

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
328392	1.0	21.0	57645	1.1	18.7	221600	1.1	20.5	15882	1.2	16.6	474395	1.3	21.2	292235	1.4	20.5
289962	1.0	20.3	542013	1.1	21.7	490563	1.1	20.4	80039	1.2	19.6	19158	1.3	18.0	161142	1.4	19.3
484106	1.0	21.7	544835	1.1	21.1	523757	1.1	21.6	375386	1.2	21.6	49574	1.3	17.7	237519	1.4	20.7
436081	1.0	21.3	125416	1.1	18.3	365804	1.1	20.5	17199	1.2	18.1	281968	1.3	21.4	268323	1.4	20.5
365267	1.0	21.0	25755	1.1	17.7	387711	1.1	19.1	81937	1.2	18.5	132862	1.3	20.5	212595	1.4	20.3
369727	1.0	19.3	294981	1.1	20.7	240390	1.1	21.2	454613	1.2	20.9	155280	1.3	20.2	1413	1.4	15.4
80769	1.0	18.2	47680	1.1	18.3	444855	1.1	22.1	54425	1.2	19.2	300372	1.3	21.2	76813	1.4	18.5
242582	1.0	19.6	230424	1.1	20.5	355428	1.1	20.3	202487	1.2	19.2	421580	1.3	20.6	456170	1.4	21.2
51291	1.0	18.2	231231	1.1	19.8	373747	1.1	21.2	444849	1.2	20.8	363961	1.3	21.6	141604	1.4	19.2
4672	1.0	16.2	434978	1.1	20.9	207209	1.1	19.6	357251	1.2	20.6	445702	1.3	20.4	161303	1.4	19.9
139353	1.0	20.0	343229	1.1	21.1	326517	1.1	20.9	411333	1.2	21.2	110309	1.3	19.1	187576	1.4	19.9
290441	1.0	20.8	113736	1.1	19.9	410065	1.2	20.3	462765	1.2	20.2	199758	1.3	19.5	23103	1.4	17.2
331851	1.0	20.2	329019	1.1	20.1	199443	1.2	19.8	419434	1.2	19.6	486504	1.3	20.6	440311	1.4	21.0
467341	1.0	21.4	240441	1.1	20.6	323930	1.2	20.4	94722	1.2	19.4	197796	1.3	19.6	458892	1.4	21.2
481775	1.0	22.4	516674	1.1	21.5	19363	1.2	18.5	521651	1.2	20.8	244506	1.3	20.6	256042	1.4	20.6
228862	1.0	19.8	230139	1.1	21.2	493269	1.2	21.2	517820	1.2	21.2	26731	1.3	16.5	335652	1.4	20.7
42697	1.0	19.2	252405	1.1	20.2	71226	1.2	18.9	147877	1.2	19.4	36559	1.3	16.7	52436	1.4	18.2
95958	1.0	19.0	2385	1.1	16.7	463338	1.2	21.2	406701	1.2	20.7	11585	1.3	17.4	406580	1.4	20.0
473923	1.0	21.2	211420	1.1	20.0	197122	1.2	20.8	197317	1.2	19.2	47003	1.3	18.4	227139	1.4	21.2
319002	1.0	20.4	154262	1.1	20.5	163226	1.2	20.1	326271	1.2	20.1	232263	1.3	19.3	397419	1.4	19.6
192094	1.0	20.2	184474	1.1	21.1	77392	1.2	19.3	543552	1.2	21.8	204794	1.3	20.0	471436	1.4	20.8
308277	1.0	19.3	50133	1.1	18.1	464385	1.2	20.8	322086	1.2	20.3	269131	1.3	21.1	197423	1.4	20.4
130195	1.0	18.3	2354	1.1	15.8	346296	1.2	22.2	56342	1.2	19.7	457889	1.3	20.4	479528	1.4	19.7
274853	1.0	20.6	45774	1.1	18.4	47102	1.2	18.2	28355	1.2	18.3	451461	1.3	21.3	422399	1.4	21.0
124548	1.0	19.5	73287	1.1	18.1	438163	1.2	20.8	363729	1.2	19.4	480125	1.3	20.9	268189	1.4	20.4
235981	1.0	20.2	475743	1.1	21.2	88377	1.2	19.4	359851	1.3	20.7	446760	1.3	21.0	178070	1.4	20.6
145670	1.0	19.6	38442	1.1	18.5	90509	1.2	18.4	51525	1.3	18.8	440055	1.3	20.2	389619	1.4	21.0
544364	1.0	21.5	353692	1.1	20.8	421479	1.2	20.4	369169	1.3	20.3	153501	1.3	18.9	250615	1.4	19.7
517766	1.0	20.8	82910	1.1	18.5	443900	1.2	18.3	57210	1.3	18.6	231014	1.3	19.1	287576	1.4	19.9
275805	1.0	20.7	87286	1.1	19.3	481837	1.2	20.2	357252	1.3	19.4	332633	1.3	20.7	457798	1.4	20.0
446513	1.0	21.1	19279	1.1	19.1	212572	1.2	20.7	120857	1.3	20.4	357166	1.3	19.2	158920	1.4	19.7
390552	1.0	20.9	419965	1.1	20.1	268762	1.2	20.0	53590	1.3	18.5	465208	1.3	20.6	114788	1.4	19.7
412384	1.0	20.5	252509	1.1	20.6	384323	1.2	20.8	314990	1.3	19.6	488936	1.3	21.1	260069	1.4	20.0
172506	1.0	19.7	258405	1.1	20.2	130182	1.2	18.0	290112	1.3	20.4	97685	1.3	18.7	75047	1.4	18.1
195997	1.0	20.5	296088	1.1	19.8	144517	1.2	19.7	514901	1.3	21.1	286836	1.3	20.1	486988	1.4	20.9
267891	1.0	19.4	446929	1.1	20.1	26238	1.2	17.8	272163	1.3	20.4	42836	1.3	19.2	76082	1.4	19.2
480145	1.0	20.7	122056	1.1	20.4	231218	1.2	19.7	362648	1.3	20.5	108232	1.3	20.0	365915	1.4	19.5
230766	1.0	19.9	170695	1.1	18.7	363937	1.2	21.2	541309	1.3	21.3	282088	1.3	21.5	510838	1.4	20.7
272437	1.0	20.3	20323	1.1	17.0	64047	1.2	18.7	332991	1.3	20.0	168354	1.3	20.1	132533	1.4	20.1
124372	1.0	19.0	448483	1.1	21.8	322484	1.2	19.8	131297	1.3	19.8	249989	1.3	19.8	409297	1.4	20.9
465799	1.0	20.3	541709	1.1	20.5	27510	1.2	17.4	400386	1.3	20.4	222114	1.3	21.0	412277	1.4	21.7
58258	1.0	19.6	193009	1.1	18.9	541735	1.2	20.8	207789	1.3	20.4	445688	1.3	20.3	213705	1.4	20.1
57667	1.0	18.6	328762	1.1	20.3	454023	1.2	19.9	463353	1.3	21.7	483589	1.3	21.0	455440	1.4	21.0
62937	1.0	20.2	11582	1.1	17.8	418597	1.2	20.7	311103	1.3	20.0	22836	1.3	18.3	35469	1.4	16.9
542982	1.0	21.7	6452	1.1	16.7	90645	1.2	20.0	154706	1.3	20.1	495647	1.3	19.6	487122	1.4	20.8
258498	1.0	20.0	228453	1.1	20.2	363860	1.2	21.5	71036	1.3	18.7	277137	1.3	21.6	117114	1.4	20.4
293658	1.0	20.5	35971	1.1	17.8	112357	1.2	19.7	149677	1.3	19.7	366679	1.3	21.3	15515	1.4	19.0
348487	1.0	20.5	190101	1.1	19.9	157849	1.2	19.0	459168	1.3	20.6	184767	1.3	20.4	125794	1.4	20.0
337715	1.0	20.0	462106	1.1	20.6	23400	1.2	19.4	371280	1.3	20.4	204788	1.3	20.9	15388	1.4	19.3
332263	1.0	21.0	175221	1.1	19.8	401875	1.2	21.1	51598	1.3	18.7	481082	1.3	21.2	30234	1.4	18.2
368534	1.0	20.1	448826	1.1	21.3	120019	1.2	19.1	402615	1.3	20.6	331497	1.3	21.6	466070	1.4	21.6
293920	1.0	20.3	86014	1.1	19.9	263196	1.2	19.7	336650	1.3	20.6	421091	1.3	21.1	31932	1.4	17.8
542904	1.0	21.7	406945	1.1	20.5	240592	1.2	20.7	266952	1.3	20.5	293637	1.3	20.8	441275	1.4	20.9
320337	1.0	21.1	106178	1.1	19.9	123117	1.2	18.9	362473	1.3	21.3	407841	1.3	19.2	309818	1.4	20.7
373516	1.0	20.7	92751	1.1	19.8	488821	1.2	21.5	283582	1.3	19.5	240710	1.3	20.4	196153	1.4	19.5
52770	1.0	19.2	347692	1.1	19.1	34719	1.2	17.8	118048	1.3	20.4	7305	1.3	16.9	136611	1.4	20.8
188227	1.0	20.0	379462	1.1	20.5	397203	1.2	21.4	83362	1.3	19.0	186132	1.3	19.0	274346	1.4	20.1
466400	1.0	20.5	242540	1.1	19.8	405678	1.2	21.0	156148	1.3	19.9	290397	1.3	20.5	482231	1.4	20.5
354265	1.0	20.5	239754	1.1	19.3	37646	1.2	18.2	222008	1.3	21.6	459709	1.3	20.8	116859	1.4	20.1
26170	1.0	16.8	372286	1.1	20.6	535985	1.2	22.5	178571	1.3	20.0	131438	1.3	20.6	783	1.4	15.1
485535	1.0	21.4	337745	1.1	20.2	45068	1.2	17.2	118897	1.3	18.4	87153	1.3	20.4	466423	1.4	20.7
89184	1.1	18.7	301872	1.1	20.9	115486	1.2	19.2	172167	1.3	20.2	229741	1.3	20.0	155477	1.4	20.8
79431	1.1	18.7	136566	1.1	19.7	414551	1.2	22.2	63993	1.3	17.3	462418	1.3	20.7	226623	1.4	19.7
190806	1.1	21.2	10401	1.1	17.5	372314	1.2	20.3	340053	1.3	21.0	99523	1.3	20.1	307669	1.4	21.1
342017	1.1	21.0	16856	1.1	18.3	371323	1.2	20.9	217259	1.3	19.6	84739	1.4	18.3	266616	1.4	19.6
331317	1.1	19.4	541520	1.1	21.4	441740	1.2	21.0	199526	1.3	19.6	541502	1.4	21.5	234370	1.4	20.1
450604	1.1	20.3	18	1.1	9.5	477228	1.2	20.9	397331	1.3	21.3	358295	1.4	20.7	267051	1.4	19.0
349915	1.1	20.0	421337	1.1	20.1	493781	1.2	22.4	146685	1.3	20.0	405638	1.4	21.6	183020	1.4	20.5
198630	1.1	20.2	203176	1.1	19.6	176853	1.2	20.6	636	1.3	14.4	204201	1.4	19.1	279375	1.4	19.5
213273	1.1	21.6	335350	1.1	20.4	400888	1.2	21.2	392792	1.3	20.7	223699	1.4	20.0	196028	1.4	21.1
239248	1.1	20.7	216988	1.1	20.2	454375	1.2	20.0	471235	1.3	20.3	104956	1.4	18.4	104517	1.4	18.1
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LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
275746	1.4	20.5	427231	1.5	20.4	269226	1.6	19.7	228756	1.6	20.5	456466	1.7	21.1	442049	1.7	20.0
87091	1.4	19.8	101996	1.5	19.2	475541	1.6	20.9	312262	1.6	19.7	450628	1.7	20.8	30115	1.7	18.6
149571	1.4	17.7	61014	1.5	19.6	480384	1.6	20.7	1005	1.6	14.5	247194	1.7	19.1	23364	1.7	19.5
481090	1.4	21.6	488857	1.5	22.2	318927	1.6	20.5	278393	1.6	19.8	181575	1.7	20.4	262467	1.7	20.0
452594	1.4	21.1	357253	1.5	21.3	47212	1.6	18.6	357246	1.6	19.9	373134	1.7	19.7	252647	1.8	19.4
238751	1.4	20.3	150219	1.5	19.9	197280	1.6	19.8	294736	1.6	20.6	339873	1.7	21.7	54836	1.8	18.9
450234	1.4	21.7	306979	1.5	20.9	376847	1.6	21.1	382670	1.6	20.7	383431	1.7	19.7	237815	1.8	19.5
370385	1.4	21.1	541206	1.5	21.3	73228	1.6	18.9	64297	1.6	19.5	372045	1.7	20.9	334076	1.8	20.7
473966	1.4	20.2	452231	1.5	21.2	115802	1.6	19.0	233213	1.6	20.7	459861	1.7	20.9	24155	1.8	18.4
226240	1.4	19.2	246586	1.5	20.3	332971	1.6	20.8	416469	1.6	20.7	294571	1.7	19.6	104976	1.8	19.6
97427	1.4	17.6	57994	1.5	18.7	454181	1.6	21.3	204949	1.6	19.8	214367	1.7	20.7	422606	1.8	20.7
372148	1.4	20.0	351522	1.5	20.1	398912	1.6	21.6	75141	1.6	19.9	445551	1.7	20.4	40013	1.8	19.1
76196	1.4	19.3	59464	1.5	19.6	287728	1.6	20.7	278998	1.6	21.2	340004	1.7	21.0	490251	1.8	20.4
7545	1.4	18.1	18757	1.5	18.7	194840	1.6	19.0	76448	1.6	18.0	93009	1.7	18.0	388885	1.8	21.0
418891	1.4	20.2	422599	1.5	21.3	145291	1.6	21.0	541866	1.6	21.0	456126	1.7	21.2	197632	1.8	20.8
271221	1.4	20.7	191345	1.5	19.1	24951	1.6	18.1	517029	1.6	21.5	421510	1.7	20.5	101560	1.8	20.1
493121	1.5	21.0	267245	1.5	20.9	465484	1.6	21.0	21995	1.6	17.8	491641	1.7	22.6	202383	1.8	20.7
242783	1.5	19.5	226682	1.5	19.5	368300	1.6	21.1	158866	1.6	20.6	39679	1.7	18.6	189223	1.8	20.1
376850	1.5	20.4	76964	1.5	19.0	13090	1.6	18.1	252298	1.6	21.2	6710	1.7	18.1	139771	1.8	20.5
411841	1.5	21.0	354406	1.5	20.8	219861	1.6	20.0	399481	1.6	20.8	463667	1.7	21.3	38649	1.8	18.9
50507	1.5	18.3	355383	1.5	20.2	485684	1.6	20.6	109026	1.6	18.2	285910	1.7	21.3	155395	1.8	19.5
233047	1.5	20.4	398674	1.5	20.0	112033	1.6	19.2	364855	1.6	21.4	156613	1.7	20.2	412742	1.8	19.9
47927	1.5	19.8	270719	1.5	20.5	223458	1.6	19.6	307619	1.6	20.2	485983	1.7	21.0	16547	1.8	18.2
92675	1.5	20.2	441595	1.5	21.7	335273	1.6	20.9	473994	1.6	20.3	473528	1.7	19.6	86006	1.8	17.5
402622	1.5	21.4	260829	1.5	21.2	462124	1.6	21.2	92717	1.6	19.5	30076	1.7	18.3	143681	1.8	20.7
372162	1.5	21.7	447800	1.5	21.0	216870	1.6	19.3	180046	1.6	19.5	194890	1.7	18.4	201777	1.8	20.4
74292	1.5	18.3	68208	1.5	17.7	235681	1.6	20.4	81890	1.6	20.7	69052	1.7	17.5	179325	1.8	19.4
384680	1.5	20.2	58071	1.5	18.6	154474	1.6	19.7	54512	1.6	19.1	135369	1.7	19.2	306320	1.8	21.4
177242	1.5	19.3	318789	1.5	20.7	407343	1.6	21.9	2937	1.6	18.0	11768	1.7	17.4	61920	1.8	19.9
421467	1.5	20.0	226187	1.5	20.1	141310	1.6	18.9	282786	1.7	20.4	322891	1.7	20.6	543214	1.8	21.7
514396	1.5	21.5	421731	1.5	20.9	283435	1.6	19.1	411044	1.7	19.7	109220	1.7	19.4	189816	1.8	18.9
156110	1.5	18.5	352127	1.5	20.4	252512	1.6	20.4	487812	1.7	19.8	78133	1.7	19.9	122488	1.8	18.5
236347	1.5	19.5	68819	1.5	19.4	254680	1.6	20.3	116533	1.7	19.3	285299	1.7	19.4	216936	1.8	20.6
483047	1.5	21.5	100965	1.5	19.1	172768	1.6	19.6	273377	1.7	20.0	541547	1.7	22.1	496691	1.8	20.2
484828	1.5	20.6	201372	1.5	21.1	35138	1.6	19.1	485572	1.7	21.4	415866	1.7	20.8	302582	1.8	20.2
332739	1.5	21.3	279011	1.5	21.1	116669	1.6	19.6	439586	1.7	21.4	541726	1.7	21.6	251142	1.8	21.2
391308	1.5	20.7	318986	1.5	21.0	324716	1.6	20.9	122823	1.7	20.2	416514	1.7	20.1	432243	1.8	21.2
324653	1.5	19.9	324064	1.5	19.9	358654	1.6	20.6	299372	1.7	21.1	349074	1.7	19.2	274980	1.8	20.2
167296	1.5	18.9	248263	1.5	20.7	94994	1.6	19.6	522093	1.7	20.9	452609	1.7	20.9	404208	1.8	21.3
288867	1.5	20.0	263913	1.5	20.9	189987	1.6	20.3	362124	1.7	19.4	47278	1.7	18.0	168533	1.8	20.3
257785	1.5	19.9	395193	1.5	20.1	274019	1.6	21.0	103002	1.7	18.8	58856	1.7	19.7	227304	1.8	19.4
76402	1.5	18.0	376221	1.5	21.3	421658	1.6	19.3	7751	1.7	18.5	301893	1.7	20.3	261396	1.8	19.9
458692	1.5	20.5	84391	1.5	18.3	256380	1.6	19.8	357184	1.7	20.1	407499	1.7	20.8	65983	1.8	18.2
458061	1.5	20.4	455592	1.5	21.2	438083	1.6	19.4	152949	1.7	20.1	349070	1.7	19.4	12116	1.8	17.4
359450	1.5	21.6	32642	1.5	18.8	279071	1.6	20.1	11430	1.7	17.9	175418	1.7	20.7	422331	1.8	20.8
395547	1.5	21.9	282880	1.5	20.8	410457	1.6	21.3	462618	1.7	20.3	312175	1.7	20.2	404513	1.8	21.2
143260	1.5	18.1	295133	1.5	20.5	179591	1.6	20.3	64693	1.7	19.4	24181	1.7	17.5	38877	1.8	18.7
252620	1.5	20.5	349575	1.5	19.9	280293	1.6	20.0	45809	1.7	18.4	303603	1.7	20.5	88899	1.8	19.0
139330	1.5	20.3	296189	1.5	20.3	494674	1.6	21.5	356122	1.7	19.8	408769	1.7	20.5	489860	1.8	21.2
181967	1.5	20.3	413593	1.6	21.3	41726	1.6	18.2	387077	1.7	21.2	331734	1.7	20.2	465262	1.8	20.8
441534	1.5	22.4	153565	1.6	19.7	362870	1.6	20.8	391957	1.7	20.9	243351	1.7	19.1	283827	1.8	21.1
51051	1.5	18.4	259351	1.6	19.5	223518	1.6	18.7	43136	1.7	17.7	63222	1.7	18.7	147417	1.8	19.1
40284	1.5	19.2	228884	1.6	20.5	31682	1.6	17.8	511521	1.7	20.6	78753	1.7	18.5	482550	1.8	21.3
440471	1.5	21.8	355474	1.6	20.8	302999	1.6	21.1	473749	1.7	21.1	48165	1.7	17.9	227651	1.8	19.9
523255	1.5	20.0	147742	1.6	20.0	484307	1.6	20.0	517719	1.7	20.2	340085	1.7	19.7	179716	1.8	19.4
18576	1.5	18.2	494021	1.6	20.5	244478	1.6	20.0	61204	1.7	19.1	133650	1.7	19.8	541663	1.8	21.1
231125	1.5	19.2	411033	1.6	20.1	60500	1.6	18.1	311319	1.7	20.0	459380	1.7	20.4	334618	1.8	20.3
292058	1.5	20.5	252258	1.6	21.4	386708	1.6	19.9	482840	1.7	20.2	307410	1.7	20.6	412333	1.8	20.6
100582	1.5	20.1	447603	1.6	20.2	492098	1.6	21.1	329673	1.7	20.8	28292	1.7	16.5	190954	1.8	20.9
350593	1.5	19.4	470007	1.6	21.2	219161	1.6	20.1	186135	1.7	19.2	214286	1.7	18.8	227565	1.8	20.3
281580	1.5	19.9	378533	1.6	20.0	250005	1.6	19.1	521961	1.7	19.8	365588	1.7	21.3	72068	1.8	17.7
46630	1.5	19.7	86720	1.6	19.5	335401	1.6	21.0	102750	1.7	19.6	520450	1.7	21.5	78091	1.8	19.0
68562	1.5	18.7	435704	1.6	21.9	387896	1.6	21.3	284732	1.7	20.9	194318	1.7	20.2	376022	1.8	19.1
302622	1.5	20.7	55005	1.6	17.6	445067	1.6	21.6	180638	1.7	20.6	322610	1.7	20.3	141621	1.8	19.8
108288	1.5	20.2	256581	1.6	20.0	337739	1.6	21.5	357386	1.7	19.1	267047	1.7	20.4	35278	1.8	19.2
539849	1.5	20.2	74108	1.6	17.3	270603	1.6	21.2	495139	1.7	19.7	229955	1.7	19.7	64800	1.8	19.1
391900	1.5	20.3	333379	1.6	21.5	481022	1.6	20.8	269667	1.7	22.1	228417	1.7	20.0	488566	1.8	21.4
458726	1.5	19.7	217295	1.6	20.7	485466	1.6	19.5	254887	1.7	19.6	434936	1.7	21.2	543036	1.8	20.4
421949	1.5	21.3	237749	1.6	19.0	451518	1.6	21.2	396176	1.7	20.5	354996	1.7	19.6	77361	1.8	18.5
516114	1.5	21.8	419374	1.6	19.1	179139	1.6	20.3	404177	1.7	19.6	465449	1.7	20.9	158037	1.8	20.7
304881	1.5	21.3	11436	1.6	17.8	215168	1.6	19.2	518671	1.7	20.2	95869	1.7	19.2	375661	1.8	19.9

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

N ₂	02	V	N ₂	02	V	N ₂	02	V	N ₂	02	V	N ₂	02	V	N ₂	02	V
286503	1.8	20.5	18570	1.9	18.0	131937	1.9	18.6	542710	2.0	21.4	180588	2.1	20.0	496795	2.2	20.8
87043	1.8	20.2	248751	1.9	21.4	171620	1.9	18.1	295100	2.0	20.7	11087	2.1	17.4	261338	2.2	20.6
93840	1.8	19.7	283190	1.9	21.3	270947	1.9	20.2	64400	2.0	18.3	129524	2.1	21.1	404425	2.2	20.3
55705	1.8	18.4	521454	1.9	20.2	511130	1.9	20.3	377166	2.0	20.1	316886	2.1	21.2	247196	2.2	20.3
480902	1.8	21.4	487861	1.9	21.4	18811	1.9	18.7	400036	2.0	21.2	64221	2.1	18.6	100591	2.2	19.0
438572	1.8	20.1	427099	1.9	20.9	35410	1.9	17.3	142760	2.0	20.3	49734	2.1	19.8	119153	2.2	20.1
428162	1.8	21.2	7081	1.9	17.4	41424	1.9	16.7	523354	2.0	19.8	150764	2.1	19.0	90948	2.2	18.0
386101	1.8	20.8	31645	1.9	18.0	252625	1.9	19.4	51214	2.0	18.6	32102	2.1	19.6	296386	2.2	20.3
98510	1.8	18.9	495750	1.9	21.0	325963	1.9	20.4	153416	2.0	18.7	46078	2.1	18.9	465306	2.2	21.4
280003	1.8	20.3	199847	1.9	20.1	287319	1.9	20.1	396328	2.0	20.8	464722	2.1	21.1	262609	2.2	19.8
78202	1.8	18.5	458652	1.9	21.3	485685	1.9	19.9	460155	2.0	20.6	412890	2.1	21.6	399409	2.2	22.2
230419	1.8	20.5	330820	1.9	20.9	233646	1.9	20.3	61312	2.0	18.5	67526	2.1	19.5	116062	2.2	18.9
96305	1.8	18.7	56477	1.9	19.5	16436	1.9	17.8	156868	2.0	19.5	154188	2.1	20.0	398317	2.2	20.2
65926	1.8	16.9	99924	1.9	18.9	403772	1.9	19.6	124359	2.0	20.1	464069	2.1	20.5	388522	2.2	21.3
426249	1.8	20.6	107871	1.9	18.7	73456	1.9	18.7	496401	2.0	21.1	62461	2.1	19.3	452883	2.2	20.9
509225	1.8	21.2	217704	1.9	21.0	216347	1.9	20.1	194086	2.0	20.3	230735	2.1	19.8	519068	2.2	20.8
492797	1.8	20.7	413228	1.9	20.8	518107	1.9	20.2	254596	2.0	21.0	477224	2.1	20.4	213702	2.2	20.1
179610	1.8	21.2	59125	1.9	18.7	529903	1.9	22.4	157204	2.0	20.3	79756	2.1	19.0	244719	2.2	21.3
11100	1.8	17.7	73475	1.9	19.6	174948	1.9	19.5	300604	2.0	21.7	14079	2.1	17.8	108690	2.2	19.5
359498	1.8	21.3	388544	1.9	20.2	416084	1.9	21.0	10082	2.0	18.7	184599	2.1	20.4	44007	2.2	18.7
110030	1.8	19.3	33587	1.9	18.3	493919	1.9	20.7	365383	2.0	21.6	464612	2.1	21.6	457823	2.2	21.3
72704	1.8	17.9	243640	1.9	19.9	325981	1.9	20.6	515762	2.0	20.6	95469	2.1	19.0	477757	2.2	20.8
81195	1.8	18.1	515149	1.9	20.2	295651	1.9	20.0	289869	2.0	20.9	158422	2.1	19.7	84814	2.2	19.3
384716	1.8	19.6	248358	1.9	19.3	422034	1.9	21.1	220599	2.0	21.8	254022	2.1	20.7	45720	2.2	18.4
527062	1.8	21.5	100638	1.9	19.6	413732	1.9	20.2	339775	2.0	20.6	499414	2.1	21.0	327264	2.2	20.9
457106	1.8	20.2	362738	1.9	20.7	380987	1.9	20.0	541371	2.0	20.7	398606	2.1	19.8	174097	2.2	19.8
384287	1.8	20.7	280910	1.9	20.7	88099	1.9	19.8	273111	2.0	21.2	260818	2.1	20.5	542633	2.2	20.9
473849	1.8	20.8	184335	1.9	20.8	301846	1.9	21.1	221828	2.0	20.3	10173	2.1	19.2	14562	2.2	18.3
286840	1.8	20.3	444899	1.9	19.9	519053	1.9	20.9	298451	2.0	20.9	320995	2.1	20.9	218407	2.2	20.4
154664	1.8	20.1	3879	1.9	16.9	5663	1.9	19.2	397569	2.1	20.1	251525	2.1	19.6	360810	2.2	21.2
361838	1.8	19.7	280837	1.9	20.0	224917	1.9	20.1	488165	2.1	21.2	319313	2.1	20.1	49725	2.2	18.2
261428	1.8	20.4	279571	1.9	20.3	453651	1.9	20.4	542165	2.1	19.5	101158	2.1	20.5	97217	2.2	19.4
31048	1.8	18.1	79961	1.9	18.4	65374	1.9	19.3	441229	2.1	21.0	42467	2.1	17.4	197238	2.2	20.2
334892	1.8	20.3	146608	1.9	18.9	15839	1.9	19.1	143200	2.1	18.7	16211	2.1	18.6	313549	2.2	18.8
178655	1.8	20.3	117892	1.9	18.8	109919	1.9	19.5	260810	2.1	21.2	243577	2.1	19.2	445594	2.2	21.2
3056	1.8	16.1	327003	1.9	20.9	211657	1.9	19.7	47706	2.1	18.1	366677	2.1	20.9	50480	2.2	18.7
518827	1.8	19.4	77564	1.9	19.7	265140	1.9	20.4	242290	2.1	19.8	389819	2.1	20.6	280315	2.2	21.4
463513	1.8	21.8	353087	1.9	20.5	38061	1.9	18.0	170519	2.1	20.7	336634	2.1	20.5	290494	2.2	20.8
118508	1.8	19.2	518532	1.9	22.4	437897	1.9	22.1	44297	2.1	18.8	221811	2.1	21.0	407339	2.2	21.1
226627	1.8	18.6	23260	1.9	17.5	144148	1.9	19.3	61455	2.1	18.5	291372	2.1	20.6	273136	2.2	19.5
217499	1.8	20.0	368495	1.9	20.6	386695	1.9	20.3	189116	2.1	20.8	135302	2.1	20.6	409624	2.2	20.5
25754	1.8	17.8	82239	1.9	18.5	360472	1.9	20.1	235802	2.1	20.0	251033	2.1	20.9	409569	2.2	21.2
143259	1.8	18.9	444912	1.9	18.1	522034	1.9	20.6	420235	2.1	20.5	210204	2.1	19.3	489460	2.2	20.9
272358	1.8	20.6	310034	1.9	20.2	55834	1.9	19.7	325900	2.1	20.6	247252	2.1	20.1	51164	2.2	18.6
376654	1.8	21.7	464733	1.9	20.1	120608	1.9	19.5	119718	2.1	19.8	289773	2.1	20.4	20895	2.2	18.0
404386	1.9	19.6	522367	1.9	21.1	43943	1.9	17.0	263504	2.1	20.2	367673	2.1	19.1	516778	2.2	20.2
234191	1.9	20.1	35352	1.9	20.5	460261	1.9	21.3	487219	2.1	21.3	223020	2.1	20.9	226139	2.2	20.5
268654	1.9	20.4	17928	1.9	17.4	17723	1.9	18.0	506091	2.1	19.7	48522	2.1	18.1	307688	2.2	21.5
233058	1.9	19.9	489868	1.9	22.0	113735	1.9	19.2	277687	2.1	20.9	48060	2.1	19.1	242070	2.2	19.0
197817	1.9	20.7	439066	1.9	21.5	468927	1.9	20.0	162455	2.1	19.0	191194	2.1	18.8	430559	2.2	21.8
307770	1.9	20.7	524964	1.9	22.6	150676	1.9	19.5	122146	2.1	20.1	290383	2.1	20.8	197928	2.2	19.9
226216	1.9	20.3	81546	1.9	19.8	44239	1.9	19.7	334935	2.1	19.6	163665	2.1	20.6	231552	2.2	19.9
392967	1.9	21.3	274638	1.9	20.2	57163	2.0	17.6	45243	2.1	18.4	94536	2.1	19.4	115561	2.2	18.8
339601	1.9	21.2	168385	1.9	18.5	373393	2.0	23.5	8320	2.1	16.6	483677	2.1	21.9	294803	2.2	19.9
441645	1.9	21.9	150852	1.9	20.3	107312	2.0	17.8	423296	2.1	20.8	489158	2.1	21.5	192114	2.2	19.5
316611	1.9	20.5	45557	1.9	18.7	152284	2.0	20.2	449248	2.1	20.7	434445	2.1	22.3	381359	2.2	20.7
269301	1.9	20.0	349169	1.9	20.4	216758	2.0	20.3	465819	2.1	21.1	197981	2.1	21.2	489893	2.2	21.2
191498	1.9	19.7	281077	1.9	21.5	442222	2.0	20.8	256835	2.1	20.5	129536	2.1	19.8	186619	2.2	20.5
29188	1.9	17.9	314222	1.9	20.8	131116	2.0	17.2	394619	2.1	21.1	319748	2.1	19.0	311826	2.2	20.1
444833	1.9	21.0	269350	1.9	20.2	370218	2.0	19.8	344885	2.1	19.8	361244	2.1	20.5	231467	2.2	19.5
366866	1.9	21.3	212950	1.9	20.4	232707	2.0	19.8	331320	2.1	20.1	249930	2.1	20.5	308711	2.2	19.9
421833	1.9	20.8	165750	1.9	18.3	104577	2.0	18.7	374632	2.1	20.4	458	2.1	13.4	399400	2.2	21.3
150664	1.9	20.8	520258	1.9	21.2	489847	2.0	21.2	126080	2.1	19.9	460427	2.1	21.0	421176	2.2	20.6
198192	1.9	20.2	396525	1.9	21.1	45235	2.0	18.5	303016	2.1	20.0	321263	2.1	19.6	277075	2.2	19.3
74309	1.9	19.3	53447	1.9	17.7	399815	2.0	20.7	200346	2.1	19.7	365553	2.1	19.5	372726	2.2	20.0
377950	1.9	20.2	10659	1.9	18.1	461055	2.0	19.7	461539	2.1	21.6	271358	2.1	19.6	4253	2.2	17.2
337375	1.9	20.8	158262	1.9	19.2	229334	2.0	20.0	454908	2.1	21.5	337781	2.1	20.8	396560	2.2	21.4
6992	1.9	16.8	132050	1.9	18.3	57685	2.0	19.0	506074	2.1	21.0	388452	2.1	20.5	405612	2.2	21.8
2546	1.9	14.6	23428	1.9	18.5	284180	2.0	20.4	273238	2.1	20.5	179023	2.1	19.8	406191	2.2	21.1
254677	1.9	21.5	539852	1.9	22.0	261413	2.0	20.6	13687	2.1	17.1	226219	2.1	22.2	54446	2.2	19.3
178814	1.9	18.9	204000	1.9	20.1	400872	2.0	22.1	17579	2.1	19.0	308576	2.1	20.5	272046		

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
254936	2.2	18.9	394444	2.3	21.9	351699	2.3	20.6	63664	2.4	18.0	155544	2.4	20.2	93826	2.5	18.9
343772	2.2	19.9	119302	2.3	18.4	413630	2.3	21.0	25858	2.4	17.3	201493	2.4	19.4	239549	2.5	20.2
133280	2.2	18.0	346458	2.3	20.6	259941	2.3	19.7	84491	2.4	19.3	8319	2.4	17.5	161946	2.5	20.4
412537	2.2	22.3	228549	2.3	19.4	76728	2.3	18.5	174647	2.4	19.0	157248	2.4	20.9	447488	2.5	20.5
93928	2.2	19.9	514581	2.3	21.9	52103	2.3	19.0	102846	2.4	19.5	349183	2.4	20.1	425263	2.5	20.2
355376	2.2	19.9	391958	2.3	21.6	115003	2.3	19.0	261210	2.4	20.4	280687	2.4	20.8	107966	2.5	20.1
33074	2.2	16.6	274456	2.3	21.4	485575	2.3	20.8	341257	2.4	19.5	484792	2.4	19.9	254872	2.5	20.1
389837	2.2	20.5	104360	2.3	19.4	90001	2.3	20.2	137953	2.4	18.3	400150	2.4	21.0	449596	2.5	21.7
73618	2.2	19.0	102289	2.3	20.4	168255	2.3	19.8	421163	2.4	20.5	133019	2.4	19.9	68807	2.5	19.4
364400	2.2	20.8	177369	2.3	20.4	337742	2.3	20.5	145103	2.4	19.6	122392	2.4	19.3	520892	2.5	20.7
163182	2.2	19.6	389475	2.3	20.7	335264	2.3	21.4	207423	2.4	20.1	34846	2.4	19.2	90088	2.5	18.9
441261	2.2	21.5	51261	2.3	17.6	262814	2.3	20.0	505325	2.4	20.4	339880	2.5	22.5	86533	2.5	19.4
49093	2.2	18.6	434180	2.3	21.5	153706	2.3	20.4	339704	2.4	20.7	182337	2.5	19.2	169262	2.5	20.6
24725	2.2	16.8	234611	2.3	19.6	212844	2.3	18.7	119389	2.4	17.0	403661	2.5	20.7	450189	2.5	20.0
523503	2.2	21.4	197832	2.3	21.7	321797	2.3	21.1	491393	2.4	20.2	136100	2.5	19.4	541299	2.5	21.3
366761	2.2	21.1	246344	2.3	20.5	190750	2.3	20.8	325972	2.4	20.0	479488	2.5	19.8	188360	2.5	19.8
17979	2.2	18.0	483546	2.3	20.3	257549	2.3	19.3	298467	2.4	21.6	71018	2.5	17.8	329629	2.5	21.0
381007	2.2	20.6	218845	2.3	20.6	32700	2.3	18.3	5102	2.4	17.0	33836	2.5	20.2	271510	2.5	18.9
516155	2.2	20.9	30225	2.3	19.6	518537	2.3	22.0	118490	2.4	18.5	435709	2.5	20.9	275758	2.5	20.1
247374	2.2	19.8	90778	2.3	19.1	251156	2.3	20.5	275511	2.4	20.5	482541	2.5	20.4	130247	2.5	18.5
447574	2.2	20.1	435416	2.3	20.3	60609	2.3	18.1	142515	2.4	19.6	288393	2.5	19.0	359209	2.5	20.3
180907	2.2	20.9	254090	2.3	19.4	36832	2.3	18.2	373656	2.4	22.3	543167	2.5	21.4	495564	2.5	20.5
197714	2.2	19.9	41936	2.3	18.9	437859	2.3	22.0	494848	2.4	20.5	396454	2.5	20.2	279083	2.5	20.7
264313	2.2	20.7	221666	2.3	20.8	152970	2.3	21.0	454672	2.4	20.8	181129	2.5	19.6	455726	2.5	19.5
479461	2.2	20.6	142632	2.3	19.1	222113	2.3	21.3	255650	2.4	21.2	438739	2.5	20.4	233497	2.5	19.9
23704	2.2	18.7	133	2.3	12.5	375632	2.3	20.5	192233	2.4	19.6	466688	2.5	19.8	157167	2.5	20.6
354412	2.2	21.4	102892	2.3	17.5	493011	2.3	21.1	30618	2.4	17.7	65619	2.5	17.9	14528	2.5	19.0
73878	2.2	18.2	453099	2.3	19.9	349059	2.4	20.7	281163	2.4	20.9	364424	2.5	20.7	52088	2.5	18.4
99919	2.2	18.9	541797	2.3	20.8	236661	2.4	19.5	73722	2.4	19.1	440365	2.5	20.3	295518	2.5	20.1
187086	2.2	20.1	416	2.3	12.4	194728	2.4	21.4	420546	2.4	21.2	28768	2.5	18.4	173087	2.5	20.0
425162	2.2	20.7	199126	2.3	19.3	545110	2.4	20.4	218558	2.4	19.8	292202	2.5	21.5	315657	2.5	19.9
263482	2.2	19.3	28628	2.3	19.5	76956	2.4	17.7	329691	2.4	20.4	416072	2.5	21.5	157569	2.5	19.6
186448	2.2	20.5	416327	2.3	21.8	139551	2.4	19.5	541975	2.4	21.5	139420	2.5	19.5	74193	2.5	19.5
150990	2.2	20.0	218546	2.3	19.2	217196	2.4	20.4	53173	2.4	17.2	225235	2.5	20.8	460724	2.5	20.6
241797	2.2	20.0	63663	2.3	18.8	303017	2.4	21.2	543065	2.4	22.0	214938	2.5	20.3	404736	2.5	20.1
305144	2.2	22.1	360452	2.3	20.4	232029	2.4	19.7	228937	2.4	20.6	419077	2.5	22.0	270709	2.5	20.1
269584	2.2	19.5	85273	2.3	18.8	111236	2.4	19.4	16879	2.4	17.3	335238	2.5	20.5	400016	2.5	20.9
248888	2.2	21.1	518121	2.3	21.4	17281	2.4	18.3	368340	2.4	20.0	402748	2.5	19.5	232987	2.5	19.6
443997	2.2	19.9	28191	2.3	16.9	305696	2.4	20.6	201868	2.4	18.8	46051	2.5	17.6	5000	2.5	17.9
288794	2.2	20.6	418677	2.3	20.5	112553	2.4	20.5	137444	2.4	17.8	369157	2.5	19.7	70828	2.5	18.3
199584	2.2	20.3	232682	2.3	19.5	12951	2.4	18.1	135956	2.4	20.1	28528	2.5	18.8	463573	2.5	20.1
336638	2.2	20.5	230655	2.3	20.2	26254	2.4	18.6	137340	2.4	19.3	160005	2.5	19.8	539896	2.5	21.5
194582	2.2	20.3	173735	2.3	19.0	222082	2.4	20.5	54223	2.4	18.8	27340	2.5	18.9	126014	2.5	20.4
89228	2.2	19.4	195653	2.3	20.4	394114	2.4	20.5	447813	2.4	20.4	77098	2.5	19.9	108722	2.5	19.9
202735	2.2	21.4	28446	2.3	17.3	274825	2.4	21.1	128423	2.4	19.5	104292	2.5	19.1	269735	2.5	20.1
283202	2.2	19.5	360845	2.3	20.9	357628	2.4	19.7	267092	2.4	19.9	202708	2.5	21.2	357606	2.5	19.4
277285	2.2	20.7	290337	2.3	21.2	142532	2.4	19.2	363734	2.4	23.0	218261	2.5	19.4	314261	2.5	21.1
144330	2.2	18.4	73184	2.3	20.3	183261	2.4	19.5	4977	2.4	17.4	96629	2.5	19.2	261008	2.5	20.7
77233	2.2	18.3	462344	2.3	19.8	361298	2.4	20.5	156137	2.4	20.0	87217	2.5	19.9	487456	2.5	21.5
69563	2.2	18.0	351220	2.3	20.9	85583	2.4	17.5	476443	2.4	20.8	141646	2.5	19.3	89254	2.5	17.8
361749	2.2	19.8	211669	2.3	19.9	212548	2.4	20.6	199887	2.4	19.9	242305	2.5	20.8	165761	2.5	18.7
492281	2.2	20.5	4447	2.3	16.8	89142	2.4	17.5	410527	2.4	20.8	411558	2.5	19.2	393237	2.5	20.7
166792	2.2	18.6	229318	2.3	20.8	240250	2.4	19.7	250125	2.4	20.6	486895	2.5	20.7	89865	2.5	19.6
226593	2.2	20.2	406892	2.3	20.9	80584	2.4	18.7	293217	2.4	20.9	363898	2.5	21.1	195835	2.5	20.3
256268	2.2	20.2	362465	2.3	21.3	445064	2.4	21.4	515825	2.4	21.6	15679	2.5	17.9	460886	2.5	19.7
183040	2.2	19.5	131956	2.3	19.3	52888	2.4	20.0	10331	2.4	18.4	156720	2.5	17.8	226066	2.5	20.4
419223	2.2	20.2	194932	2.3	20.0	482528	2.4	20.3	523470	2.4	21.3	204836	2.5	19.7	274765	2.5	19.9
83628	2.2	19.6	51938	2.3	18.2	243595	2.4	21.2	112728	2.4	18.6	173507	2.5	19.4	500610	2.5	20.5
249494	2.2	19.9	20620	2.3	18.9	129804	2.4	20.3	277112	2.4	20.3	401246	2.5	19.0	485121	2.5	20.2
364822	2.2	20.3	201285	2.3	21.0	22902	2.4	18.4	306434	2.4	20.8	331091	2.5	20.7	382246	2.6	21.3
205416	2.2	19.0	90081	2.3	18.3	430354	2.4	20.8	70045	2.4	16.9	122543	2.5	20.1	434420	2.6	21.7
294102	2.2	21.1	220022	2.3	20.4	130090	2.4	20.2	543149	2.4	22.0	160914	2.5	18.9	43219	2.6	18.3
112406	2.2	19.5	249842	2.3	21.3	458466	2.4	20.4	486416	2.4	20.7	77170	2.5	19.4	365605	2.6	21.2
544972	2.2	20.9	388100	2.3	21.0	161162	2.4	20.0	361731	2.4	19.7	375345	2.5	22.4	285969	2.6	20.3
368390	2.2	20.1	373390	2.3	20.9	344246	2.4	20.2	221406	2.4	20.5	132873	2.5	19.9	455193	2.6	19.9
418092	2.2	20.5	339607	2.3	21.1	361317	2.4	20.9	388877	2.4	20.1	488028	2.5	20.7	216541	2.6	20.9
201185	2.2	20.9	487716	2.3	20.9	80395	2.4	18.3	412635	2.4	19.4	481158	2.5	20.6	182986	2.6	20.7
488851	2.2	21.4	453135	2.3	20.2	220610	2.4	20.2	467609	2.4	20.0	361793	2.5	20.0	181014	2.6	20.0
40778	2.3	19.1	146581	2.3	19.9	272211	2.4	20.7	76063	2.4	18.8	63498	2.5	18.9	206529	2.6	19.3
126246	2.3	19.4	247614	2.3	19.8	493177	2.4	21.0	286564	2.4	19.8	14799	2.5	19.3	199304	2.6	20.5
387459	2.3	20.4	91852	2.3	19.2	196270	2.4	19.7	246540	2.4	21.1	418835	2.5	20.1	7459	2.6	17.0
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LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
63488	2.6	19.4	334505	2.6	21.3	27943	2.7	19.3	124911	2.8	18.7	280497	2.9	21.3	185171	2.9	19.2
462777	2.6	20.8	245769	2.6	19.6	465525	2.7	20.7	250132	2.8	21.9	541400	2.9	20.2	123911	2.9	19.7
86040	2.6	19.9	222978	2.6	20.6	343832	2.7	21.6	368317	2.8	20.2	28196	2.9	17.5	76670	2.9	19.6
145087	2.6	20.3	305152	2.6	21.2	461050	2.7	20.8	503433	2.8	19.6	369423	2.9	20.9	347246	2.9	20.0
412563	2.6	20.1	385434	2.6	19.8	543016	2.7	21.0	49923	2.8	17.4	301681	2.9	21.1	265403	2.9	20.9
477459	2.6	19.7	368159	2.6	19.5	233065	2.7	20.0	10651	2.8	18.2	164500	2.9	20.4	261900	2.9	21.2
32593	2.6	18.4	12367	2.6	17.2	265837	2.7	20.1	518228	2.8	19.8	307744	2.9	20.6	542915	2.9	20.9
272534	2.6	20.5	541487	2.7	20.1	487633	2.7	21.1	274571	2.8	21.1	278811	2.9	21.5	519240	2.9	20.2
104969	2.6	19.7	28379	2.7	17.6	162275	2.7	19.1	486923	2.8	21.7	413989	2.9	21.4	477329	2.9	21.0
172770	2.6	18.4	356065	2.7	21.0	195856	2.7	21.0	240453	2.8	19.1	116274	2.9	19.6	315697	2.9	20.5
237534	2.6	20.7	118848	2.7	19.5	434158	2.7	20.6	144797	2.8	20.1	409487	2.9	20.6	541387	2.9	20.8
193182	2.6	21.1	475445	2.7	20.7	490696	2.7	21.2	157542	2.8	19.4	391408	2.9	20.7	27893	2.9	18.8
332027	2.6	21.4	167444	2.7	19.0	124820	2.7	19.3	391486	2.8	20.9	322878	2.9	19.6	444881	2.9	19.5
332613	2.6	21.1	227526	2.7	20.2	118770	2.7	19.9	216534	2.8	20.5	167227	2.9	18.8	14141	2.9	18.2
20228	2.6	17.0	79553	2.7	19.5	348215	2.7	21.1	54746	2.8	18.9	110389	2.9	19.0	517758	2.9	21.7
457353	2.6	21.2	392836	2.7	21.1	252261	2.7	19.9	131400	2.8	19.9	402750	2.9	20.8	273546	2.9	20.3
433698	2.6	19.1	152388	2.7	19.9	117695	2.7	19.6	90741	2.8	19.4	357267	2.9	20.7	306400	2.9	20.9
34692	2.6	18.9	149335	2.7	19.4	402277	2.7	21.4	136222	2.8	19.6	229497	2.9	19.7	240990	2.9	21.5
263745	2.6	19.7	126684	2.7	19.9	161203	2.7	19.6	443431	2.8	20.8	63078	2.9	18.1	418998	2.9	21.8
283369	2.6	20.6	80995	2.7	19.4	73568	2.7	17.9	212110	2.8	19.6	74228	2.9	19.4	402634	2.9	20.2
26118	2.6	19.2	409027	2.7	20.5	199909	2.7	19.8	348228	2.8	19.3	111189	2.9	20.2	496235	2.9	19.9
72804	2.6	19.1	27613	2.7	17.9	213970	2.7	18.7	380029	2.8	20.7	317036	2.9	20.8	153726	2.9	19.6
355608	2.6	19.8	541339	2.7	21.2	286058	2.7	20.0	387049	2.8	20.8	100998	2.9	20.2	325196	2.9	20.2
68764	2.6	19.1	233535	2.7	20.6	293527	2.7	20.9	70611	2.8	19.4	544439	2.9	21.8	409437	2.9	21.4
10157	2.6	16.8	269799	2.7	19.5	43583	2.7	19.5	345397	2.8	20.3	459792	2.9	21.0	313179	2.9	20.0
196932	2.6	19.7	375570	2.7	21.2	482484	2.7	20.9	296247	2.8	20.0	281279	2.9	20.5	321919	2.9	20.6
357066	2.6	20.0	286889	2.7	20.5	217606	2.7	20.3	291252	2.8	20.1	252738	2.9	19.5	80181	2.9	18.5
98274	2.6	19.9	76681	2.7	19.1	461554	2.7	19.7	61675	2.8	18.0	424822	2.9	20.3	493880	2.9	20.8
137141	2.6	18.4	487110	2.7	20.3	92651	2.7	19.7	228809	2.8	19.3	147907	2.9	20.0	343950	2.9	19.9
312360	2.6	19.5	203818	2.7	20.1	247321	2.7	19.0	380098	2.8	20.3	76658	2.9	18.8	174050	2.9	15.9
103578	2.6	17.9	9488	2.7	17.1	132621	2.7	19.7	463061	2.8	21.3	321368	2.9	21.2	315646	2.9	20.6
85888	2.6	18.7	318853	2.7	21.1	168022	2.7	20.4	48994	2.8	18.3	167364	2.9	19.5	161488	2.9	19.6
109320	2.6	19.5	218769	2.7	20.8	212501	2.7	21.0	126167	2.8	18.0	323941	2.9	20.9	280523	2.9	21.2
77693	2.6	18.9	104450	2.7	19.5	223093	2.7	19.5	32956	2.8	19.4	452842	2.9	21.1	28974	2.9	19.5
316325	2.6	21.3	167939	2.7	19.4	337872	2.7	20.4	274759	2.8	20.4	463012	2.9	20.0	401570	2.9	20.9
214346	2.6	19.9	156874	2.7	19.6	235491	2.7	19.6	116376	2.8	18.6	191000	2.9	20.6	59742	2.9	19.1
159748	2.6	19.7	174290	2.7	20.0	52537	2.7	19.2	496188	2.8	20.3	55598	2.9	19.7	452250	2.9	21.8
126482	2.6	19.6	272296	2.7	19.9	387657	2.7	20.6	380138	2.8	20.0	17201	2.9	17.9	41988	2.9	19.1
195857	2.6	20.8	147472	2.7	19.2	209240	2.7	19.5	463352	2.8	20.3	48136	2.9	19.2	352685	2.9	20.6
414571	2.6	20.7	133761	2.7	20.0	319910	2.7	20.6	356315	2.8	21.2	148342	2.9	20.2	487352	2.9	21.0
406610	2.6	21.1	243023	2.7	20.8	51797	2.8	18.5	272586	2.8	20.0	322890	2.9	20.9	295658	2.9	20.0
402115	2.6	19.8	480867	2.7	21.5	219878	2.8	20.3	139316	2.8	20.5	229950	2.9	19.1	233206	2.9	19.9
460575	2.6	20.4	196838	2.7	19.8	482044	2.8	21.2	197730	2.8	21.1	485877	2.9	20.0	117779	2.9	18.9
337771	2.6	20.1	369219	2.7	20.8	542086	2.8	21.3	272499	2.8	20.6	218875	2.9	19.9	73457	2.9	18.6
18890	2.6	16.9	480819	2.7	21.8	148905	2.8	18.4	541160	2.8	20.2	519499	2.9	21.4	238491	2.9	20.0
68175	2.6	17.5	271986	2.7	19.4	222094	2.8	20.5	122871	2.8	18.3	199173	2.9	19.9	133807	2.9	19.4
85242	2.6	19.8	52620	2.7	18.8	206659	2.8	19.8	10392	2.8	17.8	260965	2.9	20.4	315825	2.9	20.5
46947	2.6	19.8	24572	2.7	19.1	63430	2.8	18.6	210808	2.8	19.7	96687	2.9	19.0	370272	2.9	20.7
110323	2.6	18.9	81285	2.7	19.3	485487	2.8	20.9	186915	2.8	20.5	336559	2.9	21.5	45685	2.9	21.1
439804	2.6	20.5	401421	2.7	21.3	30547	2.8	18.7	201919	2.8	19.3	329326	2.9	21.2	481232	2.9	20.1
404162	2.6	20.3	201183	2.7	19.5	369240	2.8	20.5	55216	2.8	18.5	102894	2.9	17.9	18838	2.9	18.5
272004	2.6	18.7	81311	2.7	19.4	517789	2.8	21.7	63810	2.8	19.6	437908	2.9	24.1	493645	2.9	22.0
116385	2.6	18.2	167313	2.7	21.2	277312	2.8	21.3	343801	2.8	20.7	335643	2.9	21.6	51930	2.9	19.6
256952	2.6	20.0	169975	2.7	18.7	405527	2.8	19.4	257357	2.8	21.4	251167	2.9	20.0	435430	2.9	20.5
333810	2.6	20.5	81247	2.7	18.5	88769	2.8	19.5	234970	2.8	19.8	182664	2.9	19.9	417340	2.9	20.6
180726	2.6	21.1	308762	2.7	20.7	154046	2.8	19.4	434421	2.8	21.6	11460	2.9	18.0	79843	2.9	19.3
200025	2.6	20.0	115262	2.7	18.8	448981	2.8	20.1	480443	2.8	20.7	61345	2.9	19.6	145987	2.9	19.0
490885	2.6	20.4	61432	2.7	19.5	417875	2.8	20.5	333101	2.8	21.7	457829	2.9	21.3	218282	2.9	19.9
127260	2.6	19.3	427020	2.7	20.5	95873	2.8	19.5	317395	2.8	20.7	186648	2.9	20.0	189702	2.9	21.0
422858	2.6	22.2	411775	2.7	20.7	490953	2.8	21.6	159020	2.8	20.5	434418	2.9	21.7	183487	2.9	20.0
77224	2.6	19.0	236245	2.7	19.1	182343	2.8	20.1	480840	2.8	20.5	198825	2.9	20.1	232461	2.9	20.0
411999	2.6	19.6	343177	2.7	20.9	248882	2.8	20.9	61063	2.8	19.1	357025	2.9	19.9	252561	2.9	20.2
441780	2.6	20.3	392772	2.7	19.9	329413	2.8	20.9	74210	2.8	19.5	386011	2.9	20.2	205005	2.9	19.7
454679	2.6	20.7	541326	2.7	21.3	196994	2.8	19.7	197876	2.8	21.3	481765	2.9	20.9	58883	2.9	19.2
244806	2.6	20.0	126515	2.7	19.6	420029	2.8	21.2	12910	2.8	17.8	518974	2.9	21.3	276673	2.9	20.6
122848	2.6	19.0	392716	2.7	20.0	12768	2.8	16.4	77641	2.8	18.8	196171	2.9	19.7	483606	2.9	21.4
461008	2.6	21.4	459457	2.7	19.4	67042	2.8	18.1	61322	2.8	19.3	466211	2.9	22.0	25343	2.9	16.5
225147	2.6	21.2	9885	2.7	16.3	8342	2.8	17.4	462103	2.8	22.1	273096	2.9	20.6	199590	2.9	20.2
29202	2.6	18.9	488060	2.7	20.6	364218	2.8	20.7	328380	2.8	21.8	74169	2.9	19.3	282013	2.9	19.7
153001	2.6	20.2	223797	2.7	19.8	102660	2.8	20.3	181317	2.8	20.3	152638	2.9	20.2	257506	2.9	20.7
479538	2.6	19.5	403510	2.7	19.9	447920	2.8	19.0	232880	2.8	19.9	220339	2.9	19.2	379747	2.9	20.3

