2	383647	19.6	20.6	109982	19.7	18.2	222628	19.7	19.2	264765	19.8	20.5
397680	19.5	21.0	4708	19.5	17.1	41751	19.6	18.3	524608	19.7	21.2	60493	19.7	18.8	288417	19.8	21.5
6974	19.5	16.2	500526	19.5	21.5	389086	19.6	21.8	175439	19.7	21.1	536457	19.7	20.2	363475	19.8	21.5
286132	19.5	20.6	93973	19.5	18.7	431549	19.6	20.9	64493	19.7	18.3	116451	19.7	20.1	100116	19.8	19.6
120700	19.5	19.8	119158	19.5	19.4	30407	19.6	17.7	492002	19.7	20.3	226758	19.7	20.0	300106	19.8	20.1
372503	19.5	20.9	64622	19.6	19.5	216338	19.6	20.1	94833	19.7	18.8	408051	19.7	20.6	105700	19.8	20.3
106838	19.5	19.3	92052	19.6	19.1	347633	19.6	21.7	544412	19.7	20.8	214905	19.7	20.2	70272	19.8	19.4
536090	19.5	19.8	453898	19.6	21.3	127194	19.6	20.3	448741	19.7	19.5	49249	19.7	18.7	148078	19.8	20.0
204205	19.5	19.8	376235	19.6	19.7	430096	19.6	21.0	3341	19.7	17.4	40785	19.7	18.2	340891	19.8	19.1
276660	19.5	20.5	341284	19.6	20.9	423127	19.6	19.8	62764	19.7	18.7	290865	19.7	20.3	109193	19.8	18.5
499039	19.5	21.1	177566	19.6	19.3	171389	19.6	19.6	295510	19.7	19.9	335837	19.7	20.0	526758	19.8	21.9
91556	19.5	19.6	503220	19.6	19.9	343945	19.6	20.1	360589	19.7	20.1	307414	19.7	19.5	544038	19.8	21.5
399675	19.5	20.7	426737	19.6	20.7	459183	19.6	20.0	393619	19.7	18.9	491628	19.7	21.3	466369	19.8	21.3
306624	19.5	20.1	532981	19.6	21.9	283952	19.6	19.7	350418	19.7	20.8	502242	19.7	20.9	506406	19.8	19.5
166016	19.5	18.8	31335	19.6	17.2	428966	19.6	20.9	188336	19.7	19.8	77825	19.7	18.8	344382	19.8	20.9
503203	19.5	20.3	535747	19.6	20.9	21198	19.6	18.8	119613	19.7	19.4	308705	19.7	20.6	421253	19.8	20.4
284314	19.5	20.2	94746	19.6	19.1	436725	19.6	20.3	100755	19.7	19.5	30587	19.7	17.9	304826	19.8	20.2
50905	19.5	18.5	242560	19.6	21.1	218872	19.6	19.8	139774	19.7	20.0	82864	19.7	19.2	483408	19.8	21.8
320209	19.5	18.1	84853	19.6	19.3	43377	19.6	18.9	6428	19.7	17.3	183276	19.7	19.8	28394	19.8	19.8
323156	19.5	20.6	79171	19.6	18.6	382753	19.6	23.1	33006	19.7	17.4	133485	19.7	18.7	283912	19.8	19.4
467464	19.5	21.0	98055	19.6	19.6	107636	19.6	19.5	258968	19.7	21.3	425257	19.7	21.4	307138	19.8	21.6
503547	19.5	20.0	35176	19.6	19.1	456782	19.6	21.5	332372	19.7	20.8	425659	19.7	19.9	263473	19.8	19.0
50971	19.5	17.7	219373	19.6	19.2	397201	19.6	21.3	326443	19.7	20.9	534441	19.7	22.2	123502	19.8	20.0
406206	19.5	20.7	414215	19.6	19.9	402983	19.6	19.4	433254	19.7	21.0	289930	19.7	20.3	496689	19.8	19.3
287528	19.5	20.4	179150	19.6	19.5	114861	19.6	19.6	236724	19.7	19.9	454888	19.8	21.0	194149	19.8	20.9
498626	19.5	20.4	283110	19.6	20.2	500393	19.6	20.3	485017	19.7	21.3	7517	19.8	18.1	153505	19.8	20.2
254827	19.5	18.8	191765	19.6	20.3	46937	19.6	18.0	341624	19.7	20.7	55581	19.8	19.0	512371	19.8	20.0
408840	19.5	21.2	90638	19.6	20.3	87829	19.6	18.0	390051	19.7	21.8	466299	19.8	21.2	523580	19.8	20.9
380645	19.5	20.2	143362	19.6	19.3	264554	19.6	21.4	204782	19.7	19.7	166174	19.8	18.6	470899	19.8	20.9
376272	19.5	20.4	286322	19.6	20.3	17474	19.6	18.5	251195	19.7	20.0	188807	19.8	20.4	527404	19.8	22.1
104471	19.5	18.1	50017	19.6	18.6	429887	19.6	20.8	468219	19.7	21.1	534580	19.8	21.8	437067	19.8	20.9
125220	19.5	19.0	304968	19.6	20.9	440631	19.6	20.3	426299	19.7	20.4	502111	19.8	20.6	216830	19.8	19.1
253966	19.5	20.3	67535	19.6	18.1	119994	19.6	19.6	109696	19.7	19.1	10170	19.8	16.8	462014	19.8	21.4
24451	19.5	17.5	239662	19.6	18.3	336553	19.6	21.0	526536	19.7	21.8	522828	19.8	20.9	457180	19.8	21.1
374610	19.5	20.9	311070	19.6	20.1	491171	19.6	20.7	423178	19.7	20.6	484018	19.8	20.1	306706	19.8	21.0
398338	19.5	20.6	172058	19.6	20.2	355965	19.6	21.1	409492	19.7	22.2	292646	19.8	20.3	258203	19.8	21.2
52728	19.5	18.4	308741	19.6	19.1	188698	19.6	20.4	385872	19.7	20.6	421593	19.8	20.4	330691	19.8	19.9
235646	19.5	19.0	123588	19.6	19.7	238317	19.6	20.2	535487	19.7	20.7	422379	19.8	21.0	428961	19.8	20.9
543882	19.5	20.3	105044	19.6	17.7	340644	19.6	21.0	138542	19.7	18.4	152868	19.8	20.0	89460	19.8	19.9
199144	19.5	20.3	353704	19.6	20.0	90673	19.6	19.4	245641	19.7	20.2	431505	19.8	20.9	536521	19.8	21.0
34094	19.5	17.7	484684	19.6	21.2	156492	19.6	18.1	454396	19.7	19.7	276721	19.8	19.4	292721	19.8	20.1
170346	19.5	19.7	282926	19.6	20.2	383282	19.6	20.7	40853	19.7	18.6	63510	19.8	19.4	337484	19.8	20.4
541120	19.5	21.2	227293	19.6	20.1	113994	19.6	19.4	130959	19.7	20.0	260943	19.8	20.5	258310	19.8	19.9
41971	19.5	18.1	59875	19.6	18.4	56513	19.6	18.6	504245	19.7	21.4	496131	19.8	22.1	397458	19.8	20.1
111205	19.5	20.1	249111	19.6	20.0	422712	19.6	21.4	436691	19.7	20.7	14550	19.8	16.5	236272	19.8	20.7
445939	19.5	19.5	377110	19.6	20.2	429040	19.6	20.8	117384	19.7	18.5	534633	19.8	19.5	18393	19.8	16.2
125084	19.5	20.4	173350	19.6	19.8	80106	19.6	19.6	35347								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
143002	19.8	19.7	4438	19.9	16.1	345165	19.9	19.2	212609	20.0	19.9	63537	20.1	18.6	209506	20.2	20.2
395877	19.8	20.2	100147	19.9	19.5	384244	19.9	21.3	451732	20.0	20.3	418929	20.1	23.5	544786	20.2	21.8
529336	19.8	23.2	296406	19.9	19.8	413126	19.9	21.0	160753	20.0	18.5	201081	20.1	18.5	532918	20.2	21.4
543618	19.8	20.4	169245	19.9	19.4	330119	19.9	20.2	136735	20.0	19.5	288652	20.1	20.2	213191	20.2	19.7
349397	19.8	20.5	181357	19.9	20.4	458923	19.9	21.5	172576	20.0	19.7	94760	20.1	19.1	450079	20.2	21.9
348662	19.8	21.8	129393	19.9	19.5	544723	19.9	19.7	268454	20.0	20.2	114608	20.1	20.0	147174	20.2	20.2
306351	19.8	21.7	456929	19.9	19.7	353796	19.9	19.7	226833	20.0	19.8	188688	20.1	19.9	24632	20.2	17.4
9968	19.8	16.2	393552	19.9	20.2	244712	19.9	18.8	225418	20.0	19.9	170136	20.1	19.7	63323	20.2	17.6
309340	19.8	20.9	296131	19.9	21.4	354967	19.9	19.3	456644	20.0	21.3	255865	20.1	21.1	405935	20.2	21.0
188197	19.8	20.3	93059	19.9	20.0	227888	19.9	19.6	111503	20.0	19.0	271831	20.1	20.2	37966	20.2	18.1
200397	19.8	20.2	307621	19.9	19.8	330003	19.9	20.4	498177	20.0	21.8	444136	20.1	21.1	210895	20.2	20.8
291699	19.8	19.2	57908	19.9	18.7	167646	19.9	20.3	178143	20.0	20.4	131983	20.1	20.2	294682	20.2	19.7
340773	19.8	20.1	470705	19.9	20.8	80349	19.9	18.7	430044	20.0	21.5	339627	20.1	20.7	347906	20.2	21.2
503069	19.8	20.5	130702	19.9	18.6	331010	19.9	20.7	80223	20.0	18.0	16356	20.1	16.6	537065	20.2	20.6
289425	19.8	20.5	332533	19.9	20.5	266850	19.9	20.4	76100	20.0	18.0	136506	20.1	20.2	409977	20.2	20.8
440043	19.8	21.1	59156	19.9	18.2	146446	19.9	20.1	381602	20.0	20.0	242347	20.1	19.7	541634	20.2	19.9
432310	19.8	20.2	541484	19.9	21.6	57528	19.9	18.7	208681	20.0	20.1	451505	20.1	21.9	8787	20.2	17.6
310411	19.8	20.1	204577	19.9	19.6	442646	19.9	21.1	471325	20.0	21.8	289291	20.1	21.5	417092	20.2	21.5
66152	19.8	18.2	532170	19.9	20.3	232733	19.9	20.1	330942	20.0	20.8	425088	20.1	22.2	489313	20.2	21.2
455275	19.9	20.8	321630	19.9	20.5	217886	19.9	20.8	178443	20.0	19.2	229466	20.1	20.1	459475	20.2	20.8
284340	19.9	20.3	50714	19.9	19.1	114597	19.9	20.0	104376	20.0	18.6	524094	20.1	20.1	207110	20.2	19.8
110204	19.9	20.5	169380	19.9	20.0	544478	19.9	20.9	450740	20.0	20.1	415129	20.1	21.3	100355	20.2	19.5
466347	19.9	20.9	388597	19.9	20.8	107030	19.9	19.7	57126	20.0	17.7	401376	20.1	20.8	105281	20.2	19.0
61665	19.9	17.6	63778	19.9	19.0	336600	19.9	20.6	417713	20.0	20.9	435934	20.1	21.4	57523	20.2	19.0
502286	19.9	20.9	15898	19.9	16.6	534559	19.9	21.4	529201	20.0	21.0	162049	20.1	20.5	63382	20.2	17.8
370810	19.9	20.2	24635	19.9	17.1	226658	19.9	20.2	83224	20.0	19.1	192433	20.1	20.0	415826	20.2	20.8
285691	19.9	21.1	419552	19.9	21.8	190398	19.9	20.9	221702	20.0	20.4	384563	20.1	20.4	456911	20.2	21.8
339520	19.9	20.1	50519	19.9	18.2	481459	19.9	20.6	527691	20.0	21.5	321239	20.1	20.5	422496	20.2	20.8
274899	19.9	20.9	358973	19.9	21.2	536011	19.9	20.2	534386	20.0	20.9	422213	20.1	22.0	391079	20.2	19.8
232007	19.9	18.9	448128	19.9	20.9	190789	19.9	19.7	526612	20.0	21.5	534697	20.1	20.4	432071	20.2	21.1
344820	19.9	19.8	427067	19.9	20.9	235603	19.9	19.8	450978	20.0	20.2	142075	20.1	19.4	279059	20.2	20.6
110331	19.9	19.8	38765	19.9	19.1	524084	19.9	20.5	401191	20.0	21.2	504230	20.1	20.5	419067	20.2	19.7
265725	19.9	20.3	531549	19.9	21.1	351748	19.9	20.7	297458	20.0	19.8	17327	20.1	17.9	301377	20.2	20.0
227676	19.9	19.9	56326	19.9	17.2	11019	19.9	15.9	367206	20.0	20.3	450874	20.1	21.8	327674	20.2	20.8
486133	19.9	21.4	274866	19.9	20.7	209425	19.9	19.9	468427	20.0	21.0	534063	20.1	20.2	330024	20.2	19.4
351635	19.9	20.5	540094	19.9	20.4	206920	19.9	20.8	100822	20.0	19.0	53859	20.1	18.9	326600	20.2	21.8
98113	19.9	17.8	471684	19.9	20.5	129014	19.9	18.6	379143	20.1	19.6	86326	20.1	20.7	158955	20.2	19.2
2522	19.9	15.6	463520	19.9	21.2	305649	19.9	21.0	233283	20.1	18.8	118732	20.1	19.7	62114	20.2	19.1
34854	19.9	18.5	277716	19.9	20.6	285328	19.9	18.8	428007	20.1	20.6	30780	20.1	17.8	343392	20.2	21.2
109618	19.9	18.5	281619	19.9	20.3	205494	19.9	19.5	116995	20.1	18.2	309744	20.1	19.2	94570	20.2	19.4
287849	19.9	21.0	444271	19.9	19.9	141109	19.9	20.2	544988	20.1	20.9	166700	20.1	20.0	249449	20.2	19.4
417190	19.9	22.0	65590	19.9	18.7	540428	19.9	21.0	11681	20.1	15.9	86870	20.1	18.9	535437	20.2	21.3
449573	19.9	19.7	209047	19.9	20.3	80808	19.9	19.2	204903	20.1	20.7	443851	20.1	21.2	87963	20.2	19.0
334568	19.9	19.9	271184	19.9	19.9	56310	19.9	18.8	132073	20.1	19.3	300388	20.1	20.3	500591	20.2	20.9
331944	19.9	20.4	422177	19.9	20.8	166421	19.9	20.4	349040	20.1	20.6	49256	20.1	17.6	213360	20.2	19.5
243505	19.9	21.0	126989	19.9	19.3	103159	19.9	19.5	341632	20.1	21.7	76719	20.1	17.9	49695	20.2	18.2
16772	19.9	18.5	141323	19.9	19.4	501136	19.9	20.2	277151	20.1	20.2	384265	20.1	20.1	377153	20.2	20.6
147577	19.9	19.3	184553	19.9	20.2	156761	20.0	20.2	196278	20.1	19.7	249246	20.1	21.2	544082	20.2	21.2
192828	19.9	19.7	426973	19.9	21.1	427675	20.0	21.2	189961	20.1	19.5	402229	20.1	20.4	413662	20.2	20.4
526800	19.9	20.2	398838	19.9	20.3	163753	20.0	19.9	75894	20.1	18.0	107415	20.1	18.6	9596	20.2	16.1
373048	19.9	20.8	15361	19.9	16.8	19441	20.0	16.9	183385	20.1	20.4	472275	20.1	18.8	232388	20.2	20.3
345968	19.9	21.1	404768	19.9	19.9	419227	20.0	20.9	137123	20.1	19.4	541655	20.1	19.8	170244	20.2	20.8
467639	19.9	21.0	544213	19.9	21.9	505041	20.0	21.8	468701	20.1	19.2	245488	20.1	20.1	423566	20.2	20.8
301794	19.9	19.6	148580	19.9	19.8	343572	20.0	19.7	15647	20.1	18.3	28506	20.1	16.1	347115	20.2	19.4
181705	19.9	19.5	214080	19.9	19.3	158638	20.0	20.3	363803	20.1	20.4	41638	20.1	18.9	50900	20.2	18.8
461939	19.9	22.0	173309	19.9	19.9	258507	20.0	20.3	261382	20.1	20.6	352801	20.1	21.1	256304	20.2	19.6
426426	19.9	20.7	367172	19.9	21.4	545021	20.0	20.2	519605	20.1	20.9	454600	20.1	19.9	496735	20.2	20.9
464609	19.9	21.8	399341	19.9	20.4	224577	20.0	20.6	346086	20.1	20.7	387567	20.1	21.3	484667	20.2	20.7
502042	19.9	21.0	14948	19.9	17.2	268449	20.0	20.7	468684	20.1	21.8	282319	20.1	20.1	524203	20.2	24.5
183309	19.9	20.2	456938	19.9	21.7	43366	20.0	18.5	288945	20.1	21.2	535883	20.1	22.8	91345	20.2	17.6
423974	19.9	20.6	62470	19.9	18.6	221199	20.0	20.8	149708	20.1	20.0	293035	20.1	18.7	16593	20.2	16.7
119830	19.9	19.9	322910	19.9	20.0	518626	20.0	20.8	115186	20.1	19.9	473848	20.1	19.4	525633	20.2	21.9
370647	19.9	21.8	433101	19.9	20.1	151566	20.0	20.0	248902	20.1	20.1	353791	20.1	20.8	144885	20.2	19.7
258319	19.9	20.3	2037	19.9	16.2	171547	20.0	19.6	70124	20.1	19.2	245499	20.1	19.2	338878	20.2	20.1
388317	19.9	20.6	225520	19.9	20.2	328913	20.0	21.8	1534	20.1	16.1	13961	20.1	17.6	544129	20.2	21.2
40636	19.9	18.6	410047	19.9	22.0	10675	20.0	18.1	461014	20.1	21.4	80490	20.1	17.5	473034	20.2	20.6
9487	19.9	17.4	341500	19.9	21.3	201936	20.0	19.5	304547	20.1	19.9	283590	20.1	20.2	236274	20.2	19.8
134863	19.9	19.9	127972	19.9	18.4	503539	20.0	20.5	419188	20.1	21.4	419806	20.1	22.0	219390	20.2	20.6
269654	19.9	20.6	334351	19.9	20.6	136435	20.0	18.7	370170								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
530616	20.2	20.3	83719	20.3	19.4	49273	20.4	19.3	312654	20.4	19.9	534810	20.5	20.7	10342	20.6	17.2
138485	20.2	19.4	422148	20.3	21.2	376465	20.4	20.0	22140	20.4	19.0	123402	20.5	19.3	114520	20.6	18.8
338437	20.2	20.3	220321	20.3	18.8	183607	20.4	20.5	81858	20.4	18.9	459139	20.5	20.2	482985	20.6	19.7
260948	20.2	20.6	194259	20.3	20.3	342675	20.4	19.9	531647	20.4	21.3	184087	20.5	19.1	31045	20.6	17.4
16050	20.2	17.8	120437	20.3	19.2	517709	20.4	20.5	295751	20.4	20.3	358537	20.5	20.0	201921	20.6	19.7
226775	20.2	20.7	50354	20.3	19.5	412801	20.4	21.5	489075	20.4	21.6	322134	20.5	19.7	292547	20.6	21.0
422735	20.2	21.1	178912	20.3	19.7	285983	20.4	20.8	421130	20.4	20.5	135229	20.5	19.2	213914	20.6	20.0
326074	20.2	20.0	62137	20.3	19.0	279107	20.4	21.4	499090	20.4	20.6	496074	20.5	21.4	9727	20.6	17.3
309052	20.2	21.3	9142	20.3	17.4	495250	20.4	19.9	314507	20.4	20.0	50060	20.5	16.8	348826	20.6	20.9
207113	20.2	19.4	400295	20.3	20.8	403057	20.4	21.3	503074	20.4	21.1	427014	20.5	21.7	77192	20.6	18.1
26113	20.2	17.7	12033	20.3	17.5	228859	20.4	20.4	188501	20.4	19.5	94677	20.5	20.2	118684	20.6	19.0
430423	20.2	21.9	20488	20.3	18.0	262339	20.4	20.0	267755	20.4	20.0	175103	20.5	19.6	302888	20.6	19.4
125609	20.2	19.9	31808	20.3	17.2	522571	20.4	21.3	434793	20.4	21.0	102082	20.5	19.3	163802	20.6	20.1
167477	20.2	20.1	108259	20.3	18.1	240243	20.4	20.3	220798	20.4	19.9	166727	20.5	19.4	496483	20.6	19.7
151007	20.2	20.1	502842	20.3	20.6	498113	20.4	21.7	291219	20.5	19.4	417763	20.5	21.6	417669	20.6	21.6
144176	20.2	18.3	56971	20.3	18.5	472913	20.4	20.4	130705	20.5	19.2	189248	20.5	19.1	462900	20.6	21.7
443885	20.2	21.5	229994	20.3	20.4	493902	20.4	21.0	155783	20.5	19.4	61607	20.5	19.2	187154	20.6	20.0
221229	20.2	20.6	2333	20.3	15.5	332802	20.4	19.7	287520	20.5	19.6	29945	20.5	17.2	110933	20.6	18.9
460387	20.2	20.9	141229	20.3	20.4	387659	20.4	20.9	179099	20.5	19.6	281665	20.5	20.8	269571	20.6	19.9
231774	20.2	19.9	366845	20.3	19.8	445987	20.4	21.8	368196	20.5	22.0	243357	20.5	20.9	413099	20.6	21.4
252007	20.2	19.7	29472	20.3	19.4	39757	20.4	19.5	93055	20.5	19.7	453174	20.5	20.4	417010	20.6	20.4
281049	20.2	20.6	205926	20.3	19.1	417608	20.4	21.2	420887	20.5	20.3	358615	20.5	20.6	25341	20.6	18.3
409421	20.2	19.7	5236	20.3	16.5	378729	20.4	21.2	90840	20.5	19.6	282810	20.5	19.4	279393	20.6	21.0
102093	20.2	17.5	6642	20.3	17.7	192471	20.4	19.4	203875	20.5	19.0	135268	20.5	20.2	194451	20.6	19.4
229099	20.2	20.5	510762	20.3	19.7	436641	20.4	20.7	460252	20.5	20.8	389899	20.5	20.5	368747	20.6	21.7
456578	20.2	20.1	95112	20.3	19.4	522203	20.4	20.1	40603	20.5	18.9	471824	20.5	20.5	191812	20.6	20.3
420620	20.2	20.4	472485	20.3	22.1	374135	20.4	20.2	411772	20.5	21.2	219722	20.5	19.5	158480	20.6	20.5
399588	20.2	20.9	532198	20.3	20.5	5741	20.4	17.1	355946	20.5	20.3	140745	20.5	19.5	502972	20.6	21.2
448169	20.2	20.1	350844	20.3	19.3	373501	20.4	20.6	252963	20.5	20.1	58483	20.5	18.7	56938	20.6	16.5
317004	20.2	20.0	458609	20.3	20.4	136758	20.4	20.0	499086	20.5	21.5	47846	20.5	18.7	380897	20.6	20.0
303514	20.2	19.7	88595	20.3	19.1	7672	20.4	18.3	148799	20.5	19.9	426357	20.5	21.7	271940	20.6	20.4
384952	20.2	21.1	126133	20.3	19.6	5422	20.4	17.8	276856	20.5	20.6	530602	20.5	21.3	543337	20.6	20.4
223793	20.3	20.3	229367	20.3	20.5	38446	20.4	18.5	83543	20.5	19.3	463461	20.5	19.7	120112	20.6	19.0
184064	20.3	20.5	539815	20.3	20.4	505087	20.4	20.9	432430	20.5	20.5	545023	20.5	20.3	534830	20.6	21.4
303725	20.3	20.3	243034	20.3	19.2	200860	20.4	20.5	73654	20.5	18.4	294423	20.5	21.0	331890	20.6	20.1
163589	20.3	19.5	2208	20.3	15.7	387172	20.4	20.7	497709	20.5	22.3	457058	20.5	20.5	77762	20.6	18.2
470246	20.3	20.1	334497	20.3	20.8	402463	20.4	19.9	210489	20.5	20.4	434858	20.5	20.5	460015	20.6	20.0
776	20.3	12.4	383680	20.3	20.1	436261	20.4	20.5	43805	20.5	16.7	65116	20.5	18.6	383807	20.6	21.1
102116	20.3	20.1	494709	20.3	20.6	293787	20.4	20.1	493490	20.5	22.2	527410	20.5	20.6	393329	20.6	20.7
109467	20.3	20.0	496883	20.3	22.1	34153	20.4	19.9	62634	20.5	19.5	318076	20.5	18.8	63192	20.6	18.6
497820	20.3	21.8	190420	20.3	20.6	149865	20.4	20.8	284147	20.5	20.1	29310	20.5	18.9	108358	20.6	18.6
492113	20.3	19.3	135161	20.3	19.2	419971	20.4	21.0	286263	20.5	20.0	526251	20.5	22.3	104860	20.6	18.7
121901	20.3	19.5	382769	20.3	20.1	124162	20.4	19.5	105709	20.5	19.6	530645	20.5	21.6	505230	20.6	20.8
419922	20.3	21.7	86482	20.3	19.6	221374	20.4	20.9	277456	20.5	20.2	280407	20.5	20.2	383900	20.6	20.9
463718	20.3	22.3	500376	20.3	21.9	61995	20.4	19.1	357563	20.5	21.0	66096	20.5	18.9	375409	20.6	20.6
193895	20.3	19.8	67556	20.3	18.8	173013	20.4	19.4	193869	20.5	20.4	424858	20.5	20.4	416274	20.6	20.8
138610	20.3	19.8	545076	20.3	21.6	256263	20.4	20.0	218656	20.5	20.1	9941	20.5	17.6	2812	20.6	15.3
372484	20.3	20.8	226504	20.3	20.8	148654	20.4	19.7	158482	20.5	20.0	413207	20.5	21.9	391821	20.6	19.7
412473	20.3	19.5	154307	20.3	20.8	437033	20.4	20.7	366869	20.5	21.2	343668	20.5	21.1	243246	20.6	20.0
496067	20.3	20.8	80960	20.3	17.3	53666	20.4	17.7	83764	20.5	18.6	258183	20.5	21.4	70293	20.6	17.2
253336	20.3	20.6	453389	20.3	20.2	101580	20.4	20.2	426975	20.5	20.2	536308	20.5	21.4	510943	20.6	20.9
328967	20.3	19.8	53390	20.3	18.1	359063	20.4	20.0	406479	20.5	20.4	29073	20.5	18.6	165826	20.6	20.0
414242	20.3	20.7	199509	20.3	18.5	88451	20.4	19.5	57621	20.5	19.7	466679	20.5	21.2	243344	20.6	19.7
36849	20.3	18.5	249173	20.3	19.7	201922	20.4	19.4	65407	20.5	27.7	31121	20.5	19.0	296311	20.6	20.8
165533	20.3	20.7	362154	20.3	19.6	306080	20.4	19.4	216623	20.5	20.1	290086	20.5	20.1	241889	20.6	20.5
359055	20.3	21.1	39869	20.3	18.6	15667	20.4	18.4	321232	20.5	19.2	33902	20.5	17.8	512291	20.6	19.9
153899	20.3	20.7	312069	20.3	20.4	89139	20.4	18.7	61251	20.5	18.5	355945	20.5	20.8	384950	20.6	20.8
418364	20.3	19.5	116895	20.3	18.4	123144	20.4	20.5	353906	20.5	21.8	431259	20.5	20.4	327890	20.6	20.8
106661	20.3	19.9	113820	20.3	19.2	379429	20.4	20.4	464736	20.5	19.5	81145	20.5	18.4	543605	20.6	21.4
336022	20.3	20.9	534153	20.3	20.5	222801	20.4	19.9	180503	20.5	20.7	338381	20.5	20.5	384925	20.6	20.7
124241	20.3	20.6	100741	20.3	20.5	415226	20.4	21.1	122562	20.5	19.5	389243	20.5	20.5	297866	20.6	19.7
72799	20.3	18.3	6270	20.3	17.4	289580	20.4	18.7	187927	20.5	19.6	135444	20.5	20.6	524212	20.6	21.0
142687	20.3	20.2	354146	20.3	21.2	459151	20.4	21.2	301818	20.5	21.1	159040	20.5	20.3	108757	20.6	19.3
191841	20.3	20.0	90456	20.3	18.9	178302	20.4	18.9	129409	20.5	19.9	200636	20.5	20.7	271201	20.6	20.5
411189	20.3	20.4	188078	20.3	19.2	329421	20.4	19.3	128994	20.5	18.9	256976	20.5	20.0	500606	20.6	21.4
402078	20.3	21.5	138806	20.3	19.4	285032	20.4	19.7	57042	20.5	19.7	541626	20.5	21.0	274942	20.6	20.3
447419	20.3	21.0	296230	20.3	19.6	286752	20.4	19.8	341661	20.5	21.3	357217	20.5	19.6	245159	20.6	20.5
435327	20.3	21.7	242376	20.3	19.1	11435	20.4	17.4	386182	20.5	20.7	506707	20.5	21.7	173906	20.6	21.0
12283	20.3	17.5	140184	20.3	20.0	182334	20.4	20.4	302941	20.5	2						

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
40017	20.6	18.4	317046	20.7	21.0	302462	20.8	20.5	343021	20.8	21.0	522320	20.9	20.8	533799	20.9	20.8
524298	20.6	20.7	180549	20.7	19.4	32025	20.8	18.6	413930	20.8	21.0	18493	20.9	17.5	140122	20.9	19.9
2512	20.6	15.7	233558	20.7	20.4	29872	20.8	18.1	430945	20.8	21.0	200923	20.9	20.1	317023	20.9	19.7
109425	20.6	18.4	205	20.7	13.4	463300	20.8	19.2	422767	20.8	21.0	484750	20.9	20.5	239610	20.9	19.9
242139	20.6	20.1	235443	20.7	19.7	417532	20.8	21.2	345551	20.8	21.0	228779	20.9	19.5	347426	20.9	20.2
105973	20.6	18.8	32075	20.7	18.6	216743	20.8	19.7	339565	20.8	20.0	501999	20.9	21.1	166640	20.9	19.6
403144	20.6	20.7	404704	20.7	20.2	177428	20.8	18.7	148629	20.8	19.8	498142	20.9	21.4	48795	20.9	20.3
176847	20.6	19.7	4385	20.7	17.9	105319	20.8	19.2	265826	20.8	21.2	253366	20.9	18.9	391446	20.9	19.2
114806	20.6	19.6	235752	20.7	19.3	164591	20.8	20.1	253085	20.8	20.7	147040	20.9	18.8	104944	20.9	19.5
194894	20.6	21.2	372428	20.7	20.2	10481	20.8	17.6	462070	20.8	21.9	48858	20.9	18.8	136701	20.9	20.1
259005	20.6	21.1	407957	20.7	20.7	318665	20.8	19.8	468915	20.8	19.7	362075	20.9	21.8	238924	20.9	19.1
348619	20.6	21.6	153148	20.7	19.6	534887	20.8	21.8	267528	20.8	19.5	128641	20.9	20.3	430318	20.9	20.7
81732	20.6	17.7	123180	20.7	20.5	166761	20.8	18.9	8779	20.8	17.7	126037	20.9	19.1	373439	20.9	20.8
190188	20.6	20.0	169436	20.7	19.6	536045	20.8	20.5	473139	20.8	19.3	246367	20.9	19.6	160073	20.9	19.5
53554	20.6	17.5	422758	20.7	20.2	202632	20.8	20.6	493003	20.8	21.1	241175	20.9	19.6	284203	20.9	20.4
152905	20.6	18.8	423743	20.7	21.3	257225	20.8	18.9	288293	20.8	21.4	62606	20.9	19.9	358969	20.9	21.5
206701	20.6	20.1	266969	20.7	20.6	382742	20.8	21.1	477491	20.8	23.0	116174	20.9	20.4	345691	20.9	21.0
434921	20.6	19.8	336265	20.7	20.5	466313	20.8	20.6	263756	20.8	19.8	435038	20.9	20.8	225871	20.9	21.0
205852	20.6	19.5	205450	20.7	19.9	175040	20.8	19.5	224345	20.8	19.5	538420	20.9	21.0	111860	20.9	18.8
371646	20.6	20.4	388749	20.7	20.6	383643	20.8	21.2	82540	20.8	18.8	372511	20.9	21.0	155068	20.9	19.2
437607	20.6	21.0	167099	20.7	19.7	116642	20.8	18.5	207590	20.8	19.8	177511	20.9	19.0	368592	20.9	21.1
325385	20.6	20.2	320660	20.7	19.6	465132	20.8	21.5	495251	20.8	20.9	544831	20.9	20.2	100508	20.9	19.0
217420	20.6	19.8	420655	20.7	19.7	329097	20.8	20.8	316286	20.8	19.9	522104	20.9	20.0	248540	20.9	20.8
163461	20.6	20.3	194513	20.7	19.1	500569	20.8	22.2	509210	20.8	21.4	311351	20.9	20.1	154388	20.9	19.4
372399	20.6	19.8	224631	20.7	20.7	383627	20.8	20.2	231893	20.8	19.1	263314	20.9	21.4	118054	20.9	19.6
355952	20.6	18.9	70750	20.7	17.7	406658	20.8	20.7	532446	20.8	21.8	152706	20.9	19.1	336910	20.9	20.0
133868	20.6	19.0	265595	20.7	20.7	335868	20.8	19.6	485105	20.8	20.5	448209	20.9	21.3	319767	20.9	21.5
32389	20.6	18.4	516712	20.7	21.1	420977	20.8	20.3	453848	20.8	21.8	437152	20.9	21.1	143296	20.9	19.5
200849	20.6	20.2	284311	20.7	20.3	327835	20.8	21.5	295548	20.8	21.1	100058	20.9	19.4	503618	20.9	20.6
238356	20.6	19.7	239310	20.7	19.7	10931	20.8	16.6	101500	20.8	19.3	271657	20.9	20.3	236385	20.9	20.3
414188	20.6	20.5	90217	20.7	18.5	467366	20.8	20.8	409996	20.8	21.5	194082	20.9	19.6	41678	20.9	19.1
411400	20.6	21.4	205913	20.7	19.5	245690	20.8	19.2	525863	20.8	21.5	522353	20.9	20.9	231543	20.9	20.2
75389	20.6	18.5	283980	20.7	20.1	266219	20.8	21.0	360573	20.8	20.4	135424	20.9	19.9	156065	20.9	19.3
408296	20.6	19.9	65489	20.7	22.6	8610	20.8	17.5	151037	20.8	20.6	491957	20.9	21.5	363021	20.9	19.8
204378	20.6	20.3	318647	20.7	19.3	73425	20.8	18.2	449598	20.8	20.2	543623	20.9	21.1	495516	20.9	21.1
529611	20.6	20.8	274383	20.7	19.6	395714	20.8	21.3	301111	20.8	20.5	4351	20.9	16.9	275197	20.9	19.6
353595	20.6	21.0	234294	20.7	20.5	349051	20.8	20.9	173149	20.8	19.9	52059	20.9	18.0	99467	20.9	19.2
434892	20.6	20.3	192130	20.7	20.5	423734	20.8	22.0	532924	20.8	22.4	87867	20.9	19.1	456697	20.9	20.7
191332	20.7	19.1	381941	20.7	19.7	240092	20.8	19.2	362060	20.9	20.4	332392	20.9	20.9	299302	20.9	20.8
7730	20.7	16.6	268102	20.7	20.8	359182	20.8	20.9	125071	20.9	19.2	485453	20.9	21.1	314813	20.9	19.9
284360	20.7	20.8	428901	20.7	20.3	58158	20.8	18.9	82863	20.9	19.2	238935	20.9	20.3	388783	20.9	21.1
170103	20.7	18.8	264647	20.7	21.0	500274	20.8	20.0	33420	20.9	17.4	5069	20.9	14.8	140091	20.9	19.7
271136	20.7	19.8	170221	20.7	18.6	429308	20.8	20.5	415818	20.9	21.6	345572	20.9	20.3	453334	20.9	22.0
147717	20.7	19.1	225607	20.7	20.8	363187	20.8	20.5	418897	20.9	20.8	353416	20.9	20.0	256205	20.9	19.8
527547	20.7	21.6	85418	20.7	19.7	141784	20.8	20.3	424127	20.9	20.2	415849	20.9	21.3	370826	20.9	20.7
433654	20.7	20.8	346202	20.7	20.8	380370	20.8	21.0	489143	20.9	21.2	18981	20.9	16.5	177770	20.9	20.3
323102	20.7	20.1	483746	20.7	21.1	14411	20.8	18.0	230086	20.9	20.9	417835	20.9	20.4	221115	20.9	20.4
405179	20.7	22.2	341326	20.7	21.3	38320	20.8	19.1	434058	20.9	21.6	46679	20.9	18.1	329985	20.9	21.0
280169	20.7	20.4	4237	20.7	16.8	454278	20.8	21.1	340930	20.9	20.2	411705	20.9	19.7	33860	20.9	18.0
190372	20.7	20.8	427162	20.7	19.6	422795	20.8	21.9	84709	20.9	19.3	366730	20.9	18.8	10618	20.9	18.4
143614	20.7	19.3	53305	20.7	16.7	417280	20.8	19.6	460221	20.9	22.0	146908	20.9	19.4	151825	20.9	19.2
413689	20.7	20.7	286489	20.7	20.7	219708	20.8	18.9	110734	20.9	18.8	310959	20.9	21.3	246467	20.9	20.6
320274	20.7	20.2	397882	20.7	20.9	486816	20.8	20.1	8744	20.9	18.5	88663	20.9	19.1	201413	20.9	19.7
56052	20.7	18.4	272121	20.7	20.1	162771	20.8	19.8	386600	20.9	21.2	500420	20.9	22.4	84523	20.9	20.3
375759	20.7	19.8	185742	20.7	19.6	494710	20.8	19.1	448194	20.9	19.9	234036	20.9	20.0	348674	20.9	20.7
376727	20.7	21.2	183990	20.7	20.7	27758	20.8	18.7	1758	20.9	15.4	80025	20.9	18.4	437561	20.9	20.6
260981	20.7	20.5	544005	20.7	20.4	485061	20.8	19.5	104852	20.9	18.0	130543	20.9	20.6	195120	20.9	18.8
82034	20.7	18.9	537092	20.7	19.5	497641	20.8	20.9	345241	20.9	21.2	324056	20.9	19.3	82160	20.9	18.8
4317	20.7	16.6	94739	20.7	19.6	270018	20.8	20.1	285702	20.9	19.8	39969	20.9	16.2	261504	20.9	19.3
327939	20.7	20.8	183969	20.7	19.8	17392	20.8	18.4	110335	20.9	19.0	23056	20.9	17.9	298903	20.9	21.3
54609	20.7	18.9	501412	20.7	21.3	205325	20.8	19.7	303386	20.9	19.2	65271	20.9	19.3	325119	20.9	21.1
520721	20.7	21.5	295230	20.7	20.4	366426	20.8	19.9	396801	20.9	21.2	500304	20.9	21.4	20387	20.9	17.4
37311	20.7	18.7	503119	20.7	20.2	282203	20.8	20.7	316085	20.9	19.9	535136	20.9	21.4	366733	20.9	20.5
534591	20.7	18.6	393222	20.7	20.8	280727	20.8	20.5	397829	20.9	21.5	544039	20.9	22.0	133268	20.9	19.5
534018	20.7	21.4	82746	20.7	19.3	54610	20.8	18.7	389324	20.9	20.5	283513	20.9	19.9	399288	20.9	19.3
399051	20.7	20.2	145408	20.7	20.2	109146	20.8	19.7	401988	20.9	20.8	244111	20.9	20.1	101991	20.9	19.4
289791	20.7	20.2	131581	20.8	19.9	34174	20.8	19.4	261040	20.9	21.2	36539	20.9	18.4	429363	20.9	20.5
219079	20.7	19.7	1083	20.8	15.3	217771	20.8	20.5	317560	20.9	20.5	330424	20.9	18.0	494890	20.9	20.2
70897	20.7	17.8	377706	20.8	19.2	206191	20.8	20.2	341708								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
388732	21.0	21.3	371249	21.1	21.8	299010	21.1	21.5	544859	21.2	20.6	123893	21.3	20.3	170117	21.3	19.4
456453	21.0	20.6	62296	21.1	18.9	391454	21.1	20.7	255843	21.2	21.4	131892	21.3	20.6	425220	21.4	21.2
19559	21.0	17.9	496989	21.1	22.5	460195	21.1	21.6	452473	21.2	21.2	479279	21.3	19.7	190421	21.4	20.0
269368	21.0	20.2	153983	21.1	19.0	350315	21.1	20.6	365861	21.2	21.7	498163	21.3	21.9	448457	21.4	20.1
524222	21.0	22.3	376540	21.1	20.1	376243	21.1	20.4	63695	21.2	18.6	525536	21.3	20.0	357509	21.4	21.2
402955	21.0	21.7	407415	21.1	21.5	33225	21.1	18.2	12705	21.2	17.2	192927	21.3	19.8	405005	21.4	21.0
107923	21.0	18.9	522381	21.1	20.3	287444	21.1	21.4	232366	21.2	20.9	4805	21.3	17.3	491889	21.4	21.1
207608	21.0	19.8	307403	21.1	18.4	12319	21.1	17.8	499118	21.2	21.1	457098	21.3	21.9	29455	21.4	18.0
246606	21.0	20.3	181081	21.1	19.6	218027	21.1	20.6	233138	21.2	20.2	496696	21.3	20.9	182317	21.4	19.9
206877	21.0	19.6	469134	21.1	19.5	524309	21.1	21.6	375462	21.2	20.5	467649	21.3	20.2	155973	21.4	18.7
436248	21.0	20.7	376183	21.1	19.6	66253	21.2	22.0	371766	21.2	20.5	452433	21.3	19.8	543697	21.4	21.5
266799	21.0	19.5	491983	21.1	19.7	82824	21.2	18.7	243526	21.2	19.4	427564	21.3	21.1	522701	21.4	21.0
336612	21.0	21.2	504820	21.1	19.2	526697	21.2	22.3	208903	21.2	20.6	198899	21.3	20.1	492108	21.4	19.2
298839	21.0	20.2	175412	21.1	19.3	343081	21.2	20.5	470874	21.2	19.7	510817	21.3	20.9	8187	21.4	17.4
423230	21.0	21.5	461318	21.1	21.3	191117	21.2	19.1	339829	21.2	20.8	476527	21.3	20.1	399586	21.4	20.6
370190	21.0	20.7	501836	21.1	19.9	401502	21.2	20.5	133610	21.2	19.1	10746	21.3	16.4	140890	21.4	20.1
340003	21.0	17.2	38465	21.1	17.2	501137	21.2	21.1	296930	21.2	19.8	298982	21.3	21.0	172968	21.4	19.2
540687	21.0	21.0	293020	21.1	19.3	298883	21.2	18.7	211022	21.2	19.7	497848	21.3	20.9	505239	21.4	21.7
432152	21.0	20.2	164173	21.1	20.3	122734	21.2	18.4	234047	21.2	20.1	89722	21.3	18.3	348851	21.4	20.5
132156	21.0	20.4	224015	21.1	20.5	78720	21.2	19.0	503598	21.2	21.0	373081	21.3	20.6	276714	21.4	19.6
61861	21.0	19.0	348945	21.1	21.2	221316	21.2	21.0	301224	21.2	21.2	102558	21.3	19.2	324610	21.4	21.0
473165	21.0	20.4	393327	21.1	21.1	282633	21.2	20.6	484061	21.2	20.4	465962	21.3	20.9	431152	21.4	21.1
290625	21.0	20.4	373926	21.1	21.9	219037	21.2	20.3	372531	21.2	21.3	527712	21.3	23.1	299016	21.4	20.9
532563	21.0	21.6	17439	21.1	18.4	533976	21.2	21.3	135690	21.2	18.9	29120	21.3	19.4	350432	21.4	21.1
15137	21.0	16.7	502883	21.1	20.0	419177	21.2	21.2	100669	21.2	20.1	320785	21.3	21.8	424413	21.4	20.8
393798	21.0	20.6	290682	21.1	20.5	503476	21.2	20.9	372975	21.2	19.9	451426	21.3	20.4	88134	21.4	19.1
72294	21.0	19.8	491816	21.1	22.1	256196	21.2	18.6	524996	21.2	20.8	430838	21.3	19.8	198869	21.4	19.3
531757	21.0	22.0	81139	21.1	20.8	18791	21.2	17.4	56648	21.2	18.7	249445	21.3	19.4	319827	21.4	20.8
538105	21.0	20.9	294092	21.1	20.2	498236	21.2	20.6	134753	21.2	19.6	91222	21.3	18.6	71014	21.4	18.5
32576	21.0	18.7	117949	21.1	19.5	318912	21.2	19.4	142617	21.2	21.1	52952	21.3	19.4	128279	21.4	18.4
380373	21.0	21.4	529910	21.1	21.5	496371	21.2	21.1	452806	21.2	19.8	145647	21.3	19.9	153437	21.4	21.2
269003	21.0	20.4	45746	21.1	17.7	297291	21.2	20.9	31165	21.2	18.3	143711	21.3	19.7	435273	21.4	20.9
397155	21.0	20.6	348834	21.1	21.7	27919	21.2	19.3	80564	21.2	18.0	233485	21.3	20.2	393319	21.4	20.3
251562	21.0	19.3	184165	21.1	19.2	526621	21.2	22.1	132100	21.2	18.6	46585	21.3	18.3	431451	21.4	20.8
38891	21.0	19.3	140060	21.1	19.5	300161	21.2	20.3	121851	21.2	18.7	90918	21.3	18.8	195326	21.4	19.2
458510	21.0	20.4	301504	21.1	19.8	342879	21.2	20.1	521003	21.2	20.7	309217	21.3	18.0	435014	21.4	20.6
204399	21.0	21.1	147124	21.1	18.8	343385	21.2	19.8	301739	21.2	19.4	411760	21.3	20.7	76906	21.4	17.7
239257	21.0	19.9	221279	21.1	17.9	450501	21.2	20.4	313775	21.2	20.7	279344	21.3	20.9	523692	21.4	21.2
119471	21.0	18.9	126229	21.1	20.6	21719	21.2	18.8	235045	21.3	18.8	167966	21.3	19.6	425110	21.4	20.6
382683	21.0	21.1	108997	21.1	19.9	273870	21.2	19.8	164060	21.3	20.4	193871	21.3	20.1	280227	21.4	20.0
66897	21.0	19.1	176450	21.1	20.7	93882	21.2	18.9	81770	21.3	19.8	470368	21.3	21.5	111712	21.4	19.7
166643	21.0	19.6	60857	21.1	19.6	317121	21.2	20.3	5790	21.3	17.5	376534	21.3	20.8	530718	21.4	20.6
253214	21.0	20.3	192061	21.1	19.9	497874	21.2	22.2	196377	21.3	19.4	542943	21.3	21.8	197807	21.4	20.5
216877	21.0	20.5	5580	21.1	17.3	246917	21.2	20.1	275591	21.3	21.2	132128	21.3	18.7	501402	21.4	20.0
96550	21.0	19.7	84379	21.1	19.4	90926	21.2	19.2	11089	21.3	17.6	501975	21.3	20.6	200737	21.4	20.3
100727	21.0	19.6	411979	21.1	19.3	425436	21.2	20.8	397827	21.3	21.2	455196	21.3	20.9	397527	21.4	20.2
424927	21.0	20.5	495536	21.1	20.2	527126	21.2	20.8	158092	21.3	19.0	117928	21.3	19.2	57253	21.4	18.3
58116	21.0	19.6	327343	21.1	20.3	161664	21.2	19.7	463814	21.3	21.0	293519	21.3	20.4	353438	21.4	20.6
8358	21.0	18.6	86311	21.1	19.1	392537	21.2	21.5	328943	21.3	21.0	491653	21.3	21.5	63544	21.4	19.8
135383	21.0	19.2	36785	21.1	19.1	87376	21.2	18.9	189620	21.3	20.1	244052	21.3	19.5	182579	21.4	20.1
174940	21.0	19.5	401109	21.1	21.8	3069	21.2	16.5	540146	21.3	20.6	222376	21.3	19.7	116285	21.4	18.9
526640	21.0	21.4	118353	21.1	19.8	368610	21.2	21.0	524821	21.3	21.4	462037	21.3	21.0	25592	21.4	17.6
74731	21.0	18.3	151142	21.1	19.6	424997	21.2	21.3	269810	21.3	20.1	190414	21.3	19.7	286556	21.4	20.2
522562	21.0	20.8	397470	21.1	19.0	115782	21.2	19.7	285443	21.3	20.9	57506	21.3	18.6	422154	21.4	20.0
527533	21.0	19.9	272606	21.1	19.9	341724	21.2	20.6	177261	21.3	18.9	307655	21.3	20.4	213573	21.4	19.4
401016	21.0	21.1	124307	21.1	18.0	167926	21.2	19.9	342947	21.3	20.9	61093	21.3	18.7	522558	21.4	21.0
309336	21.0	20.3	93270	21.1	18.8	170024	21.2	20.1	359092	21.3	20.1	128924	21.3	19.3	146478	21.4	20.7
102993	21.0	19.0	432203	21.1	20.3	124619	21.2	19.2	271855	21.3	20.6	184373	21.3	19.5	225512	21.4	18.6
266147	21.1	19.1	159429	21.1	20.0	443886	21.2	22.0	472445	21.3	20.9	303322	21.3	20.9	282667	21.4	19.6
532932	21.1	21.1	533685	21.1	20.6	14086	21.2	18.1	284184	21.3	20.1	66808	21.3	19.1	349033	21.4	21.1
74239	21.1	18.2	263710	21.1	20.0	387099	21.2	20.7	376740	21.3	20.6	247486	21.3	19.0	528039	21.4	20.7
227942	21.1	20.5	300767	21.1	19.9	92971	21.2	19.5	209476	21.3	19.9	541203	21.3	20.1	466780	21.4	20.1
45825	21.1	17.9	526748	21.1	22.8	338454	21.2	20.6	258447	21.3	20.4	146665	21.3	19.2	159229	21.4	20.0
499466	21.1	20.5	85623	21.1	17.9	225559	21.2	20.1	330145	21.3	20.1	176946	21.3	18.4	328946	21.4	20.5
373345	21.1	20.5	460263	21.1	21.1	156781	21.2	19.4	147308	21.3	18.0	344475	21.3	20.7	190377	21.4	20.4
191823	21.1	19.9	430685	21.1	20.4	317966	21.2	21.5	281629	21.3	20.9	704	21.3	11.0	343398	21.4	20.5
253314	21.1	21.7	322816	21.1	20.5	446945	21.2	20.6	349437	21.3	20.0	524735	21.3	21.8	499454	21.4	20.7
122676	21.1	19.9	151560	21.1	19.2	297919	21.2	20.5	262848	21.3	21.1	137119	21.3	18.4	15434	21.4	18.3
409010	21.1	21.1	255994	21.1	20.8	15690	21.2	17.5	21464								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
116692	21.4	19.2	350597	21.5	20.6	212688	21.6	20.5	227771	21.6	19.0	184315	21.7	19.8	271369	21.8	20.4
31395	21.4	17.9	255897	21.5	19.6	207998	21.6	19.6	284020	21.6	21.1	355819	21.7	21.7	153836	21.8	19.8
82478	21.4	18.8	421386	21.5	20.1	229256	21.6	19.4	505049	21.6	21.1	402933	21.7	21.8	11214	21.8	17.4
507502	21.4	21.3	165819	21.5	19.7	444995	21.6	19.7	236186	21.6	19.2	13832	21.7	15.0	229542	21.8	19.9
285092	21.4	21.0	42962	21.5	18.9	312909	21.6	21.4	244576	21.6	20.3	390384	21.7	19.9	150059	21.8	19.5
305609	21.4	20.7	449199	21.5	21.2	125883	21.6	18.9	18137	21.6	17.9	459204	21.7	22.0	207615	21.8	19.5
57190	21.4	19.0	470907	21.5	21.6	16716	21.6	19.4	333441	21.6	20.3	137913	21.7	18.0	398730	21.8	21.2
265817	21.4	20.1	153980	21.5	19.8	82932	21.6	18.7	471163	21.6	19.8	409939	21.7	21.6	325255	21.8	18.7
45633	21.4	19.2	543452	21.5	19.8	88575	21.6	19.3	59137	21.6	19.7	442924	21.7	21.7	288669	21.8	20.7
292787	21.4	19.4	486298	21.5	20.8	146631	21.6	18.9	309309	21.6	21.0	345629	21.7	20.8	296091	21.8	19.7
448278	21.4	21.7	57584	21.5	18.7	327272	21.6	20.4	312813	21.6	18.9	38084	21.7	22.0	249699	21.8	20.4
226741	21.4	19.1	4601	21.5	16.1	58421	21.6	19.1	261260	21.6	19.5	318902	21.7	20.5	194052	21.8	19.7
486758	21.4	19.4	105804	21.5	19.7	293077	21.6	20.7	212050	21.6	19.5	180980	21.7	20.5	138384	21.8	19.6
287475	21.4	20.5	232882	21.5	20.0	100186	21.6	18.5	467094	21.6	20.4	38803	21.7	16.6	390389	21.8	19.5
129596	21.4	18.8	408847	21.5	21.3	315559	21.6	19.8	338211	21.6	20.3	426591	21.7	20.0	16931	21.8	18.4
104298	21.4	19.7	33211	21.5	18.4	366946	21.6	20.4	274984	21.6	20.7	425980	21.7	20.9	413078	21.8	21.1
397135	21.4	21.3	212903	21.5	20.8	413817	21.6	20.2	349686	21.6	19.0	8178	21.7	16.8	404995	21.8	21.0
326441	21.4	20.7	525997	21.5	22.5	156527	21.6	19.1	373744	21.6	20.9	460786	21.7	20.5	471676	21.8	20.2
18347	21.4	17.5	535831	21.5	21.0	464642	21.6	20.3	496503	21.6	21.1	492536	21.7	21.5	237236	21.8	20.4
455929	21.4	20.8	315550	21.5	20.9	457014	21.6	20.6	310897	21.6	20.9	466941	21.7	21.7	378817	21.8	21.3
333077	21.4	20.3	373985	21.5	19.9	528874	21.6	21.2	507232	21.6	22.4	280749	21.7	20.8	463874	21.8	20.6
93260	21.4	19.6	489095	21.5	20.3	525443	21.6	20.8	2531	21.6	15.3	291959	21.7	19.0	2723	21.8	18.1
27148	21.4	17.1	535452	21.5	20.6	496685	21.6	20.7	73488	21.6	18.6	441072	21.7	22.1	134692	21.8	19.9
528629	21.4	21.0	28898	21.5	17.9	222716	21.6	19.7	422079	21.6	19.8	534712	21.7	22.1	380065	21.8	20.4
78606	21.4	19.5	345544	21.5	20.1	384063	21.6	21.0	371211	21.6	21.5	326723	21.7	19.0	104342	21.8	17.9
158223	21.4	20.2	188996	21.5	19.3	349093	21.6	19.9	369807	21.6	20.1	88534	21.7	19.5	156537	21.8	19.2
105038	21.4	19.6	113170	21.5	19.3	114005	21.6	19.7	465197	21.6	20.1	143468	21.7	19.8	38752	21.8	19.8
240808	21.4	20.0	428716	21.5	21.0	428976	21.6	21.2	380458	21.6	20.8	430326	21.7	20.8	269106	21.8	19.6
306535	21.4	20.5	92265	21.5	18.6	194191	21.6	21.2	461315	21.6	19.5	430377	21.7	20.9	538242	21.8	20.0
517146	21.4	20.5	289177	21.5	20.9	453037	21.6	20.6	7829	21.6	16.7	156123	21.7	20.3	306576	21.8	21.1
466567	21.4	20.7	240889	21.5	18.8	225017	21.6	21.1	236871	21.6	18.3	159723	21.7	19.1	530360	21.8	21.2
81767	21.4	18.2	119755	21.5	19.3	151570	21.6	19.7	259234	21.6	21.0	322790	21.7	19.8	389838	21.8	20.6
264650	21.4	21.0	497780	21.5	21.8	497679	21.6	21.0	159170	21.6	19.2	80260	21.7	19.1	69092	21.8	19.4
366907	21.4	20.9	76520	21.5	19.0	137875	21.6	19.4	493507	21.6	20.9	128536	21.7	19.3	426467	21.8	20.7
256683	21.4	20.3	142507	21.5	20.7	116522	21.6	20.0	442728	21.6	20.6	352635	21.7	20.7	490647	21.8	20.2
244043	21.4	20.1	58278	21.5	19.6	57273	21.6	18.1	408989	21.6	21.6	333162	21.7	19.2	232015	21.8	20.0
404671	21.4	20.1	431970	21.5	19.1	386137	21.6	22.1	489598	21.6	21.4	503587	21.7	20.9	530902	21.8	21.1
319022	21.4	18.5	309494	21.5	19.5	378893	21.6	21.0	473908	21.6	20.4	467634	21.7	20.4	432083	21.8	21.5
503552	21.4	20.3	405323	21.5	21.3	458382	21.6	21.7	52416	21.6	18.1	454735	21.7	20.7	418979	21.8	20.3
536629	21.4	21.8	358091	21.5	20.0	50452	21.6	18.5	143736	21.6	19.1	209006	21.7	18.9	432482	21.8	20.1
137025	21.4	19.3	530071	21.5	20.7	108869	21.6	19.3	136089	21.6	19.5	173783	21.7	20.5	413651	21.8	22.1
148862	21.5	19.7	456373	21.5	20.7	54846	21.6	18.6	140117	21.6	20.6	84865	21.7	18.6	351943	21.8	20.9
33786	21.5	17.5	34034	21.5	17.8	353630	21.6	20.7	150552	21.6	19.5	72041	21.7	18.5	64554	21.8	18.7
22536	21.5	18.8	54844	21.5	18.9	221519	21.6	20.8	177484	21.6	19.5	232543	21.7	19.1	472635	21.8	20.4
351480	21.5	20.0	455625	21.5	20.8	32296	21.6	18.9	504799	21.6	20.2	95009	21.7	19.3	133133	21.8	19.5
248986	21.5	19.8	288601	21.5	19.4	192596	21.6	18.2	538561	21.6	19.5	172026	21.7	20.5	36951	21.8	17.7
285305	21.5	20.2	174483	21.5	18.4	32601	21.6	19.8	409300	21.6	21.3	77709	21.7	19.1	299315	21.8	20.3
207117	21.5	20.9	502451	21.5	20.4	321361	21.6	18.9	405878	21.6	19.2	337798	21.7	20.2	336560	21.8	20.6
373396	21.5	20.2	367570	21.5	20.4	245473	21.6	19.6	151539	21.7	20.4	492440	21.7	20.2	133197	21.8	17.8
393550	21.5	20.6	344610	21.5	21.0	148587	21.6	20.2	250455	21.7	19.8	435907	21.7	20.8	257465	21.8	19.5
174710	21.5	19.7	473715	21.5	21.4	181863	21.6	20.0	464899	21.7	21.5	169165	21.7	21.1	123109	21.8	19.9
225516	21.5	20.3	294892	21.5	21.1	417168	21.6	20.6	91119	21.7	18.7	318985	21.7	18.4	331182	21.8	20.2
102668	21.5	18.4	241684	21.5	20.0	356281	21.6	20.2	500351	21.7	21.2	217990	21.7	20.8	208516	21.8	19.6
173819	21.5	20.4	173295	21.5	20.3	485400	21.6	19.4	535123	21.7	21.7	93062	21.7	19.8	66338	21.8	18.2
126151	21.5	19.2	173075	21.5	20.0	532416	21.6	21.3	299359	21.7	20.0	172027	21.7	19.2	270563	21.8	19.0
386912	21.5	19.9	523845	21.5	21.5	295839	21.6	20.9	283986	21.7	20.6	284436	21.7	19.7	517191	21.8	21.3
617	21.5	15.3	158611	21.5	20.2	449174	21.6	21.0	417622	21.7	20.5	153704	21.7	20.4	237202	21.8	20.4
456851	21.5	21.0	209551	21.5	20.5	282691	21.6	19.7	530787	21.7	20.8	21763	21.7	18.0	15958	21.8	19.4
533298	21.5	21.7	429371	21.5	19.8	515733	21.6	20.9	110403	21.7	19.0	425508	21.7	19.7	3231	21.8	17.1
221257	21.5	20.2	538350	21.5	20.2	341015	21.6	20.9	353257	21.7	21.0	406245	21.7	21.0	491797	21.8	21.5
122610	21.5	20.2	39668	21.5	19.2	28779	21.6	18.2	288309	21.7	21.3	348551	21.7	19.2	372385	21.8	20.1
379502	21.5	20.4	425027	21.5	19.3	102690	21.6	19.1	226736	21.7	19.6	55162	21.7	18.8	5488	21.8	15.5
351770	21.5	19.4	176503	21.5	21.6	258133	21.6	20.1	534327	21.7	21.3	34319	21.7	18.1	82456	21.8	19.3
413898	21.5	20.7	241291	21.5	21.0	82634	21.6	18.9	3186	21.7	17.6	530643	21.7	21.2	413069	21.8	20.5
409988	21.5	21.5	130638	21.5	20.0	140714	21.6	19.4	246966	21.7	19.7	472996	21.7	20.4	540108	21.8	21.1
203608	21.5	19.2	34061	21.5	16.7	119779	21.6	20.0	371705	21.7	19.5	168703	21.7	21.7	534221	21.8	20.8
456334	21.5	22.5	79133	21.5	20.0	502555	21.6	20.7	324421	21.7	21.4	425275	21.7	21.9	109856	21.8	18.4
415908	21.5	20.9	369650	21.5	21.4	228145	21.6	20.9	111177	21.7	19.5	295006	21.7	19.6	48262	21.8	18.0
246040	21.5	20.5	223743	21.5	21.3	368807	21.6	21.2	524294								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
500475	21.8	21.2	335558	21.9	20.7	285363	21.9	21.0	401971	21.9	22.1	367444	22.1	19.6	524347	22.1	21.7
26378	21.8	18.0	392241	21.9	20.6	199919	21.9	19.9	346714	21.9	20.3	210972	22.1	20.5	357590	22.1	20.9
317610	21.8	20.3	538441	21.9	21.1	448255	21.9	21.4	14570	21.9	18.6	236935	22.1	20.1	114397	22.1	18.4
454004	21.8	21.0	313886	21.9	20.5	503531	21.9	20.1	536312	21.9	21.5	86863	22.1	18.0	82148	22.1	18.7
15983	21.8	16.6	246004	21.9	20.4	9552	21.9	17.5	451095	21.9	21.2	417686	22.1	20.8	6022	22.1	16.7
121104	21.8	19.2	455798	21.9	20.8	308754	21.9	20.1	531572	22.0	21.9	412367	22.1	19.3	379137	22.1	20.6
148376	21.8	20.9	200176	21.9	18.7	157600	21.9	19.7	462051	22.0	20.8	241226	22.1	20.3	33352	22.1	17.8
468675	21.8	21.4	182708	21.9	18.5	248122	21.9	20.6	501895	22.0	19.8	145964	22.1	18.5	468973	22.1	20.2
514317	21.8	20.0	371775	21.9	19.7	330028	21.9	20.1	341306	22.0	20.4	78841	22.1	19.5	413933	22.1	21.4
110891	21.8	19.2	34956	21.9	17.7	165375	21.9	20.5	37432	22.0	18.5	368185	22.1	21.6	96111	22.1	19.8
127767	21.8	18.3	283951	21.9	20.0	524029	21.9	22.2	140347	22.0	18.7	52901	22.1	18.2	530212	22.1	21.4
231217	21.8	19.4	372889	21.9	19.0	63171	21.9	18.9	135440	22.0	19.9	226641	22.1	19.3	246888	22.1	19.0
243157	21.8	19.9	212452	21.9	19.0	505008	21.9	20.5	203587	22.0	21.3	343651	22.1	19.3	341728	22.1	20.2
31339	21.8	18.3	135496	21.9	20.0	139468	21.9	18.9	64738	22.0	18.0	328914	22.1	21.4	470453	22.1	20.3
502122	21.8	20.6	380537	21.9	19.3	194828	21.9	18.8	53376	22.0	17.6	97893	22.1	18.9	430605	22.1	21.1
294095	21.8	20.6	134961	21.9	19.5	533001	21.9	22.6	325316	22.0	20.1	456270	22.1	21.7	492295	22.1	21.7
64246	21.8	18.5	52257	21.9	19.1	61957	21.9	18.9	507136	22.0	19.4	338241	22.1	20.8	208170	22.1	20.1
341359	21.8	20.9	120937	21.9	18.5	60805	21.9	17.1	71234	22.0	17.1	169272	22.1	20.3	274464	22.1	20.3
150846	21.8	20.3	415609	21.9	20.6	307390	21.9	21.5	539114	22.0	20.8	483887	22.1	21.0	273291	22.1	20.4
7546	21.8	17.4	463219	21.9	20.5	330936	21.9	21.0	290372	22.0	20.9	498364	22.1	21.1	490079	22.1	21.8
54850	21.8	18.3	182934	21.9	21.9	539247	21.9	20.6	145449	22.0	19.4	412492	22.1	19.2	469137	22.1	21.0
152672	21.8	19.1	539983	21.9	20.3	188662	21.9	19.8	238045	22.0	20.5	292775	22.1	21.0	239350	22.1	18.9
39049	21.8	19.1	11992	21.9	17.6	295538	21.9	20.6	459140	22.0	20.9	55056	22.1	18.0	269075	22.1	20.1
403854	21.8	20.6	32952	21.9	18.6	139703	21.9	18.8	121167	22.0	18.7	469841	22.1	20.4	6203	22.1	17.8
441851	21.8	21.7	106058	21.9	19.1	306086	21.9	19.6	341665	22.0	21.0	126866	22.1	18.2	437775	22.1	21.0
469713	21.8	20.3	461767	21.9	21.6	1095	21.9	14.7	420989	22.0	19.9	279329	22.1	20.5	101714	22.1	19.6
301145	21.8	21.2	148815	21.9	20.6	341563	21.9	19.9	227455	22.0	20.2	105109	22.1	18.8	538809	22.1	20.7
350261	21.8	20.0	217016	21.9	21.2	407843	21.9	20.3	500599	22.0	21.5	297264	22.1	19.7	315502	22.1	20.1
262203	21.8	19.6	188036	21.9	19.6	500460	21.9	21.1	374185	22.0	20.4	280077	22.1	19.9	203749	22.1	20.3
470550	21.8	21.0	134971	21.9	19.0	456572	21.9	20.4	366935	22.0	21.4	156417	22.1	20.2	248862	22.1	19.7
448124	21.8	21.7	200580	21.9	19.9	535196	21.9	21.7	374574	22.0	21.6	287395	22.1	20.3	122403	22.1	19.2
220361	21.8	20.6	114334	21.9	18.4	262454	21.9	20.2	53268	22.0	18.0	157584	22.1	19.7	288993	22.1	19.2
337606	21.8	20.4	88799	21.9	19.0	36007	21.9	17.4	382673	22.0	21.4	139845	22.1	19.7	187655	22.1	20.0
424961	21.8	21.3	537911	21.9	19.9	149175	21.9	18.3	477934	22.0	19.6	212324	22.1	19.9	462661	22.1	19.6
228611	21.8	20.0	215339	21.9	20.0	533106	21.9	20.8	324569	22.0	20.9	392214	22.1	20.5	344070	22.1	21.6
421280	21.8	20.7	232365	21.9	20.8	409505	21.9	22.4	266327	22.0	19.8	301160	22.1	20.7	301120	22.1	19.9
529122	21.8	20.8	472529	21.9	20.3	393802	21.9	20.8	97658	22.0	19.4	461301	22.1	21.1	389455	22.1	19.7
114180	21.8	19.0	351730	21.9	20.5	320832	21.9	20.0	211817	22.0	19.5	167465	22.1	19.8	420547	22.2	20.8
126289	21.8	19.2	214221	21.9	19.9	259954	21.9	20.1	248137	22.0	19.3	228559	22.1	21.4	309407	22.2	21.2
431463	21.8	21.4	473814	21.9	19.9	229248	21.9	18.8	345610	22.0	20.5	99626	22.1	18.2	496373	22.2	21.5
30642	21.8	19.6	241475	21.9	20.5	355927	21.9	21.0	383728	22.0	20.2	407811	22.1	20.8	541267	22.2	19.9
73516	21.9	17.4	127583	21.9	18.6	467247	21.9	20.5	452569	22.0	21.2	464363	22.1	20.3	163583	22.2	18.9
533676	21.9	22.4	138754	21.9	18.4	140168	21.9	18.9	210244	22.0	19.5	146467	22.1	19.8	296950	22.2	20.8
540548	21.9	20.0	383766	21.9	21.2	296029	21.9	20.5	535892	22.0	21.1	314214	22.1	19.2	504176	22.2	21.1
172372	21.9	19.8	2361	21.9	16.7	354531	21.9	19.9	465936	22.0	22.1	232360	22.1	20.7	529791	22.2	22.2
510966	21.9	20.3	303717	21.9	20.6	273976	21.9	19.1	385112	22.0	20.4	345616	22.1	19.7	122830	22.2	18.6
27907	21.9	19.4	32475	21.9	17.7	220440	21.9	18.8	159939	22.0	20.0	160128	22.1	19.1	104551	22.2	19.4
52697	21.9	19.4	239214	21.9	19.4	461978	21.9	22.1	251089	22.0	20.3	434896	22.1	20.0	343593	22.2	20.7
185407	21.9	18.9	341290	21.9	21.8	205302	21.9	20.0	233023	22.0	19.3	163774	22.1	20.1	350661	22.2	21.5
463493	21.9	21.1	147335	21.9	20.6	144025	21.9	19.6	429030	22.0	20.8	21418	22.1	18.2	410714	22.2	19.9
10355	21.9	17.1	185506	21.9	20.3	57741	21.9	18.1	454744	22.0	20.9	176560	22.1	20.0	395154	22.2	20.9
241516	21.9	20.2	465656	21.9	22.0	249107	21.9	19.4	105990	22.0	19.0	53957	22.1	18.8	351970	22.2	21.7
452428	21.9	21.3	6468	21.9	16.6	123165	21.9	19.6	95007	22.0	19.6	252930	22.1	19.5	47813	22.2	17.8
249006	21.9	20.0	503131	21.9	19.7	465136	21.9	21.5	537082	22.0	20.9	241052	22.1	20.2	14966	22.2	17.7
118134	21.9	20.5	372789	21.9	20.7	528602	21.9	21.7	84257	22.0	19.3	532275	22.1	21.2	18510	22.2	18.2
497067	21.9	21.1	23046	21.9	18.1	1308	21.9	15.0	534288	22.0	21.6	108774	22.1	19.7	469100	22.2	20.4
56769	21.9	17.4	327297	21.9	20.9	133949	21.9	19.9	361732	22.0	20.6	494940	22.1	21.0	371175	22.2	21.0
352752	21.9	21.2	120879	21.9	18.9	21118	21.9	19.6	374154	22.0	20.8	216332	22.1	20.4	529140	22.2	21.5
253197	21.9	20.1	473982	21.9	21.1	526970	21.9	21.1	15278	22.0	18.1	52852	22.1	18.2	13294	22.2	16.4
340018	21.9	18.4	428385	21.9	21.7	220445	21.9	19.5	336993	22.0	20.0	107264	22.1	18.8	468765	22.2	20.8
411896	21.9	19.9	351698	21.9	21.3	525190	21.9	20.2	278761	22.0	20.0	237425	22.1	19.7	293722	22.2	19.2
48804	21.9	19.9	381700	21.9	20.3	63089	21.9	18.8	384184	22.0	20.0	88639	22.1	17.8	526671	22.2	20.5
331342	21.9	21.0	279720	21.9	21.1	534586	21.9	21.0	427731	22.0	20.5	268145	22.1	20.7	185230	22.2	19.0
450259	21.9	20.2	6704	21.9	16.5	521099	21.9	20.1	202782	22.0	20.2	184846	22.1	19.7	19593	22.2	18.6
246364	21.9	20.8	222272	21.9	20.3	189525	21.9	20.2	502988	22.0	20.1	544909	22.1	21.5	390053	22.2	21.9
283023	21.9	20.2	466825	21.9	20.8	55115	21.9	19.7	279466	22.0	21.1	239493	22.1	19.4	531609	22.2	20.7
343655	21.9	19.2	462874	21.9	21.4	142840	21.9	19.6	244222	22.0	19.1	93293	22.1	19.6	58043	22.2	20.0
8436	21.9	18.8	534071	21.9	19.6	400818	21.9	19.4	354506	22.0	20.0	543857	22.1	21.9	268553	22.2	20.0
134174	21.9	19.8	425228	21.9	22.0	401716	21.9	20.5	16342</								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
963	22.2	15.5	135193	22.3	18.5	75915	22.3	19.4	540760	22.4	20.2	186138	22.5	20.1	336013	22.5	20.5
398769	22.2	20.8	308863	22.3	20.3	376281	22.3	21.4	95481	22.4	19.4	182548	22.5	19.9	184990	22.5	18.7
255997	22.2	21.0	83110	22.3	18.6	341699	22.3	21.1	538148	22.4	19.7	83250	22.5	19.9	430581	22.5	20.8
447448	22.2	21.7	335574	22.3	20.2	182030	22.3	19.0	131864	22.4	20.0	64592	22.5	18.8	288959	22.5	20.5
498866	22.2	21.8	540455	22.3	21.5	194209	22.3	20.8	152244	22.4	19.6	104173	22.5	18.5	380938	22.5	20.5
297896	22.2	20.0	432965	22.3	21.0	272553	22.3	20.1	217066	22.4	20.6	26772	22.5	18.8	498721	22.5	20.6
274944	22.2	20.7	106036	22.3	18.9	159562	22.3	20.3	32416	22.4	18.1	248979	22.5	20.2	298870	22.5	20.4
186205	22.2	19.4	103333	22.3	18.4	353543	22.3	21.2	519972	22.4	20.9	18933	22.5	19.1	333948	22.5	20.4
4135	22.2	16.9	50867	22.3	18.7	227677	22.3	20.7	200120	22.4	20.0	92642	22.5	19.1	256846	22.5	21.1
207134	22.2	19.3	69077	22.3	19.7	533507	22.3	22.3	236077	22.4	18.5	498157	22.5	21.7	136429	22.5	18.8
456721	22.2	21.3	244046	22.3	19.5	82945	22.3	18.8	532991	22.4	20.5	418302	22.5	20.9	179793	22.5	21.2
176041	22.2	20.7	155326	22.3	19.7	499443	22.3	20.6	92975	22.4	17.9	437012	22.5	20.9	305731	22.5	20.7
184463	22.2	20.3	128885	22.3	19.8	55533	22.3	18.6	63761	22.4	19.0	343261	22.5	20.1	52232	22.5	19.8
341680	22.2	21.7	88838	22.3	18.3	341722	22.3	20.3	16371	22.4	16.8	500546	22.5	22.6	393659	22.5	19.9
264633	22.2	21.9	56973	22.3	18.6	229158	22.3	20.2	464693	22.4	21.4	498238	22.5	21.7	496517	22.5	20.8
429110	22.2	22.1	296003	22.3	20.1	24521	22.3	17.2	349892	22.4	20.2	234470	22.5	18.9	340738	22.5	20.5
532894	22.2	20.5	81776	22.3	17.6	44647	22.3	18.9	530361	22.4	22.0	457038	22.5	19.7	399239	22.5	19.7
472444	22.2	20.5	535539	22.3	20.8	319864	22.3	20.8	516929	22.4	21.0	230387	22.5	19.6	308174	22.5	20.4
165416	22.2	19.5	465694	22.3	21.0	507246	22.3	22.3	138797	22.4	19.5	112091	22.5	19.1	350689	22.5	21.4
210925	22.2	20.3	37440	22.3	20.1	300706	22.3	19.7	222101	22.4	19.6	327344	22.5	20.5	531741	22.5	21.7
88533	22.2	19.3	544838	22.3	20.0	211892	22.3	19.2	421105	22.4	21.1	266563	22.5	20.3	159672	22.5	19.2
102295	22.2	20.0	93590	22.3	19.6	207606	22.3	20.0	63866	22.4	19.5	377216	22.5	22.3	172062	22.5	20.4
323456	22.2	19.3	186687	22.3	20.4	431209	22.3	20.9	490077	22.4	21.0	412591	22.5	20.0	486306	22.5	19.7
249237	22.2	19.6	346845	22.3	20.0	426939	22.3	19.4	285719	22.4	21.3	162854	22.5	20.4	11837	22.5	16.8
457770	22.2	20.7	196317	22.3	19.1	530809	22.3	21.2	95680	22.4	19.2	480036	22.5	19.3	330412	22.5	19.7
284998	22.2	20.4	341299	22.3	20.8	244492	22.3	20.9	148427	22.4	20.0	468348	22.5	20.0	400399	22.5	21.0
111840	22.2	20.1	498174	22.3	20.6	402110	22.3	20.7	182622	22.4	19.6	264511	22.5	20.5	501398	22.5	21.3
394364	22.2	21.0	267070	22.3	20.1	53501	22.3	17.4	41791	22.4	18.7	495770	22.5	19.5	431603	22.5	20.4
94689	22.2	20.4	74960	22.3	17.9	26273	22.3	19.1	137972	22.4	19.7	346552	22.5	21.5	504156	22.5	21.6
288588	22.2	19.0	54632	22.3	19.0	541293	22.3	20.8	148156	22.4	19.3	291394	22.5	20.3	57160	22.5	19.1
433252	22.2	20.4	525988	22.3	21.6	93444	22.3	19.1	206345	22.4	19.4	448077	22.5	20.1	212454	22.5	19.8
106410	22.2	19.9	374558	22.3	20.7	439486	22.3	21.1	405115	22.4	20.1	37042	22.5	17.5	17487	22.5	16.6
392902	22.2	20.8	138915	22.3	18.2	430842	22.3	19.0	51713	22.4	18.7	403952	22.5	20.9	140062	22.5	19.1
104737	22.2	18.4	237718	22.3	20.0	338308	22.3	20.0	223846	22.4	20.6	456583	22.5	20.8	294667	22.5	20.7
276732	22.2	21.4	136123	22.3	19.8	259237	22.3	18.9	515237	22.4	19.4	330375	22.5	20.6	403039	22.5	19.1
522263	22.2	20.1	529259	22.3	21.7	445545	22.3	19.4	531672	22.4	22.5	482266	22.5	20.8	544720	22.5	20.9
110790	22.2	19.9	536137	22.3	20.0	531582	22.3	20.8	498339	22.4	22.3	387266	22.5	21.2	28361	22.5	19.0
392986	22.2	20.6	304485	22.3	20.7	41612	22.3	19.0	538612	22.4	21.1	370784	22.5	21.6	3827	22.5	17.1
264255	22.2	19.8	321796	22.3	18.8	31899	22.3	18.5	123643	22.4	20.5	29051	22.5	18.2	63479	22.5	18.6
172375	22.2	20.2	467661	22.3	21.5	367205	22.3	20.5	249275	22.4	21.6	19570	22.5	15.9	281276	22.5	20.3
84316	22.2	19.9	11743	22.3	18.5	409974	22.3	21.5	18444	22.4	18.3	144446	22.5	18.3	320942	22.5	20.2
544768	22.2	21.3	240870	22.3	20.1	85678	22.4	18.8	388280	22.4	21.3	116130	22.5	18.8	436378	22.6	20.0
30716	22.2	17.2	265736	22.3	21.1	468360	22.4	20.7	527298	22.4	22.0	260928	22.5	19.6	27092	22.6	19.0
192511	22.2	19.6	216203	22.3	20.2	285091	22.4	21.2	209719	22.4	20.8	399978	22.5	19.7	88400	22.6	19.3
506053	22.2	21.0	159094	22.3	20.1	94497	22.4	19.7	330079	22.4	20.7	532973	22.5	22.1	350270	22.6	20.7
536401	22.2	19.6	359236	22.3	21.6	98785	22.4	19.2	93208	22.4	19.6	143048	22.5	18.5	302493	22.6	19.7
429345	22.2	19.3	296231	22.3	19.4	421341	22.4	19.3	98037	22.4	19.4	43409	22.5	17.6	190419	22.6	20.2
327873	22.2	19.6	500191	22.3	19.8	22558	22.4	18.2	346065	22.4	20.3	361572	22.5	21.4	181584	22.6	18.0
542547	22.2	19.9	98743	22.3	18.5	448269	22.4	21.5	461430	22.4	20.9	472369	22.5	20.6	56013	22.6	18.1
274968	22.2	19.6	320695	22.3	19.7	162720	22.4	19.2	514929	22.4	19.8	65526	22.5	20.0	531440	22.6	21.2
463983	22.2	21.0	430823	22.3	20.6	473126	22.4	20.5	258540	22.4	20.3	459825	22.5	20.2	310098	22.6	19.8
486690	22.2	21.4	536248	22.3	21.0	140345	22.4	18.6	324501	22.4	21.6	168929	22.5	21.1	435340	22.6	20.5
22956	22.2	17.1	59828	22.3	18.8	532195	22.4	20.6	527838	22.4	21.3	348967	22.5	20.2	273972	22.6	20.0
544629	22.2	20.7	359650	22.3	21.0	425421	22.4	20.1	425302	22.4	21.4	108789	22.5	19.3	126319	22.6	19.1
111140	22.2	19.7	172426	22.3	19.7	444706	22.4	21.0	467629	22.4	20.2	241271	22.5	20.3	56195	22.6	18.0
189180	22.2	20.7	278310	22.3	18.7	276841	22.4	19.3	57169	22.4	18.6	115373	22.5	20.0	110282	22.6	19.0
51350	22.2	18.8	167531	22.3	19.7	222287	22.4	19.5	160526	22.4	19.4	543866	22.5	22.6	417169	22.6	20.5
296739	22.2	19.3	125293	22.3	19.0	370192	22.4	20.3	451076	22.4	20.4	466326	22.5	21.1	76701	22.6	18.5
209026	22.2	21.0	280022	22.3	19.6	301424	22.4	20.0	465740	22.4	21.3	509253	22.5	21.7	526618	22.6	21.8
26207	22.2	19.2	453880	22.3	21.4	253240	22.4	19.8	133414	22.4	20.0	99712	22.5	18.8	222959	22.6	20.2
133387	22.2	19.0	228389	22.3	20.7	412610	22.4	21.3	341360	22.4	20.7	242753	22.5	21.0	150972	22.6	21.0
291015	22.2	20.5	59168	22.3	18.7	186535	22.4	20.8	33147	22.4	17.2	373020	22.5	20.4	498996	22.6	20.9
230	22.2	10.5	199376	22.3	19.1	462675	22.4	21.1	152946	22.4	19.1	204230	22.5	20.6	445908	22.6	21.1
95380	22.2	18.0	143498	22.3	19.2	502244	22.4	21.0	350617	22.4	20.6	384531	22.5	20.9	84397	22.6	19.0
88221	22.2	19.1	245715	22.3	20.4	271297	22.4	20.3	131816	22.4	19.6	10088	22.5	17.0	376357	22.6	20.9
262772	22.2	19.6	81951	22.3	19.1	427004	22.4	21.0	294355	22.4	20.6	286359	22.5	20.3	203128	22.6	21.4
226732	22.2	19.0	491268	22.3	21.8	65652	22.4	17.6	206273	22.4	18.6	501477	22.5	21.5	323136	22.6	19.7
138250	22.2	19.2	299254	22.3	20.9	498912	22.4	20.7	499047	22.4	21.4	54489	22.5	18.1	145079	22.6	19.3
534863	22.2	21.1	413435	22.3	21.3	429908	22.4	20.1	105535	22.4</							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
60061	22.6	19.3	399599	22.6	21.1	324641	22.7	19.6	426154	22.8	20.1	468886	22.8	21.1	272669	22.9	20.4
356267	22.6	19.2	336562	22.7	21.6	364366	22.7	20.8	138666	22.8	17.8	524091	22.9	19.5	289371	22.9	18.6
210013	22.6	19.9	434607	22.7	20.5	472973	22.7	20.0	488615	22.8	21.2	315175	22.9	19.9	514107	22.9	24.4
84696	22.6	19.5	227601	22.7	20.2	396838	22.7	20.4	244050	22.8	19.3	72607	22.9	19.1	148990	22.9	20.4
267499	22.6	19.4	188745	22.7	19.7	435384	22.7	20.5	209969	22.8	19.7	338891	22.9	20.1	46577	22.9	19.2
400286	22.6	20.8	429192	22.7	22.5	290971	22.7	20.1	54640	22.8	18.8	538456	22.9	21.3	542201	22.9	19.8
529934	22.6	20.5	171177	22.7	19.3	400520	22.7	20.9	197777	22.8	20.2	372413	22.9	21.0	536695	22.9	20.1
500545	22.6	21.1	316813	22.7	21.6	325173	22.7	20.7	367227	22.8	20.9	295809	22.9	21.1	457011	22.9	22.1
31163	22.6	18.9	208425	22.7	20.3	72936	22.7	18.2	412913	22.8	21.5	211996	22.9	20.4	185487	22.9	19.9
18221	22.6	19.5	467447	22.7	21.4	402738	22.7	21.0	218691	22.8	20.7	86868	22.9	18.6	500727	22.9	21.4
299487	22.6	18.8	63533	22.7	19.5	223722	22.7	19.4	371130	22.8	20.1	528709	22.9	21.6	18527	22.9	17.0
214843	22.6	19.5	269974	22.7	21.3	196110	22.7	20.2	226806	22.8	19.3	237497	22.9	19.6	35584	22.9	18.5
269672	22.6	20.4	183983	22.7	19.6	434979	22.7	19.8	457093	22.8	21.9	178905	22.9	19.5	91557	22.9	19.4
279440	22.6	21.7	365959	22.7	21.1	123341	22.7	19.8	222100	22.8	20.2	9380	22.9	17.7	242736	22.9	19.2
182423	22.6	20.1	501415	22.7	21.0	146432	22.7	19.4	385300	22.8	20.9	483790	22.9	21.4	492589	22.9	21.0
427800	22.6	18.8	483747	22.7	21.6	384261	22.7	21.5	413551	22.8	20.5	21167	22.9	18.4	339849	22.9	20.1