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
248248	2.9	19.9	291389	3.1	20.3	9921	3.1	17.2	135057	3.2	19.3	325437	3.3	21.0	283254	3.3	20.2
484086	2.9	21.4	275764	3.1	20.5	514660	3.1	21.6	409777	3.2	20.4	456930	3.3	19.6	166657	3.3	20.7
240261	2.9	19.9	291469	3.1	20.8	61703	3.1	19.5	380495	3.2	20.3	13424	3.3	18.3	315780	3.3	20.3
311623	2.9	20.0	15741	3.1	17.4	96034	3.1	20.6	112951	3.2	19.9	426297	3.3	20.9	367456	3.3	19.6
128285	2.9	20.3	18689	3.1	18.3	282175	3.1	19.6	204589	3.2	20.2	143788	3.3	20.0	301930	3.3	19.7
454258	2.9	20.5	397613	3.1	21.6	225083	3.1	19.8	373732	3.2	20.7	446373	3.3	21.3	277311	3.3	21.1
81596	2.9	18.5	485472	3.1	21.0	495047	3.1	21.4	474349	3.2	21.8	480161	3.3	21.2	16160	3.3	17.8
158934	2.9	20.7	258304	3.1	20.4	409545	3.1	21.1	151797	3.2	19.4	213940	3.3	19.3	114196	3.3	18.7
79595	2.9	18.4	165932	3.1	19.8	187089	3.1	20.8	257251	3.2	20.7	262398	3.3	20.4	197232	3.3	20.3
348633	3.0	20.5	236459	3.1	20.5	278990	3.1	19.6	275286	3.2	20.9	89567	3.3	19.3	151978	3.3	19.4
441463	3.0	21.8	453861	3.1	20.9	269653	3.1	21.3	33858	3.2	18.5	399930	3.3	20.0	278438	3.3	20.7
310124	3.0	20.7	465818	3.1	20.9	541759	3.1	21.1	47920	3.2	18.6	412184	3.3	20.5	143976	3.3	18.9
62532	3.0	18.7	179181	3.1	20.2	457419	3.1	21.2	303644	3.2	19.2	180548	3.3	19.9	196400	3.3	19.2
291307	3.0	20.6	77608	3.1	19.6	341971	3.1	20.2	380409	3.2	18.2	245042	3.3	19.8	459889	3.3	20.4
160333	3.0	19.2	352164	3.1	20.7	195950	3.1	20.5	156662	3.2	20.1	278149	3.3	19.7	124526	3.3	19.7
370294	3.0	20.7	247914	3.1	20.4	57124	3.1	17.2	10402	3.2	19.1	173442	3.3	19.5	483596	3.3	21.8
68405	3.0	19.4	221802	3.1	21.1	83663	3.1	18.8	45826	3.2	18.5	382727	3.3	18.4	541833	3.3	21.0
517791	3.0	21.5	190934	3.1	19.7	164906	3.1	20.3	307774	3.2	21.0	226220	3.3	20.5	97450	3.3	19.6
370859	3.0	20.9	348454	3.1	21.1	487227	3.1	21.5	128512	3.2	20.8	248753	3.3	21.4	426677	3.3	20.9
254907	3.0	20.6	510549	3.1	21.3	72641	3.1	18.6	326814	3.2	20.4	247338	3.3	19.6	188616	3.3	21.0
278047	3.0	21.3	105084	3.1	20.0	149270	3.1	18.7	1262	3.2	14.6	160283	3.3	18.9	172870	3.3	19.8
21822	3.0	17.6	222930	3.1	21.4	332446	3.1	16.5	542038	3.2	21.2	454180	3.3	21.0	434795	3.3	21.1
260907	3.0	21.2	284035	3.1	20.0	396447	3.1	20.6	296193	3.2	20.8	360301	3.3	21.6	393488	3.3	21.5
304872	3.0	20.4	249397	3.1	20.5	79384	3.1	20.1	503253	3.2	22.3	515120	3.3	20.6	437416	3.3	19.9
187613	3.0	20.4	19747	3.1	16.7	430592	3.2	21.7	252681	3.2	19.2	162967	3.3	18.8	387744	3.3	21.3
402275	3.0	20.8	184613	3.1	20.3	446013	3.2	19.1	447874	3.2	22.2	373512	3.3	20.7	308282	3.3	20.4
359220	3.0	20.9	318945	3.1	20.9	158030	3.2	20.7	179285	3.2	20.2	211653	3.3	20.2	270776	3.3	20.1
421778	3.0	20.9	92793	3.1	20.1	333608	3.2	19.9	38658	3.2	18.6	321872	3.3	20.7	335760	3.3	20.4
881	3.0	16.5	267534	3.1	19.8	237571	3.2	18.7	455197	3.2	21.6	492725	3.3	21.1	325334	3.3	21.2
74163	3.0	19.3	126345	3.1	18.8	424294	3.2	21.2	318844	3.2	19.9	80953	3.3	19.2	38309	3.3	18.4
101166	3.0	18.8	324045	3.1	20.3	233084	3.2	20.1	372253	3.2	20.9	307863	3.3	19.8	158826	3.4	21.1
297980	3.0	20.7	120352	3.1	20.3	342057	3.2	20.7	466951	3.2	20.4	234962	3.3	19.7	244815	3.4	19.7
227729	3.0	19.7	64230	3.1	18.5	132722	3.2	19.6	543463	3.2	21.4	151523	3.3	19.4	372805	3.4	21.6
474178	3.0	21.5	182034	3.1	18.5	473641	3.2	20.6	284418	3.2	19.2	147392	3.3	19.2	364797	3.4	20.2
385619	3.0	21.2	305075	3.1	21.0	494926	3.2	20.7	175261	3.2	19.1	523773	3.3	21.2	90243	3.4	19.0
462787	3.0	20.8	485632	3.1	20.6	134722	3.2	18.5	461862	3.2	19.9	162222	3.3	19.6	222527	3.4	19.9
350101	3.0	20.5	518114	3.1	21.1	242908	3.2	20.8	9805	3.2	16.7	432278	3.3	21.7	261096	3.4	20.3
517270	3.0	20.2	494479	3.1	20.9	281461	3.2	21.3	163567	3.2	19.6	413591	3.3	20.6	441644	3.4	21.2
125661	3.0	18.6	307421	3.1	20.8	544653	3.2	19.8	365587	3.2	20.4	154158	3.3	20.1	408686	3.4	20.5
412736	3.0	20.2	256258	3.1	20.2	514118	3.2	20.9	269531	3.2	20.9	345126	3.3	20.9	424331	3.4	21.2
209281	3.0	19.1	15151	3.1	18.4	274421	3.2	19.6	81181	3.2	19.4	51284	3.3	20.8	477223	3.4	21.1
24660	3.0	17.1	335663	3.1	20.1	330169	3.2	20.4	146050	3.2	19.1	469180	3.3	20.4	11763	3.4	18.3
492069	3.0	20.9	337573	3.1	19.9	110868	3.2	20.5	332283	3.2	20.7	442345	3.3	21.8	541390	3.4	21.0
312415	3.0	20.2	510318	3.1	20.4	311106	3.2	19.0	85490	3.2	21.5	30399	3.3	19.0	76343	3.4	18.6
110177	3.0	19.6	72890	3.1	19.2	252392	3.2	19.4	464166	3.2	20.5	252650	3.3	20.0	309773	3.4	20.8
165109	3.0	20.5	402635	3.1	20.8	96120	3.2	20.0	420071	3.2	20.6	81527	3.3	19.2	174708	3.4	18.3
481096	3.0	21.1	457426	3.1	20.3	188690	3.2	20.7	421357	3.2	21.1	101435	3.3	19.6	452139	3.4	20.6
441331	3.0	19.5	56075	3.1	17.5	341895	3.2	21.4	291876	3.2	21.1	328450	3.3	21.3	87201	3.4	18.6
361380	3.0	21.2	541341	3.1	21.2	488422	3.2	20.5	21505	3.2	17.0	28091	3.3	18.6	493166	3.4	20.7
125404	3.0	18.5	544031	3.1	20.5	204707	3.2	20.0	284082	3.2	21.5	465485	3.3	21.1	442360	3.4	21.1
16985	3.0	18.1	460963	3.1	20.3	199236	3.2	19.8	454788	3.2	21.1	506399	3.3	20.2	183113	3.4	20.0
434143	3.0	21.3	203594	3.1	19.6	79854	3.2	18.2	138160	3.2	18.5	296828	3.3	20.2	2973	3.4	15.8
336758	3.0	20.7	143770	3.1	19.5	318137	3.2	20.4	281153	3.2	21.3	291009	3.3	20.5	175647	3.4	20.7
538549	3.0	21.5	316377	3.1	21.0	276600	3.2	21.4	424793	3.2	20.8	339543	3.3	21.6	356066	3.4	21.0
180263	3.0	20.0	81894	3.1	19.2	92996	3.2	18.7	411112	3.2	21.4	372178	3.3	20.3	254105	3.4	20.6
416384	3.0	21.0	381649	3.1	20.7	271608	3.2	20.8	474408	3.2	20.8	271987	3.3	19.9	50241	3.4	19.0
224543	3.0	20.7	242800	3.1	19.8	473845	3.2	20.7	358142	3.2	20.8	174352	3.3	19.8	244486	3.4	19.6
65333	3.0	19.4	196833	3.1	20.7	411303	3.2	21.6	305937	3.2	19.6	307433	3.3	20.3	480926	3.4	20.7
447545	3.0	20.4	264463	3.1	19.5	4434	3.2	16.6	461616	3.2	19.7	124786	3.3	18.2	187158	3.4	19.9
446735	3.0	20.7	307771	3.1	18.7	10080	3.2	18.2	434968	3.2	22.0	23832	3.3	18.3	85531	3.4	18.9
146682	3.0	19.5	447645	3.1	21.1	242933	3.2	19.9	26595	3.2	18.4	5387	3.3	17.1	422894	3.4	21.1
442427	3.0	21.2	62941	3.1	19.6	189980	3.2	19.1	132702	3.2	19.7	254785	3.3	21.3	279427	3.4	19.9
254818	3.0	20.6	99458	3.1	19.0	70704	3.2	19.0	264017	3.2	20.2	444774	3.3	21.1	323908	3.4	19.8
365255	3.0	21.5	515902	3.1	20.9	521929	3.2	20.3	3600	3.2	15.6	354946	3.3	20.8	356018	3.4	20.2
327663	3.0	21.6	202560	3.1	20.7	372035	3.2	20.5	113240	3.2	19.3	290081	3.3	21.5	402276	3.4	21.4
69861	3.0	19.0	104953	3.1	20.3	78688	3.2	18.8	135935	3.2	20.4	491439	3.3	20.7	317330	3.4	19.3
317102	3.0	20.5	368463	3.1	20.5	521975	3.2	20.7	444822	3.2	20.7	157709	3.3	20.5	486384	3.4	20.2
413681	3.0	21.0	356121	3.1	19.2	127040	3.2	19.5	298592	3.2	19.5	459774	3.3	20.0	11802	3.4	17.2
473608	3.0	20.9	305184	3.1	20.2	436772	3.2	21.1	348649	3.2	20.2	388849	3.3	20.3	292063	3.4	21.3
398410	3.0	20.3	195988	3.1	20.2	25496	3.2	17.7	101685	3.2	17.4	542685	3.3	21.2	339941	3.4	20.2
195864	3.0	20.9	477388	3.1	21.3	46761	3.2	18.7	518296	3.2	20.9	441172	3.3	20.3	110728	3.4	

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
456868	3.4	20.9	379901	3.5	20.3	362229	3.5	21.3	522295	3.6	21.4	60922	3.7	18.8	146796	3.7	19.7
329678	3.4	20.4	128644	3.5	19.8	343758	3.5	21.3	131794	3.6	20.0	412665	3.7	20.3	189706	3.7	20.8
244802	3.4	19.2	438480	3.5	21.1	334069	3.5	21.0	266011	3.6	20.3	467267	3.7	20.6	309759	3.7	20.1
362733	3.4	20.1	458043	3.5	21.2	236775	3.5	19.5	213355	3.6	20.8	298480	3.7	20.2	354625	3.7	20.1
116626	3.4	18.6	337629	3.5	20.6	413779	3.5	20.0	107271	3.6	18.5	88198	3.7	20.3	345715	3.7	21.4
278114	3.4	19.7	230151	3.5	19.9	336087	3.5	21.3	321018	3.6	21.5	462759	3.7	20.5	328600	3.7	20.7
395706	3.4	19.9	126365	3.5	18.5	368376	3.5	21.8	46956	3.6	19.5	372229	3.7	21.4	234598	3.7	18.8
484440	3.4	20.4	119037	3.5	19.9	286255	3.5	20.4	277916	3.6	20.0	108146	3.7	20.3	345313	3.7	20.6
345321	3.4	21.1	447886	3.5	20.3	369426	3.5	21.3	511538	3.6	19.9	215289	3.7	20.5	137272	3.7	19.7
320874	3.4	21.1	374995	3.5	19.2	444866	3.5	21.0	361259	3.6	20.5	516649	3.7	22.0	399399	3.7	20.0
3347	3.4	16.3	158007	3.5	20.3	84636	3.5	18.7	179630	3.6	20.1	145208	3.7	20.0	395010	3.7	20.9
275873	3.4	21.8	81721	3.5	18.9	280224	3.5	19.9	409277	3.6	20.9	335897	3.7	20.4	37671	3.7	16.7
262399	3.4	21.0	225407	3.5	20.2	145546	3.5	20.9	407315	3.6	21.6	415000	3.7	20.0	312244	3.7	19.6
335314	3.4	21.1	387671	3.5	21.2	436370	3.5	21.5	487991	3.6	20.3	372767	3.7	19.5	182205	3.7	20.3
4973	3.4	16.3	90655	3.5	19.8	449877	3.5	20.5	293665	3.6	20.8	515775	3.7	21.8	493716	3.7	21.3
49892	3.4	18.3	519346	3.5	21.7	74238	3.5	19.2	56500	3.6	19.1	65145	3.7	18.8	411803	3.7	20.2
156243	3.4	19.7	301722	3.5	21.4	373807	3.5	20.5	110509	3.6	19.7	159762	3.7	20.1	405723	3.7	20.6
330720	3.4	21.0	477381	3.5	19.4	156747	3.5	19.1	64816	3.6	19.7	270270	3.7	21.1	278516	3.7	19.0
180968	3.4	20.0	368519	3.5	20.3	333508	3.5	20.7	425621	3.6	20.8	2417	3.7	15.5	115079	3.7	19.1
332246	3.4	19.9	240369	3.5	20.1	99855	3.5	19.5	375322	3.6	20.8	477784	3.7	20.4	156062	3.7	20.0
269554	3.4	20.7	286095	3.5	18.6	192986	3.5	19.7	92743	3.6	18.2	60551	3.7	19.2	337523	3.7	20.7
441096	3.4	20.5	216290	3.5	20.6	112412	3.5	19.7	270725	3.6	20.8	346301	3.7	21.0	318820	3.7	19.6
260794	3.4	20.0	168303	3.5	21.6	124693	3.5	20.9	25283	3.6	18.3	422142	3.7	20.9	119742	3.7	19.4
44792	3.4	17.7	520427	3.5	21.0	542737	3.5	20.4	63419	3.6	19.8	112129	3.7	19.4	484511	3.8	21.2
179112	3.4	20.3	138289	3.5	20.2	164643	3.5	20.4	522127	3.6	21.4	109932	3.7	19.4	388946	3.8	20.5
414633	3.4	20.8	507579	3.5	20.3	421638	3.5	20.9	191578	3.6	19.2	384142	3.7	20.6	313198	3.8	21.2
388910	3.4	20.7	19528	3.5	18.9	3334	3.5	15.9	94130	3.6	19.3	403670	3.7	21.1	7873	3.8	17.2
492493	3.4	20.7	487641	3.5	22.0	232277	3.5	19.1	272463	3.6	20.8	52069	3.7	19.6	307313	3.8	21.3
501579	3.4	20.0	278890	3.5	20.3	140495	3.5	19.9	50456	3.6	18.5	85902	3.7	17.3	196088	3.8	19.2
204606	3.4	20.0	213718	3.5	19.6	541207	3.5	21.1	189684	3.6	20.1	140348	3.7	18.2	365671	3.8	20.7
196134	3.4	19.5	46320	3.5	17.8	481151	3.5	20.9	55103	3.6	16.4	191413	3.7	19.4	542997	3.8	21.6
213299	3.4	19.9	305610	3.5	20.1	454988	3.5	20.0	417388	3.6	20.0	259263	3.7	20.1	237355	3.8	20.8
443236	3.4	20.3	360300	3.5	20.8	226178	3.5	20.0	312959	3.6	19.6	401257	3.7	20.0	388535	3.8	21.7
248878	3.4	20.3	121099	3.5	19.1	295377	3.5	21.4	221525	3.6	20.8	267856	3.7	20.0	7601	3.8	17.4
190786	3.4	20.8	332594	3.5	20.8	137078	3.5	20.1	489002	3.6	22.4	193213	3.7	19.6	130070	3.8	19.6
334346	3.4	19.4	460698	3.5	21.2	20362	3.5	17.1	232795	3.6	20.2	362653	3.7	19.8	68298	3.8	19.1
151988	3.4	20.4	310732	3.5	20.8	230742	3.5	19.3	184436	3.6	20.5	311859	3.7	19.9	484510	3.8	20.8
447943	3.4	21.0	495394	3.5	20.4	213600	3.5	20.6	174400	3.6	20.4	448157	3.7	21.6	335254	3.8	20.8
491188	3.4	20.1	421314	3.5	20.8	497004	3.5	22.1	193737	3.6	19.7	146717	3.7	20.3	456154	3.8	20.9
428941	3.4	19.6	492592	3.5	21.3	204170	3.5	19.9	444082	3.6	21.4	275829	3.7	20.6	18588	3.8	17.5
116467	3.4	19.5	358235	3.5	20.9	441591	3.5	21.2	234634	3.6	19.3	542094	3.7	21.6	176896	3.8	20.0
35382	3.4	19.0	514171	3.5	20.9	468961	3.5	21.3	382624	3.6	20.8	373008	3.7	19.9	384336	3.8	21.4
427194	3.4	20.1	541355	3.5	19.9	301902	3.5	20.2	261264	3.6	20.4	226188	3.7	20.2	392229	3.8	21.0
441616	3.4	22.0	120185	3.5	19.1	458639	3.5	21.2	277660	3.6	21.1	516602	3.7	20.2	197202	3.8	20.1
245422	3.4	20.3	2667	3.5	17.0	459798	3.5	20.8	45617	3.6	19.2	280506	3.7	21.8	17803	3.8	16.8
49253	3.4	18.1	177248	3.5	18.9	415371	3.5	21.6	101182	3.6	20.4	375394	3.7	20.5	409577	3.8	20.7
412974	3.4	22.1	376838	3.5	21.5	181042	3.5	20.7	251153	3.6	21.8	492900	3.7	21.7	71409	3.8	19.3
226138	3.4	20.5	456809	3.5	20.5	521455	3.5	20.6	450204	3.6	22.0	431176	3.7	21.3	146505	3.8	19.5
68294	3.4	18.2	338905	3.5	19.7	475463	3.5	21.5	66014	3.6	19.1	424200	3.7	21.1	9881	3.8	20.3
449682	3.4	21.7	175543	3.5	19.6	88550	3.5	18.6	191444	3.6	19.7	293057	3.7	20.8	308774	3.8	20.6
281408	3.4	20.7	486591	3.5	20.7	457005	3.5	19.6	255542	3.6	20.6	192593	3.7	19.0	358302	3.8	20.9
398144	3.4	20.2	404247	3.5	20.1	455708	3.5	19.8	133835	3.6	20.2	213052	3.7	19.5	174268	3.8	19.7
517848	3.4	22.3	102524	3.5	18.8	390852	3.5	21.7	247920	3.6	20.8	196043	3.7	19.1	271329	3.8	20.2
201741	3.4	20.5	179818	3.5	20.7	279799	3.5	20.2	490594	3.6	21.1	457543	3.7	20.8	125140	3.8	19.0
69020	3.4	19.9	309820	3.5	20.5	449851	3.5	20.4	379758	3.6	20.4	463056	3.7	21.6	361763	3.8	20.8
347564	3.4	20.5	193736	3.5	20.8	161505	3.5	20.5	247302	3.6	20.4	29891	3.7	17.4	282486	3.8	19.7
469421	3.4	21.4	60638	3.5	18.2	163606	3.5	20.0	156762	3.6	19.1	61573	3.7	19.2	449367	3.8	20.7
29205	3.4	17.9	453352	3.5	19.6	137621	3.5	19.6	434632	3.6	19.9	483654	3.7	20.2	253819	3.8	20.5
339846	3.4	21.2	388540	3.5	21.3	437363	3.5	19.6	541446	3.6	20.2	361377	3.7	20.2	303129	3.8	20.1
426784	3.5	21.4	411438	3.5	21.0	468152	3.5	21.9	77385	3.6	18.6	105892	3.7	18.8	243029	3.8	20.1
324671	3.5	20.6	272486	3.5	21.5	334863	3.5	21.2	489737	3.6	20.0	484304	3.7	19.8	453881	3.8	21.5
495975	3.5	21.9	457181	3.5	21.6	251148	3.5	20.9	449361	3.6	20.4	386024	3.7	20.1	544685	3.8	21.3
201704	3.5	19.4	434140	3.5	21.5	132774	3.5	19.5	407354	3.6	21.6	419402	3.7	19.6	132692	3.8	19.4
385263	3.5	20.8	44417	3.5	17.7	218338	3.5	19.0	270845	3.6	19.5	188613	3.7	20.4	462462	3.8	21.4
244254	3.5	19.5	26950	3.5	18.0	80377	3.5	19.5	201056	3.6	19.7	517756	3.7	22.2	227118	3.8	20.2
402376	3.5	20.9	319925	3.5	19.7	441201	3.5	20.0	292129	3.6	20.0	183680	3.7	19.7	247580	3.8	20.5
402618	3.5	21.2	40421	3.5	19.3	451745	3.5	21.0	294118	3.6	20.3	174780	3.7	19.3	259573	3.8	19.7
375392	3.5	20.6	199174	3.5	19.2	258850	3.5	20.4	313225	3.6	20.7	25716	3.7	18.1	240116	3.8	19.3
187198	3.5	20.6	136913	3.5	19.4	389075	3.5	21.4	48806	3.6	18.3	243057	3.7	20.6	26635	3.8	18.4
489835	3.5	21.1	306944	3.5	20.0	427626	3.5	21.4	69939	3.6	18.6	213048	3.7	20.0	446761	3.8	21.8
274027	3.5	20.3	232956	3.5	19.7	189117	3.5	18.8	336086	3.6	20.9	332561	3.7	21.0	747		

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
78809	3.8	18.4	142205	3.9	20.4	84116	3.9	18.8	101574	3.9	18.5	523651	4.1	23.0	245374	4.1	19.8
32511	3.8	20.4	538389	3.9	21.2	169139	3.9	20.9	118726	3.9	19.6	122400	4.1	19.7	187575	4.1	19.6
57415	3.8	18.2	492035	3.9	20.1	363866	3.9	21.2	197880	3.9	21.1	541424	4.1	20.7	78208	4.1	19.3
237418	3.8	20.6	163153	3.9	19.4	88361	3.9	18.9	239629	3.9	20.3	386018	4.1	19.7	486921	4.1	21.5
439065	3.8	21.9	89767	3.9	20.1	11910	3.9	17.4	20516	3.9	18.0	457055	4.1	21.1	419270	4.1	20.0
26658	3.8	17.6	507553	3.9	20.3	256376	3.9	19.3	82524	3.9	19.4	103152	4.1	19.2	460972	4.1	20.7
317270	3.8	20.6	113545	3.9	19.0	137400	3.9	19.7	177573	3.9	20.6	317164	4.1	20.5	99276	4.1	20.1
302617	3.8	20.6	321189	3.9	19.5	97641	3.9	18.8	441399	3.9	21.5	401920	4.1	20.9	22471	4.1	19.0
122198	3.8	19.2	58472	3.9	20.7	337242	3.9	21.1	115226	3.9	19.3	119210	4.1	19.9	420104	4.1	20.3
279380	3.8	19.7	287584	3.9	21.1	279152	3.9	20.6	165763	3.9	19.7	290908	4.1	19.9	116974	4.1	20.1
373080	3.8	21.2	426446	3.9	21.2	523758	3.9	21.6	462408	3.9	21.1	242311	4.1	20.9	486046	4.1	20.9
67504	3.8	20.0	252453	3.9	21.6	392854	3.9	19.7	244491	3.9	20.3	118768	4.1	19.0	335296	4.1	21.4
180732	3.8	20.1	313813	3.9	17.6	410946	3.9	20.9	145260	3.9	20.1	167218	4.1	20.7	141539	4.1	20.0
391835	3.8	20.3	399543	3.9	19.6	463349	3.9	22.2	106203	3.9	19.0	487322	4.1	21.3	148974	4.1	20.0
188202	3.8	20.0	97722	3.9	18.2	380006	3.9	20.2	294590	3.9	20.5	3462	4.1	17.2	246066	4.1	20.2
78450	3.8	19.8	220450	3.9	19.3	457830	3.9	21.0	231826	3.9	20.1	45985	4.1	18.5	136329	4.1	19.5
462718	3.8	19.8	442207	3.9	20.4	340796	3.9	20.7	23269	4.0	19.7	99159	4.1	19.2	477474	4.1	20.6
251134	3.8	22.1	262523	3.9	21.2	231039	3.9	19.7	413258	4.0	21.3	517818	4.1	20.7	277910	4.1	20.4
442903	3.8	19.9	251418	3.9	19.7	544051	3.9	22.1	205969	4.0	19.9	370580	4.1	21.3	398566	4.1	20.5
457335	3.8	21.2	270135	3.9	20.3	169736	3.9	19.8	257061	4.0	19.5	442265	4.1	20.6	78776	4.1	19.4
298511	3.8	20.8	127685	3.9	19.9	43958	3.9	19.2	494767	4.0	21.2	358567	4.1	20.2	492974	4.1	20.3
127469	3.8	20.4	172708	3.9	18.5	150202	3.9	20.1	256464	4.0	20.7	87805	4.1	19.1	153554	4.1	20.9
483083	3.8	21.3	247205	3.9	19.7	277083	3.9	21.0	302578	4.0	19.1	100072	4.1	19.0	212832	4.1	19.2
427292	3.8	20.2	128660	3.9	20.1	21922	3.9	17.1	341949	4.0	21.5	412851	4.1	20.8	213695	4.1	19.7
521954	3.8	21.7	253669	3.9	20.5	53756	3.9	19.3	150768	4.0	20.5	363610	4.1	21.1	366588	4.1	20.0
359747	3.8	21.2	413514	3.9	22.0	414634	3.9	20.3	238138	4.0	20.0	426879	4.1	20.5	493949	4.1	20.9
233964	3.8	19.3	544848	3.9	21.6	331432	3.9	20.3	542258	4.0	22.5	284714	4.1	20.5	181137	4.1	20.7
372217	3.8	21.9	542650	3.9	21.6	42058	3.9	18.8	353369	4.0	19.9	57983	4.1	17.9	275815	4.1	21.6
125847	3.8	18.6	240249	3.9	20.7	56176	3.9	18.0	131777	4.0	20.0	113062	4.1	19.7	403639	4.1	21.9
272862	3.8	20.2	434442	3.9	21.3	155179	3.9	20.2	247373	4.0	18.9	105702	4.1	20.4	205296	4.1	19.3
186814	3.8	20.0	35001	3.9	19.5	18191	3.9	17.7	124894	4.0	20.5	427276	4.1	20.6	450794	4.1	22.0
298517	3.8	20.3	343784	3.9	20.4	488215	3.9	19.8	77585	4.0	18.1	333380	4.1	21.7	1343	4.1	15.0
405578	3.8	21.1	373120	3.9	20.7	13745	3.9	18.0	197934	4.0	21.1	157818	4.1	20.6	240097	4.1	19.9
47815	3.8	18.7	126697	3.9	19.5	365991	3.9	20.4	339730	4.0	21.1	90247	4.1	18.6	279603	4.1	19.9
97087	3.8	19.1	271169	3.9	19.7	213132	3.9	17.8	289583	4.0	20.1	434237	4.1	21.4	420137	4.1	20.5
196084	3.8	19.6	251993	3.9	20.1	52594	3.9	19.0	486757	4.0	20.4	85741	4.1	18.5	135954	4.1	19.5
463854	3.8	20.9	377019	3.9	21.0	307381	3.9	21.9	384672	4.0	20.3	76943	4.1	19.1	306253	4.1	20.5
23967	3.8	17.5	311093	3.9	19.5	520854	3.9	20.1	118504	4.0	19.2	152966	4.1	19.6	104792	4.1	20.0
450613	3.8	20.6	139782	3.9	19.9	314885	3.9	21.0	219169	4.0	21.4	460166	4.1	21.6	442617	4.1	20.8
396455	3.8	20.6	339738	3.9	20.0	204468	3.9	19.4	74709	4.0	19.4	310800	4.1	21.7	470242	4.1	20.4
165123	3.8	19.9	341916	3.9	20.9	486534	3.9	20.0	348172	4.0	22.0	120298	4.1	20.4	379810	4.1	20.5
251485	3.8	20.6	133605	3.9	19.8	241717	3.9	20.4	273249	4.0	20.5	418580	4.1	20.7	484088	4.1	20.8
24613	3.8	18.5	307323	3.9	21.7	49454	3.9	18.1	358663	4.0	19.6	283214	4.1	21.8	38795	4.1	17.9
47907	3.8	19.0	114314	3.9	19.6	203514	3.9	19.6	247900	4.0	21.4	339482	4.1	20.2	303549	4.1	19.9
100815	3.8	17.8	157201	3.9	19.9	158649	3.9	19.0	103603	4.0	18.8	227822	4.1	20.2	339838	4.1	19.6
65614	3.8	19.1	136014	3.9	19.7	294854	3.9	19.8	282931	4.0	20.5	341937	4.1	21.8	236346	4.1	20.6
151954	3.8	17.5	15061	3.9	17.7	197650	3.9	20.9	489534	4.0	22.3	438671	4.1	22.7	460701	4.1	20.3
136475	3.8	20.2	369114	3.9	21.5	316482	3.9	20.6	392567	4.0	21.7	10985	4.1	17.1	277040	4.1	19.4
98872	3.8	19.0	522479	3.9	20.7	322494	3.9	21.0	308300	4.0	20.8	72336	4.1	19.1	543461	4.1	21.7
231823	3.8	19.2	49181	3.9	16.9	80783	3.9	18.8	254845	4.0	20.9	456898	4.1	22.9	468362	4.1	21.0
34559	3.8	18.7	244125	3.9	19.9	175661	3.9	19.8	217848	4.0	21.2	492817	4.1	21.6	497259	4.1	21.5
496654	3.8	19.9	482896	3.9	21.6	407212	3.9	21.1	447913	4.0	20.5	541541	4.1	21.0	184172	4.1	20.4
219903	3.8	19.5	270729	3.9	20.1	178277	3.9	20.5	39841	4.0	17.9	461109	4.1	20.7	437882	4.1	21.6
485524	3.8	20.6	149771	3.9	20.2	86531	3.9	18.5	231676	4.0	20.0	125555	4.1	20.3	403073	4.1	21.0
457828	3.9	20.9	119731	3.9	20.3	124296	3.9	21.5	395482	4.0	21.8	365968	4.1	20.6	159392	4.1	20.0
462486	3.9	20.9	157168	3.9	20.5	282357	3.9	21.5	542296	4.0	21.6	304075	4.1	21.6	491364	4.1	20.4
468354	3.9	20.6	486464	3.9	20.0	197100	3.9	19.5	157436	4.0	20.0	430057	4.1	21.4	270875	4.1	20.9
421985	3.9	21.0	340155	3.9	21.0	390035	3.9	20.8	34104	4.0	18.8	543929	4.1	20.6	252322	4.2	20.4
301940	3.9	19.1	447821	3.9	22.0	82601	3.9	16.8	161315	4.0	19.9	198660	4.1	20.2	317431	4.2	20.7
252503	3.9	20.3	324640	3.9	20.8	251484	3.9	20.3	15448	4.0	17.8	370393	4.1	21.7	199444	4.2	20.9
331656	3.9	21.7	439279	3.9	21.5	449887	3.9	20.8	252599	4.0	19.7	231970	4.1	20.2	197846	4.2	19.9
185953	3.9	18.8	252352	3.9	21.0	235663	3.9	20.0	459749	4.0	20.9	41291	4.1	18.7	229431	4.2	19.3
516418	3.9	22.1	278411	3.9	20.3	5903	3.9	16.2	111660	4.0	19.5	111649	4.1	19.1	375399	4.2	20.2
485659	3.9	20.8	394090	3.9	20.6	155298	3.9	19.8	266071	4.0	20.3	32790	4.1	18.8	278109	4.2	19.4
271108	3.9	19.7	58467	3.9	19.8	468366	3.9	20.4	466037	4.0	20.0	293053	4.1	20.0	390621	4.2	20.1
273149	3.9	19.7	71640	3.9	18.5	8006	3.9	17.1	230147	4.0	20.6	282045	4.1	19.8	75991	4.2	20.3
445736	3.9	21.4	76159	3.9	19.8	339690	3.9	21.3	481197	4.0	20.1	97519	4.1	18.8	404233	4.2	19.6
402321	3.9	21.6	111630	3.9	19.5	104657	3.9	18.6	443212	4.0	20.8	251094	4.1	19.9	473822	4.2	21.1
384762	3.9	20.9	457197	3.9	20.3	544510	3.9	21.3	254873	4.0	20.6	282592	4.1	20.2	53121	4.2	18.5
49166	3.9	16.9	30850	3.9	16.9	199955	3.9	20.2	393537	4.1	20.3	458713	4.1	19.8	292727	4.2	20.1
232257	3.9	20.7	211658	3.9	19.5	434990	3.9	20.1	376657	4.1	20.9	239325	4.1	20.8	333026	4.	

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
312584	4.2	20.1	388493	4.2	20.8	145161	4.3	19.4	355456	4.4	19.8	33506	4.4	18.1	101253	4.5	20.2
405636	4.2	21.2	191889	4.2	20.9	492681	4.3	21.1	434448	4.4	21.3	414531	4.4	21.7	543203	4.5	20.9
334647	4.2	20.9	398164	4.2	21.9	464304	4.3	20.2	143060	4.4	19.9	358237	4.4	21.3	318752	4.5	20.0
398646	4.2	20.6	145341	4.2	20.0	17739	4.3	17.7	109520	4.4	20.0	100442	4.4	20.7	517825	4.5	21.4
372226	4.2	20.7	251160	4.2	19.9	506190	4.3	21.0	542565	4.4	20.3	332415	4.4	21.3	61240	4.5	18.4
122012	4.2	19.6	319966	4.2	19.9	370875	4.3	19.7	275297	4.4	20.9	79376	4.4	17.9	34803	4.5	19.0
123505	4.2	20.4	52980	4.2	18.2	373854	4.3	21.7	265835	4.4	20.2	242016	4.4	21.1	436395	4.5	20.7
542747	4.2	21.0	61211	4.2	17.6	489904	4.3	20.6	361899	4.4	21.5	352960	4.4	20.4	349553	4.5	21.5
68884	4.2	19.3	73759	4.2	18.9	270652	4.3	20.3	325898	4.4	20.7	463343	4.4	21.3	242008	4.5	20.6
276232	4.2	20.9	133844	4.2	20.2	28961	4.3	18.9	19222	4.4	18.1	418734	4.4	20.0	145177	4.5	19.6
298507	4.2	21.3	13508	4.2	16.3	296974	4.3	19.7	264336	4.4	20.6	410940	4.4	21.1	279624	4.5	19.7
304634	4.2	19.7	269913	4.2	19.9	456492	4.3	21.5	388546	4.4	20.5	522169	4.4	21.3	282443	4.5	19.8
321016	4.2	19.6	330299	4.2	20.9	272323	4.3	21.9	446315	4.4	20.6	457295	4.4	20.1	40044	4.5	19.5
414641	4.2	20.8	185621	4.2	18.8	461471	4.3	21.7	23788	4.4	18.0	261059	4.4	20.9	203711	4.5	19.6
541690	4.2	21.9	360864	4.2	21.3	318806	4.3	21.2	372764	4.4	20.2	3029	4.5	15.5	190854	4.5	19.2
110073	4.2	19.3	405042	4.2	22.1	88384	4.3	20.1	535231	4.4	22.4	135845	4.5	19.4	175002	4.5	18.9
415110	4.2	20.8	201441	4.2	19.9	295806	4.3	20.7	379814	4.4	20.4	364970	4.5	20.7	103922	4.5	18.8
43185	4.2	18.4	317984	4.2	17.7	152573	4.3	20.8	310394	4.4	22.2	388492	4.5	21.2	541149	4.5	20.4
443985	4.2	20.9	528632	4.2	20.8	132712	4.3	20.3	304007	4.4	20.2	119743	4.5	19.7	259487	4.5	20.2
155119	4.2	19.2	130217	4.2	19.3	309463	4.3	20.8	451500	4.4	20.9	259532	4.5	20.9	285796	4.5	20.3
147787	4.2	19.9	20454	4.2	18.6	448931	4.3	21.2	377544	4.4	19.7	444934	4.5	20.4	310764	4.5	20.9
72056	4.2	19.1	279127	4.2	20.9	225644	4.3	20.1	473964	4.4	20.1	295012	4.5	20.4	334070	4.5	20.6
205160	4.2	19.5	219319	4.2	19.6	461550	4.3	20.5	48474	4.4	17.7	129997	4.5	19.5	108011	4.5	19.8
494570	4.2	20.9	391491	4.2	21.4	223285	4.3	20.3	272400	4.4	20.1	90478	4.5	18.9	44204	4.5	18.7
327535	4.2	20.8	219275	4.2	20.6	89642	4.3	19.4	488673	4.4	21.4	417649	4.5	20.8	371807	4.5	20.5
235642	4.2	20.3	420271	4.2	20.5	460018	4.3	22.2	195929	4.4	20.3	182150	4.5	20.3	161257	4.5	19.7
545071	4.2	20.5	273462	4.2	19.6	24078	4.3	18.2	77918	4.4	17.9	314310	4.5	20.2	49842	4.5	17.7
111769	4.2	18.1	220141	4.3	19.5	2045	4.3	15.1	441085	4.4	21.3	410545	4.5	21.2	410757	4.5	21.5
90386	4.2	19.6	138365	4.3	19.7	140291	4.3	18.7	236181	4.4	20.4	373691	4.5	21.9	400349	4.5	20.6
79421	4.2	19.1	401520	4.3	21.3	448530	4.3	19.9	261003	4.4	20.1	484125	4.5	21.5	520488	4.5	21.9
45263	4.2	17.8	336754	4.3	21.7	363907	4.3	21.8	208882	4.4	21.5	373042	4.5	19.7	369137	4.5	20.4
189692	4.2	20.6	406693	4.3	21.1	542069	4.3	21.9	329675	4.4	20.2	541600	4.5	21.6	27419	4.5	18.7
103771	4.2	19.0	92819	4.3	19.6	44517	4.3	18.4	374222	4.4	20.4	473551	4.5	21.5	212545	4.5	21.2
516673	4.2	20.9	238354	4.3	19.3	198071	4.3	20.9	324166	4.4	21.2	199602	4.5	20.5	300337	4.5	20.1
280835	4.2	19.1	447939	4.3	20.0	460676	4.3	20.7	105413	4.4	19.5	475525	4.5	20.7	188188	4.5	20.1
105154	4.2	19.8	436141	4.3	21.1	27685	4.3	18.3	1754	4.4	15.9	422509	4.5	20.9	152703	4.5	20.4
53644	4.2	19.6	354991	4.3	20.3	304133	4.3	20.9	229697	4.4	19.2	396436	4.5	20.5	273998	4.5	21.5
545094	4.2	20.9	412363	4.3	21.0	419359	4.3	20.5	377002	4.4	21.8	157759	4.5	21.0	458123	4.5	20.5
330875	4.2	20.6	441468	4.3	22.0	260464	4.3	21.0	269796	4.4	20.9	153551	4.5	18.5	49961	4.6	19.6
103469	4.2	19.2	337089	4.3	20.2	382317	4.3	20.1	67368	4.4	19.2	86542	4.5	19.4	490976	4.6	21.0
371318	4.2	20.6	412132	4.3	21.2	265558	4.3	20.9	322939	4.4	19.2	366635	4.5	20.5	488416	4.6	19.9
67532	4.2	19.7	179073	4.3	19.6	218574	4.3	20.2	377175	4.4	21.0	52930	4.5	19.1	236821	4.6	19.8
147125	4.2	19.5	441007	4.3	20.3	154458	4.3	19.1	377003	4.4	21.0	66938	4.5	19.6	150405	4.6	19.9
280005	4.2	20.5	485586	4.3	20.9	232327	4.3	20.5	306433	4.4	21.2	426241	4.5	21.7	10813	4.6	17.8
112212	4.2	19.5	47418	4.3	16.8	454617	4.3	20.7	59603	4.4	18.2	446974	4.5	22.5	300629	4.6	20.6
60611	4.2	19.1	364783	4.3	19.7	409418	4.3	20.5	458525	4.4	21.3	345822	4.5	20.4	149703	4.6	19.7
332871	4.2	19.9	448967	4.3	21.9	208731	4.3	20.7	494001	4.4	20.6	26461	4.5	17.2	180931	4.6	20.8
517637	4.2	21.0	406071	4.3	21.4	375497	4.3	19.8	233886	4.4	20.9	377958	4.5	21.1	414709	4.6	21.4
440767	4.2	20.1	488877	4.3	22.6	453083	4.3	22.3	408256	4.4	21.0	444887	4.5	20.7	229609	4.6	19.8
50672	4.2	18.8	225655	4.3	19.5	205084	4.3	21.0	350861	4.4	20.0	312321	4.5	20.8	393352	4.6	21.3
51660	4.2	18.5	181754	4.3	21.1	121168	4.3	19.8	227809	4.4	19.6	108188	4.5	18.9	75247	4.6	19.0
55156	4.2	18.0	331668	4.3	20.3	48870	4.3	19.0	216866	4.4	21.4	151332	4.5	20.2	185652	4.6	20.1
386320	4.2	20.8	230565	4.3	19.3	492705	4.3	21.3	248854	4.4	20.5	29686	4.5	17.6	144485	4.6	19.4
203079	4.2	21.0	104367	4.3	19.5	358119	4.3	20.2	30775	4.4	20.2	495184	4.5	22.0	190126	4.6	20.3
245927	4.2	20.3	455998	4.3	19.6	121969	4.3	19.0	148145	4.4	19.9	139426	4.5	19.5	41689	4.6	18.5
174134	4.2	20.4	277365	4.3	21.3	234525	4.3	19.2	128499	4.4	20.0	311630	4.5	20.6	270940	4.6	20.4
230165	4.2	19.2	367342	4.3	20.2	232314	4.3	20.1	444795	4.4	20.8	84526	4.5	18.3	189498	4.6	19.1
33260	4.2	18.1	368138	4.3	20.6	165752	4.3	19.4	4484	4.4	16.0	335451	4.5	21.0	492057	4.6	21.4
400815	4.2	21.2	274478	4.3	20.5	496762	4.3	20.6	5038	4.4	17.9	31473	4.5	18.3	302986	4.6	19.6
379954	4.2	20.3	233566	4.3	19.9	417572	4.3	21.4	305173	4.4	21.3	337418	4.5	20.6	149858	4.6	20.1
331579	4.2	21.2	461039	4.3	20.3	474423	4.4	20.7	277027	4.4	19.7	202622	4.5	20.9	386268	4.6	20.7
27401	4.2	18.8	21808	4.3	17.8	12257	4.4	17.7	214520	4.4	20.1	368504	4.5	21.4	420404	4.6	20.3
26929	4.2	19.9	210830	4.3	20.5	19362	4.4	18.5	138048	4.4	19.2	202606	4.5	20.4	486341	4.6	20.8
74901	4.2	19.7	26770	4.3	18.7	457852	4.4	21.7	110800	4.4	20.3	494226	4.5	21.1	421591	4.6	20.4
333837	4.2	20.2	455262	4.3	20.5	314907	4.4	21.0	314936	4.4	20.8	488695	4.5	22.0	531917	4.6	22.2
381312	4.2	20.9	237297	4.3	19.9	135992	4.4	20.0	115224	4.4	18.3	424830	4.5	20.5	167884	4.6	19.7
455962	4.2	20.6	300704	4.3	20.4	541303	4.4	20.6	441511	4.4	21.3	397888	4.5	20.5	443844	4.6	21.7
52584	4.2	18.9	474380	4.3	21.6	416181	4.4	20.7	197489	4.4	19.6	8569	4.5	17.8	434622	4.6	20.9
137028	4.2	20.0	188315	4.3	20.1	389609	4.4	20.9	447019	4.4	19.7	518233	4.5	20.0	5319	4.6	17.1
49492	4.2	18.8	345070	4.3	20.8	71411	4.4	18.7	519899	4.4	20.8	146660	4.5	19.2	393493	4.6	21.3
394102	4.2	20.3	56954	4.3	18.3	245220	4.4	19.5	515132	4.4	21.2	438052	4.5	21.5	41445	4.6	

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
18951	4.6	17.6	493032	4.7	20.8	205083	4.7	20.9	273862	4.8	20.9	94812	4.9	18.7	28197	4.9	18.0
143431	4.6	19.0	164883	4.7	20.0	305959	4.7	19.2	264038	4.8	20.4	409362	4.9	19.0	215937	4.9	20.1
542670	4.6	20.1	254763	4.7	19.6	198719	4.7	19.7	96521	4.8	19.1	146726	4.9	19.9	356119	4.9	21.0
247687	4.6	18.9	190885	4.7	19.6	462773	4.7	21.3	483350	4.8	21.1	463767	4.9	20.8	482238	4.9	20.4
196820	4.6	19.9	258446	4.7	20.2	459129	4.7	19.6	489367	4.8	20.7	542464	4.9	20.9	87278	4.9	19.7
248318	4.6	20.0	215170	4.7	20.6	332287	4.7	21.7	17402	4.8	18.3	208065	4.9	19.7	398864	4.9	19.9
234830	4.6	20.0	405685	4.7	20.7	396469	4.7	20.0	329871	4.8	19.6	297325	4.9	22.0	70314	4.9	18.9
198207	4.6	20.4	83274	4.7	20.5	279814	4.7	21.3	2924	4.8	16.3	482042	4.9	21.4	111459	4.9	18.8
292909	4.6	20.0	90331	4.7	19.7	426845	4.7	20.3	83960	4.8	20.1	97643	4.9	18.7	202328	4.9	20.1
105669	4.6	18.2	36679	4.7	19.0	414992	4.7	19.7	543120	4.8	21.1	288201	4.9	19.0	302961	4.9	19.9
408389	4.6	19.6	406635	4.7	20.8	62749	4.7	20.1	226195	4.8	20.0	158938	4.9	20.0	28625	4.9	18.2
241006	4.6	20.3	488669	4.7	21.1	275831	4.7	21.2	6404	4.8	17.0	125456	4.9	20.6	231071	4.9	20.0
316543	4.6	20.7	494595	4.7	20.1	238962	4.7	19.2	484367	4.8	21.1	301876	4.9	19.4	269741	4.9	20.9
439891	4.6	20.9	364022	4.7	21.5	197736	4.7	21.2	320938	4.8	20.2	157999	4.9	20.8	486497	4.9	20.4
317047	4.6	20.1	113224	4.7	19.8	453423	4.7	21.1	197864	4.8	20.5	286064	4.9	19.7	372323	4.9	20.4
204163	4.6	19.5	104833	4.7	19.8	460878	4.7	21.1	444009	4.8	20.9	408366	4.9	20.0	492474	4.9	21.2
385386	4.6	21.2	6924	4.7	17.2	217684	4.7	20.7	520918	4.8	20.9	153774	4.9	20.3	767020	4.9	18.9
495668	4.6	20.5	213985	4.7	18.8	125177	4.7	19.9	286240	4.8	20.4	449286	4.9	20.2	3248	4.9	16.1
66056	4.6	19.0	379815	4.7	21.0	354620	4.7	20.8	157099	4.8	20.0	183446	4.9	19.4	212091	4.9	20.2
197797	4.6	20.9	21473	4.7	18.0	260256	4.7	20.9	245851	4.8	20.4	408150	4.9	21.0	19939	4.9	18.0
49787	4.6	17.3	209734	4.7	20.0	329418	4.7	21.0	428383	4.8	20.8	187950	4.9	20.2	480870	4.9	21.2
171105	4.6	18.5	193196	4.7	20.3	236259	4.7	20.3	111027	4.8	20.1	277676	4.9	20.5	246396	4.9	20.9
80483	4.6	17.9	26017	4.7	18.9	392960	4.7	20.2	271174	4.8	19.6	388922	4.9	21.0	198628	4.9	19.9
440737	4.6	20.6	119233	4.7	19.3	184581	4.7	20.3	253082	4.8	21.3	234959	4.9	20.6	54494	4.9	18.7
95847	4.6	20.4	78485	4.7	19.4	194520	4.7	19.5	167140	4.8	19.2	345405	4.9	20.5	35806	4.9	19.1
5182	4.6	16.7	448311	4.7	20.0	9775	4.7	18.9	490614	4.8	21.0	231124	4.9	20.2	195768	4.9	19.8
139407	4.6	19.8	220607	4.7	20.3	9451	4.8	17.5	50085	4.8	18.2	161487	4.9	20.2	218054	4.9	19.4
473570	4.6	20.9	541438	4.7	21.6	492475	4.8	21.6	254041	4.8	20.3	95734	4.9	19.3	544879	4.9	21.6
458022	4.6	20.9	443137	4.7	20.7	223230	4.8	18.8	194530	4.8	19.5	389384	4.9	19.1	62168	4.9	19.2
36176	4.6	19.1	184751	4.7	20.1	185089	4.8	20.0	321921	4.8	20.0	541525	4.9	22.3	385984	4.9	20.3
452135	4.6	21.1	515636	4.7	21.5	114648	4.8	20.0	443811	4.8	21.6	330487	4.9	21.1	47076	4.9	17.7
158608	4.6	19.7	290389	4.7	20.8	296465	4.8	20.6	296120	4.8	20.6	307792	4.9	21.5	26545	4.9	19.1
279338	4.6	19.3	88784	4.7	17.7	416176	4.8	20.8	52977	4.8	18.4	464153	4.9	21.2	234816	4.9	20.2
464582	4.6	20.7	61586	4.7	19.3	121965	4.8	20.9	442276	4.8	20.4	481510	4.9	20.3	399225	4.9	21.4
263686	4.6	19.7	285903	4.7	21.3	47193	4.8	19.5	489245	4.8	19.5	211665	4.9	18.9	22589	4.9	18.3
365253	4.6	21.5	266920	4.7	19.8	337738	4.8	19.1	57048	4.8	19.2	264299	4.9	19.6	173649	4.9	20.7
314225	4.6	20.7	180817	4.7	20.8	227332	4.8	20.9	226265	4.8	18.6	122379	4.9	16.6	541765	4.9	22.1
402560	4.6	20.0	25687	4.7	17.0	438916	4.8	21.0	131046	4.8	19.9	491455	4.9	20.7	465892	4.9	22.3
368339	4.6	20.1	295076	4.7	20.8	16620	4.8	19.4	520789	4.8	21.7	73867	4.9	18.7	104683	4.9	18.9
164396	4.6	19.7	344221	4.7	21.5	248802	4.8	20.5	463878	4.8	21.0	38044	4.9	17.7	519054	4.9	20.8
70044	4.6	20.3	452854	4.7	21.6	388007	4.8	19.8	105262	4.8	19.5	450704	4.9	19.9	344312	4.9	21.5
61318	4.6	18.6	197658	4.7	19.9	231957	4.8	20.0	36784	4.8	18.8	230995	4.9	19.2	257844	4.9	21.4
29123	4.6	18.8	466466	4.7	21.0	437938	4.8	20.3	74104	4.8	19.6	83659	4.9	19.3	465565	4.9	19.9
411995	4.6	20.5	92726	4.7	20.2	315772	4.8	20.8	216472	4.8	19.0	46962	4.9	18.9	488522	4.9	21.7
441871	4.6	19.8	489517	4.7	21.8	541850	4.8	21.0	215660	4.8	19.5	70177	4.9	19.9	483626	4.9	21.1
385408	4.6	20.3	208767	4.7	20.0	274972	4.8	19.3	56589	4.8	18.5	139415	4.9	19.2	495751	4.9	20.5
53492	4.6	18.9	307733	4.7	20.8	196099	4.8	20.1	182617	4.8	20.7	238761	4.9	21.6	298463	4.9	20.8
136607	4.6	19.6	458677	4.7	20.9	288271	4.8	19.4	237423	4.8	20.5	492883	4.9	21.2	421624	4.9	21.7
541463	4.6	21.2	110182	4.7	19.7	296703	4.8	21.0	33093	4.8	16.9	208005	4.9	19.5	305169	4.9	20.3
53337	4.6	17.7	151243	4.7	19.4	517817	4.8	21.4	156863	4.8	19.5	453773	4.9	20.6	235662	4.9	19.8
10620	4.6	17.8	412337	4.7	20.5	458100	4.8	20.9	340123	4.8	20.4	25027	4.9	18.5	326887	4.9	21.7
141882	4.6	19.8	356091	4.7	20.7	441132	4.8	21.1	101783	4.8	18.8	391796	4.9	20.9	125617	4.9	19.5
403366	4.6	21.1	87714	4.7	19.3	376060	4.8	20.5	515274	4.8	20.9	366769	4.9	20.5	485582	4.9	21.1
523183	4.6	20.4	7001	4.7	15.9	481144	4.8	20.5	24287	4.8	18.4	13220	4.9	17.3	508234	4.9	21.5
11633	4.6	17.4	103973	4.7	19.1	53393	4.8	18.8	407381	4.8	21.6	451935	4.9	21.0	498586	4.9	20.7
273216	4.6	20.8	84674	4.7	18.2	336961	4.8	19.7	453907	4.8	19.8	335269	4.9	19.7	438754	4.9	22.0
177825	4.6	20.0	49235	4.7	19.8	340937	4.8	19.6	430540	4.8	20.0	132772	4.9	19.8	462700	4.9	21.1
282494	4.6	19.5	276270	4.7	20.4	503412	4.8	20.1	517723	4.8	21.8	467340	4.9	21.7	61650	4.9	19.3
207146	4.6	20.0	85887	4.7	17.4	35419	4.8	18.0	146652	4.8	19.9	462433	4.9	20.9	150484	4.9	19.5
325901	4.6	19.5	234540	4.7	19.6	515304	4.8	21.5	124068	4.8	19.3	102109	4.9	20.9	205025	4.9	19.8
152004	4.6	19.8	369738	4.7	21.3	442632	4.8	21.1	7927	4.8	16.8	299424	4.9	20.4	543164	4.9	20.5
334071	4.6	20.2	24590	4.7	18.5	545034	4.8	20.4	490832	4.8	21.1	203793	4.9	19.7	283266	4.9	20.5
541472	4.6	20.5	249906	4.7	21.0	25903	4.8	18.3	156903	4.8	19.5	486854	4.9	21.5	314249	4.9	20.0
173017	4.6	20.1	487664	4.7	20.1	487578	4.8	21.3	48523	4.8	19.9	146527	4.9	19.2	490384	4.9	21.1
125209	4.6	17.9	217445	4.7	20.2	468930	4.8	19.8	45886	4.9	17.4	71545	4.9	19.0	405681	4.9	20.8
485725	4.6	20.4	286926	4.7	21.1	112942	4.8	20.2	409641	4.9	21.5	486585	4.9	20.6	224668	4.9	19.8
3184	4.6	17.0	21990	4.7	18.6	13198	4.8	17.9	24736	4.9	18.6	479346	4.9	20.2	385228	4.9	21.0
265848	4.6	20.6	219038	4.7	19.9	182190	4.8	19.4	247566	4.9	20.3	105048	4.9	19.1	265257	4.9	19.6
231045	4.6	19.6	364873	4.7	21.0	335968	4.8	20.6	367922	4.9	19.5	125331	4.9	19.4	242595	4.9	20.1
204548	4.7	19.3	219315	4.7	17.1	161626	4.8	20.2	17860	4.9	17.9	148326	4.9	19.7	196423	5.0	19.7
448941	4.7	20.2	278046	4.7	21.4	258270	4.8	21.6	139385	4.9	20.0	7235	4.9	16.8	264158	5.0	20.0