395304	22.6	19.6	132349	22.7	17.7	344555	22.7	19.8	320933	22.8	19.3	465937	22.9	22.2	227290	22.9	19.6
231642	22.6	20.5	298888	22.7	20.6	121118	22.7	18.5	52687	22.8	18.9	324566	22.9	20.7	339945	22.9	20.0
193838	22.6	18.8	282672	22.7	20.2	203798	22.7	20.1	435885	22.8	21.2	200789	22.9	19.7	133434	22.9	19.6
341783	22.6	20.7	522684	22.7	19.5	498854	22.7	22.4	466786	22.8	21.5	498138	22.9	21.9	536637	22.9	20.9
78012	22.6	18.5	380344	22.7	21.1	385150	22.7	19.1	388850	22.8	20.5	533903	22.9	21.1	35387	22.9	19.5
291582	22.6	19.3	319875	22.7	21.3	162397	22.7	19.9	322787	22.8	19.8	363622	22.9	20.5	436960	22.9	21.0
297963	22.6	20.1	466397	22.7	20.9	81590	22.7	18.2	343313	22.8	20.3	72213	22.9	18.3	269268	22.9	19.9
96372	22.6	19.8	534442	22.7	20.9	456440	22.7	21.6	408661	22.8	19.7	360439	22.9	19.0	436866	22.9	20.9
472360	22.6	20.7	431992	22.7	20.9	524282	22.7	20.9	211445	22.8	20.1	372985	22.9	20.3	7242	22.9	18.0
287437	22.6	21.4	404930	22.7	19.9	214767	22.7	20.3	432116	22.8	20.7	489602	22.9	20.1	28300	22.9	18.2
216170	22.6	20.3	127788	22.7	18.3	323814	22.7	20.5	140697	22.8	19.2	272515	22.9	20.9	156996	22.9	18.9
330086	22.6	19.9	185860	22.7	19.8	372719	22.7	21.0	3648	22.8	15.5	107148	22.9	18.2	423770	22.9	21.6
242489	22.6	20.6	216292	22.7	20.3	406536	22.7	21.5	136384	22.8	19.4	534346	22.9	22.0	249081	22.9	19.5
106147	22.6	18.5	491671	22.7	21.6	528564	22.7	21.4	202006	22.8	19.1	343094	22.9	21.3	39645	22.9	18.3
204192	22.6	20.2	383350	22.7	21.2	27680	22.7	19.0	348956	22.8	20.7	167539	22.9	18.8	279415	22.9	19.7
200909	22.6	19.2	28855	22.7	17.4	411195	22.7	19.3	338377	22.8	21.1	86480	22.9	19.0	460574	22.9	20.6
423180	22.6	19.9	55189	22.7	19.6	8936	22.7	16.6	307690	22.8	19.4	524830	22.9	20.8	365147	22.9	20.5
352071	22.6	21.6	17397	22.7	18.7	460122	22.7	21.6	319527	22.8	20.0	404840	22.9	19.6	55861	22.9	18.9
459984	22.6	21.9	379986	22.7	20.6	188841	22.7	20.2	504826	22.8	20.8	47974	22.9	18.6	524323	22.9	19.8
105998	22.6	18.9	324511	22.7	20.9	93815	22.7	19.4	425231	22.8	21.2	47518	22.9	18.1	369774	22.9	20.6
173462	22.6	19.6	542248	22.7	20.3	516800	22.7	20.2	165680	22.8	19.1	229150	22.9	20.8	21628	22.9	19.2
44018	22.6	18.3	17310	22.7	18.1	292364	22.7	20.4	266605	22.8	20.6	425271	22.9	20.6	544236	22.9	20.8
292578	22.6	19.9	191144	22.7	19.3	339890	22.7	19.6	91970	22.8	19.5	267837	22.9	21.4	367731	22.9	20.0
544360	22.6	21.5	384564	22.7	20.9	138682	22.7	19.7	359045	22.8	20.3	301624	22.9	20.1	452735	22.9	20.3
56379	22.6	18.1	63521	22.7	18.3	370058	22.7	20.5	381440	22.8	19.8	262570	22.9	19.3	337901	22.9	20.6
207111	22.6	19.3	184944	22.7	19.8	354744	22.7	20.3	243616	22.8	20.6	352780	22.9	21.4	332885	22.9	20.7
325328	22.6	20.0	330120	22.7	20.5	212579	22.7	20.3	107223	22.8	20.1	169071	22.9	23.1	372501	22.9	21.4
543811	22.6	20.9	21251	22.7	18.4	166766	22.7	20.5	65114	22.8	18.2	99983	22.9	19.2	295829	22.9	20.1
100862	22.6	19.0	85886	22.7	19.3	230698	22.7	19.9	510466	22.8	19.5	469507	22.9	19.3	298911	22.9	19.6
301588	22.6	19.3	450997	22.7	22.0	369611	22.7	19.8	101431	22.8	18.8	294184	22.9	20.7	352450	22.9	20.6
146523	22.6	18.6	148826	22.7	19.7	89791	22.7	20.1	281316	22.8	20.6	454992	22.9	20.8	494227	22.9	20.8
41328	22.6	19.0	186837	22.7	19.1	532999	22.7	21.3	57532	22.8	17.6	503180	22.9	21.2	84348	22.9	19.6
52242	22.6	17.4	268508	22.7	20.9	458149	22.7	20.8	500020	22.8	21.6	521060	22.9	21.2	338337	22.9	21.1
84399	22.6	20.4	114488	22.7	19.2	533907	22.7	21.9	498122	22.8	21.3	369377	22.9	21.7	120888	22.9	19.2
338921	22.6	19.2	150666	22.7	18.5	295222	22.7	19.6	384580	22.8	20.1	244182	22.9	21.1	532228	22.9	20.8
208222	22.6	20.4	529562	22.7	21.4	27352	22.7	17.3	391746	22.8	22.4	85215	22.9	19.3	244210	22.9	20.1
135521	22.6	19.8	59392	22.7	19.0	533094	22.8	20.9	235682	22.8	19.3	64629	22.9	19.0	298875	22.9	19.7
323841	22.6	20.8	327330	22.7	19.3	543983	22.8	21.4	486750	22.8	20.5	112247	22.9	18.3	185229	22.9	20.6
240477	22.6	20.6	326414	22.7	20.8	457074	22.8	22.2	296915	22.8	20.6	334643	22.9	21.7	264487	22.9	19.5
90659	22.6	19.0	493031	22.7	19.0	138037	22.8	19.6	461803	22.8	21.0	64656	22.9	18.8	208730	22.9	18.7
59850	22.6	19.0	15486	22.7	18.4	4862	22.8	16.1	11775	22.8	17.7	501410	22.9	20.8	161596	22.9	19.5
189436	22.6	20.1	422772	22.7	21.6	417327	22.8	20.9	39398	22.8	19.5	118094	22.9	19.1	490049	22.9	22.0
93664	22.6	19.6	484661	22.7	20.5	65221	22.8	19.6	227558	22.8	19.2	442371	22.9	21.2	204178	22.9	19.2
182444	22.6	19.5	249446	22.7	19.9	193867	22.8	20.8	228068	22.8	19.6	85006	22.9	20.1	58084	22.9	19.8
237817	22.6	20.2	345977	22.7	21.0	457032	22.8	20.5	532094	22.8	22.7	305926	22.9	20.5	158447	22.9	19.6
62784	22.6	18.6	347655	22.7	21.2	32691	22.8	19.1	361626	22.8	21.0	225153	22.9	19.6	473558	22.9	21.6
245167	22.6	20.0	511735	22.7	21.1	393413	22.8	20.6	39119	22.8	19.0	149411	22.9	20.2	489072	22.9	21.7
334575	22.6	19.8	407997	22.7	21.0	64076	22.8	18.9	286120	22.8	20.7	65349	22.9	19.2	169206	22.9	19.2
506312	22.6	20.0	522339	22.7	21.3	49824	22.8	17.5	90832	22.8	19.4	365342	22.9	20.0	378938	22.9	21.0
226733	22.6	17.7	241128	22.7	19.4	454122	22.8	22.0	81622	22.8	18.3	430347	22.9	20.9	498824	22.9	21.0
189432	22.6	20.9	498121	22.7	22.4	6779	22.8	16.5	62558	22.8	20.1	505052	22.9	20.7	279106	22.9	20.2
473931	22.6	21.2	529614	22.7	21.0	247806	22.8	18.5	233026	22.8	19.6	266449	22.9	19.8	544230	22.9	19.8
81881	22.6	18.4	177370	22.7	20.4	41868	22.8	19.7	298937	2							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
283521	22.9	20.5	246274	23.1	20.5	235970	23.1	20.1	417059	23.2	20.9	126054	23.2	18.3	81971	23.3	19.7
498053	22.9	20.9	208959	23.1	20.0	418326	23.1	19.7	113778	23.2	20.1	200864	23.2	19.9	490035	23.3	21.4
201937	22.9	20.0	450995	23.1	20.6	413118	23.1	22.3	353241	23.2	21.0	199168	23.2	19.9	319693	23.3	19.9
234632	22.9	20.2	310179	23.1	21.2	488259	23.1	18.8	534557	23.2	20.6	303691	23.2	19.5	536194	23.3	20.3
52756	22.9	18.9	523531	23.1	20.9	281066	23.1	19.8	165239	23.2	20.3	85303	23.2	19.5	26334	23.3	19.0
272509	22.9	19.4	233904	23.1	19.4	241688	23.1	20.1	110420	23.2	18.2	157471	23.3	20.6	144402	23.3	19.2
485823	22.9	21.4	285574	23.1	20.1	464906	23.1	21.7	343981	23.2	19.7	441509	23.3	21.7	133096	23.3	19.1
250998	22.9	19.1	280427	23.1	20.6	406921	23.1	20.1	526953	23.2	21.3	204412	23.3	20.3	31194	23.3	19.4
529212	22.9	22.6	15944	23.1	17.7	354076	23.1	20.6	283732	23.2	20.3	86004	23.3	17.5	394386	23.3	20.7
310016	22.9	20.0	382709	23.1	20.4	140977	23.1	19.7	367198	23.2	20.8	56332	23.3	18.7	153141	23.3	19.5
162759	22.9	20.0	457054	23.1	20.0	50724	23.1	18.3	203600	23.2	18.9	273718	23.3	20.1	523701	23.3	22.0
95028	22.9	19.9	264521	23.1	21.2	529116	23.1	20.5	87511	23.2	19.8	108927	23.3	19.3	457223	23.3	20.8
384089	22.9	21.1	148895	23.1	19.7	541251	23.1	21.2	496040	23.2	21.3	210761	23.3	21.1	144769	23.3	19.8
341710	22.9	21.6	359800	23.1	20.2	517630	23.1	20.7	431543	23.2	21.7	531309	23.3	21.2	299981	23.3	20.7
33038	23.0	18.1	184358	23.1	19.0	430620	23.1	21.4	194051	23.2	19.2	292404	23.3	20.5	167064	23.3	19.9
143437	23.0	19.7	170040	23.1	19.7	500514	23.1	21.8	428906	23.2	21.3	341620	23.3	20.7	185517	23.3	20.6
533057	23.0	22.2	169116	23.1	20.4	17361	23.1	17.7	256868	23.2	19.6	379247	23.3	20.9	374113	23.3	20.8
145772	23.0	19.6	379837	23.1	20.1	198911	23.1	20.2	469838	23.2	21.3	59185	23.3	17.7	329400	23.3	20.8
430862	23.0	21.1	41641	23.1	19.1	60635	23.1	18.5	75084	23.2	18.8	240862	23.3	19.3	457092	23.3	20.6
382150	23.0	20.8	119974	23.1	19.3	207086	23.1	20.4	370775	23.2	21.9	352794	23.3	21.3	455627	23.3	21.3
440064	23.0	20.7	410070	23.1	22.4	24904	23.1	17.4	1890	23.2	16.9	321391	23.3	19.9	451906	23.3	21.3
314829	23.0	20.6	32840	23.1	18.1	375494	23.1	21.0	535007	23.2	21.7	298714	23.3	19.5	57060	23.3	18.6
154666	23.0	17.5	186412	23.1	19.1	497773	23.1	22.1	170774	23.2	20.5	499423	23.3	20.5	208270	23.3	19.1
251758	23.0	18.2	444754	23.1	21.7	148620	23.1	20.5	212696	23.2	19.7	221336	23.3	20.1	317177	23.3	21.0
148500	23.0	19.2	503085	23.1	20.6	535624	23.1	21.7	179891	23.2	20.2	109944	23.3	19.5	200930	23.3	20.0
495922	23.0	21.6	369575	23.1	20.5	306864	23.1	21.1	429913	23.2	20.9	419214	23.3	20.4	357370	23.3	19.9
406057	23.0	22.8	536925	23.1	20.8	210752	23.1	20.7	329382	23.2	21.1	378796	23.3	20.9	409981	23.3	21.7
372405	23.0	21.6	18207	23.1	19.5	181432	23.1	20.5	114927	23.2	20.2	79275	23.3	19.0	450533	23.3	21.3
405184	23.0	20.7	336597	23.1	21.4	142983	23.1	20.2	343218	23.2	21.0	389971	23.3	20.9	50751	23.3	17.4
110361	23.0	19.6	40476	23.1	18.5	43549	23.1	18.6	2713	23.2	15.2	27922	23.3	17.2	387339	23.3	21.0
178878	23.0	19.0	323766	23.1	20.0	526209	23.1	21.1	495416	23.2	20.7	125215	23.3	19.4	173384	23.3	19.2
314764	23.0	21.3	164217	23.1	20.5	111752	23.1	19.8	267376	23.2	20.9	83063	23.3	18.9	180036	23.3	19.8
201962	23.0	19.9	54290	23.1	18.3	463509	23.1	20.8	186561	23.2	19.9	409867	23.3	21.3	87086	23.3	18.3
41826	23.0	19.2	265808	23.1	20.2	143612	23.1	17.8	332710	23.2	21.0	366969	23.3	20.1	50118	23.3	19.0
183761	23.0	20.2	537073	23.1	20.2	524232	23.1	21.4	95661	23.2	19.9	366851	23.3	20.6	330445	23.3	20.4
246662	23.0	20.6	166017	23.1	18.7	383761	23.1	21.4	201399	23.2	20.7	30265	23.3	18.3	2246	23.3	15.7
6563	23.0	17.4	214825	23.1	19.4	242402	23.1	20.0	519939	23.2	21.5	391415	23.3	20.4	386629	23.3	21.2
320829	23.0	19.6	306983	23.1	20.0	180959	23.1	20.6	232395	23.2	19.1	176846	23.3	20.3	89801	23.3	20.0
290186	23.0	21.4	94743	23.1	19.1	154836	23.1	20.2	103081	23.2	20.4	127782	23.3	19.5	467764	23.3	21.2
75100	23.0	17.2	322478	23.1	19.6	419241	23.1	21.5	9757	23.2	17.3	407607	23.3	21.0	348811	23.3	19.7
237278	23.0	21.2	328990	23.1	21.1	258074	23.1	20.6	414831	23.2	22.2	332750	23.3	20.4	178160	23.3	19.9
226925	23.0	20.9	531764	23.1	19.9	99895	23.1	17.2	437430	23.2	20.8	451728	23.3	21.5	120999	23.3	18.6
495254	23.0	20.6	402087	23.1	21.6	17008	23.2	18.0	109992	23.2	18.9	477449	23.3	22.3	205129	23.4	19.3
489230	23.0	19.9	58731	23.1	18.5	15001	23.2	18.1	159900	23.2	20.1	156754	23.3	19.7	179983	23.4	20.4
29894	23.0	18.2	178643	23.1	18.9	323135	23.2	20.2	3708	23.2	16.4	205486	23.3	20.4	129798	23.4	18.5
33181	23.0	17.8	283900	23.1	19.7	35430	23.2	17.8	390241	23.2	20.9	313671	23.3	21.7	355977	23.4	21.3
286212	23.0	20.3	238205	23.1	19.0	429384	23.2	20.6	194805	23.2	19.3	527503	23.3	22.9	385937	23.4	21.4
453877	23.0	21.8	317145	23.1	19.7	421672	23.2	20.7	435387	23.2	20.9	101555	23.3	19.1	219800	23.4	19.8
95	23.0	12.9	65135	23.1	19.1	235630	23.2	20.1	98880	23.2	17.7	27632	23.3	17.7	84326	23.4	19.2
491954	23.0	21.4	325134	23.1	19.8	357998	23.2	19.6	2362	23.2	16.3	294195	23.3	20.8	109674	23.4	19.2
150173	23.0	19.3	244079	23.1	21.0	233132	23.2	20.2	464047	23.2	21.0	41969	23.3	18.0	116515	23.4	20.2
358	23.0	13.9	338457	23.1	21.4	158892	23.2	20.1	58034	23.2	19.4	97975	23.3	19.3	528459	23.4	22.0
421501	23.0	20.5	81283	23.1	18.9	535174	23.2	22.1	211431	23.2	20.8	309772	23.3	20.8	284907	23.4	18.8
225613	23.0	20.4	178417	23.1	21.3	321619	23.2	19.7	64866	23.2	18.8	8811	23.3	18.2	170164	23.4	19.1
464073	23.0	21.4	41947	23.1	18.3	381683	23.2	20.9	149440	23.2	18.8	55887	23.3	18.6	483021	23.4	20.4
47900	23.0	19.3	523668	23.1	19.1	468245	23.2	20.5	4826	23.2	15.8	456387	23.3	21.0	225390	23.4	20.5
101815	23.0	17.5	118590	23.1	18.7	320617	23.2	21.3	527805	23.2	21.2	169382	23.3	19.2	57534	23.4	19.2
510840	23.0	20.9	63394	23.1	18.8	324442	23.2	21.5	530607	23.2	21.3	72984	23.3	18.9	386549	23.4	21.1
88679	23.0	20.0	452645	23.1	21.1	369975	23.2	21.6	357598	23.2	19.4	245215	23.3	19.6	237324	23.4	19.5
28918	23.0	18.1	465961	23.1	21.2	502989	23.2	20.6	61938	23.2	18.8	326477	23.3	21.0	477587	23.4	19.8
308315	23.0	20.0	300232	23.1	21.2	136022	23.2	19.6	183338	23.2	20.3	325986	23.3	20.9	244098	23.4	21.2
17420	23.0	18.7	325004	23.1	18.7	544079	23.2	21.1	422691	23.2	20.3	453422	23.3	19.9	417788	23.4	20.2
416563	23.0	19.3	15963	23.1	17.7	371149	23.2	21.5	181173	23.2	20.1	167783	23.3	20.4	63826	23.4	19.3
497898	23.0	21.8	466713	23.1	21.7	153908	23.2	19.7	285961	23.2	20.7	74502	23.3	18.4	44577	23.4	17.4
161111	23.0	19.8	544589	23.1	21.3	60626	23.2	17.8	1520114	23.2	20.0	270090	23.3	21.1	194674	23.4	20.7
528172	23.0	20.9	34573	23.1	19.1	221703	23.2	19.9	309430	23.2	20.6	544795	23.3	20.6	442586	23.4	21.2
436938	23.0	20.9	303798	23.1	20.2	158676	23.2	19.0	462317	23.2	20.1	243364	23.3	19.8	266418	23.4	18.6
275810	23.0	18.2	54476	23.1	18.0	393291	23.2	20.4	154544	23.2	19.9	535770	23.3	20.8	333443	23.4	20.3
5859	23.1	16.1	9994	23.1	18.6	141378	23.2	20.4	147402	23.2	19.8</						

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
302033	23.4	20.7	76819	23.4	19.1	252342	23.5	20.9	217561	23.6	19.0	468205	23.6	21.2	541959	23.7	19.3
74482	23.4	19.1	245178	23.4	21.3	372102	23.5	21.0	95418	23.6	19.8	372656	23.6	20.1	24633	23.7	18.7
195387	23.4	18.9	307648	23.4	19.9	473893	23.5	20.4	348803	23.6	21.4	128840	23.6	19.8	220451	23.7	19.8
190338	23.4	19.1	13652	23.4	17.8	200445	23.5	21.5	222251	23.6	20.1	409904	23.6	22.0	495150	23.7	20.5
297851	23.4	20.4	234154	23.4	20.0	462868	23.5	21.6	85346	23.6	19.0	315716	23.6	19.5	19790	23.7	18.4
415919	23.4	22.5	334494	23.4	20.8	150579	23.5	20.2	4931	23.6	17.6	44574	23.6	18.6	94563	23.7	19.5
536206	23.4	21.0	333446	23.4	19.6	5001	23.5	15.8	8561	23.6	18.3	541630	23.6	19.5	159424	23.7	20.1
298846	23.4	19.2	155953	23.5	19.6	149359	23.5	19.0	46772	23.6	17.5	56471	23.6	17.1	472877	23.7	19.8
196014	23.4	21.1	61197	23.5	18.6	208475	23.5	20.4	229925	23.6	19.8	238369	23.6	19.7	30958	23.7	16.7
16500	23.4	16.6	366735	23.5	20.4	436679	23.5	20.6	367822	23.6	21.1	536079	23.6	21.8	358094	23.7	19.7
463243	23.4	22.1	414184	23.5	20.2	528055	23.5	20.0	489017	23.6	20.9	253950	23.6	20.3	394396	23.7	20.7
330422	23.4	20.5	43505	23.5	19.3	278883	23.5	20.7	470004	23.6	22.8	238407	23.6	18.8	323152	23.7	19.7
378780	23.4	20.7	186056	23.5	21.0	251080	23.5	20.9	49200	23.6	18.8	323500	23.6	19.1	503194	23.7	20.7
325140	23.4	20.8	201381	23.5	20.2	207763	23.5	20.9	329241	23.6	20.5	526684	23.6	20.7	221334	23.7	18.6
381605	23.4	21.2	61913	23.5	19.2	194130	23.5	19.6	57033	23.6	17.6	110223	23.6	19.6	419312	23.7	21.1
304805	23.4	21.2	357561	23.5	20.9	151873	23.5	18.9	320240	23.6	20.5	97607	23.7	18.7	36425	23.7	19.6
46330	23.4	18.9	81594	23.5	18.4	437721	23.5	20.3	337859	23.6	21.4	384175	23.7	20.4	246424	23.7	19.9
544159	23.4	20.6	226786	23.5	20.1	105936	23.5	18.9	234393	23.6	20.0	366847	23.7	20.8	383770	23.7	20.1
7416	23.4	17.3	99987	23.5	19.7	282877	23.5	20.5	471369	23.6	21.8	194793	23.7	20.0	114271	23.7	18.3
126173	23.4	19.4	286748	23.5	19.8	468055	23.5	21.6	244192	23.6	20.1	10923	23.7	18.2	122570	23.7	18.0
491949	23.4	20.3	123126	23.5	18.0	118138	23.5	19.9	504139	23.6	20.6	236133	23.7	21.5	491273	23.7	21.0
544532	23.4	21.6	87346	23.5	19.6	272312	23.5	19.4	471406	23.6	20.1	414861	23.7	20.7	466410	23.7	21.2
5192	23.4	15.8	377830	23.5	20.3	108212	23.5	18.1	456232	23.6	20.5	266235	23.7	20.8	372464	23.7	21.1
17757	23.4	17.3	359111	23.5	20.8	140681	23.5	20.0	132362	23.6	20.0	192909	23.7	20.6	264610	23.7	21.4
151616	23.4	18.6	163463	23.5	20.7	363766	23.5	20.0	304046	23.6	19.6	163836	23.7	20.7	60011	23.7	18.8
368780	23.4	20.6	156346	23.5	20.3	206899	23.5	19.1	14868	23.6	16.2	64521	23.7	18.7	404749	23.7	19.4
120918	23.4	20.7	353269	23.5	19.5	39153	23.5	17.5	160147	23.6	22.6	175974	23.7	20.2	449243	23.7	20.8
221959	23.4	21.2	541872	23.5	20.6	498705	23.5	20.5	10579	23.6	17.0	149218	23.7	19.5	45086	23.7	16.5
467272	23.4	21.4	110956	23.5	19.5	40416	23.5	17.8	533035	23.6	22.6	429830	23.7	20.4	176988	23.7	19.7
244653	23.4	20.7	536550	23.5	21.5	304912	23.5	20.8	323460	23.6	19.5	182427	23.7	20.3	69133	23.7	18.4
197534	23.4	20.3	498620	23.5	21.4	336610	23.5	20.8	543403	23.6	20.5	376031	23.7	20.7	238473	23.7	20.2
369512	23.4	19.2	160826	23.5	21.3	65574	23.5	19.6	246248	23.6	19.9	410409	23.7	20.2	150353	23.7	20.4
240278	23.4	21.1	111005	23.5	19.1	132176	23.5	19.1	299561	23.6	19.5	303465	23.7	20.3	426860	23.7	20.6
427589	23.4	21.4	108542	23.5	19.1	508902	23.5	19.9	532811	23.6	20.8	499954	23.7	20.5	196206	23.8	18.1
413127	23.4	20.7	412335	23.5	19.6	532173	23.5	21.4	27003	23.6	19.7	334633	23.7	21.7	271003	23.8	20.3
436648	23.4	20.4	325145	23.5	21.4	37856	23.5	16.9	123656	23.6	19.9	369339	23.7	21.0	230556	23.8	18.8
190085	23.4	19.6	341780	23.5	21.1	502467	23.5	21.3	530630	23.6	21.3	388012	23.7	20.8	423252	23.8	20.1
356522	23.4	20.4	125549	23.5	20.3	56943	23.5	19.4	313868	23.6	20.8	93431	23.7	17.9	54513	23.8	18.1
420750	23.4	20.4	246242	23.5	20.8	64042	23.5	19.5	333439	23.6	19.7	452359	23.7	22.8	206416	23.8	19.1
444261	23.4	20.8	359651	23.5	20.3	173956	23.5	19.8	442675	23.6	21.3	524995	23.7	21.6	55395	23.8	19.2
60025	23.4	19.4	78928	23.5	19.5	535743	23.5	20.6	268602	23.6	20.5	396815	23.7	19.9	49590	23.8	17.9
57121	23.4	19.8	245181	23.5	20.5	32629	23.5	19.9	312021	23.6	21.2	460148	23.7	20.2	436741	23.8	19.8
262035	23.4	20.3	432223	23.5	19.9	196598	23.5	18.3	14208	23.6	16.5	196013	23.7	20.1	126918	23.8	19.7
219924	23.4	19.6	505233	23.5	20.4	423875	23.5	19.9	498534	23.6	19.4	301884	23.7	19.2	196332	23.8	19.5
459836	23.4	19.3	526726	23.5	21.8	326419	23.5	20.3	143387	23.6	19.6	241303	23.7	20.0	524674	23.8	21.8
352734	23.4	21.1	277992	23.5	20.4	210697	23.5	19.2	62080	23.6	18.4	249420	23.7	18.9	256225	23.8	20.3
387042	23.4	21.9	329066	23.5	20.9	342983	23.5	20.9	32259	23.6	16.0	417789	23.7	20.6	456833	23.8	20.5
377165	23.4	20.5	351209	23.5	18.9	367992	23.5	20.3	268111	23.6	19.8	367811	23.7	20.9	136720	23.8	20.1
430697	23.4	21.3	280875	23.5	20.4	168503	23.5	19.3	414468	23.6	20.5	334925	23.7	19.8	497240	23.8	20.4
244353	23.4	19.7	483028	23.5	20.7	321255	23.6	19.7	246464	23.6	21.0	493447	23.7	20.3	532434	23.8	21.2
102232	23.4	19.3	500338	23.5	21.2	275010	23.6	20.2	391361	23.6	21.2	139428	23.7	19.8	289110	23.8	20.3
55457	23.4	18.9	292888	23.5	20.0	8605	23.6	17.1	307603	23.6	20.2	386520	23.7	21.0	305667	23.8	18.9
205278	23.4	20.7	202402	23.5	20.1	341732	23.6	21.6	222762	23.6	20.2	173401	23.7	20.9	34125	23.8	20.0
145858	23.4	18.8	138257	23.5	20.9	348582	23.6	20.4	88508	23.6	19.2	317679	23.7	17.8	40830	23.8	17.7
220632	23.4	20.1	178468	23.5	18.4	417756	23.6	20.8	85302	23.6	19.3	498103	23.7	21.6	340785	23.8	22.1
425161	23.4	20.5	200010	23.5	19.2	150286	23.6	19.1	155490	23.6	19.5	522413	23.7	20.8	258301	23.8	20.4
529181	23.4	22.1	84896	23.5	19.8	241294	23.6	20.3	472318	23.6	19.3	332790	23.7	21.2	412688	23.8	20.5
118798	23.4	19.6	488567	23.5	20.4	388680	23.6	21.1	415842	23.6	21.6	205668	23.7	19.8	469166	23.8	20.4
377235	23.4	20.3	111176	23.5	18.1	111785	23.6	19.1	202515	23.6	18.8	125823	23.7	20.5	108503	23.8	19.3
147949	23.4	20.0	427109	23.5	20.5	217053	23.6	20.6	226699	23.6	18.2	524860	23.7	21.7	59212	23.8	19.1
218693	23.4	19.3	524269	23.5	21.5	349032	23.6	20.3	148761	23.6	20.2	7669	23.7	18.2	396759	23.8	20.7
41983	23.4	18.9	41211	23.5	17.4	58678	23.6	18.2	7824	23.6	16.8	182422	23.7	20.5	135412	23.8	19.4
413622	23.4	20.4	211662	23.5	19.2	531557	23.6	21.6	414771	23.6	21.2	539816	23.7	20.7	327866	23.8	19.7
534539	23.4	22.5	399970	23.5	20.1	242203	23.6	19.1	80041	23.6	18.5	73346	23.7	18.6	538568	23.8	21.2
280882	23.4	19.1	273584	23.5	19.6	466209	23.6	20.7	534583	23.6	21.6	513443	23.7	22.8	125557	23.8	19.7
422243	23.4	21.0	285646	23.5	19.2	416911	23.6	21.7	365052	23.6	21.5	107074	23.7	19.4	207660	23.8	20.4
229185	23.4	20.1	110746	23.5	18.0	55817	23.6	18.6	398634	23.6	20.1	170035	23.7	20.7	63841	23.8	19.3
243827	23.4	20.7	100012	23.5	19.6	135469	23.6	19.9	472801	23.6	19.9	24213	23.7	18.2	532708	23.8	22.4
467072	23.4	20.6	527683	23.5	22.1	500006	23.6	21.4	434190								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
538766	23.8	20.6	66218	23.8	18.6	385882	23.9	21.2	39628	23.9	18.6	202860	24.0	21.3	167631	24.1	19.9
135500	23.8	19.2	458973	23.8	21.7	498965	23.9	21.1	335537	23.9	20.2	41909	24.0	18.7	380353	24.1	20.8
526988	23.8	21.5	265714	23.8	19.9	436685	23.9	21.0	534070	23.9	22.0	214511	24.0	19.6	54085	24.1	17.6
462906	23.8	20.9	491057	23.8	20.6	423938	23.9	20.4	376032	23.9	21.6	264090	24.0	20.4	448145	24.1	20.8
47662	23.8	17.6	171022	23.8	20.8	432544	23.9	20.7	211618	23.9	20.2	28049	24.0	18.7	386179	24.1	20.1
58329	23.8	19.8	418878	23.8	20.2	337487	23.9	20.6	529393	23.9	22.3	12015	24.0	18.1	468532	24.1	20.6
20370	23.8	17.0	429134	23.8	22.1	483702	23.9	20.0	412773	23.9	19.4	333774	24.0	19.9	189451	24.1	20.2
462088	23.8	20.8	105180	23.8	18.8	148748	23.9	20.4	366169	23.9	19.6	212905	24.0	21.4	362056	24.1	21.8
426590	23.8	20.5	115830	23.8	20.5	336535	23.9	20.1	431915	23.9	21.7	203839	24.0	20.0	283571	24.1	20.7
192375	23.8	20.4	403065	23.8	20.8	461791	23.9	20.9	540766	23.9	21.9	306676	24.0	20.3	240813	24.1	20.1
282799	23.8	20.8	163415	23.8	20.3	525356	23.9	21.2	21067	23.9	17.7	131896	24.0	19.4	403789	24.1	21.0
435998	23.8	21.1	371689	23.8	20.7	224412	23.9	20.6	79012	23.9	19.5	348417	24.0	20.5	293704	24.1	19.8
464095	23.8	21.0	152869	23.8	20.7	218771	23.9	19.5	430233	23.9	20.6	433203	24.0	19.9	121087	24.1	18.5
258726	23.8	18.7	466816	23.9	20.7	9023	23.9	17.3	312156	23.9	20.7	414275	24.0	20.6	346132	24.1	20.4
442809	23.8	22.2	374117	23.9	21.7	186558	23.9	19.2	451512	23.9	20.5	173959	24.0	20.3	154325	24.1	20.5
533093	23.8	21.2	386522	23.9	21.8	327983	23.9	19.7	57542	23.9	18.1	166822	24.0	19.3	321060	24.1	21.0
114373	23.8	18.4	85317	23.9	19.7	200471	23.9	19.3	113187	23.9	19.3	424828	24.0	21.2	107026	24.1	19.7
386836	23.8	20.7	523682	23.9	21.4	324013	23.9	19.5	426612	23.9	20.6	493871	24.0	20.2	27997	24.1	18.7
337467	23.8	20.7	344409	23.9	20.8	500387	23.9	21.7	256872	23.9	20.3	102102	24.0	18.7	799	24.1	13.8
36748	23.8	18.6	303422	23.9	20.3	278521	23.9	19.3	347304	23.9	19.9	423202	24.0	20.4	306118	24.1	20.3
337397	23.8	20.4	527652	23.9	21.0	396423	23.9	19.8	37369	23.9	18.4	456819	24.0	22.0	68463	24.1	20.4
130486	23.8	19.8	8642	23.9	17.6	42289	23.9	17.4	378682	23.9	19.9	122857	24.0	20.5	265640	24.1	21.2
190394	23.8	20.6	135433	23.9	19.7	197236	23.9	20.3	434848	23.9	21.3	150934	24.0	20.5	179127	24.1	18.2
329837	23.8	20.6	247817	23.9	19.2	260855	23.9	20.8	15889	23.9	18.2	231447	24.0	19.1	39545	24.1	18.0
127873	23.8	18.5	534755	23.9	21.2	111115	23.9	20.1	13153	23.9	17.4	103128	24.0	19.1	100177	24.1	19.1
298880	23.8	20.9	497197	23.9	21.1	291950	23.9	20.4	417530	23.9	20.2	540031	24.0	20.7	37640	24.1	18.6
309324	23.8	21.1	246185	23.9	19.9	278929	23.9	20.0	7780	23.9	16.4	337757	24.0	20.9	30198	24.1	18.2
52617	23.8	19.3	533207	23.9	22.3	284308	23.9	21.2	49456	23.9	18.6	466465	24.0	20.7	97006	24.1	19.7
239679	23.8	20.3	240589	23.9	19.6	129034	23.9	19.3	530557	23.9	22.5	295968	24.0	20.7	231158	24.1	21.5
468272	23.8	20.6	233753	23.9	20.6	154229	23.9	20.8	262747	23.9	20.1	518688	24.0	21.2	104237	24.1	18.8
164997	23.8	19.3	437076	23.9	20.8	285632	23.9	20.3	207873	23.9	19.7	169647	24.0	18.3	275498	24.1	20.5
288886	23.8	21.6	397843	23.9	20.1	40682	23.9	18.3	3961	23.9	15.2	400797	24.0	19.6	539829	24.1	21.3
116729	23.8	19.8	290833	23.9	20.0	147525	23.9	18.1	447356	23.9	19.8	243400	24.0	18.9	208992	24.1	18.9
361762	23.8	19.8	532014	23.9	21.1	304077	23.9	20.1	410033	23.9	21.1	291597	24.0	21.0	310956	24.1	20.0
319375	23.8	20.6	459277	23.9	20.7	87590	23.9	19.8	377348	23.9	20.1	273138	24.1	20.6	294720	24.1	19.8
163439	23.8	19.7	320774	23.9	20.0	351651	23.9	21.1	404125	23.9	20.5	272105	24.1	19.4	398361	24.1	20.6
418226	23.8	19.5	21016	23.9	18.7	543643	23.9	21.1	538402	23.9	21.6	232596	24.1	17.7	140542	24.1	19.3
211586	23.8	20.8	491175	23.9	20.8	417845	23.9	20.8	93966	23.9	19.6	243578	24.1	20.1	82147	24.1	18.6
295954	23.8	20.2	41822	23.9	18.3	369892	23.9	20.8	63808	23.9	18.8	477787	24.1	22.1	325146	24.1	20.8
39889	23.8	18.3	512330	23.9	20.8	282647	23.9	20.8	498885	23.9	21.7	428402	24.1	21.6	399536	24.1	20.5
335668	23.8	21.1	26098	23.9	17.8	434919	23.9	21.1	303971	23.9	19.7	371219	24.1	20.5	493518	24.1	20.8
500337	23.8	21.2	296134	23.9	20.1	503205	23.9	21.0	509350	23.9	22.5	110015	24.1	19.0	282594	24.1	19.8
433217	23.8	20.7	409430	23.9	20.4	264542	23.9	20.6	491586	23.9	22.1	185103	24.1	20.5	464220	24.1	19.9
506718	23.8	21.0	246908	23.9	19.7	88948	23.9	18.2	63743	23.9	19.0	351614	24.1	20.7	12039	24.1	16.2
20235	23.8	17.2	444403	23.9	21.8	366965	23.9	21.5	284349	23.9	21.0	141167	24.1	19.5	264747	24.1	22.2
408609	23.8	20.9	297901	23.9	19.4	12421	23.9	17.3	317865	23.9	20.4	64683	24.1	19.4	501358	24.1	21.4
284083	23.8	19.8	201946	23.9	19.7	458949	23.9	22.2	123388	23.9	19.5	440076	24.1	21.7	194726	24.1	21.3
105694	23.8	18.9	153821	23.9	20.5	181027	23.9	20.3	33091	23.9	18.8	416015	24.1	21.0	320705	24.1	21.5
459402	23.8	20.6	27657	23.9	18.8	294585	23.9	20.5	133548	23.9	19.6	386775	24.1	21.3	314843	24.1	20.4
28274	23.8	17.8	156210	23.9	19.9	6643	23.9	18.6	442790	23.9	21.4	491201	24.1	20.5	39697	24.1	19.9
431212	23.8	20.3	391008	23.9	19.8	17852	23.9	17.6	131158	24.0	18.4	259300	24.1	19.7	368197	24.1	21.1
432277	23.8	21.6	433267	23.9	19.8	538802	23.9	21.3	126741	24.0	19.7	293890	24.1	20.9	23816	24.1	20.3
221188	23.8	20.9	208272	23.9	20.4	519978	23.9	20.9	241899	24.0	20.6	372532	24.1	21.2	376538	24.1	20.3
270055	23.8	21.2	469589	23.9	20.7	408923	23.9	21.2	297927	24.0	20.2	379287	24.1	20.4	461815	24.1	19.1
285386	23.8	21.2	121025	23.9	20.9	386210	23.9	21.3	114983	24.0	20.4	340553	24.1	19.6	505303	24.1	21.6
295988	23.8	20.8	329980	23.9	21.4	209013	23.9	19.9	467978	24.0	20.8	272922	24.1	20.0	426339	24.1	20.5
104619	23.8	19.5	135356	23.9	19.8	157312	23.9	19.6	341466	24.0	20.7	246731	24.1	19.9	383789	24.1	20.2
417636	23.8	21.1	119657	23.9	19.2	529071	23.9	20.4	422248	24.0	20.2	306734	24.1	20.4	427555	24.1	21.2
272536	23.8	21.0	283974	23.9	19.7	505047	23.9	21.0	421545	24.0	21.1	183946	24.1	19.7	241695	24.1	20.4
313829	23.8	20.7	171583	23.9	18.5	383642	23.9	21.7	383733	24.0	20.5	256110	24.1	21.5	22336	24.1	19.3
158271	23.8	18.9	395133	23.9	20.8	283580	23.9	20.7	324489	24.0	21.8	455533	24.1	21.4	409899	24.1	21.1
33797	23.8	17.6	152908	23.9	19.0	455127	23.9	22.8	109894	24.0	20.1	282226	24.1	20.6	366881	24.1	21.0
392506	23.8	20.4	284660	23.9	21.2	56167	23.9	18.2	440697	24.0	21.1	371780	24.1	20.8	177548	24.1	19.0
256399	23.8	21.4	384129	23.9	20.4	144342	23.9	19.0	295372	24.0	20.4	249432	24.1	19.4	540244	24.1	21.5
456726	23.8	21.9	226798	23.9	19.9	283541	23.9	20.3	190463	24.0	20.3	292409	24.1	20.3	238013	24.1	19.4
493721	23.8	20.9	296394	23.9	19.7	201499	23.9	18.9	194324	24.0	20.5	384598	24.1	19.6	294121	24.1	20.0
506405	23.8	20.7	246300	23.9	21.0	422176	23.9	20.7	256943	24.0	20.1	356454	24.1	19.4	366862	24.1	21.1
544941	23.8	21.0	508748	23.9	21.0	259239	23.9	20.2	408491	24.0	20.6	213756	24.1	21.2	258482	24.1	20.1
531125	23.8	20.5	483755	23.9	21.7	59478	23.9	1									

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
397462	24.2	20.4	280236	24.2	20.0	258431	24.3	20.5	456366	24.4	21.8	119449	24.4	19.5	93927	24.5	18.8
415155	24.2	20.3	537132	24.2	20.6	275088	24.3	20.0	342631	24.4	20.4	103502	24.4	19.1	283579	24.5	20.4
483008	24.2	20.6	295374	24.2	19.9	498814	24.3	21.6	424171	24.4	19.6	501498	24.4	20.8	31805	24.5	17.0
285794	24.2	20.2	110366	24.2	19.5	172032	24.3	19.7	258098	24.4	21.1	462690	24.4	19.2	490701	24.5	20.3
242571	24.2	19.7	48685	24.2	17.9	348974	24.3	21.5	457141	24.4	21.3	144408	24.4	18.8	244141	24.5	19.5
205952	24.2	19.5	173511	24.2	20.3	221262	24.3	20.7	132201	24.4	19.2	388307	24.4	22.2	123720	24.5	20.1
20773	24.2	18.2	353912	24.2	20.8	136510	24.3	19.4	505298	24.4	21.4	94957	24.4	19.1	55512	24.5	19.9
430385	24.2	21.3	210710	24.2	21.1	47990	24.3	18.6	381526	24.4	19.4	410073	24.4	22.1	417805	24.5	20.9
455919	24.2	21.1	183442	24.2	20.0	250603	24.3	19.5	506822	24.4	21.0	430363	24.4	21.4	335772	24.5	21.9
55871	24.2	19.3	434998	24.2	21.0	206666	24.3	19.6	380147	24.4	21.3	158246	24.5	19.5	467773	24.5	20.4
396298	24.2	19.9	289684	24.2	20.0	425492	24.3	19.6	283401	24.4	19.3	57944	24.5	19.3	204221	24.5	20.1
286522	24.2	20.5	532412	24.2	22.2	152279	24.3	21.0	115194	24.4	18.4	358583	24.5	21.4	145151	24.5	18.1
425661	24.2	19.6	315729	24.2	20.6	59782	24.3	18.4	305659	24.4	20.5	495762	24.5	20.9	10582	24.5	17.4
343242	24.2	20.8	488535	24.2	21.5	401856	24.3	19.5	272810	24.4	20.9	31077	24.5	17.6	385265	24.5	20.7
299318	24.2	21.3	254732	24.2	19.6	10772	24.3	16.2	211607	24.4	20.6	432982	24.5	20.0	209585	24.5	20.0
337785	24.2	20.3	174022	24.2	21.4	30708	24.3	19.0	93566	24.4	19.5	509630	24.5	20.8	521783	24.5	20.3
212724	24.2	20.4	55959	24.2	19.0	288634	24.3	20.4	151582	24.4	20.1	467331	24.5	21.1	536144	24.5	21.1
531642	24.2	22.4	249535	24.2	20.9	304773	24.3	20.6	395318	24.4	20.1	225810	24.5	20.5	283577	24.5	20.6
52704	24.2	16.8	456407	24.2	20.9	483598	24.3	20.0	435997	24.4	20.9	505952	24.5	21.1	206968	24.5	21.2
194601	24.2	20.8	372644	24.2	20.0	387410	24.3	21.0	248021	24.4	19.8	101513	24.5	20.2	77887	24.5	18.2
460080	24.2	19.2	451660	24.2	20.6	413487	24.3	20.9	126628	24.4	19.7	507857	24.5	20.7	485389	24.5	19.7
360767	24.2	19.5	389933	24.2	20.6	97890	24.3	19.6	538236	24.4	21.7	445868	24.5	21.2	521043	24.5	21.5
456765	24.2	21.5	409978	24.2	20.4	288525	24.3	21.1	374563	24.4	21.2	143058	24.5	21.1	11168	24.5	17.5
270408	24.2	20.8	54765	24.2	19.5	525942	24.3	21.9	425314	24.4	20.6	176569	24.5	18.5	64089	24.5	19.5
324597	24.2	20.7	365933	24.2	19.1	78422	24.3	19.4	5936	24.4	16.1	524313	24.5	21.3	295842	24.5	20.4
334849	24.2	20.7	536681	24.2	20.9	170082	24.3	20.2	4040	24.4	16.5	12171	24.5	18.5	224346	24.5	19.2
114956	24.2	19.2	218937	24.2	19.0	105179	24.3	18.3	452249	24.4	20.5	30625	24.5	19.3	303516	24.5	20.0
375844	24.2	20.7	431275	24.2	21.0	426655	24.3	21.6	116813	24.4	21.7	226213	24.5	21.1	532104	24.5	20.7
459767	24.2	20.4	531951	24.2	21.5	489621	24.3	21.3	221377	24.4	20.8	271	24.5	14.6	210993	24.5	19.7
488656	24.2	20.8	532369	24.2	22.3	451746	24.3	21.6	462021	24.4	21.5	400275	24.5	20.8	122827	24.5	18.8
501454	24.2	22.1	497855	24.2	21.8	341286	24.3	20.8	105157	24.4	18.4	496496	24.5	22.2	497795	24.5	20.8
126029	24.2	20.2	127054	24.3	19.7	540014	24.3	20.1	458495	24.4	20.3	311025	24.5	20.5	467650	24.5	20.5
106669	24.2	18.9	468390	24.3	20.8	53243	24.3	19.3	81158	24.4	19.1	22797	24.5	17.4	239388	24.5	20.5
102417	24.2	19.2	341625	24.3	20.2	319638	24.3	20.0	46458	24.4	18.1	414822	24.5	22.0	502360	24.5	20.9
443879	24.2	21.2	323168	24.3	20.2	426854	24.3	20.6	317772	24.4	20.6	313004	24.5	21.3	182655	24.5	19.7
496022	24.2	20.8	342223	24.3	19.9	108354	24.3	17.9	262820	24.4	21.3	456094	24.5	20.7	332542	24.5	20.3
354561	24.2	19.0	496097	24.3	21.2	176228	24.3	20.8	18352	24.4	18.3	222772	24.5	20.1	306007	24.5	19.2
352697	24.2	20.8	245175	24.3	21.0	92817	24.3	18.3	286592	24.4	21.4	456877	24.5	22.6	383645	24.5	21.1
296732	24.2	20.2	429049	24.3	21.2	334257	24.3	20.6	415815	24.4	20.7	257797	24.5	20.1	460899	24.5	20.9
418895	24.2	20.1	25334	24.3	18.5	409861	24.3	20.6	165150	24.4	19.9	244013	24.5	19.9	29231	24.5	19.3
235420	24.2	19.3	102634	24.3	19.3	226060	24.3	20.3	405195	24.4	21.4	59461	24.5	18.2	82575	24.5	18.4
30723	24.2	19.4	283899	24.3	20.1	531250	24.3	20.4	350720	24.4	21.7	538525	24.5	20.8	18862	24.5	17.4
451061	24.2	20.6	510746	24.3	21.2	147098	24.3	19.9	167780	24.4	19.4	195488	24.5	19.7	534038	24.5	20.6
372017	24.2	19.6	461802	24.3	20.8	375795	24.3	20.9	534743	24.4	21.6	213198	24.5	20.4	198967	24.5	19.2
38702	24.2	19.4	117589	24.3	19.2	383014	24.3	19.8	6576	24.4	17.3	285202	24.5	20.9	315484	24.5	20.6
207498	24.2	20.9	122650	24.3	18.5	425236	24.3	21.2	159006	24.4	18.0	238422	24.5	19.4	295058	24.5	20.6
29033	24.2	19.1	34744	24.3	17.1	16347	24.3	17.8	242842	24.4	18.7	423319	24.5	21.3	417822	24.5	21.0
317622	24.2	20.6	1756	24.3	16.4	118646	24.3	17.8	343426	24.4	20.3	236101	24.5	19.6	341807	24.5	20.9
96042	24.2	19.4	291397	24.3	20.4	238528	24.3	19.6	186165	24.4	19.7	63173	24.5	18.6	57536	24.5	19.9
387212	24.2	20.9	98747	24.3	18.9	191927	24.3	18.7	531826	24.4	20.7	437451	24.5	20.0	423495	24.5	20.5
526272	24.2	21.2	414232	24.3	20.4	78679	24.3	19.1	409000	24.4	21.7	124662	24.5	19.8	3575	24.5	15.2
526577	24.2	20.1	346075	24.3	21.2	379927	24.3	20.0	273243	24.4	20.1	281386	24.5	19.4	194884	24.5	20.8
362098	24.2	21.6	269143	24.3	20.8	253278	24.3	20.4	490658	24.4	20.2	252887	24.5	19.0	378845	24.5	20.9
468670	24.2	21.7	96166	24.3	19.5	540160	24.3	20.8	246835	24.4	20.8	284369	24.5	21.7	183299	24.5	20.8
194687	24.2	20.9	533921	24.3	20.4	35062	24.3	16.2	154845	24.4	19.7	246112	24.5	19.5	463629	24.5	20.4
194025	24.2	20.7	68467	24.3	19.0	318855	24.3	19.2	8825	24.4	17.1	87659	24.5	20.1	538354	24.5	20.5
76557	24.2	18.5	221987	24.3	20.3	412545	24.3	20.5	113417	24.4	19.8	348124	24.5	19.2	35897	24.5	18.8
253168	24.2	19.6	429064	24.3	20.2	51187	24.3	17.3	412776	24.4	20.7	275889	24.5	22.2	418250	24.5	20.2
131722	24.2	19.5	140973	24.3	18.3	315539	24.3	21.4	461943	24.4	22.5	350709	24.5	20.9	105297	24.5	19.8
159042	24.2	20.0	147827	24.3	18.9	185331	24.3	19.5	217964	24.4	20.0	528793	24.5	21.1	355642	24.5	20.8
178764	24.2	19.9	361699	24.3	19.9	375041	24.3	19.6	489250	24.4	21.4	167008	24.5	20.7	437274	24.5	20.9
83842	24.2	19.3	92571	24.3	19.2	384542	24.3	20.4	533105	24.4	22.0	543647	24.5	21.7	359029	24.5	19.4
530204	24.2	20.8	434878	24.3	21.3	334900	24.3	19.2	403568	24.4	19.7	292890	24.5	21.0	540591	24.5	21.2
541786	24.2	21.0	123751	24.3	19.7	225509	24.3	19.8	258332	24.4	20.7	320688	24.5	20.9	541683	24.5	20.9
384214	24.2	20.8	384215	24.3	20.9	454130	24.3	20.9	172958	24.4	19.2	461421	24.5	21.7	446272	24.5	20.6
458803	24.2	20.7	24448	24.3	18.5	77889	24.3	18.0	32724	24.4	19.4	440387	24.5	20.0	1240	24.5	14.4
91478	24.2	20.2	375429	24.3	20.8	428558	24.4	20.3	233101	24.4	20.3	418287	24.5	20.4	218756	24.5	18.6
96765	24.2	18.4	404446	24.3	19.7	332755	24.4	20.4	236869	24.4	19.8	140320	24.5	19.4	139567	24.6	20.1
445878	24.2	21.0	26365	24.3	17.6	199780	24.4	19.9	148290								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
354578	24.6	20.9	75893	24.6	19.2	450999	24.7	22.8	79156	24.8	19.6	526302	24.8	21.3	503440	24.9	19.8
210475	24.6	21.4	186875	24.6	19.5	483912	24.7	20.8	172480	24.8	20.4	453348	24.8	21.6	317218	24.9	21.2
497936	24.6	20.1	166779	24.6	20.2	530706	24.7	21.8	128882	24.8	19.0	288983	24.8	21.0	83048	24.9	18.5
235361	24.6	20.6	28241	24.6	18.3	247475	24.7	19.3	124927	24.8	20.3	274382	24.8	20.0	421683	24.9	20.4
196404	24.6	19.2	362311	24.6	19.3	385071	24.7	21.0	346464	24.8	20.9	34676	24.8	18.5	100244	24.9	19.2
98511	24.6	19.9	164429	24.6	18.8	486092	24.7	21.4	216268	24.8	20.3	166999	24.8	20.0	53161	24.9	19.4
538286	24.6	20.2	8459	24.6	19.0	473832	24.7	20.8	388752	24.8	20.7	89265	24.8	19.1	189795	24.9	19.6
122195	24.6	17.8	68592	24.6	19.2	447223	24.7	21.8	498347	24.8	21.2	171385	24.8	19.5	374607	24.9	20.5
368607	24.6	20.7	312067	24.6	19.6	131548	24.7	20.5	56827	24.8	19.0	385081	24.8	21.3	178197	24.9	20.1
434832	24.6	21.0	421404	24.6	20.4	93427	24.7	17.1	441831	24.8	20.9	52551	24.8	18.8	537134	24.9	20.8
102514	24.6	18.6	425804	24.6	20.8	48278	24.7	17.8	203604	24.8	19.9	366420	24.8	20.1	82656	24.9	20.3
33305	24.6	18.6	54024	24.6	17.8	228678	24.7	19.4	430255	24.8	20.9	210345	24.8	20.5	283531	24.9	20.3
462003	24.6	20.6	398573	24.6	20.5	181561	24.7	19.5	272857	24.8	19.6	82618	24.8	18.9	151186	24.9	19.6
93538	24.6	20.3	54518	24.6	18.6	544420	24.7	20.5	64415	24.8	18.7	163744	24.8	18.5	410581	24.9	21.6
228754	24.6	20.9	226288	24.6	21.0	498906	24.7	21.1	308340	24.8	20.0	280879	24.8	20.5	183615	24.9	19.5
154280	24.6	19.6	238887	24.6	20.9	322779	24.7	19.0	174612	24.8	20.6	225195	24.8	19.9	341619	24.9	20.0
220763	24.6	19.8	130861	24.6	20.0	155629	24.7	19.6	132123	24.8	20.0	190824	24.8	19.5	110126	24.9	19.6
147733	24.6	20.5	364982	24.6	20.0	399571	24.7	20.8	541803	24.8	21.4	184025	24.8	19.8	530183	24.9	21.6
310973	24.6	21.4	200738	24.6	20.2	301237	24.7	21.1	536468	24.8	21.5	108691	24.8	19.2	140804	24.9	19.7
428025	24.6	21.3	452489	24.6	19.7	349998	24.7	19.7	170141	24.8	20.5	523540	24.8	20.7	283544	24.9	20.5
222311	24.6	19.9	415880	24.6	21.7	91234	24.7	19.1	277023	24.8	20.4	92829	24.8	19.5	505050	24.9	21.4
197518	24.6	19.1	286138	24.6	20.5	343207	24.7	21.1	369314	24.8	21.0	210580	24.8	19.6	126615	24.9	18.7
463690	24.6	21.4	94192	24.6	20.1	341667	24.7	20.3	399945	24.8	21.6	241806	24.8	20.6	441548	24.9	21.7
108974	24.6	18.8	304106	24.6	20.1	190403	24.7	19.8	258190	24.8	21.2	534937	24.8	22.0	351644	24.9	20.4
229973	24.6	21.0	171978	24.6	20.6	225588	24.7	20.7	39960	24.8	17.5	288711	24.8	20.9	142208	24.9	20.3
521220	24.6	20.7	70221	24.6	19.3	330953	24.7	20.7	432142	24.8	21.2	283549	24.8	20.3	49436	24.9	19.5
205310	24.6	21.0	4100	24.6	16.5	256398	24.7	19.8	200957	24.8	20.4	24187	24.8	19.0	299910	24.9	20.5
79481	24.6	18.5	166820	24.6	20.0	412124	24.7	19.5	251100	24.8	20.7	143591	24.8	19.2	5944	24.9	16.1
174052	24.6	20.0	449266	24.6	21.4	454753	24.7	20.8	413101	24.8	21.7	288835	24.8	19.9	330002	24.9	21.2
31527	24.6	16.5	471346	24.6	19.8	341283	24.7	20.4	445879	24.8	19.8	93876	24.8	19.8	301805	24.9	20.0
423474	24.6	21.3	164577	24.6	20.4	52686	24.7	18.4	390960	24.8	20.2	490662	24.8	20.0	183779	24.9	20.2
169186	24.6	20.8	385057	24.6	20.7	136508	24.7	19.5	101850	24.8	18.6	56928	24.8	19.1	194408	24.9	19.2
489114	24.6	21.7	301834	24.6	20.3	519574	24.7	21.5	403027	24.8	20.3	20119	24.8	18.7	261069	24.9	20.2
381861	24.6	20.4	503162	24.6	20.6	445912	24.7	19.1	102022	24.8	18.9	218755	24.8	20.4	78337	24.9	19.1
264710	24.6	19.9	337260	24.6	21.3	343308	24.7	21.1	404308	24.8	19.3	6631	24.8	17.1	277964	24.9	19.7
298818	24.6	21.1	17240	24.7	16.7	358071	24.7	19.4	328354	24.8	19.9	87674	24.8	18.8	544307	24.9	20.1
488762	24.6	21.4	135506	24.7	20.7	215908	24.7	19.9	30498	24.8	18.9	106839	24.8	20.0	526187	24.9	21.0
125	24.6	12.4	480728	24.7	19.4	401948	24.7	21.6	84236	24.8	19.5	455213	24.8	22.3	452345	24.9	22.1
187933	24.6	19.5	18459	24.7	16.3	6593	24.7	17.6	288443	24.8	20.9	306159	24.8	19.8	295205	24.9	20.6
165370	24.6	19.4	158478	24.7	20.2	501471	24.7	21.6	454138	24.8	21.2	261514	24.9	20.2	291297	24.9	19.9
285782	24.6	19.7	192555	24.7	19.4	259144	24.7	20.3	330122	24.8	21.2	142712	24.9	20.3	388419	24.9	19.8
232739	24.6	19.2	444194	24.7	19.5	93608	24.7	19.5	4969	24.8	18.5	422789	24.9	21.7	148860	24.9	18.9
26040	24.6	17.3	158162	24.7	19.8	224512	24.7	20.9	391246	24.8	21.2	510040	24.9	20.2	100685	24.9	19.3
284457	24.6	19.5	282476	24.7	19.5	106792	24.7	19.6	416666	24.8	20.9	262662	24.9	20.6	359870	24.9	21.4
94852	24.6	18.8	386557	24.7	20.0	265822	24.7	21.0	453913	24.8	21.0	531608	24.9	22.4	40643	24.9	18.1
92536	24.6	19.2	355355	24.7	19.4	498813	24.7	20.8	498283	24.8	21.2	328770	24.9	21.7	50222	24.9	17.9
55875	24.6	19.6	497277	24.7	20.9	333047	24.7	21.8	17356	24.8	17.3	66350	24.9	21.7	533157	24.9	21.6
440638	24.6	21.6	489587	24.7	22.1	456736	24.7	21.3	535219	24.8	21.5	196772	24.9	20.2	346858	24.9	20.4
193851	24.6	18.9	349015	24.7	20.9	180724	24.7	19.0	1812	24.8	16.2	392609	24.9	21.1	359053	24.9	20.6
53905	24.6	19.7	429375	24.7	20.1	182813	24.7	20.1	112929	24.8	18.9	466254	24.9	20.0	110575	24.9	18.4
376836	24.6	21.9	498847	24.7	20.4	8910	24.7	17.5	352783	24.8	20.9	536039	24.9	21.5	334501	24.9	20.5
280456	24.6	19.0	417154	24.7	22.1	26156	24.7	18.3	527664	24.8	21.9	221643	24.9	19.9	466714	24.9	22.6
433818	24.6	21.4	261534	24.7	19.9	366968	24.7	20.9	491964	24.8	21.4	194074	24.9	19.8	423546	24.9	21.1
504718	24.6	21.0	405897	24.7	19.8	82576	24.7	19.1	363819	24.8	20.3	373068	24.9	21.5	432539	24.9	20.9
281377	24.6	19.0	150293	24.7	20.2	375901	24.7	21.0	284205	24.8	20.2	132063	24.9	20.3	187572	24.9	19.8
221141	24.6	20.0	188234	24.7	20.5	156530	24.7	19.8	489259	24.8	20.6	351578	24.9	20.5	14122	24.9	18.1
146368	24.6	19.9	34139	24.7	19.5	312028	24.7	20.9	353564	24.8	20.9	199559	24.9	20.0	336389	24.9	20.1
94811	24.6	19.1	462899	24.7	21.8	168998	24.7	20.4	32705	24.8	18.8	188050	24.9	19.6	500671	24.9	21.2
203664	24.6	18.8	269955	24.7	20.0	57362	24.7	19.2	162058	24.8	20.9	231414	24.9	19.0	200058	24.9	20.0
120499	24.6	18.4	462245	24.7	20.1	31623	24.7	17.2	426566	24.8	21.4	414949	24.9	20.8	87753	24.9	19.3
221301	24.6	20.9	291371	24.7	19.6	194330	24.7	19.6	309274	24.8	19.7	425069	24.9	22.2	464949	24.9	21.4
532881	24.6	21.2	496119	24.7	21.2	39957	24.7	17.5	200791	24.8	20.9	194384	24.9	21.0	198472	24.9	20.1
303446	24.6	21.3	39097	24.7	18.4	365486	24.7	20.5	268445	24.8	20.8	215683	24.9	20.6	431620	24.9	20.9
297454	24.6	20.4	46323	24.7	17.9	304846	24.7	21.7	48107	24.8	17.0	238922	24.9	20.2	414883	24.9	19.6
309371	24.6	20.8	58296	24.7	16.7	343267	24.7	21.1	501709	24.8	20.8	537277	24.9	20.7	416020	24.9	19.4
403270	24.6	20.9	378763	24.7	21.0	425663	24.7	21.5	297250	24.8	20.3	338930	24.9	20.1	456639	24.9	20.8
467184	24.6	21.2	401095	24.7	20.8	370436	24.7	19.4	64813	24.8	19.9	325649	24.9	18.9	37660	24.9	17.7
234983	24.6	20.7	124338	24.7	19.8	303981	24.7	19.4	271083	24.8	20.3	88848	24.9	18.9	150682	24.9	20.5
307455	24.6	20.1	14094	24.7	18.6	55372	24.7	19.3	200818	24.8							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
279730	24.9	19.5	407492	25.0	20.5	297917	25.1	20.1	166773	25.2	20.1	318382	25.2	20.4	329	25.3	13.0
80970	24.9	19.6	328620	25.0	20.9	246674	25.1	19.3	217011	25.2	20.1	257835	25.2	18.3	7313	25.3	18.1
243431	24.9	19.4	68183	25.0	19.8	194664	25.1	20.0	422241	25.2	20.5	417541	25.2	21.6	533887	25.3	22.1
317058	24.9	20.1	215319	25.0	19.1	396289	25.1	21.0	31765	25.2	18.6	348823	25.2	20.7	510362	25.3	19.9
93351	24.9	19.0	120503	25.0	19.1	168805	25.1	19.9	405168	25.2	20.5	318013	25.2	21.2	426773	25.3	21.2
527418	24.9	21.6	40622	25.0	18.0	431576	25.1	20.2	421887	25.2	19.8	226832	25.2	20.5	290945	25.3	20.0
505253	24.9	20.9	491955	25.0	21.6	437243	25.1	21.1	489372	25.2	21.6	540604	25.2	20.5	317161	25.3	20.5
47623	24.9	19.2	94759	25.0	19.1	311001	25.1	21.6	182516	25.2	20.6	240068	25.2	19.5	27453	25.3	18.7
109477	24.9	19.7	1529	25.0	16.4	422230	25.1	20.9	278791	25.2	20.3	64770	25.2	18.8	545081	25.3	21.8
346843	24.9	20.1	497684	25.0	22.2	466183	25.1	20.5	355271	25.2	19.6	351798	25.2	19.3	419987	25.3	21.6
226719	24.9	21.0	309288	25.0	21.6	500352	25.1	21.6	524263	25.2	21.9	347801	25.2	19.9	345093	25.3	19.7
276193	24.9	20.3	357963	25.0	20.7	144440	25.1	19.8	347510	25.2	19.9	202871	25.2	21.0	151250	25.3	18.7
1218804	24.9	20.5	135024	25.0	23.3	429017	25.1	21.4	89475	25.2	18.9	57403	25.2	17.1	61441	25.3	19.3
162568	24.9	20.1	242640	25.0	20.1	398643	25.1	21.0	498960	25.2	21.7	503111	25.2	21.1	535311	25.3	21.8
59784	24.9	18.3	32777	25.0	17.7	49570	25.1	18.8	137068	25.2	19.7	525932	25.2	20.9	201208	25.3	20.3
334533	24.9	21.7	436252	25.0	21.1	991	25.1	15.3	212319	25.2	19.7	497450	25.2	20.6	338910	25.3	20.6
15490	24.9	19.1	508652	25.0	21.4	309414	25.1	20.8	31663	25.2	18.3	459983	25.2	20.8	437539	25.3	20.5
69086	24.9	18.7	525757	25.0	21.6	52161	25.1	18.2	537204	25.2	20.7	203655	25.2	20.1	336365	25.3	21.0
524127	24.9	21.9	32382	25.0	19.1	191259	25.1	20.5	341590	25.2	20.4	58933	25.2	19.6	505053	25.3	21.7
284879	24.9	20.5	270454	25.0	20.2	514083	25.1	20.8	211667	25.2	20.5	498131	25.2	21.8	79737	25.3	18.2
133067	24.9	22.6	173494	25.0	19.4	162742	25.1	20.3	462646	25.2	21.5	87054	25.2	18.0	50988	25.3	18.4
258342	24.9	20.6	189041	25.0	19.2	62723	25.1	19.2	293687	25.2	20.5	482062	25.2	21.1	177190	25.3	20.1
343044	24.9	20.7	295170	25.0	20.0	185485	25.1	20.6	25232	25.2	18.2	461785	25.2	21.3	175670	25.3	20.1
293198	24.9	19.6	272554	25.0	20.8	94538	25.1	19.6	71188	25.2	18.1	538696	25.2	21.3	299039	25.3	21.3
257665	24.9	19.7	35772	25.0	17.5	154270	25.1	20.5	369612	25.2	20.0	58291	25.2	18.8	438415	25.3	21.0
107279	24.9	19.3	535181	25.0	20.4	61331	25.1	19.4	537760	25.2	19.5	211863	25.2	19.7	283993	25.3	21.4
102626	24.9	18.0	128672	25.0	19.4	155851	25.1	19.5	158314	25.2	20.5	134336	25.2	19.4	372701	25.3	21.7
534058	24.9	21.4	424681	25.0	20.1	104710	25.1	18.7	330001	25.2	20.4	387328	25.2	20.5	503607	25.3	20.9
271885	24.9	20.3	279221	25.0	19.9	8669	25.1	16.1	189383	25.2	19.5	175966	25.2	20.0	128943	25.3	19.3
474065	24.9	20.9	293223	25.0	20.6	282584	25.1	20.5	455442	25.2	22.6	46637	25.2	17.8	500201	25.3	20.4
133907	24.9	20.1	508638	25.0	20.2	535495	25.1	20.6	503375	25.2	20.1	532386	25.2	21.5	263690	25.3	19.6
415951	24.9	21.7	453573	25.0	19.2	501337	25.1	21.8	499029	25.2	20.9	436941	25.2	21.5	153072	25.3	19.5
510326	24.9	20.5	141500	25.0	19.5	388289	25.1	21.3	543765	25.2	20.9	522669	25.2	19.7	57746	25.3	18.4
388364	24.9	21.3	192779	25.0	18.1	343496	25.1	20.7	291194	25.2	20.6	543236	25.2	20.8	521068	25.3	20.9
432028	24.9	21.2	84988	25.0	18.7	172561	25.1	20.0	543323	25.2	19.9	338306	25.2	20.5	461001	25.3	20.1
90000	24.9	18.1	275503	25.0	20.1	140579	25.1	19.2	148022	25.2	19.3	538932	25.2	20.8	354026	25.3	20.4
460949	24.9	20.5	273056	25.0	20.3	203426	25.1	19.8	251413	25.2	20.0	43314	25.2	18.4	425085	25.3	21.1
411299	24.9	21.6	137981	25.0	18.6	242044	25.1	19.9	17838	25.2	18.0	62686	25.2	18.1	489097	25.3	21.0
493734	24.9	21.2	264678	25.0	20.4	141044	25.1	20.3	432535	25.2	20.8	338158	25.2	20.4	348600	25.3	21.1
350815	24.9	21.5	470125	25.0	20.2	514099	25.1	21.2	223728	25.2	20.6	290514	25.2	20.0	224006	25.3	20.4
90230	24.9	19.6	525259	25.0	21.3	5356	25.1	16.9	527660	25.2	21.8	42674	25.2	17.8	489725	25.3	21.8
227872	24.9	20.1	140598	25.0	19.5	307632	25.1	19.1	531623	25.2	21.6	325327	25.2	20.2	417496	25.3	20.7
415889	24.9	21.3	253157	25.1	20.1	344069	25.1	20.5	423241	25.2	20.9	531739	25.2	21.2	120080	25.3	19.4
27024	24.9	17.7	351533	25.1	20.8	231399	25.1	20.9	30266	25.2	18.3	188731	25.2	19.0	69502	25.3	20.4
263858	24.9	19.1	138438	25.1	18.2	405187	25.1	21.0	221821	25.2	18.6	19698	25.2	16.4	261136	25.3	20.6
159435	24.9	19.8	84407	25.1	19.9	100217	25.1	20.1	160808	25.2	19.6	453569	25.2	20.4	46983	25.3	19.2
34642	24.9	17.6	247633	25.1	20.5	453359	25.1	20.5	371268	25.2	20.0	199943	25.2	19.9	27749	25.3	18.3
77432	24.9	18.8	367801	25.1	20.9	445105	25.1	21.9	52092	25.2	19.8	192145	25.2	19.6	48957	25.3	17.7
44235	24.9	17.5	68430	25.1	19.9	49629	25.1	17.4	431165	25.2	20.4	177420	25.2	19.2	26370	25.3	17.1
246056	24.9	20.2	185667	25.1	19.5	417237	25.1	21.4	211554	25.2	20.4	193988	25.2	20.0	527111	25.3	22.1
171961	24.9	20.5	299547	25.1	20.5	410795	25.1	20.7	53200	25.2	18.9	132407	25.2	19.4	522386	25.3	21.9
373266	24.9	19.3	447323	25.1	20.8	312334	25.1	19.5	8490	25.2	18.8	111443	25.2	19.4	194949	25.3	19.8
533696	24.9	21.0	122584	25.1	18.6	382290	25.1	20.7	350444	25.2	21.0	131883	25.2	17.9	303708	25.3	20.9
73145	24.9	18.7	230127	25.1	19.8	204226	25.1	20.4	9230	25.2	18.6	430049	25.3	20.8	538630	25.3	20.8
368632	24.9	21.6	57021	25.1	17.8	168289	25.1	19.4	32396	25.2	19.3	359114	25.3	20.2	57341	25.3	18.8
330062	24.9	20.5	411660	25.1	20.5	413568	25.1	21.1	535792	25.2	20.4	298958	25.3	20.8	253184	25.3	20.9
310926	25.0	20.3	58877	25.1	17.7	540115	25.1	20.4	348819	25.2	21.3	206883	25.3	19.8	341387	25.3	20.3
288811	25.0	19.7	345668	25.1	19.8	7971	25.1	16.7	193775	25.2	17.8	68390	25.3	20.6	184378	25.3	18.8
433359	25.0	21.1	307932	25.1	19.5	27417	25.1	17.0	225554	25.2	18.7	310225	25.3	19.7	27747	25.3	18.9
3635	25.0	16.4	9026	25.1	17.3	446025	25.1	20.6	90833	25.2	18.7	215193	25.3	20.6	344334	25.3	20.7
229131	25.0	20.6	367175	25.1	20.8	285437	25.1	20.1	536906	25.2	21.3	120647	25.3	18.7	504829	25.3	20.5
416866	25.0	20.7	451022	25.1	22.1	46362	25.1	18.3	238381	25.2	19.7	73804	25.3	18.7	463292	25.3	20.7
247220	25.0	21.0	187724	25.1	19.3	199838	25.1	18.7	447435	25.2	22.4	183513	25.3	19.0	182647	25.3	19.4
400331	25.0	21.2	357358	25.1	19.3	279331	25.1	20.8	166120	25.2	19.1	234840	25.3	20.1	296143	25.3	21.4
356495	25.0	21.7	389888	25.1	21.2	221129	25.1	20.8	160309	25.2	19.1	237351	25.3	20.6	181572	25.3	21.1
534036	25.0	21.2	136040	25.1	19.5	155714	25.1	20.0	340869	25.2	20.7	455209	25.3	23.5	89576	25.3	19.9
210929	25.0	19.3	395112	25.1	21.3	198996	25.1	19.7	543407	25.2	19.8	255993	25.3	20.7	281986	25.3	20.6
210943	25.0	19.6	139807	25.1	19.2	465985	25.1	21.7	112756	25.2	20.0	403372	25.3	19.9	135250	25.3	20.1
392149	25.0	20.2	183454	25.1	20.1	167590	25.1	20.1	368736	25.2							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
384995	25.3	20.5	230499	25.4	20.5	355919	25.5	20.7	376231	25.6	20.5	403595	25.6	20.9	262855	25.7	20.3
292570	25.3	19.8	122089	25.4	18.9	140987	25.5	19.6	337851	25.6	19.9	256955	25.6	20.4	465143	25.7	21.9
511856	25.3	20.2	380529	25.4	20.6	465912	25.5	21.8	127164	25.6	19.7	326984	25.6	20.5	506434	25.7	21.7
360291	25.3	19.4	343416	25.4	21.2	389909	25.5	20.0	402543	25.6	20.6	66869	25.6	18.8	206923	25.7	20.2
522759	25.3	21.1	388791	25.4	20.6	197205	25.5	20.0	347454	25.6	20.1	276359	25.6	19.7	255765	25.7	21.0
505158	25.3	20.3	170098	25.4	18.4	477431	25.5	22.1	354836	25.6	21.3	182408	25.6	20.7	400374	25.7	20.2
410026	25.3	21.7	172074	25.4	21.0	538143	25.5	20.3	193129	25.6	19.0	164165	25.6	19.9	148924	25.7	19.3
214724	25.3	20.7	453809	25.4	19.4	95762	25.5	19.0	62603	25.6	18.4	186909	25.6	19.3	290729	25.7	20.2
415367	25.3	20.0	507906	25.4	19.6	305584	25.5	20.3	448477	25.6	21.0	258245	25.6	20.6	395754	25.7	21.0
344109	25.3	21.1	354570	25.4	20.5	492861	25.5	21.1	106917	25.6	19.6	341821	25.6	21.5	420120	25.7	19.7
304807	25.4	20.6	29726	25.4	18.1	87474	25.5	19.3	245951	25.6	19.7	202187	25.6	18.5	370694	25.7	19.0
460794	25.4	20.5	60055	25.4	18.6	517599	25.5	20.8	132101	25.6	20.2	434167	25.6	22.1	86745	25.7	17.8
352016	25.4	20.9	79768	25.4	19.6	465991	25.5	20.4	125116	25.6	19.5	206922	25.6	19.2	441580	25.7	21.1
347668	25.4	20.8	532447	25.4	20.3	72030	25.5	18.9	426723	25.6	21.4	266848	25.6	20.6	310951	25.7	20.9
388359	25.4	21.4	255923	25.4	20.5	350122	25.5	20.7	56634	25.6	19.1	501245	25.6	21.2	498505	25.7	22.0
444443	25.4	21.3	544022	25.4	21.8	339538	25.5	20.8	289476	25.6	19.8	379109	25.6	20.7	293361	25.7	20.8
17669	25.4	18.1	157273	25.4	19.8	423235	25.5	21.8	245920	25.6	20.0	155978	25.6	19.4	355281	25.7	19.4
131534	25.4	19.9	246129	25.4	20.0	526765	25.5	21.8	392605	25.6	20.9	426310	25.6	20.9	407808	25.7	20.7
312193	25.4	20.6	484206	25.4	22.0	350663	25.5	20.8	414842	25.6	21.3	29557	25.6	18.8	181252	25.7	19.8
491968	25.4	20.9	27631	25.4	18.1	458824	25.5	22.7	336339	25.6	19.9	300277	25.6	21.2	379900	25.7	20.5
524783	25.4	20.3	163768	25.4	19.7	48822	25.5	18.9	461391	25.6	21.2	347251	25.6	19.8	100151	25.7	20.0
75728	25.4	19.1	257684	25.4	20.4	495097	25.5	19.9	172528	25.6	20.5	156572	25.6	19.8	114204	25.7	18.6
383714	25.4	21.4	70890	25.4	18.5	78398	25.5	19.1	150164	25.6	20.7	429944	25.6	20.2	15312	25.7	18.5
429976	25.4	19.8	258285	25.4	21.0	392646	25.5	20.6	205782	25.6	20.5	258234	25.6	20.4	284870	25.7	20.2
267374	25.4	21.1	500630	25.4	21.2	225565	25.5	20.3	371213	25.6	21.1	433351	25.6	22.1	58157	25.7	17.7
367207	25.4	20.2	328573	25.4	21.1	535210	25.5	20.3	284044	25.6	20.5	516882	25.6	20.1	536452	25.7	20.4
462081	25.4	21.3	334366	25.4	19.9	363428	25.5	21.6	434825	25.6	21.6	178196	25.6	20.7	434897	25.7	21.0
30275	25.4	18.9	95587	25.4	18.7	426768	25.5	21.1	59139	25.6	19.7	339044	25.6	20.3	386186	25.7	22.0
367348	25.4	19.9	5302	25.4	17.1	55070	25.5	17.5	109083	25.6	19.3	372516	25.6	20.0	185210	25.7	20.7
323776	25.4	20.6	155935	25.4	19.0	223244	25.5	19.7	47321	25.6	18.9	234775	25.6	20.1	244207	25.7	19.5
446514	25.4	21.1	207564	25.4	19.1	295733	25.5	19.7	511630	25.6	21.1	484239	25.6	21.9	162750	25.7	20.7
172	25.4	11.9	77499	25.4	19.0	466940	25.5	21.1	39800	25.6	19.2	218622	25.6	20.7	49597	25.7	19.0
367597	25.4	20.2	445874	25.4	20.7	74931	25.5	18.9	253275	25.6	20.6	428034	25.6	20.4	282867	25.7	21.6
36551	25.4	18.4	170867	25.4	19.2	501148	25.5	21.3	206356	25.6	19.2	96651	25.6	17.9	203540	25.7	20.9
508228	25.4	20.7	369616	25.4	20.7	142707	25.5	20.9	110334	25.6	18.5	536678	25.6	20.7	500400	25.7	20.9
53876	25.4	18.6	286379	25.4	20.2	359192	25.5	21.1	123514	25.6	20.4	117316	25.6	19.3	56020	25.7	20.0
347733	25.4	21.1	101893	25.4	18.7	341587	25.5	20.8	194433	25.6	20.9	341600	25.6	21.3	149162	25.7	19.3
508601	25.4	21.0	347108	25.4	20.4	173936	25.5	19.6	18911	25.6	17.6	528898	25.6	22.2	141346	25.7	21.2
121098	25.4	19.5	143523	25.4	19.5	100316	25.5	18.9	80986	25.6	19.7	37615	25.6	17.7	452528	25.7	22.2
93322	25.4	18.9	412715	25.5	19.6	263734	25.5	19.9	256718	25.6	20.7	466603	25.6	20.9	386397	25.7	21.0
505072	25.4	21.2	188710	25.5	19.0	307675	25.5	19.5	306626	25.6	20.5	338359	25.6	21.2	246745	25.7	20.1
82386	25.4	18.8	278024	25.5	21.1	468693	25.5	19.8	372597	25.6	20.7	169618	25.6	18.8	265870	25.7	20.5
534934	25.4	21.5	408921	25.5	21.6	58806	25.5	17.8	506248	25.6	20.6	346091	25.6	21.0	343991	25.7	20.5
290493	25.4	20.7	721158	25.5	20.1	169159	25.5	19.5	110142	25.6	19.0	36973	25.6	17.9	434511	25.7	20.6
282815	25.4	20.6	93626	25.5	20.3	49564	25.5	17.1	199481	25.6	20.5	131539	25.7	20.2	300031	25.7	21.0
49301	25.4	17.6	433830	25.5	20.4	10441	25.5	17.6	274689	25.6	20.7	413883	25.7	19.6	228026	25.7	19.8
5638	25.4	17.0	57706	25.5	19.0	209480	25.5	19.8	31901	25.6	17.7	189267	25.7	20.1	5600	25.7	16.6
155174	25.4	18.9	401745	25.5	20.6	17988	25.5	17.2	498910	25.6	20.6	120887	25.7	18.8	96251	25.7	19.9
51975	25.4	19.3	378736	25.5	20.7	442193	25.5	20.5	347299	25.6	20.5	417673	25.7	20.6	182049	25.7	20.2
498368	25.4	21.9	221690	25.5	20.0	158679	25.5	20.0	417096	25.6	22.0	284363	25.7	20.6	485651	25.7	20.5
99640	25.4	20.2	534291	25.5	23.1	159920	25.5	20.2	175098	25.6	19.4	534317	25.7	19.3	388786	25.7	21.5
491587	25.4	21.6	538840	25.5	21.8	450801	25.5	23.2	500686	25.6	21.6	208173	25.7	19.6	282818	25.7	21.3
181400	25.4	20.4	153500	25.5	19.7	425273	25.5	21.4	60688	25.6	19.4	434904	25.7	21.5	170759	25.7	19.8
41054	25.4	18.1	381613	25.5	21.2	374533	25.5	20.4	407560	25.6	20.5	378986	25.7	21.0	284853	25.7	19.8
105004	25.4	18.2	289072	25.5	20.8	517684	25.5	21.8	299887	25.6	20.5	335184	25.7	20.4	5232	25.7	15.5
213347	25.4	19.6	266675	25.5	21.3	354044	25.5	21.0	118286	25.6	17.6	94630	25.7	19.0	85211	25.7	18.5
350435	25.4	20.8	414263	25.5	21.3	529252	25.5	20.8	149669	25.6	19.9	397508	25.7	20.7	122260	25.7	19.8
28169	25.4	18.6	529313	25.5	21.5	536552	25.5	20.9	32755	25.6	19.2	83605	25.7	17.9	522488	25.7	19.4
526653	25.4	20.8	371756	25.5	20.3	95272	25.5	19.7	191127	25.6	19.3	503054	25.7	20.4	353486	25.7	21.6
308199	25.4	20.5	389970	25.5	21.2	498265	25.5	21.7	403082	25.6	21.1	491071	25.7	20.5	158322	25.7	20.5
240545	25.4	20.6	272154	25.5	20.5	73498	25.5	19.4	285919	25.6	20.2	324529	25.7	21.1	221099	25.7	20.4
186513	25.4	21.0	256957	25.5	20.5	79774	25.5	20.6	240271	25.6	20.8	324588	25.7	21.0	16684	25.7	23.0
520197	25.4	21.2	323170	25.5	18.4	296035	25.5	20.6	418272	25.6	19.6	273749	25.7	20.8	122620	25.7	18.7
42560	25.4	18.7	426942	25.5	20.1	164583	25.5	20.6	471454	25.6	20.8	223502	25.7	20.5	129137	25.7	19.9
408906	25.4	21.2	212080	25.5	19.4	33724	25.5	17.7	380137	25.6	19.9	122998	25.7	20.5	115208	25.7	19.3
198327	25.4	19.9	120605	25.5	19.8	213417	25.5	20.7	525621	25.6	19.2	52822	25.7	18.7	26088	25.7	17.7
415133	25.4	20.8	350803	25.5	20.4	477782	25.5	21.8	366856	25.6	21.4	232935	25.7	21.0	16175	25.7	17.4
346871	25.4	20.4	133678	25.5	19.9	36726	25.5	18.9	345651	25.6	20.5	514097	25.7	20.8	147306	25.7	19.6
409260	25.4	20.5	386125	25.5	22.1	529194	25.5	21.5	19462								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
23994	25.7	19.6	177915	25.8	19.4	273128	25.9	20.7	521080	25.9	20.3	114185	25.9	19.0	178886	26.1	19.5
332539	25.7	19.5	208527	25.8	19.2	13270	25.9	18.3	35463	25.9	18.0	537090	25.9	21.2	111879	26.1	18.0
88774	25.7	19.3	351328	25.8	19.0	266448	25.9	20.7	124638	25.9	19.7	241868	25.9	19.8	212972	26.1	20.6
125745	25.7	19.5	107029	25.8	19.2	255904	25.9	21.9	394376	25.9	21.0	211873	25.9	19.7	217879	26.1	19.7
58758	25.7	19.0	56443	25.8	18.4	205254	25.9	20.1	324498	25.9	21.7	519273	25.9	20.8	142786	26.1	21.3
496386	25.7	21.3	422683	25.8	22.5	309429	25.9	20.2	343467	25.9	20.2	447336	25.9	20.4	154912	26.1	18.9
424773	25.7	20.5	182718	25.8	20.4	196537	25.9	20.1	246975	25.9	19.7	384205	25.9	22.1	322643	26.1	21.8
489551	25.7	22.1	222077	25.8	18.4	155799	25.9	19.4	247035	25.9	18.4	532864	25.9	21.2	492661	26.1	21.0
369913	25.7	21.5	240010	25.8	20.6	436001	25.9	20.7	317604	25.9	19.5	330088	25.9	21.3	501480	26.1	20.4
89233	25.7	18.4	45777	25.8	17.7	101515	25.9	18.6	231872	25.9	21.4	211899	25.9	18.7	308695	26.1	19.3