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
475562	5.0	20.1	493942	5.1	19.2	451532	5.2	22.0	100548	5.2	17.6	76632	5.3	19.9	420751	5.3	19.5
263691	5.0	20.9	481824	5.1	19.8	153446	5.2	21.0	31140	5.2	20.0	541900	5.3	21.0	454204	5.3	20.2
370234	5.0	20.7	261368	5.1	20.0	335230	5.2	20.4	6401	5.2	16.1	520730	5.3	20.8	484378	5.3	20.6
221642	5.0	19.8	113716	5.1	18.9	33071	5.2	18.8	103601	5.2	18.9	375065	5.3	19.9	368405	5.3	20.1
376037	5.0	20.1	277260	5.1	20.8	314779	5.2	20.2	401622	5.2	20.3	392505	5.3	20.5	335628	5.3	21.4
125632	5.0	18.0	454607	5.1	20.8	313564	5.2	20.2	254734	5.2	20.7	452324	5.3	20.8	515294	5.3	21.3
263255	5.0	19.6	296191	5.1	21.0	462515	5.2	20.3	210361	5.2	19.5	234442	5.3	19.4	148916	5.3	19.1
62181	5.0	18.7	365760	5.1	20.5	315531	5.2	20.1	149282	5.2	19.5	281705	5.3	20.1	282884	5.3	20.2
223338	5.0	18.9	104653	5.1	19.2	42501	5.2	18.4	313212	5.2	20.0	239784	5.3	19.5	52624	5.3	19.2
267629	5.0	20.3	396756	5.1	21.2	242876	5.2	19.7	463003	5.2	21.3	520611	5.3	21.7	55800	5.3	18.0
136757	5.0	20.2	399456	5.1	21.4	458727	5.2	20.9	216676	5.2	18.8	35748	5.3	17.6	444875	5.3	21.3
187039	5.0	20.0	154149	5.1	19.5	7096	5.2	17.1	296816	5.2	20.1	139479	5.3	19.9	190773	5.3	21.0
168376	5.0	19.7	346309	5.1	20.5	311801	5.2	19.8	117681	5.2	19.7	439920	5.3	20.7	420204	5.3	21.1
5974	5.0	16.4	452864	5.1	21.4	417889	5.2	20.6	82792	5.2	18.4	54354	5.3	19.1	462416	5.3	21.3
189284	5.0	20.9	79341	5.1	19.2	252256	5.2	21.7	455734	5.2	19.8	161899	5.3	19.9	488277	5.3	19.9
124144	5.0	20.2	244517	5.1	19.7	487036	5.2	20.8	259152	5.2	19.3	81440	5.3	19.5	52148	5.3	18.5
260673	5.0	20.8	58742	5.1	18.8	486387	5.2	20.4	440158	5.2	21.7	113758	5.3	19.4	522296	5.3	20.6
5744	5.0	16.1	219258	5.1	18.5	168358	5.2	18.9	101266	5.2	20.3	4013	5.3	17.5	324022	5.3	20.9
197213	5.0	20.2	276752	5.1	20.5	280228	5.2	19.6	378428	5.2	21.1	124446	5.3	19.2	440040	5.4	20.8
140501	5.0	20.0	197618	5.1	20.0	431213	5.2	21.0	146102	5.2	19.7	358602	5.3	20.1	165917	5.4	19.9
59546	5.0	19.2	69185	5.1	19.7	418513	5.2	21.0	183098	5.2	21.2	232061	5.3	18.7	273908	5.4	20.1
279914	5.0	20.7	318873	5.1	20.4	133585	5.2	19.0	273157	5.2	20.5	386054	5.3	19.9	281990	5.4	20.0
145156	5.0	20.8	514651	5.1	20.8	81558	5.2	17.3	113688	5.2	19.1	407417	5.3	20.5	107826	5.4	19.2
34410	5.0	18.7	454150	5.1	20.9	282582	5.2	18.6	456469	5.2	21.8	427334	5.3	20.3	185446	5.4	20.0
244018	5.0	20.4	96361	5.1	17.9	473991	5.2	19.7	72915	5.2	17.4	344202	5.3	21.2	161490	5.4	20.2
522001	5.0	21.1	105745	5.1	18.5	162908	5.2	20.5	479385	5.2	20.7	285166	5.3	19.8	340008	5.4	20.4
345284	5.0	19.9	119234	5.1	19.0	198489	5.2	19.3	475227	5.2	20.2	465436	5.3	20.5	196067	5.4	20.0
197641	5.0	20.6	372179	5.1	20.1	182993	5.2	19.9	286173	5.2	19.1	399596	5.3	20.5	44618	5.4	17.4
420047	5.0	20.4	227616	5.1	20.4	412592	5.2	20.3	364241	5.2	19.0	346308	5.3	21.4	383438	5.4	21.6
249293	5.0	19.5	119799	5.1	19.0	10571	5.2	18.7	42535	5.2	19.4	138358	5.3	19.4	109376	5.4	19.1
313552	5.0	19.7	108973	5.1	19.4	152033	5.2	20.5	257830	5.2	19.3	515913	5.3	21.4	320674	5.4	20.3
467111	5.0	20.1	493000	5.1	21.0	420724	5.2	20.5	379957	5.2	20.7	109435	5.3	19.1	76321	5.4	17.9
408424	5.0	20.9	469502	5.1	19.1	544699	5.2	20.1	186602	5.2	18.4	421971	5.3	20.6	216994	5.4	19.9
82430	5.0	18.9	134375	5.1	19.9	261186	5.2	20.3	14740	5.2	18.4	350360	5.3	21.3	252406	5.4	20.2
104561	5.0	19.5	488913	5.1	21.9	515772	5.2	22.0	53137	5.2	17.7	230557	5.3	18.4	408175	5.4	20.5
101324	5.0	20.3	465519	5.1	20.2	438090	5.2	20.2	33498	5.2	16.9	452914	5.3	20.8	49893	5.4	19.0
80187	5.0	17.9	456319	5.1	21.5	130363	5.2	19.6	516853	5.2	20.8	44067	5.3	17.8	176374	5.4	20.1
1203	5.0	15.4	126175	5.1	17.5	181336	5.2	20.1	340822	5.2	21.6	488819	5.3	20.1	171632	5.4	18.5
455419	5.0	21.2	123992	5.1	19.3	491466	5.2	19.9	238501	5.2	18.9	544971	5.3	21.2	239280	5.4	19.6
313911	5.0	20.2	462476	5.1	20.9	86498	5.2	19.2	291243	5.3	19.4	525605	5.3	22.3	427621	5.4	22.5
415496	5.0	21.1	338448	5.1	19.2	364912	5.2	21.2	101277	5.3	19.0	61315	5.3	19.6	377091	5.4	19.6
329861	5.0	19.7	419024	5.1	20.8	275801	5.2	19.6	134809	5.3	17.5	111813	5.3	20.0	238622	5.4	19.5
261063	5.0	20.4	404529	5.1	20.8	117124	5.2	19.9	108783	5.3	20.0	226241	5.3	19.3	324655	5.4	19.6
307267	5.0	20.7	230666	5.1	19.0	359270	5.2	20.2	171244	5.3	20.6	488895	5.3	21.4	458183	5.4	21.1
517185	5.0	20.4	124826	5.1	19.1	297133	5.2	21.4	111916	5.3	20.0	31525	5.3	17.8	72007	5.4	18.5
197476	5.0	19.3	482530	5.1	20.5	136255	5.2	18.9	197899	5.3	20.0	310375	5.3	21.0	99018	5.4	17.9
538300	5.0	20.6	105883	5.1	19.1	419485	5.2	20.0	26977	5.3	17.3	200415	5.3	19.4	86569	5.4	18.6
303003	5.0	21.0	151067	5.1	19.2	333801	5.2	20.7	18069	5.3	17.5	143910	5.3	18.9	484396	5.4	19.3
134070	5.0	19.0	114283	5.1	19.8	212130	5.2	19.1	77530	5.3	18.6	165573	5.3	18.4	101157	5.4	19.9
213113	5.0	18.7	506101	5.1	20.0	169044	5.2	18.3	375111	5.3	20.9	129728	5.3	19.5	541352	5.4	20.5
495784	5.0	20.5	246951	5.1	20.5	104050	5.2	18.4	232687	5.3	18.4	156423	5.3	19.9	364897	5.4	20.0
17300	5.0	20.4	340971	5.1	19.3	87690	5.2	16.2	229066	5.3	19.9	197299	5.3	20.1	515494	5.4	21.6
254722	5.0	19.7	243618	5.1	20.5	409280	5.2	21.8	264250	5.3	20.6	210593	5.3	18.9	351296	5.4	19.6
410532	5.1	20.6	10656	5.1	17.8	51838	5.2	20.5	456690	5.3	20.0	50403	5.3	17.2	363943	5.4	21.4
168607	5.1	19.1	391145	5.1	20.3	126937	5.2	18.2	339135	5.3	19.1	83790	5.3	18.9	521816	5.4	21.3
300639	5.1	19.3	189707	5.1	18.7	314884	5.2	21.1	82809	5.3	19.4	103135	5.3	18.3	421896	5.4	21.2
314688	5.1	20.2	262824	5.1	19.3	314266	5.2	20.2	279802	5.3	19.6	371835	5.3	20.8	295501	5.4	19.5
311751	5.1	20.1	24667	5.1	18.3	230611	5.2	18.8	399368	5.3	21.6	246537	5.3	20.5	420725	5.4	20.1
188935	5.1	19.6	251144	5.1	20.5	184556	5.2	20.0	88945	5.3	18.6	4265	5.3	16.4	222857	5.4	19.0
84338	5.1	19.7	424201	5.1	21.6	316376	5.2	20.9	466373	5.3	19.7	191706	5.3	20.2	260826	5.4	20.8
464097	5.1	21.2	155323	5.1	20.2	161194	5.2	18.4	218556	5.3	20.4	462508	5.3	19.8	182552	5.4	19.8
543702	5.1	21.5	76703	5.1	19.1	208769	5.2	20.3	499456	5.3	19.8	358600	5.3	20.4	442636	5.4	20.0
93750	5.1	19.0	523798	5.1	22.2	128957	5.2	20.3	145214	5.3	19.9	427592	5.3	20.8	110913	5.4	19.4
358618	5.1	20.4	214661	5.1	20.8	36459	5.2	18.3	239050	5.3	21.0	112332	5.3	19.8	33545	5.4	18.9
489294	5.1	19.8	79746	5.1	19.7	16489	5.2	18.2	179113	5.3	20.7	83703	5.3	19.7	405644	5.4	20.8
367350	5.1	20.3	40399	5.1	18.7	357271	5.2	20.3	96265	5.3	19.4	287661	5.3	20.4	167325	5.4	20.0
452123	5.1	20.6	30260	5.1	17.0	381879	5.2	18.2	230987	5.3	19.1	270696	5.3	20.3	69661	5.4	18.6
444008	5.1	20.1	495776	5.1	20.3	296998	5.2	20.0	544613	5.3	21.5	236221	5.3	19.3	178939	5.4	19.2
84062	5.1	19.5	325449	5.1	21.0	194630	5.2	18.8	214706	5.3	20.6	516762	5.3	20.3	188338	5.4	19.8
356274	5.1	20.1	374644	5.1	21.1	444744	5.2	21.6	43340	5.3	18.5	164908	5.3	17.9	163449	5.4	19.8
381931	5.1	20.7	473934	5.1	20.3	200357	5.2	19.3	171485	5.3	17.0	137690	5.3	18.4	17193	5.4</	

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
125252	5.4	20.0	390723	5.5	19.7	480827	5.5	21.9	250142	5.6	20.5	541112	5.7	21.5	51568	5.7	19.2
211239	5.4	20.5	894	5.5	14.8	195975	5.5	20.2	1041	5.6	14.5	444889	5.7	20.2	372710	5.7	20.2
454597	5.4	20.5	325546	5.5	21.2	266431	5.5	20.0	307781	5.6	21.3	120798	5.7	18.5	345942	5.7	20.1
35516	5.4	18.3	481924	5.5	19.7	304082	5.5	20.4	88136	5.6	19.8	288335	5.7	19.2	230675	5.7	20.3
197902	5.4	19.8	418452	5.5	20.2	542759	5.5	21.1	218356	5.6	20.4	27366	5.7	18.7	434531	5.7	21.1
493044	5.4	21.2	463620	5.5	20.9	254836	5.5	20.2	2877	5.6	17.4	541332	5.7	20.3	446545	5.7	20.2
344314	5.4	21.5	50593	5.5	17.8	47315	5.5	18.6	445993	5.6	20.9	24709	5.7	18.3	102267	5.7	18.4
244569	5.4	20.2	217414	5.5	19.7	129057	5.5	19.7	5872	5.6	16.7	450574	5.7	21.5	458664	5.7	20.8
224070	5.4	20.2	494036	5.5	20.5	146556	5.5	20.0	101014	5.6	19.9	336640	5.7	20.3	229411	5.7	19.0
233555	5.4	20.6	175584	5.5	19.9	185705	5.5	20.1	247388	5.6	19.4	421895	5.7	20.5	104184	5.7	19.9
101050	5.4	18.9	163917	5.5	19.4	47599	5.5	18.9	57010	5.6	18.5	155050	5.7	19.8	194955	5.7	19.2
481418	5.4	21.7	537910	5.5	20.6	235536	5.5	19.5	271500	5.6	20.3	267522	5.7	21.1	541161	5.7	20.8
270194	5.4	21.7	539848	5.5	18.8	440234	5.5	21.6	282051	5.6	20.2	151948	5.7	19.7	495301	5.7	21.4
126687	5.4	19.8	8474	5.5	16.7	135801	5.5	20.2	345800	5.6	20.2	309484	5.7	20.2	453618	5.7	20.8
363562	5.4	18.4	387886	5.5	21.2	197247	5.5	19.0	310830	5.6	20.7	201300	5.7	19.7	158238	5.7	19.2
197660	5.4	20.2	134764	5.5	18.6	516490	5.5	21.2	316291	5.6	20.1	179740	5.7	20.0	318144	5.7	20.0
78590	5.4	18.5	191002	5.5	19.2	171208	5.5	19.6	76684	5.6	19.1	193733	5.7	20.5	198934	5.7	19.6
272948	5.4	20.0	425998	5.5	20.5	177221	5.5	19.1	85866	5.6	18.1	416485	5.7	19.6	10018	5.7	17.8
99155	5.4	18.0	363953	5.5	21.2	207535	5.5	20.1	236037	5.6	19.6	3261	5.7	16.0	346907	5.7	21.2
254715	5.4	19.8	483558	5.5	20.4	541909	5.5	20.4	280675	5.6	19.9	145381	5.7	19.2	14275	5.7	18.2
279978	5.4	20.1	153816	5.5	20.4	332557	5.5	21.0	310726	5.6	20.7	453647	5.7	21.2	340222	5.7	20.1
195892	5.4	19.3	298359	5.5	20.9	178145	5.5	20.3	69892	5.6	18.2	6570	5.7	16.0	466542	5.7	21.1
344403	5.4	20.1	329497	5.5	22.0	238319	5.5	20.3	34170	5.6	16.6	223050	5.7	20.7	293641	5.7	20.6
199960	5.4	20.1	150197	5.5	19.2	339843	5.5	20.8	240851	5.6	20.4	262989	5.7	20.1	370531	5.7	20.8
395743	5.4	19.9	153490	5.5	18.7	56331	5.5	17.7	278262	5.6	21.2	26139	5.7	17.4	215687	5.7	18.8
50081	5.4	17.5	26732	5.5	18.8	128254	5.5	20.3	397350	5.6	21.9	46706	5.7	17.9	71252	5.7	18.5
181427	5.4	20.4	366653	5.5	21.4	522178	5.5	21.3	192558	5.6	19.8	518736	5.7	21.3	445301	5.7	20.2
109767	5.4	19.2	474010	5.5	20.4	407429	5.5	20.5	76784	5.6	17.6	182133	5.7	19.1	542308	5.7	19.2
467110	5.4	20.5	400346	5.5	20.6	110735	5.5	19.3	309428	5.6	20.9	334721	5.7	20.1	99199	5.7	17.7
249295	5.4	20.4	394539	5.5	21.5	81175	5.5	17.6	157209	5.6	19.5	156881	5.7	19.1	66511	5.7	19.9
41085	5.4	18.9	89444	5.5	20.2	465341	5.5	21.6	154397	5.6	18.6	337371	5.7	21.1	75732	5.7	18.4
108111	5.4	18.9	465783	5.5	19.6	63358	5.5	19.3	307765	5.6	20.0	397626	5.7	21.1	32151	5.7	18.1
467255	5.4	19.8	494118	5.5	20.7	458944	5.5	20.7	361359	5.6	20.3	46793	5.7	18.4	520448	5.7	21.3
246547	5.4	19.0	251173	5.5	19.6	294917	5.5	19.9	111228	5.6	19.9	234395	5.7	19.3	408362	5.7	20.5
262927	5.4	20.2	174176	5.5	19.9	289623	5.5	20.6	260834	5.6	21.0	455854	5.7	21.0	401216	5.8	19.9
376233	5.4	19.8	462740	5.5	20.6	358541	5.5	20.4	451103	5.6	21.1	492851	5.7	20.6	141716	5.8	19.9
403152	5.4	20.8	161330	5.5	19.7	70732	5.5	18.8	349606	5.6	19.4	378516	5.7	20.4	373673	5.8	21.0
13260	5.4	17.7	59448	5.5	18.5	139216	5.5	20.4	309139	5.6	22.7	97089	5.7	19.3	463013	5.8	20.3
397597	5.4	19.7	314714	5.5	20.4	544315	5.5	20.8	111974	5.6	18.5	331835	5.7	19.7	246488	5.8	20.3
126052	5.4	19.3	487280	5.5	21.1	113795	5.5	18.3	135937	5.6	18.5	458614	5.7	19.9	333351	5.8	19.7
46874	5.4	18.4	116846	5.5	20.1	217716	5.5	21.4	355316	5.6	20.2	117051	5.7	19.7	462395	5.8	20.7
543276	5.4	21.6	102787	5.5	19.4	447751	5.5	21.2	485123	5.6	19.3	424768	5.7	20.7	29522	5.8	19.7
519125	5.4	22.2	90625	5.5	18.7	267626	5.5	21.0	491176	5.6	19.9	28860	5.7	18.1	26972	5.8	16.7
312257	5.4	19.8	150419	5.5	20.0	5550	5.5	15.9	519440	5.6	21.1	236781	5.7	20.4	47934	5.8	17.3
340056	5.4	21.2	411276	5.5	21.2	50775	5.5	18.5	116321	5.6	18.5	24073	5.7	19.2	193318	5.8	19.7
84701	5.4	19.1	296769	5.5	19.9	307964	5.5	19.5	217444	5.7	19.8	45721	5.7	18.7	88532	5.8	17.5
454462	5.4	21.5	275811	5.5	20.7	110455	5.5	18.5	199886	5.7	20.6	493666	5.7	20.5	185437	5.8	19.5
108653	5.4	19.6	503825	5.5	21.4	221975	5.5	20.0	242811	5.7	18.7	529709	5.7	20.3	118072	5.8	19.8
421860	5.4	20.0	349114	5.5	20.4	161443	5.5	19.2	18884	5.7	17.6	544808	5.7	21.2	44692	5.8	17.6
541607	5.4	22.1	477282	5.5	20.7	466678	5.5	20.6	335223	5.7	20.4	17204	5.7	19.2	351368	5.8	18.8
195798	5.4	19.5	262279	5.5	20.5	437352	5.5	20.6	153036	5.7	20.6	266658	5.7	19.9	523303	5.8	20.9
340002	5.4	20.4	139773	5.5	19.6	329360	5.5	21.7	100731	5.7	18.1	113507	5.7	17.7	155979	5.8	20.4
4358	5.4	16.6	108127	5.5	18.9	88982	5.5	18.3	466531	5.7	20.2	543239	5.7	21.5	336038	5.8	21.5
252328	5.4	20.1	396695	5.5	20.5	346295	5.5	21.3	249920	5.7	19.9	270632	5.7	19.3	12869	5.8	17.9
372058	5.4	20.3	219879	5.5	20.3	319464	5.5	20.6	439254	5.7	21.9	164416	5.7	19.1	229956	5.8	18.9
543873	5.4	21.7	201649	5.5	20.4	113413	5.5	19.2	142818	5.7	20.2	373027	5.7	19.3	369900	5.8	21.5
352937	5.4	20.0	401728	5.5	19.2	503414	5.5	19.9	104117	5.7	19.6	340993	5.7	18.5	452944	5.8	19.9
63620	5.4	17.0	192574	5.5	19.8	105432	5.5	19.4	247612	5.7	20.8	403087	5.7	21.0	307274	5.8	20.2
275784	5.4	20.3	365698	5.5	20.6	292215	5.5	21.0	312340	5.7	20.5	129266	5.7	19.8	307329	5.8	19.6
133316	5.4	19.2	519376	5.5	21.9	327511	5.5	20.2	419258	5.7	21.1	144663	5.7	19.2	347831	5.8	20.6
379832	5.4	19.9	251412	5.5	18.2	423205	5.5	21.6	279272	5.7	19.5	30471	5.7	18.3	147384	5.8	18.9
111430	5.4	19.8	50300	5.5	18.6	369327	5.5	19.5	226892	5.7	19.9	66025	5.7	19.1	266189	5.8	20.4
543069	5.4	21.4	313236	5.5	20.9	160372	5.5	19.6	49945	5.7	19.1	172177	5.7	19.2	15655	5.8	18.2
35917	5.4	18.4	482477	5.5	20.6	32192	5.5	17.0	175253	5.7	20.3	277120	5.7	20.5	121093	5.8	18.6
246836	5.4	20.8	155479	5.5	20.3	201044	5.5	20.0	19586	5.7	17.1	459753	5.7	21.0	16656	5.8	17.5
204144	5.5	18.3	194953	5.5	18.9	347283	5.5	21.1	303106	5.7	19.3	145617	5.7	19.9	359321	5.8	20.5
232775	5.5	20.4	286176	5.5	21.1	335389	5.5	19.0	378967	5.7	20.5	488400	5.7	20.1	242309	5.8	21.1
463630	5.5	20.4	102807	5.5	19.3	444907	5.5	18.5	99251	5.7	20.1	426727	5.7	20.4	382143	5.8	20.9
120077	5.5	19.1	86757	5.5	20.0	430061	5.5	21.0	277067	5.7	19.4	116246	5.7	18.9	459824	5.8	21.2
143975	5.5	18.8	494259	5.5	20.6	526499	5.5	21.0	230178	5.7	18.5	216495	5.7	18.1	452600	5.8	20.8
17263	5.5	18.1	78233	5.5	19.3	544066	5.5	20.6	25769	5.7	18.5	373122	5.7	20.2	75492	5.8	19.1

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
66023	5.8	19.0	350388	5.9	21.4	396550	5.9	21.4	264034	5.9	21.8	466724	6.0	19.7	24695	6.1	18.4
26981	5.8	18.7	541654	5.9	20.2	358178	5.9	21.7	82313	5.9	19.7	231100	6.0	19.6	495295	6.1	21.2
198709	5.8	18.7	110672	5.9	20.0	101362	5.9	19.8	213812	5.9	20.4	384679	6.0	20.6	228950	6.1	20.2
523243	5.8	20.8	406098	5.9	21.2	112093	5.9	20.4	444703	5.9	21.5	147985	6.0	20.0	492553	6.1	20.5
464126	5.8	20.6	14401	5.9	16.9	230440	5.9	19.7	94706	5.9	18.4	407930	6.0	20.3	214299	6.1	19.3
336103	5.8	20.2	20222	5.9	17.6	529798	5.9	22.8	85900	5.9	17.2	376030	6.0	19.8	461058	6.1	20.4
394155	5.8	25.3	463964	5.9	20.9	446506	5.9	21.2	15210	5.9	19.5	442452	6.0	20.7	454855	6.1	20.0
194373	5.8	19.7	335993	5.9	20.9	542011	5.9	20.6	345219	5.9	20.8	260210	6.0	19.5	276319	6.1	20.7
464732	5.8	21.5	378216	5.9	19.5	67658	5.9	17.8	335245	5.9	20.3	463654	6.0	20.8	222091	6.1	19.6
224625	5.8	20.2	93016	5.9	19.5	66294	5.9	19.5	344199	5.9	20.9	458577	6.0	20.5	247943	6.1	20.5
76717	5.8	19.4	449938	5.9	20.9	330712	5.9	21.1	183489	5.9	19.5	234241	6.0	19.3	227690	6.1	20.0
533028	5.8	22.0	232036	5.9	19.6	462522	5.9	21.4	87374	5.9	19.7	113877	6.0	19.3	370287	6.1	21.7
54777	5.8	19.1	3655	5.9	16.8	248900	5.9	19.7	252348	5.9	19.1	117264	6.0	20.4	229029	6.1	19.3
45101	5.8	19.1	156561	5.9	19.7	403874	5.9	19.5	279283	5.9	21.0	240108	6.0	19.7	459765	6.1	21.5
48494	5.8	16.9	168012	5.9	19.4	393509	5.9	20.7	214611	5.9	20.1	137962	6.0	19.2	3992	6.1	16.1
108436	5.8	19.8	307325	5.9	20.0	317105	5.9	20.1	328840	5.9	20.7	226604	6.0	19.7	294337	6.1	20.5
542728	5.8	19.4	299536	5.9	21.4	60235	5.9	19.0	450210	5.9	21.8	215209	6.0	21.0	20284	6.1	17.2
442847	5.8	21.0	112665	5.9	19.4	332900	5.9	19.8	494147	5.9	20.9	183496	6.0	18.7	380503	6.1	19.3
385396	5.8	20.5	78190	5.9	19.5	69316	5.9	18.4	248924	5.9	20.9	183327	6.0	20.0	169426	6.1	19.0
41186	5.8	19.0	379679	5.9	20.9	252024	5.9	20.8	63926	5.9	18.4	387869	6.0	20.7	518524	6.1	22.0
175318	5.8	19.8	232329	5.9	19.0	270027	5.9	19.5	236757	5.9	20.4	77302	6.0	17.8	191212	6.1	20.5
335629	5.8	19.9	162471	5.9	19.9	279112	5.9	20.3	169195	5.9	21.1	263493	6.0	19.8	376521	6.1	20.6
541537	5.8	21.5	492066	5.9	21.0	279719	5.9	20.5	390378	5.9	20.9	349528	6.0	20.8	83838	6.1	18.7
400843	5.8	21.1	15376	5.9	18.8	124257	5.9	19.8	306494	5.9	21.0	156146	6.0	19.1	137142	6.1	18.4
298550	5.8	19.7	445787	5.9	20.6	475433	5.9	21.7	75253	5.9	19.8	344902	6.1	20.1	223068	6.1	20.3
402272	5.8	21.2	317050	5.9	21.4	205076	5.9	19.8	220673	5.9	19.6	381366	6.1	19.9	422521	6.1	20.1
444778	5.8	20.9	399454	5.9	20.9	247628	5.9	21.0	208292	5.9	19.0	337005	6.1	21.5	4720	6.1	15.3
448067	5.8	19.9	382646	5.9	20.2	406607	5.9	20.6	265150	5.9	20.7	178023	6.1	20.4	379905	6.1	21.6
240239	5.8	20.3	361394	5.9	20.2	321937	5.9	19.9	247577	6.0	21.2	219348	6.1	20.1	347234	6.1	21.7
76876	5.8	19.0	399782	5.9	21.6	43938	5.9	18.8	175958	6.0	19.9	403619	6.1	21.4	393402	6.1	20.2
422250	5.8	20.5	334355	5.9	21.2	50184	5.9	18.2	274155	6.0	20.5	363402	6.1	21.8	18336	6.1	17.7
180249	5.8	19.0	467563	5.9	21.9	489798	5.9	20.3	163490	6.0	18.9	196075	6.1	19.8	462752	6.1	20.0
221416	5.8	19.4	189715	5.9	19.2	283097	5.9	20.7	260896	6.0	19.9	416280	6.1	20.6	445560	6.1	21.5
276318	5.8	20.9	268520	5.9	20.3	233929	5.9	20.7	318743	6.0	20.7	334460	6.1	19.9	215939	6.1	20.2
96248	5.8	19.5	31456	5.9	17.1	141019	5.9	20.0	212604	6.0	21.1	364371	6.1	20.9	120360	6.1	20.3
260993	5.8	19.7	51122	5.9	18.8	101835	5.9	19.5	387738	6.0	20.6	455205	6.1	20.3	112600	6.1	19.4
116292	5.8	19.6	480847	5.9	21.0	311878	5.9	20.2	100743	6.0	19.6	231026	6.1	19.5	95759	6.1	19.6
232966	5.8	19.2	212433	5.9	19.9	271502	5.9	20.8	88021	6.0	19.6	479459	6.1	18.6	227514	6.1	20.1
441048	5.8	21.1	132982	5.9	18.8	308827	5.9	19.1	136438	6.0	19.6	63772	6.1	18.6	271189	6.1	19.6
338390	5.8	19.3	58647	5.9	17.8	283420	5.9	20.8	69834	6.0	17.9	330330	6.1	20.9	314823	6.1	19.6
44249	5.8	17.4	144976	5.9	19.4	309341	5.9	20.8	45321	6.0	17.7	522255	6.1	21.5	82807	6.1	18.9
105061	5.8	20.1	118677	5.9	20.5	377270	5.9	20.0	269298	6.0	19.9	234647	6.1	19.4	514044	6.1	20.3
71599	5.8	19.0	467115	5.9	20.7	177999	5.9	20.4	375064	6.0	20.2	263085	6.1	20.4	463757	6.1	19.9
515288	5.8	20.2	18612	5.9	17.3	196799	5.9	20.1	541103	6.0	20.3	48706	6.1	20.5	475545	6.1	20.8
162372	5.8	19.7	230148	5.9	20.7	438833	5.9	19.4	277417	6.0	20.2	288664	6.1	20.7	292523	6.1	20.1
480817	5.8	22.6	515983	5.9	21.2	261715	5.9	19.9	277772	6.0	20.4	387064	6.1	20.2	168720	6.1	20.9
306484	5.8	20.8	316913	5.9	19.3	180847	5.9	20.3	56356	6.0	18.3	291538	6.1	20.6	335412	6.1	20.6
299569	5.8	20.2	137476	5.9	19.5	372138	5.9	20.1	370251	6.0	20.1	272127	6.1	20.2	139747	6.1	19.0
516264	5.8	21.4	164973	5.9	18.9	367430	5.9	21.0	417412	6.0	19.8	483785	6.1	21.5	117709	6.1	19.7
183038	5.8	19.9	393332	5.9	20.0	398495	5.9	20.3	88753	6.0	19.6	412358	6.1	20.5	192959	6.1	20.4
422746	5.8	21.0	282860	5.9	19.2	7536	5.9	16.8	234376	6.0	20.9	233311	6.1	20.1	408442	6.1	21.2
193691	5.8	19.7	272511	5.9	21.1	228686	5.9	19.4	287637	6.0	19.2	143696	6.1	19.7	262830	6.1	20.9
265416	5.8	19.7	496363	5.9	20.7	23445	5.9	18.3	281333	6.0	20.5	464217	6.1	19.4	348666	6.1	19.5
195214	5.8	18.8	51928	5.9	18.1	271428	5.9	19.3	396414	6.0	20.4	174310	6.1	18.9	13117	6.1	18.0
136227	5.8	19.4	51694	5.9	19.6	189226	5.9	20.6	368846	6.0	20.5	103431	6.1	17.9	339362	6.1	19.9
72911	5.8	17.0	412158	5.9	20.5	461037	5.9	20.2	492671	6.0	20.5	403684	6.1	21.0	51595	6.1	18.7
79141	5.8	17.7	522498	5.9	21.1	212073	5.9	19.3	486357	6.0	20.8	43758	6.1	17.0	38412	6.1	17.3
21227	5.8	17.7	470962	5.9	21.5	50749	5.9	18.7	462370	6.0	21.3	190870	6.1	19.0	196060	6.1	18.4
92556	5.8	19.3	390113	5.9	20.8	174331	5.9	19.1	116622	6.0	18.6	311845	6.1	20.1	408606	6.1	20.0
206378	5.8	20.7	244890	5.9	18.2	150505	5.9	19.7	373662	6.0	21.3	21597	6.1	17.1	135032	6.1	19.1
304135	5.8	21.2	456060	5.9	21.0	357056	5.9	20.6	104738	6.0	18.9	159588	6.1	19.1	303485	6.1	19.1
152740	5.8	19.9	220302	5.9	19.3	250225	5.9	20.2	62223	6.0	19.2	341853	6.1	20.7	69801	6.1	19.0
194294	5.8	19.5	181328	5.9	19.5	418980	5.9	19.8	124390	6.0	19.9	103271	6.1	18.9	414944	6.1	20.8
537900	5.8	20.2	201384	5.9	20.1	541385	5.9	21.3	361224	6.0	21.0	158052	6.1	20.3	152018	6.1	19.7
442629	5.8	22.0	94934	5.9	18.9	376088	5.9	19.6	493819	6.0	20.1	197094	6.1	19.8	168704	6.1	19.7
463039	5.8	20.6	499960	5.9	21.2	73753	5.9	19.2	467822	6.0	21.0	518115	6.1	20.9	281985	6.1	19.7
130384	5.8	19.9	10494	5.9	17.6	232008	5.9	20.1	307401	6.0	19.0	329699	6.1	20.9	94142	6.1	19.0
450207	5.8	21.3	280775	5.9	19.7	73954	5.9	19.1	59027	6.0	20.2	452917	6.1	21.6	95721	6.1	18.3
446294	5.8	20.4	220860	5.9	19.3	339942	5.9	20.9	94810	6.0	19.7	197710	6.1	20.8	25922	6.2	18.5
356054	5.8	20.5	138483	5.9	19.3	450230	5.9	20.7	54151	6.0	18.6	51039	6.1	19.0	248126	6.2	20.6
51811	5.8	19.0	71531	5.9	18.1	84420	5.9	19.2	52023	6.0	18.7	443298	6.1	20.4	95726	6.2	18.9

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
237435	6.2	21.2	77843	6.2	18.1	10343	6.3	18.5	279024	6.4	21.0	134530	6.4	18.9	518513	6.5	20.4
25648	6.2	17.9	302785	6.2	17.5	65377	6.3	18.9	133143	6.4	19.2	240117	6.4	19.7	406937	6.5	21.3
448482	6.2	20.8	143916	6.2	18.4	134101	6.3	18.8	66742	6.4	18.4	39799	6.4	17.7	515275	6.5	21.0
230432	6.2	19.3	104113	6.2	18.8	265531	6.3	20.0	463021	6.4	20.6	365020	6.4	21.0	219973	6.5	20.8
64370	6.2	18.8	134717	6.2	17.8	197751	6.3	20.3	205287	6.4	19.4	532168	6.4	20.5	385225	6.5	20.7
139378	6.2	19.3	311617	6.2	20.6	328528	6.3	20.4	393580	6.4	21.5	128533	6.4	18.9	182529	6.5	19.8
368852	6.2	20.4	59588	6.2	19.3	204694	6.3	20.0	274314	6.4	20.3	360268	6.4	21.1	162454	6.5	19.3
47490	6.2	19.3	495350	6.2	21.4	388952	6.3	20.8	54204	6.4	18.5	398155	6.4	20.2	291838	6.5	20.7
289676	6.2	20.7	465815	6.2	21.0	310712	6.3	21.2	108397	6.4	19.5	477227	6.4	21.9	320980	6.5	20.1
147418	6.2	19.6	195710	6.2	19.6	10358	6.3	17.1	86620	6.4	18.2	522360	6.4	20.9	275870	6.5	21.6
495059	6.2	21.0	76903	6.2	18.9	325442	6.3	20.8	356726	6.4	20.5	11410	6.4	17.8	236846	6.5	20.7
379682	6.2	21.0	62921	6.2	19.2	138967	6.3	18.2	196036	6.4	19.1	98149	6.4	20.2	41261	6.5	18.6
97895	6.2	19.7	496038	6.2	20.8	414512	6.3	21.1	385967	6.4	21.2	544862	6.4	20.5	197932	6.5	20.2
269377	6.2	20.0	146730	6.2	19.8	146715	6.3	18.8	88279	6.4	19.0	210824	6.4	20.2	328430	6.5	21.0
143840	6.2	18.6	517815	6.2	21.3	248823	6.3	20.2	457951	6.4	21.0	405642	6.4	21.0	321183	6.5	19.8
311693	6.2	19.9	112586	6.2	19.4	187122	6.3	21.3	400029	6.4	21.0	455582	6.4	21.2	275631	6.5	19.6
126544	6.2	19.0	215650	6.2	18.9	518878	6.3	20.7	447509	6.4	20.3	518957	6.4	20.6	367272	6.5	20.6
254856	6.2	20.4	436392	6.2	20.7	368410	6.3	20.3	49784	6.4	19.5	369210	6.4	21.3	213049	6.5	19.3
421789	6.2	20.8	375135	6.2	20.3	317986	6.3	19.6	396660	6.4	21.3	74529	6.4	18.2	118388	6.5	18.1
26820	6.2	19.3	253988	6.2	19.8	454947	6.3	20.5	362703	6.4	20.4	153005	6.4	19.1	182575	6.5	19.4
473791	6.2	19.6	61702	6.2	18.4	241642	6.3	18.6	483671	6.4	21.1	336088	6.4	21.5	457135	6.5	20.6
372744	6.2	19.5	383361	6.2	20.6	378990	6.3	20.2	461846	6.4	21.7	137519	6.4	19.7	54248	6.5	18.4
331665	6.2	20.2	288151	6.2	19.5	33170	6.3	17.9	215500	6.4	19.5	84042	6.4	18.8	94384	6.5	17.7
368816	6.2	20.4	233937	6.2	20.4	283070	6.3	20.0	132991	6.4	20.0	404996	6.4	21.4	495635	6.5	19.8
152995	6.2	20.0	195945	6.2	19.6	18881	6.3	15.9	82099	6.4	18.8	59650	6.4	19.2	134850	6.5	20.8
322679	6.2	20.5	419316	6.3	20.3	355333	6.3	20.8	382611	6.4	20.8	404784	6.4	21.4	383621	6.5	20.2
117430	6.2	19.2	202799	6.3	20.0	487410	6.3	21.0	359211	6.4	20.7	84791	6.4	18.9	473306	6.5	21.1
149860	6.2	20.5	494815	6.3	21.5	128783	6.3	20.1	223861	6.4	20.5	290594	6.4	19.8	496186	6.5	21.2
543968	6.2	21.8	444770	6.3	21.8	260749	6.3	19.8	157196	6.4	19.9	399177	6.4	20.0	62843	6.5	19.5
442749	6.2	20.5	89159	6.3	19.0	221961	6.3	19.4	155698	6.4	19.9	227599	6.4	20.6	145939	6.5	19.1
380509	6.2	17.3	244631	6.3	19.8	335383	6.3	19.7	422917	6.4	21.6	541407	6.4	20.0	125943	6.5	19.1
421169	6.2	19.7	264030	6.3	22.1	220945	6.3	20.8	179342	6.4	20.7	294478	6.4	19.3	129498	6.5	20.4
544614	6.2	21.1	24404	6.3	17.4	26860	6.3	18.9	201494	6.4	20.3	545067	6.5	20.2	290743	6.5	19.6
18964	6.2	16.9	463077	6.3	20.7	14789	6.3	17.6	298651	6.4	19.6	280504	6.5	20.5	62852	6.5	19.4
165770	6.2	19.8	117091	6.3	19.5	332781	6.3	19.5	447846	6.4	21.7	49556	6.5	17.6	276399	6.5	19.8
230633	6.2	20.1	275841	6.3	20.5	542045	6.3	19.3	523774	6.4	21.7	325876	6.5	19.8	94954	6.5	18.7
191221	6.2	18.5	300592	6.3	20.5	288167	6.3	19.9	5084	6.4	16.3	152196	6.5	20.0	230132	6.5	20.4
184875	6.2	21.1	79377	6.3	18.1	797	6.3	13.7	175680	6.4	19.2	250951	6.5	19.8	316750	6.5	19.7
396658	6.2	20.1	115578	6.3	18.9	544660	6.3	19.8	441034	6.4	20.0	221887	6.5	19.8	184205	6.5	20.2
523372	6.2	20.8	366010	6.3	20.7	74568	6.3	18.6	405626	6.4	21.2	543656	6.5	21.2	251216	6.5	19.7
484416	6.2	19.9	264052	6.3	20.2	195914	6.3	19.3	78757	6.4	18.3	285042	6.5	20.1	100533	6.5	19.6
108016	6.2	19.9	421424	6.3	20.4	197862	6.3	20.9	95993	6.4	19.5	62301	6.5	19.6	331839	6.5	20.4
310731	6.2	20.6	448874	6.3	21.3	487980	6.3	20.4	76150	6.4	18.0	34961	6.5	17.7	117661	6.5	19.8
235500	6.2	19.6	54012	6.3	18.0	299593	6.3	19.8	257102	6.4	19.9	80616	6.5	19.0	31802	6.5	17.8
403964	6.2	19.9	347102	6.3	19.4	218868	6.3	19.1	146609	6.4	19.0	44281	6.5	17.4	277297	6.5	21.1
69895	6.2	18.6	220600	6.3	21.3	21059	6.3	17.7	541939	6.4	20.6	427393	6.5	19.9	450672	6.5	19.8
184275	6.2	19.1	197683	6.3	20.8	196731	6.3	20.4	108950	6.4	17.6	168541	6.5	21.1	346377	6.5	20.5
281524	6.2	21.4	505637	6.3	20.4	238127	6.3	21.2	252467	6.4	20.6	27360	6.5	18.4	496236	6.5	20.4
434108	6.2	21.1	110050	6.3	18.8	275909	6.3	20.4	160855	6.4	19.2	227932	6.5	20.6	438185	6.5	21.7
271043	6.2	19.6	254948	6.3	20.6	311068	6.3	20.3	373036	6.4	20.6	475530	6.5	21.5	195724	6.5	20.0
362704	6.2	19.5	270274	6.3	20.5	224974	6.3	20.2	440037	6.4	20.0	77665	6.5	19.5	216970	6.5	19.0
462434	6.2	20.4	249942	6.3	18.8	232440	6.3	19.7	423385	6.4	20.2	313213	6.5	20.2	104750	6.5	20.2
187256	6.2	20.1	391800	6.3	20.9	335333	6.3	21.3	11246	6.4	18.0	223010	6.5	20.4	291953	6.5	20.9
373523	6.2	20.8	382840	6.3	21.0	268238	6.3	20.4	148243	6.4	19.5	361263	6.5	20.0	19133	6.5	17.6
319065	6.2	20.8	455699	6.3	19.8	174682	6.3	20.5	456443	6.4	20.5	149480	6.5	19.1	57659	6.5	18.8
78027	6.2	19.8	441491	6.3	20.3	458258	6.3	19.7	413637	6.4	21.3	171625	6.5	17.5	349518	6.5	21.3
314718	6.2	20.1	24777	6.3	18.9	28008	6.3	17.3	274217	6.4	20.1	464189	6.5	20.3	80579	6.5	19.0
120422	6.2	20.9	541667	6.3	22.0	541274	6.3	21.3	409143	6.4	20.4	216410	6.5	20.5	74330	6.5	18.9
485109	6.2	20.7	364401	6.3	20.6	271474	6.3	19.5	310797	6.4	21.2	232913	6.5	18.0	56860	6.5	18.9
194500	6.2	19.5	162404	6.3	18.8	139335	6.3	19.9	251124	6.4	20.1	248084	6.5	20.4	286718	6.6	19.8
196413	6.2	19.9	231406	6.3	20.9	180631	6.3	19.3	89155	6.4	19.4	462491	6.5	20.7	86387	6.6	18.3
77899	6.2	18.3	335290	6.3	21.1	275970	6.3	21.1	202289	6.4	19.6	364026	6.5	21.2	213696	6.6	20.3
234488	6.2	19.6	160276	6.3	19.8	6567	6.3	17.3	280714	6.4	20.9	463385	6.5	19.8	340737	6.6	20.3
305109	6.2	20.4	463032	6.3	19.4	252645	6.3	19.9	220134	6.4	19.9	427025	6.5	20.2	244677	6.6	20.4
234595	6.2	18.6	77895	6.3	19.4	252362	6.3	20.1	74841	6.4	17.0	137246	6.5	20.4	321878	6.6	21.2
273145	6.2	20.8	223566	6.3	18.7	392510	6.3	20.6	21610	6.4	19.1	346290	6.5	20.7	403565	6.6	20.7
306447	6.2	20.0	167613	6.3	19.5	203905	6.3	20.3	41949	6.4	18.1	194951	6.5	19.4	397893	6.6	20.2
161468	6.2	19.6	276328	6.3	20.4	3713	6.4	16.3	439325	6.4	22.0	250962	6.5	20.7	48037	6.6	18.6
378373	6.2	21.3	125130	6.3	20.4	458682	6.4	20.3	357257	6.4	20.7	96745	6.5	19.7	485467	6.6	20.6
483880	6.2	20.5	140305	6.3	19.5	543108	6.4	21.6	451486	6.4	21.8	495994	6.5	20.6	429275	6.6	20.7
133404	6.2	19.8	62011	6.3	18.5	60089	6.4	19.2	113449	6.4	18.5	175998	6.5	20.4	48126	6.6	19.

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
138927	6.6	18.3	84128	6.6	19.0	530477	6.7	21.7	292910	6.8	20.8	164869	6.8	20.4	274020	6.9	21.0
272264	6.6	20.7	88415	6.6	17.9	281421	6.7	21.3	279701	6.8	21.1	545127	6.8	21.3	503431	6.9	20.5
34856	6.6	17.5	298436	6.6	18.8	230125	6.7	20.4	447916	6.8	20.6	282517	6.8	19.5	436112	6.9	22.2
21714	6.6	16.6	448840	6.6	20.5	116448	6.7	19.4	156857	6.8	20.4	466645	6.8	19.8	487345	6.9	20.7
385657	6.6	20.3	81085	6.6	18.6	362153	6.7	20.6	291213	6.8	20.2	194192	6.8	20.4	95364	6.9	19.1
107980	6.6	18.8	541435	6.6	20.1	122625	6.7	20.7	486607	6.8	21.3	519003	6.8	20.6	134191	6.9	19.8
507296	6.6	19.8	358153	6.6	20.5	302400	6.7	19.5	311719	6.8	20.2	507118	6.8	21.0	200410	6.9	20.2
127729	6.6	19.3	73824	6.6	17.6	10673	6.7	17.5	210613	6.8	19.4	300615	6.8	20.4	271239	6.9	20.0
7906	6.6	17.8	334465	6.6	20.8	225702	6.7	19.1	124215	6.8	20.1	347400	6.8	21.2	64031	6.9	17.9
46329	6.6	18.1	189990	6.6	19.8	150390	6.7	19.2	322883	6.8	19.3	152457	6.8	20.4	240952	6.9	19.8
352974	6.6	19.9	396077	6.6	19.8	2869	6.7	16.4	244912	6.8	20.1	247941	6.8	19.5	207684	6.9	20.9
447088	6.6	21.4	147391	6.6	17.8	242994	6.7	19.8	200342	6.8	19.6	492116	6.8	20.4	522422	6.9	21.3
449996	6.6	21.2	541792	6.6	20.2	151809	6.7	19.6	179039	6.8	19.6	370588	6.8	20.9	54767	6.9	18.7
108615	6.6	19.9	177678	6.6	19.9	261453	6.7	20.3	481981	6.8	19.7	484867	6.8	21.4	483368	6.9	21.2
179177	6.6	19.0	403598	6.6	21.5	256801	6.7	19.7	480857	6.8	20.5	102923	6.8	19.0	217505	6.9	19.3
9856	6.6	21.3	405043	6.6	20.2	79132	6.7	18.9	339569	6.8	20.8	321669	6.8	21.0	400924	6.9	21.1
57488	6.6	18.4	421200	6.6	20.6	416218	6.7	19.7	145869	6.8	19.8	360329	6.8	21.7	461623	6.9	21.0
411724	6.6	20.1	460746	6.6	20.2	503830	6.7	20.5	1694	6.8	16.2	132876	6.8	19.7	439322	6.9	21.7
8318	6.6	17.7	202536	6.6	19.7	199578	6.7	20.6	402318	6.8	21.2	397627	6.8	20.6	100523	6.9	20.1
109322	6.6	18.6	302620	6.6	20.3	125964	6.7	19.0	1374	6.8	16.6	483492	6.8	21.0	4002	6.9	15.1
432265	6.6	22.3	74433	6.6	17.5	201794	6.7	20.1	389404	6.8	20.1	405603	6.8	20.7	231944	6.9	19.3
116535	6.6	19.6	438646	6.6	20.5	188477	6.7	20.1	516996	6.8	20.8	463036	6.8	20.3	182152	6.9	21.5
183128	6.6	20.6	244187	6.6	20.3	37130	6.7	19.2	370270	6.8	20.5	260529	6.8	20.0	408180	6.9	20.9
214321	6.6	19.8	290305	6.6	20.6	160775	6.7	19.4	519442	6.8	20.9	336010	6.8	20.6	137449	6.9	19.1
277411	6.6	20.9	35226	6.6	19.3	460026	6.7	20.9	529683	6.8	19.7	283595	6.8	19.6	222454	6.9	21.6
460240	6.6	21.5	463388	6.6	19.8	87306	6.7	18.6	400471	6.8	21.2	175587	6.8	19.8	420109	6.9	19.9
326034	6.6	19.6	84557	6.6	19.0	133797	6.7	19.5	283242	6.8	19.8	470110	6.8	20.5	118537	6.9	19.0
229503	6.6	19.4	387877	6.6	21.1	293175	6.7	20.4	508444	6.8	23.7	120311	6.8	19.8	388002	6.9	20.4
273314	6.6	20.0	56184	6.6	18.5	118615	6.7	18.6	108553	6.8	19.1	367366	6.8	20.6	163494	6.9	19.2
419443	6.6	20.3	256169	6.6	20.2	161669	6.7	20.1	314824	6.8	21.2	447910	6.8	20.4	110031	6.9	20.0
94795	6.6	19.5	482977	6.6	20.3	73437	6.7	18.7	427080	6.8	20.9	181504	6.8	20.5	121948	6.9	18.6
299645	6.6	20.2	148645	6.6	20.4	212139	6.7	19.1	370230	6.8	20.0	298545	6.8	19.6	392582	6.9	21.1
280265	6.6	20.3	329568	6.6	20.7	10875	6.7	17.5	35693	6.8	18.4	280806	6.8	20.1	483595	6.9	21.2
360253	6.6	20.1	148980	6.7	19.9	125887	6.7	19.0	289811	6.8	19.8	149866	6.8	19.7	405082	6.9	22.0
194244	6.6	20.0	463455	6.7	20.7	396494	6.7	19.5	3084	6.8	17.7	192422	6.8	19.8	447531	6.9	20.7
406209	6.6	20.4	325975	6.7	20.8	456301	6.7	22.0	180899	6.8	19.6	486270	6.8	20.5	444457	6.9	20.9
543289	6.6	20.2	144018	6.7	19.1	329416	6.7	20.8	124260	6.8	19.2	57372	6.8	17.7	394119	6.9	20.6
73371	6.6	19.7	273201	6.7	20.1	247505	6.7	19.7	330193	6.8	20.0	15687	6.8	18.5	15235	6.9	18.2
177467	6.6	19.7	85707	6.7	18.8	261015	6.7	20.4	10882	6.8	17.9	17412	6.8	18.2	333807	6.9	19.9
116636	6.6	18.8	113698	6.7	18.6	262795	6.7	20.7	70993	6.8	17.1	327033	6.8	21.2	440738	6.9	21.3
182146	6.6	20.5	79526	6.7	19.0	133855	6.7	19.3	170635	6.8	19.6	375368	6.8	21.5	291541	6.9	20.9
340067	6.6	20.6	327052	6.7	20.2	201826	6.7	19.3	467792	6.8	20.5	124353	6.8	20.1	258202	6.9	19.0
226385	6.6	18.5	228082	6.7	18.8	169752	6.7	20.4	78355	6.8	19.6	420996	6.8	19.9	383544	6.9	19.5
244485	6.6	20.1	444026	6.7	20.9	13320	6.7	17.7	408191	6.8	19.8	238307	6.8	19.2	89131	6.9	19.2
360615	6.6	19.4	73042	6.7	19.8	275872	6.7	20.1	77644	6.8	19.2	65416	6.8	18.0	504306	6.9	21.7
438883	6.6	21.3	191456	6.7	21.2	43142	6.7	17.0	280691	6.8	19.3	81942	6.8	19.4	139274	6.9	19.5
279479	6.6	19.9	46494	6.7	18.0	208748	6.7	20.8	219450	6.8	20.5	448875	6.8	21.4	464516	6.9	20.3
67047	6.6	18.0	6194	6.7	15.6	111427	6.7	19.2	310734	6.8	19.9	211616	6.8	18.1	219004	6.9	19.3
489443	6.6	20.6	59607	6.7	17.5	247574	6.7	20.0	439930	6.8	20.7	101828	6.8	18.7	372813	6.9	20.0
192308	6.6	19.4	195192	6.7	19.3	409274	6.7	20.8	253851	6.8	19.8	252499	6.9	19.9	270072	6.9	20.9
447904	6.6	20.3	541545	6.7	22.6	543470	6.7	21.9	276259	6.8	21.8	121406	6.9	20.0	125401	6.9	18.6
7899	6.6	17.0	33704	6.7	17.2	457159	6.7	19.4	25745	6.8	17.5	517831	6.9	21.7	202090	6.9	19.4
463067	6.6	20.0	235691	6.7	19.3	157076	6.7	20.1	278440	6.8	20.8	425919	6.9	20.5	199413	6.9	20.0
268681	6.6	19.6	77661	6.7	18.0	171429	6.7	20.4	193103	6.8	20.5	137274	6.9	18.8	421848	6.9	21.0
427356	6.6	20.5	113705	6.7	19.5	439034	6.7	21.2	421281	6.8	20.0	150508	6.9	19.7	520941	6.9	20.8
529801	6.6	22.2	9387	6.7	16.0	385369	6.7	21.0	58121	6.8	19.3	2754	6.9	16.8	319247	6.9	20.5
421155	6.6	20.3	544790	6.7	20.4	295581	6.7	20.8	336082	6.8	20.3	115110	6.9	18.6	458715	6.9	20.4
145049	6.6	19.3	257257	6.7	19.8	409155	6.7	19.1	462484	6.8	20.3	489457	6.9	20.4	518743	6.9	20.8
158742	6.6	20.5	220319	6.7	19.5	486465	6.7	21.1	347277	6.8	20.9	287609	6.9	20.9	13560	6.9	17.4
448324	6.6	20.6	443929	6.7	20.8	450014	6.7	21.8	62002	6.8	19.2	395358	6.9	20.5	10347	6.9	17.8
522040	6.6	21.4	1400	6.7	17.1	439899	6.7	20.3	347646	6.8	19.7	495427	6.9	20.7	388927	6.9	21.1
27820	6.6	17.7	489004	6.7	21.3	541665	6.7	21.5	32592	6.8	17.6	506326	6.9	19.3	168697	6.9	20.6
446307	6.6	19.8	254967	6.7	20.7	372027	6.7	21.7	53345	6.8	17.3	133600	6.9	19.1	282516	6.9	21.3
156717	6.6	21.2	206320	6.7	20.4	113796	6.7	19.5	189710	6.8	20.5	274208	6.9	19.6	37108	6.9	17.7
200407	6.6	20.3	447504	6.7	20.4	59211	6.7	19.2	362036	6.8	20.3	461411	6.9	20.3	250264	6.9	18.1
350842	6.6	20.1	2992	6.7	16.4	129269	6.7	19.6	245824	6.8	19.4	500297	6.9	20.1	376367	6.9	20.5
392463	6.6	21.5	223805	6.7	20.2	316327	6.7	20.1	396671	6.8	20.8	223912	6.9	20.5	118136	6.9	19.9
407542	6.6	21.1	116164	6.7	17.9	441276	6.7	20.0	459146	6.8	20.3	208854	6.9	19.7	143024	6.9	19.7
372055	6.6	21.3	105832	6.7	20.2	44557	6.7	18.2	40719	6.8	19.3	377081	6.9	21.6	24579	6.9	19.2
443832	6.6	22.2	8189	6.7	16.0	85262	6.7	18.5	263413	6.8	20.3	113844	6.9	19.3	65405	6.9	17.8
183183	6.6	20.7	421308	6.7	20.3	202124	6.7	21.5	69793	6.8	18.6	449679	6.9	21.0	165692	6.9	20.3