495256	25.7	20.0	158531	25.8	20.4	155064	25.9	19.6	350106	25.9	19.9	401568	25.9	20.4	65708	26.1	18.8
41711	25.7	17.8	151012	25.8	19.7	459473	25.9	21.3	50883	25.9	19.0	543600	25.9	22.1	50742	26.1	17.7
280185	25.8	19.5	204342	25.8	21.1	109156	25.9	19.7	357368	25.9	19.2	529844	25.9	22.0	366441	26.1	19.1
530744	25.8	21.2	130282	25.8	19.9	389599	25.9	19.9	269435	25.9	19.8	100635	26.0	19.7	533850	26.1	23.7
101110	25.8	19.7	282827	25.8	20.8	294674	25.9	20.1	110912	25.9	19.2	373050	26.0	20.6	344608	26.1	20.2
69114	25.8	19.0	437692	25.8	20.7	114228	25.9	19.1	84903	25.9	18.5	100503	26.0	18.1	209142	26.1	20.1
3577	25.8	16.7	359159	25.8	19.6	530054	25.9	22.0	31622	25.9	16.7	499092	26.0	20.8	297455	26.1	20.7
243967	25.8	18.9	274758	25.8	20.1	390144	25.9	20.8	529137	25.9	22.0	384223	26.0	19.7	136746	26.1	20.3
284819	25.8	20.5	119555	25.8	18.6	252977	25.9	20.2	148696	25.9	20.5	78686	26.0	18.0	265561	26.1	21.6
295323	25.8	20.0	468918	25.8	19.3	526628	25.9	20.1	345994	25.9	21.2	271470	26.0	19.7	384227	26.1	21.4
83401	25.8	19.9	40380	25.8	18.5	529392	25.9	21.7	146504	25.9	19.8	7118	26.0	16.6	253132	26.1	21.2
283515	25.8	20.8	15933	25.8	18.7	518614	25.9	21.4	313420	25.9	19.8	319589	26.0	21.6	384744	26.1	19.6
233192	25.8	19.7	178291	25.8	19.2	329842	25.9	19.5	65397	25.9	18.4	110165	26.0	19.5	444431	26.1	19.8
500595	25.8	20.5	239453	25.8	20.9	359130	25.9	20.2	62658	25.9	19.4	332165	26.0	20.1	325307	26.1	20.1
265749	25.8	20.6	423261	25.8	20.3	179962	25.9	19.9	478165	25.9	19.5	524026	26.0	21.4	413911	26.1	21.5
389239	25.8	20.8	78780	25.8	19.0	401060	25.9	20.4	388348	25.9	21.4	507450	26.0	21.3	21867	26.1	18.0
385869	25.8	21.6	444742	25.8	21.0	339555	25.9	19.1	321132	25.9	19.2	445038	26.0	20.9	486163	26.1	20.3
351321	25.8	20.7	288925	25.8	19.7	536717	25.9	20.8	358572	25.9	19.7	163178	26.0	18.9	463806	26.1	21.0
193815	25.8	20.6	171879	25.8	20.0	379989	25.9	20.6	250171	25.9	19.9	25793	26.0	17.7	496670	26.1	20.8
174937	25.8	20.5	165721	25.8	20.9	333448	25.9	20.7	189648	25.9	19.4	36818	26.0	20.1	513069	26.1	20.9
201098	25.8	19.8	310445	25.8	20.4	338151	25.9	22.1	160196	25.9	21.7	462086	26.0	20.5	408114	26.1	19.5
287255	25.8	20.5	311011	25.8	19.9	196152	25.9	20.5	235520	25.9	20.3	367528	26.0	20.4	503560	26.1	20.7
349678	25.8	20.6	522567	25.8	20.4	64412	25.9	18.7	328269	25.9	19.9	196505	26.0	18.2	421866	26.1	19.8
488801	25.8	21.1	382335	25.8	20.0	360530	25.9	20.1	41813	25.9	19.0	268789	26.0	19.3	521170	26.1	20.1
526965	25.8	20.9	544223	25.8	21.0	143180	25.9	20.0	464928	25.9	21.7	253003	26.0	19.7	222351	26.1	19.9
212321	25.8	20.4	447303	25.8	20.7	492887	25.9	20.5	402042	25.9	21.5	217937	26.0	20.4	211904	26.1	19.7
208188	25.8	20.1	436733	25.8	20.6	423596	25.9	21.6	529988	25.9	21.8	212549	26.0	20.3	105345	26.1	19.5
376502	25.8	21.2	383352	25.8	21.0	488104	25.9	20.6	16292	25.9	18.6	366848	26.0	20.5	498602	26.1	21.2
209484	25.8	18.8	305759	25.8	21.2	486737	25.9	21.1	486675	25.9	21.4	105277	26.0	19.4	497975	26.1	22.2
119836	25.8	19.4	209514	25.8	20.5	460790	25.9	20.6	280267	25.9	20.7	47724	26.0	18.5	461956	26.1	21.2
135047	25.8	19.1	506342	25.8	21.2	442695	25.9	21.7	256278	25.9	19.9	157605	26.0	20.0	439622	26.1	21.3
299055	25.8	20.6	129134	25.8	19.0	299239	25.9	20.1	519910	25.9	21.1	114104	26.0	19.3	266794	26.1	20.6
281535	25.8	20.9	219830	25.8	21.0	492490	25.9	20.5	325135	25.9	20.6	178129	26.0	20.3	87812	26.1	19.4
282158	25.8	19.2	437201	25.8	20.1	188931	25.9	20.8	427577	25.9	20.1	51956	26.0	17.9	533102	26.1	21.9
162081	25.8	19.1	383424	25.8	20.7	483932	25.9	20.1	453185	25.9	21.3	306981	26.0	19.8	93279	26.1	17.0
536020	25.8	21.6	125859	25.8	19.3	505013	25.9	20.5	529104	25.9	20.9	78669	26.0	19.5	367171	26.1	21.0
19423	25.8	18.5	367003	25.8	22.1	240257	25.9	20.0	205222	25.9	19.9	111059	26.0	19.0	265238	26.1	21.5
172037	25.8	20.5	131763	25.8	20.8	138938	25.9	19.4	111237	25.9	20.0	80676	26.0	17.4	210506	26.1	19.8
398693	25.8	21.5	206144	25.8	21.1	270852	25.9	20.7	156515	25.9	20.2	244181	26.0	19.7	50886	26.1	18.4
425217	25.8	21.4	366175	25.8	20.8	66235	25.9	18.8	354933	25.9	19.8	62782	26.0	19.2	133302	26.1	19.4
540265	25.8	20.5	64034	25.8	18.4	534043	25.9	21.6	1959	25.9	15.4	444215	26.0	21.3	442235	26.1	20.4
199105	25.8	20.5	43018	25.8	18.5	32356	25.9	18.8	32071	25.9	17.7	178911	26.0	19.4	458915	26.1	21.2
58142	25.8	18.4	14454	25.8	18.3	542327	25.9	21.3	50538	25.9	18.7	503546	26.0	20.6	423161	26.1	20.6
124308	25.8	19.8	100833	25.8	19.0	165409	25.9	19.5	518339	25.9	20.5	145926	26.0	17.7	432578	26.1	19.5
429063	25.8	20.6	241728	25.8	20.4	232575	25.9	19.7	372892	25.9	20.9	520134	26.0	21.3	85422	26.1	19.9
320863	25.8	19.3	62583	25.8	18.6	431315	25.9	19.7	391028	25.9	20.9	402899	26.0	21.4	534175	26.1	21.9
520781	25.8	21.3	359257	25.8	19.6	529361	25.9	21.7	52935	25.9	19.9	427752	26.0	22.0	267766	26.1	19.1
199024	25.8	20.9	141136	25.8	19.8	77860	25.9	19.5	105388	25.9	19.0	143665	26.0	18.5	527704	26.1	21.5
255857	25.8	18.9	472808	25.8	20.0	397133	25.9	20.7	286084	25.9	21.3	416902	26.0	22.0	424747	26.1	21.3
345652	25.8	20.6	419732	25.8	19.5	415910	25.9	20.8	133091	25.9	19.5	496740	26.0	20.8	494671	26.1	20.9
72847	25.8	18.2	233639	25.8	19.3	264621	25.9	21.7	116473	25.9	19.1	45311	26.0	18.9	58705	26.1	18.7
109635	25.8	19.4	369362	25.8	21.3	145733	25.9	21.3	90431	25.9	19.1	522474	26.0	20.5	173487	26.1	20.3
170058	25.8	19.8	219482	25.8	19.7	248940	25.9	20.6	534433	25.9	21.2	437198	26.0	21.2	366255	26.1	20.9
341474	25.8	21.0	374522	25.8	20.7	272868	25.9	19.7	379308	25.9	20.9	194382	26.0	19.5	175788	26.1	19.9
128790	25.8	18.7	461786	25.8	21.2	20561	25.9	17.3	97916	25.9	19.4	70141	26.0	17.5	499237	26.1	21.9
347069	25.8	20.3	379135	25.8	21.7	209447	25.9	19.3	267475	25.9	20.1	403322	26.0	19.6	442202	26.1	20.1
56286	25.8	18.4	464133	25.8	21.1	81370	25.9	18.3	305674	25.9	20.2	530232	26.0	22.3	359148	26.1	20.3
500623	25.8	22.1	165384	25.8	21.1	330129	25.9	19.5	357145	25.9	21.6	243229	26.0	20.3	337675	26.1	21.8
79097	25.8	19.0	504251	25.8	21.5	389424	25.9	19									

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
130511	26.1	19.6	285239	26.2	18.2	90995	26.3	18.1	377242	26.3	21.3	386201	26.4	20.4	504618	26.5	20.3
389687	26.1	21.1	411702	26.2	20.2	383734	26.3	21.6	452241	26.3	20.7	118512	26.4	18.9	502356	26.5	21.0
285746	26.1	20.5	473895	26.2	20.5	419209	26.3	21.5	190438	26.3	19.9	28324	26.4	18.5	498569	26.5	20.4
210952	26.1	19.9	127506	26.2	20.4	131235	26.3	19.9	517168	26.3	20.7	211897	26.4	20.6	54306	26.5	16.9
501484	26.1	22.2	130681	26.2	19.1	388780	26.3	21.1	133745	26.3	20.0	516386	26.4	20.4	155425	26.5	19.2
277773	26.1	20.3	221185	26.2	19.4	201087	26.3	20.0	493662	26.3	20.3	212911	26.4	21.6	25173	26.5	18.0
368800	26.1	20.1	471898	26.2	20.5	309393	26.3	21.0	241068	26.3	20.7	523985	26.4	20.9	182521	26.5	20.3
210552	26.1	19.8	160788	26.2	19.6	283494	26.3	19.8	125507	26.3	20.1	98622	26.4	19.4	130701	26.5	19.3
500580	26.1	21.2	530271	26.2	21.9	89330	26.3	18.8	263100	26.3	19.5	247323	26.4	19.8	197537	26.5	20.7
352865	26.1	19.4	231600	26.2	19.9	1079	26.3	15.1	320442	26.3	20.2	423450	26.4	21.5	501876	26.5	20.9
417834	26.1	20.6	330064	26.2	20.4	496559	26.3	20.4	250218	26.3	19.3	253943	26.4	20.2	283532	26.5	20.3
505029	26.1	21.3	230839	26.2	20.7	509806	26.3	20.7	179834	26.3	19.5	219059	26.4	20.2	295965	26.5	20.7
98143	26.1	19.1	540605	26.2	21.8	81812	26.3	17.6	242978	26.3	20.4	417700	26.4	21.4	365871	26.5	20.1
344840	26.1	19.0	69853	26.2	18.1	433194	26.3	20.5	504688	26.3	20.0	58418	26.4	19.9	154924	26.5	19.9
52567	26.1	18.4	545092	26.2	20.8	193752	26.3	17.8	239467	26.3	18.5	101657	26.4	17.9	243443	26.5	20.6
171430	26.1	20.6	289369	26.2	21.2	420077	26.3	21.4	380413	26.3	20.9	90098	26.4	19.5	250192	26.5	20.4
352690	26.1	20.7	107083	26.2	19.0	385393	26.3	21.6	165697	26.3	20.2	83900	26.4	20.0	524519	26.5	20.6
86270	26.1	18.3	271839	26.2	20.9	273943	26.3	20.2	533908	26.3	21.0	270445	26.4	19.6	325095	26.5	19.8
280840	26.1	20.3	327923	26.2	20.5	465733	26.3	20.8	129531	26.3	20.3	264711	26.4	20.6	402043	26.5	21.3
79060	26.1	17.6	159362	26.2	19.3	372605	26.3	20.2	242383	26.3	20.3	491819	26.4	20.5	170268	26.5	18.7
526186	26.1	21.4	291533	26.2	19.1	496906	26.3	20.7	440961	26.3	20.7	330133	26.4	20.4	210754	26.5	20.6
348661	26.1	20.7	118263	26.2	19.5	232453	26.3	19.9	362150	26.3	20.1	272891	26.4	19.9	440070	26.5	20.8
536761	26.1	20.3	49797	26.2	16.6	424782	26.3	19.7	36207	26.4	17.1	310895	26.4	20.1	426772	26.5	20.8
350779	26.1	20.7	445101	26.2	21.6	107098	26.3	18.0	173410	26.4	19.3	8414	26.4	16.3	453834	26.5	21.4
105760	26.1	19.5	532819	26.2	21.2	110968	26.3	18.7	22838	26.4	18.7	244213	26.4	19.5	348927	26.5	21.2
27204	26.1	17.7	328687	26.2	20.4	36065	26.3	19.5	512784	26.4	22.4	461794	26.4	21.1	208167	26.5	20.1
506671	26.1	21.2	284317	26.2	21.2	518083	26.3	20.2	350799	26.4	20.1	218034	26.4	20.1	148355	26.5	19.6
299299	26.1	20.0	164671	26.2	19.8	295232	26.3	20.5	214232	26.4	21.2	60308	26.4	18.0	495410	26.5	20.7
277401	26.1	20.8	358181	26.2	21.0	520291	26.3	20.1	282332	26.4	20.0	196852	26.4	19.9	10470	26.5	17.9
534413	26.1	21.8	387037	26.2	21.5	106620	26.3	16.8	90327	26.4	18.3	200353	26.4	19.9	173974	26.5	20.0
360276	26.1	20.8	544041	26.2	19.4	128679	26.3	19.6	133127	26.4	19.2	483509	26.4	24.2	489762	26.5	20.8
504905	26.2	21.7	223482	26.2	19.4	117381	26.3	18.7	178672	26.4	20.9	143320	26.4	19.3	506701	26.5	20.9
469505	26.2	21.9	242249	26.2	19.0	505034	26.3	21.6	497685	26.4	21.9	22152	26.4	19.8	28345	26.5	17.9
519980	26.2	20.7	414779	26.2	19.4	7651	26.3	16.7	292150	26.4	20.6	194055	26.4	20.6	69719	26.5	18.3
247441	26.2	19.4	91561	26.2	18.8	52532	26.3	18.7	106424	26.4	19.8	357567	26.4	20.9	157352	26.5	19.6
525585	26.2	20.6	353785	26.2	19.0	401582	26.3	19.7	354069	26.4	21.9	490125	26.4	21.5	423260	26.5	21.3
433842	26.2	20.7	394811	26.2	20.3	243989	26.3	19.7	378957	26.4	20.8	543868	26.4	22.2	79483	26.5	19.5
10840	26.2	16.0	454287	26.2	19.7	297199	26.3	20.7	410053	26.4	21.2	373844	26.4	18.5	292164	26.5	19.9
382294	26.2	19.9	399054	26.2	21.3	458926	26.3	20.7	354204	26.4	20.9	312447	26.4	18.9	338915	26.5	19.8
66801	26.2	17.5	413906	26.2	21.0	419442	26.3	20.9	88600	26.4	19.4	327414	26.4	19.1	362997	26.5	20.8
138552	26.2	18.3	156063	26.2	19.2	433792	26.3	20.3	246911	26.4	20.5	124835	26.4	19.6	474066	26.5	20.4
415933	26.2	19.8	89002	26.2	19.3	104002	26.3	19.1	143542	26.4	19.1	384218	26.4	20.6	197242	26.5	20.1
164859	26.2	19.9	19426	26.2	17.1	394053	26.3	19.5	26889	26.4	18.5	495867	26.4	20.4	88985	26.5	18.6
103834	26.2	19.5	52575	26.2	18.3	206169	26.3	21.1	417639	26.4	20.1	344849	26.4	19.0	336743	26.5	20.3
433669	26.2	21.2	536321	26.2	21.5	222266	26.3	19.8	350268	26.4	20.3	26108	26.4	18.1	532414	26.5	22.2
521048	26.2	20.0	410040	26.2	21.3	271142	26.3	19.5	244103	26.4	21.2	27574	26.4	18.7	224506	26.5	19.9
341328	26.2	20.7	243951	26.2	20.9	198771	26.3	20.0	370053	26.4	20.9	262656	26.4	20.7	28643	26.5	17.2
461683	26.2	20.4	174662	26.2	19.4	426808	26.3	21.1	174012	26.4	20.9	361630	26.4	21.0	87134	26.5	16.6
18916	26.2	21.4	178085	26.2	21.2	526165	26.3	23.0	437401	26.4	22.3	425418	26.4	19.8	197804	26.5	18.9
312887	26.2	18.9	448222	26.2	21.6	285683	26.3	21.4	217283	26.4	19.9	197482	26.4	18.7	326064	26.5	21.3
21614	26.2	17.0	236106	26.2	19.8	370695	26.3	20.1	419810	26.4	19.8	349046	26.4	19.8	281729	26.5	20.3
242633	26.2	20.3	356328	26.2	19.4	152020	26.3	19.2	40339	26.4	17.6	75242	26.4	18.0	55943	26.5	18.5
527992	26.2	20.4	33364	26.2	18.0	301045	26.3	19.9	110523	26.4	18.3	506843	26.4	20.7	101664	26.5	19.2
406564	26.2	20.6	265633	26.2	20.5	404279	26.3	19.7	293802	26.4	19.5	412774	26.4	21.0	277835	26.5	19.1
164813	26.2	18.3	139533	26.2	19.7	111179	26.3	20.6	3685	26.4	17.8	148506	26.4	18.6	329368	26.5	19.6
38885	26.2	17.5	49862	26.2	19.0	544929	26.3	22.0	56037	26.4	18.7	213848	26.4	19.9	458407	26.5	20.4
138183	26.2	18.5	145814	26.2	20.3	336747	26.3	20.2	359072	26.4	19.4	402998	26.4	21.3	369343	26.5	19.9
416043	26.2	19.2	449235	26.2	20.5	425658	26.3	20.4	147638	26.4	19.2	263789	26.4	18.9	156587	26.5	18.5
504738	26.2	21.5	155075	26.2	20.4	101139	26.3	18.9	109278	26.4	19.2	143133	26.4	20.1	185507	26.5	21.4
85341	26.2	18.0	257239	26.2	19.3	422694	26.3	19.1	515384	26.4	21.4	282206	26.4	20.4	466414	26.5	20.8
335677	26.2	19.9	230832	26.3	19.5	210410	26.3	19.6	348944	26.4	20.6	322166	26.4	18.5	297034	26.5	18.7
103650	26.2	19.5	130881	26.3	18.9	523703	26.3	22.0	29774	26.4	18.8	156753	26.4	19.4	512321	26.5	20.8
364846	26.2	19.9	501472	26.3	20.6	193252	26.3	20.3	481852	26.4	22.3	515744	26.4	20.0	341643	26.5	21.1
162639	26.2	19.6	507013	26.3	22.5	496553	26.3	21.4	105046	26.4	18.6	242412	26.4	19.6	262592	26.5	21.3
530825	26.2	21.2	498558	26.3	19.6	97857	26.3	18.6	135316	26.4	19.4	542860	26.4	20.5	110612	26.5	19.4
375012	26.2	20.5	113985	26.3	19.5	348638	26.3	20.7	489711	26.4	20.8	349029	26.5	20.6	230977	26.5	18.6
456669	26.2	22.2	20472	26.3	17.3	419822	26.3	20.8	10273	26.4	17.0	188650	26.5	20.4	320825	26.5	20.3
274423	26.2	19.7	223496	26.3	20.9	307586	26.3	17.8	512348	26.4	19.7	372444	26.5	21.0	211475	26.5	19.6
88100	26.2	17.7	496666	26.3	20.9	534029	26.3	2									

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
511582	26.5	20.2	82043	26.6	19.0	173950	26.7	20.3	524479	26.7	20.7	187530	26.8	19.1	205876	26.8	18.8
456764	26.5	22.1	527184	26.6	21.9	111125	26.7	18.7	242406	26.7	19.6	465980	26.8	21.6	392376	26.8	20.1
283067	26.5	20.4	14412	26.6	16.9	22612	26.7	18.0	203635	26.7	20.4	140136	26.8	19.2	515968	26.9	22.1
387228	26.5	21.0	77830	26.6	19.2	209078	26.7	19.4	109986	26.7	19.1	207593	26.8	19.9	371270	26.9	21.3
172055	26.5	19.4	282940	26.6	20.1	238953	26.7	19.0	60839	26.7	18.7	91429	26.8	19.1	427608	26.9	20.4
500581	26.5	21.6	533049	26.6	20.6	94138	26.7	19.2	527425	26.7	21.0	341425	26.8	20.8	55386	26.9	19.1
167033	26.5	19.6	501391	26.6	21.2	397035	26.7	18.8	469149	26.7	19.8	146110	26.8	19.7	461990	26.9	22.1
383355	26.5	20.5	488510	26.6	18.9	263930	26.7	20.1	491932	26.7	21.1	77849	26.8	18.3	431707	26.9	21.3
536373	26.5	21.6	162827	26.6	19.8	326420	26.7	21.2	501422	26.7	22.0	127732	26.8	18.5	59219	26.9	19.8
353922	26.5	19.7	280232	26.6	19.6	97946	26.7	19.8	258218	26.7	20.2	3431	26.8	15.2	316265	26.9	19.9
297107	26.5	20.4	343113	26.6	20.9	331504	26.7	20.4	462226	26.7	19.7	313177	26.8	18.4	464927	26.9	21.1
97988	26.5	18.9	215971	26.6	19.4	162729	26.7	20.7	431175	26.7	20.7	426151	26.8	19.1	76597	26.9	19.0
46461	26.5	18.7	306042	26.6	20.1	509677	26.7	20.5	326245	26.7	20.4	109836	26.8	19.3	92534	26.9	19.4
497010	26.5	20.7	388548	26.6	19.0	180045	26.7	19.8	387996	26.7	21.4	19478	26.8	17.8	42366	26.9	19.0
288595	26.5	18.5	8898	26.6	17.3	437669	26.7	20.4	432470	26.7	21.2	87450	26.8	19.3	207866	26.9	19.8
456053	26.5	20.6	325201	26.6	20.7	173339	26.7	19.1	63595	26.7	19.4	123359	26.8	20.5	470229	26.9	21.4
114513	26.5	19.8	270743	26.6	20.1	122336	26.7	19.2	388744	26.7	20.4	194226	26.8	19.3	345139	26.9	20.3
259245	26.5	20.3	37074	26.6	18.3	374123	26.7	20.7	109715	26.7	18.7	319838	26.8	20.1	216811	26.9	20.1
424880	26.5	20.9	524284	26.6	21.3	465135	26.7	21.4	333240	26.7	19.8	67400	26.8	18.0	437223	26.9	20.8
488850	26.5	20.6	233035	26.6	19.2	427227	26.7	20.4	267323	26.7	20.8	430399	26.8	20.6	288658	26.9	19.2
9520	26.5	17.0	80067	26.6	18.4	455154	26.7	21.5	510263	26.7	20.2	524832	26.8	20.2	241056	26.9	19.6
346760	26.5	20.7	19825	26.6	17.2	253963	26.7	19.9	79871	26.7	18.1	142986	26.8	19.9	160680	26.9	19.3
328527	26.5	20.1	286376	26.6	20.6	87462	26.7	19.2	286010	26.7	20.4	8637	26.8	18.4	245493	26.9	19.3
292276	26.5	20.4	98295	26.6	18.9	345692	26.7	19.8	124695	26.7	19.4	160812	26.8	19.7	83735	26.9	19.2
287456	26.5	19.6	47380	26.6	16.4	166271	26.7	19.0	269820	26.7	20.1	300154	26.8	21.0	64968	26.9	16.8
210694	26.5	19.1	501998	26.6	21.3	199368	26.7	19.9	11748	26.7	16.5	436975	26.8	20.8	39954	26.9	17.6
501510	26.5	21.3	120601	26.6	18.2	75935	26.7	18.0	527028	26.7	20.8	145366	26.8	18.9	120468	26.9	20.0
41513	26.5	18.8	67204	26.6	18.7	374553	26.7	20.5	321105	26.7	18.7	120373	26.8	19.2	534009	26.9	21.9
341381	26.5	20.0	152867	26.6	20.0	350719	26.7	21.5	495900	26.7	20.3	402702	26.8	21.4	349406	26.9	20.8
55202	26.5	20.2	170074	26.6	21.5	449269	26.7	21.1	91714	26.7	18.4	239916	26.8	19.9	447382	26.9	20.7
244175	26.5	21.0	473455	26.6	21.1	384539	26.7	20.2	430611	26.8	21.2	454248	26.8	20.4	489041	26.9	21.7
346130	26.5	20.9	209616	26.6	19.7	147247	26.7	18.9	90130	26.8	18.9	333862	26.8	21.8	189258	26.9	19.6
261432	26.5	20.3	73975	26.6	19.7	247677	26.7	20.5	330384	26.8	21.0	96420	26.8	18.4	286136	26.9	20.3
202410	26.5	19.6	264179	26.6	20.5	348207	26.7	20.7	422054	26.8	19.6	196241	26.8	20.4	94413	26.9	18.0
304103	26.5	20.5	199876	26.6	19.2	227949	26.7	19.0	243795	26.8	20.2	297105	26.8	20.0	420686	26.9	19.9
337856	26.5	21.8	529165	26.6	21.4	319047	26.7	20.6	326395	26.8	21.1	10714	26.8	17.2	13714	26.9	17.5
130499	26.5	19.2	188064	26.6	20.4	30698	26.7	18.7	349974	26.8	19.5	529147	26.8	22.6	503181	26.9	20.4
331291	26.5	20.2	346909	26.6	20.6	534795	26.7	21.2	273339	26.8	20.0	3066	26.8	15.1	109587	26.9	19.2
14184	26.5	17.2	192904	26.6	21.0	310425	26.7	20.4	200592	26.8	20.4	292160	26.8	20.4	536150	26.9	20.0
187659	26.5	19.9	93397	26.6	18.8	528197	26.7	20.7	213874	26.8	20.0	67003	26.8	17.5	119550	26.9	18.3
499076	26.6	20.7	222769	26.6	20.8	264720	26.7	20.1	319221	26.8	18.9	456681	26.8	21.0	93385	26.9	18.7
202182	26.6	20.0	174005	26.6	20.4	377893	26.7	20.7	493912	26.8	20.7	429143	26.8	22.0	125066	26.9	19.3
299023	26.6	19.7	417246	26.6	21.7	533805	26.7	21.3	110512	26.8	19.2	458406	26.8	20.6	275463	26.9	20.1
423239	26.6	21.3	202296	26.6	20.4	149391	26.7	20.0	524105	26.8	21.2	26644	26.8	17.8	430799	26.9	20.6
386149	26.6	20.2	310751	26.6	19.5	368208	26.7	17.6	83988	26.8	19.2	285571	26.8	17.6	109965	26.9	19.6
376761	26.6	20.4	338369	26.6	20.5	199124	26.7	19.2	8103	26.8	17.5	173503	26.8	19.2	29235	26.9	17.5
119459	26.6	18.6	100190	26.6	19.9	538826	26.7	20.4	278769	26.8	20.7	343672	26.8	20.3	462271	26.9	21.5
95291	26.6	19.6	151129	26.6	18.6	383726	26.7	20.7	235612	26.8	18.4	527259	26.8	20.4	508360	26.9	20.0
298328	26.6	19.8	509102	26.6	22.1	170226	26.7	20.3	465895	26.8	22.6	396624	26.8	20.4	526574	26.9	20.9
290434	26.6	19.6	466960	26.6	19.7	38840	26.7	18.0	538689	26.8	20.5	297503	26.8	19.3	152885	26.9	19.4
79883	26.6	19.0	261999	26.6	20.8	10947	26.7	16.3	263355	26.8	19.8	179974	26.8	19.8	207783	26.9	20.8
88981	26.6	17.8	30801	26.6	17.3	154643	26.7	19.6	59163	26.8	18.7	189462	26.8	20.1	189892	26.9	20.8
504288	26.6	21.6	96691	26.6	17.9	367151	26.7	18.5	279702	26.8	20.1	466729	26.8	21.0	191817	26.9	19.0
259217	26.6	20.5	330934	26.6	20.4	209420	26.7	19.3	46910	26.8	18.5	226774	26.8	20.3	28991	26.9	17.5
245972	26.6	20.3	524250	26.6	21.5	505227	26.7	21.6	496185	26.8	20.6	157424	26.8	19.5	415396	26.9	19.7
485043	26.6	21.5	426488	26.6	21.6	56942	26.7	18.5	72246	26.8	18.3	51173	26.8	19.1	324513	26.9	19.9
200994	26.6	20.3	414814	26.6	22.1	44455	26.7	18.9	426318	26.8	20.5	286312	26.8	21.0	279376	26.9	22.4
456641	26.6	21.1	325182	26.6	21.1	497792	26.7	21.7	108788	26.8	19.3	371180	26.8	20.2	225569	26.9	20.0
533563	26.6	22.5	136091	26.6	19.8	63080	26.7	18.9	152873	26.8	20.0	11180	26.8	17.8	532926	26.9	21.7
505897	26.6	20.1	281709	26.6	19.7	113962	26.7	19.5	535549	26.8	21.5	343993	26.8	19.8	289176	26.9	21.1
299526	26.6	19.8	370782	26.6	19.9	264425	26.7	19.7	542574	26.8	19.7	447057	26.8	21.7	352025	26.9	20.8
463807	26.6	20.6	78654	26.6	18.7	52790	26.7	19.1	53102	26.8	18.8	375052	26.8	20.3	114480	26.9	18.7
418334	26.6	20.7	469579	26.6	19.4	284982	26.7	20.0	302022	26.8	19.1	357029	26.8	19.9	326172	26.9	19.9
20586	26.6	18.6	456577	26.6	20.8	138638	26.7	19.5	371770	26.8	20.8	368634	26.8	20.3	192045	26.9	19.1
59751	26.6	18.0	255855	26.6	19.4	3467	26.7	16.8	419174	26.8	22.5	348474	26.8	20.1	118285	26.9	19.6
343545	26.6	20.4	516683	26.6	21.3	433947	26.7	20.6	270208	26.8	20.8	489720	26.8	20.8	170504	26.9	18.7
3384	26.6	17.6	102374	26.6	19.6	139417	26.7	18.8	111006	26.8	19.3	205619	26.8	20.7	350727	26.9	20.6
327953	26.6	20.6	94925	26.6	19.0	98794	26.7	19.1	304717	26.8	21.0	71871	26.8	19.0	23471	26.9	18.1
154417	26.6	19.0	18342	26.6	18.2	93547	26.7	20.0	240040	26.8	2						

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
418173	26.9	20.3	374052	26.9	19.7	62823	27.0	19.0	264143	27.1	20.4	223250	27.2	18.5	345590	27.2	20.8
422700	26.9	21.4	300101	26.9	20.4	217044	27.0	20.5	467438	27.1	21.0	199617	27.2	19.8	147648	27.2	18.4
499337	26.9	21.0	433112	26.9	21.0	37575	27.0	18.8	83094	27.1	19.8	192565	27.2	20.9	280216	27.2	20.2
464973	26.9	21.7	502692	26.9	20.8	447106	27.0	21.1	263657	27.1	20.0	378672	27.2	19.9	50955	27.2	18.7
486755	26.9	19.9	396746	26.9	19.9	211486	27.0	21.1	59312	27.1	19.6	305652	27.2	20.5	60110	27.2	18.7
419141	26.9	21.3	451023	26.9	20.7	520817	27.0	21.0	109125	27.1	19.6	340925	27.2	20.7	1184	27.2	14.7
341688	26.9	20.3	352611	26.9	21.0	290460	27.0	20.1	537061	27.1	20.6	321176	27.2	21.0	124716	27.2	19.3
527498	26.9	21.4	367580	26.9	19.7	283465	27.0	18.9	337206	27.1	20.9	239603	27.2	19.5	14819	27.2	18.2
235688	26.9	20.5	128	26.9	11.6	273204	27.0	20.2	310900	27.1	20.8	219809	27.2	20.6	380520	27.2	21.8
268474	26.9	20.3	407696	26.9	19.8	75021	27.0	18.8	137065	27.1	19.4	238941	27.2	19.7	458760	27.2	21.5
89032	26.9	18.2	303203	26.9	18.8	178760	27.0	20.7	206204	27.1	20.4	137069	27.2	20.7	424783	27.2	20.7
236303	26.9	19.6	310316	26.9	21.5	435029	27.0	21.0	52651	27.1	17.1	98497	27.2	19.4	187519	27.2	20.3
95063	26.9	19.2	283393	26.9	21.2	157533	27.0	19.1	124486	27.1	18.3	50094	27.2	17.9	196476	27.2	18.4
539117	26.9	20.4	371205	26.9	20.2	330016	27.0	20.5	282186	27.1	19.7	172008	27.2	18.9	240852	27.2	20.9
341260	26.9	21.0	388027	26.9	20.1	291562	27.0	20.5	256216	27.1	20.0	121126	27.2	18.1	37071	27.2	16.8
210687	26.9	19.5	72837	26.9	19.2	26275	27.0	17.0	90532	27.1	17.6	528314	27.2	22.6	459299	27.2	20.9
394822	26.9	20.1	225608	26.9	20.5	544537	27.0	21.0	171980	27.1	19.9	414783	27.2	21.1	102766	27.2	19.4
18228	26.9	18.9	125382	26.9	19.2	525966	27.0	22.5	433214	27.1	20.8	461278	27.2	21.0	86749	27.2	18.6
317829	26.9	19.7	82709	26.9	20.0	464952	27.0	21.2	111548	27.1	17.9	501458	27.2	21.4	114295	27.2	19.7
194759	26.9	20.5	130093	26.9	18.1	504126	27.0	21.7	530067	27.1	21.7	258100	27.2	19.5	535552	27.2	20.8
460795	26.9	20.5	481840	26.9	22.4	316795	27.0	20.3	269503	27.1	20.6	185693	27.2	19.6	383605	27.2	19.0
299875	26.9	20.1	156022	26.9	19.5	538072	27.0	20.7	296943	27.1	20.8	417343	27.2	21.5	98378	27.2	18.6
241920	26.9	19.0	21499	26.9	17.5	543914	27.0	21.5	107180	27.1	20.1	362989	27.2	21.2	528165	27.3	20.6
165673	26.9	19.1	421924	26.9	19.7	505988	27.0	20.8	505260	27.1	21.2	283559	27.2	20.9	360751	27.3	20.7
429750	26.9	19.0	502534	26.9	21.0	284411	27.0	21.1	435254	27.1	20.7	194128	27.2	18.9	348932	27.3	21.1
169407	26.9	19.8	415875	26.9	21.0	504154	27.0	20.2	68444	27.1	18.6	240030	27.2	20.5	372586	27.3	20.8
57545	26.9	19.2	298783	26.9	20.0	77296	27.0	18.2	176290	27.1	20.7	433394	27.2	21.6	18810	27.3	18.0
499387	26.9	20.4	79627	26.9	19.0	155631	27.0	20.0	7842	27.1	17.1	251014	27.2	19.5	143506	27.3	19.3
78480	26.9	19.5	36714	26.9	19.2	384140	27.0	20.6	220343	27.1	19.9	318025	27.2	19.5	130058	27.3	19.5
325205	26.9	21.4	492849	26.9	19.3	468714	27.0	20.8	372514	27.1	19.8	372639	27.2	21.2	182871	27.3	20.2
320386	26.9	20.5	468990	26.9	20.7	373320	27.0	20.6	35719	27.1	17.7	347460	27.2	20.4	36624	27.3	18.6
362171	26.9	19.6	26216	26.9	17.7	84608	27.0	18.9	136920	27.1	18.9	385512	27.2	20.9	169620	27.3	19.0
142694	26.9	20.7	166544	26.9	20.6	531831	27.0	19.9	430117	27.1	20.9	284420	27.2	20.4	447444	27.3	21.5
185887	26.9	18.6	347789	26.9	20.3	282179	27.0	20.6	346154	27.1	21.2	234879	27.2	20.1	111586	27.3	20.1
233931	26.9	20.6	542314	26.9	20.7	83562	27.0	19.2	203342	27.1	20.9	434989	27.2	20.2	127070	27.3	20.2
279301	26.9	19.5	247312	26.9	19.6	109808	27.0	19.3	118592	27.1	18.0	160740	27.2	18.5	14586	27.3	17.8
377966	26.9	20.9	304112	26.9	19.7	384189	27.0	20.9	464922	27.1	20.5	62193	27.2	18.4	327370	27.3	20.9
485038	26.9	19.7	395789	26.9	19.8	336369	27.1	20.3	368763	27.1	20.5	262807	27.2	20.8	26933	27.3	18.0
57456	26.9	19.3	525787	27.0	22.8	529807	27.1	20.9	100346	27.1	19.8	148874	27.2	20.1	7142	27.3	16.6
422959	26.9	19.7	247691	27.0	18.8	250632	27.1	20.1	531327	27.1	21.2	1088	27.2	14.1	351573	27.3	20.3
370036	26.9	21.1	282804	27.0	19.9	500725	27.1	20.8	529958	27.1	22.3	37208	27.2	17.5	163130	27.3	18.8
248734	26.9	20.2	213594	27.0	19.6	183358	27.1	20.1	78372	27.1	19.0	155367	27.2	18.2	104526	27.3	18.7
146421	26.9	18.6	136289	27.0	18.4	343997	27.1	20.2	448772	27.1	21.4	31154	27.2	16.9	528916	27.3	22.0
237045	26.9	20.9	464980	27.0	21.0	325645	27.1	20.7	27541	27.1	18.1	366455	27.2	20.7	69697	27.3	18.2
64101	26.9	19.5	42292	27.0	18.6	278524	27.1	19.6	295993	27.1	20.7	184443	27.2	19.1	505924	27.3	19.8
451698	26.9	21.8	193987	27.0	20.1	138524	27.1	21.6	11326	27.1	18.0	180425	27.2	20.2	71033	27.3	18.7
310899	26.9	20.4	382992	27.0	20.4	51827	27.1	19.0	218815	27.1	20.0	425253	27.2	21.1	243617	27.3	20.2
298946	26.9	20.3	504258	27.0	20.7	166667	27.1	20.3	155055	27.1	20.6	277930	27.2	19.6	202024	27.3	19.3
11876	26.9	16.7	389389	27.0	20.1	134002	27.1	20.0	276166	27.1	19.5	200924	27.2	20.4	171239	27.3	19.2
18517	26.9	18.3	275426	27.0	19.6	153564	27.1	20.6	120674	27.1	20.1	435329	27.2	20.7	322562	27.3	20.0
45822	26.9	19.4	299811	27.0	20.4	383724	27.1	20.3	238945	27.1	19.5	336287	27.2	20.1	66702	27.3	18.7
437173	26.9	20.1	538784	27.0	20.4	270993	27.1	20.7	423639	27.1	21.1	409933	27.2	21.5	135133	27.3	19.7
124992	26.9	18.7	6342	27.0	17.4	382261	27.1	19.9	338985	27.1	19.6	323494	27.2	18.3	292385	27.3	19.9
132240	26.9	19.5	282336	27.0	19.9	132329	27.1	19.5	297888	27.1	20.4	194729	27.2	20.5	243779	27.3	19.7
535009	26.9	21.2	53142	27.0	19.7	236529	27.1	17.9	394366	27.1	20.6	70980	27.2	16.9	26212	27.3	17.9
502036	26.9	20.7	164312	27.0	20.1	302011	27.1	19.7	326737	27.1	19.0	351675	27.2	21.3	41116	27.3	17.9
25015	26.9	16.3	425153	27.0	20.7	132911	27.1	19.7	168627	27.1	20.0	153527	27.2	18.1	29424	27.3	18.6
543498	26.9	20.6	150542	27.0	20.8	40525	27.1	18.4	419722	27.1	21.2	6884	27.2	17.4	134419	27.3	18.4
520786	26.9	21.0	281754	27.0	20.5	361178	27.1	20.1	146341	27.1	20.2	105630	27.2	18.7	433973	27.3	19.6
135312	26.9	19.9	154633	27.0	19.2	354912	27.1	21.7	26181	27.1	21.3	387713	27.2	21.4	252771	27.3	18.4
70665	26.9	19.1	348940	27.0	21.1	297436	27.1	20.6	34670	27.1	17.7	459158	27.2	21.7	307358	27.3	20.4
35124	26.9	18.7	151896	27.0	18.5	2981	27.1	16.0	224913	27.1	19.7	29954	27.2	17.8	304974	27.3	20.4
356548	26.9	18.7	390576	27.0	19.6	445085	27.1	20.8	466388	27.1	20.2	66803	27.2	17.7	306569	27.3	19.6
385639	26.9	20.4	208252	27.0	20.6	474	27.1	13.7	525093	27.1	22.0	534259	27.2	19.9	236912	27.3	20.3
376041	26.9	21.0	202423	27.0	18.7	521106	27.1	21.1	43534	27.1	18.2	354366	27.2	19.0	240248	27.3	19.1
61559	26.9	19.1	445863	27.0	21.1	499918	27.1	21.2	88407	27.1	19.8	466692	27.2	22.0	435910	27.3	20.5
325251	26.9	19.8	496032	27.0	20.1	304972	27.1	20.1	247635	27.1	20.0	457334	27.2	22.3	147455	27.3	19.3
365821	26.9	21.4	486726	27.0	20.2	221179	27.1	19.4	297030	27.1	18.8	277753	27.2	20.3	476625	27.3	22.0
370204	26.9	20.3	427083	27.0	19.6	52636	27.1	18.2	155208	27.1							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
80598	27.3	19.2	140274	27.4	20.9	366161	27.4	19.7	459180	27.5	21.1	181485	27.6	19.4	383384	27.6	20.8
297473	27.3	20.8	317496	27.4	20.2	327474	27.4	20.2	526601	27.5	21.0	360846	27.6	20.9	3088	27.6	16.1
464345	27.3	21.8	30492	27.4	18.9	417060	27.4	20.6	413910	27.5	20.0	371955	27.6	19.2	318185	27.6	19.0
33803	27.3	17.8	538038	27.4	21.3	169350	27.4	19.5	132227	27.5	18.4	532558	27.6	21.4	84869	27.6	19.5
508699	27.3	21.1	265764	27.4	20.6	241069	27.4	20.3	116998	27.5	18.9	500736	27.6	22.1	92672	27.6	19.0
451456	27.3	20.2	282654	27.4	20.0	208463	27.4	20.2	173213	27.5	21.1	177837	27.6	20.2	507339	27.6	21.3
243782	27.3	20.5	79826	27.4	19.9	188009	27.4	19.6	61056	27.5	18.5	216876	27.6	19.4	461987	27.6	22.2