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
77734	6.9	20.1	293215	7.0	19.7	147035	7.1	20.4	138087	7.1	19.6	363972	7.2	21.2	155158	7.3	20.2
264582	6.9	20.0	360603	7.0	20.2	15023	7.1	18.0	49526	7.1	18.2	128400	7.2	18.6	480862	7.3	20.5
71801	6.9	19.0	493403	7.0	20.8	475491	7.1	21.1	98151	7.1	20.1	82365	7.2	19.3	460533	7.3	20.6
484196	6.9	20.5	397333	7.0	21.3	133764	7.1	19.9	387854	7.1	21.5	443865	7.2	20.1	335225	7.3	19.8
310069	6.9	20.5	6543	7.0	17.6	292450	7.1	21.3	244454	7.1	18.8	312963	7.2	19.0	106945	7.3	20.0
190785	6.9	19.6	477295	7.0	19.6	277878	7.1	21.0	231677	7.1	20.9	491314	7.2	20.8	455125	7.3	20.8
361698	6.9	20.1	106760	7.0	18.7	183709	7.1	20.0	323969	7.1	20.6	375628	7.2	19.5	92691	7.3	19.8
443280	6.9	20.3	68272	7.0	18.5	385728	7.1	21.3	79933	7.1	17.7	307300	7.2	20.7	195926	7.3	20.5
492986	6.9	20.3	252624	7.0	19.5	444805	7.1	21.8	163745	7.1	19.3	271455	7.2	19.1	543917	7.3	22.1
290275	6.9	18.9	301896	7.0	20.2	162441	7.1	20.2	51253	7.1	17.0	169151	7.2	20.1	543030	7.3	21.2
242108	6.9	20.4	523621	7.0	21.4	99263	7.1	19.1	318846	7.1	20.7	491430	7.2	20.8	137977	7.3	19.2
388509	6.9	20.1	421487	7.0	20.4	124157	7.1	20.2	524490	7.1	22.6	262288	7.2	19.9	532175	7.3	20.7
21975	6.9	17.4	142931	7.0	18.9	281208	7.1	19.2	164556	7.1	20.1	19083	7.2	17.3	163575	7.3	19.7
7710	6.9	17.2	197915	7.0	19.7	487033	7.1	20.8	384574	7.2	20.1	152454	7.2	20.0	408670	7.3	21.1
171109	6.9	18.9	126434	7.0	19.0	463614	7.1	20.9	19436	7.2	17.1	418723	7.2	21.9	219380	7.3	20.2
102302	6.9	18.8	175784	7.0	19.4	422601	7.1	20.1	463079	7.2	21.6	48051	7.2	19.0	87776	7.3	19.4
74072	6.9	19.6	244906	7.0	19.8	262624	7.1	21.0	468939	7.2	21.0	267523	7.2	20.9	399504	7.3	19.6
414649	6.9	20.4	355337	7.0	20.8	231753	7.1	20.5	107446	7.2	18.7	159397	7.2	19.3	462534	7.3	21.2
364920	6.9	20.6	337476	7.0	21.1	389366	7.1	19.9	291185	7.2	20.7	378517	7.2	20.2	116388	7.3	18.1
275553	6.9	19.1	337724	7.0	18.5	438834	7.1	19.2	491417	7.2	20.3	407987	7.2	20.4	39017	7.3	19.6
108513	6.9	19.2	335335	7.0	20.3	197908	7.1	20.9	6400	7.2	17.1	2961	7.2	15.5	403654	7.3	21.2
145547	6.9	18.9	193050	7.0	19.5	399870	7.1	20.8	153350	7.2	19.6	125935	7.2	18.7	151975	7.3	19.4
269481	6.9	18.5	201908	7.0	19.8	23965	7.1	18.3	268677	7.2	18.6	197892	7.2	20.5	234552	7.3	19.4
10474	6.9	17.8	203746	7.0	20.8	169808	7.1	20.3	110089	7.2	19.8	281956	7.2	19.7	347268	7.3	20.1
422234	6.9	20.8	97596	7.0	18.2	544949	7.1	21.2	197252	7.2	19.0	116660	7.2	18.9	395554	7.3	20.7
373107	6.9	20.2	196816	7.0	20.8	167457	7.1	18.9	364368	7.2	20.9	84648	7.2	18.7	389968	7.3	20.2
339647	6.9	21.3	491359	7.0	21.1	318053	7.1	20.3	217780	7.2	20.7	281845	7.2	19.6	352814	7.3	21.4
362182	6.9	20.6	375107	7.0	20.1	495583	7.1	20.0	231982	7.2	19.5	195122	7.2	18.7	87246	7.3	18.8
274005	6.9	20.4	315576	7.0	19.9	543059	7.1	20.5	11085	7.2	16.1	331396	7.2	20.2	5518	7.3	16.0
177812	6.9	20.3	66565	7.0	19.1	311740	7.1	21.1	124832	7.2	19.1	132719	7.2	20.4	321860	7.3	20.8
248290	6.9	19.3	236035	7.0	20.7	210714	7.1	19.7	458671	7.2	20.8	466858	7.2	20.1	307238	7.3	19.6
48236	6.9	18.5	397270	7.0	21.9	202340	7.1	19.8	261027	7.2	20.2	523769	7.2	21.7	427333	7.3	20.6
300298	6.9	20.7	543483	7.0	21.1	85167	7.1	18.0	320922	7.2	20.4	255794	7.2	20.2	450775	7.3	21.4
11929	6.9	16.8	383477	7.0	20.7	400288	7.1	20.5	79306	7.2	18.1	111153	7.2	20.4	60864	7.3	18.6
279094	6.9	19.8	375321	7.0	21.0	350355	7.1	20.9	262877	7.2	20.4	215553	7.2	19.0	322348	7.3	20.1
224897	6.9	19.1	14993	7.0	18.3	88681	7.1	19.6	473330	7.2	20.1	294750	7.2	19.8	96667	7.3	18.8
187602	6.9	20.1	129933	7.0	19.3	266114	7.1	19.8	234424	7.2	20.9	247237	7.2	20.1	28112	7.3	17.4
19155	6.9	17.3	114923	7.0	20.2	182728	7.1	20.2	197469	7.2	19.4	176870	7.2	19.5	281278	7.3	20.1
113660	6.9	19.2	346443	7.0	21.0	415439	7.1	20.1	25234	7.2	18.3	216183	7.2	20.1	136520	7.3	20.0
349039	6.9	21.0	319976	7.0	20.6	464208	7.1	20.0	250956	7.2	19.9	202364	7.2	20.0	295830	7.3	20.5
162258	6.9	20.9	410587	7.0	21.3	194439	7.1	20.0	109203	7.2	19.6	542886	7.2	21.9	484346	7.3	20.9
408000	6.9	20.5	427068	7.0	20.1	143798	7.1	20.0	199575	7.2	21.1	174916	7.2	19.0	60616	7.3	19.4
281632	6.9	21.5	298332	7.0	20.1	343342	7.1	19.4	276361	7.2	20.1	218976	7.2	20.1	408880	7.3	21.6
331691	6.9	21.5	69886	7.0	18.1	219855	7.1	19.6	102996	7.2	18.7	76184	7.2	18.2	464339	7.3	21.0
405610	6.9	21.0	516670	7.0	21.9	365643	7.1	20.6	454723	7.2	21.5	46722	7.2	18.2	3472	7.3	17.8
205086	6.9	19.2	489788	7.1	20.2	270673	7.1	20.6	444894	7.2	20.7	18622	7.2	17.1	403603	7.3	20.8
440170	6.9	20.5	450041	7.1	21.2	38671	7.1	18.2	540074	7.2	22.2	479363	7.2	20.1	365856	7.3	18.5
101628	6.9	18.1	489427	7.1	20.8	220012	7.1	19.6	17350	7.2	18.6	251051	7.2	21.6	75884	7.3	18.0
464129	6.9	19.6	468922	7.1	19.5	54191	7.1	18.9	349644	7.2	20.0	262757	7.2	19.6	51720	7.3	18.8
166871	6.9	20.3	116796	7.1	19.5	62212	7.1	17.8	249428	7.2	19.9	450892	7.2	20.0	71065	7.3	18.0
444873	6.9	20.3	484788	7.1	20.2	16550	7.1	18.5	360848	7.2	20.8	307399	7.2	20.7	121576	7.3	19.5
401514	6.9	20.5	197608	7.1	21.1	140	7.1	13.0	273123	7.2	20.1	82860	7.2	18.6	303483	7.3	19.8
275785	6.9	20.6	334545	7.1	21.0	369008	7.1	21.4	73422	7.2	18.7	276765	7.2	19.6	517714	7.3	21.6
115835	6.9	18.6	6033	7.1	17.9	40510	7.1	18.6	339697	7.2	20.8	217023	7.2	20.3	479499	7.3	20.3
144079	6.9	19.4	391823	7.1	21.8	494162	7.1	21.0	437957	7.2	21.4	310282	7.2	21.3	429239	7.3	20.0
279819	6.9	18.3	176883	7.1	19.7	205475	7.1	19.7	382445	7.2	19.7	340097	7.2	19.7	154135	7.3	19.5
192126	6.9	18.9	492534	7.1	20.7	142880	7.1	20.0	121052	7.2	17.6	259815	7.2	17.6	282608	7.3	21.7
434533	6.9	21.9	322054	7.1	20.3	97953	7.1	19.9	421020	7.2	20.8	357665	7.2	21.2	313226	7.3	20.4
394141	6.9	22.4	147952	7.1	18.0	412375	7.1	20.7	417029	7.2	19.9	352146	7.2	20.3	486915	7.3	21.8
542512	6.9	20.7	517002	7.1	21.7	307664	7.1	20.5	27416	7.2	17.9	136850	7.2	17.5	194831	7.3	20.7
144608	6.9	19.4	487250	7.1	20.9	319862	7.1	19.9	514835	7.2	20.9	47511	7.3	18.5	269563	7.3	20.0
346327	6.9	20.4	178175	7.1	20.8	517727	7.1	21.7	205936	7.2	18.7	314897	7.3	20.9	527820	7.3	20.6
369134	6.9	21.7	58826	7.1	17.4	131316	7.1	19.1	1060	7.2	16.2	160407	7.3	19.7	267586	7.3	20.2
25302	6.9	16.5	418793	7.1	20.8	407300	7.1	21.6	524502	7.2	21.6	383429	7.3	20.6	138512	7.3	19.6
104424	6.9	19.0	154956	7.1	20.6	434454	7.1	21.4	446662	7.2	20.7	124806	7.3	20.4	54763	7.3	19.5
161709	7.0	20.2	196710	7.1	19.7	44756	7.1	18.3	118305	7.2	18.6	215285	7.3	20.4	51863	7.3	19.9
233180	7.0	19.3	139786	7.1	19.5	359956	7.1	20.8	345788	7.2	21.5	54072	7.3	19.0	281078	7.3	21.1
486348	7.0	20.2	232355	7.1	20.4	487705	7.1	20.8	40028	7.2	18.4	461069	7.3	21.0	232968	7.3	20.2
402248	7.0	20.8	493460	7.1	21.1	457278	7.1	20.5	543964	7.2	20.8	329684	7.3	20.6	143855	7.3	19.3
12372	7.0	16.6	532026	7.1	22.1	329637	7.1	21.6	105366	7.2	19.7	232252	7.3	19.0	141198	7.3	19.3
12227	7.0	18.2	361243	7.1	20.7	142155	7.1	19.6	237252	7.2	19.5	219183	7.3	18.6	314746	7.3	2

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
402279	7.3	20.3	414498	7.4	21.3	291955	7.5	20.4	466661	7.5	19.8	356330	7.6	21.3	47365	7.6	17.6
52488	7.3	18.0	208304	7.4	19.5	135968	7.5	20.6	260908	7.5	20.6	197821	7.6	20.3	281456	7.6	21.4
51926	7.3	18.1	367940	7.4	20.8	369209	7.5	20.7	370423	7.5	20.3	320050	7.6	20.3	514647	7.6	21.5
57082	7.3	18.9	104957	7.4	19.4	15386	7.5	18.9	464754	7.5	20.4	308832	7.6	20.6	215700	7.6	19.3
481104	7.3	21.0	544593	7.4	21.5	370542	7.5	21.2	146431	7.5	19.1	112515	7.6	19.2	120477	7.6	19.5
77742	7.3	18.3	87955	7.4	19.5	134990	7.5	19.3	190846	7.5	21.3	297334	7.6	21.0	414642	7.6	20.5
343687	7.3	20.7	173193	7.4	20.0	180721	7.5	20.2	473496	7.5	20.3	101147	7.6	19.5	334133	7.6	21.4
9477	7.3	17.7	116116	7.4	19.4	146714	7.5	19.0	53073	7.5	18.9	357255	7.6	20.9	277894	7.6	20.5
50238	7.3	16.8	206183	7.4	20.5	235512	7.5	20.0	462518	7.5	20.6	442303	7.6	21.4	347799	7.7	19.2
407810	7.3	20.1	160218	7.4	19.8	60355	7.5	19.7	477322	7.5	21.0	34783	7.6	19.1	486771	7.7	20.9
457813	7.4	21.9	290546	7.4	20.8	41089	7.5	18.8	519139	7.5	21.8	467714	7.6	20.7	160144	7.7	19.2
323838	7.4	20.5	376082	7.4	20.6	324662	7.5	20.0	158755	7.5	19.7	248204	7.6	20.4	325930	7.7	20.8
114609	7.4	18.2	286348	7.4	20.3	29119	7.5	19.0	347699	7.5	21.2	109491	7.6	20.3	22605	7.7	17.9
365982	7.4	19.9	171115	7.4	20.1	467087	7.5	20.0	452870	7.5	22.0	335246	7.6	20.9	188351	7.7	20.2
477780	7.4	20.1	443259	7.4	21.2	157007	7.5	20.1	339548	7.5	20.7	98073	7.6	19.0	179238	7.7	20.4
523502	7.4	21.0	415310	7.4	20.6	308248	7.5	20.2	157149	7.5	20.4	258274	7.6	21.4	339783	7.7	20.5
3768	7.4	16.4	274624	7.4	19.6	474414	7.5	19.8	366028	7.5	20.4	393494	7.6	21.2	166728	7.7	20.3
113269	7.4	19.9	195746	7.4	20.2	228993	7.5	20.1	109741	7.5	19.2	393023	7.6	20.0	385214	7.7	19.6
272228	7.4	20.6	351005	7.4	19.8	370324	7.5	20.9	463365	7.5	21.1	189697	7.6	21.1	516471	7.7	21.4
138221	7.4	20.6	115956	7.4	19.3	512213	7.5	21.7	366652	7.5	21.6	71823	7.6	18.1	542858	7.7	20.6
327643	7.4	20.7	307884	7.4	19.6	398899	7.5	20.0	518074	7.5	20.6	327718	7.6	21.9	73327	7.7	19.7
446910	7.4	21.3	365788	7.4	20.7	39125	7.5	19.0	177011	7.5	19.1	280683	7.6	20.5	93959	7.7	18.3
153571	7.4	19.8	419073	7.4	21.0	313872	7.5	20.0	486351	7.5	20.0	274981	7.6	20.3	47660	7.7	18.0
118660	7.4	19.1	241796	7.4	20.5	194605	7.5	19.5	283972	7.5	20.8	189704	7.6	20.3	11408	7.7	17.7
521657	7.4	20.7	229409	7.4	21.3	262375	7.5	20.5	139460	7.5	18.5	65754	7.6	18.9	29469	7.7	17.4
160245	7.4	19.8	132930	7.4	20.4	73768	7.5	19.4	271328	7.5	20.6	85494	7.6	19.5	12261	7.7	18.3
441569	7.4	20.1	214944	7.4	18.8	458552	7.5	20.4	57730	7.5	18.3	451522	7.6	20.9	176524	7.7	19.0
463566	7.4	20.9	427284	7.4	20.0	253367	7.5	19.1	284159	7.5	19.8	54716	7.6	18.3	307740	7.7	19.9
4641051	7.4	20.2	189434	7.4	20.1	176385	7.5	19.7	376115	7.5	20.7	22003	7.6	17.9	596	7.7	13.4
249343	7.4	20.3	183116	7.4	20.7	100579	7.5	20.3	516493	7.5	20.9	31119	7.6	19.1	307758	7.7	19.7
232017	7.4	20.5	543073	7.4	21.1	293154	7.5	19.4	183481	7.5	19.9	156917	7.6	20.3	1703	7.7	15.4
359412	7.4	20.8	334175	7.4	19.8	203860	7.5	20.5	300358	7.5	21.7	112103	7.6	20.2	118282	7.7	20.1
191177	7.4	18.9	135707	7.4	19.5	142558	7.5	19.3	541973	7.5	20.2	3380	7.6	15.9	437457	7.7	19.8
446736	7.4	21.0	341954	7.4	21.2	407915	7.5	20.9	175166	7.5	20.3	508429	7.6	20.5	34745	7.7	17.6
157021	7.4	19.0	240115	7.4	21.0	179919	7.5	19.6	355022	7.5	19.7	102057	7.6	19.2	421080	7.7	19.8
274734	7.4	20.1	228302	7.4	18.5	251254	7.5	19.6	310820	7.5	20.6	390129	7.6	19.9	541623	7.7	22.7
261684	7.4	20.3	294908	7.4	20.0	82879	7.5	19.4	116199	7.5	18.3	143847	7.6	18.9	23050	7.7	18.8
426492	7.4	20.7	463060	7.4	21.1	434916	7.5	20.3	120156	7.5	19.0	457329	7.6	21.3	274788	7.7	19.8
83306	7.4	19.3	232701	7.4	19.4	481485	7.5	19.7	156036	7.6	19.1	249958	7.6	20.9	346406	7.7	21.5
449632	7.4	21.8	179607	7.4	20.0	298559	7.5	20.9	416146	7.6	21.3	460993	7.6	20.4	294206	7.7	20.0
121558	7.4	19.1	486131	7.4	21.1	220035	7.5	20.5	242570	7.6	19.8	322299	7.6	19.9	165396	7.7	18.8
220315	7.4	19.0	370872	7.4	19.9	433368	7.5	21.1	453427	7.6	20.6	310714	7.6	21.1	184682	7.7	19.7
191020	7.4	19.8	372073	7.4	20.7	201331	7.5	20.5	421571	7.6	21.2	73316	7.6	19.5	408437	7.7	19.5
105967	7.4	20.1	375568	7.4	19.8	241569	7.5	20.3	543181	7.6	20.6	173709	7.6	20.7	155813	7.7	20.4
10261	7.4	17.4	450240	7.4	18.3	367546	7.5	20.9	259303	7.6	18.7	57285	7.6	18.9	269697	7.7	20.9
504302	7.4	22.0	544609	7.4	20.7	482554	7.5	20.0	244840	7.6	19.7	153760	7.6	19.9	415607	7.7	20.9
182219	7.4	19.8	307860	7.4	20.1	301104	7.5	20.0	294552	7.6	19.2	423344	7.6	20.2	267808	7.7	19.4
522299	7.4	20.7	210166	7.4	19.2	457490	7.5	20.5	23863	7.6	18.0	290221	7.6	19.6	530461	7.7	21.6
413590	7.4	20.5	157418	7.4	20.1	541249	7.5	20.9	151651	7.6	18.5	421612	7.6	20.9	434863	7.7	20.3
492991	7.4	21.3	57856	7.4	18.6	158921	7.5	21.0	495599	7.6	20.8	196311	7.6	18.7	462405	7.7	20.9
80358	7.4	19.2	3332	7.4	14.6	372201	7.5	20.9	286985	7.6	19.7	230984	7.6	20.2	208814	7.7	20.5
254950	7.4	20.0	397546	7.4	20.8	305155	7.5	20.2	358250	7.6	21.2	452850	7.6	21.1	66534	7.7	19.1
359519	7.4	20.8	274640	7.4	21.2	331487	7.5	21.0	200867	7.6	19.6	326490	7.6	19.8	415385	7.7	20.7
268847	7.4	20.6	40929	7.4	18.5	93343	7.5	18.2	458324	7.6	21.3	402153	7.6	21.1	128203	7.7	20.8
6349	7.4	15.4	541453	7.4	20.6	157173	7.5	20.6	193362	7.6	18.8	442220	7.6	21.1	4485	7.7	15.8
150284	7.4	19.1	296999	7.4	20.1	377479	7.5	20.1	17582	7.6	17.5	2624	7.6	16.8	293625	7.7	21.5
283301	7.4	20.3	469420	7.4	22.6	108053	7.5	19.2	542435	7.6	20.2	196773	7.6	20.2	408853	7.7	21.8
80451	7.4	18.0	507565	7.4	19.9	325893	7.5	20.5	269873	7.6	19.7	450588	7.6	20.1	113383	7.7	19.0
26307	7.4	18.4	414472	7.4	21.2	283374	7.5	20.3	29670	7.6	17.6	77795	7.6	19.4	267907	7.7	19.0
301708	7.4	20.4	437870	7.4	18.6	350567	7.5	20.3	427338	7.6	20.5	544275	7.6	20.8	157053	7.7	18.9
336587	7.4	21.0	242947	7.5	20.1	186215	7.5	19.6	324629	7.6	20.7	427325	7.6	20.3	417779	7.7	20.1
271347	7.4	20.7	208845	7.5	20.0	459990	7.5	21.1	268235	7.6	20.4	360866	7.6	20.7	471971	7.7	21.5
211344	7.4	19.9	494645	7.5	19.5	260920	7.5	21.2	538147	7.6	20.9	369903	7.6	20.7	177575	7.7	19.9
455999	7.4	19.8	485065	7.5	19.9	307856	7.5	19.4	290471	7.6	20.2	337493	7.6	19.0	271459	7.7	19.5
161159	7.4	19.2	202128	7.5	20.3	348031	7.5	20.8	162426	7.6	19.8	305106	7.6	18.5	451546	7.7	21.6
313581	7.4	18.6	322351	7.5	20.7	86753	7.5	19.9	410902	7.6	20.7	132783	7.6	20.6	10695	7.7	18.2
373125	7.4	20.3	464221	7.5	20.8	363172	7.5	21.3	524907	7.6	20.9	466984	7.6	20.5	290985	7.7	19.5
496572	7.4	20.9	72164	7.5	17.5	79237	7.5	20.6	131198	7.6	19.2	317044	7.6	20.8	127805	7.7	19.8
408324	7.4	20.8	459851	7.5	21.2	126922	7.5	19.2	64329	7.6	18.6	399381	7.6	21.5	44727	7.7	18.9
173492	7.4	19.7	331845	7.5	20.5	306857	7.5	21.1	270840	7.6	19.8	360328	7.6	21.4	138225	7.7	20.5
496705	7.4	20.7	229473	7.5	19.8	266500	7.5	19.8	148330	7.6	19.6	421603	7.6	20.8	219545		

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
269496	7.7	19.7	418325	7.8	21.5	279363	7.8	18.8	408593	7.9	20.8	136519	7.9	19.7	488145	8.0	21.2
89561	7.7	18.6	380212	7.8	21.6	314811	7.8	20.5	461277	7.9	21.3	407401	7.9	21.2	269842	8.0	19.6
184737	7.7	20.2	477219	7.8	21.3	117962	7.8	19.6	125532	7.9	19.8	50693	7.9	19.8	252275	8.0	20.2
365783	7.7	20.6	30310	7.8	18.3	387415	7.8	21.0	538057	7.9	21.0	337387	7.9	20.5	196284	8.0	19.6
139563	7.7	18.9	418866	7.8	20.1	456151	7.8	20.9	409496	7.9	20.4	421012	7.9	21.0	473949	8.0	20.9
539946	7.7	20.0	266684	7.8	21.2	160883	7.8	17.9	96029	7.9	20.2	374219	7.9	20.6	337008	8.0	20.9
117922	7.7	19.5	460268	7.8	21.0	345440	7.8	19.5	302939	7.9	19.9	50614	7.9	18.6	475514	8.0	21.3
94	7.7	11.9	519213	7.8	22.0	25167	7.8	19.5	15412	7.9	18.0	451530	7.9	21.2	234054	8.0	18.7
361324	7.7	21.3	114213	7.8	19.2	493196	7.8	20.6	71633	7.9	18.7	275871	7.9	21.1	544063	8.0	21.4
397339	7.7	22.6	463559	7.8	20.0	11148	7.8	16.7	64507	7.9	18.1	515729	7.9	22.2	341404	8.0	21.8
403612	7.7	21.1	247911	7.8	20.5	129322	7.8	20.5	441589	7.9	21.5	20943	7.9	17.4	409419	8.0	20.8
504767	7.7	20.4	8588	7.8	17.2	89250	7.8	20.1	339747	7.9	20.8	31692	7.9	17.0	180750	8.0	20.0
393264	7.7	19.8	322083	7.8	20.4	357269	7.8	20.5	406655	7.9	20.5	494631	7.9	20.8	522101	8.0	20.5
270651	7.7	21.0	232991	7.8	20.6	403617	7.8	20.8	171189	7.9	19.5	395153	7.9	20.0	28512	8.0	18.1
10806	7.7	17.2	474027	7.8	20.7	318712	7.8	20.4	25628	7.9	18.4	5071	7.9	16.4	368327	8.0	21.3
279077	7.7	20.5	108966	7.8	18.8	382212	7.8	20.3	111457	7.9	18.4	466674	7.9	20.7	464127	8.0	19.9
256049	7.7	21.4	30844	7.8	17.3	453104	7.8	19.7	204754	7.9	20.8	279685	7.9	21.1	519228	8.0	20.5
372140	7.7	21.0	3405	7.8	16.5	411073	7.8	20.1	69796	7.9	18.4	242932	7.9	20.9	341825	8.0	20.3
31609	7.7	18.2	92136	7.8	19.0	312743	7.8	20.8	345210	7.9	19.5	401869	7.9	20.6	384622	8.0	20.7
83255	7.7	19.1	484574	7.8	20.2	248755	7.9	21.0	79257	7.9	18.7	344272	7.9	20.3	414506	8.0	21.6
372149	7.7	20.6	495766	7.8	20.8	87233	7.9	19.7	248197	7.9	19.9	11616	7.9	16.5	148848	8.0	19.2
402663	7.7	20.3	290819	7.8	20.3	330907	7.9	20.6	451767	7.9	20.8	323826	7.9	21.0	436086	8.0	22.1
327502	7.7	20.2	232774	7.8	19.3	336084	7.9	21.0	92584	7.9	18.3	184787	7.9	19.5	425968	8.0	20.6
5769	7.7	17.0	478439	7.8	21.0	111294	7.9	19.9	176188	7.9	18.4	279130	7.9	21.1	463042	8.0	20.8
455438	7.7	20.6	303014	7.8	19.0	166778	7.9	19.5	236796	7.9	19.7	15158	7.9	18.4	184157	8.0	21.2
184656	7.7	19.8	328649	7.8	20.0	222387	7.9	19.3	369322	7.9	19.6	167023	7.9	20.2	194816	8.0	19.6
28548	7.7	18.3	414807	7.8	20.9	23850	7.9	18.6	30659	7.9	18.7	52489	7.9	18.1	320373	8.1	20.1
214373	7.7	21.6	226130	7.8	20.5	249853	7.9	20.5	244956	7.9	19.7	199552	7.9	20.0	278436	8.1	20.9
51963	7.7	18.6	482540	7.8	20.5	496651	7.9	20.2	52220	7.9	18.7	13299	7.9	17.1	65410	8.1	20.4
294961	7.7	20.2	130633	7.8	18.6	453875	7.9	21.0	494000	7.9	20.7	493325	7.9	20.9	159106	8.1	19.5
543825	7.7	20.9	56284	7.8	18.4	239978	7.9	20.4	165850	7.9	20.0	174267	7.9	19.6	322001	8.1	20.1
112844	7.7	19.3	450638	7.8	21.3	309479	7.9	20.6	284440	7.9	20.4	173110	7.9	18.9	363930	8.1	21.1
82831	7.7	19.3	61351	7.8	19.5	492266	7.9	22.0	70746	7.9	16.9	210045	7.9	21.2	382809	8.1	21.3
360607	7.7	19.1	338013	7.8	19.8	65520	7.9	19.9	313854	7.9	20.2	530231	7.9	22.6	427015	8.1	19.9
382322	7.7	19.8	73773	7.8	17.1	306870	7.9	19.8	290420	7.9	20.5	47902	7.9	18.6	282890	8.1	20.8
23571	7.7	17.7	300802	7.8	20.6	160025	7.9	19.5	195645	7.9	19.8	95168	7.9	20.2	189677	8.1	19.4
218813	7.7	21.0	334139	7.8	19.8	198843	7.9	19.0	113689	7.9	19.1	160266	7.9	18.9	175853	8.1	19.0
268676	7.7	20.8	73844	7.8	17.3	47109	7.9	18.2	358113	7.9	21.0	458444	7.9	19.7	337466	8.1	21.7
348206	7.7	20.2	408158	7.8	20.9	163599	7.9	19.5	458627	7.9	21.0	64134	7.9	18.0	187386	8.1	20.3
151710	7.7	19.4	367367	7.8	21.5	299146	7.9	19.3	70454	7.9	18.8	125288	7.9	19.2	249967	8.1	19.9
62543	7.7	19.0	346306	7.8	21.6	407335	7.9	21.2	13401	7.9	17.7	437878	7.9	21.5	305067	8.1	21.8
290508	7.7	19.3	311753	7.8	19.6	105081	7.9	19.0	358198	7.9	21.4	282669	7.9	20.2	490720	8.1	21.0
290543	7.7	19.1	265173	7.8	19.9	121162	7.9	19.8	77069	7.9	18.5	66027	7.9	18.8	10161	8.1	17.1
160585	7.7	19.9	413044	7.8	22.0	78045	7.9	19.3	364220	7.9	20.4	466002	7.9	20.7	107622	8.1	18.9
277277	7.7	20.5	68552	7.8	17.7	184697	7.9	19.9	202863	7.9	20.7	103914	7.9	19.6	303521	8.1	19.8
483068	7.8	20.8	403609	7.8	19.6	239116	7.9	20.0	123792	7.9	19.1	269542	7.9	21.2	201244	8.1	20.6
495551	7.8	20.6	495299	7.8	21.3	46339	7.9	18.3	311720	7.9	20.2	445584	7.9	22.1	258312	8.1	20.2
519351	7.8	19.9	316513	7.8	20.6	49928	7.9	18.3	296555	7.9	21.7	18758	7.9	17.5	541307	8.1	21.2
246810	7.8	21.1	372040	7.8	20.5	329670	7.9	20.8	471942	7.9	21.1	84713	7.9	19.2	408305	8.1	20.9
314218	7.8	20.8	215956	7.8	20.2	379536	7.9	20.1	219386	7.9	20.5	400042	7.9	21.8	82559	8.1	19.3
40783	7.8	18.9	441486	7.8	21.8	46282	7.9	18.5	438160	7.9	21.7	401290	7.9	20.3	245296	8.1	19.8
394547	7.8	20.9	156023	7.8	19.2	82398	7.9	18.8	335307	7.9	20.9	69287	7.9	18.9	484500	8.1	20.4
133003	7.8	19.1	362894	7.8	20.3	523833	7.9	21.5	461349	7.9	20.2	9711	7.9	17.0	63909	8.1	19.3
367629	7.8	20.1	180804	7.8	19.9	428992	7.9	19.7	143773	7.9	20.1	545080	7.9	20.1	135785	8.1	19.1
31044	7.8	18.0	495056	7.8	20.9	211372	7.9	20.1	520816	7.9	20.9	53385	7.9	18.1	391010	8.1	20.2
318599	7.8	20.1	518468	7.8	21.2	417220	7.9	21.2	440150	7.9	21.9	366209	7.9	21.1	269374	8.1	19.9
350854	7.8	20.0	5151	7.8	17.5	224630	7.9	19.9	155144	7.9	19.9	520290	7.9	20.3	183026	8.1	20.3
76598	7.8	18.6	516653	7.8	20.7	227534	7.9	19.6	106059	7.9	19.2	373780	8.0	20.2	541498	8.1	21.4
419427	7.8	19.9	302649	7.8	20.0	18467	7.9	18.4	90345	7.9	19.2	446638	8.0	20.9	436471	8.1	21.4
72584	7.8	18.5	201204	7.8	21.1	171063	7.9	20.0	453687	7.9	21.8	23410	8.0	19.1	78390	8.1	19.5
200134	7.8	19.7	424899	7.8	21.1	268540	7.9	19.6	520839	7.9	21.4	381055	8.0	19.3	52365	8.1	18.6
120752	7.8	20.3	277861	7.8	20.1	48952	7.9	16.9	496041	7.9	21.6	252225	8.0	21.5	256259	8.1	20.0
450581	7.8	21.3	109519	7.8	18.3	296910	7.9	20.7	289925	7.9	19.4	77352	8.0	18.9	461048	8.1	19.9
234940	7.8	20.4	81906	7.8	18.8	165946	7.9	20.3	499172	7.9	20.7	117451	8.0	19.6	153669	8.1	19.0
282693	7.8	19.3	367783	7.8	20.3	196124	7.9	19.3	361417	7.9	21.2	272184	8.0	20.1	162442	8.1	19.5
135238	7.8	18.5	3750	7.8	16.4	462437	7.9	21.1	309354	7.9	20.6	452591	8.0	21.1	25808	8.1	16.8
110717	7.8	19.8	115196	7.8	18.9	104185	7.9	19.5	410036	7.9	19.9	345283	8.0	20.3	481482	8.1	19.8
482077	7.8	20.0	505608	7.8	21.8	328267	7.9	20.9	10398	7.9	17.2	468326	8.0	19.9	227823	8.1	18.9
209789	7.8	19.7	334510	7.8	21.1	406127	7.9	20.7	396529	7.9	20.4	145061	8.0	19.6	214718	8.1	20.4
418419	7.8	20.5	375121	7.8	21.0	288154	7.9	19.3	325212	7.9	20.6	216181	8.0	20.3	418521	8.1	22.1
64745	7.8	18.8	422147	7.8	21.0	460540	7.9	21.1	318245	7.9	20.3	402236	8.0	21.3	194585	8.1	18.8
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LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2021

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
81869	8.1	19.8	14182	8.2	18.5	454931	8.2	20.4	23464	8.3	18.1	490807	8.4	20.9	158156	8.4	19.0
241933	8.1	19.2	447854	8.2	20.5	151183	8.2	19.2	311816	8.3	20.5	74364	8.4	18.1	116354	8.4	18.7
479341	8.1	21.1	14201	8.2	17.3	108255	8.2	18.5	305122	8.3	21.5	456065	8.4	20.6	469467	8.4	20.6
157048	8.1	20.6	49540	8.2	17.9	449531	8.2	21.7	221576	8.3	19.5	521807	8.4	21.7	494519	8.4	19.0
142644	8.1	20.8	182234	8.2	18.8	64550	8.2	18.2	424262	8.3	21.1	351245	8.4	21.3	287073	8.4	21.2
256062	8.1	20.2	193132	8.2	19.6	211693	8.2	20.6	286879	8.3	21.3	145780	8.4	19.4	109516	8.4	19.7
2199	8.1	16.2	23426	8.2	17.9	349562	8.2	21.0	13999	8.3	18.5	253040	8.4	21.6	86131	8.4	18.4
49137	8.1	20.2	207342	8.2	19.7	298530	8.2	20.9	59632	8.3	18.9	492000	8.4	21.1	92768	8.4	19.3
388152	8.1	20.0	77804	8.2	18.3	132744	8.2	19.5	467790	8.3	20.1	372041	8.4	20.4	339635	8.4	21.8
76720	8.1	19.0	87068	8.2	19.8	492915	8.2	20.9	441498	8.3	21.8	135787	8.4	19.4	302567	8.4	20.7
486264	8.1	20.3	243348	8.2	19.9	436089	8.2	22.2	359287	8.3	21.2	222135	8.4	20.8	114129	8.4	19.5
497006	8.1	20.0	211779	8.2	20.1	235581	8.2	20.3	271778	8.3	20.4	343291	8.4	19.3	470153	8.4	20.2
466421	8.1	20.8	417198	8.2	20.9	134397	8.2	19.3	346376	8.3	21.1	77812	8.4	18.1	345446	8.4	20.0
444695	8.1	20.3	66259	8.2	18.5	544094	8.2	20.5	80188	8.3	18.9	251641	8.4	20.7	375332	8.4	20.3
260922	8.1	20.8	197781	8.2	20.5	116294	8.2	19.6	277222	8.3	19.9	369072	8.4	20.2	333800	8.4	19.7
356949	8.1	19.7	201266	8.2	19.7	46251	8.2	18.0	248815	8.3	20.2	50671	8.4	18.5	421344	8.4	20.5
271229	8.1	20.1	402245	8.2	22.5	458548	8.2	19.2	486169	8.3	20.3	252403	8.4	20.9	42774	8.4	19.0
128727	8.1	19.9	29241	8.2	19.3	454828	8.2	21.3	298906	8.3	19.9	104896	8.4	19.9	165915	8.4	20.0
449472	8.1	21.2	545073	8.2	20.7	296854	8.2	20.7	246438	8.3	20.6	362900	8.4	20.5	161580	8.4	19.5
101044	8.1	19.5	436421	8.2	20.8	77848	8.2	18.6	196797	8.3	19.7	487714	8.4	20.4	150380	8.4	19.2
466317	8.1	21.0	15243	8.2	16.4	400126	8.3	20.3	227678	8.3	20.3	155315	8.4	19.8	89010	8.4	18.6
105183	8.1	19.8	357388	8.2	19.1	212233	8.3	20.6	413430	8.3	20.1	191374	8.4	19.3	167982	8.4	20.4
178359	8.1	20.4	348605	8.2	19.8	198824	8.3	19.1	292486	8.3	20.3	93167	8.4	19.3	128674	8.4	20.5
257095	8.1	20.0	254893	8.2	20.8	25864	8.3	18.7	370068	8.3	20.8	520944	8.4	21.2	76053	8.4	19.1
494989	8.1	20.3	125509	8.2	19.8	440022	8.3	21.6	191432	8.3	19.4	454283	8.4	21.1	71472	8.4	17.8
331562	8.1	21.3	233092	8.2	19.1	32692	8.3	19.1	465739	8.3	20.7	337088	8.4	19.1	151242	8.4	19.9
368516	8.1	19.8	412362	8.2	21.4	489682	8.3	20.4	42699	8.3	19.4	268704	8.4	20.6	452390	8.4	21.3
130369	8.1	20.6	487486	8.2	20.5	399170	8.3	20.7	464174	8.3	20.5	232451	8.4	19.5	88976	8.5	18.8
202284	8.1	20.3	290436	8.2	19.8	234243	8.3	20.1	474176	8.3	20.9	273130	8.4	20.4	10382	8.5	17.8
443880	8.1	21.9	449992	8.2	22.3	161193	8.3	19.4	347298	8.3	19.8	442839	8.4	20.7	318529	8.5	20.8
37184	8.1	18.6	1066	8.2	15.8	423062	8.3	19.3	354007	8.3	19.2	339692	8.4	20.3	246548	8.5	20.9
389958	8.1	20.0	518429	8.2	21.5	286037	8.3	21.0	324324	8.3	21.5	78455	8.4	17.9	305895	8.5	19.5
423123	8.1	20.3	318779	8.2	20.6	209313	8.3	19.9	167305	8.3	19.0	282389	8.4	20.4	380698	8.5	20.4
90388	8.1	19.2	331866	8.2	19.9	271124	8.3	20.6	271334	8.3	21.0	357286	8.4	20.4	162216	8.5	20.2
519042	8.1	21.9	103114	8.2	17.9	305326	8.3	19.2	441519	8.3	21.8	399390	8.4	21.0	268726	8.5	20.4
109497	8.1	19.2	29343	8.2	17.0	183030	8.3	20.3	484723	8.3	20.5	41227	8.4	18.2	111334	8.5	19.4
448810	8.1	22.2	492990	8.2	22.0	360831	8.3	21.4	517436	8.3	21.7	389676	8.4	21.3	5908	8.5	16.8
275731	8.1	20.5	385987	8.2	19.7	447523	8.3	20.4	207834	8.3	20.5	244851	8.4	20.9	314785	8.5	20.5
398246	8.1	21.3	330241	8.2	21.3	257825	8.3	19.9	457879	8.3	21.3	117590	8.4	18.8	334095	8.5	20.6
277161	8.1	19.9	177933	8.2	20.4	90396	8.3	18.9	375500	8.3	21.5	107356	8.4	18.0	92455	8.5	19.1
347163	8.1	20.3	259907	8.2	19.6	451305	8.3	21.1	103182	8.3	18.6	365465	8.4	21.4	283979	8.5	20.6
452420	8.1	20.7	351398	8.2	20.2	65996	8.3	25.0	48176	8.3	19.5	9864	8.4	17.9	171838	8.5	18.7
2292	8.1	16.3	256000	8.2	20.9	418757	8.3	20.2	496564	8.3	20.5	289984	8.4	20.7	277245	8.5	20.3
420873	8.1	21.2	364010	8.2	21.4	113744	8.3	18.9	119628	8.3	20.5	99873	8.4	18.4	441116	8.5	20.2
64733	8.1	19.1	295671	8.2	20.5	169286	8.3	20.9	188352	8.3	19.4	442230	8.4	21.5	280933	8.5	20.6
486165	8.1	21.5	193607	8.2	18.2	48211	8.3	18.4	386067	8.3	19.6	490814	8.4	20.6	489376	8.5	21.0
285139	8.1	20.0	451752	8.2	19.5	192941	8.3	19.7	401492	8.3	19.5	211303	8.4	19.8	217844	8.5	21.2
78206	8.1	19.2	275579	8.2	19.9	240259	8.3	20.3	248498	8.3	19.7	462745	8.4	21.1	528871	8.5	20.9
16143	8.1	18.2	400838	8.2	21.5	298426	8.3	19.7	316567	8.3	20.3	28792	8.4	18.9	64317	8.5	18.6
118082	8.1	19.3	368427	8.2	20.4	289983	8.3	20.8	503372	8.3	20.3	240102	8.4	19.4	419062	8.5	20.7
392917	8.1	20.9	457491	8.2	20.2	418533	8.3	21.0	472452	8.3	19.9	372245	8.4	20.4	103184	8.5	18.3
295124	8.1	19.7	442564	8.2	20.4	104224	8.3	19.1	269307	8.3	20.2	541364	8.4	21.1	534929	8.5	20.5
174913	8.1	21.0	268825	8.2	19.7	274033	8.3	20.7	254769	8.3	19.9	344898	8.4	20.2	312930	8.5	20.6
258299	8.1	20.9	194378	8.2	19.2	163528	8.3	19.8	277192	8.3	20.0	397625	8.4	20.0	22166	8.5	18.7
47111	8.1	17.5	6399	8.2	16.2	379533	8.3	20.3	393535	8.3	21.3	202667	8.4	20.6	37354	8.5	17.7
360277	8.1	20.8	121880	8.2	20.1	400194	8.3	20.0	278242	8.3	21.1	279630	8.4	19.3	337796	8.5	20.8
425943	8.1	19.8	319750	8.2	20.8	298602	8.3	19.2	447747	8.3	21.6	1410	8.4	15.4	77642	8.5	19.2
187772	8.1	20.5	74160	8.2	17.9	541562	8.3	20.3	110125	8.3	20.7	201865	8.4	19.6	395103	8.5	21.4
226238	8.1	19.8	8161	8.2	18.4	494623	8.3	19.8	510843	8.3	19.2	362399	8.4	20.6	286986	8.5	21.0
420116	8.1	21.1	261149	8.2	19.9	112940	8.3	19.4	266544	8.3	20.0	317684	8.4	20.0	543126	8.5	21.3
323852	8.1	20.8	523226	8.2	19.4	145258	8.3	19.9	161921	8.3	19.5	14327	8.4	17.8	356564	8.5	21.0
399789	8.1	21.8	460226	8.2	21.5	136348	8.3	19.9	317222	8.3	18.8	239371	8.4	19.7	63532	8.5	18.7
421159	8.1	21.0	544165	8.2	21.0	439044	8.3	20.9	41703	8.3	19.2	57498	8.4	18.8	541688	8.5	20.9
254637	8.1	21.4	59996	8.2	19.5	100960	8.3	19.3	237929	8.3	21.0	452941	8.4	20.9	331757	8.5	20.1
268687	8.2	20.4	159506	8.2	19.8	45685	8.3	19.1	170603	8.3	18.4	127843	8.4	20.2	292935	8.5	20.3
256234	8.2	19.0	67473	8.2	20.1	296651	8.3	20.6	329645	8.3	20.0	198755	8.4	20.2	65596	8.5	19.0
307788	8.2	20.1	28347	8.2	17.4	523763	8.3	22.0	32736	8.3	19.4	470106	8.4	21.3	406144	8.5	21.5
218737	8.2	21.5	104023	8.2	18.9	439536	8.3	20.6	216915	8.3	21.6	162450	8.4	19.3	22994	8.5	18.9
316427	8.2	20.1	181787	8.2	19.8	280512	8.3	21.1	361311	8.3	20.3	135526	8.4	19.5	142843	8.5	20.7
53569	8.2	17.9	336733	8.2	19.7	263398	8.3	19.8	25507	8.3	17.9	177801	8.4	20.2	52068	8.5	18.5
392296	8.2	20.2	114015	8.2	18.9	346345	8.3	20.3	312873	8.3	20.4	289677	8.4	20.1	506140	8.5	20.

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
544746	8.5	20.9	160361	8.6	19.4	32172	8.7	19.2	357664	8.7	18.5	219914	8.8	20.9	27379	8.9	19.3
517787	8.5	21.5	181376	8.6	20.4	438728	8.7	21.8	231356	8.7	19.9	239785	8.8	19.5	378980	8.9	20.4
194533	8.5	18.7	190862	8.6	19.7	129398	8.7	20.2	57953	8.7	19.3	472269	8.8	20.2	203931	8.9	20.1
137422	8.5	19.1	220019	8.6	19.8	110201	8.7	19.0	386002	8.7	19.2	7408	8.8	17.7	14156	8.9	18.3
143717	8.5	19.7	254726	8.6	19.6	284485	8.7	19.3	278514	8.7	19.6	78697	8.8	18.8	384608	8.9	20.5
541730	8.5	22.1	326734	8.6	19.6	201750	8.7	20.0	399391	8.7	22.7	13848	8.8	17.7	129058	8.9	19.6
333314	8.5	21.0	243264	8.6	20.2	77577	8.7	17.8	463561	8.7	21.3	517183	8.8	21.1	256009	8.9	18.9
79449	8.5	20.5	42392	8.6	19.2	444500	8.7	21.3	51585	8.7	18.3	136352	8.8	19.1	65411	8.9	19.7
346302	8.5	21.3	446931	8.6	20.2	441572	8.7	22.0	287207	8.7	21.0	30586	8.8	19.6	482003	8.9	20.8
322260	8.5	19.8	400083	8.6	20.9	415408	8.7	20.1	541504	8.7	19.7	85826	8.8	18.1	48326	8.9	17.5
389359	8.5	20.2	279252	8.6	20.3	392515	8.7	21.4	266901	8.7	20.4	283303	8.8	20.7	333718	8.9	21.2
455250	8.5	20.8	179778	8.6	20.4	494919	8.7	21.6	466548	8.7	20.1	55603	8.8	19.3	475682	8.9	20.4
431446	8.5	20.8	489821	8.6	21.1	267920	8.7	20.2	404290	8.7	20.3	31261	8.8	18.4	58133	8.9	18.0
147977	8.5	19.9	37752	8.6	18.5	516531	8.7	22.7	508579	8.7	20.2	48255	8.8	18.7	233649	8.9	19.7
396666	8.5	20.4	428977	8.6	20.9	374624	8.7	21.1	40052	8.7	18.2	467112	8.8	20.3	325707	8.9	21.7
387893	8.5	21.3	172786	8.6	18.2	371980	8.7	20.8	158658	8.7	19.2	34895	8.8	18.0	53255	8.9	18.7
535319	8.5	20.7	443834	8.6	21.2	446477	8.7	20.5	58239	8.7	19.3	541644	8.8	21.9	148164	8.9	18.5
376324	8.5	19.9	460957	8.6	20.9	487208	8.7	21.0	484303	8.7	19.6	487121	8.8	20.7	369711	8.9	20.0
147328	8.5	19.3	314889	8.6	20.2	301654	8.7	20.2	467398	8.7	20.3	424248	8.8	21.6	164912	8.9	20.1
247314	8.5	19.1	88551	8.6	19.8	436041	8.7	20.9	145183	8.7	18.4	513709	8.8	21.1	520546	8.9	21.0
242382	8.5	20.3	164875	8.6	20.9	269365	8.7	20.7	202489	8.7	19.7	125275	8.8	18.5	194597	8.9	19.7
542969	8.5	20.8	87747	8.6	18.5	98347	8.7	19.2	442656	8.7	21.1	248193	8.8	20.2	197851	8.9	19.9
502063	8.5	20.8	449909	8.6	19.5	174983	8.7	19.3	539965	8.7	21.8	61123	8.8	19.1	70255	8.9	17.7
150547	8.5	20.2	268776	8.6	20.1	403643	8.7	20.8	273267	8.7	19.6	230588	8.8	18.9	43535	8.9	19.1
383817	8.5	19.8	215776	8.6	20.4	538060	8.7	20.9	117100	8.7	19.6	10153	8.8	18.0	196744	8.9	19.9
76580	8.5	18.8	393201	8.6	20.8	112436	8.7	18.3	373669	8.7	21.4	447833	8.8	21.9	124546	8.9	18.4
7762	8.5	16.8	323853	8.6	20.7	10504	8.7	17.3	454214	8.7	20.8	68617	8.8	19.2	197662	8.9	20.7
270799	8.5	20.6	305045	8.6	20.5	180652	8.7	18.9	459882	8.7	22.0	3618	8.8	17.7	464064	8.9	21.1
280712	8.5	20.8	481763	8.6	21.3	156630	8.7	20.1	265496	8.8	19.7	318184	8.8	20.9	485573	8.9	20.8
422077	8.5	21.8	22968	8.6	18.6	196095	8.7	19.3	194856	8.8	18.8	541869	8.8	19.9	370346	8.9	20.6
270616	8.5	21.1	13928	8.6	18.4	448814	8.7	21.9	395824	8.8	20.2	200347	8.8	21.4	408694	8.9	20.0
273208	8.5	20.7	190904	8.6	20.1	317232	8.7	19.6	318260	8.8	20.7	361388	8.8	19.9	249896	8.9	20.4
254835	8.5	20.3	263291	8.6	19.5	485278	8.7	20.1	208891	8.8	19.4	144272	8.8	19.6	192426	8.9	19.3
188222	8.5	19.9	61752	8.6	20.0	453933	8.7	20.8	453977	8.8	19.9	338403	8.8	18.9	453190	8.9	20.6
39368	8.5	18.2	245873	8.6	20.4	473877	8.7	20.5	123706	8.8	19.4	199882	8.8	20.3	245737	8.9	20.0
134422	8.5	17.9	213606	8.6	20.1	106377	8.7	19.2	359289	8.8	20.8	128229	8.8	20.2	11121	8.9	18.7
280696	8.5	20.6	294157	8.6	20.8	212633	8.7	19.6	60231	8.8	19.3	61445	8.8	19.4	465810	8.9	20.1
503995	8.5	20.7	259130	8.6	20.0	34269	8.7	18.5	358608	8.8	20.9	189664	8.8	20.7	188128	8.9	19.7
478454	8.5	21.9	51550	8.6	18.4	290166	8.7	20.9	361227	8.8	21.4	112504	8.8	19.6	226247	8.9	19.5
30122	8.5	18.0	463050	8.6	21.5	485491	8.7	20.7	426787	8.8	20.4	26576	8.8	18.0	431322	8.9	21.4
47052	8.5	18.6	145226	8.6	20.0	52514	8.7	19.5	309892	8.8	20.1	144297	8.8	18.5	133377	8.9	19.6
163639	8.5	19.7	487965	8.6	20.7	53812	8.7	18.9	492928	8.8	20.5	281784	8.8	20.2	52471	8.9	18.8
219823	8.5	18.8	128434	8.6	19.4	176298	8.7	19.8	200068	8.8	19.8	372134	8.8	21.4	185144	8.9	19.6
249859	8.5	19.7	207283	8.6	18.4	260879	8.7	20.6	223009	8.8	20.1	79207	8.8	19.2	481538	8.9	19.2
541513	8.5	21.8	235941	8.6	20.1	18902	8.7	18.0	133020	8.8	19.7	268176	8.8	19.4	143114	8.9	20.0
192605	8.5	19.1	49799	8.6	17.3	321553	8.7	20.8	170547	8.8	19.4	541245	8.8	21.6	292135	8.9	19.6
310396	8.6	20.0	265402	8.6	19.9	423833	8.7	20.8	396449	8.8	21.6	64287	8.8	18.9	82353	8.9	18.7
154995	8.6	19.7	51080	8.6	18.0	260904	8.7	20.7	224804	8.8	19.6	323874	8.8	20.8	198727	8.9	19.4
61483	8.6	18.8	460039	8.6	20.0	347540	8.7	19.1	123227	8.8	19.1	541440	8.8	21.1	146337	8.9	20.5
133017	8.6	20.4	424613	8.6	21.3	353214	8.7	18.9	476622	8.8	20.9	158239	8.8	19.2	473302	8.9	21.4
307775	8.6	20.0	402585	8.6	21.4	520831	8.7	20.5	370573	8.8	20.3	204838	8.8	21.1	528083	8.9	21.7
83315	8.6	19.3	110255	8.6	19.0	250670	8.7	20.2	493005	8.8	20.7	454017	8.8	19.5	521767	8.9	21.9
95013	8.6	17.7	450609	8.6	20.1	516774	8.7	21.1	336450	8.8	20.0	461540	8.8	21.2	79912	8.9	19.0
66361	8.6	18.7	137759	8.6	18.2	8227	8.7	18.0	299229	8.8	19.0	419242	8.8	19.8	220007	8.9	20.9
473645	8.6	20.3	339533	8.6	20.3	247363	8.7	20.0	399496	8.8	21.2	350381	8.8	20.9	100449	8.9	19.6
462951	8.6	21.3	186407	8.6	19.7	291125	8.7	19.6	487381	8.8	21.5	520646	8.8	20.7	457173	8.9	20.5
541354	8.6	20.8	398748	8.6	19.2	461875	8.7	20.8	459718	8.8	20.8	150422	8.8	19.9	83351	8.9	19.3
137429	8.6	19.7	232033	8.6	19.2	337925	8.7	19.6	60531	8.8	19.4	197564	8.8	21.2	257231	8.9	21.3
217433	8.6	19.9	215664	8.6	20.1	329469	8.7	20.9	64285	8.8	19.2	532557	8.8	21.3	403957	8.9	20.5
404512	8.6	19.7	108135	8.6	19.5	134143	8.7	18.9	115976	8.8	19.3	172076	8.8	19.6	366714	8.9	20.1
372769	8.6	19.8	441530	8.6	21.1	160090	8.7	20.7	86919	8.8	19.0	217877	8.8	20.4	236268	8.9	20.3
467685	8.6	20.4	197775	8.6	20.1	541410	8.7	20.0	105010	8.8	17.8	344039	8.8	20.2	139784	8.9	19.7
420269	8.6	19.7	168273	8.6	20.6	115116	8.7	19.3	2722	8.8	16.9	277315	8.8	20.1	33337	8.9	18.9
278943	8.6	20.5	412626	8.6	20.2	55143	8.7	16.3	530041	8.8	22.2	4896	8.8	16.9	176183	8.9	19.4
65721	8.6	18.8	65701	8.6	17.9	437834	8.7	21.1	355011	8.8	20.8	412856	8.8	21.1	226269	8.9	18.3
194032	8.6	19.2	228990	8.6	19.5	73976	8.7	19.2	465020	8.8	20.7	3786	8.8	15.0	201787	8.9	19.8
163642	8.6	19.3	158525	8.6	19.2	96884	8.7	18.7	399768	8.8	21.5	231369	8.8	19.1	158207	8.9	19.5
100984	8.6	20.0	69008	8.6	18.9	441054	8.7	20.6	412970	8.8	20.7	281917	8.8	20.4	441171	8.9	20.7
160825	8.6	18.8	234562	8.6	19.2	521317	8.7	20.2	372724	8.8	20.1	307662	8.8	20.0	33882	8.9	18.6
146518	8.6	19.8	139584	8.6	19.5	197755	8.7	20.3	93937	8.8	19.6	64930	8.8	19.6	268601	8.9	20.0
34194	8.6	19.0	439790	8.6	20.6	81746	8.7	18.2	463346	8.8	21.8	542056	8.8	20.8	442232	8.9	21.4

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
426434	8.9	20.9	270602	8.9	19.9	277985	9.0	20.2	292132	9.1	20.5	466386	9.2	21.4	4241	9.2	19.1
280499	8.9	20.3	493918	8.9	20.7	491348	9.0	20.9	333619	9.1	21.3	176627	9.2	20.1	248730	9.2	20.6
362212	8.9	19.8	421045	8.9	20.4	315730	9.0	18.9	367184	9.1	18.9	417267	9.2	21.2	489914	9.2	21.3
26299	8.9	18.0	276777	8.9	19.9	348211	9.1	20.1	301692	9.1	20.5	343918	9.2	21.6	463582	9.2	20.9
481119	8.9	21.3	416364	8.9	20.8	506346	9.1	22.1	167928	9.1	20.7	197460	9.2	19.6	69131	9.2	19.5
164829	8.9	19.5	59032	8.9	18.7	473862	9.1	20.6	65450	9.1	19.6	271563	9.2	20.6	463756	9.2	20.8
398057	8.9	20.3	401025	8.9	20.5	110737	9.1	19.8	475441	9.1	21.5	466971	9.2	19.6	322085	9.2	20.4
237426	8.9	20.7	487083	8.9	20.9	347232	9.1	19.6	344411	9.1	19.5	138867	9.2	19.6	406674	9.2	20.4
339943	8.9	19.2	101202	8.9	19.8	317498	9.1	20.4	541581	9.1	21.8	64847	9.2	19.6	331652	9.2	20.9
77261	8.9	18.2	39392	8.9	18.1	415660	9.1	20.7	50876	9.1	18.7	378502	9.2	21.1	162278	9.2	20.1
519174	8.9	19.6	422265	8.9	18.9	283389	9.1	21.3	17585	9.1	18.1	544788	9.2	20.7	160320	9.2	19.1
544946	8.9	21.6	225470	8.9	18.8	310791	9.1	20.7	254066	9.1	20.5	53561	9.2	18.6	68336	9.3	20.2
380453	8.9	20.8	28824	8.9	18.3	169971	9.1	19.2	160039	9.1	20.0	400816	9.2	21.4	293234	9.3	19.9
165572	8.9	19.0	275799	8.9	21.7	543584	9.1	21.5	14626	9.1	17.0	119441	9.2	18.0	438743	9.3	20.3
109552	8.9	19.7	356997	8.9	20.6	434788	9.1	21.1	226126	9.1	21.2	240986	9.2	19.8	371782	9.3	19.6
280268	8.9	19.0	507592	8.9	20.3	232773	9.1	20.9	225422	9.1	19.0	179165	9.2	19.7	236813	9.3	20.3
133748	8.9	19.3	389894	8.9	21.1	127306	9.1	19.7	363051	9.1	20.6	236890	9.2	21.1	47617	9.3	18.7
409657	8.9	20.5	136190	8.9	19.9	379537	9.1	20.6	322522	9.1	19.1	34325	9.2	18.5	176362	9.3	19.7
451515	8.9	21.5	79848	8.9	19.5	81899	9.1	19.4	370627	9.1	19.8	108677	9.2	19.1	138336	9.3	19.4
363594	8.9	20.3	302959	8.9	21.4	7752	9.1	16.8	65705	9.1	18.3	170528	9.2	19.8	99123	9.3	19.0
175083	8.9	20.3	339096	8.9	19.8	335913	9.1	20.2	151215	9.1	19.2	421635	9.2	21.0	201287	9.3	18.9
200922	8.9	18.8	23238	8.9	18.3	407440	9.1	21.8	486388	9.1	20.4	282419	9.2	20.8	460839	9.3	20.6
300800	8.9	20.7	484049	8.9	20.2	461640	9.1	20.4	425472	9.1	20.0	523767	9.2	21.9	27064	9.3	15.7
16210	8.9	18.4	252640	8.9	19.7	290627	9.1	20.8	334670	9.1	19.2	146135	9.2	18.4	14657	9.3	18.1
138009	8.9	18.7	474407	8.9	20.7	205465	9.1	19.8	280539	9.1	21.3	277886	9.2	20.2	416344	9.3	21.1
333721	8.9	21.1	475459	9.0	20.9	279015	9.1	20.7	82441	9.1	19.3	26879	9.2	19.2	165668	9.3	20.0
248217	8.9	20.2	492641	9.0	21.1	70990	9.1	17.5	506805	9.1	21.5	164934	9.2	18.2	489206	9.3	22.1
213531	8.9	19.3	157943	9.0	19.0	434881	9.1	20.5	179882	9.1	19.7	25703	9.2	17.3	127752	9.3	19.1
175186	8.9	20.3	357287	9.0	20.5	437874	9.1	21.5	335398	9.1	20.4	150104	9.2	20.9	484768	9.3	20.9
145046	8.9	19.2	371805	9.0	20.9	171598	9.1	19.7	466025	9.1	21.0	176843	9.2	19.8	253911	9.3	19.2
309553	8.9	19.2	364299	9.0	21.1	456537	9.1	17.5	516803	9.1	22.4	81923	9.2	19.8	8519	9.3	18.8
543265	8.9	21.7	370410	9.0	20.9	208736	9.1	20.0	221624	9.1	19.1	359506	9.2	20.8	290454	9.3	20.4
422584	8.9	20.5	492127	9.0	21.4	12215	9.1	17.8	315003	9.1	19.6	8824	9.2	16.6	466345	9.3	20.8
535475	8.9	20.8	263466	9.0	20.0	542956	9.1	20.7	336827	9.1	19.7	211573	9.2	20.4	463038	9.3	21.1
388092	8.9	19.9	292023	9.0	20.7	145082	9.1	20.7	490773	9.1	20.4	262217	9.2	20.7	2657	9.3	16.2
319919	8.9	20.9	459945	9.0	21.4	23551	9.1	17.8	493019	9.1	20.9	101278	9.2	19.9	467908	9.3	21.0
484059	8.9	20.2	400100	9.0	21.5	359681	9.1	21.2	275266	9.1	20.0	489449	9.2	20.7	164441	9.3	20.1
507119	8.9	24.0	516844	9.0	20.8	197265	9.1	19.2	357260	9.1	21.1	444921	9.2	19.9	178011	9.3	20.1
270037	8.9	21.4	15110	9.0	17.3	477291	9.1	20.7	544775	9.1	20.5	271292	9.2	19.7	68980	9.3	18.4
194801	8.9	20.5	370520	9.0	20.1	66340	9.1	18.3	326503	9.1	21.5	255006	9.2	20.1	423323	9.3	20.9
253318	8.9	19.5	364853	9.0	19.7	464032	9.1	20.6	219237	9.1	21.4	451798	9.2	20.0	19506	9.3	17.2
53061	8.9	18.5	280219	9.0	20.1	300334	9.1	20.3	116621	9.1	19.3	158000	9.2	20.0	158929	9.3	20.6
35456	8.9	17.9	273102	9.0	20.8	8257	9.1	16.6	96016	9.1	20.5	464113	9.2	20.5	365234	9.3	19.9
16318	8.9	18.9	110059	9.0	19.1	53151	9.1	17.4	516645	9.1	21.5	493352	9.2	20.5	262915	9.3	19.2
272591	8.9	21.1	524249	9.0	21.6	491195	9.1	19.2	372298	9.1	20.7	54820	9.2	18.7	486875	9.3	21.1
262331	8.9	21.3	543180	9.0	21.9	302954	9.1	20.9	519907	9.1	20.5	535352	9.2	20.9	89644	9.3	20.1
487006	8.9	20.8	366939	9.0	20.8	242292	9.1	20.0	493441	9.1	21.2	398671	9.2	20.6	239260	9.3	19.3
58231	8.9	18.9	339433	9.0	19.3	202330	9.1	19.1	491464	9.2	20.7	519064	9.2	20.5	177414	9.3	18.6
412548	8.9	20.6	137440	9.0	18.9	4446	9.1	18.0	100311	9.2	20.3	325391	9.2	20.1	70896	9.3	19.3
297339	8.9	19.9	171162	9.0	20.6	542103	9.1	20.7	86548	9.2	18.9	498271	9.2	20.8	497265	9.3	22.8
50862	8.9	17.7	50352	9.0	17.6	314203	9.1	21.0	260912	9.2	20.1	466631	9.2	21.3	376147	9.3	20.8
2393	8.9	16.2	403566	9.0	21.7	450016	9.1	21.0	366240	9.2	19.3	260693	9.2	20.9	108311	9.3	19.6
307317	8.9	20.9	226571	9.0	19.1	331136	9.1	19.9	498227	9.2	21.8	46575	9.2	19.0	306413	9.3	20.8
286767	8.9	20.4	448484	9.0	20.5	438670	9.1	21.6	206677	9.2	18.9	259410	9.2	20.0	271515	9.3	19.9
141496	8.9	19.3	444185	9.0	22.8	264472	9.1	18.9	298478	9.2	19.6	443924	9.2	21.3	113635	9.3	19.6
354607	8.9	20.9	148995	9.0	19.2	314848	9.1	20.1	131695	9.2	23.2	486445	9.2	20.3	541173	9.3	21.4
306158	8.9	20.7	260999	9.0	20.3	217544	9.1	20.2	26304	9.2	18.7	305107	9.2	20.8	487744	9.3	20.8
462513	8.9	20.3	463019	9.0	20.7	79718	9.1	18.1	287630	9.2	19.6	280515	9.2	21.7	161601	9.3	19.6
246635	8.9	19.8	228992	9.0	20.5	424255	9.1	21.5	35459	9.2	17.3	244943	9.2	20.2	405191	9.3	20.6
51678	8.9	19.0	287330	9.0	21.1	24894	9.1	17.3	442325	9.2	20.5	349633	9.2	20.0	171207	9.3	19.3
257865	8.9	20.6	453856	9.0	21.8	340695	9.1	20.9	383345	9.2	21.6	443927	9.2	20.6	132917	9.3	20.4
330754	8.9	20.0	442720	9.0	21.5	170800	9.1	20.0	545003	9.2	20.5	542954	9.2	21.4	490373	9.3	21.6
443914	8.9	21.2	524506	9.0	21.9	160252	9.1	20.2	116356	9.2	19.4	50233	9.2	16.8	529230	9.3	21.4
516484	8.9	21.7	462932	9.0	20.2	412707	9.1	21.0	493139	9.2	20.9	243561	9.2	20.8	58978	9.3	19.6
252270	8.9	20.2	363152	9.0	21.2	154128	9.1	19.3	529052	9.2	21.9	130365	9.2	19.4	212201	9.3	20.4
64691	8.9	19.1	191384	9.0	19.7	201002	9.1	18.7	368131	9.2	20.4	455980	9.2	21.9	249996	9.3	19.7
449404	8.9	20.1	247949	9.0	19.9	258147	9.1	20.9	162266	9.2	19.7	148003	9.2	18.9	221635	9.3	19.4
493001	8.9	21.5	113684	9.0	19.0	450802	9.1	21.2	80233	9.2	19.0	543025	9.2	21.8	115760	9.3	19.8
414740	8.9	19.5	120661	9.0	20.1	369237	9.1	20.6	157306	9.2	20.5	10179	9.2	17.0	116848	9.3	20.2
128722	8.9	19.5	211695	9.0	19.5	67347	9.1	17.4	278928	9.2	20.7	443937	9.2	20.8	409540	9.3	20.4
189097	8.9	20.7	25228	9.0	17.9	496702	9.1	20.2	210814	9.2	19.3	104131	9.2	19.2	366048	9	