29548	27.3	18.7	275594	27.4	20.9	235276	27.4	20.2	80812	27.5	17.9	259229	27.6	20.2	208420	27.6	20.0
286573	27.3	19.2	234867	27.4	19.4	534902	27.4	20.1	3475	27.5	16.2	168271	27.6	19.4	209422	27.6	19.7
35941	27.3	18.2	309323	27.4	20.5	28756	27.4	18.5	524418	27.5	22.6	189276	27.6	19.8	127221	27.6	19.7
412865	27.3	19.7	194160	27.4	20.3	156237	27.4	19.7	5585	27.5	17.1	29902	27.6	16.8	283178	27.6	20.0
326069	27.3	21.0	212536	27.4	20.6	295429	27.4	20.1	456703	27.5	22.1	192297	27.6	18.7	304935	27.6	18.7
329774	27.3	21.0	524779	27.4	21.4	491829	27.4	21.7	188639	27.5	20.3	245396	27.6	19.9	166816	27.6	18.8
451036	27.3	20.8	103609	27.4	19.5	269535	27.4	19.8	406088	27.5	20.4	62547	27.6	19.6	146180	27.6	19.9
425066	27.3	21.8	182699	27.4	19.8	281379	27.4	20.2	224685	27.5	20.6	264322	27.6	19.6	238382	27.6	19.1
123342	27.3	20.4	456758	27.4	21.4	429243	27.4	20.2	396635	27.5	21.1	378251	27.6	20.9	343061	27.6	20.3
405343	27.3	21.6	388390	27.4	20.1	18792	27.4	16.5	455545	27.5	20.4	85131	27.6	18.3	404181	27.6	20.8
353395	27.3	20.3	200444	27.4	20.4	209038	27.4	19.5	125278	27.5	19.3	435976	27.6	20.1	445549	27.6	19.7
544846	27.3	21.5	240525	27.4	20.4	436907	27.4	21.1	421961	27.5	20.4	58333	27.6	19.3	162675	27.6	19.8
182424	27.3	20.9	376515	27.4	20.0	370706	27.4	20.5	111109	27.5	19.4	133486	27.6	20.1	242145	27.6	20.7
321089	27.3	20.0	437932	27.4	21.0	62084	27.4	18.7	154632	27.5	19.1	490551	27.6	21.8	135326	27.6	20.0
177099	27.3	20.6	341471	27.4	21.1	416381	27.4	19.8	109117	27.5	19.3	58018	27.6	18.5	83804	27.6	19.0
371212	27.3	20.4	131277	27.4	19.5	187694	27.4	19.6	505995	27.5	19.8	114209	27.6	18.9	268981	27.6	19.7
511532	27.3	20.1	199320	27.4	21.6	151816	27.4	17.3	419050	27.5	20.7	243758	27.6	20.2	241020	27.6	20.2
7714	27.3	17.0	497768	27.4	21.4	194148	27.4	19.0	200891	27.5	19.5	473841	27.6	20.6	151190	27.6	19.6
284342	27.3	21.2	428534	27.4	20.4	297504	27.5	21.6	75997	27.5	19.1	52139	27.6	18.2	166138	27.6	19.2
341748	27.3	19.9	331130	27.4	19.0	297865	27.5	18.5	406014	27.5	22.1	99601	27.6	19.3	504199	27.6	20.6
175954	27.3	18.6	500879	27.4	23.1	83753	27.5	19.0	121300	27.5	18.9	127201	27.6	16.7	353406	27.6	19.4
7018	27.3	17.5	11542	27.4	18.1	90941	27.5	18.4	23172	27.5	17.8	131849	27.6	19.0	20357	27.6	18.3
95452	27.3	18.4	132130	27.4	17.6	467882	27.5	21.5	503039	27.5	20.5	93087	27.6	19.7	510756	27.6	21.5
90968	27.3	19.0	285260	27.4	18.5	363453	27.5	20.8	499955	27.5	21.0	198524	27.6	19.7	458800	27.6	21.7
400620	27.3	20.5	267631	27.4	18.6	209461	27.5	19.2	83751	27.5	19.7	276658	27.6	20.4	143943	27.6	18.4
430258	27.3	20.9	113266	27.4	18.8	532394	27.5	21.0	445534	27.5	21.5	55860	27.6	19.4	43259	27.6	16.2
467278	27.3	21.6	43720	27.4	19.7	73357	27.5	17.4	452964	27.5	20.6	161646	27.6	20.3	297494	27.6	20.9
545047	27.3	19.9	347344	27.4	19.8	83223	27.5	19.3	489123	27.5	21.7	258329	27.6	20.4	26407	27.6	18.2
300064	27.3	20.9	159670	27.4	18.3	435234	27.5	21.2	387824	27.5	19.4	506638	27.6	21.8	454766	27.6	20.5
506740	27.3	20.8	172689	27.4	19.9	209475	27.5	19.6	84208	27.5	19.7	462013	27.6	21.0	208986	27.6	20.4
544305	27.3	21.8	271799	27.4	19.9	26415	27.5	17.9	358024	27.5	21.9	70307	27.6	19.1	466783	27.6	20.4
29244	27.3	16.4	243671	27.4	20.5	535830	27.5	20.4	104388	27.5	18.3	191363	27.6	19.7	466364	27.6	20.6
316492	27.3	21.0	410441	27.4	21.4	359101	27.5	20.9	258378	27.5	20.3	133905	27.6	19.6	372679	27.6	21.1
507640	27.3	20.7	928	27.4	14.6	165774	27.5	19.5	429081	27.5	21.0	222257	27.6	20.2	23978	27.6	17.0
43323	27.3	18.1	334912	27.4	20.0	420992	27.5	20.6	498095	27.5	21.7	240543	27.6	19.4	261807	27.6	20.3
508229	27.3	20.2	138587	27.4	19.9	79866	27.5	18.0	7522	27.5	17.7	82967	27.6	18.4	6443	27.6	19.3
282338	27.3	19.2	135443	27.4	19.7	219801	27.5	21.2	18725	27.5	17.7	132022	27.6	17.3	384197	27.7	21.2
345648	27.3	20.3	194512	27.4	20.9	319816	27.5	20.9	489545	27.5	20.6	528846	27.6	21.1	540398	27.7	21.7
160532	27.3	19.9	452364	27.4	21.4	540427	27.5	21.8	406034	27.5	20.1	355948	27.6	21.0	183354	27.7	18.4
368616	27.3	22.0	194631	27.4	20.6	528430	27.5	21.0	318061	27.5	19.4	410281	27.6	19.9	207625	27.7	20.0
420292	27.3	20.3	534169	27.4	20.9	27552	27.5	17.3	464199	27.5	21.3	283529	27.6	20.6	370789	27.7	20.9
169010	27.3	20.5	530899	27.4	20.1	431283	27.5	20.7	217059	27.5	20.4	431609	27.6	20.7	263786	27.7	21.1
391293	27.3	21.7	349135	27.4	20.6	341721	27.5	20.4	143593	27.5	19.7	224534	27.6	20.3	388695	27.7	21.3
90674	27.3	19.6	381909	27.4	20.8	347741	27.5	20.7	209494	27.5	19.2	193924	27.6	18.5	530178	27.7	22.1
128748	27.3	19.2	338093	27.4	19.6	129545	27.5	18.8	100342	27.5	19.1	415851	27.6	20.3	544989	27.7	22.0
192279	27.3	20.7	327295	27.4	20.6	391548	27.5	20.7	292673	27.5	20.4	3193	27.6	16.4	490242	27.7	22.0
68369	27.3	19.3	17297	27.4	16.9	446517	27.5	19.8	140783	27.5	19.4	448136	27.6	21.1	274013	27.7	21.1
526752	27.3	22.7	93740	27.4	19.4	544201	27.5	20.8	430900	27.5	22.8	286643	27.6	19.0	29305	27.7	18.1
534520	27.3	22.3	167886	27.4	20.9	98850	27.5	18.1	448181	27.5	22.1	544867	27.6	22.0	327853	27.7	21.3
167862	27.3	20.7	24125	27.4	18.7	461187	27.5	21.2	91434	27.5	19.1	322319	27.6	19.1	282839	27.7	19.4
381319	27.3	20.0	169938	27.4	20.4	182748	27.5	19.9	371208	27.5	20.8	500550	27.6	20.9	189799	27.7	20.1
534919	27.3	21.3	224019	27.4	19.7	537842	27.5	19.9	466141	27.5	20.5	148504	27.6	17.8	232275	27.7	20.3
504657	27.4	21.1	309915	27.4	19.9	256343	27.5	19.9	500689	27.5	20.6	321614	27.6	20.7	463476	27.7	21.2
338345	27.4	20.2	132181	27.4	18.4	102826	27.5	20.2	55695	27.5	18.3	122851	27.6	17.7	87794	27.7	19.4
341543	27.4	19.2	142881	27.4	19.7	495763	27.5	19.5	395817	27.5	19.5	417120	27.6	21.2	256151	27.7	18.2
341854	27.4	19.7	503932	27.4	20.4	1824	27.5	15.4	381590	27.5	20.4	530208	27.6	22.4	473113	27.7	19.8
185187	27.4	20.3	319654	27.4	20.3	105636	27.5	19.7	310912	27.5	20.6	207138	27.6	19.2	98101	27.7	19.1
45858	27.4	17.3	413885	27.4	20.6	229166	27.5	20.4	413107	27.5	20.9	21141	27.6	18.4	87363	27.7	19.1
34903	27.4	18.1	544188	27.4	21.5	131463	27.5	19.3	534053	27.5	20.9	465896	27.6	21.8	235034	27.7	20.0
324575	27.4	21.5	205024	27.4	20.5	344510	27.5	20.2	389539	27.5	20.4	541091	27.6	21.6	97878	27.7	19.8
202769	27.4	19.1	272172	27.4	19.2	313626	27.5	20.5	504811	27.5	20.6	534440	27.6	21.5	415957	27.7	20.9
100552	27.4	20.3	31300	27.4	17.6	522193	27.5	20.2	182296	27							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
318093	27.7	19.4	399316	27.7	20.8	348458	27.8	20.4	335693	27.9	21.0	538321	27.9	20.0	381948	28.0	20.2
331407	27.7	20.1	61061	27.7	17.9	233054	27.8	19.9	473097	27.9	19.9	139919	27.9	19.6	381675	28.0	20.8
327977	27.7	19.4	143280	27.7	19.6	165469	27.8	18.6	94110	27.9	19.3	524293	27.9	22.1	155835	28.0	19.0
305662	27.7	19.7	339448	27.7	19.7	349935	27.8	20.9	286730	27.9	19.7	280801	27.9	19.7	358626	28.0	20.0
13232	27.7	16.6	11665	27.7	18.6	266776	27.8	20.8	29660	27.9	19.2	67460	27.9	19.4	237982	28.0	20.9
59856	27.7	19.5	36989	27.7	19.3	75243	27.8	18.4	68895	27.9	18.8	314181	27.9	19.9	238509	28.0	20.1
96434	27.7	19.1	37306	27.7	16.8	428083	27.8	20.3	344864	27.9	19.6	141124	27.9	19.6	89912	28.0	18.7
425309	27.7	20.5	348429	27.7	20.3	324494	27.8	19.5	429013	27.9	20.2	147549	27.9	19.7	496270	28.0	20.7
81453	27.7	17.3	419794	27.7	20.0	362077	27.8	20.6	540495	27.9	20.6	107371	27.9	18.3	142884	28.0	18.6
40454	27.7	18.4	133257	27.7	20.1	99613	27.8	18.7	77299	27.9	18.4	348164	27.9	19.1	488969	28.0	21.0
534849	27.7	21.5	211011	27.7	21.0	152156	27.8	21.0	15614	27.9	17.7	162998	27.9	20.3	534926	28.0	21.0
491961	27.7	20.4	95109	27.7	20.1	431562	27.8	20.1	116975	27.9	18.9	329814	27.9	20.0	305636	28.0	21.1
443400	27.7	20.9	239367	27.7	19.8	385891	27.8	21.0	205479	27.9	19.8	7584	27.9	17.5	333430	28.0	20.1
69499	27.7	19.4	386601	27.7	20.3	135405	27.8	20.2	240740	27.9	19.6	350690	27.9	21.1	290822	28.0	21.2
397894	27.7	21.1	286057	27.7	21.1	210186	27.8	19.5	157927	27.9	19.0	231831	27.9	18.5	145679	28.0	20.3
383806	27.7	20.1	452225	27.8	21.6	433764	27.8	20.4	20182	27.9	16.5	48085	27.9	17.7	16908	28.0	18.3
499984	27.7	19.9	258341	27.8	21.1	358556	27.8	21.2	206760	27.9	19.8	308746	27.9	19.5	330709	28.0	20.1
372623	27.7	21.5	4766	27.8	16.7	379835	27.8	19.5	124834	27.9	19.2	29547	27.9	17.6	230871	28.0	20.9
498232	27.7	22.7	206881	27.8	20.9	543693	27.8	21.2	105276	27.9	19.1	119563	27.9	19.6	315488	28.0	20.1
167043	27.7	20.1	489266	27.8	20.9	37183	27.8	18.3	496470	27.9	22.0	224914	27.9	19.8	48903	28.0	16.7
265795	27.7	20.3	371171	27.8	20.9	337666	27.8	20.3	288936	27.9	20.1	316612	27.9	19.7	66107	28.0	17.8
435951	27.7	21.0	243564	27.8	20.3	42678	27.8	17.9	523706	27.9	21.5	329970	27.9	20.4	334264	28.0	21.5
205224	27.7	20.3	412195	27.8	19.8	267459	27.8	19.4	180974	27.9	20.5	35580	27.9	17.1	432439	28.0	19.9
249354	27.7	20.0	4523	27.8	16.3	494943	27.8	20.5	138026	27.9	19.1	451730	27.9	20.9	491760	28.0	21.2
524235	27.7	21.8	40314	27.8	20.9	371143	27.8	20.7	162578	27.9	19.6	232381	27.9	20.2	376134	28.0	19.7
108709	27.7	18.8	197264	27.8	19.1	529348	27.8	21.3	171453	27.9	19.7	3442	27.9	16.7	431995	28.0	20.6
334910	27.7	20.1	9932	27.8	16.7	187476	27.8	19.9	352806	27.9	19.5	310272	27.9	19.9	414882	28.0	21.6
210052	27.7	18.8	10078	27.8	16.5	505222	27.8	21.1	231495	27.9	20.3	492643	27.9	20.0	283473	28.0	19.8
268339	27.7	21.6	128345	27.8	19.2	495017	27.8	20.3	464903	27.9	20.9	83634	27.9	19.4	200234	28.0	20.4
61581	27.7	18.5	466847	27.8	19.9	366567	27.8	20.6	166841	27.9	19.3	274928	27.9	20.6	333184	28.0	20.4
381955	27.7	20.8	346156	27.8	20.4	489650	27.8	19.8	515335	27.9	22.8	202026	27.9	20.1	461685	28.0	20.6
259935	27.7	20.7	288554	27.8	20.3	50315	27.8	17.8	534460	27.9	20.7	342951	27.9	21.0	534131	28.0	20.7
114768	27.7	20.0	472683	27.8	19.6	139423	27.8	18.5	284887	27.9	19.3	526707	27.9	22.7	79498	28.1	18.9
454194	27.7	20.7	155303	27.8	18.7	498401	27.8	21.5	132372	27.9	19.5	366411	27.9	19.6	325308	28.1	19.9
457094	27.7	21.5	280217	27.8	20.4	118283	27.8	19.3	532787	27.9	21.6	309365	27.9	20.8	464968	28.1	21.6
171320	27.7	19.0	320531	27.8	21.6	229520	27.8	20.3	461763	27.9	20.0	538773	27.9	21.2	544101	28.1	20.7
500669	27.7	20.8	184313	27.8	19.1	209498	27.8	19.4	141156	27.9	20.8	40405	27.9	19.6	526546	28.1	21.5
326713	27.7	19.7	301125	27.8	19.6	351317	27.8	20.1	498215	27.9	21.4	385059	27.9	20.3	390448	28.1	20.5
85551	27.7	19.3	492687	27.8	20.0	41707	27.8	17.8	370770	27.9	21.1	302366	27.9	19.7	434413	28.1	19.6
281142	27.7	20.1	282220	27.8	19.8	299330	27.8	19.8	381239	27.9	20.6	57212	27.9	18.4	256039	28.1	19.6
306834	27.7	20.3	39348	27.8	18.5	498790	27.8	21.0	344299	27.9	21.0	31271	27.9	18.3	166617	28.1	20.1
382777	27.7	21.4	269570	27.8	20.5	135481	27.8	19.6	303754	27.9	20.5	30610	27.9	19.3	215110	28.1	19.5
502863	27.7	21.0	284091	27.8	19.9	264577	27.8	22.2	369643	27.9	20.7	155030	27.9	21.4	431606	28.1	20.1
535101	27.7	21.5	484198	27.8	21.4	38244	27.8	18.6	464987	27.9	20.5	166556	27.9	19.3	283486	28.1	19.7
284605	27.7	19.9	345094	27.8	19.8	284174	27.8	20.1	513500	27.9	19.9	389982	27.9	21.1	110760	28.1	19.9
499864	27.7	20.1	27783	27.8	17.4	362139	27.8	20.3	408484	27.9	21.3	297374	27.9	19.8	188705	28.1	20.1
407467	27.7	21.1	57055	27.8	18.6	497607	27.8	22.2	530007	27.9	21.4	241522	27.9	20.2	466526	28.1	20.5
135307	27.7	19.8	380498	27.8	21.4	409900	27.8	22.3	470202	27.9	20.6	32340	27.9	18.3	340602	28.1	21.0
87251	27.7	18.4	708	27.8	13.8	113151	27.9	19.8	353872	27.9	21.3	533129	27.9	22.1	529370	28.1	22.5
501474	27.7	21.0	451714	27.8	21.3	423688	27.9	20.9	136655	27.9	19.4	57853	27.9	17.6	419377	28.1	20.8
328755	27.7	20.1	463929	27.8	20.4	193894	27.9	20.3	369404	27.9	21.3	53551	27.9	19.2	238362	28.1	20.5
70519	27.7	18.6	502740	27.8	20.1	434446	27.9	20.8	532479	27.9	22.3	289515	27.9	20.8	349149	28.1	18.6
345567	27.7	21.6	368732	27.8	20.8	381616	27.9	20.9	435394	27.9	20.7	36697	27.9	18.3	125833	28.1	19.2
138757	27.7	18.9	310882	27.8	19.4	508804	27.9	20.9	453818	27.9	20.7	516376	27.9	19.8	515724	28.1	20.6
66752	27.7	18.0	90961	27.8	19.3	206826	27.9	19.4	148418	27.9	19.3	207840	27.9	19.7	301707	28.1	18.5
343480	27.7	20.0	371174	27.8	21.5	140947	27.9	19.4	411874	27.9	20.5	341865	27.9	20.5	235481	28.1	20.5
5081	27.7	14.6	387982	27.8	20.6	413100	27.9	21.8	314006	27.9	19.0	281329	27.9	18.8	183833	28.1	20.5
493551	27.7	20.2	522304	27.8	20.3	303402	27.9	20.9	11225	27.9	17.8	129050	27.9	20.4	124853	28.1	20.0
148363	27.7	19.8	491613	27.8	20.9	138540	27.9	19.4	253083	27.9	19.6	318014	27.9	20.4	425175	28.1	22.8
453279	27.7	19.4	153435	27.8	18.7	297939	27.9	19.4	166813	27.9	19.7	259154	27.9	20.1	409965	28.1	20.9
224815	27.7	19.7	312305	27.8	18.9	306817	27.9	20.1	522331	27.9	19.9	200676	27.9	19.5	258394	28.1	20.7
231428	27.7	20.2	82852	27.8	19.5	272393	27.9	20.0	59159	27.9	19.0	540147	27.9	20.4	426429	28.1	21.9
175520	27.7	20.4	526128	27.8	20.5	531526	27.9	21.7	19179	27.9	16.8	492575	27.9	20.3	328235	28.1	20.0
256217	27.7	20.1	327861	27.8	19.8	127696	27.9	18.6	233492	27.9	20.5	529899	27.9	23.0	284361	28.1	20.9
45753	27.7	18.6	207175	27.8	19.4	354847	27.9	21.2	242336	27.9	20.0	341704	28.0	20.7	312980	28.1	20.1
222758	27.7	19.4	233950	27.8	21.4	176559	27.9	21.1	203460	27.9	19.5	384591	28.0	19.4	101252	28.1	19.4
35448	27.7	17.7	486681	27.8	20.3	210070	27.9	20.7	500197	27.9	20.3	55095	28.0	18.5	43392	28.1	19.0
465659	27.7	20.7	404931	27.8	20.4	246461	27.9	19.9	62812	27.9	18.5	342973	28.0	20.9	456926	28.1	22.1
2183	27.7	15.0	425053	27.8	21.5	370105	27.9	20.1	533885</								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
315678	28.1	20.1	249426	28.1	19.3	369977	28.2	20.1	530571	28.3	21.0	190080	28.3	19.8	491635	28.4	21.6
81988	28.1	19.2	247315	28.1	19.8	129180	28.2	19.9	386206	28.3	21.7	202033	28.3	19.0	544798	28.4	18.0
8621	28.1	17.1	348914	28.1	20.5	464972	28.2	21.3	499113	28.3	20.7	143690	28.3	20.1	109941	28.4	18.9
23223	28.1	19.1	429994	28.1	21.8	133829	28.2	20.0	453988	28.3	19.3	296140	28.3	19.8	491659	28.4	20.5
410410	28.1	20.3	81227	28.1	17.7	472792	28.2	20.3	352026	28.3	21.1	90095	28.3	19.3	56384	28.4	18.8
196515	28.1	18.9	143637	28.1	21.4	508232	28.2	20.6	154709	28.3	18.3	55914	28.3	18.1	422786	28.4	20.1
89298	28.1	18.8	488586	28.1	21.6	445888	28.2	21.2	409975	28.3	20.3	165753	28.3	19.6	312681	28.4	19.7
492312	28.1	21.3	417600	28.1	21.1	297176	28.2	20.1	526646	28.3	21.8	317108	28.3	20.7	353835	28.4	20.9
432934	28.1	20.1	182441	28.1	20.3	386944	28.2	19.8	500495	28.3	21.1	104003	28.3	19.5	534323	28.4	20.6
390257	28.1	21.2	153182	28.1	18.8	141094	28.2	20.2	308278	28.3	20.3	27097	28.3	16.4	225557	28.4	20.6
188497	28.1	19.1	388020	28.1	20.4	501503	28.2	22.0	105548	28.3	18.8	271089	28.3	19.0	194741	28.4	20.8
268653	28.1	20.2	4199	28.1	16.1	233826	28.2	19.9	222373	28.3	20.8	433904	28.3	21.0	425151	28.4	21.9
11659	28.1	17.1	184031	28.1	19.7	428818	28.2	20.7	57416	28.3	20.2	446873	28.3	21.7	129587	28.4	21.0
192567	28.1	20.4	492522	28.1	19.8	62818	28.2	19.1	521062	28.3	20.2	81107	28.3	18.8	389901	28.4	21.5
158889	28.1	19.0	269655	28.1	22.0	328698	28.2	19.4	153956	28.3	20.5	140314	28.3	19.7	124399	28.4	19.9
3998	28.1	16.5	437473	28.2	21.4	194075	28.2	20.9	133449	28.3	19.4	329329	28.3	19.7	544748	28.4	21.0
305682	28.1	19.9	115474	28.2	19.1	372587	28.2	20.9	372958	28.3	20.2	283228	28.3	19.2	30232	28.4	17.8
246527	28.1	19.9	529117	28.2	22.0	527276	28.2	20.8	201717	28.3	20.1	354071	28.3	20.9	415548	28.4	22.2
206130	28.1	19.6	121999	28.2	18.0	333003	28.2	20.7	57465	28.3	18.1	54800	28.3	18.9	276953	28.4	20.6
151922	28.1	19.1	89702	28.2	19.1	384992	28.2	21.2	414865	28.3	21.4	44599	28.3	17.9	521072	28.4	20.4
502059	28.1	21.3	189806	28.2	20.1	280783	28.2	20.0	44376	28.3	19.2	498447	28.3	22.6	19777	28.4	17.7
267257	28.1	19.8	253952	28.2	18.9	175366	28.2	19.2	206178	28.3	19.6	69040	28.3	18.7	371016	28.4	20.9
196520	28.1	20.1	297768	28.2	21.0	439907	28.2	21.3	170306	28.3	19.7	401356	28.3	19.2	283475	28.4	19.1
135891	28.1	20.0	296259	28.2	19.9	280468	28.2	18.5	499485	28.3	20.6	347329	28.3	20.2	465186	28.4	21.2
326099	28.1	21.3	36816	28.2	18.9	456982	28.2	21.9	425779	28.3	21.5	150129	28.3	20.8	241413	28.4	19.7
535309	28.1	21.2	433910	28.2	20.9	79208	28.2	18.1	274206	28.3	20.4	426553	28.3	21.2	81187	28.4	18.7
447018	28.1	19.4	208716	28.2	18.4	244053	28.2	20.0	182583	28.3	18.8	386589	28.3	22.2	200776	28.4	19.6
331952	28.1	20.7	164435	28.2	18.1	229990	28.2	19.7	319282	28.3	20.4	358006	28.3	21.9	52268	28.4	19.3
466493	28.1	20.2	340753	28.2	20.2	498412	28.2	21.4	264628	28.3	21.4	368994	28.3	21.1	405185	28.4	21.2
344768	28.1	21.2	508245	28.2	19.6	27445	28.2	17.8	261140	28.3	20.1	348843	28.3	20.6	500718	28.4	20.4
448142	28.1	20.6	375874	28.2	19.4	250135	28.2	20.0	437221	28.3	20.5	29090	28.3	18.9	4504	28.4	17.6
343297	28.1	20.3	415929	28.2	21.4	357526	28.2	21.0	290626	28.3	20.7	498452	28.3	22.2	299857	28.4	20.7
393835	28.1	19.7	434987	28.2	20.4	415904	28.2	20.1	121528	28.3	19.5	284355	28.3	20.2	402840	28.4	19.9
409998	28.1	21.0	11313	28.2	17.4	338938	28.2	19.8	11663	28.3	17.4	158212	28.3	21.0	273091	28.4	22.0
300315	28.1	20.1	376528	28.2	19.7	388363	28.2	20.4	273752	28.3	20.1	16790	28.3	16.9	453383	28.4	21.7
487447	28.1	20.3	405950	28.2	21.8	356462	28.2	21.1	248135	28.3	20.4	397162	28.3	20.1	296126	28.4	20.1
83729	28.1	18.9	47116	28.2	18.3	116774	28.2	18.7	85854	28.3	19.2	473001	28.3	19.5	526614	28.4	22.6
83446	28.1	19.3	157765	28.2	19.3	285580	28.2	20.8	424879	28.3	20.8	526676	28.4	20.8	449532	28.4	20.3
112234	28.1	19.2	272306	28.2	20.5	472272	28.2	20.0	147191	28.3	20.0	27769	28.4	18.4	502131	28.4	19.9
520268	28.1	20.9	274982	28.2	19.1	423827	28.2	19.9	230492	28.3	19.8	127637	28.4	19.1	107111	28.4	19.1
4233	28.1	15.8	436713	28.2	20.9	305664	28.2	20.1	163095	28.3	18.8	382761	28.4	20.7	462870	28.4	21.6
532975	28.1	20.4	3665	28.2	16.7	386247	28.2	21.8	432222	28.3	20.6	252609	28.4	20.6	83776	28.4	18.6
283596	28.1	20.7	315474	28.2	21.2	65009	28.2	19.4	504046	28.3	21.4	941	28.4	15.8	343603	28.4	20.5
97212	28.1	19.0	178601	28.2	22.7	388470	28.2	19.1	461965	28.3	22.1	182346	28.4	20.1	18212	28.4	18.7
465109	28.1	20.5	81834	28.2	18.5	15008	28.2	19.3	160169	28.3	20.7	155614	28.4	19.3	463548	28.4	20.4
253179	28.1	19.1	182306	28.2	20.2	269608	28.2	19.8	213860	28.3	20.7	446878	28.4	21.2	122	28.4	12.2
309444	28.1	21.2	368801	28.2	21.2	54120	28.2	18.8	194110	28.3	20.4	437236	28.4	20.4	229599	28.4	21.6
496529	28.1	20.4	190330	28.2	19.8	110039	28.2	18.3	258481	28.3	20.5	323771	28.4	19.7	28337	28.4	18.9
531655	28.1	21.4	63724	28.2	18.8	271416	28.2	19.5	19631	28.3	18.5	83615	28.4	17.9	317139	28.4	20.9
396458	28.1	20.2	293476	28.2	19.5	178076	28.2	20.4	242326	28.3	19.6	217618	28.4	19.9	229055	28.4	19.0
469171	28.1	20.8	463169	28.2	21.8	352059	28.2	19.9	456787	28.3	20.8	296790	28.4	20.3	210985	28.4	20.0
93170	28.1	18.3	168263	28.2	19.4	370676	28.2	20.0	166967	28.3	19.0	388360	28.4	21.6	83656	28.4	19.8
271707	28.1	20.7	29443	28.2	17.7	516702	28.2	19.8	273040	28.3	19.7	499791	28.4	20.6	80520	28.4	18.7
353105	28.1	19.9	373309	28.2	19.3	304055	28.2	19.6	126322	28.3	19.6	400795	28.4	19.8	534832	28.4	22.8
111022	28.1	19.0	404079	28.2	20.7	140096	28.2	20.6	137079	28.3	19.6	320763	28.4	20.5	490996	28.4	21.5
206210	28.1	20.1	187135	28.2	19.9	337240	28.2	18.0	340732	28.3	21.4	407377	28.4	21.4	430618	28.4	21.4
191974	28.1	20.1	428953	28.2	20.1	209899	28.2	19.5	509634	28.3	20.5	540886	28.4	20.0	121042	28.4	20.3
355901	28.1	21.0	89537	28.2	18.4	543616	28.2	20.2	107122	28.3	19.8	121075	28.4	19.3	104504	28.4	19.4
172401	28.1	20.4	85844	28.2	19.3	79434	28.2	19.2	334674	28.3	21.4	338360	28.4	20.1	148507	28.4	19.4
75016	28.1	18.9	340784	28.2	20.7	337638	28.2	20.2	456494	28.3	20.2	217909	28.4	20.0	140760	28.4	20.4
293516	28.1	20.8	304858	28.2	20.2	242346	28.2	20.1	459346	28.3	20.4	188247	28.4	19.6	228463	28.4	19.6
345689	28.1	20.3	426782	28.2	20.3	411262	28.2	21.7	284632	28.3	20.3	289260	28.4	20.1	515442	28.4	21.2
348455	28.1	19.3	514098	28.2	20.5	538357	28.2	20.7	8609	28.3	18.2	502661	28.4	19.9	58959	28.4	17.8
21623	28.1	16.5	165264	28.2	20.6	368752	28.2	21.4	110536	28.3	19.0	525144	28.4	21.8	115811	28.4	19.9
312048	28.1	21.1	435357	28.2	20.3	286479	28.2	20.5	1790	28.3	15.0	51318	28.4	18.7	452331	28.4	21.2
129900	28.1	19.4	400342	28.2	19.5	474306	28.2	21.9	283448	28.3	20.9	301561	28.4	20.2	383417	28.4	20.5
146206	28.1	19.7	436251	28.2	20.6	62145	28.2	19.4	57366	28.3	19.3	313387	28.4	19.7	383704	28.4	21.2
30227	28.1	18.4	55077	28.2	19.8	341538	28.2	20.0	320047	28.3	19.8	106278	28.4	19.0	188252	28.4	19.5
498370	28.1	21.1	205748	28.2	19.5	129962	28.2	18.8	506328								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
230677	28.5	20.2	526493	28.5	21.8	268539	28.6	20.6	203199	28.7	20.3	542377	28.7	21.0	210797	28.8	20.5
12588	28.5	18.4	82338	28.5	17.8	407366	28.6	21.1	193687	28.7	20.6	454280	28.7	21.3	238778	28.8	19.2
250178	28.5	20.5	193146	28.5	18.9	474405	28.6	20.2	480349	28.7	20.3	197848	28.7	20.2	100196	28.8	19.6
138651	28.5	20.2	134304	28.5	18.9	190180	28.6	20.6	272848	28.7	20.0	210218	28.7	20.3	154003	28.8	20.1
535348	28.5	21.1	429114	28.5	21.9	197784	28.6	19.0	5850	28.7	16.9	531219	28.7	19.9	431222	28.8	19.8
30249	28.5	17.7	82074	28.5	17.6	440002	28.6	21.8	281050	28.7	20.5	506008	28.7	20.8	499834	28.8	19.8
142310	28.5	19.7	522737	28.5	20.5	125137	28.6	20.4	376000	28.7	20.1	62300	28.7	18.0	185490	28.8	20.0
468173	28.5	20.1	268467	28.5	19.9	372410	28.6	21.1	179932	28.7	19.8	59667	28.7	18.0	174969	28.8	19.8
233452	28.5	20.1	54011	28.5	17.7	406732	28.6	20.5	409425	28.7	20.3	285195	28.7	20.3	327001	28.8	19.9
493500	28.5	20.7	80068	28.5	17.8	42444	28.6	20.1	500001	28.7	20.4	377432	28.7	21.2	151050	28.8	18.5
146176	28.5	19.6	465174	28.5	21.3	73126	28.6	18.3	281772	28.7	20.4	166708	28.7	20.1	12290	28.8	15.9
483714	28.5	21.7	29752	28.5	18.0	286288	28.6	19.6	426487	28.7	20.3	143607	28.7	19.3	545065	28.8	21.2
377778	28.5	20.2	503756	28.5	19.2	277727	28.6	20.4	530709	28.7	21.3	131429	28.7	18.1	166166	28.8	18.2
266742	28.5	20.5	436300	28.5	20.6	185498	28.6	19.7	402072	28.7	21.3	144174	28.7	20.1	143480	28.8	19.9
353830	28.5	20.8	132723	28.5	19.9	136104	28.6	18.9	389780	28.7	20.8	451075	28.7	21.3	166280	28.8	18.9
103923	28.5	20.0	500716	28.5	22.4	256339	28.6	20.6	415454	28.7	21.1	1470	28.7	15.5	259260	28.8	19.6
22692	28.5	19.2	536002	28.5	21.3	127304	28.6	18.5	492635	28.7	20.4	49267	28.7	17.3	437679	28.8	21.1
304947	28.5	19.3	383776	28.5	21.9	238384	28.6	20.2	345536	28.7	20.7	528219	28.7	23.0	83698	28.8	19.2
532998	28.5	21.1	209643	28.5	20.7	85118	28.6	18.7	447388	28.7	21.3	199596	28.7	21.1	250247	28.8	19.5
228156	28.5	21.0	127238	28.5	18.6	500577	28.6	20.5	39081	28.7	18.6	533504	28.7	20.1	229915	28.8	19.5
256357	28.5	20.1	198611	28.5	21.3	527640	28.6	21.9	150029	28.7	17.9	42388	28.7	20.3	447394	28.8	22.1
504822	28.5	19.1	164146	28.5	19.4	347110	28.6	20.3	234931	28.7	20.5	55745	28.7	17.1	314756	28.8	20.5
323162	28.5	19.7	154492	28.5	20.2	213856	28.6	20.6	31526	28.7	16.6	146226	28.7	19.5	385887	28.8	20.9
190055	28.5	19.5	360753	28.5	21.5	369886	28.6	20.3	300200	28.7	20.0	160823	28.7	20.6	425373	28.8	20.1
146186	28.5	19.1	326702	28.5	21.2	269455	28.6	20.7	34097	28.7	18.4	235626	28.7	19.2	246293	28.8	21.0
18762	28.5	17.2	214227	28.5	20.5	454808	28.6	20.5	366860	28.7	22.0	522173	28.7	21.3	240048	28.8	19.9
229778	28.5	19.8	284204	28.5	19.9	489124	28.6	21.2	97065	28.7	18.7	289469	28.8	20.4	527066	28.8	21.5
59592	28.5	18.1	119568	28.5	19.5	235985	28.6	20.5	93495	28.7	18.6	122953	28.8	19.8	486027	28.8	20.4
81777	28.5	16.9	498389	28.5	21.9	186564	28.6	20.9	543995	28.7	20.2	51163	28.8	18.4	531598	28.8	20.8
399594	28.5	20.9	109479	28.5	19.8	307535	28.6	19.7	189774	28.7	19.1	140607	28.8	20.0	422009	28.8	20.3
90502	28.5	19.8	40358	28.5	17.3	387376	28.6	19.6	533031	28.7	21.3	349280	28.8	21.8	49108	28.8	18.4
1964	28.5	17.2	150892	28.5	20.0	317195	28.6	20.5	235620	28.7	20.0	289099	28.8	21.5	493514	28.8	21.0
264772	28.5	19.3	16978	28.5	16.4	71099	28.6	18.9	60444	28.7	17.5	284442	28.8	20.4	63982	28.8	20.2
132208	28.5	17.7	291093	28.6	20.6	180189	28.6	19.0	241135	28.7	19.5	73082	28.8	18.0	93831	28.8	19.0
501208	28.5	21.8	210762	28.6	20.9	240901	28.6	18.6	53235	28.7	17.0	432218	28.8	20.3	538224	28.8	21.2
519485	28.5	19.3	336453	28.6	20.9	506314	28.6	20.0	366934	28.7	21.7	531407	28.8	21.5	241041	28.8	20.1
52153	28.5	19.1	69817	28.6	19.1	457097	28.6	20.7	53567	28.7	17.3	499084	28.8	20.7	76635	28.8	16.7
135255	28.5	19.2	95500	28.6	19.3	263769	28.6	20.7	466408	28.7	21.0	191137	28.8	18.5	384524	28.8	19.9
478057	28.5	20.6	321699	28.6	19.6	52391	28.6	17.6	511534	28.7	20.6	227529	28.8	20.1	340709	28.8	19.6
390039	28.5	21.2	350156	28.6	19.8	530886	28.6	21.4	159163	28.7	20.5	349105	28.8	19.6	469002	28.8	20.9
315628	28.5	20.6	331913	28.6	19.8	126452	28.6	20.4	44364	28.7	18.1	31124	28.8	18.9	55419	28.8	18.2
414873	28.5	20.8	468457	28.6	19.8	362048	28.6	21.3	373424	28.7	18.8	337790	28.8	20.4	148823	28.8	20.0
177455	28.5	20.1	299013	28.6	21.4	115188	28.6	19.9	30134	28.7	17.8	39065	28.8	17.5	260781	28.8	19.2
57096	28.5	19.5	196281	28.6	18.7	325226	28.6	20.0	345702	28.7	21.0	160794	28.8	20.2	240355	28.8	21.9
403170	28.5	20.1	243754	28.6	17.9	83535	28.6	19.2	292295	28.7	19.8	133827	28.8	19.7	245447	28.8	20.3
301278	28.5	21.7	419276	28.6	21.2	521142	28.6	21.1	278884	28.7	19.2	363794	28.8	20.2	420555	28.8	20.7
77805	28.5	19.0	401485	28.6	19.4	205281	28.6	19.7	409794	28.7	19.3	37421	28.8	19.6	503297	28.8	19.9
402379	28.5	20.6	144270	28.6	18.8	262725	28.6	19.8	458959	28.7	21.7	171548	28.8	20.2	468167	28.8	21.4
358117	28.5	20.0	219473	28.6	18.9	379039	28.6	20.8	209020	28.7	19.9	253098	28.8	21.2	400345	28.8	21.3
538140	28.5	21.1	89044	28.6	18.6	457080	28.6	19.8	527181	28.7	21.1	523659	28.8	21.4	349405	28.8	19.9
292645	28.5	20.9	153327	28.6	19.0	540356	28.6	20.6	454893	28.7	21.9	11494	28.8	18.0	383004	28.8	20.7
494593	28.5	20.1	258350	28.6	20.2	235606	28.6	19.4	299499	28.7	19.5	319469	28.8	19.8	181164	28.8	19.6
212679	28.5	19.2	98192	28.6	19.5	59945	28.6	18.1	59868	28.7	19.9	168494	28.8	20.1	400606	28.8	21.3
280438	28.5	19.7	387346	28.6	20.5	206863	28.6	20.3	382368	28.7	20.7	354901	28.8	20.0	453056	28.8	21.6
530619	28.5	20.8	341679	28.6	20.9	58672	28.6	18.9	258413	28.7	19.7	206256	28.8	20.9	140721	28.8	19.8
87792	28.5	19.7	523869	28.6	21.3	428159	28.7	20.4	354168	28.7	21.4	167122	28.8	18.3	301659	28.8	20.4
150756	28.5	20.2	445950	28.6	20.4	196846	28.7	20.0	132382	28.7	19.9	457561	28.8	21.2	299442	28.8	19.8
400548	28.5	21.3	230538	28.6	18.8	532341	28.7	22.1	62353	28.7	18.2	531455	28.8	22.4	267464	28.8	19.4
154049	28.5	19.3	140350	28.6	18.7	255889	28.7	19.7	7136	28.7	16.3	133620	28.8	18.9	413085	28.8	20.5
484217	28.5	21.3	194661	28.6	19.3	370028	28.7	20.6	490541	28.7	21.4	386231	28.8	20.5	173848	28.8	20.3
118566	28.5	19.9	292867	28.6	20.5	413071	28.7	20.5	80059	28.7	17.9	346008	28.8	20.5	533562	28.8	22.4
453368	28.5	21.6	372948	28.6	21.0	83854	28.7	18.3	87476	28.7	19.3	241331	28.8	19.6	527622	28.9	21.8
491805	28.5	21.4	144539	28.6	19.9	244543	28.7	20.8	464966	28.7	21.1	500878	28.8	24.3	516160	28.9	21.5
115623	28.5	19.1	461495	28.6	20.9	288061	28.7	19.6	48074	28.7	18.1	484221	28.8	21.0	422734	28.9	22.0
145900	28.5	18.8	56893	28.6	18.1	48625	28.7	18.8	126375	28.7	20.4	209137	28.8	19.9	70542	28.9	18.8
6803	28.5	17.3	534594	28.6	22.2	337405	28.7	20.4	224639	28.7	20.0	293877	28.8	20.6	283602	28.9	20.7
147628	28.5	19.5	431056	28.6	21.1	340670	28.7	21.5	498212	28.7	20.6	345695	28.8	20.6	186849	28.9	19.8
449087	28.5	21.0	192801	28.6	19.4	93082	28.7	19.9	413039	28.7	19.4	456996	28.8	20.5	492402	28.9	19.6
269509	28.5	21.5	330038	28.6	20.8	211915	28.7	20.8	299914								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
380247	28.9	20.9	82534	28.9	19.0	423530	29.0	20.1	540362	29.1	21.5	156832	29.1	19.7	485013	29.2	21.2
531828	28.9	21.8	164134	28.9	19.1	218669	29.0	18.4	237307	29.1	19.4	536923	29.1	20.7	454044	29.2	21.0
35481	28.9	18.3	53821	28.9	18.5	293504	29.0	20.4	104948	29.1	19.4	526312	29.1	21.3	202759	29.2	18.3
381830	28.9	21.1	310244	28.9	19.0	231435	29.0	21.0	495120	29.1	21.0	464632	29.1	20.4	125433	29.2	18.8
466412	28.9	21.0	228763	28.9	19.8	175436	29.0	18.7	544827	29.1	21.3	505321	29.1	21.4	170228	29.2	19.1
347274	28.9	20.5	267468	28.9	21.3	382282	29.0	20.5	117215	29.1	18.9	212077	29.1	19.7	241026	29.2	20.4
456777	28.9	21.4	158181	28.9	19.7	82397	29.0	18.1	651	29.1	14.7	107243	29.1	20.2	18229	29.2	16.4
354040	28.9	21.1	270670	28.9	20.4	536827	29.0	21.0	470222	29.1	21.3	409576	29.1	21.5	122374	29.2	18.5
534834	28.9	21.4	291807	28.9	19.8	76867	29.0	17.4	193047	29.1	19.2	26584	29.1	17.4	350078	29.2	19.9
141194	28.9	20.8	522073	28.9	20.2	307525	29.0	19.5	413375	29.1	18.9	384973	29.1	20.8	130751	29.2	19.3
177554	28.9	19.3	249284	28.9	21.6	105393	29.0	19.4	198540	29.1	20.1	184080	29.1	19.1	140028	29.2	19.8
171894	28.9	19.9	52189	28.9	19.4	72062	29.0	17.9	468080	29.1	21.1	350872	29.1	20.3	240112	29.2	20.2
488448	28.9	20.3	498877	28.9	21.3	199133	29.0	20.8	526400	29.1	20.2	59897	29.1	19.0	486917	29.2	19.9
6354	28.9	15.6	439726	28.9	20.3	116886	29.0	17.8	512336	29.1	20.2	22868	29.1	18.1	141388	29.2	20.0
203582	28.9	19.6	317149	28.9	21.0	375391	29.0	21.2	8813	29.1	17.5	188104	29.1	20.5	340745	29.2	21.2
433080	28.9	19.9	130892	28.9	19.5	359763	29.0	20.1	346214	29.1	21.2	209363	29.1	19.9	422862	29.2	19.4
500188	28.9	18.7	436694	28.9	19.9	325233	29.0	20.5	450729	29.1	19.9	366154	29.1	19.3	523779	29.2	23.0
99482	28.9	19.9	306190	28.9	20.6	366951	29.0	19.8	473056	29.1	19.9	265648	29.1	19.5	366893	29.2	21.5
61610	28.9	19.7	91470	28.9	18.8	389755	29.0	20.8	25044	29.1	18.7	435552	29.1	20.9	389238	29.2	20.2
362173	28.9	20.7	11667	28.9	16.9	190084	29.0	19.2	285760	29.1	19.4	126814	29.1	19.5	356552	29.2	20.0
195510	28.9	17.9	436377	28.9	20.3	221311	29.0	19.9	318008	29.1	20.1	134393	29.2	20.0	184979	29.2	19.9
114572	28.9	18.5	348701	28.9	20.8	359129	29.0	20.8	21611	29.1	17.7	383015	29.2	20.0	189314	29.2	20.1
107213	28.9	20.2	461412	28.9	20.7	197988	29.0	18.3	311057	29.1	20.6	354093	29.2	21.4	81843	29.2	18.2
304882	28.9	21.6	502207	28.9	21.3	506743	29.0	19.6	505957	29.1	19.6	88025	29.2	19.6	314388	29.2	19.2
400784	28.9	20.2	54587	28.9	18.4	150254	29.0	18.8	329065	29.1	21.7	243533	29.2	19.8	227773	29.2	20.5
9430	28.9	17.9	258406	28.9	18.1	296366	29.0	20.6	321278	29.1	20.9	203264	29.2	20.6	519624	29.2	21.0
210001	28.9	19.6	91283	28.9	18.3	160834	29.0	19.4	249072	29.1	19.7	317235	29.2	20.2	171067	29.2	20.3
533722	28.9	21.9	16864	28.9	18.4	400290	29.0	21.1	292964	29.1	20.9	325214	29.2	20.3	176210	29.2	17.8
300162	28.9	20.3	286349	28.9	20.0	166560	29.0	19.9	526125	29.1	21.8	461942	29.2	22.3	11661	29.2	18.2
52927	28.9	18.7	62017	28.9	18.7	489145	29.0	21.6	212325	29.1	19.9	4024	29.2	16.1	86456	29.2	18.0
498804	28.9	21.6	135397	28.9	19.5	78378	29.0	19.3	488527	29.1	21.0	218692	29.2	20.3	101106	29.2	19.8
89353	28.9	18.2	439096	28.9	20.8	338976	29.0	21.1	402010	29.1	21.8	25347	29.2	18.7	541373	29.2	21.4
340929	28.9	21.6	543804	28.9	19.8	258851	29.0	19.9	232091	29.1	19.7	163560	29.2	18.4	380010	29.2	18.9
4134	28.9	16.2	487730	28.9	20.9	4583	29.0	15.4	121014	29.1	19.5	281128	29.2	20.6	436696	29.2	20.8
212882	28.9	20.2	269537	28.9	20.6	403214	29.0	21.1	499008	29.1	20.8	504533	29.2	20.9	8617	29.2	17.3
502357	28.9	20.9	543536	28.9	20.0	185464	29.0	19.4	111602	29.1	19.9	123619	29.2	18.6	455518	29.2	21.7
467870	28.9	22.1	393243	28.9	20.2	265856	29.0	19.9	7540	29.1	16.3	335675	29.2	20.6	373182	29.2	19.1
27831	28.9	18.1	329994	28.9	21.1	445282	29.0	21.6	345568	29.1	20.7	54393	29.2	18.3	258166	29.2	20.1
472699	28.9	19.8	57471	28.9	19.4	353937	29.0	20.5	459294	29.1	20.6	383745	29.2	19.6	288822	29.2	21.6
406063	28.9	22.7	53865	28.9	18.4	490267	29.0	21.4	406424	29.1	20.3	152258	29.2	19.0	264231	29.2	19.2
467433	28.9	21.6	133960	28.9	20.5	185381	29.0	19.9	254707	29.1	19.8	272589	29.2	18.9	343144	29.2	21.1
158890	28.9	18.5	296860	28.9	21.0	187143	29.0	20.5	76033	29.1	19.0	344294	29.2	20.8	28639	29.2	18.2
422137	28.9	21.2	332987	28.9	19.6	456654	29.0	21.1	34458	29.1	16.6	41816	29.2	18.7	348238	29.2	19.6
535571	28.9	21.1	26222	28.9	17.4	81096	29.0	17.7	524419	29.1	21.1	241216	29.2	20.5	297868	29.2	19.7
85927	28.9	18.8	301626	28.9	19.8	448112	29.0	21.7	144910	29.1	19.5	65494	29.2	18.8	466945	29.2	20.4
225303	28.9	19.8	131004	28.9	19.6	433667	29.0	21.2	326694	29.1	21.1	359155	29.2	20.8	312077	29.2	21.5
391395	28.9	20.3	191846	28.9	20.0	18037	29.0	18.8	227074	29.1	20.0	57243	29.2	18.7	182376	29.2	18.6
79734	28.9	17.5	500031	28.9	20.9	540586	29.0	21.6	471444	29.1	21.0	379174	29.2	19.8	153886	29.2	19.2
349847	28.9	20.0	159428	28.9	20.0	175968	29.0	17.9	302292	29.1	19.9	167661	29.2	20.2	204849	29.2	20.2
115100	28.9	19.5	339032	28.9	20.6	387500	29.0	21.4	88638	29.1	19.0	21838	29.2	18.2	309226	29.2	20.1
463290	28.9	20.0	502618	28.9	20.1	200616	29.0	20.4	523790	29.1	22.2	422739	29.2	20.6	1328	29.2	15.5
36757	28.9	17.6	268473	28.9	20.9	282499	29.0	20.7	155653	29.1	19.6	219694	29.2	19.8	327005	29.2	20.3
240605	28.9	20.5	429987	28.9	21.8	124149	29.1	18.4	123060	29.1	20.3	55507	29.2	18.3	192727	29.2	20.4
78577	28.9	20.3	429246	28.9	20.2	187907	29.1	19.4	503062	29.1	20.4	501469	29.2	21.0	313862	29.2	18.9
538548	28.9	20.5	488507	28.9	21.0	540220	29.1	20.2	409953	29.1	21.3	498828	29.2	20.1	336912	29.2	20.2
90564	28.9	18.0	422801	28.9	21.3	218873	29.1	18.9	130635	29.1	18.7	136032	29.2	19.7	347924	29.2	20.4
249132	28.9	19.8	369099	28.9	19.7	136107	29.1	20.0	179190	29.1	19.1	150094	29.2	20.0	338996	29.2	19.5
117422	28.9	20.1	323937	28.9	20.1	272993	29.1	20.6	76857	29.1	17.7	126737	29.2	19.6	511675	29.2	21.4
191994	28.9	19.8	123602	28.9	20.2	393427	29.1	20.7	80491	29.1	18.4	344374	29.2	20.3	484580	29.2	19.0
347469	28.9	20.6	502995	28.9	20.1	256238	29.1	20.0	265363	29.1	20.5	435369	29.2	21.4	31056	29.2	16.9
347709	28.9	20.3	439879	28.9	20.9	484997	29.1	21.9	372977	29.1	20.8	299781	29.2	20.2	140924	29.2	19.3
217947	28.9	19.3	319611	28.9	20.3	177061	29.1	20.0	345636	29.1	21.4	417040	29.2	21.5	344425	29.2	22.6
341814	28.9	20.4	481313	28.9	20.0	442732	29.1	20.6	298356	29.1	19.6	250245	29.2	19.8	258400	29.2	19.9
349680	28.9	21.2	136509	28.9	19.5	320864	29.1	19.2	134872	29.1	19.9	501468	29.2	20.7	392814	29.2	20.4
46788	28.9	16.8	505994	28.9	20.4	242628	29.1	19.4	34915	29.1	19.5	307473	29.2	19.5	278231	29.2	19.1
33793	28.9	17.7	384886	28.9	20.8	180694	29.1	19.3	504411	29.1	21.0	82549	29.2	18.7	236252	29.2	19.5
368253	28.9	19.5	351666	28.9	21.1	63562	29.1	19.3	544935	29.1	21.8	308237	29.2	19.8	445299	29.2	20.9
323148	28.9	20.5	467959	28.9	19.8	136724	29.1	20.4	81627	29.1	18.4	531186	29.2	19.6	210340	29.2	20.7
544998	28.9	20.4	91360	28.9	16.7	61392	29.1	18.3	122698								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
330425	29.3	18.8	458307	29.3	20.9	216533	29.4	18.8	504136	29.5	21.5	330293	29.5	22.0	98450	29.6	19.0
160759	29.3	19.5	9683	29.3	18.7	501438	29.4	21.1	417553	29.5	20.5	33252	29.5	18.5	130966	29.6	19.4
515732	29.3	20.2	129103	29.3	20.5	503048	29.4	20.9	253166	29.5	21.0	448134	29.5	20.9	515160	29.6	21.2
107261	29.3	19.5	488668	29.3	20.6	280403	29.4	20.7	433388	29.5	21.2	345741	29.5	19.9	224343	29.6	19.0
235253	29.3	20.1	532535	29.3	21.3	78042	29.4	18.5	138621	29.5	18.3	84894	29.5	19.1	47871	29.6	18.5
93786	29.3	19.6	522470	29.3	20.0	447219	29.4	21.1	226020	29.5	19.5	100660	29.5	19.6	340767	29.6	21.0
413361	29.3	19.9	465904	29.3	20.8	384746	29.4	20.1	328785	29.5	19.6	382747	29.5	20.1	382999	29.6	19.5
464074	29.3	19.2	4683	29.3	17.1	451223	29.4	18.4	406578	29.5	21.3	256030	29.5	20.7	486776	29.6	20.0
235092	29.3	18.2	231554	29.3	19.7	326197	29.4	19.9	158363	29.5	18.8	217918	29.5	20.0	469112	29.6	19.9
24679	29.3	17.9	49645	29.3	18.5	96760	29.4	19.5	194315	29.5	20.0	359141	29.5	21.1	28880	29.6	17.7
22333	29.3	18.6	426568	29.3	19.6	365888	29.4	19.9	508249	29.5	20.8	285371	29.5	19.8	419844	29.6	22.3
30333	29.3	17.7	371081	29.3	20.8	500575	29.4	20.7	122540	29.5	20.4	26107	29.5	18.4	378870	29.6	20.7
124962	29.3	19.1	87968	29.3	18.1	196903	29.4	20.3	127708	29.5	19.5	160941	29.5	19.6	140802	29.6	20.2
466831	29.3	20.6	392248	29.3	21.4	209530	29.4	21.5	429343	29.5	20.3	497728	29.5	21.8	229222	29.6	19.8
2172	29.3	16.9	501497	29.3	22.1	461920	29.4	22.0	51935	29.5	19.3	118634	29.5	19.9	3536	29.6	17.2
499424	29.3	20.7	413123	29.3	24.8	450558	29.4	21.4	21052	29.5	19.5	52767	29.5	18.7	131713	29.6	20.2
343118	29.3	20.2	529707	29.3	20.4	341685	29.4	20.8	248	29.5	12.9	74746	29.5	19.2	445329	29.6	20.8
135162	29.3	19.8	82012	29.3	19.0	18170	29.4	18.8	415134	29.5	21.3	191326	29.5	18.4	90059	29.6	19.0
146324	29.3	18.5	140099	29.3	20.2	65757	29.4	19.0	229164	29.5	20.1	409838	29.5	19.6	323837	29.6	20.2
413901	29.3	21.7	405986	29.3	21.6	337441	29.4	20.8	377913	29.5	20.3	360555	29.5	20.1	90449	29.6	18.1
530702	29.3	21.2	493489	29.3	20.6	180542	29.4	19.6	54894	29.5	18.0	528869	29.5	21.7	309223	29.6	20.4
522070	29.3	20.8	163294	29.3	19.5	465657	29.4	20.4	117017	29.5	18.6	156545	29.5	20.2	305896	29.6	20.0
271388	29.3	20.6	370749	29.3	21.5	176920	29.4	19.3	173543	29.5	20.8	506400	29.5	20.6	349017	29.6	20.7
391745	29.3	21.5	301266	29.3	20.2	381330	29.4	20.5	3823	29.5	17.7	326686	29.5	21.9	495411	29.6	20.6
113925	29.3	19.1	458953	29.3	20.1	226575	29.4	19.5	28734	29.5	18.1	453789	29.5	20.3	452558	29.6	21.7
469747	29.3	20.3	28790	29.3	18.2	495629	29.4	21.9	370757	29.5	20.5	104142	29.5	19.2	87947	29.6	19.9
138364	29.3	18.9	326711	29.3	21.4	526580	29.4	21.4	196599	29.5	19.4	299449	29.5	20.4	158575	29.6	18.4
4975	29.3	17.9	477646	29.3	20.7	122473	29.4	19.1	346801	29.5	20.8	256188	29.5	20.6	53091	29.6	17.7
11947	29.3	17.5	501376	29.3	20.8	395339	29.4	20.4	285358	29.5	20.2	140442	29.5	19.0	268592	29.6	20.0
351707	29.3	20.2	362101	29.3	21.3	533036	29.4	22.1	524189	29.5	20.9	57184	29.5	18.2	302087	29.6	20.5
32478	29.3	18.1	489995	29.3	21.0	501443	29.4	21.6	454340	29.5	19.7	240512	29.5	21.2	309315	29.6	18.6
496023	29.3	20.7	132735	29.3	19.9	23628	29.4	16.9	28718	29.5	17.9	232709	29.5	20.3	89870	29.6	19.2
366772	29.3	21.9	265737	29.3	21.2	511096	29.4	20.8	175618	29.5	20.5	114123	29.5	18.5	500740	29.6	21.3
320903	29.3	19.8	430604	29.3	20.8	268574	29.4	20.4	51991	29.5	18.1	419660	29.5	21.1	468980	29.6	20.9
47786	29.3	16.7	346264	29.3	20.3	473106	29.4	19.1	378894	29.5	21.2	135587	29.5	19.4	218686	29.6	20.8
526327	29.3	21.5	244158	29.3	21.3	535146	29.4	20.8	205747	29.5	19.7	349083	29.5	19.6	79927	29.6	17.8
401043	29.3	19.8	353467	29.3	20.6	333581	29.4	20.7	432081	29.5	21.4	205911	29.5	19.8	395807	29.6	20.9
131876	29.3	19.7	420727	29.3	20.8	102717	29.4	19.2	136860	29.5	18.8	460388	29.5	21.3	674	29.6	12.3
495702	29.3	20.5	138726	29.3	18.7	366442	29.4	20.7	500593	29.5	21.0	262090	29.5	18.6	496661	29.6	19.4
435944	29.3	20.8	305044	29.3	20.7	501369	29.4	21.1	386580	29.5	20.5	340854	29.5	20.9	468510	29.6	20.3
126869	29.3	19.3	88967	29.3	18.9	53779	29.4	17.8	251465	29.5	21.4	7564	29.5	16.7	466720	29.6	21.0
481821	29.3	22.0	423233	29.3	21.2	249283	29.4	20.3	528399	29.5	21.6	190747	29.5	19.7	199194	29.6	20.2
501488	29.3	21.2	43724	29.3	18.1	210786	29.4	20.1	348948	29.5	21.4	315498	29.5	20.3	50445	29.6	19.3
218336	29.3	18.7	529423	29.4	22.2	499869	29.4	21.5	183255	29.5	19.9	295562	29.5	20.9	1053	29.6	16.3
200999	29.3	19.3	83557	29.4	19.8	98772	29.4	18.5	282449	29.5	19.7	72983	29.6	18.8	109956	29.6	18.5
278461	29.3	20.8	486152	29.4	20.9	70895	29.4	19.4	525842	29.5	20.7	32353	29.6	17.1	502186	29.6	21.0
393296	29.3	19.6	140627	29.4	19.6	88955	29.4	18.5	283744	29.5	19.9	503222	29.6	19.6	2248	29.6	15.3
205343	29.3	19.4	66305	29.4	16.4	419804	29.4	19.9	114818	29.5	19.9	163732	29.6	20.0	317612	29.6	19.6
149323	29.3	20.0	313622	29.4	20.4	283576	29.4	20.8	428426	29.5	20.8	415823	29.6	20.7	477129	29.6	21.6
18826	29.3	18.3	7216	29.4	15.7	540423	29.4	21.2	159369	29.5	19.8	59971	29.6	18.2	309328	29.6	21.2
527210	29.3	21.5	566668	29.4	21.9	142677	29.4	19.8	38983	29.5	16.6	504203	29.6	21.3	492747	29.6	20.6
284863	29.3	20.0	369350	29.4	20.9	520233	29.4	20.6	266831	29.5	19.9	490273	29.6	21.2	413521	29.6	21.7
460384	29.3	21.1	514723	29.4	20.2	339957	29.4	19.7	249109	29.5	20.6	399159	29.6	21.8	489129	29.6	21.9
76466	29.3	18.5	203510	29.4	19.9	111018	29.4	18.1	472075	29.5	20.4	299248	29.6	19.5	429057	29.6	21.1
120590	29.3	19.8	352062	29.4	21.5	542279	29.4	20.5	144365	29.5	19.1	78760	29.6	19.4	325312	29.6	20.2
40419	29.3	19.0	307454	29.4	20.3	248678	29.4	19.0	196874	29.5	19.0	417091	29.6	21.0	187657	29.6	20.3
272888	29.3	20.7	132319	29.4	18.1	402041	29.4	21.6	211881	29.5	20.4	88309	29.6	19.6	311323	29.6	20.0
124277	29.3	19.4	276394	29.4	21.1	89487	29.4	18.6	49463	29.5	17.2	324507	29.6	21.0	23131	29.6	17.6
189417	29.3	21.1	371017	29.4	20.9	82664	29.4	19.6	411212	29.5	21.9	423459	29.6	21.5	376488	29.6	20.3
510619	29.3	20.8	196543	29.4	19.8	96371	29.4	19.7	506639	29.5	21.1	145424	29.6	20.1	530943	29.6	21.3
146207	29.3	20.1	292481	29.4	20.1	505231	29.4	21.4	238284	29.5	18.2	453345	29.6	20.7	193953	29.6	19.6
22245	29.3	18.9	544139	29.4	21.8	471507	29.5	21.2	101779	29.5	18.1	299047	29.6	21.0	132098	29.6	19.5
320187	29.3	19.9	491951	29.4	21.6	145781	29.5	19.9	426304	29.5	20.2	380077	29.6	21.2	292266	29.6	20.9
331232	29.3	20.1	538735	29.4	20.6	464809	29.5	19.8	427567	29.5	21.2	422409	29.6	19.9	504423	29.6	22.2
1643	29.3	16.1	413890	29.4	22.1	498623	29.5	21.1	198735	29.5	19.4	246808	29.6	20.8	27205	29.6	17.8
217994	29.3	20.4	248701	29.4	19.5	109639	29.5	18.5	186134	29.5	20.1	501490	29.6	21.8	386140	29.6	21.1
258556	29.3	19.5	422674	29.4	21.1	173932	29.5	20.6	381333	29.5	20.8	453373	29.6	20.7	155129	29.6	20.3
363757	29.3	21.7	437654	29.4	21.0	90129	29.5	19.3	500457	29.5	21.5	131850	29.6	19.4	244006	29.6	20.8
308548	29.3	19.9	306848	29.4	21.2	420435	29.5	20.6	31975	29.5							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
373820	29.7	20.3	525039	29.7	22.1	205736	29.8	20.7	534587	29.8	21.7	43002	29.9	18.9	15385	29.9	18.7
292088	29.7	19.5	300056	29.7	20.2	273733	29.8	20.2	58293	29.8	18.3	58535	29.9	19.9	344316	29.9	21.0
445957	29.7	21.0	535080	29.7	21.6	368244	29.8	20.0	465189	29.8	21.0	350599	29.9	20.0	368576	29.9	20.8
413954	29.7	20.8	280659	29.7	19.8	84871	29.8	20.1	169388	29.8	19.7	81490	29.9	19.2	531635	29.9	22.5
534524	29.7	22.6	489357	29.7	21.8	176958	29.8	17.9	148633	29.8	20.2	149831	29.9	20.6	217956	29.9	20.2
524239	29.7	21.3	525619	29.7	20.8	85319	29.8	20.0	102710	29.8	19.8	247905	29.9	20.3	237848	29.9	19.2
141846	29.7	20.3	353860	29.7	20.5	306805	29.8	20.8	232371	29.8	19.6	127208	29.9	19.2	193997	29.9	19.0
275208	29.7	20.2	118379	29.7	24.0	45855	29.8	16.8	430229	29.8	20.8	290854	29.9	20.9	264619	29.9	20.5
68091	29.7	18.6	4413	29.7	16.9	504157	29.8	19.9	532135	29.8	21.2	437127	29.9	21.6	197561	29.9	18.9
340672	29.7	20.2	134867	29.7	19.4	104690	29.8	19.2	370739	29.8	21.1	319342	29.9	21.0	494186	29.9	20.4
98547	29.7	19.7	497112	29.7	18.9	272538	29.8	20.3	275679	29.8	20.2	418312	29.9	20.9	243646	29.9	19.4
233864	29.7	22.2	230949	29.7	21.0	255774	29.8	21.4	446289	29.8	19.8	297062	29.9	19.9	173050	29.9	19.7
298371	29.7	19.3	411238	29.7	19.5	345063	29.8	20.8	51875	29.8	17.9	275402	29.9	21.9	101886	29.9	18.5
41488	29.7	18.7	222371	29.7	20.3	336068	29.8	19.8	57759	29.8	20.1	267493	29.9	19.0	135393	29.9	18.9
286285	29.7	19.3	150245	29.7	19.2	193878	29.8	19.9	241173	29.8	20.9	535054	29.9	20.6	119465	29.9	18.4
371972	29.7	19.5	124729	29.7	19.9	85803	29.8	19.6	417044	29.8	21.8	255900	29.9	19.3	87016	29.9	18.0
497651	29.7	20.5	429524	29.7	20.1	471173	29.8	19.6	532166	29.8	21.5	90146	29.9	19.6	281129	29.9	20.1
228281	29.7	20.2	118106	29.7	19.8	30793	29.8	19.3	285772	29.8	20.1	202431	29.9	21.3	416949	29.9	20.4
530100	29.7	21.4	284374	29.7	20.5	33292	29.8	18.4	57851	29.8	18.9	383814	29.9	20.8	338175	29.9	20.1
371114	29.7	20.8	430345	29.7	20.7	187866	29.8	19.3	179806	29.8	23.2	130523	29.9	18.7	399856	29.9	20.9
562	29.7	14.0	529881	29.7	20.8	104916	29.8	18.6	228208	29.8	19.9	423107	29.9	20.1	487570	29.9	20.4
463799	29.7	21.9	50656	29.7	17.6	350717	29.8	21.0	264595	29.8	20.9	161480	29.9	19.5	429635	29.9	20.4
341228	29.7	20.8	368961	29.7	20.4	333043	29.8	22.0	249134	29.8	20.4	340647	29.9	21.0	347446	29.9	19.7
196582	29.7	19.9	227411	29.7	20.4	85632	29.8	18.5	496108	29.8	20.3	82285	29.9	18.5	406231	29.9	21.4
108900	29.7	19.0	44477	29.7	18.5	153998	29.8	19.4	529183	29.8	21.4	191605	29.9	19.2	136020	29.9	19.1
111347	29.7	19.1	188280	29.7	19.3	490247	29.8	21.5	214457	29.8	19.6	298992	29.9	21.4	409940	29.9	22.2
92849	29.7	19.8	314703	29.7	20.6	107584	29.8	18.1	198915	29.8	20.7	458574	29.9	20.4	496512	29.9	20.4
300179	29.7	20.7	69880	29.7	18.6	330428	29.8	20.4	193398	29.8	21.1	229771	29.9	18.2	98103	29.9	19.3
125624	29.7	20.0	303912	29.7	21.9	46732	29.8	17.9	465170	29.8	22.2	221244	29.9	19.8	524562	29.9	19.9
501388	29.7	20.8	107530	29.7	20.0	497752	29.8	20.8	151534	29.8	19.8	335667	29.9	21.0	235622	29.9	19.3
443854	29.7	22.5	432196	29.7	20.6	4176	29.8	16.7	367995	29.8	19.9	234024	29.9	20.2	338982	29.9	20.7
242995	29.7	20.4	144820	29.7	19.4	489773	29.8	21.5	149313	29.8	18.4	107093	29.9	19.9	533940	29.9	21.7
203810	29.7	18.7	217084	29.7	20.0	341683	29.8	20.1	140864	29.8	17.7	290759	29.9	20.1	463919	29.9	20.4
459033	29.7	20.8	323117	29.7	21.0	157468	29.8	20.1	417495	29.8	21.0	201691	29.9	20.3	95870	29.9	18.4
510096	29.7	19.7	201596	29.7	20.1	489399	29.8	21.8	151935	29.8	17.8	58183	29.9	18.8	146336	29.9	18.8
363450	29.7	20.8	34785	29.7	18.5	32804	29.8	16.4	248985	29.8	20.0	73624	29.9	19.4	449673	29.9	19.2
36051	29.7	17.7	292451	29.7	21.0	505624	29.8	21.6	194517	29.8	18.9	63718	29.9	19.0	538340	29.9	20.0
325983	29.7	21.0	225776	29.7	19.6	390068	29.8	19.1	50803	29.8	18.6	426987	29.9	19.9	38649	29.9	21.2
123712	29.7	19.8	540086	29.7	22.0	237880	29.8	19.9	535911	29.8	21.7	112314	29.9	17.6	221424	29.9	21.4
424760	29.7	20.8	410031	29.7	21.8	59763	29.8	18.2	68335	29.8	18.0	27534	29.9	18.1	226010	29.9	19.8
413961	29.7	20.6	449147	29.7	22.4	422623	29.8	19.9	444753	29.8	21.6	412523	29.9	18.3	543381	29.9	19.7
507922	29.7	19.4	482951	29.7	19.5	500876	29.8	24.3	537841	29.8	20.8	346913	29.9	19.1	415845	29.9	21.5
34037	29.7	17.6	532187	29.7	21.1	257986	29.8	20.3	542932	29.9	21.1	528448	29.9	21.1	453201	29.9	20.7
120074	29.7	18.3	235613	29.7	19.0	102546	29.8	19.4	374167	29.9	19.7	345775	29.9	20.8	167609	29.9	19.4
378	29.7	14.0	402053	29.7	22.1	84454	29.8	19.1	156623	29.9	18.7	2900	29.9	16.0	366453	29.9	21.5
56484	29.7	17.4	453265	29.7	22.0	62134	29.8	19.2	82682	29.9	18.6	531581	29.9	21.7	31344	29.9	18.0
192719	29.7	19.8	157762	29.7	19.3	522860	29.8	21.7	207112	29.9	20.9	498925	29.9	21.3	140911	29.9	19.4
378732	29.7	20.2	187341	29.7	19.7	268055	29.8	19.8	47451	29.9	18.6	128342	29.9	19.4	62219	29.9	19.7
283946	29.7	20.5	537869	29.7	20.7	37025	29.8	17.9	460135	29.9	21.2	277026	29.9	19.4	244857	29.9	20.9
176805	29.7	20.2	298988	29.7	21.1	459843	29.8	20.5	306277	29.9	20.5	268514	29.9	20.8	538857	29.9	20.8
80575	29.7	19.5	525199	29.7	20.4	355754	29.8	21.3	327322	29.9	20.8	211589	29.9	19.7	388824	29.9	20.3
403294	29.7	19.7	164546	29.7	19.9	48621	29.8	17.9	498310	29.9	21.0	207066	29.9	20.0	416993	29.9	21.7
63104	29.7	18.6	4573	29.7	15.9	369751	29.8	20.9	402930	29.9	20.7	464000	29.9	19.9	247004	29.9	19.5
208212	29.7	20.7	123066	29.7	20.1	239879	29.8	19.4	296513	29.9	20.7	118044	29.9	19.7	171456	29.9	20.2
389959	29.7	21.3	320677	29.7	21.6	165188	29.8	20.8	97320	29.9	19.3	259975	29.9	19.6	132279	29.9	19.9
243227	29.7	19.3	36673	29.7	17.2	504185	29.8	21.0	201220	29.9	20.6	169352	29.9	24.1	437417	29.9	21.6
366903	29.7	20.2	348864	29.7	20.6	420396	29.8	20.4	11366	29.9	17.2	32694	29.9	17.7	143603	29.9	19.6
492678	29.7	21.0	537266	29.7	21.3	466530	29.8	20.9	258328	29.9	21.4	39242	29.9	18.4	363796	29.9	19.3
204544	29.7	20.2	464116	29.7	20.8	451045	29.8	20.2	190072	29.9	19.9	222136	29.9	19.9	455429	29.9	21.6
173755	29.7	20.3	311056	29.7	20.0	38333	29.8	17.8	247645	29.9	20.6	269303	29.9	19.8	351607	29.9	20.7
467442	29.7	21.3	283500	29.8	20.1	220436	29.8	19.8	68074	29.9	19.7	96823	29.9	18.5	425	29.9	13.5
156764	29.7	19.2	163351	29.8	20.1	538331	29.8	20.5	65910	29.9	19.6	22682	29.9	17.8	156215	29.9	21.4
290314	29.7	19.5	276976	29.8	20.5	63497	29.8	19.5	2076	29.9	17.7	248058	29.9	18.8	311812	29.9	19.8
384464	29.7	20.3	216440	29.8	20.1	538872	29.8	21.0	32994	29.9	17.9	95339	29.9	18.5	386183	29.9	21.6
471407	29.7	20.2	242105	29.8	20.3	210902	29.8	20.7	323743	29.9	20.7	485080	29.9	21.5	428446	30.0	20.3
286593	29.7	20.7	506064	29.8	20.5	410571	29.8	21.3	81210	29.9	17.4	346930	29.9	21.4	4722	30.0	17.2
346806	29.7	20.2	18373	29.8	18.1	336186	29.8	20.4	21107	29.9	16.8	179767	29.9	20.4	276926	30.0	20.5
337759	29.7	21.2	334535	29.8	20.3	416972	29.8	21.4	491963	29.9	21.7	536432	29.9	20.4	282794	30.0	21.2
433941	29.7	20.8	485052	29.8	20.1	43933	29.8	18.9	5368	29.9							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
535346	30.0	21.8	18801	30.1	16.5	150955	30.1	20.9	419342	30.2	20.3	283550	30.3	19.6	235003	30.3	20.6
92352	30.0	18.1	105722	30.1	20.4	538184	30.1	20.3	193888	30.2	20.2	178970	30.3	20.8	195601	30.3	19.4
141633	30.0	18.6	188095	30.1	19.3	489752	30.1	22.1	300993	30.2	19.5	221303	30.3	20.3	437278	30.3	20.4
52291	30.0	19.3	212585	30.1	21.1	465956	30.1	21.6	328165	30.2	21.5	417752	30.3	21.3	229975	30.3	20.0
41728	30.0	18.9	35677	30.1	17.3	20792	30.1	18.3	456883	30.2	22.2	165413	30.3	18.9	345575	30.3	21.0
87929	30.0	19.1	187606	30.1	20.1	419824	30.1	21.1	41845	30.2	18.4	347637	30.3	20.3	179244	30.3	19.7
304137	30.0	20.7	34919	30.1	20.6	341476	30.1	20.3	230504	30.2	20.2	542507	30.3	21.1	526309	30.3	21.9
271731	30.0	20.6	2779	30.1	15.4	206373	30.1	19.5	428437	30.2	20.1	246101	30.3	20.0	264730	30.3	19.7
162828	30.0	18.5	125019	30.1	19.8	53764	30.1	17.2	219785	30.2	21.1	444173	30.3	20.4	193812	30.3	20.1
400270	30.0	21.2	120113	30.1	18.7	534333	30.1	21.9	301228	30.2	20.3	503086	30.3	19.7	401146	30.3	20.1
471182	30.0	22.0	5495	30.1	16.3	231541	30.1	20.7	105067	30.2	18.8	167063	30.3	19.9	125286	30.3	20.5
414249	30.0	20.4	389329	30.1	20.1	508704	30.1	21.3	370461	30.2	19.6	246941	30.3	19.3	59348	30.3	18.2
48764	30.0	18.9	435356	30.1	21.6	464224	30.1	20.3	208275	30.2	20.8	190437	30.3	19.6	534979	30.3	22.2
29576	30.0	18.0	26990	30.1	17.2	496736	30.1	20.3	235240	30.2	20.1	140068	30.3	19.2	199994	30.3	18.6
263301	30.0	20.5	160903	30.1	20.5	167573	30.1	20.4	261262	30.2	20.4	285675	30.3	19.8	391294	30.3	20.3
58252	30.0	18.5	245011	30.1	20.1	345659	30.1	20.8	124194	30.2	19.0	507598	30.3	21.5	184046	30.3	20.0
165452	30.0	20.3	33245	30.1	19.8	86399	30.1	19.1	436653	30.2	20.5	94616	30.3	17.6	283725	30.3	19.0
135261	30.0	19.7	472404	30.1	20.7	439446	30.1	21.0	231772	30.2	20.6	331237	30.3	19.6	503733	30.3	20.7
141206	30.0	19.8	503207	30.1	20.9	545104	30.1	20.9	22130	30.2	18.3	496240	30.3	18.7	1636	30.3	15.4
56678	30.0	19.0	493525	30.1	21.0	355917	30.1	21.0	465133	30.2	21.7	180667	30.3	20.1	333040	30.3	21.3
3511	30.0	16.5	190096	30.1	20.0	244593	30.2	20.2	503018	30.2	20.8	68457	30.3	19.7	55181	30.3	19.0
346695	30.0	20.4	276570	30.1	19.4	208975	30.2	20.3	238794	30.2	20.5	310761	30.3	20.0	152929	30.3	18.8
194327	30.0	20.3	358175	30.1	19.9	473136	30.2	19.9	150200	30.2	18.1	487151	30.3	19.9	238890	30.3	19.5
264041	30.0	19.7	124813	30.1	19.5	533288	30.2	20.4	172812	30.2	19.1	283487	30.3	20.3	386132	30.3	21.7
527196	30.0	21.7	109685	30.1	19.1	529382	30.2	21.5	324543	30.2	21.1	526505	30.3	20.6	136820	30.3	19.1
196552	30.0	19.8	459220	30.1	20.1	170625	30.2	19.0	522466	30.2	20.8	35424	30.3	18.9	513251	30.3	21.1
217455	30.0	19.4	58372	30.1	18.9	476899	30.2	22.1	246784	30.2	20.0	40496	30.3	18.9	343659	30.3	20.7
134381	30.0	20.7	34393	30.1	18.2	211000	30.2	20.5	85060	30.2	18.7	355870	30.3	20.1	491109	30.3	20.5
205788	30.0	20.0	250121	30.1	20.1	404211	30.2	20.7	541592	30.2	20.6	542531	30.3	22.0	288957	30.3	20.1
41676	30.0	17.4	206209	30.1	20.0	273045	30.2	20.1	504122	30.2	22.1	287211	30.3	20.7	545000	30.3	21.1
522067	30.0	21.0	341881	30.1	20.4	435421	30.2	20.6	389812	30.2	20.2	271397	30.3	19.3	542540	30.3	21.2
269110	30.0	19.4	369606	30.1	21.4	72139	30.2	18.2	102664	30.2	19.3	149425	30.3	20.3	170314	30.3	20.0
503034	30.0	20.6	399718	30.1	19.7	194695	30.2	19.9	534296	30.2	21.7	347990	30.3	21.2	161254	30.3	20.5
229968	30.0	21.0	89873	30.1	20.0	265004	30.2	18.8	439547	30.2	19.8	462643	30.3	21.2	326347	30.3	19.7
161015	30.0	18.7	524777	30.1	19.5	378874	30.2	20.2	350953	30.2	20.7	77277	30.3	19.4	178478	30.3	18.1
303693	30.0	20.2	230824	30.1	19.8	191253	30.2	20.0	394803	30.2	20.7	206726	30.3	21.5	480027	30.3	21.3
300157	30.0	20.9	309938	30.1	19.2	14578	30.2	17.3	286021	30.2	21.6	320613	30.3	19.4	413513	30.3	21.6
307456	30.0	21.4	536253	30.1	20.6	28593	30.2	18.1	456875	30.2	21.0	318046	30.3	20.3	188119	30.3	20.6
225108	30.0	19.0	329826	30.1	19.8	14967	30.2	18.2	214071	30.2	19.5	528862	30.3	21.1	413855	30.3	21.3
473639	30.0	21.8	459783	30.1	20.4	109863	30.2	18.6	468329	30.2	20.0	422193	30.3	20.6	71993	30.3	19.7
288481	30.0	19.0	192089	30.1	19.4	239906	30.2	19.7	279951	30.2	20.7	106079	30.3	19.7	367033	30.3	21.9
378768	30.0	20.9	423602	30.1	21.4	14933	30.2	18.3	190499	30.2	19.6	196374	30.3	18.9	426595	30.3	20.3
530289	30.0	21.7	241295	30.1	19.6	313729	30.2	19.8	383644	30.2	21.9	434997	30.3	21.2	207961	30.3	21.1
384224	30.0	20.9	385158	30.1	19.8	75911	30.2	19.8	139622	30.2	19.7	101561	30.3	19.6	162784	30.3	20.0
105896	30.0	18.9	167069	30.1	19.9	310335	30.2	19.4	111735	30.2	18.8	155511	30.3	19.9	531777	30.3	22.5
369320	30.0	20.4	302085	30.1	20.9	328883	30.2	19.2	240007	30.2	20.1	249401	30.3	18.9	364867	30.3	19.7
462889	30.0	21.6	349882	30.1	20.0	224659	30.2	20.9	392538	30.2	20.2	463860	30.3	20.0	425167	30.3	21.8
400333	30.0	20.5	263683	30.1	20.4	227931	30.2	20.2	73385	30.2	18.4	237232	30.3	19.5	164545	30.3	19.8
216015	30.0	19.6	322705	30.1	24.8	156371	30.2	19.6	522868	30.2	20.4	462198	30.3	21.5	297033	30.3	19.7
99517	30.0	18.7	153757	30.1	20.5	116784	30.2	19.6	19697	30.2	17.6	284475	30.3	20.4	529573	30.3	21.5
9075	30.0	18.2	423265	30.1	21.3	246789	30.2	18.9	63589	30.2	18.2	231138	30.3	18.9	161029	30.3	19.2
281207	30.0	19.2	400821	30.1	19.9	432201	30.2	20.5	384193	30.2	20.4	522640	30.3	19.6	52275	30.4	19.7
227627	30.0	20.1	95294	30.1	18.6	443660	30.2	19.9	449566	30.2	19.4	217058	30.3	19.3	346836	30.4	21.3
341242	30.1	19.4	64111	30.1	19.0	303345	30.2	18.9	354092	30.2	21.5	432221	30.3	20.8	336496	30.4	20.9
531676	30.1	22.6	295274	30.1	19.9	269611	30.2	21.9	194565	30.2	20.6	201041	30.3	19.4	282711	30.4	20.5
133360	30.1	18.8	501373	30.1	20.7	428751	30.2	21.3	144080	30.2	19.5	128158	30.3	20.0	8934	30.4	17.8
22425	30.1	18.7	103163	30.1	18.7	428972	30.2	20.7	10667	30.2	17.8	53238	30.3	17.6	138595	30.4	19.5
174197	30.1	20.0	166343	30.1	19.5	415814	30.2	20.0	543089	30.2	20.3	511699	30.3	20.0	510442	30.4	19.4
171883	30.1	20.3	463974	30.1	19.3	277529	30.2	19.2	534752	30.2	19.7	488530	30.3	20.9	386502	30.4	20.1
450489	30.1	21.8	467776	30.1	21.2	538817	30.2	19.6	398000	30.2	21.1	532983	30.3	21.2	496947	30.4	21.7
207362	30.1	19.9	137104	30.1	20.2	191131	30.2	19.4	172878	30.2	18.8	467509	30.3	22.1	22318	30.4	17.5
200017	30.1	20.5	540684	30.1	20.6	88592	30.2	18.4	387908	30.2	21.3	505664	30.3	20.2	87423	30.4	19.7
128364	30.1	18.3	496096	30.1	21.1	151027	30.2	20.0	56011	30.2	18.2	28447	30.3	17.4	90245	30.4	19.1
426152	30.1	19.7	349064	30.1	21.5	336118	30.2	20.7	27736	30.2	18.8	232149	30.3	18.8	499234	30.4	20.8
246673	30.1	20.0	532368	30.1	22.1	127166	30.2	19.7	36623	30.2	19.9	311897	30.3	20.1	407549	30.4	21.0
421400	30.1	20.0	90969	30.1	18.9	341332	30.2	20.4	432864	30.2	21.0	531334	30.3	21.1	253188	30.4	21.3
3582	30.1	16.2	104275	30.1	18.4	264191	30.2	20.3	366734	30.2	21.1	362070	30.3	21.1	424177	30.4	20.2
275880	30.1	20.8	415926	30.1	21.9	214812	30.2	21.1	106801	30.2	19.2	72311	30.3	19.5	529359	30.4	21.0
333072	30.1	19.7	269522	30.1	22.4	95921	30.2	18.6									

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
83803	30.4	19.9	35377	30.4	19.3	143573	30.5	20.4	460180	30.6	21.1	465941	30.7	21.9	306487	30.7	20.3