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
32925	9.3	17.4	252437	9.4	21.1	114538	9.4	18.6	190797	9.5	20.5	152667	9.6	21.3	405584	9.6	21.4
481994	9.3	21.6	274613	9.4	20.3	455706	9.4	20.7	296879	9.5	19.9	61278	9.6	18.1	198639	9.6	19.5
386896	9.3	21.0	456005	9.4	21.1	382171	9.5	20.5	16045	9.5	17.6	364324	9.6	20.3	235518	9.6	19.7
145659	9.3	19.2	55291	9.4	18.3	73612	9.5	20.1	514683	9.5	21.5	461976	9.6	19.5	86980	9.6	20.0
337584	9.3	20.2	271790	9.4	21.0	475517	9.5	21.3	128528	9.5	20.5	292936	9.6	20.2	29456	9.6	18.2
124658	9.3	19.3	9704	9.4	16.9	172750	9.5	19.6	201893	9.5	19.3	422544	9.6	19.7	351315	9.6	20.3
418810	9.3	21.4	407481	9.4	20.7	261243	9.5	20.3	108246	9.5	19.1	91909	9.6	19.3	86929	9.6	20.4
307812	9.3	20.9	84437	9.4	19.4	14597	9.5	16.6	79216	9.5	18.2	449273	9.6	19.1	199232	9.6	20.6
161703	9.3	19.8	404504	9.4	21.3	220509	9.5	18.8	180877	9.5	20.7	162686	9.6	20.3	339662	9.6	19.8
454514	9.3	19.6	115849	9.4	18.9	56437	9.5	19.0	200399	9.5	19.2	22706	9.6	17.5	318262	9.6	20.3
545100	9.3	19.9	16015	9.4	18.3	377013	9.5	20.9	485173	9.5	20.8	82811	9.6	18.9	477319	9.6	21.3
487794	9.3	20.9	204989	9.4	20.8	247879	9.5	20.6	541458	9.5	20.7	522300	9.6	20.9	107945	9.6	19.6
233583	9.3	19.8	272083	9.4	20.4	524253	9.5	20.8	44403	9.5	19.6	332508	9.6	21.4	215884	9.6	20.7
535790	9.3	20.9	232895	9.4	19.7	190899	9.5	19.9	252669	9.5	20.3	82769	9.6	19.3	25261	9.6	18.9
138023	9.3	18.6	90016	9.4	18.7	229230	9.5	20.6	534492	9.5	21.2	496366	9.6	20.6	466717	9.6	20.5
214277	9.3	21.3	292386	9.4	20.4	160076	9.5	19.5	406030	9.5	20.5	212608	9.6	20.8	409411	9.6	21.7
76730	9.3	18.1	463642	9.4	21.0	24010	9.5	18.5	146894	9.5	18.4	307256	9.6	20.6	29496	9.6	17.3
117660	9.3	20.0	488955	9.4	21.1	398588	9.5	22.0	357361	9.5	19.8	219849	9.6	20.1	134463	9.6	20.3
530049	9.3	22.7	15197	9.4	17.4	488843	9.5	21.5	329617	9.5	20.5	255973	9.6	20.6	133098	9.6	19.6
193738	9.3	19.2	86974	9.4	20.1	69959	9.5	19.1	183220	9.5	20.4	416594	9.6	21.0	29441	9.7	17.8
48662	9.3	17.8	130278	9.4	19.1	15860	9.5	17.4	50343	9.5	19.2	161578	9.6	19.2	156520	9.7	18.5
101097	9.3	20.1	173706	9.4	19.7	263459	9.5	19.7	202381	9.5	19.7	9009	9.6	17.2	163554	9.7	20.6
463846	9.3	20.7	52794	9.4	19.1	114814	9.5	18.6	138422	9.5	19.4	146334	9.6	19.3	114374	9.7	20.1
232481	9.3	19.9	207315	9.4	19.3	232985	9.5	20.1	139871	9.5	19.7	416202	9.6	20.6	252659	9.7	19.6
272482	9.3	19.9	50205	9.4	17.8	542919	9.5	19.8	156774	9.5	18.0	37137	9.6	17.8	465706	9.7	19.8
541272	9.3	20.8	437764	9.4	20.3	420173	9.5	20.4	113178	9.5	19.7	230230	9.6	20.4	223758	9.7	20.0
125442	9.3	18.5	408182	9.4	19.7	58970	9.5	19.7	232792	9.5	21.2	40159	9.6	18.8	128213	9.7	19.7
126153	9.3	18.3	170014	9.4	19.0	452934	9.5	21.2	229913	9.5	20.1	426239	9.6	19.9	47792	9.7	18.7
91056	9.3	19.6	179954	9.4	19.0	215923	9.5	20.3	5412	9.5	17.9	177899	9.6	19.7	71135	9.7	17.8
544313	9.3	21.4	524684	9.4	21.9	194484	9.5	19.3	496690	9.5	20.0	91514	9.6	19.0	342902	9.7	20.1
441050	9.3	21.7	177169	9.4	19.5	51571	9.5	19.7	214340	9.5	19.9	33808	9.6	15.9	200425	9.7	19.3
150970	9.3	19.9	100120	9.4	19.6	84032	9.5	19.0	25307	9.5	17.7	375478	9.6	20.2	233018	9.7	20.3
8427	9.3	16.2	475714	9.4	20.0	399108	9.5	20.1	323822	9.5	20.3	368101	9.6	19.5	397851	9.7	20.0
314223	9.3	20.1	414631	9.4	21.1	103830	9.5	18.4	449969	9.5	21.4	230683	9.6	20.2	317215	9.7	19.8
305191	9.3	20.4	68387	9.4	19.1	291688	9.5	20.0	139369	9.5	20.3	452295	9.6	21.0	307666	9.7	20.9
116671	9.3	20.2	263003	9.4	18.8	282095	9.5	19.8	81272	9.6	18.5	282526	9.6	21.1	485665	9.7	20.8
100411	9.3	18.8	50999	9.4	18.9	300273	9.5	20.7	145564	9.6	20.0	380691	9.6	20.1	434101	9.7	21.1
418482	9.3	21.1	463035	9.4	21.0	150123	9.5	20.0	351394	9.6	20.1	404154	9.6	20.6	137072	9.7	19.7
466392	9.3	21.3	7327	9.4	17.8	426244	9.5	20.3	290656	9.6	19.8	291315	9.6	20.5	55159	9.7	17.3
491422	9.3	21.0	524435	9.4	22.4	375579	9.5	20.5	488159	9.6	20.0	484602	9.6	21.2	436978	9.7	21.5
85669	9.3	19.6	37292	9.4	18.8	195101	9.5	19.1	75869	9.6	18.4	357712	9.6	21.0	44256	9.7	19.2
275807	9.3	20.7	448910	9.4	21.4	543133	9.5	20.1	431149	9.6	21.0	133466	9.6	19.2	402620	9.7	20.8
251540	9.3	20.0	69076	9.4	19.2	386908	9.5	20.7	493449	9.6	21.1	377080	9.6	20.6	35885	9.7	19.2
465785	9.3	20.5	376023	9.4	20.0	297026	9.5	21.0	270074	9.6	19.9	110793	9.6	19.1	410442	9.7	20.2
50725	9.3	18.4	315838	9.4	20.3	384701	9.5	20.5	180837	9.6	19.4	292858	9.6	19.5	261466	9.7	20.5
71718	9.3	17.2	291006	9.4	21.3	494092	9.5	21.0	358126	9.6	21.4	318663	9.6	21.0	339642	9.7	19.6
27706	9.3	19.0	463494	9.4	20.1	68420	9.5	19.5	93759	9.6	19.2	189867	9.6	20.0	6153	9.7	17.4
112851	9.3	19.4	103301	9.4	18.4	167440	9.5	19.4	233717	9.6	19.5	433724	9.6	20.8	3335	9.7	15.3
92378	9.3	19.4	542995	9.4	20.7	332809	9.5	19.9	279435	9.6	21.7	156270	9.6	20.1	277941	9.7	20.8
380697	9.3	20.4	453109	9.4	19.8	519889	9.5	21.3	133241	9.6	19.8	281475	9.6	21.5	196807	9.7	20.0
63502	9.3	20.2	220916	9.4	19.9	442364	9.5	21.2	500014	9.6	22.1	265068	9.6	19.6	49621	9.7	18.3
489810	9.3	20.2	242784	9.4	19.0	242558	9.5	20.7	100089	9.6	19.8	26711	9.6	19.0	151786	9.7	20.4
419387	9.3	20.8	144696	9.4	19.5	454556	9.5	21.1	244132	9.6	20.0	488811	9.6	21.4	376108	9.7	20.8
122004	9.3	19.5	75675	9.4	18.5	187509	9.5	19.6	516880	9.6	21.4	468135	9.6	21.5	401093	9.7	20.7
288344	9.3	19.3	104736	9.4	19.4	74840	9.5	18.1	53734	9.6	17.7	391056	9.6	20.2	247361	9.7	20.1
518928	9.3	20.3	141492	9.4	20.6	86582	9.5	17.7	490396	9.6	22.0	426213	9.6	19.9	159393	9.7	20.3
290474	9.3	21.0	67282	9.4	17.7	26427	9.5	17.2	416338	9.6	21.1	295050	9.6	20.2	271976	9.7	19.4
455182	9.3	18.9	339778	9.4	19.9	90985	9.5	18.7	271532	9.6	20.4	119856	9.6	18.9	341120	9.7	20.0
52810	9.4	17.9	75848	9.4	18.5	463075	9.5	20.7	15815	9.6	18.4	290041	9.6	20.9	193192	9.7	19.6
71311	9.4	18.5	522225	9.4	21.0	414600	9.5	19.9	515117	9.6	21.6	310753	9.6	19.5	156628	9.7	20.2
247629	9.4	20.4	279895	9.4	19.3	316491	9.5	20.5	450081	9.6	21.5	256542	9.6	21.1	337639	9.7	20.8
419470	9.4	19.4	120055	9.4	19.8	276381	9.5	19.8	149279	9.6	19.4	496415	9.6	21.1	408223	9.7	20.0
545072	9.4	21.6	48346	9.4	17.9	5635	9.5	18.4	347335	9.6	21.8	78997	9.6	18.8	141420	9.7	19.7
541532	9.4	21.4	232319	9.4	20.1	406239	9.5	21.1	481849	9.6	20.0	9963	9.6	16.9	18753	9.7	18.5
191402	9.4	19.4	359434	9.4	20.2	146412	9.5	18.3	128354	9.6	19.9	117048	9.6	19.7	211306	9.7	20.3
137722	9.4	19.9	377543	9.4	19.8	462717	9.5	20.3	222153	9.6	18.8	181346	9.6	19.0	20971	9.7	18.1
110780	9.4	19.3	456773	9.4	21.2	37356	9.5	18.8	387862	9.6	21.1	520751	9.6	21.9	127426	9.7	20.4
492585	9.4	22.0	420531	9.4	20.9	168252	9.5	20.4	261983	9.6	19.9	158003	9.6	20.1	207212	9.7	20.0
22847	9.4	18.5	139339	9.4	20.0	343286	9.5	19.5	30732	9.6	17.6	238062	9.6	19.2	344323	9.7	20.0
218794	9.4	19.3	62514	9.4	19.4	148957	9.5	19.5	47667	9.6	17.6	460207	9.6	21.0	268756	9.7	20.0
415260	9.4	20.9	134766	9.4	17.7	256922	9.5	20.4	320275	9.6	20.6	333839	9.6	20.2	16001	9.7	18.4
36130																	

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
301941	9.7	21.0	180909	9.8	19.6	273234	9.8	19.9	92543	9.9	20.2	452846	9.9	20.9	82237	10.0	19.7
180197	9.7	19.3	339825	9.8	20.4	314237	9.8	20.3	541406	9.9	20.9	339462	9.9	20.5	271541	10.0	19.5
293650	9.7	21.0	272183	9.8	21.2	186438	9.8	19.3	329157	9.9	19.9	380088	9.9	20.5	406948	10.0	20.2
252761	9.7	19.0	298464	9.8	19.6	420991	9.8	19.8	458020	9.9	20.0	186061	9.9	20.2	379491	10.0	19.8
462404	9.7	21.5	379544	9.8	20.2	359555	9.8	20.4	197663	9.9	20.6	479501	9.9	18.7	267049	10.0	20.0
528299	9.7	21.8	111566	9.8	18.5	94077	9.8	18.7	414196	9.9	20.6	145864	9.9	19.5	82552	10.0	18.3
56766	9.7	18.7	283296	9.8	19.6	220936	9.8	20.8	396692	9.9	22.0	81157	9.9	19.4	139392	10.0	19.9
58330	9.7	17.2	336740	9.8	20.9	485729	9.8	20.0	396768	9.9	21.5	403656	9.9	19.1	267928	10.0	19.7
77913	9.7	18.7	516465	9.8	21.4	413062	9.8	22.0	270577	9.9	21.0	256002	9.9	20.2	133014	10.0	20.1
213447	9.7	19.3	339804	9.8	20.4	126487	9.8	18.9	407428	9.9	20.7	404900	9.9	20.7	461105	10.0	20.3
306378	9.7	20.9	187390	9.8	20.2	336791	9.8	21.5	218728	9.9	20.0	88707	9.9	20.0	372037	10.0	20.5
422922	9.7	21.0	424897	9.8	22.1	337935	9.8	20.2	135278	9.9	20.2	23420	9.9	18.7	489887	10.0	20.8
319780	9.7	20.1	163477	9.8	19.3	29521	9.8	18.2	273017	9.9	20.2	457280	9.9	21.1	23949	10.0	18.1
451525	9.7	19.9	462389	9.8	20.7	99877	9.8	19.0	66118	9.9	18.6	279434	9.9	20.6	134356	10.0	20.1
335448	9.7	20.7	38366	9.8	18.9	452932	9.8	21.0	113388	9.9	19.6	84224	9.9	18.5	519925	10.0	21.3
530002	9.7	22.1	332279	9.8	21.6	147065	9.8	19.2	365770	9.9	20.9	425344	9.9	20.0	108648	10.0	19.4
249034	9.7	20.2	379532	9.8	20.3	492014	9.8	21.0	67733	9.9	19.5	319946	9.9	19.4	113090	10.0	19.3
442223	9.7	22.0	330789	9.8	21.0	163317	9.8	20.6	1976	9.9	15.9	111253	9.9	18.8	194307	10.0	21.0
143980	9.7	19.7	282854	9.8	19.9	268824	9.8	19.5	25821	9.9	18.8	292611	9.9	20.0	183264	10.0	19.6
291567	9.7	20.8	420672	9.8	21.0	286315	9.8	19.9	344240	9.9	21.0	266213	9.9	19.2	177448	10.0	20.1
38266	9.7	17.8	368124	9.8	20.9	464033	9.8	20.4	60712	9.9	18.2	366031	9.9	20.1	447885	10.0	20.2
260914	9.7	20.2	104396	9.8	18.5	119733	9.8	19.2	233779	9.9	20.3	238956	9.9	19.1	370231	10.0	21.8
197301	9.7	20.0	160151	9.8	20.1	467280	9.8	20.5	191385	9.9	20.3	389380	9.9	20.8	270640	10.0	21.1
136268	9.7	19.9	407764	9.8	20.4	179632	9.8	19.6	480890	9.9	19.8	59010	9.9	19.8	488229	10.0	20.6
542836	9.7	21.3	434179	9.8	21.2	443918	9.8	21.3	465121	9.9	21.1	464049	9.9	19.9	502001	10.0	21.0
486929	9.7	21.2	390742	9.8	20.4	373132	9.8	20.5	468161	9.9	20.3	355455	9.9	20.3	271191	10.0	19.9
236990	9.7	20.2	249940	9.8	19.0	399431	9.8	20.4	178994	9.9	20.5	64796	9.9	18.5	503483	10.0	20.7
492479	9.7	21.6	366825	9.8	19.9	132226	9.8	20.2	157986	9.9	19.9	438689	9.9	21.4	54125	10.0	19.2
432249	9.7	21.0	63919	9.8	18.3	40713	9.9	19.3	286626	9.9	20.4	520868	9.9	20.2	366909	10.1	21.0
371281	9.7	20.7	272420	9.8	19.8	386688	9.9	20.2	336920	9.9	19.5	54718	9.9	19.2	543705	10.1	19.3
449606	9.7	20.9	176825	9.8	20.5	512084	9.9	22.0	203597	9.9	19.9	155785	9.9	20.9	281935	10.1	19.8
147909	9.7	19.8	38697	9.8	19.0	292010	9.9	21.1	319009	9.9	20.6	242432	9.9	21.5	311006	10.1	20.1
366332	9.7	19.9	344206	9.8	21.6	372296	9.9	20.3	425974	9.9	20.8	110409	9.9	18.8	487060	10.1	21.1
324927	9.7	20.3	48826	9.8	17.8	488595	9.9	22.5	494116	9.9	20.1	345841	9.9	20.2	331576	10.1	21.0
522111	9.7	21.0	270088	9.8	21.5	73118	9.9	18.8	185663	9.9	19.6	43555	9.9	18.8	137140	10.1	18.5
335377	9.7	20.5	197484	9.8	20.1	203503	9.9	19.6	519506	9.9	21.0	163128	9.9	19.2	237841	10.1	19.6
226236	9.7	19.3	520614	9.8	20.9	256250	9.9	21.2	364804	9.9	19.2	340804	9.9	19.8	42550	10.1	18.1
66013	9.7	17.9	362	9.8	12.5	458127	9.9	19.7	481463	9.9	20.0	122025	9.9	19.2	71117	10.1	17.9
114288	9.7	19.2	405625	9.8	21.3	92885	9.9	19.9	241021	9.9	20.5	516693	9.9	21.6	139612	10.1	18.2
11393	9.7	17.3	115574	9.8	18.4	187848	9.9	19.9	542921	9.9	21.8	117813	9.9	19.5	345299	10.1	20.8
465434	9.7	21.7	233463	9.8	20.1	369655	9.9	19.9	522213	9.9	21.2	171242	9.9	19.5	314954	10.1	21.0
458117	9.7	20.3	51852	9.8	16.8	447506	9.9	20.4	444692	9.9	21.0	197211	9.9	19.2	298490	10.1	20.4
451563	9.7	21.3	12876	9.8	18.2	179083	9.9	18.9	163527	9.9	19.1	386055	9.9	19.5	280483	10.1	20.6
447966	9.7	20.3	101213	9.8	19.6	301937	9.9	19.5	347945	9.9	20.5	402807	9.9	20.9	85034	10.1	19.3
281428	9.7	21.0	254453	9.8	19.5	162237	9.9	20.3	170813	9.9	19.9	15320	9.9	19.1	34569	10.1	18.2
119708	9.7	19.3	402341	9.8	21.3	395333	9.9	21.2	142422	9.9	19.7	541501	9.9	21.6	524736	10.1	22.1
61633	9.7	19.3	494545	9.8	19.4	335951	9.9	22.8	103551	9.9	19.0	133727	9.9	19.7	378973	10.1	21.1
243793	9.7	18.8	167397	9.8	19.3	48574	9.9	18.1	105204	9.9	19.4	48485	9.9	18.2	174203	10.1	19.1
169826	9.7	20.9	488815	9.8	20.5	82282	9.9	18.9	226680	9.9	19.1	185535	9.9	19.7	395190	10.1	21.0
158280	9.7	18.9	311608	9.8	20.5	43133	9.9	18.7	544789	9.9	21.1	317002	9.9	20.4	175082	10.1	18.7
202841	9.7	19.5	223767	9.8	20.5	398415	9.9	21.3	422391	9.9	21.1	64456	9.9	18.9	158784	10.1	19.8
239283	9.7	20.9	218671	9.8	20.2	156997	9.9	20.3	446089	9.9	20.2	197688	9.9	20.4	176983	10.1	19.5
440278	9.7	22.2	484615	9.8	20.9	544474	9.9	20.0	543801	9.9	21.3	229821	9.9	20.5	324909	10.1	20.9
226021	9.7	20.3	303481	9.8	20.0	251234	9.9	20.4	273482	9.9	19.3	73002	9.9	19.3	368041	10.1	19.9
445	9.7	14.5	324322	9.8	21.0	257031	9.9	19.7	495969	9.9	21.7	409420	9.9	20.4	319019	10.1	20.0
270826	9.7	20.3	334519	9.8	20.0	358586	9.9	20.6	101040	9.9	19.2	223716	9.9	19.9	180573	10.1	20.0
9826	9.7	17.9	13043	9.8	17.0	340285	9.9	18.9	263584	9.9	20.2	49083	9.9	18.2	274048	10.1	20.9
203154	9.7	19.3	452810	9.8	20.4	197272	9.9	20.3	287934	9.9	20.8	440391	9.9	20.2	301229	10.1	19.8
128410	9.7	20.1	196950	9.8	20.1	374202	9.9	19.6	19271	9.9	18.9	8017	10.0	18.5	284724	10.1	19.6
37012	9.7	19.5	388483	9.8	19.9	331961	9.9	19.3	44260	9.9	18.2	201268	10.0	19.7	143765	10.1	18.6
168944	9.7	18.5	519012	9.8	20.3	88776	9.9	19.4	270778	9.9	20.8	223121	10.0	19.7	190876	10.1	19.9
109111	9.7	18.6	71310	9.8	19.4	463505	9.9	21.3	234055	9.9	20.4	205341	10.0	20.1	290245	10.1	20.5
134286	9.8	19.1	195125	9.8	19.7	63458	9.9	17.8	356038	9.9	19.8	254712	10.0	20.9	160673	10.1	18.9
370515	9.8	20.5	118503	9.8	19.6	373794	9.9	20.7	169088	9.9	19.3	389830	10.0	20.4	465782	10.1	20.3
452832	9.8	21.5	202372	9.8	20.7	482008	9.9	21.8	14381	9.9	17.1	89499	10.0	18.6	331985	10.1	19.6
393525	9.8	21.2	33947	9.8	18.6	14210	9.9	17.0	486501	9.9	20.4	82928	10.0	19.2	448926	10.1	19.7
180371	9.8	18.8	441063	9.8	21.2	206109	9.9	20.3	18494	9.9	19.0	278705	10.0	21.4	466747	10.1	20.6
134486	9.8	19.9	501	9.8	14.6	378977	9.9	21.2	399372	9.9	21.6	13081	10.0	16.6	436110	10.1	21.9
387853	9.8	20.9	105335	9.8	19.3	3859	9.9	15.8	493870	9.9	21.2	396015	10.0	21.0	393172	10.1	20.7
334101	9.8	20.9	146409	9.8	19.9	23927	9.9	18.8	85324	9.9	19.3	143300	10.0	18.9	506143	10.1	19.9
335867	9.8	20.7	164860	9.8	20.9	277350	9.9	1									

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
271172	10.1	20.3	26762	10.2	18.3	538309	10.2	20.4	4561	10.3	16.6	102652	10.3	18.4	387137	10.4	20.4
139390	10.1	18.6	255038	10.2	20.6	414744	10.2	20.5	435140	10.3	22.1	410806	10.3	20.1	118551	10.4	18.1
315862	10.1	20.4	293551	10.2	21.4	163648	10.2	19.8	216200	10.3	20.3	32064	10.3	18.3	98150	10.4	19.2
403634	10.1	21.4	8305	10.2	17.0	460640	10.2	21.1	385066	10.3	20.4	254696	10.3	19.4	228035	10.4	21.1
420362	10.1	20.2	197111	10.2	20.2	380061	10.2	20.5	492946	10.3	21.5	96213	10.3	19.2	298505	10.4	20.3
129172	10.1	19.7	62793	10.2	20.0	451534	10.2	20.2	456239	10.3	20.8	101225	10.3	19.0	259124	10.4	20.1
264900	10.1	20.2	405631	10.2	21.3	16701	10.2	17.8	308184	10.3	19.6	343024	10.3	20.9	258894	10.4	19.9
27465	10.1	18.2	338404	10.2	19.6	283231	10.2	20.3	138252	10.3	19.0	57219	10.3	17.8	164371	10.4	19.3
227224	10.1	20.5	79575	10.2	19.6	422388	10.2	21.3	451907	10.3	21.8	535989	10.3	22.4	328485	10.4	21.7
44534	10.1	17.8	116092	10.2	18.6	272321	10.2	21.1	84389	10.3	18.5	401074	10.4	20.3	171708	10.4	19.0
26312	10.1	18.2	252341	10.2	20.2	51197	10.2	17.8	356786	10.3	20.5	490385	10.4	22.1	161132	10.4	19.9
52077	10.1	16.8	164382	10.2	19.4	413982	10.2	20.4	270877	10.3	20.6	489894	10.4	20.9	179770	10.4	20.2
280180	10.1	20.6	350550	10.2	20.7	264850	10.2	19.9	4537	10.3	15.8	409258	10.4	20.3	82440	10.4	19.1
486745	10.1	20.1	445691	10.2	21.6	230785	10.2	20.0	25053	10.3	17.9	190955	10.4	20.8	308236	10.4	21.0
256125	10.1	19.9	333884	10.2	20.3	304834	10.2	21.4	246153	10.3	21.0	156091	10.4	19.2	301373	10.4	20.2
179124	10.1	20.8	182147	10.2	20.0	232732	10.2	19.5	37712	10.3	19.3	416185	10.4	20.8	179323	10.4	19.8
451474	10.1	22.1	226257	10.2	18.9	65415	10.2	19.6	64188	10.3	17.8	341794	10.4	21.9	247656	10.4	19.8
148953	10.1	19.7	445126	10.2	21.0	66667	10.2	19.3	11448	10.3	18.5	491478	10.4	20.3	116858	10.4	19.6
407365	10.1	19.7	111895	10.2	18.4	334307	10.2	20.4	359215	10.3	20.2	84639	10.4	19.8	174219	10.4	19.9
120103	10.1	19.7	216553	10.2	19.9	392533	10.2	20.5	543267	10.3	20.9	284695	10.4	20.4	317101	10.4	20.6
266495	10.1	19.3	79989	10.2	19.0	510910	10.2	20.2	490087	10.3	20.8	267634	10.4	21.2	160002	10.4	19.1
522380	10.1	21.1	261121	10.2	20.4	465997	10.2	21.4	183525	10.3	19.7	319068	10.4	20.8	283312	10.4	20.1
150396	10.1	19.1	40179	10.2	18.5	494906	10.2	22.0	116553	10.3	19.3	394442	10.4	22.0	410922	10.4	21.7
368205	10.1	20.8	477846	10.2	20.5	441661	10.2	21.1	61603	10.3	19.7	32174	10.4	19.1	145933	10.4	18.3
516771	10.1	20.3	359746	10.2	20.6	336956	10.2	20.8	289860	10.3	21.2	417883	10.4	20.5	279980	10.4	20.6
110069	10.1	19.3	147916	10.2	19.7	110401	10.2	19.3	254718	10.3	20.5	408020	10.4	20.5	260034	10.4	19.5
142979	10.1	19.3	450058	10.2	20.4	194907	10.2	19.6	280717	10.3	20.5	403717	10.4	21.3	415003	10.4	19.9
378382	10.1	20.6	198464	10.2	19.1	460251	10.2	21.3	269	10.3	13.8	223079	10.4	19.5	269731	10.4	20.0
121163	10.1	19.5	333340	10.2	21.0	334328	10.2	20.6	307319	10.3	20.6	491189	10.4	21.8	492711	10.4	21.3
247322	10.1	20.8	246818	10.2	20.5	197761	10.2	20.9	101799	10.3	19.5	51886	10.4	17.7	97468	10.4	18.6
543042	10.1	20.3	434142	10.2	21.5	165937	10.2	19.9	78193	10.3	17.8	281400	10.4	20.9	385394	10.4	19.4
454850	10.1	20.6	115891	10.2	19.1	468929	10.2	19.5	328858	10.3	21.1	265830	10.4	20.8	433310	10.4	21.4
264008	10.1	21.5	202751	10.2	20.2	463877	10.2	20.7	60098	10.3	19.5	235537	10.4	19.4	110251	10.4	20.3
543098	10.1	21.0	473873	10.2	20.7	318877	10.2	19.8	245958	10.3	20.3	525616	10.4	22.3	488032	10.4	20.5
194509	10.1	19.6	44499	10.2	17.8	481077	10.2	21.1	512253	10.3	20.4	450924	10.4	20.1	531381	10.4	21.7
116090	10.1	18.9	23573	10.2	17.6	480822	10.2	22.9	277114	10.3	20.2	185012	10.4	19.0	279920	10.4	20.3
369780	10.1	20.5	511992	10.2	20.9	159002	10.2	20.3	110131	10.3	19.5	287286	10.4	20.8	357298	10.4	20.8
328969	10.1	21.0	289728	10.2	20.0	38355	10.2	18.8	192616	10.3	18.6	462381	10.4	20.5	29359	10.4	17.2
324073	10.1	20.7	227399	10.2	20.0	356039	10.2	20.3	145175	10.3	19.9	153019	10.4	19.7	62356	10.4	19.5
252401	10.1	20.7	366138	10.2	19.8	44379	10.2	18.9	45711	10.3	17.7	490229	10.4	21.4	440381	10.4	20.7
358634	10.1	21.2	29777	10.2	17.5	81469	10.2	18.5	78641	10.3	18.7	329923	10.4	21.0	272283	10.4	20.4
209231	10.1	19.8	103445	10.2	18.7	9455	10.2	17.2	135929	10.3	19.1	11147	10.4	17.7	83249	10.4	19.0
486337	10.1	21.1	503728	10.2	19.4	262131	10.2	19.8	51402	10.3	18.7	282534	10.4	20.5	90487	10.4	19.3
48198	10.1	19.5	179213	10.2	19.7	236810	10.2	20.2	204966	10.3	20.3	94868	10.4	19.7	463541	10.4	20.2
150755	10.1	19.3	302566	10.2	20.1	314902	10.2	20.7	144051	10.3	19.4	410829	10.4	21.1	101448	10.4	19.8
464358	10.1	20.1	148850	10.2	18.7	200129	10.2	20.8	426721	10.3	21.1	48234	10.4	19.1	345247	10.4	21.8
149414	10.1	18.6	44264	10.2	17.8	416337	10.2	20.6	141610	10.3	20.2	375089	10.4	21.6	382639	10.4	19.7
10548	10.1	18.8	271196	10.2	20.1	214204	10.3	19.0	115665	10.3	19.2	273106	10.4	20.5	421250	10.4	20.9
425952	10.1	20.8	257000	10.2	20.3	116397	10.3	19.7	71567	10.3	18.7	464128	10.4	20.5	215281	10.4	20.5
345258	10.1	21.2	184564	10.2	19.8	325344	10.3	20.6	56940	10.3	18.2	277391	10.4	20.5	207901	10.4	20.6
41869	10.1	18.6	242586	10.2	21.4	355309	10.3	20.0	397293	10.3	21.1	271333	10.4	20.9	274695	10.4	20.1
18095	10.1	17.7	449094	10.2	20.1	486269	10.3	20.1	287465	10.3	19.8	506139	10.4	21.1	482867	10.4	21.0
317502	10.1	20.5	67179	10.2	19.0	462967	10.3	20.8	544361	10.3	21.8	126154	10.4	21.0	184494	10.5	21.3
496694	10.1	21.1	92873	10.2	19.7	259982	10.3	19.0	258445	10.3	19.9	275782	10.4	21.0	402708	10.5	21.8
2309	10.1	15.4	400586	10.2	20.9	217589	10.3	19.6	252029	10.3	20.4	363456	10.4	20.9	434154	10.5	23.8
163828	10.1	19.7	214523	10.2	19.9	420247	10.3	20.4	88219	10.3	18.5	261051	10.4	20.0	77758	10.5	19.5
366921	10.1	20.7	441106	10.2	21.1	420225	10.3	20.3	51143	10.3	18.8	67129	10.4	19.4	9329	10.5	17.1
221575	10.1	20.9	38304	10.2	17.9	486349	10.3	19.9	59472	10.3	19.8	169911	10.4	19.6	275991	10.5	21.2
122015	10.1	18.8	95329	10.2	18.6	131432	10.3	19.5	463026	10.3	21.7	225659	10.4	19.6	456284	10.5	21.2
155686	10.1	20.7	216467	10.2	20.1	152965	10.3	19.9	33001	10.3	22.4	505361	10.4	19.9	106747	10.5	18.8
359547	10.1	21.4	194814	10.2	18.5	31036	10.3	18.6	268746	10.3	19.6	104196	10.4	19.0	158170	10.5	20.3
364799	10.1	20.4	481727	10.2	20.8	498441	10.3	20.0	85403	10.3	18.3	97638	10.4	19.5	75999	10.5	17.7
331672	10.1	21.6	104662	10.2	19.7	88728	10.3	20.4	489761	10.3	20.9	481364	10.4	20.1	449212	10.5	20.6
467144	10.1	20.4	335276	10.2	21.0	201903	10.3	18.6	486948	10.3	20.8	282894	10.4	20.8	43077	10.5	18.9
234386	10.1	19.8	413592	10.2	22.4	355400	10.3	20.2	375498	10.3	20.8	541651	10.4	21.5	238405	10.5	20.4
315049	10.1	19.0	266201	10.2	20.4	491383	10.3	20.5	251203	10.3	21.1	278390	10.4	21.6	78477	10.5	20.0
327012	10.1	20.4	385880	10.2	21.2	339813	10.3	20.7	365507	10.3	20.5	230663	10.4	19.9	124739	10.5	18.0
368859	10.1	21.3	409507	10.2	21.2	221581	10.3	20.1	487666	10.3	21.3	375543	10.4	20.9	151633	10.5	19.3
309549	10.1	19.2	26285	10.2	17.7	215748	10.3	19.2	407448	10.							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
235502	10.5	19.3	179918	10.5	19.1	16607	10.6	18.7	488714	10.7	20.3	82439	10.7	18.8	223929	10.8	18.5
458691	10.5	20.7	427311	10.5	21.3	297834	10.6	20.3	464703	10.7	21.1	314275	10.7	20.5	272333	10.8	20.4
88374	10.5	18.4	150355	10.5	19.1	324109	10.6	21.0	273135	10.7	20.3	216211	10.7	20.1	326243	10.8	20.1
110203	10.5	19.4	503423	10.5	19.7	314321	10.6	20.7	241994	10.7	20.7	447572	10.7	20.1	521359	10.8	22.1
155108	10.5	20.0	82426	10.5	18.7	158701	10.6	19.9	293594	10.7	20.7	152705	10.7	20.3	274431	10.8	20.4
474779	10.5	20.3	323866	10.5	20.9	258486	10.6	19.8	147700	10.7	19.7	54260	10.7	18.5	272480	10.8	21.5
419910	10.5	20.5	122405	10.5	19.6	246909	10.6	20.4	291433	10.7	21.0	200938	10.7	18.7	160429	10.8	19.6
247587	10.5	20.9	352542	10.5	19.0	81463	10.6	18.9	486828	10.7	21.6	112556	10.7	19.8	107959	10.8	20.0
467242	10.5	20.7	137031	10.5	20.1	382626	10.6	21.7	184399	10.7	20.6	462494	10.7	20.6	21701	10.8	18.2
211345	10.5	20.6	288408	10.5	19.8	494125	10.6	20.9	234673	10.7	19.0	231477	10.7	20.8	92496	10.8	20.3
446809	10.5	22.0	201293	10.5	20.9	460112	10.6	20.5	541955	10.7	21.1	314981	10.7	20.8	247268	10.8	20.5
356078	10.5	19.8	136204	10.5	20.9	156573	10.6	19.7	165791	10.7	20.6	378389	10.7	21.9	110531	10.8	19.1
164128	10.5	19.3	439057	10.5	20.0	65182	10.6	19.9	403725	10.7	21.3	129363	10.8	20.1	23966	10.8	18.9
117568	10.5	19.5	281315	10.5	20.0	189379	10.6	19.3	248672	10.7	19.8	316270	10.8	20.7	253979	10.8	19.0
77739	10.5	18.5	442622	10.5	21.9	348448	10.6	19.8	409382	10.7	19.6	255906	10.8	20.4	134708	10.8	19.4
257089	10.5	19.8	421862	10.5	21.7	323574	10.6	21.1	444107	10.7	22.2	89191	10.8	19.4	398486	10.8	20.9
367957	10.5	20.7	441258	10.5	20.5	293624	10.6	20.6	203137	10.7	21.0	201340	10.8	20.0	271348	10.8	20.2
180326	10.5	18.9	463603	10.5	20.8	30478	10.6	19.3	335315	10.7	21.1	319881	10.8	19.9	301181	10.8	20.6
229763	10.5	21.0	157031	10.5	19.6	83183	10.6	18.9	488948	10.7	21.4	301630	10.8	19.8	240726	10.8	21.1
230774	10.5	18.4	7133	10.5	16.2	82889	10.6	18.1	97597	10.7	19.0	541847	10.8	21.1	308262	10.8	20.6
335973	10.5	20.5	43291	10.5	18.4	60513	10.6	19.4	209885	10.7	19.7	149500	10.8	19.2	8846	10.8	17.0
416352	10.5	19.3	503521	10.5	20.8	111587	10.6	18.5	444759	10.7	21.6	423825	10.8	21.8	401892	10.8	21.9
335247	10.5	21.0	66279	10.6	18.1	412812	10.6	21.0	320883	10.7	20.5	462411	10.8	21.8	21318	10.8	17.1
260263	10.5	20.4	376028	10.6	20.0	516765	10.6	20.4	158800	10.7	20.9	376597	10.8	20.3	174449	10.8	19.8
409601	10.5	20.6	426757	10.6	20.3	5717	10.6	18.3	124576	10.7	20.1	259439	10.8	19.1	288360	10.8	20.2
340484	10.5	21.6	8847	10.6	17.5	231032	10.6	19.4	313578	10.7	19.1	241381	10.8	19.9	190920	10.8	21.3
345825	10.5	20.0	307728	10.6	21.7	135714	10.6	20.7	108194	10.7	20.0	434548	10.8	21.6	221778	10.8	20.3
447398	10.5	20.8	149273	10.6	19.5	67782	10.6	20.1	197885	10.7	20.5	466050	10.8	20.9	388916	10.8	20.8
278006	10.5	20.3	192160	10.6	20.0	30739	10.6	18.2	169850	10.7	19.6	90474	10.8	18.5	493435	10.8	20.3
439670	10.5	20.9	17924	10.6	18.0	415191	10.6	20.5	336065	10.7	20.9	54144	10.8	17.7	489791	10.8	20.7
32272	10.5	17.7	212268	10.6	20.0	276247	10.6	20.6	490846	10.7	20.2	252253	10.8	20.5	189672	10.8	20.6
457870	10.5	20.1	103960	10.6	19.4	99915	10.6	19.6	406238	10.7	19.5	484852	10.8	21.5	58045	10.8	19.0
454509	10.5	21.4	332646	10.6	20.2	47919	10.6	18.3	511537	10.7	20.3	518526	10.8	22.0	410982	10.8	20.0
157025	10.5	19.2	38564	10.6	19.9	91684	10.6	19.2	156477	10.7	19.0	49662	10.8	17.0	247520	10.8	20.4
51158	10.5	18.8	444487	10.6	20.9	44851	10.6	18.5	3606	10.7	16.9	509768	10.8	22.3	74750	10.8	18.6
182965	10.5	20.3	423198	10.6	21.1	29973	10.6	19.9	160610	10.7	19.5	163799	10.8	19.8	458689	10.8	21.0
215271	10.5	20.1	337888	10.6	21.1	245445	10.6	20.5	76358	10.7	17.5	465803	10.8	19.6	541422	10.8	21.3
173405	10.5	18.6	543232	10.6	21.3	51548	10.6	19.5	107393	10.7	19.7	438910	10.8	20.2	197938	10.8	19.5
485553	10.5	20.0	133871	10.6	20.4	399415	10.6	21.1	196428	10.7	20.2	269661	10.8	19.9	230775	10.8	18.7
147579	10.5	19.7	316694	10.6	20.8	304978	10.6	19.6	242036	10.7	21.0	393257	10.8	20.7	66567	10.8	19.3
147435	10.5	19.0	516636	10.6	21.2	435549	10.6	21.6	177497	10.7	19.8	484647	10.8	20.4	383002	10.8	20.9
416679	10.5	20.3	450236	10.6	21.0	405683	10.6	20.6	181246	10.7	20.1	410476	10.8	19.4	390037	10.8	20.0
26333	10.5	18.7	515141	10.6	21.5	454442	10.6	21.7	101149	10.7	19.7	74919	10.8	19.2	180042	10.8	17.9
273596	10.5	19.8	249299	10.6	20.2	310136	10.6	21.0	517383	10.7	21.5	491168	10.8	21.1	505182	10.8	21.9
486971	10.5	21.5	1732	10.6	15.5	401594	10.6	20.6	149538	10.7	19.2	79199	10.8	18.8	269197	10.8	20.8
44354	10.5	18.0	9482	10.6	19.4	428489	10.6	20.7	196464	10.7	19.1	400715	10.8	20.8	137638	10.8	19.7
184405	10.5	20.7	187328	10.6	20.0	459805	10.6	20.9	142802	10.7	19.8	314207	10.8	20.2	380060	10.8	21.1
337411	10.5	20.2	369664	10.6	20.3	32916	10.6	17.3	410091	10.7	20.2	215537	10.8	19.3	490426	10.8	21.3
124449	10.5	19.1	118295	10.6	19.5	295095	10.6	20.1	183069	10.7	21.2	160880	10.8	19.1	448126	10.8	21.1
145024	10.5	20.2	81943	10.6	20.0	298347	10.6	20.8	32662	10.7	18.8	112959	10.8	19.2	157014	10.8	19.1
172215	10.5	19.3	442508	10.6	20.6	273337	10.6	21.5	167890	10.7	19.0	515862	10.8	21.1	54109	10.8	19.2
220044	10.5	19.4	492555	10.6	21.7	214863	10.6	20.3	49329	10.7	19.1	110613	10.8	19.8	194774	10.8	18.6
410446	10.5	20.3	65389	10.6	20.3	328549	10.6	20.1	275828	10.7	20.8	523326	10.8	20.2	309945	10.8	19.6
159722	10.5	18.5	2676	10.6	16.6	541283	10.6	20.8	348264	10.7	20.4	447871	10.8	22.0	437840	10.8	22.1
543787	10.5	22.2	424208	10.6	20.2	521674	10.6	21.3	88529	10.7	19.2	295470	10.8	20.0	284736	10.8	20.9
190341	10.5	20.2	487221	10.6	21.3	25557	10.6	18.2	171819	10.7	19.7	414592	10.8	20.2	522075	10.8	20.9
360483	10.5	20.1	36932	10.6	18.2	197543	10.6	20.2	110140	10.7	19.7	331567	10.8	21.4	382650	10.8	21.1
333507	10.5	21.1	461517	10.6	20.6	21188	10.7	17.2	261145	10.7	20.1	292008	10.8	20.6	101312	10.9	19.1
330794	10.5	20.2	440049	10.6	20.1	492757	10.7	21.0	10847	10.7	17.4	314896	10.8	19.7	322037	10.9	20.3
524186	10.5	20.6	306583	10.6	19.9	324024	10.7	20.6	75128	10.7	20.8	4118	10.8	16.4	282209	10.9	21.2
493673	10.5	21.1	324120	10.6	21.0	311733	10.7	20.3	113101	10.7	19.3	89678	10.8	19.5	484326	10.9	20.4
61447	10.5	20.0	65622	10.6	18.8	216916	10.7	20.1	147984	10.7	18.5	265358	10.8	20.5	542362	10.9	20.1
377050	10.5	21.9	490686	10.6	21.3	256804	10.7	20.3	372150	10.7	21.0	9402	10.8	17.7	503772	10.9	21.6
290361	10.5	21.4	382858	10.6	19.7	59807	10.7	19.2	461533	10.7	20.6	24493	10.8	18.6	284480	10.9	20.8
373196	10.5	19.8	254864	10.6	20.1	274946	10.7	19.6	114286	10.7	18.9	124226	10.8	20.5	399793	10.9	20.9
91311	10.5	18.4	34137	10.6	19.6	138208	10.7	19.6	448336	10.7	20.3	245877	10.8	20.6	7886	10.9	17.6
191557	10.5	20.2	262637	10.6	20.5	458069	10.7	19.8	279959	10.7	20.3	388551	10.8	20.7	56536	10.9	18.3
134445	10.5	20.0	259290	10.6	19.0	273107	10.7	20.0	108052	10.7	19.3	71062	10.8	18.0	279023	10.9	20.1
288761	10.5	21.1	168258	10.6	19.8	71939	10.7	18.3	230475	10.7							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
402606	10.9	21.4	47605	10.9	17.8	376843	11.0	21.0	148216	11.1	19.4	135814	11.2	20.0	545106	11.2	20.3
467920	10.9	21.6	312331	10.9	21.2	36133	11.0	18.3	133187	11.1	20.4	125267	11.2	19.3	139802	11.2	19.5
455884	10.9	21.1	477831	10.9	20.3	88593	11.0	19.9	438630	11.1	20.2	466387	11.2	20.2	540043	11.2	22.8
489846	10.9	20.6	245139	10.9	20.7	269569	11.0	21.0	125022	11.1	18.7	17020	11.2	17.9	161175	11.2	19.4
378518	10.9	21.3	122876	10.9	19.8	190712	11.0	18.4	461103	11.1	19.4	236867	11.2	20.5	147698	11.2	19.6
42936	10.9	18.4	104629	10.9	19.0	170649	11.0	19.6	366674	11.1	21.6	139450	11.2	19.7	63404	11.2	19.3
12138	10.9	18.1	466036	10.9	21.0	90042	11.0	19.4	418826	11.1	19.4	414730	11.2	19.7	234440	11.2	20.2
176842	10.9	19.5	420090	10.9	20.5	390108	11.0	20.5	24636	11.1	17.4	281557	11.2	19.8	452951	11.2	20.4
46257	10.9	19.1	98423	10.9	20.1	223087	11.0	19.5	262635	11.1	19.8	108811	11.2	19.1	134832	11.2	18.9
372733	10.9	19.9	307453	10.9	20.1	519748	11.0	20.7	367599	11.1	20.9	273294	11.2	21.2	510873	11.2	19.7
454592	10.9	20.7	527274	10.9	21.4	392289	11.0	20.6	101735	11.1	18.6	227042	11.2	19.6	293093	11.2	19.8
247702	10.9	18.8	253361	10.9	19.8	198769	11.0	19.3	294358	11.1	21.1	101702	11.2	20.3	68995	11.2	18.0
461484	10.9	21.0	416988	10.9	20.8	482531	11.0	20.4	247604	11.1	20.5	343923	11.2	19.3	325957	11.2	21.0
38740	10.9	17.5	38731	10.9	18.9	252412	11.0	20.5	317954	11.1	20.5	292558	11.2	20.8	72778	11.2	18.3
452823	10.9	20.5	191561	10.9	20.1	313665	11.0	21.3	104977	11.1	18.9	315790	11.2	20.5	389434	11.2	20.1
144412	10.9	19.8	52783	10.9	19.1	44476	11.0	18.1	64659	11.1	19.4	372742	11.2	20.3	492819	11.2	21.7
451933	10.9	20.8	4300	10.9	16.5	185777	11.0	19.4	137201	11.1	20.6	101676	11.2	18.7	348176	11.2	21.0
50909	10.9	18.0	422576	10.9	20.5	323132	11.0	20.6	419475	11.1	20.7	5736	11.2	18.6	337366	11.2	20.4
257034	10.9	20.8	99860	10.9	19.3	538409	11.0	20.7	323904	11.1	20.0	191390	11.2	20.4	10827	11.2	18.1
538478	10.9	20.4	307406	10.9	20.0	481491	11.0	20.2	103938	11.1	18.1	89291	11.2	19.3	296428	11.2	20.6
77827	10.9	18.0	363809	10.9	19.9	358534	11.0	20.4	195147	11.1	19.3	178455	11.2	20.4	43999	11.2	18.3
162927	10.9	20.3	363169	10.9	20.6	16653	11.0	17.6	220560	11.1	20.8	13431	11.2	18.7	82073	11.2	17.8
188393	10.9	19.2	180020	10.9	18.6	298809	11.0	21.3	309952	11.1	19.7	265924	11.2	20.7	147811	11.2	19.8
30330	10.9	18.4	321665	10.9	21.0	339503	11.0	20.6	131387	11.1	19.8	51756	11.2	18.1	30461	11.2	18.3
235628	10.9	20.1	347758	10.9	18.9	313404	11.0	21.1	360261	11.1	21.3	247954	11.2	20.2	165861	11.2	20.0
444810	10.9	20.6	234425	10.9	19.9	541342	11.0	21.1	397931	11.1	20.2	382631	11.2	20.7	451538	11.2	21.5
277261	10.9	20.5	157843	10.9	21.6	486328	11.0	20.3	55622	11.1	17.7	3343	11.2	17.6	90062	11.3	19.5
381336	10.9	19.6	102593	10.9	19.4	472441	11.0	20.0	362737	11.1	21.0	230193	11.2	19.3	447790	11.3	20.7
200382	10.9	20.5	120903	10.9	20.2	73747	11.0	18.9	544979	11.1	21.2	426246	11.2	21.2	79432	11.3	19.9
24602	10.9	19.7	461038	10.9	19.8	396497	11.0	20.7	252531	11.1	20.1	44347	11.2	19.7	421031	11.3	21.5
396681	10.9	22.7	99689	10.9	19.5	362386	11.0	19.9	231096	11.1	19.6	26421	11.2	16.3	30474	11.3	17.7
2285	10.9	17.6	186225	10.9	19.9	328073	11.0	20.0	356013	11.1	20.4	287113	11.2	21.5	101063	11.3	19.3
418491	10.9	20.4	98125	10.9	20.2	21247	11.0	17.8	474421	11.1	21.0	543375	11.2	22.0	194591	11.3	18.8
247624	10.9	21.4	502367	10.9	21.2	339844	11.0	20.7	99016	11.1	19.5	358157	11.2	19.7	544418	11.3	20.4
277135	10.9	20.5	377952	10.9	20.8	149521	11.0	19.3	150140	11.1	20.1	182653	11.2	18.9	229496	11.3	20.1
124159	10.9	20.4	80173	10.9	18.4	438253	11.0	20.9	228186	11.1	20.2	421040	11.2	21.0	41905	11.3	18.6
29845	10.9	16.7	467147	10.9	20.6	136495	11.0	19.7	46398	11.1	19.3	162285	11.2	18.9	244110	11.3	20.9
210583	10.9	20.4	280905	10.9	21.2	260977	11.0	20.3	375516	11.1	20.1	445135	11.2	22.3	78249	11.3	19.2
171247	10.9	19.8	60575	10.9	18.8	122524	11.0	19.7	458686	11.1	20.8	367898	11.2	19.2	421167	11.3	20.6
490826	10.9	20.9	284225	10.9	20.5	229644	11.0	19.4	364764	11.1	20.1	541784	11.2	21.0	488718	11.3	20.1
18044	10.9	18.4	197440	10.9	19.0	431	11.0	14.2	465676	11.1	20.5	49116	11.2	20.0	226638	11.3	19.4
151141	10.9	19.2	197084	10.9	19.6	444781	11.0	21.1	373742	11.1	20.7	23197	11.2	18.4	186419	11.3	20.3
456506	10.9	20.7	375569	10.9	19.6	314920	11.0	21.0	428391	11.1	20.5	307299	11.2	21.2	426985	11.3	20.7
171461	10.9	19.6	197842	10.9	19.5	245814	11.0	19.7	434434	11.1	22.4	428382	11.2	21.0	211339	11.3	20.7
230146	10.9	19.6	28646	10.9	18.8	80670	11.0	18.7	291329	11.1	20.3	261205	11.2	20.8	361342	11.3	19.9
22683	10.9	17.4	447964	10.9	19.3	227824	11.0	19.4	50332	11.1	18.2	49959	11.2	18.6	281007	11.3	19.7
61989	10.9	19.3	401956	10.9	22.0	274158	11.0	19.9	49679	11.1	17.8	142491	11.2	19.9	407438	11.3	21.6
320037	10.9	20.9	27410	10.9	17.8	348186	11.1	21.1	209175	11.1	19.7	337631	11.2	21.7	378914	11.3	20.4
274786	10.9	20.4	424757	10.9	21.4	522392	11.1	20.8	141709	11.1	19.6	235436	11.2	20.5	147792	11.3	19.7
373805	10.9	20.9	237420	10.9	21.0	17264	11.1	17.5	458492	11.1	20.1	11593	11.2	16.6	520797	11.3	21.0
234862	10.9	19.3	445563	10.9	21.6	543577	11.1	21.4	26060	11.1	18.7	89709	11.2	20.1	217698	11.3	20.3
185698	10.9	20.5	157629	10.9	19.8	8550	11.1	18.6	88274	11.1	19.4	23293	11.2	18.0	177612	11.3	19.3
352904	10.9	21.6	190817	10.9	18.8	311755	11.1	20.4	444892	11.1	21.5	535389	11.2	21.0	88669	11.3	19.3
241860	10.9	20.4	542109	10.9	21.4	52543	11.1	18.5	282637	11.1	20.3	79847	11.2	18.0	302534	11.3	21.1
44451	10.9	18.9	51327	10.9	17.1	282656	11.1	20.5	12994	11.1	18.6	482020	11.2	20.5	2716	11.3	16.5
102427	10.9	18.6	72	10.9	12.5	385685	11.1	20.4	119420	11.1	19.8	405613	11.2	21.2	359262	11.3	19.2
102330	10.9	20.2	519198	10.9	22.7	159932	11.1	19.0	456352	11.1	21.7	405095	11.2	20.8	248257	11.3	20.6
385343	10.9	20.6	252335	10.9	21.0	113743	11.1	20.3	52662	11.1	17.7	183315	11.2	19.6	197394	11.3	19.5
23942	10.9	18.2	270693	10.9	20.5	156220	11.1	19.1	310243	11.1	20.4	503435	11.2	20.3	134783	11.3	19.7
442274	10.9	21.0	357105	10.9	21.2	85314	11.1	19.1	122147	11.1	19.6	153536	11.2	19.9	395383	11.3	21.9
116616	10.9	18.9	120095	10.9	18.8	73233	11.1	19.4	430195	11.1	21.1	265155	11.2	20.1	174840	11.3	18.9
105028	10.9	20.0	410105	10.9	20.6	177466	11.1	19.5	274754	11.1	19.8	489878	11.2	20.6	214355	11.3	19.8
274116	10.9	21.0	75246	10.9	17.9	523634	11.1	21.7	98986	11.1	18.7	484844	11.2	21.1	475823	11.3	19.9
520704	10.9	20.1	226082	10.9	20.8	232629	11.1	18.8	203857	11.1	18.8	147312	11.2	19.5	230725	11.3	19.4
494066	10.9	19.8	175667	10.9	20.4	370563	11.1	20.9	194260	11.1	21.2	542798	11.2	20.9	293133	11.3	19.5
361254	10.9	20.5	455894	10.9	20.9	363597	11.1	19.8	515848	11.1	21.6	224825	11.2	20.5	113314	11.3	19.2
388949	10.9	21.5	386687	10.9	21.4	30839	11.1	15.9	440294	11.1	21.1	254519	11.2	21.1	19842	11.3	17.0
379057	10.9	20.6	155062	10.9	19.6	314729	11.1	21.6	278026	11.1	19.4	279761	11.2	20.7	288349	11.3	19.7
173223	10.9	19.1	229611	10.9	20.1	222950	11.1	21.3	120864	11.1	19.8						

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
63246	11.3	18.6	346317	11.4	20.8	385641	11.4	20.6	510003	11.5	20.3	541381	11.5	21.0	177991	11.6	20.9
486029	11.3	20.1	278175	11.4	19.6	411202	11.4	20.3	194698	11.5	20.4	161937	11.5	19.4	79556	11.6	18.7
426236	11.3	20.7	191672	11.4	21.1	81203	11.4	17.8	220086	11.5	19.4	234893	11.5	20.4	234244	11.6	21.0
481148	11.3	20.5	73765	11.4	19.0	492728	11.4	21.2	74120	11.5	19.3	199873	11.5	20.9	23904	11.6	19.0
236287	11.3	20.0	419412	11.4	21.4	337546	11.4	20.6	282112	11.5	19.8	543023	11.5	20.3	260859	11.6	20.9
48768	11.3	19.1	235719	11.4	20.0	82881	11.4	19.1	499967	11.5	21.3	456542	11.5	20.7	516441	11.6	21.7
144287	11.3	19.2	145536	11.4	20.5	465263	11.4	21.3	8142	11.5	17.5	523271	11.5	20.0	65490	11.6	19.2
32639	11.3	19.6	373815	11.4	21.8	294205	11.4	21.0	411145	11.5	19.8	131696	11.5	23.0	290652	11.6	20.8
441649	11.3	20.9	119549	11.4	18.7	230185	11.4	19.9	219231	11.5	19.9	261936	11.5	20.6	10039	11.6	19.1
254917	11.3	20.3	237007	11.4	19.8	280274	11.4	19.4	452242	11.5	21.2	523466	11.5	21.6	69747	11.6	18.8
14542	11.3	17.9	333575	11.4	21.5	27671	11.4	19.7	80850	11.5	19.0	84715	11.5	19.1	101554	11.6	18.9
409574	11.3	21.0	544343	11.4	20.7	374643	11.4	20.4	291859	11.5	20.8	475869	11.5	19.8	373236	11.6	20.8
272406	11.3	20.6	361755	11.4	20.0	168224	11.4	20.3	361235	11.5	19.9	259959	11.5	20.0	371233	11.6	20.0
187512	11.3	20.0	385988	11.4	19.8	279999	11.4	20.3	347440	11.5	20.1	96582	11.6	19.4	160419	11.6	19.5
334478	11.3	21.5	144336	11.4	19.7	219402	11.4	22.0	32492	11.5	17.6	272363	11.6	20.9	271364	11.6	20.0
61718	11.3	18.1	69877	11.4	19.4	421865	11.4	20.8	391956	11.5	20.4	288690	11.6	19.4	51452	11.6	19.0
226122	11.3	20.1	295758	11.4	20.0	541083	11.4	21.4	311641	11.5	21.0	410128	11.6	20.0	445595	11.6	21.3
158357	11.3	20.8	222482	11.4	19.9	449800	11.4	20.8	189021	11.5	17.3	112362	11.6	21.5	266072	11.6	19.5
516854	11.3	20.2	468441	11.4	21.2	364727	11.4	19.5	256974	11.5	20.6	400116	11.6	22.1	114230	11.6	19.2
544378	11.3	21.4	91804	11.4	19.5	385653	11.4	20.2	45503	11.5	17.4	492022	11.6	21.3	232999	11.6	20.3
336032	11.3	21.4	17043	11.4	16.6	226890	11.4	20.3	503674	11.5	19.7	433491	11.6	21.2	293715	11.6	20.2
339514	11.3	21.6	135914	11.4	19.3	425412	11.4	21.0	7715	11.5	17.1	403961	11.6	19.9	270606	11.6	20.4
411430	11.3	20.8	156044	11.4	20.4	100390	11.4	19.2	517842	11.5	21.8	18409	11.6	18.9	457886	11.6	21.9
18747	11.3	17.1	517991	11.4	21.2	101248	11.4	20.1	339902	11.5	21.4	413392	11.6	20.7	37521	11.6	18.1
177862	11.3	19.0	116407	11.4	18.9	346454	11.4	19.8	11780	11.5	17.0	419294	11.6	20.4	411607	11.6	20.3
55101	11.3	19.7	496241	11.4	20.0	223761	11.4	20.3	473916	11.5	20.1	542600	11.6	19.9	285554	11.6	20.7
402301	11.3	21.6	372042	11.4	21.3	414374	11.4	19.6	158370	11.5	19.9	119452	11.6	18.9	434278	11.6	20.5
441071	11.3	21.2	543084	11.4	21.6	60882	11.4	18.3	245645	11.5	21.2	108165	11.6	18.7	271729	11.6	19.6
457211	11.3	20.3	77529	11.4	19.2	370271	11.4	20.8	163584	11.5	19.9	459854	11.6	20.8	318810	11.6	21.2
15981	11.3	18.2	141971	11.4	20.3	199692	11.4	20.3	167827	11.5	19.5	535279	11.6	21.2	365248	11.6	20.5
366347	11.3	20.6	415142	11.4	20.2	320473	11.4	20.2	70964	11.5	18.4	457296	11.6	20.7	108334	11.6	20.2
358493	11.3	20.8	219177	11.4	20.6	232409	11.4	20.4	36819	11.5	18.3	453595	11.6	21.7	420828	11.6	19.1
337535	11.3	21.8	462739	11.4	20.6	296963	11.4	19.3	346917	11.5	20.9	214920	11.6	20.1	461469	11.6	21.2
444453	11.3	19.7	369112	11.4	21.3	163808	11.4	19.3	138187	11.5	19.6	10057	11.6	16.8	109464	11.6	17.0
323484	11.3	20.3	212166	11.4	19.8	79437	11.4	19.6	315666	11.5	20.5	325447	11.6	21.1	45530	11.6	18.5
235052	11.3	19.7	203553	11.4	19.9	397238	11.4	21.5	541449	11.5	21.0	365972	11.6	21.4	272164	11.6	20.5
249353	11.3	19.4	186219	11.4	20.8	481341	11.4	20.7	74862	11.5	19.6	529312	11.6	22.1	283196	11.6	18.1
345316	11.3	20.7	110940	11.4	19.0	333396	11.4	20.8	302801	11.5	19.8	303455	11.6	21.0	171174	11.6	19.5
402953	11.3	20.8	463572	11.4	21.7	174436	11.5	19.7	484410	11.5	19.7	77471	11.6	18.9	253102	11.6	21.0
466458	11.3	21.2	284175	11.4	20.3	515961	11.5	21.8	176787	11.5	20.1	199902	11.6	19.8	90863	11.6	19.3
232039	11.3	20.8	288153	11.4	19.2	134246	11.5	18.8	465014	11.5	21.2	196470	11.6	19.6	421681	11.6	21.1
446388	11.3	20.5	99290	11.4	19.0	464630	11.5	21.0	271260	11.5	19.8	143197	11.6	19.5	522540	11.7	21.4
47	11.3	12.5	221246	11.4	20.6	412204	11.5	21.3	516646	11.5	20.9	295879	11.6	21.3	454450	11.7	20.4
107032	11.3	18.4	329454	11.4	21.6	382778	11.5	21.5	324082	11.5	19.3	431552	11.6	19.2	333804	11.7	20.8
495748	11.3	21.1	364305	11.4	21.3	316206	11.5	21.5	108368	11.5	19.7	220102	11.6	19.6	118729	11.7	19.7
83221	11.3	18.9	357636	11.4	21.5	226142	11.5	20.6	163576	11.5	19.9	416555	11.6	19.3	403064	11.7	20.4
268765	11.3	20.5	400890	11.4	20.9	314901	11.5	20.0	445755	11.5	21.7	375614	11.6	20.7	454743	11.7	19.3
234021	11.3	20.4	234366	11.4	20.3	294493	11.5	21.0	438710	11.5	21.6	76594	11.6	19.3	541672	11.7	21.3
290114	11.3	20.6	399841	11.4	21.0	238631	11.5	19.4	247613	11.5	20.6	229493	11.6	20.1	410563	11.7	20.6
94637	11.3	18.6	408436	11.4	19.6	376356	11.5	20.1	291158	11.5	20.8	394468	11.6	20.2	415253	11.7	20.5
52424	11.3	19.2	313192	11.4	20.5	87062	11.5	20.2	459928	11.5	21.7	279300	11.6	20.4	213911	11.7	20.2
275231	11.3	20.4	420105	11.4	19.8	372097	11.5	20.7	517616	11.5	20.6	29333	11.6	18.3	447515	11.7	21.4
134772	11.3	19.7	7809	11.4	17.8	490788	11.5	20.3	452339	11.5	21.1	449858	11.6	20.8	95797	11.7	20.1
411945	11.3	19.3	303136	11.4	19.0	409502	11.5	20.9	199305	11.5	20.1	305770	11.6	20.2	274859	11.7	20.7
366700	11.3	20.8	27618	11.4	18.8	405994	11.5	21.3	294967	11.5	19.9	439213	11.6	20.8	108163	11.7	18.1
482545	11.3	21.3	94199	11.4	18.3	465507	11.5	20.5	215630	11.5	19.8	346414	11.6	21.4	380474	11.7	20.7
493137	11.3	21.2	543192	11.4	20.6	279040	11.5	20.4	232148	11.5	20.0	118229	11.6	18.8	366891	11.7	20.8
260642	11.3	20.4	467210	11.4	19.9	373510	11.5	20.7	42720	11.5	19.2	104669	11.6	19.5	68393	11.7	18.9
242792	11.3	20.0	444856	11.4	20.7	440033	11.5	19.9	461687	11.5	21.3	5139	11.6	16.1	100788	11.7	18.9
232480	11.3	19.2	122368	11.4	18.4	466279	11.5	21.1	173424	11.5	18.8	334472	11.6	20.1	331603	11.7	21.7
400034	11.3	21.5	51624	11.4	18.7	425376	11.5	20.9	388528	11.5	21.0	422020	11.6	21.5	10589	11.7	18.1
428788	11.3	19.9	489458	11.4	20.4	234822	11.5	20.6	492532	11.5	20.9	429940	11.6	21.6	43112	11.7	17.5
414998	11.3	20.4	226558	11.4	18.9	10048	11.5	17.3	97521	11.5	17.9	466779	11.6	20.3	139500	11.7	19.7
114167	11.3	19.9	15657	11.4	19.0	179332	11.5	21.0	110217	11.5	19.8	54396	11.6	18.2	44558	11.7	17.9
196383	11.3	20.2	50510	11.4	18.1	12733	11.5	17.5	385697	11.5	20.4	195836	11.6	21.0	101022	11.7	20.3
204682	11.3	21.2	401532	11.4	20.4	213632	11.5	19.9	212802	11.5	20.4	184075	11.6	19.8	418673	11.7	20.9
101433	11.3	19.2	404997	11.4	20.8	167124	11.5	20.1	63647	11.5	19.0	52593	11.6	18.5	388417	11.7	20.3
249706	11.3	19.8	187282	11.4	20.4	450229	11.5	21.0	73237	11.5	18.0	89957	11.6	18.8	484466	11.7	20.7
76271	11.3	18.9	18167	11.4	17.1	219202	11.5	19.6	394611								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
494164	11.7	21.2	265661	11.7	18.2	532370	11.8	21.8	424395	11.9	20.9	336079	11.9	19.9	305882	11.9	20.2
104903	11.7	17.7	330258	11.7	21.1	463345	11.8	21.8	176902	11.9	19.2	87648	11.9	19.3	388481	11.9	20.9
339772	11.7	20.3	212239	11.7	20.5	244351	11.8	20.9	388036	11.9	20.9	337786	11.9	19.9	542927	11.9	20.2
367209	11.7	20.5	309557	11.7	19.4	182170	11.8	20.4	122727	11.9	20.3	120254	11.9	19.1	464190	11.9	20.5
313583	11.7	19.9	156919	11.7	18.9	183594	11.8	20.6	174330	11.9	20.5	272196	11.9	19.7	455803	11.9	21.3
101519	11.7	18.9	314716	11.7	21.8	345363	11.8	20.0	186585	11.9	18.8	385643	11.9	20.4	461859	11.9	21.3
445733	11.7	22.0	222521	11.7	20.3	4089	11.8	16.1	194897	11.9	19.0	212955	11.9	19.6	28951	11.9	17.1
21939	11.7	19.1	277119	11.7	20.6	209828	11.8	19.8	154108	11.9	19.3	36575	11.9	18.7	324651	11.9	20.7
46558	11.7	18.3	399871	11.7	20.9	320725	11.8	20.1	13844	11.9	17.5	109616	11.9	20.6	488584	11.9	21.9
148149	11.7	18.6	63235	11.7	18.8	13019	11.8	17.4	159492	11.9	20.3	366742	11.9	18.6	153442	11.9	19.9
348248	11.7	20.4	380053	11.8	19.7	386870	11.8	20.5	408121	11.9	20.6	81662	11.9	19.8	184168	12.0	20.5
24871	11.7	18.8	459605	11.8	21.1	101226	11.8	20.0	223775	11.9	20.4	387839	11.9	21.4	189669	12.0	19.6
448796	11.7	20.7	189680	11.8	19.8	218636	11.8	20.8	253041	11.9	21.1	360496	11.9	19.8	475577	12.0	21.2
38322	11.7	19.0	296926	11.8	20.6	95259	11.8	18.8	160992	11.9	20.2	269282	11.9	20.6	383725	12.0	22.0
170784	11.7	19.1	81372	11.8	19.3	214306	11.8	20.6	151962	11.9	19.3	307692	11.9	19.8	287150	12.0	20.3
145284	11.7	20.3	277073	11.8	18.8	218823	11.8	20.6	216506	11.9	20.5	23971	11.9	16.9	387872	12.0	21.5
175315	11.7	18.9	194464	11.8	18.6	167151	11.8	20.1	305202	11.9	19.8	495977	11.9	21.3	443139	12.0	20.6
421748	11.7	21.2	413736	11.8	21.0	217024	11.8	21.2	456428	11.9	21.5	257933	11.9	19.9	308247	12.0	20.7
369135	11.7	22.2	143144	11.8	19.7	333070	11.8	20.0	27315	11.9	17.3	492085	11.9	21.3	299539	12.0	20.9
390887	11.7	20.3	99135	11.8	18.3	544641	11.8	20.7	197096	11.9	19.9	386034	11.9	20.2	523832	12.0	20.9
337483	11.7	20.2	182538	11.8	19.6	189668	11.8	20.2	320974	11.9	20.0	424213	11.9	21.1	61625	12.0	18.5
296859	11.7	18.5	294096	11.8	20.6	27803	11.8	17.8	419414	11.9	18.6	76558	11.9	18.4	321104	12.0	20.5
378441	11.7	21.1	153507	11.8	19.7	467229	11.8	20.8	458368	11.9	21.7	159974	11.9	21.4	91032	12.0	17.9
417153	11.7	20.6	268610	11.8	20.5	13901	11.8	18.8	157770	11.9	20.1	270839	11.9	20.8	125300	12.0	19.8
376993	11.7	22.6	52046	11.8	20.0	457930	11.8	20.4	231442	11.9	19.5	218170	11.9	19.7	516691	12.0	22.2
332985	11.7	20.9	451770	11.8	20.2	27931	11.8	19.5	298496	11.9	21.6	461666	11.9	20.4	51676	12.0	18.6
104940	11.7	20.0	209225	11.8	18.5	84680	11.8	18.9	385213	11.9	20.6	103303	11.9	18.1	154782	12.0	20.2
29140	11.7	18.2	259091	11.8	20.6	61604	11.8	18.9	363912	11.9	20.6	170352	11.9	20.7	167095	12.0	18.7
353462	11.7	20.6	242626	11.8	20.4	427666	11.8	20.3	404919	11.9	21.1	18097	11.9	18.8	54831	12.0	19.6
301959	11.7	19.1	113677	11.8	19.3	92567	11.8	19.2	489825	11.9	21.0	130735	11.9	17.9	297125	12.0	21.0
488881	11.7	21.2	254812	11.8	20.8	82722	11.8	19.9	457285	11.9	20.6	24424	11.9	18.6	339663	12.0	20.4
68586	11.7	18.7	321338	11.8	19.5	318761	11.8	21.1	422489	11.9	21.5	418625	11.9	19.8	366923	12.0	21.2
274783	11.7	20.2	410991	11.8	20.4	148778	11.8	20.0	152558	11.9	20.6	337904	11.9	20.3	463070	12.0	20.7
438080	11.7	20.6	214316	11.8	20.2	450621	11.8	19.9	543103	11.9	21.7	387697	11.9	21.2	485627	12.0	20.9
454468	11.7	19.9	388454	11.8	20.9	184466	11.8	20.5	161678	11.9	20.0	129181	11.9	18.8	277908	12.0	20.9
369181	11.7	21.4	232703	11.8	18.8	414267	11.8	21.0	257521	11.9	20.0	57387	11.9	19.3	302940	12.0	20.7
321575	11.7	20.7	79906	11.8	18.2	449628	11.8	21.5	471004	11.9	21.2	61096	11.9	19.2	32114	12.0	17.9
114222	11.7	19.1	191431	11.8	19.4	449731	11.8	20.2	36740	11.9	18.3	35808	11.9	19.5	40310	12.0	20.3
234925	11.7	20.1	479368	11.8	21.8	340811	11.8	21.1	312259	11.9	19.9	50285	11.9	18.4	424719	12.0	21.1
118824	11.7	19.6	48152	11.8	17.9	14503	11.8	17.4	435454	11.9	21.1	236750	11.9	20.1	390435	12.0	18.9
379117	11.7	20.2	461468	11.8	21.7	444909	11.8	19.7	77041	11.9	18.2	340246	11.9	20.0	421795	12.0	21.4
249310	11.7	20.1	100967	11.8	19.4	124331	11.8	20.2	247328	11.9	19.7	244474	11.9	20.1	197148	12.0	19.2
77588	11.7	19.0	172175	11.8	19.8	8232	11.8	17.8	390726	11.9	20.8	26346	11.9	17.5	444092	12.0	21.7
454350	11.7	21.1	327659	11.8	21.0	491316	11.8	20.3	541445	11.9	21.3	441630	11.9	22.0	484335	12.0	19.9
251266	11.7	20.5	269422	11.8	19.4	48944	11.8	18.4	440042	11.9	20.5	416229	11.9	18.9	12388	12.0	17.6
453079	11.7	20.9	69007	11.8	18.5	484548	11.8	21.2	465468	11.9	20.6	172608	11.9	19.0	323965	12.0	20.6
59304	11.7	17.7	442457	11.8	21.0	339634	11.8	21.8	135809	11.9	19.6	31447	11.9	16.9	544733	12.0	20.5
51517	11.7	19.5	230466	11.8	20.7	270645	11.8	20.9	1724	11.9	14.9	113143	11.9	20.2	146630	12.0	20.2
208314	11.7	18.6	2513	11.8	16.9	543585	11.8	21.1	193761	11.9	20.4	14033	11.9	18.8	403569	12.0	21.8
324657	11.7	19.9	131697	11.8	23.4	311314	11.8	19.8	7122	11.9	17.6	536287	11.9	22.2	47209	12.0	19.0
393701	11.7	20.6	308191	11.8	20.4	261940	11.8	20.0	20857	11.9	18.3	274498	11.9	20.2	469584	12.0	22.4
342097	11.7	20.7	44001	11.8	17.7	277684	11.8	19.7	109428	11.9	18.2	129938	11.9	20.2	10760	12.0	16.7
411901	11.7	20.6	208296	11.8	19.8	33122	11.8	19.4	282193	11.9	20.4	235740	11.9	20.0	438148	12.0	22.4
399243	11.7	20.0	431145	11.8	22.1	356041	11.8	20.2	68717	11.9	20.1	7908	11.9	17.7	516485	12.0	21.1
97598	11.7	19.7	113403	11.8	19.9	344402	11.8	19.6	339505	11.9	19.9	52778	11.9	18.1	166097	12.0	20.0
345065	11.7	22.0	519254	11.8	21.4	461682	11.9	22.0	136502	11.9	19.8	381964	11.9	20.2	434845	12.0	20.2
148754	11.7	18.5	302988	11.8	20.5	136149	11.9	20.7	475561	11.9	21.3	323145	11.9	19.8	330123	12.0	20.8
450606	11.7	20.0	25855	11.8	18.1	105286	11.9	20.1	229746	11.9	20.0	112743	11.9	19.0	517327	12.0	21.9
81055	11.7	19.6	130470	11.8	19.2	264036	11.9	21.0	298520	11.9	19.4	375616	11.9	20.7	493900	12.0	20.1
122362	11.7	21.1	325330	11.8	19.5	165578	11.9	19.6	375383	11.9	20.7	447788	11.9	20.4	322081	12.0	20.6
357083	11.7	21.7	129860	11.8	19.6	112896	11.9	19.7	117951	11.9	19.8	56140	11.9	17.8	257344	12.0	19.5
305093	11.7	20.2	543575	11.8	22.3	425662	11.9	20.1	456218	11.9	19.8	467249	11.9	19.6	422124	12.0	21.3
462254	11.7	20.4	335974	11.8	21.3	147998	11.9	20.5	268919	11.9	19.9	67685	11.9	19.4	348827	12.0	20.8
495082	11.7	20.7	27530	11.8	18.1	39301	11.9	19.4	120313	11.9	19.8	266498	11.9	20.3	21171	12.0	18.2
278537	11.7	20.4	19977	11.8	17.7	295335	11.9	20.2	325916	11.9	20.5	83042	11.9	19.0	418859	12.0	20.2
333727	11.7	21.4	361846	11.8	20.3	461904	11.9	21.6	98290	11.9	18.4	175397	11.9	20.0	449096	12.0	21.0
422235	11.7	21.0	185674	11.8	21.0	99312	11.9	18.1	492207	11.9	21.4	103125	11.9	17.3	198846	12.0	18.7
392697	11.7	19.8	495965	11.8	21.2	201262	11.9	20.1	462445	11.9	20.9	261144	11.9	20.8	220765	12.0	18.9
76683	11.7	18.8	13645	11.8	18.6	322420	11.9	20.7	405646	11.							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
290148	12.1	20.7	314938	12.1	19.4	117767	12.2	19.4	385381	12.3	19.0	469555	12.3	20.8	75120	12.4	18.0
267098	12.1	20.2	142177	12.1	20.4	296940	12.2	20.9	101661	12.3	17.5	474545	12.3	21.3	68893	12.4	19.6
197794	12.1	20.1	103846	12.1	19.2	184513	12.2	20.9	339822	12.3	21.5	28460	12.3	18.1	197467	12.4	19.5
454950	12.1	21.3	514397	12.1	21.4	414253	12.2	20.6	333372	12.3	21.3	270098	12.3	21.3	424856	12.4	21.9
294989	12.1	20.1	409842	12.1	20.6	29843	12.2	18.4	488582	12.3	23.0	442374	12.3	20.6	270051	12.4	21.6
78212	12.1	19.4	440317	12.1	22.2	378423	12.2	20.9	462781	12.3	20.2	250250	12.3	18.6	197473	12.4	19.8
158871	12.1	20.7	43233	12.1	19.2	270124	12.2	20.9	453621	12.3	21.1	499132	12.3	22.8	514429	12.4	21.5
261307	12.1	20.6	202361	12.1	19.9	317465	12.2	21.2	191361	12.3	20.2	538256	12.3	21.6	130477	12.4	20.4
65398	12.1	18.5	461595	12.1	20.7	340031	12.2	19.7	533085	12.3	22.4	232631	12.3	20.4	449310	12.4	20.4
484167	12.1	21.4	21398	12.1	17.2	216707	12.2	17.6	270067	12.3	20.9	317152	12.3	21.6	418397	12.4	21.2
381657	12.1	20.5	100360	12.1	19.4	88905	12.2	18.6	511566	12.3	20.3	260791	12.3	21.0	101032	12.4	20.3
462134	12.1	21.4	424883	12.1	20.4	265352	12.2	19.6	110228	12.3	19.7	487065	12.3	21.4	174044	12.4	20.2
426515	12.1	20.1	508860	12.1	21.9	341848	12.2	20.9	541820	12.3	20.3	473752	12.3	19.4	129685	12.4	20.8
105300	12.1	20.4	232736	12.1	19.6	262116	12.2	19.9	413370	12.3	20.5	488719	12.3	18.5	461674	12.4	22.0
225824	12.1	19.3	128690	12.1	19.9	405033	12.2	20.7	426018	12.3	20.8	490838	12.3	21.3	307545	12.4	18.8
171436	12.1	19.8	487865	12.1	20.7	286203	12.2	20.0	453930	12.3	20.9	444876	12.3	20.7	287825	12.4	21.2
307478	12.1	19.8	35667	12.1	19.1	341885	12.2	21.5	359891	12.3	20.1	413974	12.3	19.6	410869	12.4	21.0
19059	12.1	17.0	464219	12.1	20.8	59783	12.2	18.2	310770	12.3	21.8	15772	12.3	18.8	307645	12.4	20.5
543124	12.1	21.8	235549	12.1	20.0	335432	12.2	21.1	54805	12.3	18.5	185673	12.3	21.4	402599	12.4	21.4
336411	12.1	19.4	544240	12.1	21.6	357654	12.2	19.0	101971	12.3	18.9	178039	12.3	20.3	146590	12.4	20.0
370854	12.1	20.0	77139	12.1	18.2	143789	12.2	19.2	520726	12.3	21.6	448192	12.3	21.6	350311	12.4	21.0
182497	12.1	20.4	295224	12.1	21.1	54452	12.2	18.5	198083	12.3	20.4	45061	12.3	17.3	90135	12.4	19.0
34513	12.1	18.4	255932	12.1	20.0	272540	12.2	20.8	453202	12.3	20.3	274777	12.3	20.1	364793	12.4	20.5
285730	12.1	20.5	360865	12.1	20.4	408539	12.2	20.8	285701	12.3	21.0	90152	12.3	18.8	14571	12.4	18.1
50411	12.1	17.2	347210	12.1	20.4	261625	12.2	20.6	260950	12.3	20.2	245317	12.3	20.2	185025	12.4	19.7
179742	12.1	19.8	183515	12.1	19.6	394642	12.2	20.3	116333	12.3	18.9	457433	12.3	20.9	199508	12.4	19.7
542981	12.1	22.3	71294	12.1	18.5	4527	12.2	17.6	44059	12.3	18.7	180243	12.3	19.9	349443	12.4	19.0
343778	12.1	20.4	226192	12.1	20.2	394868	12.2	19.8	15804	12.3	17.2	383579	12.3	18.9	153332	12.4	19.8
487281	12.1	21.1	112385	12.1	18.9	113410	12.2	20.3	189717	12.3	20.8	258049	12.3	22.3	86624	12.4	18.0
484925	12.1	20.5	291589	12.1	19.9	340195	12.2	19.5	251977	12.3	19.4	225813	12.3	19.4	279022	12.4	20.6
195788	12.1	20.6	334477	12.1	21.0	190907	12.2	19.0	31713	12.3	18.1	141524	12.4	18.7	248726	12.4	20.9
215550	12.1	20.0	23937	12.1	17.6	485430	12.2	21.4	493425	12.3	21.0	541508	12.4	21.1	375548	12.4	21.1
351558	12.1	21.1	360330	12.2	21.0	391879	12.2	20.1	465044	12.3	21.9	541302	12.4	20.9	482874	12.4	20.5
454926	12.1	20.3	29504	12.2	17.7	178420	12.2	19.8	17104	12.3	18.2	258922	12.4	21.5	426688	12.4	20.6
131401	12.1	20.0	425100	12.2	22.5	512568	12.2	21.5	381291	12.3	20.3	246925	12.4	19.3	440784	12.4	22.3
1097	12.1	16.8	129706	12.2	19.3	541981	12.2	21.2	158854	12.3	20.3	106252	12.4	20.1	9070	12.4	19.8
195960	12.1	19.6	10768	12.2	17.8	174287	12.2	20.6	387879	12.3	21.2	197271	12.4	19.3	392786	12.4	19.9
116390	12.1	19.2	72586	12.2	18.7	232890	12.2	20.1	70398	12.3	18.5	543229	12.4	20.7	460938	12.4	20.7
325350	12.1	20.8	84480	12.2	19.1	493319	12.2	21.8	463073	12.3	20.6	375559	12.4	20.9	179056	12.4	20.6
398688	12.1	19.8	463305	12.2	20.9	73961	12.2	17.8	161848	12.3	19.1	438081	12.4	22.1	335637	12.4	21.5
146691	12.1	20.4	81359	12.2	18.9	289296	12.2	19.9	270623	12.3	20.5	213320	12.4	19.3	253980	12.4	20.0
523691	12.1	22.0	39804	12.2	18.3	217400	12.2	19.2	337377	12.3	21.3	167899	12.4	19.6	20386	12.4	17.2
448891	12.1	20.8	496000	12.2	20.8	9349	12.2	19.3	7772	12.3	17.9	530955	12.4	22.2	267019	12.4	20.3
21152	12.1	16.8	456528	12.2	19.8	191231	12.2	18.8	110415	12.3	19.2	268543	12.4	21.0	261221	12.4	21.0
229485	12.1	18.8	491368	12.2	20.5	19285	12.2	17.4	61178	12.3	18.7	272295	12.4	20.1	344895	12.4	19.8
309427	12.1	20.5	477715	12.2	21.5	264277	12.2	21.4	409526	12.3	21.8	421447	12.4	20.9	1416	12.4	14.8
80962	12.1	19.0	16625	12.2	17.0	403773	12.2	19.5	454575	12.3	21.6	239645	12.4	19.9	453417	12.4	21.0
25589	12.1	18.3	363874	12.2	21.5	139620	12.2	19.4	399471	12.3	20.5	35479	12.4	18.2	378405	12.4	20.7
167185	12.1	18.4	235489	12.2	19.3	232680	12.2	19.8	156449	12.3	19.8	126527	12.4	19.7	95318	12.4	19.5
291512	12.1	20.6	377067	12.2	20.6	539997	12.2	21.4	156034	12.3	19.7	128305	12.4	19.6	126996	12.4	20.8
465526	12.1	20.1	20275	12.2	18.6	306379	12.2	19.9	240213	12.3	20.3	217452	12.4	20.2	333540	12.4	20.3
397169	12.1	20.4	194316	12.2	19.0	400850	12.2	21.4	166113	12.3	19.7	9076	12.4	17.8	4299	12.4	15.8
310163	12.1	20.6	30262	12.2	18.4	321894	12.2	20.3	408169	12.3	19.8	481826	12.4	21.1	317438	12.4	20.7
346386	12.1	20.5	195948	12.2	20.1	348177	12.2	20.7	359907	12.3	20.3	8985	12.4	18.0	219351	12.4	20.4
383461	12.1	20.3	252011	12.2	19.4	189678	12.2	20.0	469306	12.3	21.7	125257	12.4	18.4	201202	12.4	20.0
444685	12.1	20.6	184519	12.2	19.8	216554	12.2	19.8	143864	12.3	19.3	139143	12.4	20.2	191940	12.4	19.6
395152	12.1	20.5	52598	12.2	19.7	1612	12.2	14.9	103183	12.3	19.0	217891	12.4	21.3	26315	12.4	18.9
217726	12.1	20.3	72265	12.2	19.1	270167	12.2	21.1	193794	12.3	20.9	319970	12.4	20.4	37648	12.4	17.8
232234	12.1	19.5	25426	12.2	18.8	94867	12.2	19.1	15485	12.3	17.4	61536	12.4	18.8	272040	12.4	19.6
315743	12.1	20.9	243515	12.2	19.7	28487	12.2	18.1	135536	12.3	19.7	180030	12.4	18.7	411471	12.4	21.3
43128	12.1	19.7	222974	12.2	20.2	216107	12.2	20.4	388423	12.3	19.9	236312	12.4	20.0	520753	12.4	20.2
108162	12.1	18.6	48640	12.2	18.3	191620	12.2	20.1	467711	12.3	20.7	544505	12.4	21.5	230182	12.4	21.1
156086	12.1	19.7	117171	12.2	20.5	459778	12.2	21.3	210817	12.3	20.3	441539	12.4	20.9	213568	12.4	20.5
172316	12.1	20.3	159036	12.2	19.9	329289	12.2	20.3	340024	12.3	20.2	298524	12.4	20.1	102012	12.4	19.5
51757	12.1	18.9	235499	12.2	18.8	277268	12.2	20.9	383445	12.3	20.5	253354	12.4	20.0	293760	12.4	20.5
352768	12.1	20.6	456460	12.2	20.7	462391	12.2	21.1	249334	12.3	19.6	169894	12.4	19.9	177789	12.5	19.8
423390	12.1	20.4	48164	12.2	19.3	189303	12.2	19.8	489348	12.3	22.0	542043	12.4	21.0	5784	12.5	16.0
223014	12.1	20.3	382549	12.2	21.8	273256	12.2	19.8	462353	12.3	20.5	334541	12.4	21.5	444748	12.5	20.5
423332	12.1	21.1	281145	12.2	20.4	110098	12.2	19.2	248848								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
17200	12.5	18.5	451916	12.5	22.3	32715	12.6	16.7	37754	12.7	18.8	372232	12.7	20.0	226637	12.8	19.8
156150	12.5	20.9	450010	12.5	21.8	14790	12.6	18.2	415955	12.7	17.7	83297	12.7	19.3	250464	12.8	19.9
38176	12.5	19.1	449407	12.5	19.9	484374	12.6	20.2	544565	12.7	21.1	30588	12.7	17.1	146990	12.8	19.1
421109	12.5	20.5	180563	12.5	19.4	333893	12.6	21.2	348181	12.7	21.1	402300	12.7	20.8	496451	12.8	20.8
493431	12.5	20.7	330810	12.5	21.1	337474	12.6	21.6	494787	12.7	20.5	407540	12.7	21.5	139562	12.8	18.2
44452	12.5	19.2	223145	12.5	19.7	274509	12.6	21.1	543177	12.7	21.2	226342	12.7	19.0	115824	12.8	18.8
69318	12.5	17.1	445179	12.5	20.6	57913	12.6	18.5	275933	12.7	19.7	373511	12.7	20.3	159561	12.8	19.1
57187	12.5	18.3	224035	12.5	19.5	326740	12.6	22.3	360294	12.7	20.4	98792	12.7	17.5	90979	12.8	18.8
173411	12.5	20.1	424223	12.5	22.2	442998	12.6	20.1	357674	12.7	19.7	349102	12.7	20.2	76629	12.8	17.5
33441	12.5	18.0	154460	12.5	18.9	21155	12.6	18.4	402334	12.7	20.8	499319	12.7	20.5	165952	12.8	21.0
486521	12.5	20.6	387423	12.5	20.1	119254	12.6	18.3	518779	12.7	20.8	521511	12.7	21.4	284462	12.8	21.3
65441	12.5	18.9	86635	12.5	19.7	210142	12.6	20.4	163147	12.7	19.8	353405	12.7	20.5	402289	12.8	21.3
173675	12.5	20.0	413	12.5	14.5	105215	12.6	20.3	37993	12.7	18.8	26886	12.7	18.5	411304	12.8	20.3
163512	12.5	19.5	275861	12.5	21.2	229823	12.6	20.7	406077	12.7	20.6	277287	12.7	20.6	454796	12.8	21.3
541907	12.5	20.8	149255	12.5	18.8	454528	12.6	21.2	152791	12.7	19.8	119078	12.7	18.8	142817	12.8	19.9
195049	12.5	19.6	339919	12.5	21.5	171333	12.6	19.6	484318	12.7	21.0	30819	12.8	18.7	146340	12.8	19.8
143266	12.5	19.2	20257	12.5	18.0	52890	12.6	18.7	183233	12.7	18.8	149913	12.8	19.1	318317	12.8	21.1
297908	12.5	20.2	417748	12.5	21.2	268741	12.6	20.1	261076	12.7	20.9	332411	12.8	20.2	377103	12.8	22.0
188920	12.5	20.1	450001	12.5	21.3	538485	12.6	21.2	211228	12.7	21.2	124823	12.8	19.8	4433	12.8	16.9
399499	12.5	20.8	337468	12.6	22.1	150515	12.6	20.0	108818	12.7	19.3	120680	12.8	19.3	252294	12.8	21.1
482046	12.5	20.6	3342	12.6	16.3	543064	12.6	21.9	247652	12.7	20.8	491267	12.8	20.1	463574	12.8	20.7
494332	12.5	20.9	235098	12.6	19.2	366673	12.6	20.2	282077	12.7	20.1	459719	12.8	21.4	229329	12.8	21.4
346357	12.5	20.6	518973	12.6	20.9	449028	12.6	20.1	406702	12.7	20.2	54391	12.8	17.6	376714	12.8	21.2
217513	12.5	20.5	18795	12.6	17.0	443483	12.6	20.3	477797	12.7	20.6	243986	12.8	20.4	135724	12.8	20.3
360868	12.5	21.7	285999	12.6	21.2	460756	12.6	21.4	173208	12.7	20.1	222869	12.8	21.0	37651	12.8	18.6
194965	12.5	20.1	278355	12.6	20.6	329940	12.6	21.4	438234	12.7	21.7	119618	12.8	19.2	45100	12.8	19.6
160112	12.5	19.7	132865	12.6	19.0	352980	12.6	19.5	121976	12.7	19.3	18171	12.8	19.1	27674	12.8	17.5
221585	12.5	20.4	273368	12.6	20.0	151951	12.6	19.3	244126	12.7	20.6	440347	12.8	21.2	257296	12.8	19.4
492769	12.5	21.3	490714	12.6	21.5	109412	12.6	18.6	295378	12.7	19.6	518234	12.8	21.4	39356	12.8	18.9
16063	12.5	18.9	106854	12.6	18.3	104608	12.6	18.5	120534	12.7	21.2	541277	12.8	21.0	3810825	12.8	20.6
89215	12.5	19.5	121158	12.6	20.0	248334	12.6	19.8	157993	12.7	19.0	68644	12.8	19.4	274040	12.8	20.9
321393	12.5	20.8	409593	12.6	20.9	331872	12.6	20.2	108003	12.7	19.3	200386	12.8	21.3	55224	12.8	19.0
367618	12.5	21.4	261622	12.6	20.3	330248	12.6	20.6	186236	12.7	20.1	44312	12.8	18.0	78160	12.8	18.4
214314	12.5	20.3	485440	12.6	21.3	177549	12.6	19.2	49065	12.7	18.3	280529	12.8	21.5	40173	12.8	18.9
401122	12.5	21.2	489874	12.6	20.5	145276	12.6	19.7	359261	12.7	19.3	9284	12.8	18.3	271462	12.8	19.5
332253	12.5	21.5	459242	12.6	20.6	196585	12.6	19.4	361723	12.7	19.7	120507	12.8	20.7	414389	12.8	20.0
52435	12.5	18.5	164587	12.6	20.3	461667	12.6	21.2	507496	12.7	21.0	235971	12.8	20.7	311643	12.8	19.7
363518	12.5	20.6	96061	12.6	19.8	514592	12.6	21.8	198229	12.7	21.2	239973	12.8	20.8	193152	12.8	20.0
388066	12.5	20.4	89088	12.6	19.5	119903	12.6	19.8	376100	12.7	20.9	311076	12.8	19.4	248982	12.8	20.8
160441	12.5	19.8	441675	12.6	19.5	495607	12.6	21.1	90009	12.7	19.0	29898	12.8	17.7	127439	12.8	19.9
334858	12.5	20.2	172736	12.6	19.1	462979	12.6	20.7	375565	12.7	21.2	537924	12.8	20.7	72128	12.8	19.6
55057	12.5	18.3	277904	12.6	19.9	195722	12.6	19.6	372725	12.7	20.5	335300	12.8	21.1	13042	12.8	18.3
344253	12.5	21.3	228136	12.6	20.4	271400	12.6	19.2	297149	12.7	20.2	503494	12.8	21.1	448833	12.8	21.3
143920	12.5	19.8	248192	12.6	18.9	419090	12.6	20.7	357670	12.7	20.4	523267	12.8	20.1	386616	12.8	21.2
160868	12.5	20.2	146972	12.6	19.2	491250	12.6	20.7	25517	12.7	17.8	510881	12.8	19.5	180708	12.8	19.8
325445	12.5	19.9	75722	12.6	18.8	367195	12.6	19.9	23068	12.7	18.8	515880	12.8	20.9	464626	12.8	20.8
282797	12.5	20.1	467239	12.6	20.6	23757	12.6	18.1	49652	12.7	17.2	276338	12.8	20.0	204834	12.8	20.8
388122	12.5	21.3	442204	12.6	20.7	496201	12.6	20.7	294124	12.7	20.4	164034	12.8	20.0	79360	12.8	21.6
112442	12.5	19.8	230446	12.6	19.7	252660	12.6	19.8	73076	12.7	18.1	444835	12.8	22.7	220038	12.8	20.7
390869	12.5	20.5	495103	12.6	21.0	358644	12.6	20.3	188510	12.7	20.1	519977	12.8	21.5	250457	12.8	19.9
90266	12.5	19.3	212261	12.6	20.3	434184	12.6	19.5	291066	12.7	20.4	450227	12.8	21.1	5323	12.8	16.5
79451	12.5	18.9	410005	12.6	20.5	447853	12.6	21.6	99171	12.7	17.8	22264	12.8	18.5	369356	12.8	20.9
495715	12.5	21.2	244397	12.6	21.0	47874	12.6	18.2	468363	12.7	20.0	201417	12.8	20.1	421680	12.8	21.0
66019	12.5	19.0	362190	12.6	21.6	6100	12.6	16.8	445646	12.7	21.1	49801	12.8	17.6	181907	12.8	20.3
125453	12.5	19.9	483497	12.6	21.3	407989	12.6	19.9	7461	12.7	18.0	111651	12.8	19.8	144677	12.8	18.4
93041	12.5	19.7	245944	12.6	20.8	446912	12.6	21.4	348270	12.7	19.4	328357	12.8	20.5	387487	12.8	20.9
208787	12.5	20.6	408821	12.6	20.6	47686	12.6	17.9	77029	12.7	18.7	361237	12.8	21.1	495083	12.8	22.1
172844	12.5	19.8	184502	12.6	20.6	124269	12.6	20.4	419352	12.7	20.6	420210	12.8	21.2	541113	12.8	21.2
202355	12.5	18.8	269179	12.6	20.6	219389	12.7	20.9	164589	12.7	20.7	103439	12.8	18.1	336848	12.8	21.0
284494	12.5	20.0	28927	12.6	17.0	265917	12.7	21.0	452872	12.7	21.6	341558	12.8	21.5	73721	12.8	19.3
432975	12.5	21.3	74307	12.6	18.3	76161	12.7	18.0	90376	12.7	19.7	486528	12.8	20.8	235373	12.8	18.4
394107	12.5	21.0	88368	12.6	19.8	225375	12.7	20.7	150431	12.7	20.1	263671	12.8	20.4	312663	12.9	20.5
132409	12.5	19.0	467199	12.6	19.9	48734	12.7	17.8	24330	12.7	17.3	178319	12.8	18.9	343717	12.9	21.7
319969	12.5	20.9	346504	12.6	20.6	462470	12.7	20.4	94533	12.7	19.0	9532	12.8	17.5	230129	12.9	20.4
366672	12.5	20.8	101003	12.6	19.9	376079	12.7	20.2	93446	12.7	17.8	302942	12.8	21.3	522307	12.9	21.0
400086	12.5	20.6	316188	12.6	20.5	543775	12.7	21.2	58166	12.7	20.0	117182	12.8	20.6	58007	12.9	18.6
91243	12.5	18.6	214305	12.6	19.8	39182	12.7	19.4	497260	12.7	20.8	520850	12.8	20.3	404778	12.9	21.2
289465	12.5	18.7	122372	12.6	19.1	366865	12.7	19.8	51857	12.7	17.7	270052	12.8	21.0	456340	12.9	21.8
487732	12.5	21.7	332602	12.6	20.5	66483	12.7	16.8	89016	12.7	19.2						