521161	30.4	20.9	527406	30.4	20.7	11869	30.5	18.4	285223	30.6	19.8	325305	30.7	20.8	217967	30.7	20.2
345534	30.4	20.2	99436	30.4	17.9	529031	30.5	21.3	167186	30.6	20.0	140025	30.7	19.9	201175	30.7	19.5
152531	30.4	20.1	352122	30.5	18.9	382380	30.5	20.9	294708	30.6	19.0	93900	30.7	21.0	465120	30.7	21.8
397154	30.4	20.4	6285	30.5	18.3	361561	30.5	20.7	487535	30.6	21.0	544543	30.7	21.0	513395	30.7	21.2
82030	30.4	18.8	189182	30.5	18.8	2742	30.5	16.3	9912	30.6	15.7	434999	30.7	20.6	98207	30.7	17.9
1696	30.4	15.3	301347	30.5	21.7	372900	30.5	20.5	82927	30.6	19.1	335924	30.7	22.7	87569	30.7	18.8
52308	30.4	19.3	467434	30.5	21.5	338307	30.5	19.7	93908	30.6	19.9	344322	30.7	19.7	514540	30.7	20.5
301127	30.4	19.4	341766	30.5	21.7	103998	30.5	18.6	214514	30.6	20.0	395444	30.7	19.9	311584	30.7	19.6
524413	30.4	21.3	21212	30.5	17.9	55168	30.5	18.8	130691	30.6	19.2	146595	30.7	19.4	249136	30.7	19.0
367320	30.4	19.8	540372	30.5	21.0	434864	30.5	20.8	236174	30.6	19.5	64910	30.7	19.2	253236	30.7	20.2
453310	30.4	20.8	68969	30.5	20.0	416713	30.5	20.8	312245	30.6	21.5	8580	30.7	18.2	120466	30.7	19.2
325064	30.4	20.5	140962	30.5	19.6	36935	30.5	18.3	12444	30.6	16.7	122166	30.7	17.5	283594	30.7	19.9
166889	30.4	19.6	502668	30.5	21.8	142621	30.5	19.7	337193	30.6	20.1	437195	30.7	20.9	13850	30.7	16.2
435983	30.4	21.0	45947	30.5	18.7	535862	30.5	21.3	238787	30.6	19.8	526301	30.7	20.0	84842	30.7	19.1
331930	30.4	19.5	235469	30.5	20.4	125175	30.5	18.7	379833	30.6	20.0	291046	30.7	20.8	465698	30.7	21.0
463556	30.4	20.4	338164	30.5	19.7	435307	30.5	20.8	415896	30.6	22.4	464948	30.7	20.9	315561	30.7	21.0
346135	30.4	20.8	30073	30.5	16.7	385873	30.5	20.9	472147	30.6	20.1	384922	30.7	21.5	320637	30.7	18.1
208376	30.4	19.7	90092	30.5	19.3	467107	30.5	22.1	221289	30.6	19.3	190193	30.7	20.8	30106	30.7	16.4
117822	30.4	18.3	275043	30.5	20.4	285648	30.5	19.7	209444	30.6	19.0	363759	30.7	21.7	457762	30.7	20.2
321729	30.4	19.1	41640	30.5	19.9	286032	30.5	20.2	217216	30.6	20.2	193946	30.7	20.2	371020	30.7	21.6
108755	30.4	19.3	491904	30.5	20.9	211429	30.5	20.6	386569	30.6	21.5	67849	30.7	17.9	467439	30.7	20.7
140013	30.4	19.3	359627	30.5	20.5	307983	30.5	20.4	143066	30.6	19.1	467455	30.7	20.4	459436	30.7	20.9
432509	30.4	20.6	50989	30.5	18.3	139819	30.5	20.6	135072	30.6	19.6	72942	30.7	18.9	38947	30.7	18.2
435278	30.4	21.2	120368	30.5	20.3	297879	30.5	21.3	299838	30.6	21.4	513871	30.7	20.5	311110	30.7	18.9
185363	30.4	20.2	71314	30.5	18.4	336554	30.5	21.3	135463	30.6	20.1	4269	30.7	15.4	215974	30.7	20.8
236880	30.4	20.9	535306	30.5	21.4	240861	30.5	19.2	155729	30.6	20.6	345249	30.7	20.2	498086	30.7	22.3
350212	30.4	20.2	341926	30.5	21.0	386200	30.5	20.9	328672	30.6	19.8	210781	30.7	20.5	490308	30.7	22.4
184070	30.4	18.7	285444	30.5	21.5	472980	30.5	19.5	278656	30.6	20.6	192962	30.7	20.2	348665	30.8	20.7
105456	30.4	18.5	239224	30.5	19.7	536898	30.5	21.3	367541	30.6	20.7	79159	30.7	19.5	507326	30.8	20.5
21290	30.4	18.5	32224	30.5	16.8	214070	30.5	18.7	46927	30.6	19.6	520969	30.7	20.8	51721	30.8	18.6
352008	30.4	20.0	65710	30.5	18.9	267282	30.5	20.9	163598	30.6	20.2	478941	30.7	20.4	224516	30.8	20.3
367403	30.4	20.4	236819	30.5	20.8	428919	30.5	21.0	224532	30.6	21.2	455229	30.7	20.6	536607	30.8	20.6
83874	30.4	19.1	66499	30.5	18.7	6005	30.5	17.0	58357	30.6	19.2	299541	30.7	20.1	231830	30.8	17.6
541705	30.4	19.2	277849	30.5	19.2	253265	30.5	20.2	168561	30.6	18.3	148548	30.7	20.3	156326	30.8	20.8
291932	30.4	19.9	126602	30.5	19.2	171099	30.5	20.0	55761	30.6	19.5	149506	30.7	19.0	440938	30.8	19.3
544212	30.4	21.6	343138	30.5	20.6	238801	30.5	19.6	497746	30.6	21.0	271822	30.7	20.5	480681	30.8	21.4
91453	30.4	19.3	86966	30.5	19.3	494799	30.6	21.1	160303	30.6	18.0	43878	30.7	18.6	181240	30.8	18.3
469776	30.4	20.8	84418	30.5	19.2	235653	30.6	19.1	231844	30.6	19.4	480755	30.7	19.8	102231	30.8	19.0
224583	30.4	20.0	125938	30.5	19.8	534792	30.6	22.1	29193	30.6	17.5	507250	30.7	21.6	344398	30.8	20.5
34022	30.4	18.0	330822	30.5	22.2	354149	30.6	21.7	155380	30.6	19.4	370750	30.7	20.6	502590	30.8	20.5
140669	30.4	19.1	192179	30.5	18.2	527002	30.6	22.0	207097	30.6	20.0	354388	30.7	19.5	386218	30.8	20.1
368220	30.4	20.6	454752	30.5	20.2	261191	30.6	20.7	264631	30.6	21.5	201831	30.7	20.1	459618	30.8	21.9
426037	30.4	19.6	524083	30.5	20.5	141546	30.6	19.9	325303	30.6	19.3	207603	30.7	19.2	68353	30.8	18.4
496340	30.4	20.8	126240	30.5	18.5	348920	30.6	21.8	120617	30.6	19.8	280653	30.7	20.5	95552	30.8	19.1
73119	30.4	18.6	194090	30.5	20.9	11317	30.6	17.4	222730	30.6	20.8	202663	30.7	20.1	88549	30.8	18.3
135185	30.4	18.7	442653	30.5	21.6	114876	30.6	19.9	275682	30.6	20.2	290297	30.7	20.7	505072	30.8	16.8
5698	30.4	16.4	532342	30.5	22.3	82842	30.6	19.8	536950	30.6	20.9	214883	30.7	20.5	500254	30.8	20.6
152688	30.4	20.1	429060	30.5	20.4	5838	30.6	16.3	93975	30.6	17.7	244063	30.7	19.6	120928	30.8	19.0
183972	30.4	20.5	111825	30.5	19.8	297076	30.6	19.1	141280	30.6	18.8	230535	30.7	19.9	174373	30.8	18.7
530120	30.4	21.2	224411	30.5	20.5	385062	30.6	21.2	453779	30.6	20.2	368448	30.7	20.9	102616	30.8	19.4
270358	30.4	22.6	266410	30.5	20.0	338070	30.6	20.7	148384	30.6	20.3	449194	30.7	20.7	305081	30.8	19.1
122664	30.4	18.7	389960	30.5	20.1	97882	30.6	20.0	135089	30.6	19.6	165179	30.7	18.7	435958	30.8	20.7
350721	30.4	20.2	430054	30.5	21.4	535551	30.6	22.1	264560	30.6	21.0	371160	30.7	21.2	500898	30.8	19.0
219340	30.4	19.8	298895	30.5	21.1	534483	30.6	20.3	338333	30.6	19.4	109560	30.7	19.3	216	30.8	12.0
88937	30.4	18.9	532361	30.5	21.1	427507	30.6	23.9	295301	30.6	19.1	221138	30.7	18.8	514747	30.8	20.7
385164	30.4	20.0	535108	30.5	21.1	497804	30.6	20.9	148776	30.6	20.3	532149	30.7	20.7	276295	30.8	19.0
498997	30.4	20.6	351546	30.5	20.3	106238	30.6	20.6	66525	30.6	19.1	216847	30.7	19.8	151586	30.8	19.6
301247	30.4	21.4	428811	30.5	21.2	257063	30.6	20.0	466787	30.6	20.6	497897	30.7	21.2	53222	30.8	17.4
422782	30.4	22.3	404453	30.5	19.3	264681	30.6	20.7	387168	30.6	20.7	205453	30.7	20.2	461498	30.8	21.1
138520	30.4	17.8	543343	30.5	19.8	145468	30.6	19.3	105243	30.6	19.8	152331	30.7	20.0	521135	30.8	20.3
27980	30.4	18.1	36333	30.5	17.1	342999	30.6	21.2	82011	30.6	19.5	21710	30.7	18.7	536085	30.8	21.3
179484	30.4	19.5	12962	30.5	17.7	203513	30.6	21.4	109316	30.6	19.2	80356	30.7	18.2	473166	30.8	20.3
80050	30.4	18.6	236955	30.5	19.7	331185	30.6	20.1	127083	30.6	19.7	109922	30.7	20.7	411274	30.8	22.1
146721	30.4	20.4	471413	30.5	20.8	61924	30.6	18.8	3368	30.6	16.2	259903	30.7	20.0	519156	30.8	20.1
79455	30.4	19.8	354019	30.5	20.9	456768	30.6	22.5	419721	30.6	20.1	227531	30.7	20.2	115391	30.8	18.3
19467	30.4	18.1	368756	30.5	20.9	174673	30.6	21.0	382372	30.6	20.9	236856	30.7	21.6	314706	30.8	21.6
80079	30.4	18.2	17665	30.5	17.3	26761	30.6	18.6	10865	30.6	16.9	339535	30.7	19.9	163438	30.8	20.6
50910	30.4	19.0	473521	30.5	20.8	370044	30.6	19.6	423817	30.6	20						

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
444434	30.8	22.1	386956	30.9	20.3	471509	30.9	20.9	182294	31.0	22.4	277473	31.1	18.5	253297	31.1	20.9
450191	30.8	20.6	56568	30.9	18.3	113687	30.9	19.1	353803	31.0	20.5	500562	31.1	21.3	226743	31.1	19.5
473753	30.8	19.2	157444	30.9	18.7	203899	30.9	18.8	544934	31.0	22.1	400313	31.1	21.3	509747	31.1	22.8
119257	30.8	19.8	520917	30.9	20.3	462782	30.9	19.8	51832	31.0	18.9	271366	31.1	21.6	225031	31.1	19.9
272205	30.8	19.0	170715	30.9	19.7	64545	30.9	19.7	120057	31.0	19.7	428878	31.1	21.0	279514	31.1	20.2
161147	30.8	19.0	380086	30.9	20.5	421269	30.9	20.9	28492	31.0	16.7	51357	31.1	18.8	300259	31.1	18.9
307848	30.8	19.1	300271	30.9	19.7	212924	30.9	19.8	536458	31.0	20.3	500995	31.1	20.9	313697	31.1	20.7
84728	30.8	19.9	8763	30.9	17.0	508783	30.9	21.3	348446	31.0	21.2	138998	31.1	18.5	490318	31.2	21.5
61693	30.8	17.9	165511	30.9	20.5	175347	30.9	20.0	469055	31.0	20.4	212287	31.1	20.1	451030	31.2	22.2
423613	30.8	21.8	502252	30.9	21.0	469707	30.9	22.0	421391	31.0	20.2	524109	31.1	20.3	157893	31.2	19.6
193241	30.8	21.1	293590	30.9	19.5	409963	30.9	22.0	491723	31.0	20.8	506036	31.1	20.0	454996	31.2	21.9
362747	30.8	21.3	45840	30.9	20.0	153025	30.9	18.8	544243	31.0	20.5	136636	31.1	19.8	124180	31.2	19.0
296057	30.8	20.9	116452	30.9	19.7	236687	30.9	20.2	259942	31.0	18.1	417205	31.1	21.4	344330	31.2	21.9
430105	30.8	21.0	363868	30.9	20.0	224385	30.9	20.2	501302	31.0	21.0	159637	31.1	19.9	34398	31.2	18.2
503088	30.8	20.4	337407	30.9	21.4	54790	30.9	19.0	496153	31.0	21.1	540478	31.1	21.1	425219	31.2	20.7
229039	30.8	20.1	149818	30.9	19.3	371975	30.9	19.4	280211	31.0	19.4	129968	31.1	20.3	322365	31.2	20.3
304940	30.8	21.7	389280	30.9	20.7	173949	30.9	19.6	19537	31.0	16.6	359616	31.1	20.1	491186	31.2	20.5
191049	30.8	18.7	448264	30.9	21.0	51707	30.9	17.8	403302	31.0	20.8	163133	31.1	19.4	502675	31.2	20.9
382677	30.8	21.0	55956	30.9	17.0	522510	30.9	20.5	95597	31.0	19.8	453305	31.1	21.8	42311	31.2	17.1
399585	30.8	21.3	109370	30.9	20.1	184521	30.9	20.5	213992	31.0	20.4	51856	31.1	16.4	196420	31.2	18.5
464666	30.8	22.1	357371	30.9	19.6	71044	30.9	19.0	493482	31.0	20.2	306466	31.1	20.4	538360	31.2	21.0
215349	30.8	20.0	500603	30.9	20.1	279276	30.9	19.5	321308	31.0	20.6	98040	31.1	19.6	117426	31.2	19.7
210578	30.8	19.9	238657	30.9	20.1	130847	30.9	21.6	371070	31.0	20.9	406522	31.1	20.4	66884	31.2	19.1
338077	30.8	19.3	295566	30.9	19.1	167604	30.9	20.0	465960	31.0	20.9	385871	31.1	21.2	379376	31.2	20.1
242420	30.8	19.2	387294	30.9	20.2	491722	30.9	21.6	165447	31.0	20.6	301103	31.1	19.1	384016	31.2	21.0
142521	30.8	18.2	242389	30.9	19.1	290775	30.9	20.7	96228	31.0	19.9	487740	31.1	20.2	185877	31.2	18.8
240084	30.8	20.5	383997	30.9	20.4	360045	30.9	20.2	396725	31.0	19.2	427736	31.1	21.7	379044	31.2	20.9
226906	30.8	20.5	101	30.9	11.6	98128	30.9	17.7	93416	31.0	20.2	205371	31.1	20.5	191978	31.2	20.4
423215	30.8	20.3	71759	30.9	17.7	351744	30.9	20.4	149329	31.0	20.4	285657	31.1	20.1	405190	31.2	21.0
28424	30.8	18.1	413070	30.9	21.7	524661	30.9	22.2	116134	31.0	19.0	255782	31.1	22.3	426670	31.2	21.3
170361	30.8	20.0	388300	30.9	21.6	409015	30.9	21.5	524974	31.0	22.1	545006	31.1	20.4	185627	31.2	19.6
186034	30.8	19.8	435309	30.9	21.8	148777	30.9	19.8	310145	31.0	19.9	279570	31.1	20.6	17424	31.2	19.1
463311	30.8	19.5	538091	30.9	21.5	357568	30.9	21.0	46454	31.0	18.5	412440	31.1	18.5	8011	31.2	18.2
465081	30.8	21.6	53604	30.9	17.3	423681	30.9	19.9	89294	31.0	19.5	165757	31.1	20.7	533021	31.2	20.5
76585	30.8	18.8	535902	30.9	22.1	141108	30.9	20.0	526673	31.0	22.0	75569	31.1	20.2	39999	31.2	18.1
463174	30.8	20.0	132222	30.9	19.2	501486	30.9	21.7	236226	31.0	21.0	226073	31.1	19.1	465693	31.2	21.9
224410	30.8	18.4	192780	30.9	20.7	194602	30.9	19.6	141563	31.0	18.8	154304	31.1	20.1	4348	31.2	16.8
500615	30.8	20.7	133735	30.9	19.3	465925	30.9	21.6	12577	31.0	18.0	195259	31.1	20.7	164117	31.2	19.6
62201	30.8	19.1	205087	30.9	18.6	6575	30.9	18.2	37343	31.0	18.6	184132	31.1	19.3	83357	31.2	19.3
409830	30.8	20.1	32781	30.9	17.6	25298	30.9	18.3	331138	31.0	20.8	369288	31.1	20.5	29116	31.2	19.9
82433	30.8	18.9	487103	30.9	19.9	266052	30.9	20.2	527180	31.0	21.5	61442	31.1	19.9	122009	31.2	18.6
103044	30.8	18.8	426607	30.9	20.4	408999	30.9	20.3	222360	31.0	21.3	62241	31.1	19.9	456897	31.2	21.7
81255	30.8	19.8	527576	30.9	21.9	326712	30.9	20.3	304551	31.0	20.6	221187	31.1	20.5	526183	31.2	20.7
424983	30.8	20.8	264444	30.9	21.0	424713	30.9	20.8	351681	31.0	21.0	290078	31.1	19.0	544349	31.2	20.6
12505	30.8	16.4	371246	30.9	20.1	94956	30.9	19.0	455007	31.0	20.7	10361	31.1	18.0	209436	31.2	20.1
468442	30.8	21.4	500887	30.9	24.2	64079	30.9	18.4	156007	31.0	18.3	19988	31.1	17.0	372707	31.2	20.9
491854	30.8	20.1	461708	30.9	21.5	70190	30.9	18.4	535929	31.1	21.4	500709	31.1	21.6	327915	31.2	19.5
500888	30.8	24.1	231427	30.9	19.7	164343	30.9	19.9	79067	31.1	19.1	13909	31.1	18.1	417101	31.2	21.3
531480	30.8	22.0	419786	30.9	21.9	184989	30.9	20.1	390213	31.1	21.4	539129	31.1	20.5	63946	31.2	20.0
544731	30.8	19.9	376837	30.9	22.3	193937	30.9	21.1	531180	31.1	20.4	430694	31.1	20.4	93624	31.2	19.0
402853	30.8	20.2	378756	30.9	20.6	432102	30.9	20.5	209017	31.1	20.2	376174	31.1	20.5	426978	31.2	20.8
423153	30.8	21.3	464674	30.9	21.5	146725	30.9	18.1	30470	31.1	17.1	52632	31.1	17.7	224393	31.2	21.7
291048	30.8	20.6	529574	30.9	20.5	128319	30.9	17.0	498841	31.1	21.4	246962	31.1	20.1	325815	31.2	21.4
534746	30.8	21.2	464910	30.9	20.5	59725	30.9	17.8	147779	31.1	18.8	496175	31.1	20.5	64279	31.2	18.9
30804	30.8	18.9	226722	30.9	19.1	337767	30.9	20.2	13556	31.1	16.2	351961	31.1	19.8	523789	31.2	22.2
211010	30.9	20.3	108577	30.9	19.1	291387	30.9	19.5	124524	31.1	18.6	60161	31.1	19.1	147773	31.2	19.0
229572	30.9	19.8	49623	30.9	17.5	34389	30.9	18.4	413860	31.1	21.8	317070	31.1	20.5	65760	31.2	19.3
169391	30.9	20.3	368630	30.9	20.6	21078	30.9	17.3	411450	31.1	21.2	86413	31.1	17.6	37032	31.2	19.0
155640	30.9	19.2	426913	30.9	20.4	524147	30.9	20.3	187995	31.1	20.6	77691	31.1	18.9	246476	31.2	20.0
124244	30.9	19.4	449142	30.9	20.6	191664	30.9	19.7	93847	31.1	19.4	543487	31.1	21.1	534117	31.2	20.2
306021	30.9	18.8	63792	30.9	18.6	6226	30.9	17.8	481340	31.1	20.5	149443	31.1	20.2	419190	31.2	20.7
139686	30.9	18.9	456091	30.9	19.9	234228	30.9	19.1	490277	31.1	20.2	533162	31.1	21.6	297775	31.2	21.2
519633	30.9	20.3	338939	30.9	21.2	534683	30.9	21.5	346232	31.1	21.6	226295	31.1	21.1	359224	31.2	20.5
3620	30.9	17.1	194125	30.9	20.0	32904	30.9	19.5	300999	31.1	20.5	135222	31.1	19.9	209010	31.2	18.6
346027	30.9	21.0	7783	30.9	16.7	344539	30.9	21.2	111671	31.1	19.1	273703	31.1	19.6	297644	31.2	20.5
294131	30.9	20.8	299405	30.9	19.7	210208	30.9	20.0	176344	31.1	19.9	284185	31.1	19.9	536598	31.2	21.6
124602	30.9	19.9	310908	30.9	20.5	430422	30.9	19.9	27171	31.1	18.0	530760	31.1	21.7	229151	31.2	19.8
488942	30.9	21.5	437523	30.9	20.0	192047	30.9	19.7	543740	31.1	21.5	274353	31.1	20.2	140960	31.2	19.9
437800	30.9	20.7	526666	30.9	23.1	182627	30.9	19.8	289908	31.1							

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
427772	31.2	20.5	497097	31.3	21.7	337353	31.4	19.5	435393	31.4	20.8	413909	31.5	20.1	282246	31.6	18.6
26436	31.2	17.4	473535	31.3	20.8	185377	31.4	20.9	372023	31.4	20.0	89781	31.5	19.6	109238	31.6	19.9
464945	31.2	21.5	418393	31.3	20.5	414877	31.4	21.1	201460	31.4	18.7	171886	31.5	20.0	64591	31.6	19.0
105511	31.2	18.9	371116	31.3	21.2	185321	31.4	20.1	371176	31.5	20.9	201545	31.5	19.2	80071	31.6	18.4
523510	31.2	20.5	134262	31.3	19.2	279455	31.4	20.5	541923	31.5	20.8	283517	31.5	20.5	64033	31.6	18.3
217913	31.2	18.8	328935	31.3	21.1	417003	31.4	21.2	137021	31.5	19.9	243759	31.5	20.0	395704	31.6	20.6
498459	31.2	20.2	141399	31.3	18.6	268396	31.4	21.1	221249	31.5	21.0	96529	31.5	18.6	464921	31.6	21.7
545133	31.2	20.7	228372	31.3	20.6	334776	31.4	20.4	136622	31.5	20.4	540449	31.5	20.3	376309	31.6	20.7
360790	31.2	21.1	219697	31.3	20.3	306334	31.4	21.2	500985	31.5	21.2	328575	31.5	19.8	501872	31.6	20.8
79761	31.2	20.3	151161	31.3	20.4	249411	31.4	19.7	37250	31.5	18.2	357095	31.5	19.5	410051	31.6	20.6
437022	31.2	21.2	448135	31.3	21.4	348599	31.4	20.4	538572	31.5	20.7	196649	31.5	20.4	52231	31.6	17.2
241423	31.2	19.4	193825	31.3	18.8	216409	31.4	20.1	69015	31.5	19.8	137980	31.5	19.8	230073	31.6	20.1
495172	31.2	20.3	140546	31.3	20.6	346201	31.4	20.8	184287	31.5	19.7	460911	31.5	20.2	243837	31.6	19.7
388840	31.2	21.1	61313	31.3	18.2	207048	31.4	21.1	150851	31.5	21.3	370759	31.5	21.8	533276	31.6	21.2
497819	31.2	21.2	524876	31.3	19.7	18434	31.4	16.9	159018	31.5	20.1	526626	31.5	20.4	243397	31.6	19.1
496676	31.2	20.0	170235	31.3	19.8	154012	31.4	20.1	423245	31.5	22.2	44867	31.5	17.6	537938	31.6	19.0
181528	31.2	21.3	56211	31.3	18.8	42867	31.4	18.6	212736	31.5	20.1	243247	31.5	19.9	500684	31.6	21.0
345709	31.2	20.6	14834	31.3	17.7	150691	31.4	19.3	114528	31.5	19.4	208208	31.5	20.0	277012	31.6	21.0
456117	31.2	20.6	315294	31.3	19.4	282881	31.4	19.4	37858	31.5	18.3	285685	31.5	20.2	409837	31.6	20.2
151900	31.2	19.7	98526	31.3	19.9	179394	31.4	20.0	30268	31.5	17.7	316365	31.5	19.9	194744	31.6	21.3
134483	31.2	19.9	262754	31.3	20.1	8948	31.4	17.6	40182	31.5	17.3	259182	31.5	20.4	15977	31.6	17.6
378743	31.2	19.9	19066	31.3	19.1	350697	31.4	21.2	276759	31.5	20.5	526203	31.5	21.8	437183	31.6	20.7
405320	31.2	20.2	173866	31.3	20.0	530090	31.4	22.3	381635	31.5	21.2	221256	31.5	20.3	377656	31.6	21.1
405256	31.2	20.2	416864	31.3	20.2	465131	31.4	21.2	371965	31.5	20.2	535104	31.5	21.5	428396	31.6	21.0
362610	31.2	18.2	532371	31.3	20.9	320078	31.4	20.0	385309	31.5	20.9	208556	31.5	20.3	498259	31.6	21.0
34793	31.2	18.9	317141	31.3	20.3	532513	31.4	21.8	75668	31.5	19.3	375346	31.5	20.7	426713	31.6	20.7
237838	31.2	21.4	348450	31.3	19.3	431626	31.4	20.3	493145	31.5	20.0	321706	31.5	19.8	348897	31.6	21.0
230919	31.2	19.8	232853	31.3	19.6	372782	31.4	20.9	413669	31.5	20.8	497808	31.5	21.6	168495	31.6	20.4
155353	31.3	20.8	321164	31.3	20.8	217076	31.4	19.1	464917	31.5	21.7	53396	31.5	18.7	328756	31.6	20.2
149788	31.3	18.7	465762	31.3	20.3	187570	31.4	20.6	504118	31.5	20.2	93236	31.5	20.0	29825	31.6	19.2
105758	31.3	19.1	356040	31.3	20.3	376507	31.4	20.1	500647	31.5	20.8	50066	31.5	18.7	122445	31.6	18.8
457010	31.3	21.3	110346	31.3	20.1	4673	31.4	15.6	484219	31.5	21.5	373402	31.5	21.7	346082	31.6	20.7
288827	31.3	19.7	536278	31.3	21.1	23478	31.4	18.6	301581	31.5	19.0	318091	31.6	20.1	312310	31.6	20.3
227532	31.3	20.8	343896	31.3	20.2	198653	31.4	20.4	382540	31.5	20.7	497857	31.6	21.5	294384	31.6	18.9
500513	31.3	21.1	196575	31.3	19.5	243183	31.4	20.3	366840	31.5	20.0	462949	31.6	21.0	435941	31.6	21.4
299259	31.3	20.0	421236	31.3	20.4	28340	31.4	17.0	283161	31.5	20.5	232362	31.6	20.4	177160	31.6	20.6
532334	31.3	22.0	201298	31.3	19.0	438401	31.4	21.1	376415	31.5	19.2	426398	31.6	21.0	178606	31.6	21.2
469610	31.3	22.5	28128	31.3	18.0	458299	31.4	20.6	32976	31.5	18.7	525881	31.6	22.5	393210	31.6	18.7
320619	31.3	19.1	274800	31.3	21.0	378308	31.4	19.0	446869	31.5	21.3	90965	31.6	19.0	498367	31.6	21.2
532908	31.3	21.5	337837	31.3	19.5	60957	31.4	18.2	526338	31.5	21.2	132290	31.6	17.4	499781	31.6	20.5
156536	31.3	19.3	485396	31.3	20.9	253477	31.4	19.9	531120	31.5	21.2	10095	31.6	16.6	434841	31.6	21.5
144860	31.3	19.3	140277	31.3	18.0	22159	31.4	18.2	292955	31.5	21.6	325612	31.6	20.0	527512	31.6	22.1
532878	31.3	20.5	93220	31.3	18.2	46617	31.4	18.6	8977	31.5	17.9	455293	31.6	19.3	503150	31.6	20.4
274524	31.3	20.3	123063	31.4	18.3	273869	31.4	18.3	1052	31.5	15.1	11624	31.6	17.0	18994	31.6	17.8
454148	31.3	20.8	233939	31.4	21.4	524980	31.4	19.7	435913	31.5	20.8	103878	31.6	18.2	55319	31.6	18.4
308483	31.3	21.7	487545	31.4	21.1	498089	31.4	21.5	29739	31.5	18.4	19396	31.6	18.2	95843	31.6	18.1
435334	31.3	20.4	39732	31.4	19.0	366422	31.4	20.7	496925	31.5	21.1	337608	31.6	20.8	429058	31.6	20.4
325068	31.3	20.2	212507	31.4	19.3	212308	31.4	19.9	530093	31.5	22.2	427236	31.6	20.6	75673	31.6	17.9
170726	31.3	19.6	500663	31.4	21.2	148925	31.4	19.9	188492	31.5	19.0	26303	31.6	18.5	419415	31.6	21.0
400788	31.3	19.3	391407	31.4	20.0	84815	31.4	18.6	388290	31.5	20.6	405167	31.6	22.3	436003	31.6	19.7
425147	31.3	21.2	272827	31.4	20.2	62001	31.4	18.9	177888	31.5	19.8	382834	31.6	21.3	380403	31.6	19.4
339491	31.3	20.0	476600	31.4	22.0	495401	31.4	21.2	131978	31.5	18.6	423574	31.6	21.7	147214	31.6	20.9
269513	31.3	19.8	233526	31.4	19.9	269765	31.4	20.5	56098	31.5	19.4	138545	31.6	19.0	491901	31.6	20.2
219826	31.3	20.5	272835	31.4	20.7	166210	31.4	18.6	56070	31.5	18.2	446169	31.6	21.6	202042	31.6	20.3
340360	31.3	20.2	498595	31.4	19.6	32434	31.4	18.9	121967	31.5	17.8	49794	31.6	16.6	64552	31.6	18.2
503210	31.3	20.6	388401	31.4	20.7	39511	31.4	19.0	472356	31.5	21.3	226047	31.6	19.5	471165	31.6	20.8
532297	31.3	21.7	414211	31.4	19.9	299582	31.4	20.5	544689	31.5	21.0	108921	31.6	18.9	206217	31.6	19.9
34399	31.3	17.8	229462	31.4	19.3	239474	31.4	20.2	265775	31.5	20.5	226181	31.6	19.7	371718	31.6	20.6
371166	31.3	20.7	232558	31.4	19.7	30377	31.4	16.7	142992	31.5	19.7	179058	31.6	19.0	370748	31.6	19.7
497926	31.3	21.0	402939	31.4	21.0	4443	31.4	16.9	332171	31.5	21.2	535112	31.6	20.8	527398	31.6	19.7
461964	31.3	19.6	311546	31.4	20.8	81404	31.4	18.2	208977	31.5	20.3	72351	31.6	19.0	94681	31.6	18.8
512986	31.3	21.8	89367	31.4	19.0	101367	31.4	20.0	441840	31.5	21.2	455615	31.6	21.7	350951	31.6	21.1
367443	31.3	19.4	472377	31.4	20.1	121004	31.4	20.0	451755	31.5	21.0	372582	31.6	20.5	286297	31.6	20.6
497210	31.3	21.7	533975	31.4	21.9	543362	31.4	21.3	233094	31.5	20.6	295347	31.6	20.4	229854	31.6	20.1
310522	31.3	20.5	112040	31.4	18.5	505084	31.4	21.5	344525	31.5	21.3	264700	31.6	19.1	292623	31.6	19.5
406428	31.3	21.6	200936	31.4	20.2	498610	31.4	21.7	89266	31.5	19.6	538846	31.6	20.0	203376	31.6	21.0
241481	31.3	19.6	484689	31.4	20.1	209912	31.4	19.7	434009	31.5	21.4	216291	31.6	20.1	447201	31.6	21.9
95011	31.3	18.8	90523	31.4	18.3	189431	31.4	18.9	467755	31.5	20.5	315009	31.6	20.2	355852	31.6	21.5
4308	31.3	17.1	364651	31.4	21.3	309222	31.4	20.9	3207								

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

№	05	V	№	05	V	№	05	V	№	05	V	№	05	V	№	05	V
310114	31.7	20.4	8198	31.7	17.2	476677	31.8	22.8	380444	31.8	19.5	299932	31.9	19.8	46906	31.9	18.6
286342	31.7	20.4	524353	31.7	21.7	200875	31.8	19.5	70650	31.8	18.7	53610	31.9	17.0	95433	31.9	21.0
68046	31.7	18.9	502573	31.7	21.2	112618	31.8	18.9	164775	31.8	19.7	473129	31.9	20.9	431491	31.9	21.4
232783	31.7	20.0	505344	31.7	21.2	11888	31.8	18.3	365840	31.8	20.4	327029	31.9	20.2	398703	31.9	20.4
78832	31.7	18.8	527104	31.7	21.7	97518	31.8	19.2	372387	31.8	19.6	290309	31.9	20.3	98372	31.9	19.1
206146	31.7	20.8	420583	31.7	20.8	469925	31.8	19.9	1826	31.9	15.8	197074	31.9	20.2	167762	31.9	19.9
51362	31.7	18.9	270858	31.7	21.0	210388	31.8	20.7	196549	31.9	19.1	109886	31.9	19.6	206825	31.9	20.1
420266	31.7	19.9	455940	31.7	19.3	214512	31.8	18.3	43992	31.9	18.3	430714	31.9	21.1	411328	31.9	22.1
485082	31.7	19.9	315543	31.7	20.4	264934	31.8	20.1	506653	31.9	22.1	353893	31.9	21.3	211652	31.9	20.3
186902	31.7	18.6	500000	31.7	20.1	389920	31.8	21.5	321549	31.9	18.8	221982	31.9	20.6	386499	31.9	21.5
90687	31.7	18.4	425532	31.7	19.8	68554	31.8	18.3	113607	31.9	19.2	38684	31.9	19.7	141355	31.9	18.9
13743	31.7	17.4	428016	31.7	20.3	390093	31.8	21.7	185879	31.9	19.0	95067	31.9	18.6	345755	31.9	21.8
39359	31.7	18.7	543728	31.7	20.7	464923	31.8	21.7	176405	31.9	20.6	326019	31.9	20.2	218699	31.9	19.7
158552	31.7	19.5	500965	31.7	21.1	144675	31.8	19.9	89018	31.9	18.4	257634	31.9	21.1	292648	31.9	21.2
39370	31.7	19.3	530851	31.7	20.9	69127	31.8	18.8	78639	31.9	20.4	438410	31.9	20.8	293095	31.9	19.5
379460	31.7	20.9	212611	31.7	20.0	268384	31.8	20.7	1169	31.9	16.3	37288	31.9	19.0	288693	31.9	20.2
408935	31.7	21.5	15594	31.7	17.9	450450	31.8	22.3	417334	31.9	21.0	387324	31.9	19.9	76234	31.9	18.8
161790	31.7	19.6	493810	31.7	21.2	175360	31.8	19.3	458753	31.9	22.7	537993	31.9	20.4	168394	31.9	20.0
381235	31.7	19.9	390546	31.7	19.9	369728	31.8	20.3	28388	31.9	18.0	147721	31.9	19.9	13047	31.9	18.3
60002	31.7	18.2	338951	31.7	19.9	498290	31.8	21.1	434068	31.9	20.5	144286	31.9	18.9	326412	31.9	20.5
106315	31.7	19.0	209084	31.7	19.9	334820	31.8	19.9	536976	31.9	20.8	435947	31.9	21.3	124702	31.9	19.3
489009	31.7	21.5	11412	31.7	17.4	453380	31.8	21.6	235141	31.9	18.6	422744	31.9	20.5	167060	31.9	20.0
468184	31.7	20.8	64672	31.7	18.9	124817	31.8	19.1	88777	31.9	19.8	281790	31.9	19.7	37611	31.9	18.9
371977	31.7	20.3	470925	31.7	20.3	16064	31.8	22.9	507513	31.9	21.4	374535	31.9	20.8	104713	31.9	18.9
224566	31.7	21.5	341293	31.7	20.4	194262	31.8	19.6	465946	31.9	21.7	218765	31.9	19.1	972	31.9	14.4
16795	31.7	19.0	59467	31.7	17.8	185752	31.8	19.2	496160	31.9	22.1	316692	31.9	20.1	270878	31.9	19.3
30679	31.7	19.4	538303	31.7	20.8	46516	31.8	19.3	160137	31.9	19.5	367779	31.9	20.7	165810	31.9	19.6
529821	31.7	21.2	90956	31.7	20.0	368806	31.8	18.8	88887	31.9	20.1	302094	31.9	20.5	284665	31.9	20.6
457322	31.7	19.4	69605	31.7	18.8	180213	31.8	19.2	354835	31.9	21.1	322379	31.9	20.7			
268137	31.7	20.9	219078	31.7	19.9	499044	31.8	21.4	135160	31.9	19.6	35997	31.9	18.1			
274139	31.7	19.9	369249	31.7	20.6	5539	31.8	17.6	420927	31.9	20.4	24966	31.9	18.2			
372658	31.7	21.3	163748	31.7	18.4	8092	31.8	16.5	282224	31.9	20.8	204644	31.9	18.7			
413104	31.7	21.3	223657	31.7	20.1	63566	31.8	19.3	212627	31.9	19.7	465142	31.9	22.8			
509472	31.7	20.9	469246	31.7	19.8	347149	31.8	18.6	245385	31.9	19.4	60448	31.9	19.1			
459228	31.7	21.1	320371	31.8	19.7	368718	31.8	20.5	534126	31.9	21.2	4217	31.9	15.6			
22505	31.7	18.0	532257	31.8	21.2	336681	31.8	19.9	96365	31.9	19.0	16589	31.9	17.2			
96716	31.7	17.9	162712	31.8	20.7	341756	31.8	20.3	96387	31.9	19.6	147436	31.9	18.0			
451717	31.7	21.2	377468	31.8	21.2	417325	31.8	21.1	309265	31.9	19.2	532858	31.9	21.5			
502237	31.7	21.4	135148	31.8	19.1	496796	31.8	20.4	388799	31.9	21.3	111884	31.9	19.1			
527036	31.7	23.1	50198	31.8	16.9	353471	31.8	21.0	433819	31.9	21.1	221103	31.9	20.4			
96921	31.7	18.4	138769	31.8	20.4	398555	31.8	20.2	287745	31.9	19.5	54413	31.9	16.8			
364386	31.7	20.0	150946	31.8	19.8	468141	31.8	20.1	518583	31.9	21.2	29070	31.9	18.4			
335817	31.7	19.1	542369	31.8	21.7	341556	31.8	20.6	116821	31.9	18.7	123523	31.9	20.4			
508138	31.7	19.9	227221	31.8	20.6	105864	31.8	19.0	198929	31.9	20.2	140737	31.9	20.2			
280777	31.7	20.1	345609	31.8	20.8	15550	31.8	17.4	122792	31.9	18.2	381928	31.9	21.0			
75836	31.7	19.1	166809	31.8	19.8	245753	31.8	19.3	344283	31.9	20.9	536077	31.9	20.0			
208271	31.7	20.9	360541	31.8	20.4	337808	31.8	20.1	146211	31.9	19.7	49899	31.9	18.1			
496161	31.7	23.0	53849	31.8	19.0	38714	31.8	18.9	172784	31.9	19.2	520021	31.9	20.9			
317624	31.7	20.2	344238	31.8	20.9	347930	31.8	19.9	451070	31.9	22.2	504424	31.9	22.2			
432192	31.7	20.0	491790	31.8	21.2	201912	31.8	19.4	211716	31.9	19.1	248488	31.9	19.9			
468317	31.7	19.9	420022	31.8	20.3	495813	31.8	19.5	541922	31.9	22.2	447274	31.9	21.2			
127675	31.7	19.1	476746	31.8	21.3	447779	31.8	22.1	365026	31.9	21.4	12373	31.9	16.7			
127686	31.7	18.4	460482	31.8	20.9	362650	31.8	21.2	376637	31.9	20.3	500381	31.9	20.8			
532424	31.7	21.8	413871	31.8	22.0	524318	31.8	21.6	60737	31.9	18.9	4718	31.9	15.6			
344600	31.7	21.3	464145	31.8	19.8	417185	31.8	21.5	462064	31.9	20.5	144428	31.9	19.8			
100689	31.7	19.4	100379	31.8	20.2	56962	31.8	19.3	326398	31.9	20.7	399357	31.9	20.8			
18476	31.7	18.2	348659	31.8	21.4	2111	31.8	15.4	445884	31.9	20.9	58008	31.9	18.7			
89806	31.7	18.9	307308	31.8	20.2	198866	31.8	19.4	319051	31.9	18.9	344225	31.9	20.8			
246329	31.7	20.5	10502	31.8	19.7	227705	31.8	20.6	293771	31.9	20.8	533218	31.9	21.0			
356940	31.7	20.6	113228	31.8	19.1	191327	31.8	18.8	437648	31.9	21.3	456904	31.9	21.9			
366844	31.7	19.7	237698	31.8	19.8	76926	31.8	17.9	67244	31.9	18.6	449791	31.9	20.5			
61931	31.7	19.2	3965	31.8	16.5	109138	31.8	19.9	340871	31.9	21.8	55862	31.9	18.0			
43603	31.7	18.0	519589	31.8	21.4	204293	31.8	20.0	281775	31.9	20.0	237653	31.9	20.5			
268579	31.7	19.7	367428	31.8	20.1	448176	31.8	21.0	123982	31.9	17.0	456995	31.9	21.7			
502814	31.7	20.9	421384	31.8	20.3	508584	31.8	19.2	81539	31.9	18.9	519275	31.9	21.0			
535260	31.7	21.1	362925	31.8	22.2	151000	31.8	20.1	11506	31.9	17.1	300137	31.9	21.4			
301705	31.7	20.1	31097	31.8	18.3	388583	31.8	20.1	117230	31.9	18.7	292471	31.9	20.6			
341348	31.7	20.6	16774	31.8	16.8	184164	31.8	18.8	485464	31.9	20.1	498686	31.9	21.5			
528823	31.7	22.2	123299	31.8	20.2	272900	31.8	20.2	429999	31.9	20.5	537064	31.9	20.6			
148694	31.7	20.2	541389	31.8	20.2	456519	31.8	21.7	502571	31.9	20.8	166324	31.9	19.6			
155347	31.7	20.7	536538	31.8	20.7	52487	31.8	18.4	63913	31.9	19.8	525788	31.9	22.1			
425186	31.7	22.1	331820	31.8	20.0	138810	31.8	19.5	415691	31.9	20.7	246650	31.9	21.0			
30794	31.7	18.3	166752	31.8	19.9	155658	31.8	18.7	47400	31.9	18.8	32404	31.9	17.4			