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
456401	12.9	21.8	417905	12.9	20.6	254609	12.9	21.2	364433	13.1	20.5	278644	13.1	21.9	463542	13.2	20.6
498844	12.9	21.2	403369	12.9	21.5	196870	12.9	19.6	227604	13.1	20.0	255899	13.1	20.7	386880	13.2	19.5
335656	12.9	20.1	488528	12.9	22.4	306046	12.9	21.1	86414	13.1	19.1	259210	13.1	18.2	254030	13.2	19.7
422403	12.9	20.4	49057	12.9	19.1	182973	12.9	20.7	356596	13.1	20.2	13642	13.1	18.6	228807	13.2	18.8
460882	12.9	21.3	297336	12.9	22.0	214268	12.9	21.2	235996	13.1	20.3	136044	13.1	20.4	92818	13.2	18.2
458106	12.9	19.9	519092	12.9	20.2	276697	12.9	19.8	385137	13.1	20.9	458498	13.1	20.0	195699	13.2	20.6
173229	12.9	19.8	542147	12.9	20.4	283447	12.9	20.2	439281	13.1	21.7	487937	13.1	20.2	515489	13.2	20.8
80407	12.9	18.1	56632	12.9	18.4	392311	12.9	18.8	230013	13.1	20.4	442857	13.1	21.0	6714	13.2	16.3
189701	12.9	19.7	64403	12.9	18.3	262712	12.9	20.4	267162	13.1	21.1	60972	13.1	19.4	262389	13.2	20.4
320766	12.9	20.8	37559	12.9	17.8	541566	12.9	22.4	309961	13.1	20.1	334053	13.1	21.4	208744	13.2	20.6
230644	12.9	19.6	544938	12.9	21.4	504473	12.9	20.2	424684	13.1	21.0	86997	13.1	19.9	142244	13.2	19.0
222374	12.9	19.7	438064	12.9	21.1	363857	12.9	22.4	86941	13.1	19.4	59656	13.1	19.3	493100	13.2	20.9
230985	12.9	19.4	2949	12.9	16.4	461898	12.9	21.5	463791	13.1	21.5	131887	13.1	19.4	522537	13.2	20.8
256915	12.9	20.5	162330	12.9	20.5	49272	12.9	17.7	406148	13.1	21.3	449615	13.1	20.7	319971	13.2	20.7
249452	12.9	20.3	373698	12.9	21.4	407396	12.9	21.0	180624	13.1	20.3	54182	13.1	19.6	283421	13.2	20.5
442455	12.9	21.5	169699	12.9	20.0	198274	12.9	20.7	270142	13.1	20.2	97524	13.1	19.4	171246	13.2	20.0
293751	12.9	20.8	495712	12.9	20.4	252549	12.9	19.3	233	13.1	12.5	154308	13.1	18.8	99827	13.2	19.6
337891	12.9	21.2	122719	12.9	18.2	499855	12.9	20.0	474386	13.1	20.6	538422	13.1	20.6	197154	13.2	19.3
166870	12.9	19.6	215593	12.9	20.1	298558	12.9	21.0	195922	13.1	21.1	370338	13.1	20.7	78026	13.2	19.7
212744	12.9	20.6	177501	12.9	19.6	32793	13.0	18.7	231574	13.1	20.0	272012	13.1	19.6	404251	13.2	20.8
376986	12.9	21.1	158893	12.9	20.2	333387	13.0	21.4	477758	13.1	21.0	202745	13.1	20.2	424254	13.2	21.1
378843	12.9	21.2	108882	12.9	19.3	290190	13.0	21.1	476427	13.1	20.3	407449	13.1	21.6	32357	13.2	17.3
524978	12.9	21.2	447014	12.9	19.5	352703	13.0	21.9	134771	13.1	18.9	258677	13.1	20.1	80957	13.2	18.8
449912	12.9	21.1	335464	12.9	20.3	223625	13.0	19.6	46444	13.1	17.9	239065	13.1	20.1	281200	13.2	21.1
322876	12.9	20.5	467797	12.9	20.0	288249	13.0	20.4	5246	13.1	18.4	475467	13.1	21.4	15417	13.2	17.6
104425	12.9	18.7	226225	12.9	20.0	270902	13.0	21.0	542973	13.1	21.7	416546	13.1	18.9	250656	13.2	20.7
254792	12.9	21.0	541372	12.9	21.2	287575	13.0	20.3	269127	13.1	20.6	75865	13.1	19.2	378915	13.2	21.0
230718	12.9	20.0	365461	12.9	20.0	336903	13.0	20.8	176821	13.1	21.5	160374	13.1	19.9	494824	13.2	21.8
252627	12.9	20.0	133707	12.9	19.2	248259	13.0	19.9	275899	13.1	20.4	126262	13.1	18.5	339532	13.2	20.5
17045	12.9	18.5	439868	12.9	20.6	466704	13.0	20.5	322916	13.1	21.1	435467	13.1	21.9	104694	13.2	20.1
187257	12.9	20.1	205523	12.9	20.4	28861	13.0	17.2	364798	13.1	20.5	249836	13.1	21.2	434139	13.2	21.2
434794	12.9	21.5	376352	12.9	20.8	226228	13.0	20.9	11628	13.1	16.8	493643	13.1	20.8	414584	13.2	21.0
542596	12.9	21.0	251166	12.9	19.3	367620	13.0	21.1	450219	13.1	21.5	50918	13.1	19.9	439915	13.2	21.9
364801	12.9	21.1	471204	12.9	21.3	75973	13.0	19.3	404424	13.1	21.2	124061	13.1	19.2	467294	13.2	20.3
49812	12.9	18.6	110804	12.9	19.6	139512	13.0	19.6	99732	13.1	19.3	337087	13.1	22.1	202287	13.2	19.6
128455	12.9	20.0	194346	12.9	21.1	194187	13.0	19.8	261604	13.1	20.3	37982	13.1	18.3	486116	13.2	21.3
25305	12.9	19.3	461560	12.9	19.6	411767	13.0	19.8	477260	13.1	20.0	237303	13.1	19.9	244003	13.2	19.9
190801	12.9	20.3	77773	12.9	19.3	455447	13.0	21.1	27859	13.1	18.0	491486	13.1	21.3	47127	13.2	17.2
257969	12.9	19.3	265655	12.9	20.9	427173	13.0	20.2	408434	13.1	19.5	425955	13.1	20.8	183478	13.2	19.5
339765	12.9	20.5	376267	12.9	20.7	361739	13.0	19.8	458244	13.1	20.9	448849	13.1	21.2	58270	13.2	17.6
434262	12.9	21.5	175219	12.9	19.8	504733	13.0	20.2	29367	13.1	18.6	460033	13.1	20.7	450211	13.2	21.3
218325	12.9	20.0	363888	12.9	21.6	440530	13.0	21.6	421879	13.1	20.7	39070	13.1	18.7	215932	13.2	20.8
145705	12.9	20.3	441629	12.9	20.9	397490	13.0	21.3	83020	13.1	19.0	158869	13.1	20.7	118771	13.2	20.0
15900	12.9	17.9	194942	12.9	18.7	278002	13.0	20.4	412349	13.1	20.5	54701	13.1	19.9	52467	13.2	19.1
217501	12.9	21.1	155980	12.9	19.4	8330	13.0	17.0	211328	13.1	20.9	263709	13.2	21.3	394103	13.2	20.6
51166	12.9	19.1	105367	12.9	19.7	165691	13.0	20.4	496189	13.1	21.9	144041	13.2	19.8	544555	13.2	21.4
120646	12.9	19.7	408264	12.9	21.3	225030	13.0	20.7	445042	13.1	22.3	368631	13.2	19.4	276219	13.2	20.6
169859	12.9	20.5	72674	12.9	17.7	403123	13.0	19.5	493374	13.1	20.9	307768	13.2	20.8	106439	13.2	20.0
32125	12.9	17.5	416479	12.9	21.2	386689	13.0	19.7	189836	13.1	19.2	246498	13.2	19.3	309308	13.2	20.9
495606	12.9	21.3	221507	12.9	20.7	276665	13.0	19.8	9709	13.1	17.1	172187	13.2	19.2	248274	13.2	20.4
232784	12.9	20.7	147708	12.9	20.5	481823	13.0	19.9	252461	13.1	20.6	134131	13.2	19.2	486289	13.2	21.1
169367	12.9	20.9	34507	12.9	17.9	281591	13.0	20.5	157320	13.1	20.1	86617	13.2	18.6	3528	13.2	17.2
489845	12.9	19.9	496330	12.9	19.8	503840	13.0	20.7	424227	13.1	20.7	281344	13.2	20.6	138909	13.2	18.8
387557	12.9	21.6	365558	12.9	21.0	334842	13.0	20.6	448778	13.1	21.2	269285	13.2	20.9	70160	13.2	19.3
414572	12.9	20.2	65328	12.9	19.8	404444	13.0	20.8	109005	13.1	19.7	3727	13.2	17.0	374657	13.2	20.4
122815	12.9	20.0	633	12.9	14.7	319972	13.0	20.4	378506	13.1	21.3	30294	13.2	18.9	132661	13.2	20.3
305230	12.9	19.9	175893	12.9	19.1	473378	13.0	20.7	89220	13.1	19.7	24703	13.2	19.7	401069	13.2	21.6
56491	12.9	19.1	465290	12.9	21.3	438066	13.0	21.8	223881	13.1	20.0	434605	13.2	21.3	399376	13.2	22.3
90480	12.9	18.8	224618	12.9	20.7	475484	13.0	21.8	8417	13.1	17.2	445696	13.2	20.9	56453	13.2	19.2
204774	12.9	20.3	220029	12.9	19.9	124339	13.0	20.0	239040	13.1	21.3	137362	13.2	20.3	171002	13.2	20.2
267789	12.9	19.5	229619	12.9	20.4	136293	13.0	19.2	232321	13.1	20.5	82075	13.2	21.2	235504	13.2	18.9
395138	12.9	20.2	230134	12.9	20.1	539943	13.0	21.6	13589	13.1	17.0	388523	13.2	19.9	86891	13.2	19.9
503371	12.9	20.9	14800	12.9	19.7	81668	13.0	19.2	424204	13.1	20.4	269908	13.2	20.2	310769	13.2	20.7
245235	12.9	19.6	122219	12.9	18.6	72541	13.0	19.5	357627	13.1	21.3	159395	13.2	20.8	138346	13.2	18.3
108932	12.9	19.6	272248	12.9	20.9	256985	13.0	20.3	395487	13.1	21.2	455792	13.2	21.7	178212	13.2	20.3
274454	12.9	20.3	332053	12.9	20.6	213712	13.0	20.2	252629	13.1	19.7	130096	13.2	20.2	308080	13.2	20.0
117715	12.9	19.0	278982	12.9	20.5	148192	13.0	18.4	495358	13.1	21.3	42964	13.2	19.0	364268	13.2	21.2
269305	12.9	20.3	82259	12.9	19.5	235543	13.0	19.3	158624	13.1	19.0	48977	13.2	17.8	450577	13.2	21.4
197370	12.9	20.7	51178	12.9	19.1	541642	13.0	21.2	270831	13.1							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
130764	13.3	19.2	485615	13.3	20.4	275530	13.4	20.9	543190	13.5	21.1	313205	13.5	20.5	125305	13.6	18.9
153817	13.3	20.0	62360	13.3	19.4	100373	13.4	20.0	237670	13.5	21.1	265966	13.5	20.4	150882	13.6	20.8
91997	13.3	19.1	247345	13.3	20.8	1961	13.4	15.0	421153	13.5	20.8	259415	13.5	21.1	407444	13.6	21.1
115844	13.3	19.1	380441	13.3	21.5	231587	13.4	20.3	113963	13.5	19.4	3460	13.5	17.4	196902	13.6	20.1
357393	13.3	19.6	7442	13.3	18.2	60074	13.4	19.7	158210	13.5	19.8	122556	13.6	19.9	405945	13.6	21.2
521912	13.3	21.3	138202	13.3	20.0	412623	13.4	21.3	158012	13.5	21.5	224946	13.6	19.8	512251	13.6	19.7
84381	13.3	18.5	458221	13.3	20.4	231171	13.4	19.8	178573	13.5	20.7	202456	13.6	19.7	256839	13.6	19.2
239129	13.3	20.8	434452	13.3	21.3	217440	13.4	20.7	276736	13.5	19.3	55284	13.6	17.8	143167	13.6	20.1
122061	13.3	19.1	370365	13.3	20.9	332271	13.4	20.8	190505	13.5	19.0	542143	13.6	22.7	14461	13.6	18.3
10163	13.3	19.1	136161	13.3	19.4	73276	13.4	18.8	14817	13.5	17.8	457935	13.6	21.5	23174	13.6	17.6
216257	13.3	20.1	445543	13.3	21.3	489863	13.4	20.9	66228	13.5	18.6	489855	13.6	21.1	178956	13.6	20.6
120450	13.3	18.1	376650	13.3	20.5	249451	13.4	21.3	452301	13.5	22.0	394423	13.6	21.5	370070	13.6	21.4
425125	13.3	21.6	426940	13.3	20.8	218973	13.4	20.4	108122	13.5	19.6	383371	13.6	20.1	150523	13.6	20.5
360481	13.3	19.5	495286	13.3	21.1	281073	13.4	20.9	378430	13.5	21.1	3298	13.6	17.7	337735	13.6	21.3
398192	13.3	21.5	109397	13.3	20.1	293915	13.4	19.6	486463	13.5	21.0	69117	13.6	19.1	331753	13.6	20.1
326083	13.3	20.6	337542	13.3	20.7	486468	13.4	21.2	18367	13.5	17.4	183402	13.6	20.1	409500	13.6	21.4
489306	13.3	21.1	333869	13.4	20.8	457265	13.4	21.1	349532	13.5	21.3	409292	13.6	20.7	344151	13.6	20.5
331304	13.3	20.1	490421	13.4	21.4	318744	13.4	20.9	132912	13.5	19.7	273003	13.6	20.1	337743	13.6	20.9
459098	13.3	21.0	456354	13.4	21.8	379766	13.4	20.4	403341	13.5	20.5	29471	13.6	17.1	116908	13.6	19.3
49263	13.3	19.8	78391	13.4	19.0	191872	13.4	20.0	221192	13.5	19.9	244675	13.6	20.5	82608	13.6	19.7
421370	13.3	20.4	21798	13.4	17.4	455994	13.4	21.8	124364	13.5	20.5	76034	13.6	19.0	233580	13.6	21.1
201618	13.3	18.7	196740	13.4	19.8	217475	13.4	20.6	354163	13.5	19.2	161161	13.6	20.6	119326	13.6	18.8
415583	13.3	21.2	84650	13.4	19.1	280820	13.4	19.4	504979	13.5	20.8	255043	13.6	21.1	519038	13.6	20.5
165122	13.3	19.7	229776	13.4	20.3	263685	13.4	20.4	106162	13.5	20.2	79454	13.6	19.5	544611	13.6	20.6
128672	13.3	20.9	492852	13.4	21.3	270927	13.4	20.3	416845	13.5	20.7	196138	13.6	18.5	473754	13.6	20.3
422073	13.3	21.1	519908	13.4	21.3	455226	13.4	22.4	422918	13.5	20.6	246233	13.6	20.2	129141	13.6	20.1
322195	13.3	20.5	364385	13.4	20.4	261656	13.4	20.2	290422	13.5	19.6	218308	13.6	19.3	46151	13.6	18.5
534427	13.3	20.2	73634	13.4	18.5	451489	13.4	20.3	337083	13.5	21.6	351234	13.6	21.6	204784	13.6	21.0
13164	13.3	18.1	302596	13.4	19.9	457839	13.4	21.1	112432	13.5	20.7	325229	13.6	21.2	356597	13.6	21.4
128570	13.3	19.6	468215	13.4	20.7	32024	13.4	18.3	477308	13.5	20.5	421287	13.6	20.3	252028	13.6	20.5
254867	13.3	20.5	383739	13.4	20.7	155343	13.4	19.5	29055	13.5	18.5	303651	13.6	19.2	298554	13.6	21.3
543579	13.3	22.1	151546	13.4	19.8	111545	13.4	20.2	543354	13.5	20.7	138698	13.6	20.3	544785	13.6	22.0
391029	13.3	20.4	369241	13.4	20.6	82146	13.4	19.4	27561	13.5	18.6	230126	13.6	19.6	151294	13.6	18.9
26721	13.3	18.5	178134	13.4	20.2	187209	13.4	20.4	487681	13.5	21.4	76296	13.6	18.7	541844	13.6	20.1
292845	13.3	20.9	217527	13.4	20.7	330495	13.4	21.3	252380	13.5	19.7	462705	13.6	21.8	462980	13.6	21.0
143903	13.3	19.1	100229	13.4	20.3	424266	13.4	21.3	332251	13.5	20.5	440300	13.6	21.5	64685	13.6	17.8
326883	13.3	22.0	96064	13.4	20.0	230124	13.4	20.6	12480	13.5	17.1	99862	13.6	20.4	434838	13.6	21.9
78784	13.3	18.9	421523	13.4	20.7	345792	13.4	21.2	405556	13.5	20.2	461893	13.6	21.2	129969	13.6	20.0
182968	13.3	20.1	287653	13.4	21.1	62609	13.4	18.9	76338	13.5	19.2	455418	13.6	20.8	63199	13.6	18.9
379751	13.3	20.2	383446	13.4	21.2	294952	13.4	20.6	185950	13.5	19.2	418703	13.6	21.1	184764	13.6	20.4
451535	13.3	21.1	110927	13.4	20.2	215288	13.4	20.1	274065	13.5	21.1	267897	13.6	19.8	306426	13.6	20.9
61949	13.3	18.9	318296	13.4	21.0	452423	13.4	21.6	275835	13.5	21.5	369862	13.6	20.9	487752	13.6	21.3
480917	13.3	22.6	543054	13.4	21.1	51118	13.4	17.8	360490	13.5	19.8	222000	13.6	19.6	202342	13.6	19.7
411365	13.3	20.6	224610	13.4	19.8	400860	13.4	21.9	113046	13.5	20.3	401096	13.6	20.8	224634	13.6	20.5
70775	13.3	18.6	393688	13.4	20.7	415313	13.4	21.3	194329	13.5	21.1	316279	13.6	20.9	383428	13.6	20.7
234368	13.3	18.5	279061	13.4	19.8	345361	13.4	19.4	514669	13.5	21.4	96216	13.6	19.2	141644	13.6	20.0
466635	13.3	20.8	439027	13.4	20.2	80355	13.4	19.6	334256	13.5	19.7	405559	13.6	22.0	35956	13.6	18.7
249851	13.3	20.4	95190	13.4	18.8	541770	13.4	21.0	170423	13.5	18.9	76297	13.6	18.6	80884	13.6	19.6
316126	13.3	20.0	63764	13.4	19.7	18583	13.4	17.8	99441	13.5	18.3	293397	13.6	20.5	414746	13.6	23.7
254849	13.3	19.8	526587	13.4	22.5	65298	13.4	19.1	174915	13.5	19.0	233857	13.6	20.4	446422	13.6	20.4
494614	13.3	21.1	90004	13.4	18.6	167581	13.4	19.1	104356	13.5	19.6	544583	13.6	21.2	397543	13.6	21.4
373768	13.3	20.1	124512	13.4	18.7	407647	13.4	20.6	362833	13.5	20.1	281716	13.6	20.4	230641	13.6	19.9
416526	13.3	20.2	57077	13.4	18.2	475626	13.4	20.1	84188	13.5	20.1	113337	13.6	19.3	105420	13.6	18.4
142820	13.3	19.3	454718	13.4	20.6	397312	13.4	21.2	497003	13.5	22.2	124360	13.6	19.9	420416	13.6	20.7
360357	13.3	20.8	436121	13.4	21.1	541157	13.4	21.6	233601	13.5	19.5	216971	13.6	20.3	89665	13.6	19.5
230779	13.3	19.9	277850	13.4	21.5	10089	13.5	16.7	14261	13.5	17.6	452826	13.6	21.8	379516	13.7	20.0
246041	13.3	19.9	71478	13.4	18.5	90187	13.5	18.0	275067	13.5	19.5	254758	13.6	20.5	186524	13.7	20.6
544563	13.3	21.1	310393	13.4	20.3	521588	13.5	21.1	144692	13.5	19.9	407513	13.6	20.9	305292	13.7	21.6
34402	13.3	18.0	114041	13.4	19.9	52040	13.5	20.0	184941	13.5	20.1	465552	13.6	21.2	95753	13.7	19.7
395652	13.3	20.9	165052	13.4	19.5	492995	13.5	21.4	78100	13.5	20.6	103166	13.6	20.5	322197	13.7	20.2
43923	13.3	17.9	360948	13.4	20.7	213283	13.5	20.3	409441	13.5	21.5	464860	13.6	20.4	444863	13.7	20.1
503550	13.3	20.3	71747	13.4	19.0	174941	13.5	19.4	495796	13.5	19.8	370901	13.6	20.3	102928	13.7	18.5
167251	13.3	19.7	465811	13.4	20.2	54434	13.5	19.2	407242	13.5	20.1	490690	13.6	21.4	180026	13.7	19.5
274518	13.3	20.0	441245	13.4	21.4	184110	13.5	19.5	206380	13.5	20.0	385998	13.6	20.0	363206	13.7	21.1
222961	13.3	21.5	542033	13.4	21.3	145765	13.5	18.8	52027	13.5	19.1	362588	13.6	20.7	95175	13.7	19.2
541843	13.3	20.8	271982	13.4	20.5	149515	13.5	19.2	38198	13.5	19.0	360235	13.6	20.8	484577	13.7	21.1
72683	13.3	17.7	330844	13.4	21.0	369295	13.5	20.9	82961	13.5	18.6	30071	13.6	18.6	487697	13.7	21.8
318829	13.3	20.7	367392	13.4	21.3	377934	13.5	21.0	61847	13.5	18.9	270125	13.6	21.4	361270	13.7	21.2
167277	13.3	20.5	316902	13.4	20.5	101193	13.5	19.3	331235								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
23453	13.7	19.0	280229	13.7	20.4	100559	13.8	19.3	195773	13.9	19.1	239074	13.9	19.9	323867	13.9	20.8
425969	13.7	20.8	264002	13.7	20.4	410820	13.8	21.7	315804	13.9	20.5	51900	13.9	19.4	117618	13.9	18.8
361390	13.7	20.9	418852	13.7	20.7	328786	13.8	20.2	225431	13.9	19.0	223790	13.9	20.4	335782	13.9	19.9
25596	13.7	17.7	71090	13.7	18.7	167938	13.8	18.7	202390	13.9	19.9	180306	13.9	20.7	114318	13.9	19.1
416800	13.7	20.2	280743	13.7	19.3	447477	13.8	20.5	427240	13.9	21.3	403573	13.9	20.7	254754	13.9	20.6
33949	13.7	17.9	13018	13.7	17.0	78057	13.8	19.7	484316	13.9	21.1	47100	13.9	18.2	415392	13.9	20.4
318731	13.7	20.9	327991	13.7	20.5	289637	13.8	21.9	356999	13.9	20.8	62372	13.9	18.9	236814	13.9	21.3
192071	13.7	20.5	468397	13.7	20.4	252226	13.8	21.2	195918	13.9	19.8	51015	13.9	17.9	35058	13.9	19.4
287385	13.7	21.3	20469	13.7	19.6	479383	13.8	21.2	85172	13.9	20.1	292696	13.9	21.8	64368	13.9	19.3
213314	13.7	20.0	251452	13.7	20.2	268826	13.8	20.9	365843	13.9	19.3	234887	13.9	19.3	28574	13.9	18.9
122326	13.7	20.7	87354	13.7	20.3	480369	13.8	20.6	78092	13.9	19.6	387714	13.9	19.6	323903	14.0	21.2
425915	13.7	20.2	346396	13.7	20.1	32695	13.8	18.0	385116	13.9	19.9	104541	13.9	19.7	420768	14.0	22.2
256913	13.7	19.9	283288	13.7	20.2	135955	13.8	18.8	221394	13.9	20.7	357620	13.9	19.9	128784	14.0	19.2
234601	13.7	19.1	73919	13.7	18.6	413047	13.8	22.3	409499	13.9	21.7	266087	13.9	20.8	19751	14.0	18.7
142943	13.7	19.5	311806	13.7	20.9	516539	13.8	21.9	434986	13.9	20.8	317168	13.9	19.9	515269	14.0	21.4
361661	13.7	20.9	53658	13.7	19.1	51972	13.8	17.5	335403	13.9	20.0	184381	13.9	20.3	306395	14.0	22.3
358211	13.7	21.4	390844	13.7	20.9	416470	13.8	21.8	448854	13.9	20.4	166274	13.9	19.5	31354	14.0	17.0
66986	13.7	18.9	149613	13.7	20.1	158924	13.8	20.0	202542	13.9	21.0	451531	13.9	21.9	236558	14.0	21.3
9708	13.7	17.0	84085	13.7	18.8	130335	13.8	20.0	156564	13.9	19.6	126929	13.9	19.8	398184	14.0	21.8
455705	13.7	19.7	151668	13.7	19.8	257745	13.8	19.6	55465	13.9	19.5	148215	13.9	19.6	42827	14.0	18.8
229139	13.7	19.7	447757	13.7	21.7	293753	13.8	21.3	371788	13.9	20.8	484322	13.9	21.3	36608	14.0	18.8
99764	13.7	19.5	409773	13.7	20.4	188717	13.8	21.4	369197	13.9	20.8	31123	13.9	17.6	82685	14.0	19.1
318869	13.7	20.9	544948	13.7	21.0	172949	13.8	20.3	355392	13.9	19.8	271237	13.9	21.2	485555	14.0	21.0
542725	13.7	21.1	153604	13.7	19.1	491903	13.8	21.1	461027	13.9	20.9	339583	13.9	21.2	261218	14.0	20.8
493244	13.7	21.3	318754	13.7	21.0	321579	13.8	20.1	329687	13.9	20.4	55911	13.9	18.3	420720	14.0	20.7
44591	13.7	17.4	391400	13.7	20.7	359694	13.8	20.5	197745	13.9	21.0	441612	13.9	21.1	322376	14.0	19.9
197881	13.7	21.3	309441	13.7	20.8	4075	13.8	16.5	112516	13.9	19.6	268733	13.9	19.7	274008	14.0	20.9
433001	13.7	20.9	422445	13.7	21.5	58250	13.8	19.5	279065	13.9	19.9	208948	13.9	20.2	356809	14.0	20.0
232415	13.7	19.4	191412	13.7	20.8	452255	13.8	20.7	137091	13.9	18.4	273560	13.9	20.7	399199	14.0	21.2
406723	13.7	21.1	451415	13.8	21.5	231174	13.8	21.1	482568	13.9	20.5	214336	13.9	20.4	19325	14.0	18.0
495662	13.7	20.7	438448	13.8	19.8	158053	13.8	20.1	442513	13.9	21.0	359658	13.9	20.6	334488	14.0	21.7
485771	13.7	20.0	91286	13.8	19.8	208745	13.8	20.9	301895	13.9	19.6	349598	13.9	20.8	387693	14.0	20.4
190325	13.7	19.7	102106	13.8	19.4	105454	13.8	18.4	436525	13.9	21.4	2293	13.9	15.0	519608	14.0	20.9
169559	13.7	20.1	134193	13.8	19.8	321408	13.8	20.5	399941	13.9	20.5	187405	13.9	19.9	315640	14.0	20.2
47906	13.7	18.1	484659	13.8	21.6	335250	13.8	21.8	292415	13.9	20.5	221503	13.9	20.1	263400	14.0	20.3
440085	13.7	19.5	322718	13.8	20.7	332249	13.8	20.1	520677	13.9	21.5	187150	13.9	20.2	485231	14.0	21.2
448356	13.7	20.0	394079	13.8	19.6	50933	13.8	19.0	12837	13.9	18.2	154350	13.9	20.3	186917	14.0	20.3
220209	13.7	20.0	367378	13.8	20.8	466609	13.8	20.7	32517	13.9	17.0	424929	13.9	20.3	273455	14.0	19.3
219341	13.7	20.1	52147	13.8	19.9	312258	13.8	20.3	368622	13.9	21.3	451473	13.9	20.1	466861	14.0	20.4
232730	13.7	19.8	175548	13.8	20.1	85541	13.8	19.7	213003	13.9	18.9	253117	13.9	20.5	262632	14.0	20.6
405604	13.7	21.4	180990	13.8	20.0	372089	13.8	21.1	314943	13.9	21.4	422626	13.9	21.0	139226	14.0	19.3
392643	13.7	22.1	295966	13.8	19.7	332247	13.8	20.6	94716	13.9	19.9	314959	13.9	19.5	337635	14.0	20.9
28168	13.7	17.7	88047	13.8	19.6	516550	13.8	20.7	32671	13.9	19.0	76748	13.9	18.2	157923	14.0	20.8
314934	13.7	20.9	51075	13.8	16.9	467250	13.8	20.0	402264	13.9	22.0	451421	13.9	21.8	521715	14.0	21.0
336927	13.7	20.7	81751	13.8	19.8	541439	13.8	20.3	183658	13.9	20.1	162456	13.9	18.8	309491	14.0	20.3
421058	13.7	20.8	378402	13.8	21.2	160644	13.8	18.9	256921	13.9	19.4	27467	13.9	19.6	230589	14.0	18.9
38601	13.7	19.0	425441	13.8	20.1	106615	13.8	19.6	413965	13.9	20.8	332260	13.9	20.1	370267	14.0	20.6
436380	13.7	21.5	106999	13.8	18.3	270855	13.8	19.7	194140	13.9	19.7	152092	13.9	20.3	201301	14.0	19.9
494145	13.7	20.9	286687	13.8	19.2	128467	13.8	20.5	314228	13.9	20.1	107810	13.9	19.2	84039	14.0	19.3
8055	13.7	18.4	65540	13.8	17.0	287355	13.8	20.6	420573	13.9	20.7	86873	13.9	18.1	418768	14.0	20.3
89512	13.7	19.4	421208	13.8	19.7	28849	13.8	18.7	266174	13.9	19.6	377251	13.9	19.6	406135	14.0	20.4
152564	13.7	22.4	405003	13.8	21.2	219157	13.8	21.2	425449	13.9	20.4	176871	13.9	20.1	408639	14.0	21.2
1885	13.7	17.7	504024	13.8	20.0	47717	13.8	18.9	490166	13.9	21.6	450011	13.9	20.7	229287	14.0	19.8
453468	13.7	21.0	12686	13.8	18.0	248972	13.8	19.5	458208	13.9	21.6	147466	13.9	19.5	412102	14.0	21.9
82767	13.7	19.3	283756	13.8	20.3	483756	13.8	20.0	34599	13.9	19.2	182112	13.9	20.6	346236	14.0	20.1
336452	13.7	20.3	268754	13.8	20.1	391445	13.8	21.5	16394	13.9	16.7	75370	13.9	17.4	110806	14.0	19.2
375072	13.7	21.5	25009	13.8	19.1	448016	13.8	19.7	307757	13.9	19.6	465554	13.9	20.5	544553	14.0	20.7
488613	13.7	22.9	323971	13.8	20.7	486035	13.8	20.8	146991	13.9	19.5	15684	13.9	18.5	494682	14.0	21.1
450141	13.7	21.0	436099	13.8	20.7	320358	13.8	20.5	136989	13.9	19.4	191370	13.9	19.2	119347	14.0	20.8
355402	13.7	20.6	544863	13.8	21.0	295808	13.8	20.3	24359	13.9	17.6	128640	13.9	20.5	99325	14.0	18.9
421215	13.7	20.9	489807	13.8	20.4	425488	13.8	20.8	452866	13.9	21.3	222088	13.9	20.9	222160	14.0	18.9
140036	13.7	18.4	461106	13.8	20.0	223884	13.8	19.3	417360	13.9	21.2	245856	13.9	21.1	290047	14.0	21.1
27833	13.7	20.4	244438	13.8	20.1	407763	13.8	21.0	226966	13.9	20.5	147053	13.9	19.9	421359	14.0	20.5
294775	13.7	19.9	145231	13.8	19.9	370228	13.8	21.2	130208	13.9	19.4	384662	13.9	20.0	208056	14.0	19.7
285921	13.7	21.0	90614	13.8	18.7	544511	13.8	19.9	338120	13.9	21.9	482065	13.9	20.3	121290	14.0	19.8
171013	13.7	19.0	218545	13.8	19.3	171434	13.8	20.5	29713	13.9	18.4	59191	13.9	18.1	192585	14.0	18.5
339799	13.7	20.4	182159	13.8	19.6	291956	13.8	20.8	518800	13.9	21.0	13329	13.9	18.2	153453	14.0	20.4
413858	13.7	20.6	455947	13.8	21.4	518137	13.8	20.6	64919	13.9	19.3	373808	13.9	20.9	451120	14.0	20.3
295480	13.7	21.2	36298	13.8	16.8	8277	13.8	17.5	296927	13							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
144024	14.1	19.8	495300	14.1	21.2	400651	14.2	20.7	458450	14.2	20.9	438049	14.3	22.0	448486	14.4	20.7
44997	14.1	19.8	58749	14.1	18.0	323944	14.2	21.0	25136	14.2	19.6	63581	14.3	19.8	445633	14.4	20.6
409306	14.1	20.3	273270	14.1	20.2	261127	14.2	20.0	370492	14.2	20.9	48208	14.3	18.6	22422	14.4	18.8
414597	14.1	21.0	440493	14.1	21.2	261256	14.2	20.1	289905	14.2	20.2	201793	14.3	19.5	340166	14.4	20.4
423094	14.1	19.5	395590	14.1	21.9	465780	14.2	20.4	232421	14.2	18.5	109960	14.3	19.7	293401	14.4	20.9
44785	14.1	19.2	544973	14.1	20.7	165722	14.2	19.9	353441	14.2	19.8	310724	14.3	21.9	351333	14.4	21.3
121124	14.1	18.9	14642	14.1	18.7	485113	14.2	20.4	271846	14.2	21.4	252478	14.3	20.4	338431	14.4	19.5
491216	14.1	20.4	370529	14.1	21.3	262804	14.2	20.5	184541	14.2	21.0	190960	14.3	19.6	468372	14.4	21.0
467282	14.1	20.4	79639	14.1	17.7	201348	14.2	19.3	424228	14.2	20.9	58082	14.3	18.7	458163	14.4	21.1
105143	14.1	20.0	53661	14.1	18.0	298398	14.2	20.4	392866	14.2	20.4	385119	14.3	20.7	217690	14.4	20.2
92653	14.1	19.7	143917	14.1	18.7	253239	14.2	19.3	454805	14.2	22.4	424247	14.3	21.2	111344	14.4	18.7
355983	14.1	20.3	370537	14.1	20.5	23596	14.2	17.6	347660	14.2	21.1	464719	14.3	21.4	290590	14.4	21.5
515771	14.1	21.4	407919	14.1	20.6	74508	14.2	19.1	515257	14.2	20.9	86950	14.3	19.3	483442	14.4	21.8
230153	14.1	19.9	113293	14.1	19.3	84249	14.2	19.2	391442	14.2	19.9	265828	14.3	20.5	22566	14.4	18.4
339510	14.1	20.2	330243	14.1	21.5	314891	14.2	20.4	399801	14.2	20.5	453699	14.3	20.9	142440	14.4	20.4
464756	14.1	21.6	293041	14.1	20.9	412389	14.2	19.8	108362	14.2	20.0	50491	14.3	18.3	1648	14.4	15.2
485584	14.1	20.5	362996	14.1	20.8	418701	14.2	21.4	31874	14.2	18.4	245415	14.3	20.8	65265	14.4	19.4
272108	14.1	20.5	416170	14.1	20.0	166854	14.2	19.5	367368	14.2	19.9	363551	14.3	21.3	33246	14.4	17.9
407532	14.1	20.6	419400	14.1	19.5	444898	14.2	20.8	50209	14.3	19.6	487814	14.3	20.6	255793	14.4	21.0
118608	14.1	19.0	340063	14.1	21.1	493026	14.2	20.3	391805	14.3	20.1	49605	14.3	17.7	185807	14.4	20.7
233684	14.1	19.8	440465	14.1	21.4	39414	14.2	19.2	381017	14.3	20.6	113281	14.3	19.1	192330	14.4	19.2
91384	14.1	18.3	438212	14.1	20.9	364943	14.2	21.4	261580	14.3	20.0	68535	14.3	19.0	173002	14.4	20.2
366699	14.1	20.7	411779	14.1	20.7	152985	14.2	19.7	181110	14.3	20.5	471982	14.3	21.4	84751	14.4	19.4
258419	14.1	20.4	542822	14.1	20.4	142646	14.2	19.8	157199	14.3	20.1	4480	14.3	17.3	444804	14.4	22.4
492448	14.1	21.9	201238	14.1	20.6	42246	14.2	18.0	235756	14.3	20.4	50716	14.3	19.3	448883	14.4	21.6
389637	14.1	20.1	53272	14.1	19.0	489870	14.2	21.4	535314	14.3	21.1	217032	14.3	20.2	268772	14.4	19.7
320963	14.1	20.6	545049	14.1	20.8	50842	14.2	18.1	206748	14.3	19.8	234605	14.3	19.3	378714	14.4	20.6
201453	14.1	20.0	281761	14.1	20.0	139286	14.2	20.2	16513	14.3	17.0	90171	14.3	19.7	290283	14.4	21.4
104832	14.1	19.2	188579	14.1	19.4	397965	14.2	21.0	95074	14.3	18.4	422238	14.3	20.9	453665	14.4	20.8
143035	14.1	19.5	543080	14.1	20.9	355419	14.2	21.0	369066	14.3	19.9	366826	14.3	19.8	283975	14.4	20.9
6494	14.1	16.8	210550	14.1	21.0	339842	14.2	20.9	81379	14.3	19.8	344161	14.3	18.1	347833	14.4	20.6
86467	14.1	18.3	91420	14.1	19.0	489738	14.2	20.1	393348	14.3	23.0	449756	14.3	20.4	450940	14.4	20.1
180320	14.1	20.2	405552	14.1	20.6	313353	14.2	20.3	281680	14.3	19.8	520629	14.3	21.7	446721	14.4	20.5
314914	14.1	21.4	86009	14.1	20.2	145347	14.2	19.6	541746	14.3	21.5	521944	14.3	21.0	260836	14.4	20.9
492045	14.1	20.3	197780	14.1	20.7	242606	14.2	19.6	78420	14.3	19.3	343235	14.3	20.5	271910	14.4	19.5
30317	14.1	17.5	97677	14.1	18.8	516665	14.2	22.0	83198	14.3	18.9	442703	14.3	21.1	378524	14.4	21.1
287178	14.1	19.9	314858	14.1	20.2	356971	14.2	21.5	87199	14.3	19.7	25401	14.3	16.7	18502	14.4	19.9
445744	14.1	20.1	232954	14.1	20.0	399383	14.2	21.9	392755	14.3	20.4	174173	14.3	20.3	114176	14.4	20.4
519970	14.1	20.4	460617	14.1	21.2	232457	14.2	20.0	249499	14.3	20.0	276255	14.3	19.8	365611	14.4	20.3
425925	14.1	20.9	521449	14.1	21.5	378461	14.2	21.7	281123	14.3	19.3	6396	14.3	17.6	45397	14.4	18.4
479509	14.1	20.4	339790	14.1	21.7	227409	14.2	19.0	26410	14.3	17.7	411054	14.3	20.7	231558	14.4	20.6
224624	14.1	19.6	439895	14.1	21.9	510780	14.2	19.0	65529	14.3	20.2	439860	14.3	21.8	404035	14.4	21.0
112669	14.1	19.1	447909	14.1	20.9	541841	14.2	20.2	421628	14.3	21.1	368809	14.3	19.8	455890	14.4	21.2
365909	14.1	18.7	161444	14.1	19.5	78609	14.2	18.6	302930	14.3	21.0	343766	14.3	21.0	440597	14.4	21.2
542178	14.1	21.4	77009	14.1	19.1	70787	14.2	18.3	229616	14.3	19.8	83415	14.3	19.1	378411	14.4	20.7
506054	14.1	21.5	458156	14.1	19.4	350257	14.2	20.4	473922	14.3	20.6	37055	14.3	18.8	444050	14.4	22.3
402760	14.1	20.3	197414	14.1	19.0	179212	14.2	20.6	526995	14.3	20.6	543097	14.3	21.8	76399	14.4	17.9
316545	14.1	20.8	44306	14.1	19.5	177786	14.2	19.9	358134	14.3	20.9	402611	14.3	21.1	398087	14.4	20.5
388133	14.1	20.8	327488	14.1	20.6	197921	14.2	19.8	25863	14.3	19.0	189082	14.3	20.5	231038	14.4	20.2
149008	14.1	19.2	363190	14.1	20.7	278415	14.2	21.0	114226	14.3	19.6	274947	14.3	20.4	245401	14.4	20.6
485519	14.1	20.7	15753	14.1	18.6	83417	14.2	19.1	149301	14.3	20.1	18253	14.3	18.7	413607	14.4	21.2
475676	14.1	20.7	38764	14.1	18.3	57766	14.2	19.1	224790	14.3	19.3	9888	14.3	16.9	481831	14.4	20.3
319922	14.1	19.6	166517	14.1	20.0	462454	14.2	21.7	487749	14.3	21.1	445140	14.3	20.6	134514	14.4	18.9
27905	14.1	19.3	265163	14.2	20.4	311084	14.2	20.2	364813	14.3	19.8	283014	14.3	20.3	222427	14.4	20.7
256295	14.1	20.7	85472	14.2	18.7	32928	14.2	17.8	322541	14.3	20.2	202038	14.4	20.1	258244	14.4	20.9
241987	14.1	20.7	491998	14.2	20.8	36743	14.2	18.5	160626	14.3	19.8	465571	14.4	21.1	421373	14.4	21.0
196143	14.1	20.1	110681	14.2	19.3	434947	14.2	22.0	454408	14.3	20.5	408873	14.4	21.1	132927	14.4	19.4
227602	14.1	20.6	434572	14.2	21.1	487706	14.2	21.4	410959	14.3	20.8	462425	14.4	20.8	150570	14.4	20.5
461858	14.1	21.7	264800	14.2	20.2	190826	14.2	19.9	186410	14.3	19.9	332686	14.4	21.7	270668	14.4	20.5
142417	14.1	19.4	387881	14.2	21.2	10043	14.2	16.6	425223	14.3	20.7	255969	14.4	21.2	87884	14.4	19.1
427106	14.1	21.7	316616	14.2	20.8	236771	14.2	20.5	83853	14.3	18.8	456266	14.4	21.0	90093	14.4	18.6
25272	14.1	19.4	108775	14.2	19.7	200158	14.2	18.6	60708	14.3	19.1	529673	14.4	20.7	335284	14.4	20.7
47108	14.1	17.6	200390	14.2	20.3	405389	14.2	20.4	201247	14.3	19.3	419111	14.4	20.8	337913	14.4	20.9
315002	14.1	20.6	353385	14.2	21.4	376548	14.2	20.3	181199	14.3	20.4	194677	14.4	19.4	109541	14.4	19.5
406938	14.1	21.3	107910	14.2	18.5	395200	14.2	20.5	489787	14.3	19.5	162365	14.4	19.2	116383	14.4	19.0
9869	14.1	16.2	437873	14.2	21.5	291136	14.2	19.9	245952	14.3	20.1	125494	14.4	19.2	197520	14.4	19.4
322746	14.1	19.6	327486	14.2	21.1	25067	14.2	18.3	198089	14.3	20.5	354645	14.4	21.4	220291	14.4	18.2
127642	14.1	19.1	206223	14.2	19.8	416188	14.2	20.4	87916	14.3	19.3	82200	14.4	19.4	493161	14.4	21.2
475427	14.1	21.9	266368	14.2	20.7	18138	14.2	17.9	493122	14.3</							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
515812	14.4	21.3	451577	14.5	20.9	188606	14.6	20.9	397258	14.7	21.1	488965	14.7	21.5	34931	14.8	18.6
136333	14.4	20.1	245911	14.5	20.3	427647	14.6	19.9	210970	14.7	19.3	27415	14.7	18.3	125819	14.8	18.6
286917	14.4	20.0	121147	14.5	18.6	386924	14.6	20.3	114356	14.7	19.3	376777	14.7	20.9	498492	14.8	19.7
286941	14.4	20.5	397502	14.5	21.9	235417	14.6	20.1	251126	14.7	19.9	332276	14.7	21.9	492771	14.8	21.4
287396	14.5	21.1	413294	14.5	20.8	122104	14.6	19.2	3811	14.7	15.3	452876	14.7	19.7	196132	14.8	19.2
2316	14.5	16.8	16947	14.5	18.1	495477	14.6	20.0	99294	14.7	18.7	1018	14.7	15.6	279254	14.8	20.5
494104	14.5	21.0	60271	14.5	20.1	90558	14.6	18.4	444929	14.7	19.5	94892	14.7	18.6	291442	14.8	20.4
161073	14.5	21.6	124428	14.5	19.8	214390	14.6	19.9	114879	14.7	19.4	210042	14.7	20.0	197207	14.8	19.4
163308	14.5	19.0	332285	14.5	21.4	172619	14.6	19.6	288708	14.7	20.7	400526	14.7	20.1	83407	14.8	19.5
117110	14.5	19.6	125872	14.5	19.5	40491	14.6	19.3	335234	14.7	19.6	51324	14.7	17.3	185597	14.8	19.8
108730	14.5	19.2	461384	14.5	21.1	290623	14.6	20.5	380465	14.7	20.9	26072	14.7	18.4	61403	14.8	18.4
422275	14.5	21.2	104353	14.5	19.3	191472	14.6	19.8	834	14.7	14.6	305216	14.7	20.2	545038	14.8	20.5
329630	14.5	21.1	85487	14.5	20.4	441588	14.6	22.0	240451	14.7	19.8	78744	14.7	19.7	462763	14.8	21.1
351785	14.5	21.4	281384	14.5	20.8	336712	14.6	19.8	362382	14.7	20.9	63871	14.7	19.5	449915	14.8	21.9
390850	14.5	21.2	25574	14.5	17.3	406694	14.6	21.0	485574	14.7	19.8	153417	14.7	20.7	422063	14.8	21.9
519349	14.5	21.6	26382	14.5	16.2	457850	14.6	21.4	157085	14.7	19.3	55381	14.7	19.0	225698	14.8	19.2
411441	14.5	21.1	242524	14.5	20.2	313519	14.6	21.2	38068	14.7	19.2	445316	14.7	20.9	411334	14.8	22.1
444854	14.5	20.1	491453	14.5	21.1	333525	14.6	20.0	394861	14.7	19.8	268792	14.7	19.7	332419	14.8	20.3
29721	14.5	18.5	496631	14.5	20.5	97602	14.6	17.7	494907	14.7	21.5	362320	14.7	19.4	418898	14.8	20.1
81427	14.5	19.0	88909	14.5	19.5	541693	14.6	21.1	211240	14.7	20.8	111532	14.7	20.4	309305	14.8	23.1
105182	14.5	19.2	445039	14.5	21.5	389346	14.6	21.6	194842	14.7	19.0	17670	14.7	18.6	324887	14.8	20.3
445216	14.5	20.1	178976	14.5	19.9	4758	14.6	17.6	535031	14.7	22.3	305271	14.7	20.6	494028	14.8	20.2
147536	14.5	19.2	114148	14.5	19.7	172774	14.6	18.0	210591	14.7	19.5	311866	14.7	21.0	287636	14.8	19.5
306041	14.5	20.9	28845	14.5	17.7	76175	14.6	18.4	228164	14.7	21.3	374251	14.7	20.9	378442	14.8	21.3
304811	14.5	20.7	318699	14.5	21.1	506949	14.6	20.2	229262	14.7	19.4	410874	14.7	21.0	135777	14.8	21.1
247672	14.5	19.6	109658	14.5	20.4	532387	14.6	21.4	350467	14.7	20.6	11005	14.7	17.1	307694	14.8	21.7
196022	14.5	20.5	316454	14.5	19.7	296987	14.6	19.6	349652	14.7	20.5	456258	14.7	21.0	314701	14.8	20.0
267911	14.5	19.9	48207	14.5	18.5	61728	14.6	18.9	544967	14.7	20.4	171502	14.7	18.2	16312	14.8	18.5
218357	14.5	20.4	77847	14.5	19.6	227067	14.6	20.6	228286	14.7	20.2	44563	14.7	17.5	62230	14.8	19.1
172399	14.5	18.5	165054	14.5	19.7	86953	14.6	20.2	194452	14.7	19.6	544726	14.7	20.3	234536	14.8	20.5
494780	14.5	21.3	194910	14.5	19.3	201337	14.6	19.5	209717	14.7	20.1	495981	14.7	21.8	538361	14.8	21.3
473837	14.5	20.4	281658	14.5	20.4	167874	14.6	19.8	208738	14.7	21.4	57649	14.7	17.6	483041	14.8	21.4
518906	14.5	21.1	293194	14.5	20.3	91896	14.6	17.5	419379	14.7	20.1	70820	14.7	18.8	198120	14.8	21.2
148612	14.5	20.0	465538	14.5	20.1	344296	14.6	21.9	444536	14.7	20.8	419360	14.7	20.5	102174	14.8	19.0
150575	14.5	19.8	541181	14.5	21.1	212754	14.6	19.8	490634	14.7	19.4	405382	14.7	19.8	406128	14.8	21.5
270937	14.5	19.8	142017	14.5	19.5	315682	14.6	19.7	443248	14.7	20.0	418279	14.7	21.1	194923	14.8	20.0
532656	14.5	21.5	317197	14.5	20.1	216615	14.6	21.2	344155	14.7	20.9	443925	14.7	20.5	339936	14.8	20.5
48188	14.5	18.4	345295	14.5	21.1	336703	14.6	19.7	414595	14.7	21.0	347887	14.7	22.2	52210	14.8	18.2
464165	14.5	20.5	48469	14.5	17.2	236355	14.6	20.2	451455	14.7	21.8	275086	14.7	20.0	115533	14.8	19.4
77724	14.5	17.9	271514	14.5	20.8	116129	14.6	19.3	215191	14.7	19.7	479467	14.7	19.9	179106	14.8	20.2
418765	14.5	20.4	49184	14.5	18.0	275282	14.6	20.1	421691	14.7	21.2	417846	14.7	21.3	481372	14.8	20.0
412814	14.5	21.8	333838	14.5	20.0	488627	14.6	21.3	81394	14.7	17.8	269644	14.7	20.9	375055	14.8	21.3
195961	14.5	20.2	414871	14.5	21.3	452507	14.6	20.9	15731	14.7	18.3	3561	14.7	17.2	510879	14.8	19.9
30080	14.5	19.1	512256	14.5	20.0	247632	14.6	20.5	197070	14.7	19.7	323181	14.7	20.3	241816	14.8	21.0
446893	14.5	21.4	193072	14.5	19.9	466205	14.6	20.9	73518	14.7	18.5	199276	14.7	20.1	3389	14.8	16.3
545018	14.5	20.6	202551	14.5	20.3	255020	14.6	20.0	45773	14.7	18.3	129692	14.7	19.9	30173	14.8	18.6
518387	14.5	22.0	74546	14.5	19.3	252224	14.6	21.1	86923	14.7	19.8	452840	14.7	21.5	542925	14.8	22.1
146710	14.5	19.5	236855	14.5	20.6	113913	14.6	20.3	226995	14.7	19.5	345863	14.7	20.8	337690	14.8	20.2
286392	14.5	20.2	458648	14.5	21.0	388077	14.6	20.7	521621	14.7	20.6	219888	14.7	19.7	324720	14.8	20.6
301956	14.5	19.4	151602	14.5	19.4	65350	14.6	19.0	232978	14.7	19.3	329364	14.7	21.7	364841	14.8	20.5
146378	14.5	18.6	81537	14.6	18.7	290746	14.6	21.0	55351	14.7	18.6	85156	14.7	19.6	187283	14.8	20.1
110016	14.5	19.6	71991	14.6	17.6	140470	14.6	18.8	213662	14.7	20.6	431183	14.8	20.5	197744	14.8	20.6
387997	14.5	20.2	4770	14.6	17.5	323503	14.6	20.6	252424	14.7	20.4	217592	14.8	19.7	524274	14.8	22.5
19154	14.5	18.4	369170	14.6	21.4	126607	14.6	19.9	183111	14.7	20.2	445598	14.8	21.2	194706	14.8	19.3
458585	14.5	20.6	403692	14.6	20.9	410468	14.6	20.9	393398	14.7	20.8	312317	14.8	19.2	515786	14.8	21.0
223774	14.5	20.4	177496	14.6	20.0	489889	14.6	22.1	422107	14.7	20.1	399377	14.8	21.8	8326	14.8	18.1
449556	14.5	20.6	502391	14.6	21.2	261550	14.6	20.3	288916	14.7	20.2	123166	14.8	19.7	449329	14.8	20.5
167114	14.5	20.9	360352	14.6	21.1	28645	14.6	19.1	4837	14.7	16.8	329844	14.8	21.1	214296	14.8	20.4
183490	14.5	19.4	156794	14.6	18.6	267513	14.6	20.4	343323	14.7	20.0	274515	14.8	19.7	487287	14.8	21.5
83454	14.5	19.5	173732	14.6	19.2	421710	14.6	21.3	134054	14.7	19.3	447742	14.8	21.9	448893	14.8	21.7
119101	14.5	19.6	267682	14.6	21.0	198259	14.6	19.9	116933	14.7	19.9	31596	14.8	17.6	218478	14.8	19.2
123217	14.5	20.3	235919	14.6	20.1	108666	14.6	19.3	229717	14.7	20.6	102562	14.8	20.2	433021	14.8	21.2
21236	14.5	18.0	230713	14.6	20.2	348694	14.6	20.2	451866	14.7	22.0	17960	14.8	18.1	481781	14.8	21.0
416172	14.5	21.0	126360	14.6	19.9	377963	14.6	21.0	542580	14.7	21.2	543732	14.8	21.7	475722	14.8	20.7
299553	14.5	21.0	348132	14.6	19.6	421396	14.6	19.7	113634	14.7	19.6	328456	14.8	21.5	260938	14.8	20.5
311622	14.5	19.8	519106	14.6	20.7	519564	14.6	21.3	434610	14.7	21.2	64200	14.8	18.4	121271	14.8	20.1
490815	14.5	21.5	177966	14.6	20.5	120701	14.6	20.3	489232	14.7	21.6	364391	14.8	20.8	72595	14.8	17.5
303589	14.5	19.7	505262	14.6	19.8	324040	14.6	20.7	225157	14.7	21.0	27500	14.8	18.4	298583	14.8	19.1
61933	14.5	19.8	62361	14.6	19.4	307813	14.6	19.8	66395	14.7</							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
5675	14.9	17.5	12901	14.9	17.2	219370	14.9	20.8	48514	15.0	19.5	28129	15.1	16.6	62281	15.2	18.9
80969	14.9	19.5	281689	14.9	22.0	52804	14.9	19.3	452811	15.0	21.7	13550	15.1	17.5	490439	15.2	21.7
376595	14.9	21.0	8926	14.9	18.9	74801	14.9	19.0	482561	15.0	21.1	492864	15.1	21.0	135030	15.2	20.4
193073	14.9	20.8	381025	14.9	21.0	118737	14.9	19.9	197061	15.0	19.5	194799	15.1	19.1	432298	15.2	21.4
517169	14.9	21.6	10804	14.9	17.2	84443	14.9	18.4	27725	15.0	15.8	344432	15.1	19.0	234462	15.2	20.6
408928	14.9	20.3	297335	14.9	19.8	440348	14.9	20.9	162973	15.0	19.8	439512	15.1	20.1	229777	15.2	20.0
275895	14.9	21.1	110100	14.9	19.4	234973	14.9	19.0	349954	15.0	21.1	175467	15.1	19.9	275823	15.2	20.8
505355	14.9	19.9	110870	14.9	20.0	482948	14.9	21.0	92519	15.0	17.9	410577	15.1	20.4	114183	15.2	18.9
412103	14.9	21.3	402060	14.9	21.3	500715	14.9	20.4	154916	15.0	20.7	416457	15.1	20.2	543339	15.2	21.2
273404	14.9	19.6	33900	14.9	19.5	456285	14.9	21.7	415640	15.0	20.9	339513	15.1	20.3	452584	15.2	20.8
99422	14.9	18.8	297381	14.9	21.4	293116	14.9	20.5	138526	15.0	17.6	441605	15.1	20.7	285726	15.2	20.6
41453	14.9	17.9	278576	14.9	20.6	541521	14.9	22.0	438683	15.0	21.8	303044	15.1	19.2	195014	15.2	19.2
54869	14.9	18.4	410951	14.9	19.6	464330	14.9	21.0	240702	15.1	18.8	30869	15.1	17.4	3171	15.2	15.6
349983	14.9	20.3	271953	14.9	19.1	237758	14.9	19.5	493960	15.1	20.2	100035	15.1	19.8	346392	15.2	20.6
419490	14.9	20.2	307772	14.9	21.5	443134	14.9	20.1	225338	15.1	20.0	139309	15.1	19.1	349144	15.2	21.0
24819	14.9	17.2	65498	14.9	18.3	366143	14.9	21.2	398599	15.1	20.8	441496	15.1	21.8	78418	15.2	18.4
324685	14.9	21.0	356391	14.9	20.2	50902	14.9	18.9	110222	15.1	20.5	377004	15.1	21.6	364837	15.2	20.2
262892	14.9	20.5	159773	14.9	20.1	423135	14.9	19.8	380437	15.1	20.9	530367	15.1	20.8	289167	15.2	20.7
366232	14.9	20.1	271219	14.9	20.5	447907	14.9	19.9	339009	15.1	20.7	4686	15.1	17.2	43739	15.2	18.8
363885	14.9	22.0	14140	14.9	19.5	486878	14.9	21.5	424776	15.1	20.7	324017	15.1	20.2	391120	15.2	20.4
99930	14.9	18.2	168585	14.9	19.6	451564	14.9	20.6	301933	15.1	20.4	307436	15.1	20.3	426294	15.2	21.4
247548	14.9	20.0	36682	14.9	17.0	419079	14.9	21.3	236746	15.1	19.4	460126	15.1	20.5	402717	15.2	20.5
202805	14.9	20.6	461559	14.9	19.8	277302	14.9	19.8	518637	15.1	20.0	304098	15.1	19.0	376266	15.2	20.4
262384	14.9	20.3	90508	14.9	18.7	385525	14.9	20.5	194270	15.1	20.1	230642	15.1	20.7	512254	15.2	21.1
127743	14.9	19.4	63688	14.9	18.2	296558	15.0	20.5	384712	15.1	20.2	422058	15.1	20.7	88346	15.2	19.5
222982	14.9	19.9	378498	14.9	20.4	62439	15.0	18.9	77968	15.1	18.5	462171	15.1	21.7	304012	15.2	21.3
229664	14.9	20.5	215732	14.9	18.8	11335	15.0	16.9	465784	15.1	20.4	405051	15.1	20.8	217366	15.2	20.3
226363	14.9	19.7	435025	14.9	21.2	438165	15.0	21.4	56834	15.1	17.6	272369	15.1	21.1	26895	15.2	18.3
91324	14.9	18.8	201195	14.9	20.7	57073	15.0	19.1	232686	15.1	19.6	484695	15.1	20.1	321933	15.2	20.8
265430	14.9	20.9	445592	14.9	22.2	309865	15.0	20.2	168037	15.1	19.9	447873	15.1	21.7	51878	15.2	19.5
102661	14.9	20.1	494930	14.9	20.9	147499	15.0	19.2	15930	15.1	17.9	71790	15.1	18.1	348873	15.2	21.8
148338	14.9	20.4	125803	14.9	20.3	243678	15.0	20.0	465013	15.1	20.7	161529	15.1	20.2	458596	15.2	19.6
87028	14.9	19.1	14912	14.9	16.5	510862	15.0	19.6	179229	15.1	20.1	281324	15.1	20.6	164092	15.2	19.4
95755	14.9	20.9	414501	14.9	20.6	318956	15.0	20.4	32734	15.1	18.3	377510	15.1	20.5	269639	15.2	20.7
188071	14.9	20.2	224636	14.9	20.3	231824	15.0	19.5	51904	15.1	18.1	373044	15.1	20.9	343101	15.2	20.7
196429	14.9	19.6	328497	14.9	19.7	189665	15.0	19.9	10702	15.1	18.1	299649	15.1	20.9	497592	15.2	21.3
545120	14.9	21.4	544004	14.9	20.9	223833	15.0	19.4	371292	15.1	20.9	356082	15.1	19.8	362260	15.2	19.6
77050	14.9	18.6	116426	14.9	19.4	482547	15.0	20.3	88051	15.1	19.2	236006	15.1	19.5	179605	15.2	19.9
263426	14.9	19.8	68930	14.9	18.8	90047	15.0	19.0	148024	15.1	19.5	410791	15.1	21.7	145358	15.2	19.7
197344	14.9	18.4	76097	14.9	18.8	216225	15.0	20.2	472253	15.1	19.4	49594	15.1	18.7	216613	15.2	20.5
156236	14.9	19.7	2936	14.9	16.1	319041	15.0	21.0	445667	15.1	21.2	451835	15.1	18.8	424948	15.2	21.3
450635	14.9	20.4	48167	14.9	19.6	217462	15.0	20.0	249495	15.1	19.3	227666	15.1	19.8	273523	15.2	19.5
137259	14.9	19.1	464068	14.9	21.1	350000	15.0	19.3	97189	15.1	19.8	400329	15.1	19.9	191427	15.2	19.0
176293	14.9	20.1	196232	14.9	19.7	288302	15.0	19.4	457994	15.1	21.3	502358	15.1	20.4	47822	15.2	18.5
84677	14.9	19.3	544331	14.9	20.7	21130	15.0	16.8	277744	15.1	20.8	406162	15.1	21.4	163120	15.2	18.8
412651	14.9	21.1	217562	14.9	20.7	6826	15.0	16.8	54304	15.1	17.9	120398	15.1	20.3	84752	15.2	18.4
523434	14.9	21.1	428090	14.9	21.4	75375	15.0	17.4	453904	15.1	21.1	259538	15.1	19.1	484516	15.2	20.8
526516	14.9	22.6	416219	14.9	20.4	299064	15.0	19.2	538418	15.1	21.0	188243	15.1	20.0	312285	15.2	20.0
45042	14.9	16.7	216778	14.9	20.3	120968	15.0	18.8	111132	15.1	17.6	13519	15.1	18.6	252643	15.2	19.1
126120	14.9	19.6	361777	14.9	21.1	238315	15.0	19.8	317006	15.1	20.7	398256	15.1	21.9	454849	15.2	20.1
395558	14.9	21.4	270695	14.9	21.3	227126	15.0	20.5	439609	15.1	20.0	320848	15.1	20.0	252314	15.2	20.1
182067	14.9	19.6	453189	14.9	20.8	270777	15.0	21.4	67308	15.1	17.8	416703	15.1	19.1	518484	15.2	20.2
338242	14.9	20.7	452404	14.9	21.3	42477	15.0	19.5	542769	15.1	21.4	47549	15.1	18.1	480809	15.2	21.2
197080	14.9	20.6	249320	14.9	20.2	28156	15.0	18.7	76465	15.1	17.7	84307	15.1	18.2	288126	15.2	19.7
331859	14.9	20.6	272294	14.9	20.6	27228	15.0	18.9	355298	15.1	19.7	251130	15.1	20.3	228288	15.2	19.2
362199	14.9	20.1	424301	14.9	22.0	231472	15.0	19.3	484508	15.1	19.1	181866	15.1	18.0	190914	15.2	21.0
166202	14.9	20.6	172261	14.9	20.5	268813	15.0	20.6	239305	15.1	19.8	277871	15.2	20.1	116539	15.2	19.3
521932	14.9	21.5	379540	14.9	20.0	167452	15.0	19.0	455475	15.1	21.3	362675	15.2	20.3	174275	15.2	21.0
274252	14.9	21.1	389365	14.9	21.1	460842	15.0	21.1	109431	15.1	19.4	252513	15.2	20.0	364253	15.2	20.8
455487	14.9	20.3	510086	14.9	20.2	463344	15.0	20.3	420919	15.1	20.1	407787	15.2	19.6	494103	15.2	20.9
466687	14.9	20.4	167863	14.9	19.7	454595	15.0	19.9	46885	15.1	19.0	277508	15.2	20.5	180418	15.2	18.6
313219	14.9	20.8	285525	14.9	19.8	542088	15.0	20.6	402619	15.1	21.5	252239	15.2	20.3	212236	15.2	19.6
437765	14.9	20.0	259019	14.9	21.6	226052	15.0	20.1	541081	15.1	20.7	317553	15.2	21.0	236863	15.2	21.1
337376	14.9	20.6	276729	14.9	19.9	270269	15.0	20.4	494728	15.1	21.2	194961	15.2	19.7	320768	15.2	20.0
521461	14.9	21.3	403611	14.9	21.1	256264	15.0	20.3	543137	15.1	21.0	332430	15.2	21.0	495957	15.2	19.9
321697	14.9	20.8	324065	14.9	20.1	334065	15.0	20.9	2683	15.1	15.9	201393	15.2	20.3	128624	15.2	20.1
109683	14.9	19.1	454249	14.9	20.3	251244	15.0	20.4	184864	15.1	20.0	151661	15.2	18.6	189109	15.2	20.0
26419	14.9	16.6	118510	14.9	19.9	107671	15.0	19.3	270595	15.1	21.0	319514	15.2	21.3	314272	15.2	19.7
122590	14.9	19.8	260555	14.9	19.8	87130	15.0	21.0	491280	1							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
372775	15.2	20.3	391461	15.3	20.5	541960	15.4	21.1	327	15.4	13.9	465760	15.5	20.5	404557	15.5	20.5
373963	15.2	21.3	399813	15.3	21.1	235555	15.4	19.9	209271	15.4	19.5	388521	15.5	20.2	318197	15.5	20.9
242132	15.2	19.5	285003	15.3	20.5	169320	15.4	20.1	111313	15.4	19.4	163582	15.5	19.8	173439	15.5	20.4
496605	15.2	20.2	51645	15.3	18.8	517711	15.4	21.4	269880	15.4	19.7	317100	15.5	20.9	337078	15.5	22.0
124270	15.2	19.3	260959	15.3	20.2	242144	15.4	18.7	50855	15.4	18.9	185922	15.5	19.6	178240	15.5	19.9
453196	15.2	20.7	252448	15.3	19.6	418501	15.4	20.9	369989	15.4	22.6	308618	15.5	20.9	30187	15.5	18.6
275808	15.2	21.2	84088	15.3	19.5	287292	15.4	21.8	278526	15.4	21.0	240113	15.5	20.3	475696	15.5	19.8
268662	15.2	20.1	213268	15.3	20.2	447804	15.4	22.4	174150	15.4	21.1	355477	15.5	20.9	133613	15.5	20.5
299559	15.2	20.8	36446	15.3	19.0	543937	15.4	21.0	51885	15.4	20.0	180618	15.5	19.7	308225	15.5	20.1
519395	15.2	21.4	15939	15.3	16.8	371841	15.4	20.8	7365	15.4	17.0	111204	15.5	19.7	25486	15.5	18.5
116847	15.2	19.5	214704	15.3	20.4	411302	15.4	20.1	502349	15.4	20.2	153206	15.5	19.3	484682	15.5	21.0
280923	15.2	20.2	110456	15.3	18.9	269157	15.4	19.8	312679	15.4	19.8	396165	15.5	20.4	190924	15.5	20.8
190601	15.2	19.3	273254	15.3	20.2	438125	15.4	22.1	290340	15.4	20.8	231965	15.5	20.7	400883	15.5	21.3
300384	15.2	20.9	229745	15.3	20.2	108171	15.4	18.6	189623	15.4	19.3	377047	15.5	20.7	134970	15.6	19.9
314650	15.2	21.0	239377	15.3	19.8	193116	15.4	19.4	232190	15.4	19.6	238051	15.5	19.2	442687	15.6	20.0
465482	15.2	21.1	45706	15.3	18.4	122798	15.4	19.3	119059	15.4	20.2	459721	15.5	21.0	110605	15.6	19.4
236304	15.2	19.5	332611	15.3	20.5	495785	15.4	20.6	46887	15.4	18.9	476334	15.5	20.3	317034	15.6	20.5
10689	15.2	17.8	473831	15.3	20.6	145199	15.4	19.9	142939	15.4	20.1	544025	15.5	21.3	261234	15.6	20.2
141613	15.2	20.1	83044	15.3	18.9	405701	15.4	21.1	265154	15.4	19.7	236711	15.5	19.4	460093	15.6	20.6
261103	15.3	20.6	27649	15.3	17.9	442676	15.4	20.4	51695	15.4	18.0	392295	15.5	20.7	231015	15.6	19.4
490479	15.3	21.4	357026	15.3	18.5	372199	15.4	20.9	181758	15.4	20.2	450209	15.5	21.0	398900	15.6	20.3
379501	15.3	20.2	335194	15.3	19.3	329640	15.4	20.2	34076	15.4	19.2	238983	15.5	20.4	484089	15.6	20.5
455503	15.3	20.1	543517	15.3	21.3	468934	15.4	21.0	312960	15.4	20.2	438065	15.5	21.4	50127	15.6	17.5
240222	15.3	19.6	368175	15.3	20.1	222972	15.4	20.1	76246	15.4	17.9	542517	15.5	21.0	54733	15.6	19.9
316232	15.3	20.0	462396	15.3	19.4	536494	15.4	21.5	15534	15.4	17.0	107773	15.5	19.9	407340	15.6	20.8
534765	15.3	20.3	361693	15.3	20.3	397202	15.4	19.9	492240	15.4	21.5	47197	15.5	19.2	464876	15.6	21.3
193153	15.3	19.1	181969	15.3	20.5	233057	15.4	19.5	231028	15.4	19.7	718	15.5	13.5	285924	15.6	20.9
377109	15.3	20.5	146702	15.3	20.6	93269	15.4	19.0	117913	15.4	20.4	228079	15.5	20.2	173120	15.6	20.4
212913	15.3	20.2	542524	15.3	21.1	279027	15.4	20.3	185903	15.4	20.5	252651	15.5	19.4	493864	15.6	20.6
332623	15.3	21.0	84538	15.3	18.6	218618	15.4	19.9	538085	15.4	20.6	189399	15.5	19.6	436043	15.6	20.9
29766	15.3	18.3	239841	15.3	21.1	197977	15.4	20.5	171372	15.4	20.6	76204	15.5	19.1	260605	15.6	20.0
82421	15.3	19.3	32797	15.3	18.5	46476	15.4	17.7	281997	15.4	20.5	382852	15.5	19.3	35442	15.6	17.0
131421	15.3	20.2	165951	15.3	20.6	74325	15.4	19.1	390706	15.4	19.4	135813	15.5	19.9	317635	15.6	18.3
10964	15.3	18.0	185066	15.3	19.7	54268	15.4	19.7	158047	15.4	20.7	541680	15.5	21.0	30629	15.6	19.1
484417	15.3	20.0	467912	15.3	21.1	485257	15.4	20.4	443364	15.4	20.4	168109	15.5	19.8	251192	15.6	21.2
176251	15.3	19.9	156016	15.3	19.5	91236	15.4	18.0	238656	15.4	20.3	310834	15.5	20.1	72772	15.6	18.9
232018	15.3	20.6	444791	15.3	20.2	109996	15.4	20.0	465430	15.4	20.4	121378	15.5	19.9	229622	15.6	19.5
27846	15.3	19.5	466737	15.3	20.4	379962	15.4	19.9	394382	15.4	19.7	288510	15.5	20.0	141808	15.6	20.1
434880	15.3	19.7	114353	15.3	18.5	484597	15.4	20.9	391463	15.4	20.1	259528	15.5	20.3	489706	15.6	22.4
390524	15.3	21.1	216570	15.3	19.1	62148	15.4	19.0	451683	15.4	20.0	481833	15.5	20.7	495302	15.6	20.7
487931	15.3	21.3	201907	15.3	18.9	418824	15.4	20.1	8575	15.4	18.2	271448	15.5	19.6	27959	15.6	17.5
197433	15.3	18.1	260243	15.3	20.7	400588	15.4	20.0	77161	15.4	18.6	317479	15.5	20.9	279995	15.6	19.9
52780	15.3	18.3	214745	15.3	20.1	445630	15.4	21.8	48866	15.4	18.3	460998	15.5	19.7	95088	15.6	20.0
310064	15.3	21.5	197379	15.3	19.8	171584	15.4	19.1	399612	15.4	19.8	224797	15.5	19.9	263000	15.6	20.0
361301	15.3	21.1	364905	15.3	21.0	496566	15.4	19.9	71797	15.4	20.0	462350	15.5	21.1	487734	15.6	21.5
337524	15.3	20.1	152028	15.3	19.8	235840	15.4	19.6	109899	15.4	20.4	14680	15.5	16.9	522551	15.6	19.9
498798	15.3	20.7	192427	15.3	19.9	412187	15.4	20.7	105006	15.4	20.3	517735	15.5	22.1	413493	15.6	20.8
50647	15.3	18.0	27648	15.3	18.9	120105	15.4	20.1	156744	15.4	17.9	137019	15.5	19.6	468987	15.6	20.7
141047	15.3	20.5	375609	15.3	19.9	31370	15.4	18.0	431496	15.4	22.0	417980	15.5	20.8	76729	15.6	19.4
396345	15.3	19.8	41432	15.3	19.6	24637	15.4	18.0	461538	15.4	20.1	156260	15.5	19.9	146629	15.6	19.6
247262	15.3	20.5	171172	15.3	18.8	262238	15.4	18.9	232666	15.5	19.0	386016	15.5	19.4	260378	15.6	20.5
200933	15.3	19.0	113620	15.3	18.5	382820	15.4	21.9	260739	15.5	19.5	407327	15.5	21.9	161840	15.6	19.3
59690	15.3	18.0	450831	15.3	21.5	336444	15.4	20.2	65356	15.5	19.6	321123	15.5	20.6	450864	15.6	20.8
125337	15.3	18.9	242119	15.3	19.9	414578	15.4	21.1	378481	15.5	21.2	329545	15.5	21.6	318736	15.6	20.1
151918	15.3	19.1	125560	15.3	19.0	363066	15.4	19.7	97480	15.5	18.6	544050	15.5	21.2	295850	15.6	20.2
463532	15.3	20.6	46849	15.3	19.5	154999	15.4	20.2	372241	15.5	20.5	414491	15.5	21.6	367594	15.6	20.3
470230	15.3	20.3	389370	15.3	19.9	407409	15.4	21.3	138594	15.5	19.6	373818	15.5	20.3	109064	15.6	18.7
113023	15.3	20.2	269465	15.3	19.7	306193	15.4	20.9	268261	15.5	19.7	462983	15.5	20.4	282050	15.6	21.0
307339	15.3	20.4	171630	15.3	19.1	455473	15.4	20.0	378469	15.5	21.6	465813	15.5	20.7	346096	15.6	20.1
416805	15.3	20.2	346991	15.3	19.6	313499	15.4	20.8	444950	15.5	19.7	357017	15.5	20.0	186098	15.6	19.4
197178	15.3	19.6	382637	15.3	20.8	488634	15.4	21.8	52070	15.5	19.9	442356	15.5	21.1	464468	15.6	20.8
388437	15.3	20.1	286695	15.3	20.2	102031	15.4	19.0	505650	15.5	19.9	495276	15.5	22.0	199901	15.6	20.5
178827	15.3	19.6	158627	15.3	19.1	420019	15.4	20.3	67358	15.5	19.0	281813	15.5	19.4	55400	15.6	17.7
354644	15.3	20.2	336986	15.3	19.9	289641	15.4	20.3	416490	15.5	21.0	52130	15.5	18.0	150493	15.6	20.0
214357	15.3	19.7	73088	15.3	18.7	174202	15.4	20.3	155168	15.5	20.0	112394	15.5	19.1	303033	15.6	20.4
543681	15.3	21.6	416150	15.3	21.0	69844	15.4	19.5	457187	15.5	20.0	78678	15.5	19.6	387570	15.6	21.0
346468	15.3	20.6	348169	15.3	21.4	37846	15.4	19.1	486141	15.5	21.3	202918	15.5	20.8	385392	15.6	21.3
434980	15.3	21.1	337351	15.3	21.3	112613	15.4	18.9	448962	15.5	20.4	27302	15.5	17.4	363603	15.6	20.9
528996	15.3	21.9	4268	15.3	17.5	318702	15.4	21.2	13								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
175504	15.6	19.7	540019	15.7	22.3	17289	15.7	18.2	284372	15.8	20.8	254771	15.9	20.1	310807	15.9	20.0
132868	15.6	20.6	119105	15.7	19.3	174817	15.7	19.1	188983	15.8	20.3	314302	15.9	21.0	295709	15.9	20.3
165708	15.6	19.2	254826	15.7	20.0	438717	15.7	21.1	526421	15.8	20.9	155912	15.9	19.9	444949	15.9	19.6
239290	15.6	20.0	339830	15.7	20.3	101571	15.7	18.4	448451	15.8	19.7	418772	15.9	20.9	25233	15.9	18.1
305644	15.6	20.2	396238	15.7	19.8	156393	15.7	20.0	143090	15.8	18.8	464717	15.9	21.7	199097	15.9	20.9
396776	15.6	20.4	426253	15.7	20.5	516851	15.7	20.4	203204	15.8	18.9	503884	15.9	22.6	482891	15.9	20.8
101194	15.6	19.5	448925	15.7	21.0	292352	15.7	20.5	360314	15.8	21.5	541666	15.9	21.6	284728	15.9	21.1
461083	15.6	20.9	105114	15.7	19.3	109204	15.7	17.4	325106	15.8	20.9	422349	15.9	21.0	238176	15.9	20.5
369	15.6	12.7	483692	15.7	20.5	405653	15.7	20.4	485155	15.8	20.9	365263	15.9	21.2	362663	15.9	20.5
411306	15.6	20.6	201267	15.7	20.2	477321	15.7	19.9	24998	15.8	18.3	33673	15.9	16.8	67116	15.9	18.3
212112	15.6	19.4	139439	15.7	19.1	328564	15.7	21.2	303038	15.8	19.0	153140	15.9	20.2	178181	15.9	20.0
164933	15.6	20.0	396834	15.7	20.5	451545	15.7	21.4	404346	15.8	21.2	142851	15.9	20.8	399719	15.9	20.6
83264	15.6	18.1	200656	15.7	19.3	252019	15.7	20.2	76326	15.8	18.8	63196	15.9	19.4	475649	15.9	20.5
187310	15.6	19.8	251200	15.7	19.0	322332	15.7	20.9	462725	15.8	20.1	321774	15.9	20.2	453937	15.9	20.5
76991	15.6	18.3	16758	15.7	16.9	388954	15.8	19.5	211696	15.8	20.6	337649	15.9	21.0	313204	15.9	20.3
401700	15.6	20.4	340118	15.7	18.9	372327	15.8	20.7	262184	15.8	19.5	245267	15.9	19.3	26002	15.9	18.4
277198	15.6	20.9	507883	15.7	19.8	446352	15.8	20.6	301917	15.8	17.6	373793	15.9	20.2	246539	15.9	20.2
264227	15.6	20.9	339727	15.7	20.4	482487	15.8	20.1	320746	15.8	20.3	492963	15.9	20.6	331702	15.9	20.9
348615	15.6	20.6	221462	15.7	19.5	154454	15.8	19.1	38626	15.8	18.9	96226	15.9	20.0	24541	15.9	18.5
180796	15.6	20.0	150215	15.7	20.1	418728	15.8	20.5	182005	15.8	20.4	281436	15.9	20.9	61929	15.9	19.0
152243	15.6	19.3	430464	15.7	20.9	53703	15.8	18.3	420837	15.8	21.3	161180	15.9	19.2	179908	15.9	19.8
473889	15.6	20.7	517917	15.7	21.5	216185	15.8	19.2	287172	15.8	20.2	222079	15.9	20.9	5348	15.9	15.5
410063	15.6	19.8	337043	15.7	19.7	469661	15.8	20.9	127616	15.8	18.8	160215	15.9	19.8	174314	15.9	19.6
468954	15.6	20.1	458412	15.7	20.8	24165	15.8	18.9	307707	15.8	20.0	280490	15.9	21.4	147145	15.9	19.9
101933	15.6	19.0	257330	15.7	20.4	437839	15.8	20.6	18429	15.8	15.8	31401	15.9	16.4	381195	15.9	21.5
477488	15.6	19.4	194992	15.7	19.0	359225	15.8	20.6	156657	15.8	18.9	219181	15.9	20.4	475867	15.9	19.7
464375	15.6	20.4	136836	15.7	20.1	325272	15.8	19.8	220792	15.8	19.7	78702	15.9	19.0	326224	15.9	20.2
405687	15.6	20.7	51654	15.7	19.6	440723	15.8	20.6	451589	15.8	20.5	33338	15.9	18.9	64140	15.9	18.9
227826	15.6	18.5	404627	15.7	20.6	247666	15.8	20.6	280450	15.8	20.1	290591	15.9	20.7	66070	15.9	18.4
133559	15.6	20.4	58411	15.7	19.6	503527	15.8	20.5	422299	15.8	21.3	375471	15.9	20.9	462654	15.9	21.7
45594	15.6	18.9	47434	15.7	17.6	488106	15.8	20.3	339534	15.8	21.4	301051	15.9	20.1	68402	15.9	19.8
148956	15.6	19.5	275930	15.7	19.7	368638	15.8	20.1	294610	15.8	19.9	226970	15.9	19.4	436426	15.9	19.9
68735	15.6	17.9	52048	15.7	19.0	53115	15.8	18.1	370360	15.8	20.0	29373	15.9	17.0	257163	15.9	19.9
454492	15.6	21.0	158898	15.7	21.0	217795	15.8	20.2	277914	15.8	20.6	402254	15.9	20.7	254913	15.9	19.7
311636	15.6	20.3	495569	15.7	20.5	358666	15.8	20.0	373795	15.8	21.0	183085	15.9	19.1	251338	15.9	20.5
377501	15.6	21.0	363911	15.7	20.5	273231	15.8	20.8	359222	15.8	20.2	24977	15.9	18.4	214397	15.9	19.8
182602	15.6	19.2	401853	15.7	19.6	50901	15.8	19.1	169255	15.8	20.5	482499	15.9	20.2	222929	15.9	21.2
130972	15.6	19.1	101713	15.7	18.0	78470	15.8	19.9	171614	15.8	19.6	135491	15.9	19.2	137609	15.9	18.8
97159	15.6	18.7	165641	15.7	18.9	320819	15.8	20.3	541617	15.8	20.6	235553	15.9	19.7	116339	15.9	19.6
135991	15.6	19.4	177287	15.7	20.1	486473	15.8	20.8	141642	15.8	19.3	151156	15.9	19.1	210816	15.9	21.3
221261	15.6	20.2	43001	15.7	17.4	207601	15.8	20.0	102567	15.8	20.0	104208	15.9	19.1	331821	15.9	20.6
314665	15.6	21.9	462412	15.7	20.7	458193	15.8	20.1	9517	15.8	18.2	442213	15.9	21.3	18799	15.9	18.3
307387	15.6	20.7	50719	15.7	18.4	372664	15.8	19.6	64653	15.8	18.7	173381	15.9	18.8	292134	15.9	20.7
261029	15.6	20.5	222129	15.7	20.0	28666	15.8	18.0	440209	15.9	21.9	73322	15.9	19.5	396406	15.9	19.9
447647	15.6	20.4	205385	15.7	18.6	193713	15.8	19.1	271433	15.9	19.5	272291	15.9	19.9	179911	15.9	19.7
89768	15.6	20.0	268744	15.7	20.1	379492	15.8	20.4	47312	15.9	18.4	486225	15.9	21.3	230723	15.9	20.2
443482	15.6	21.1	282326	15.7	20.5	81482	15.8	19.3	298441	15.9	20.7	543194	15.9	21.0	360349	15.9	21.0
116770	15.6	18.6	486899	15.7	20.6	366648	15.8	21.0	75447	15.9	17.9	282897	15.9	20.7	335289	15.9	21.5
178251	15.6	20.1	343325	15.7	19.3	236075	15.8	18.8	231521	15.9	20.2	345764	15.9	20.2	290645	15.9	20.5
337601	15.6	21.4	306605	15.7	21.0	30562	15.8	18.9	487800	15.9	19.7	59427	15.9	17.5	271409	15.9	19.2
315573	15.6	20.7	242902	15.7	20.6	106482	15.8	19.3	235940	15.9	19.7	438068	15.9	21.5	76041	15.9	19.0
319030	15.7	19.8	357633	15.7	20.4	161237	15.8	19.3	98015	15.9	18.5	145905	15.9	19.9	97570	15.9	19.0
9834	15.7	16.9	264176	15.7	19.9	367544	15.8	21.3	153317	15.9	18.6	76573	15.9	18.9	306577	15.9	18.7
120276	15.7	18.6	311802	15.7	20.0	397454	15.8	19.7	368119	15.9	19.7	376834	15.9	20.4	215317	15.9	21.1
383357	15.7	19.7	388541	15.7	20.4	100201	15.8	19.1	31812	15.9	17.7	45421	15.9	18.5	202047	15.9	19.6
484476	15.7	19.5	349563	15.7	21.3	541429	15.8	20.5	201375	15.9	21.0	113351	15.9	18.8	465549	15.9	20.8
128326	15.7	19.1	276015	15.7	19.6	477307	15.8	20.6	398351	15.9	21.3	541208	15.9	20.9	90402	15.9	18.5
537905	15.7	20.0	156757	15.7	19.4	466989	15.8	20.8	25857	15.9	18.7	541312	15.9	22.1	155965	15.9	19.1
371351	15.7	20.2	174796	15.7	21.0	379908	15.8	21.2	541943	15.9	21.4	45911	15.9	17.8	401315	15.9	20.0
153	15.7	13.5	450992	15.7	19.7	62516	15.8	19.4	495587	15.9	20.3	534698	15.9	20.3	317435	15.9	19.9
244259	15.7	20.1	481777	15.7	20.9	516467	15.8	21.4	35676	15.9	18.0	396366	15.9	19.6	361646	15.9	19.1
444823	15.7	21.4	144161	15.7	19.3	258026	15.8	20.1	429883	15.9	20.5	14234	15.9	18.3	366897	15.9	20.8
499502	15.7	21.5	447815	15.7	21.8	465235	15.8	21.2	425973	15.9	20.5	254093	15.9	19.8	451484	15.9	20.5
535453	15.7	20.5	147789	15.7	19.9	276630	15.8	20.3	176832	15.9	20.1	217265	15.9	19.3	256035	15.9	19.5
98737	15.7	18.0	395488	15.7	21.8	63771	15.8	18.7	421048	15.9	20.0	177415	15.9	19.3	153333	15.9	19.6
457026	15.7	20.9	78857	15.7	17.4	209694	15.8	20.2	126323	15.9	19.2	158861	15.9	19.4	181297	16.0	20.6
91526	15.7	20.4	97747	15.7	18.2	291622	15.8	19.7	51908	15.9	19.4	295144	15.9	19.8	116055	16.0	18.9
455984	15.7	21.8	127436	15.7	20.3	307842	15.8	20.7	373681	15.9	21.2	359245	15.9	20.3	3102	16.0	20.5
281976	15.7	20.4	333989	15.7	20.9	11371	15.8	17.8	40767								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
281494	16.0	20.1	334630	16.1	19.3	129981	16.2	20.2	176804	16.2	20.9	233117	16.3	20.0	428947	16.3	20.2
45470	16.0	16.7	112923	16.1	18.8	119747	16.2	17.9	489272	16.2	21.1	88479	16.3	19.7	421436	16.3	19.8
397328	16.0	21.8	459853	16.1	20.5	388086	16.2	20.5	364060	16.2	21.8	47447	16.3	18.8	327940	16.3	20.5
139785	16.0	19.4	412996	16.1	22.3	73944	16.2	19.3	396517	16.2	19.2	105397	16.3	20.2	406621	16.3	19.7
101918	16.0	18.2	87699	16.1	19.0	114523	16.2	17.8	128562	16.2	19.9	261057	16.3	20.3	383443	16.3	20.1
7633	16.0	17.8	248283	16.1	20.6	167662	16.2	19.0	270924	16.2	20.5	94740	16.3	20.3	214395	16.3	20.0
112836	16.0	20.8	305641	16.1	20.1	56178	16.2	19.0	252592	16.2	20.1	190971	16.3	18.3	477475	16.3	18.9
226611	16.0	18.9	217951	16.1	20.4	275272	16.2	20.4	182072	16.2	19.0	134453	16.3	19.6	10761	16.3	16.6
89588	16.0	19.3	440175	16.1	19.4	195815	16.2	20.0	213168	16.2	20.2	418815	16.3	21.0	149789	16.3	20.5
315830	16.0	20.2	120963	16.1	20.5	303568	16.2	20.2	287320	16.2	19.9	26372	16.3	17.9	220621	16.3	20.5
247597	16.0	21.3	252632	16.1	20.2	85150	16.2	19.5	60796	16.2	19.6	233241	16.3	19.1	25039	16.3	18.4
370411	16.0	21.9	216251	16.1	20.0	330892	16.2	21.0	208066	16.2	19.9	465241	16.3	21.3	52315	16.4	17.9
55698	16.0	19.8	517847	16.1	22.3	113462	16.2	20.2	447467	16.2	20.9	351231	16.3	21.0	495561	16.4	20.6
186060	16.0	19.9	361272	16.1	20.8	487305	16.2	20.5	1525	16.2	17.7	257477	16.3	20.3	169158	16.4	19.8
344914	16.0	19.9	280493	16.1	20.9	414979	16.2	19.9	175479	16.2	19.9	374031	16.3	19.6	348216	16.4	20.2
507897	16.0	21.0	213942	16.1	18.3	490217	16.2	21.4	413587	16.2	21.3	248829	16.3	20.6	406727	16.4	20.8
215257	16.0	21.2	282214	16.1	19.9	180802	16.2	20.5	252368	16.2	21.4	28304	16.3	16.8	294959	16.4	19.8
264421	16.0	20.1	30404	16.1	19.9	157138	16.2	20.6	277346	16.2	20.8	285373	16.3	21.1	2294	16.4	15.7
155552	16.0	19.9	14842	16.1	17.6	288137	16.2	20.3	489569	16.2	20.1	397461	16.3	21.6	39938	16.4	18.5
227109	16.0	20.9	112954	16.1	19.4	76737	16.2	18.0	32112	16.2	18.5	72660	16.3	18.9	74230	16.4	19.7
390715	16.0	19.9	8750	16.1	17.7	238129	16.2	20.4	347615	16.2	21.0	248253	16.3	19.6	252675	16.4	18.4
274474	16.0	19.0	166223	16.1	19.1	219288	16.2	19.6	483597	16.2	21.3	70040	16.3	18.3	340940	16.4	19.3
406227	16.0	19.9	116396	16.1	19.3	378801	16.2	20.1	281975	16.2	19.4	447548	16.3	20.9	210819	16.4	20.6
493358	16.0	21.1	240994	16.1	20.8	53455	16.2	18.4	462780	16.2	19.7	349440	16.3	19.9	493916	16.4	20.7
414714	16.0	20.9	113402	16.1	19.3	32693	16.2	18.5	77060	16.2	18.7	314895	16.3	20.7	101052	16.4	19.7
400174	16.0	21.4	171516	16.1	20.6	150482	16.2	19.2	9937	16.2	18.3	421947	16.3	21.0	53432	16.4	18.4
187266	16.0	20.1	535230	16.1	22.4	399314	16.2	21.2	46592	16.2	17.5	461564	16.3	19.5	254678	16.4	20.3
45126	16.0	18.4	318130	16.1	19.5	483424	16.2	18.6	306785	16.2	21.2	233020	16.3	19.4	541421	16.4	20.4
331015	16.0	20.2	270065	16.1	21.7	418889	16.2	20.8	287657	16.2	21.0	203497	16.3	18.5	201239	16.4	20.0
394097	16.0	20.0	3469	16.1	15.7	492298	16.2	20.5	473782	16.2	20.5	377258	16.3	19.1	350048	16.4	21.2
294400	16.1	20.7	148935	16.1	19.7	244518	16.2	20.2	372145	16.2	20.6	286982	16.3	20.7	542390	16.4	19.9
89118	16.1	19.3	227014	16.1	19.3	174902	16.2	19.1	149883	16.2	19.7	277074	16.3	19.4	254721	16.4	20.7
87014	16.1	17.6	159343	16.1	20.1	489776	16.2	20.0	158925	16.2	20.8	32847	16.3	18.3	55846	16.4	19.2
170643	16.1	19.5	237696	16.1	20.2	238059	16.2	18.9	38307	16.2	17.8	302964	16.3	21.2	190556	16.4	20.2
61468	16.1	19.6	449869	16.1	20.7	455128	16.2	21.1	397506	16.2	20.3	496715	16.3	20.5	461076	16.4	19.9
45058	16.1	19.1	34027	16.1	18.1	2280	16.2	16.1	320219	16.2	19.0	188878	16.3	19.7	190468	16.4	19.5
218819	16.1	20.1	202370	16.1	18.8	100104	16.2	18.1	114511	16.2	18.0	332938	16.3	20.5	228726	16.4	20.8
152195	16.1	20.4	276299	16.1	20.4	264944	16.2	20.0	334702	16.2	19.2	211202	16.3	20.4	275190	16.4	20.8
124174	16.1	20.6	204896	16.1	20.0	52833	16.2	19.0	104193	16.2	19.3	17925	16.3	17.6	516982	16.4	20.4
246057	16.1	20.0	213740	16.1	19.9	453396	16.2	20.4	383419	16.2	21.1	339845	16.3	21.5	272068	16.4	19.5
156750	16.1	18.8	324822	16.1	20.3	139530	16.2	19.9	135906	16.2	20.5	400383	16.3	19.9	194503	16.4	19.8
302624	16.1	19.8	362491	16.1	20.6	316236	16.2	19.7	223648	16.2	20.7	543184	16.3	21.4	491397	16.4	20.1
116764	16.1	18.2	394876	16.1	21.0	339749	16.2	21.4	16162	16.2	17.2	457047	16.3	20.4	176061	16.4	18.8
275520	16.1	22.3	438734	16.1	21.7	211706	16.2	19.8	351243	16.2	20.4	204047	16.3	20.6	301465	16.4	20.3
108533	16.1	18.7	115834	16.1	19.4	363191	16.2	21.1	298621	16.3	19.6	223512	16.3	19.0	168706	16.4	21.0
396697	16.1	20.1	297093	16.1	19.5	10950	16.2	18.1	23562	16.3	19.4	229052	16.3	19.9	262276	16.4	20.6
140673	16.1	18.9	8354	16.1	17.7	495648	16.2	20.1	449975	16.3	21.1	52162	16.3	17.7	484658	16.4	20.9
145293	16.1	19.7	341931	16.1	20.4	409543	16.2	20.8	269361	16.3	20.6	473459	16.3	20.6	335336	16.4	20.9
28253	16.1	17.8	399116	16.1	20.6	141612	16.2	19.1	487813	16.3	21.0	217604	16.3	20.9	184475	16.4	20.1
355004	16.1	19.7	136165	16.1	18.5	71198	16.2	19.8	199019	16.3	19.4	322090	16.3	20.9	323994	16.4	19.9
281934	16.1	20.9	83349	16.1	19.5	271531	16.2	20.3	122333	16.3	20.5	270546	16.3	20.3	372046	16.4	21.4
493836	16.1	20.7	304893	16.1	19.8	45719	16.2	17.6	543112	16.3	20.6	448815	16.3	21.0	230516	16.4	19.1
405702	16.1	20.7	362336	16.1	19.4	460665	16.2	20.4	108808	16.3	19.4	511076	16.3	19.8	119133	16.4	20.2
227095	16.1	20.9	321219	16.1	20.2	186485	16.2	19.7	410507	16.3	20.4	90468	16.3	18.7	215959	16.4	20.7
291169	16.1	20.4	235392	16.1	18.4	425697	16.2	19.7	456336	16.3	21.5	143772	16.3	20.1	128515	16.4	20.9
413826	16.1	21.6	397897	16.1	19.9	151613	16.2	19.6	170253	16.3	20.5	437993	16.3	21.3	100540	16.4	19.6
522071	16.1	21.0	256281	16.1	20.4	346330	16.2	21.6	427459	16.3	21.0	335642	16.3	21.6	492059	16.4	21.5
502147	16.1	20.2	112807	16.1	18.4	336976	16.2	20.2	424234	16.3	20.9	324652	16.3	20.5	382344	16.4	20.0
194690	16.1	19.7	380386	16.1	20.9	156551	16.2	19.2	207311	16.3	19.6	411128	16.3	20.1	188203	16.4	19.5
249192	16.1	19.5	59888	16.1	18.6	372227	16.2	20.5	417915	16.3	20.7	362813	16.3	20.5	256595	16.4	19.8
104965	16.1	20.6	336967	16.1	21.5	232070	16.2	20.8	331957	16.3	20.1	499461	16.3	21.4	99635	16.4	19.5
462764	16.1	20.0	222211	16.1	18.8	75612	16.2	19.2	484308	16.3	21.5	305139	16.3	21.1	458317	16.4	19.9
323819	16.1	20.5	366990	16.1	20.7	419417	16.2	19.3	361709	16.3	20.2	57342	16.3	17.3	350040	16.4	20.0
398467	16.1	21.2	467681	16.1	20.5	400138	16.2	21.0	495754	16.3	22.1	348445	16.3	20.9	236088	16.4	20.6
261722	16.1	20.1	544771	16.1	21.2	3754	16.2	14.3	76968	16.3	18.2	247216	16.3	20.5	306570	16.4	21.2
276751	16.1	20.3	383859	16.1	19.3	61526	16.2	18.1	148513	16.3	20.0	429334	16.3	20.8	510835	16.4	19.7
249854	16.1	20.5	365886	16.1	19.8	413699	16.2	20.7	194237	16.3	19.1	453115	16.3	20.3	264440	16.4	20.0
359971	16.1	19.3	204271	16.1	19.8	26331	16.2	18.1	74428	16.3	18.1	34503	16.3	18.6	100063	16.4	18.6
409524	16.1	20.8	82878	16.1	18.8	351641	16.2	20.6	70173								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
480391	16.4	21.1	150899	16.5	19.9	459908	16.5	21.9	404048	16.6	20.1	254044	16.7	19.1	315625	16.7	20.0
80600	16.4	18.5	258097	16.5	20.8	378467	16.5	22.2	18657	16.6	17.6	335243	16.7	19.5	114653	16.7	20.2
455839	16.4	22.2	535990	16.5	22.5	197711	16.5	20.5	184156	16.6	20.4	278420	16.7	19.9	384607	16.7	20.6
232790	16.4	19.4	370015	16.5	19.7	277072	16.6	19.9	340458	16.6	21.5	196630	16.7	20.7	408758	16.8	21.0
500750	16.4	19.8	251141	16.5	20.4	200369	16.6	20.4	148870	16.6	19.6	273121	16.7	20.2	84898	16.8	18.9
443940	16.4	20.4	415025	16.5	20.4	256302	16.6	21.3	378988	16.6	20.7	344252	16.7	21.5	279942	16.8	20.8
191836	16.4	19.4	542079	16.5	20.9	268595	16.6	20.5	422933	16.6	21.5	418740	16.7	20.3	233788	16.8	21.1
309877	16.4	20.2	112914	16.5	19.0	268249	16.6	19.7	322506	16.6	20.6	451514	16.7	20.8	472857	16.8	21.0
235463	16.4	20.8	157867	16.5	18.5	4453	16.6	16.5	439256	16.6	20.5	279887	16.7	20.6	543528	16.8	21.1
91834	16.4	19.8	215309	16.5	21.0	334625	16.6	21.9	133571	16.6	19.3	383466	16.7	20.7	261120	16.8	20.6
494923	16.4	20.5	15798	16.5	17.8	3387	16.6	17.0	81202	16.6	19.3	15968	16.7	17.4	198634	16.8	20.1
407495	16.4	20.4	512257	16.5	20.5	485450	16.6	20.6	183028	16.6	20.8	189114	16.7	20.4	223525	16.8	19.5
66026	16.4	17.8	360646	16.5	21.1	234627	16.6	17.5	400185	16.6	21.9	287194	16.7	21.0	37839	16.8	18.8
362206	16.4	20.4	108816	16.5	19.5	11070	16.6	19.0	444451	16.6	20.3	489406	16.7	20.3	261012	16.8	19.6
56232	16.4	18.7	531040	16.5	22.6	442810	16.6	21.2	293025	16.6	20.2	323977	16.7	19.8	61906	16.8	18.6
330209	16.4	19.3	26747	16.5	17.8	355442	16.6	20.6	222122	16.6	20.8	255525	16.7	20.6	274042	16.8	21.1
13607	16.4	18.6	446397	16.5	20.8	426707	16.6	20.4	115571	16.6	19.2	466362	16.7	21.1	258391	16.8	19.7
104674	16.4	19.1	496394	16.5	20.7	84484	16.6	18.8	488915	16.6	21.3	339654	16.7	21.4	233842	16.8	20.1
42825	16.4	18.2	190784	16.5	20.9	543999	16.6	21.5	185963	16.6	19.5	468912	16.7	20.7	43756	16.8	17.7
273080	16.4	20.3	63483	16.5	19.1	454022	16.6	20.6	477812	16.6	19.4	50143	16.7	19.5	409850	16.8	20.1
100133	16.4	20.4	347555	16.5	19.9	192607	16.6	19.2	322438	16.6	19.4	451503	16.7	20.9	80516	16.8	18.2
165104	16.4	19.8	25839	16.5	18.2	409454	16.6	20.9	235496	16.6	18.9	227821	16.7	20.4	332648	16.8	21.1
233473	16.4	20.0	483501	16.5	21.2	69307	16.6	18.7	411838	16.6	20.1	46951	16.7	18.7	120478	16.8	19.5
11874	16.4	18.0	278781	16.5	19.8	52462	16.6	19.2	77793	16.6	18.5	63817	16.7	18.8	378936	16.8	21.2
44236	16.4	19.1	278641	16.5	20.4	370247	16.6	20.7	85922	16.6	17.5	283770	16.7	19.2	87946	16.8	19.3
85963	16.4	18.2	118541	16.5	19.2	268241	16.6	20.0	14963	16.6	18.7	436077	16.7	21.4	544356	16.8	20.6
277858	16.4	20.3	400137	16.5	20.7	142505	16.6	20.4	388500	16.6	20.8	312592	16.7	19.6	339894	16.8	20.4
464195	16.4	20.8	444775	16.5	23.0	373352	16.6	20.5	74088	16.6	20.1	20095	16.7	18.5	197791	16.8	19.9
412903	16.4	21.1	469659	16.5	21.2	196462	16.6	18.7	454425	16.6	21.5	251055	16.7	20.4	30774	16.8	17.3
351266	16.4	19.2	453580	16.5	21.0	121140	16.6	19.3	98717	16.6	17.8	107532	16.7	18.3	460391	16.8	20.7
36918	16.4	18.5	283964	16.5	20.8	144507	16.6	19.6	144036	16.6	20.1	475644	16.7	20.5	274036	16.8	20.1
74222	16.4	20.1	173512	16.5	19.9	219245	16.6	19.6	324036	16.6	20.7	518881	16.7	20.7	169150	16.8	20.8
150260	16.4	20.1	116380	16.5	19.5	296945	16.6	20.0	55565	16.6	19.9	188259	16.7	19.8	79641	16.8	20.5
197195	16.4	20.6	261217	16.5	20.3	292426	16.6	20.8	374196	16.6	19.8	195719	16.7	19.5	326769	16.8	20.3
273113	16.4	20.8	445537	16.5	20.3	375080	16.6	20.2	357019	16.6	20.9	364347	16.7	21.3	165702	16.8	19.9
78402	16.4	19.8	257141	16.5	19.8	379053	16.6	21.8	120573	16.6	19.5	273981	16.7	21.1	196365	16.8	18.8
425490	16.4	20.6	76666	16.5	18.2	224611	16.6	20.6	314745	16.6	19.8	18277	16.7	17.7	291648	16.8	20.7
382257	16.4	20.8	27930	16.5	18.9	478923	16.6	20.1	462463	16.6	20.4	149368	16.7	19.1	362201	16.8	20.2
461198	16.4	20.4	442251	16.5	21.2	272084	16.6	21.3	105118	16.6	19.6	220002	16.7	19.5	62799	16.8	20.0
80913	16.4	19.2	84507	16.5	19.4	73941	16.6	19.6	280908	16.6	21.3	267223	16.7	18.0	400163	16.8	21.5
30759	16.5	18.3	274442	16.5	19.1	190222	16.6	20.1	369052	16.6	18.8	419308	16.7	18.9	79025	16.8	19.2
249203	16.5	20.1	182304	16.5	20.1	315747	16.6	20.5	113084	16.6	18.9	461405	16.7	21.1	190305	16.8	20.2
320090	16.5	20.4	12918	16.5	16.5	57980	16.6	18.8	487566	16.6	21.2	88414	16.7	19.5	414546	16.8	20.8
89715	16.5	19.8	108815	16.5	20.1	59052	16.6	18.7	199632	16.6	20.6	182172	16.7	20.2	209798	16.8	20.3
112003	16.5	19.8	366985	16.5	20.3	290065	16.6	20.8	72779	16.6	18.5	388534	16.7	21.0	448186	16.8	20.0
339786	16.5	19.5	522495	16.5	20.3	344292	16.6	20.8	326486	16.6	19.6	270906	16.7	20.0	315632	16.8	20.2
24069	16.5	18.1	135844	16.5	20.1	426769	16.6	20.5	354231	16.6	20.7	113420	16.7	18.8	218615	16.8	19.7
162891	16.5	18.9	192599	16.5	19.6	150086	16.6	19.2	157997	16.6	19.8	421387	16.7	19.9	541153	16.8	20.4
336759	16.5	20.8	307360	16.5	20.2	215246	16.6	19.7	242904	16.6	19.3	465465	16.7	21.3	122904	16.8	19.6
491183	16.5	21.6	410555	16.5	21.1	151557	16.6	19.4	52332	16.7	17.7	5833	16.7	16.1	57505	16.8	19.2
252460	16.5	20.1	408429	16.5	20.1	473470	16.6	20.3	254756	16.7	21.1	503714	16.7	21.9	377112	16.8	21.1
10554	16.5	18.3	94233	16.5	18.6	361414	16.6	21.8	92624	16.7	19.9	300411	16.7	20.1	456036	16.8	20.5
225765	16.5	21.8	49633	16.5	18.6	181335	16.6	20.1	362223	16.7	21.2	346914	16.7	21.1	385460	16.8	20.7
77066	16.5	18.8	69118	16.5	18.3	295677	16.6	20.1	281742	16.7	20.3	188045	16.7	19.1	416183	16.8	21.7
492432	16.5	21.1	82770	16.5	19.1	116929	16.6	19.5	69935	16.7	17.6	465804	16.7	20.3	541409	16.8	20.5
457511	16.5	20.7	290596	16.5	20.7	360839	16.6	20.6	280494	16.7	20.6	139608	16.7	19.6	261318	16.8	20.9
361740	16.5	20.1	437029	16.5	21.1	203678	16.6	20.5	156901	16.7	19.3	107665	16.7	18.7	202670	16.8	21.0
378487	16.5	20.7	293317	16.5	20.4	461593	16.6	20.5	211314	16.7	20.6	163498	16.7	19.5	224892	16.8	20.6
180774	16.5	18.3	75562	16.5	18.3	343419	16.6	19.9	486520	16.7	19.7	372238	16.7	20.1	330956	16.8	20.5
190871	16.5	20.9	412644	16.5	21.7	521615	16.6	20.7	535150	16.7	19.7	400340	16.7	20.0	310392	16.8	20.9
303058	16.5	20.2	314710	16.5	20.6	65970	16.6	18.5	327920	16.7	20.7	518478	16.7	20.5	493022	16.8	19.8
214058	16.5	20.9	450883	16.5	19.9	271458	16.6	19.6	335305	16.7	21.2	169513	16.7	19.8	51888	16.8	19.5
321886	16.5	20.8	410574	16.5	20.7	297525	16.6	18.5	502075	16.7	19.6	335484	16.7	20.5	10889	16.8	17.4
203565	16.5	19.3	458433	16.5	20.3	401431	16.6	20.1	276336	16.7	19.9	89101	16.7	19.8	543989	16.8	20.6
286324	16.5	21.4	208743	16.5	20.2	298416	16.6	20.0	180338	16.7	19.1	523979	16.7	20.3	122347	16.8	20.5
317048	16.5	20.6	203826	16.5	19.7	442799	16.6	19.9	89227	16.7	18.9	448020	16.7	19.3	10555	16.8	17.0
83159	16.5	19.1	276265	16.5	19.9	139442	16.6	20.5	47402	16.7	19.4	463587	16.7	20.8	155711	16.8	20.8
151238	16.5	19.6	446669	16.5	20.2	473785	16.6	19.4	348671	16.7	19.6	133357	16.7	19.9	27491	16.8	18.8
220634	16.5	19.9	32530	16.5	18.5	339924	16.6	20.3	25406	16							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
467899	16.8	20.4	325781	16.9	19.6	120032	16.9	19.3	238990	17.0	20.3	415614	17.1	20.7	418838	17.2	20.9
367357	16.8	20.0	164645	16.9	19.8	264185	16.9	19.6	136498	17.0	19.7	240429	17.1	19.2	406226	17.2	20.6
189293	16.8	20.9	213300	16.9	20.5	9949	16.9	16.7	247620	17.0	19.8	155089	17.1	19.7	446210	17.2	19.9
112765	16.8	19.6	48935	16.9	18.3	71562	16.9	19.4	146475	17.0	19.2	199769	17.1	19.7	347336	17.2	20.3
170510	16.8	19.5	394088	16.9	20.7	210513	16.9	19.7	173879	17.0	20.7	403132	17.1	20.6	80501	17.2	18.5
234048	16.8	18.8	12838	16.9	16.8	279707	16.9	19.9	33149	17.0	17.3	210809	17.1	19.4	461884	17.2	20.2
332213	16.8	21.2	488073	16.9	20.9	213925	16.9	20.5	452869	17.0	21.2	150001	17.1	20.0	36917	17.2	19.1
132131	16.8	18.9	349994	16.9	19.9	148185	16.9	19.9	281469	17.0	20.2	378834	17.1	20.7	463631	17.2	21.1
67342	16.8	18.7	29936	16.9	17.6	23130	16.9	17.0	63009	17.0	18.2	529480	17.1	20.7	9499	17.2	17.6
103676	16.8	19.0	543296	16.9	20.9	361757	16.9	19.6	467219	17.0	21.1	217517	17.1	20.9	394440	17.2	21.7
380941	16.8	20.1	252269	16.9	21.5	309926	16.9	19.9	172166	17.0	19.9	264029	17.1	22.2	475527	17.2	20.9
396799	16.8	20.4	96898	16.9	19.0	68612	16.9	18.0	307776	17.0	20.7	356111	17.1	20.1	486066	17.2	20.6
523281	16.8	20.1	71787	16.9	18.9	311735	16.9	19.9	86684	17.0	19.1	345746	17.1	20.2	85147	17.2	18.9
64842	16.8	19.5	226209	16.9	20.1	108489	16.9	19.7	524365	17.0	23.0	96037	17.1	19.7	235515	17.2	20.6
49647	16.8	18.3	237743	16.9	19.5	95006	16.9	17.1	145994	17.0	18.9	450656	17.1	20.4	453105	17.2	21.1
411893	16.8	20.3	79542	16.9	19.3	124462	16.9	18.9	333023	17.0	21.6	421336	17.1	20.2	350365	17.2	19.9
176267	16.8	19.5	225638	16.9	19.0	139401	16.9	19.0	371345	17.0	20.4	395340	17.1	21.0	105063	17.2	19.0
294109	16.8	20.8	75820	16.9	19.8	301644	16.9	21.1	217685	17.0	19.5	135482	17.1	18.5	202105	17.2	19.3
373743	16.9	21.3	133852	16.9	19.4	410512	16.9	20.2	383399	17.0	20.0	174293	17.1	20.0	29043	17.2	17.1
247640	16.9	20.8	359094	16.9	19.5	267516	16.9	20.8	36916	17.0	17.5	538816	17.1	19.7	219898	17.2	19.8
146407	16.9	19.9	372288	16.9	20.5	168454	16.9	19.9	167419	17.0	20.0	321090	17.1	20.1	404383	17.2	19.2
459717	16.9	21.0	466785	16.9	20.6	271487	16.9	19.7	360477	17.0	19.9	310230	17.1	20.8	184707	17.2	20.0
169369	16.9	20.2	424231	16.9	20.6	400018	16.9	21.6	71673	17.0	18.7	84394	17.1	19.5	190191	17.2	20.1
390690	16.9	20.8	31886	16.9	18.8	490855	16.9	21.0	202764	17.0	19.5	51188	17.1	18.5	337733	17.2	21.3
234429	16.9	20.1	81949	16.9	19.2	83333	16.9	20.0	37767	17.0	18.5	72810	17.1	19.1	16384	17.2	18.6
253012	16.9	20.7	337656	16.9	20.2	411052	16.9	21.0	247156	17.0	20.5	369760	17.1	19.5	84976	17.2	18.2
167744	16.9	19.5	318148	16.9	20.4	379523	16.9	20.8	122305	17.0	18.0	220950	17.1	19.4	254693	17.2	21.6
13079	16.9	17.9	408017	16.9	19.8	400684	16.9	19.8	132147	17.1	19.6	408316	17.1	19.5	324068	17.2	20.4
60304	16.9	18.6	491028	16.9	21.6	179303	16.9	19.5	56114	17.1	16.4	176789	17.1	19.4	171039	17.2	19.5
114218	16.9	20.1	149001	16.9	18.7	171866	16.9	19.8	529808	17.1	22.0	15222	17.1	16.2	350628	17.2	19.8
111486	16.9	19.4	136608	16.9	20.0	325960	16.9	19.4	1904	17.1	15.2	344874	17.1	20.0	342123	17.2	19.7
201989	16.9	21.5	491382	16.9	20.6	357418	16.9	20.2	19829	17.1	16.7	439943	17.1	21.5	490943	17.2	20.9
24393	16.9	18.4	267075	16.9	20.0	56701	16.9	18.9	179789	17.1	20.7	53122	17.1	18.9	123451	17.2	19.4
448935	16.9	21.1	74135	16.9	18.8	399436	16.9	19.9	122809	17.1	19.7	327670	17.1	21.0	405665	17.2	20.7
273318	16.9	19.9	193150	16.9	20.6	353921	16.9	19.8	270315	17.1	18.6	336019	17.1	20.4	445579	17.2	20.8
250611	16.9	20.8	426889	16.9	20.8	329671	16.9	20.4	33726	17.1	18.4	516438	17.1	22.1	286163	17.2	20.2
396657	16.9	20.7	217039	16.9	21.0	152417	16.9	20.6	35817	17.1	17.3	206823	17.1	19.0	196091	17.2	19.5
366103	16.9	20.2	441456	16.9	21.8	226553	16.9	19.5	441834	17.1	20.5	129317	17.1	19.3	519077	17.2	20.5
157551	16.9	19.7	78444	16.9	19.2	116959	16.9	19.6	350091	17.1	20.7	492924	17.1	21.5	310618	17.2	19.3
463866	16.9	20.0	197980	16.9	21.1	543993	16.9	21.2	69648	17.1	18.0	142854	17.1	19.5	197071	17.2	20.6
318821	16.9	20.4	322009	16.9	21.5	155932	16.9	20.5	248849	17.1	21.1	541420	17.1	20.3	338208	17.2	21.3
13685	16.9	17.6	260765	16.9	20.8	197820	16.9	20.2	249876	17.1	20.2	503871	17.1	20.7	370308	17.2	21.0
315872	16.9	20.6	1277	16.9	15.7	333506	16.9	20.1	465559	17.1	20.1	281309	17.1	21.1	534264	17.2	21.9
184032	16.9	19.8	116632	16.9	19.9	336952	16.9	20.0	231986	17.1	19.7	84413	17.1	19.0	117409	17.2	18.5
516237	16.9	21.4	412525	16.9	21.2	392495	16.9	21.5	488607	17.1	21.4	174076	17.1	20.2	449560	17.2	21.6
448773	16.9	21.1	441538	16.9	21.6	104656	16.9	18.5	496133	17.1	21.4	189301	17.1	20.1	456282	17.2	21.7
281786	16.9	19.8	427336	16.9	20.1	436947	16.9	22.2	216168	17.1	18.9	347914	17.1	19.2	83182	17.2	19.7
378935	16.9	21.5	77690	16.9	19.1	37376	16.9	18.8	506145	17.1	21.4	330284	17.1	21.1	151273	17.2	19.9
464728	16.9	19.5	422649	16.9	21.5	406798	16.9	20.3	46646	17.1	19.1	163425	17.1	19.4	444032	17.2	21.1
61088	16.9	19.0	313510	16.9	21.0	194336	17.0	20.7	278488	17.1	20.6	543376	17.1	22.1	438137	17.2	20.9
543224	16.9	21.1	151997	16.9	20.6	211395	17.0	20.9	265962	17.1	21.9	420980	17.1	20.8	3007	17.2	16.4
203647	16.9	20.0	434950	16.9	20.3	307671	17.0	21.1	114686	17.1	18.2	387537	17.1	21.6	279378	17.2	20.4
314295	16.9	19.9	368521	16.9	20.0	399124	17.0	19.9	335685	17.1	20.3	255739	17.1	21.9	245850	17.2	20.4
389393	16.9	20.0	183058	16.9	19.5	242046	17.0	20.5	411864	17.1	20.8	404567	17.1	20.2	366203	17.2	20.3
385964	16.9	20.6	88335	16.9	19.2	104242	17.0	18.2	122683	17.1	18.6	522396	17.1	20.9	306062	17.2	19.9
484067	16.9	20.6	88483	16.9	19.1	446745	17.0	21.1	465330	17.1	21.0	339929	17.1	20.1	142162	17.2	20.5
52404	16.9	19.1	262338	16.9	20.5	377535	17.0	20.3	217801	17.1	19.7	47798	17.1	18.1	144762	17.2	18.4
77884	16.9	19.3	542345	16.9	19.2	76556	17.0	18.9	190915	17.1	20.3	367015	17.1	20.6	496195	17.2	20.0
455359	16.9	21.3	448834	16.9	21.2	74411	17.0	18.1	213276	17.1	20.1	171127	17.1	19.6	175268	17.2	20.3
105447	16.9	18.2	31312	16.9	17.7	258148	17.0	21.3	254104	17.1	19.6	179314	17.1	19.9	5010	17.2	15.6
147871	16.9	20.0	172149	16.9	19.8	445644	17.0	20.2	345946	17.1	20.3	448909	17.1	21.3	74561	17.2	19.5
76065	16.9	18.9	337364	16.9	21.5	295867	17.0	20.3	246844	17.1	19.2	458030	17.1	20.4	203889	17.2	19.1
412737	16.9	19.8	371778	16.9	21.0	402557	17.0	19.3	263910	17.1	21.3	405615	17.1	20.8	84876	17.2	18.7
170569	16.9	18.9	191382	16.9	21.6	372214	17.0	20.3	372118	17.1	21.3	172694	17.1	18.8	109200	17.2	18.8
275203	16.9	20.2	131206	16.9	18.9	233293	17.0	20.0	490607	17.1	21.7	104480	17.1	18.7	331034	17.2	20.7
274625	16.9	20.7	256197	16.9	20.2	432021	17.0	21.6	448971	17.1	20.6	360319	17.1	21.7	139485	17.2	19.1
6986	16.9	17.3	457865	16.9	21.3	339807	17.0	20.8	336024	17.1	21.0	267661	17.1	20.0	185587	17.2	19.8
80474	16.9	17.8	438733	16.9	21.3	231130	17.0	19.3	490573	17.1	20.8	464723	17.1	21.1	518738	17.2	21.4
418817	16.9	19.7	362400	16.9	21.3	103765	17.0	19.9	131529</								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
151987	17.2	19.2	228233	17.3	20.2	446535	17.3	21.0	153121	17.4	19.1	350178	17.5	18.4	367786	17.5	20.7
211249	17.2	20.0	28802	17.3	17.4	148749	17.3	19.3	176023	17.4	19.6	144073	17.5	19.8	334496	17.5	20.9
494229	17.2	22.0	198590	17.3	19.6	256019	17.3	20.0	224869	17.4	19.4	149712	17.5	17.7	202017	17.5	21.2
169108	17.2	21.0	413542	17.3	21.1	100199	17.3	19.1	68533	17.4	19.3	24328	17.5	17.7	292035	17.5	20.6
98856	17.2	18.3	404531	17.3	21.9	307643	17.3	21.4	27910	17.4	19.0	486065	17.5	21.9	173230	17.5	20.2
394859	17.2	21.1	108388	17.3	17.4	147795	17.3	19.6	47857	17.4	18.1	212656	17.5	20.1	373680	17.5	22.1
370221	17.2	21.0	261102	17.3	20.4	157257	17.3	19.6	6903	17.4	17.1	449749	17.5	20.9	87781	17.5	19.9
362239	17.2	19.2	114018	17.3	18.5	297181	17.3	21.0	114278	17.4	19.7	447441	17.5	20.2	108597	17.5	20.3
359173	17.2	19.8	494065	17.3	21.0	160474	17.3	20.5	403593	17.4	21.5	316375	17.5	20.8	273183	17.5	20.0
228061	17.2	20.6	516690	17.3	21.4	380917	17.3	20.4	236889	17.4	20.1	407370	17.5	21.1	359577	17.5	19.4
276264	17.2	21.5	516644	17.3	21.3	41461	17.3	18.6	113868	17.4	20.1	168483	17.5	19.6	224613	17.5	20.3
82518	17.2	18.6	541499	17.3	21.2	306482	17.4	20.6	241193	17.4	20.7	138060	17.5	19.1	209293	17.5	20.3
202494	17.2	20.5	288018	17.3	21.2	422146	17.4	20.7	274434	17.4	20.4	405706	17.5	20.8	248267	17.5	19.9
503835	17.2	21.7	476508	17.3	21.0	136891	17.4	18.8	20107	17.4	17.9	489774	17.5	20.5	239373	17.5	20.7
520801	17.2	20.5	61360	17.3	18.8	543685	17.4	20.7	426684	17.4	20.7	451403	17.5	21.9	37063	17.5	18.6
452895	17.2	21.3	139541	17.3	19.6	400946	17.4	20.8	492840	17.4	21.2	48591	17.5	17.5	97458	17.5	19.2
111757	17.2	19.4	406647	17.3	19.4	406647	17.4	19.7	176194	17.4	20.2	517739	17.5	22.0	143142	17.5	19.3
94894	17.2	20.3	390475	17.3	20.6	496407	17.4	21.9	119749	17.4	19.6	196937	17.5	19.7	136846	17.5	18.6
56731	17.2	19.2	413632	17.3	21.7	292559	17.4	20.5	289671	17.4	19.9	40382	17.5	18.9	495652	17.5	19.6
489352	17.2	20.6	268002	17.3	19.5	142731	17.4	18.9	35405	17.4	18.6	122002	17.5	20.2	169201	17.5	20.2
407373	17.2	22.0	484623	17.3	21.4	230795	17.4	19.3	48606	17.4	17.6	147935	17.5	18.0	183339	17.5	20.0
82751	17.2	19.0	322286	17.3	20.2	157815	17.4	19.6	170656	17.4	19.0	318732	17.5	20.7	426731	17.5	21.1
172189	17.2	20.0	482539	17.3	20.3	334124	17.4	20.8	446793	17.4	21.2	57806	17.5	18.2	519674	17.5	20.7
354630	17.2	19.3	340151	17.3	19.8	444831	17.4	22.0	183476	17.4	18.9	368163	17.5	22.0	322004	17.5	20.1
153540	17.2	19.6	336009	17.3	20.4	193208	17.4	19.8	294280	17.4	21.1	122239	17.5	20.0	165849	17.5	20.0
365632	17.2	21.3	543200	17.3	21.2	153357	17.4	21.0	357449	17.4	19.8	522377	17.5	21.0	74280	17.5	19.2
447881	17.2	20.5	493797	17.3	20.6	48973	17.4	19.1	302105	17.4	19.8	386405	17.5	20.7	387272	17.5	20.5
418360	17.2	21.7	62289	17.3	18.7	405548	17.4	20.2	427831	17.4	20.9	298413	17.5	20.0	356090	17.5	20.0
484379	17.2	20.2	452467	17.3	20.6	131998	17.4	18.8	407788	17.4	20.2	104897	17.5	20.2	329556	17.5	20.6
164442	17.2	20.5	330500	17.3	22.0	191442	17.4	18.4	200315	17.4	19.5	462500	17.5	21.0	271246	17.5	20.0
456464	17.3	20.9	409295	17.3	20.9	455025	17.4	21.3	162347	17.4	19.2	427319	17.5	20.5	407411	17.5	21.1
541334	17.3	20.0	446343	17.3	20.0	225415	17.4	18.8	275613	17.4	19.7	362717	17.5	20.4	337791	17.5	19.6
481783	17.3	21.1	462757	17.3	19.8	108245	17.4	18.9	14476	17.4	17.3	105047	17.5	18.2	273142	17.6	20.7
496248	17.3	21.2	345771	17.3	19.4	456400	17.4	21.1	195846	17.4	19.9	275826	17.5	21.1	383000	17.6	20.9
344494	17.3	22.1	479463	17.3	20.2	51490	17.4	19.1	315770	17.4	19.7	329498	17.5	20.4	487066	17.6	21.3
201786	17.3	19.5	278910	17.3	20.4	206119	17.4	20.0	228743	17.4	20.4	408831	17.5	21.2	133863	17.6	19.6
231396	17.3	19.9	486113	17.3	21.3	518090	17.4	21.4	317414	17.4	20.7	382277	17.5	21.1	384665	17.6	19.7
59587	17.3	19.4	409613	17.3	21.0	447805	17.4	20.5	452865	17.4	20.8	438724	17.5	21.7	461612	17.6	20.1
48536	17.3	18.3	270973	17.3	20.8	516622	17.4	20.5	4192	17.4	17.1	194403	17.5	20.4	415578	17.6	20.9
52050	17.3	18.8	78618	17.3	18.9	172308	17.4	19.2	158699	17.4	19.0	405032	17.5	22.7	28612	17.6	18.9
194736	17.3	20.8	351226	17.3	21.1	226894	17.4	20.8	113262	17.4	19.2	158583	17.5	20.0	491121	17.6	22.3
129334	17.3	20.3	321454	17.3	20.7	303056	17.4	19.3	468399	17.4	21.2	331271	17.5	19.4	293205	17.6	20.5
287420	17.3	20.5	220953	17.3	20.2	41891	17.4	17.4	192945	17.4	20.1	506361	17.5	22.1	288143	17.6	19.7
405662	17.3	20.7	486333	17.3	20.7	473978	17.4	19.7	268708	17.4	19.2	211588	17.5	19.9	541517	17.6	21.6
342060	17.3	19.9	435007	17.3	21.2	151906	17.4	21.0	466007	17.5	20.3	376260	17.5	20.2	496039	17.6	21.2
340307	17.3	20.2	63413	17.3	19.4	339419	17.4	20.3	234553	17.5	19.6	76638	17.5	18.6	484668	17.6	21.7
180605	17.3	19.3	385953	17.3	20.7	459040	17.4	19.9	402755	17.5	21.0	486896	17.5	20.7	37351	17.6	17.7
438780	17.3	21.4	375053	17.3	21.4	216537	17.4	20.6	290234	17.5	20.5	190847	17.5	20.8	185354	17.6	20.0
449272	17.3	20.1	232239	17.3	21.2	364275	17.4	20.4	381300	17.5	21.9	436417	17.5	20.6	220618	17.6	20.0
10279	17.3	18.9	194670	17.3	17.7	215955	17.4	20.5	342003	17.5	18.9	299543	17.5	20.9	274361	17.6	21.0
362235	17.3	21.0	288418	17.3	19.7	391460	17.4	20.1	146750	17.5	20.3	145403	17.5	20.0	239221	17.6	20.8
240035	17.3	19.7	279520	17.3	19.4	121755	17.4	19.8	83377	17.5	19.5	245057	17.5	19.4	306507	17.6	20.3
460361	17.3	20.3	155486	17.3	19.0	238961	17.4	19.8	313582	17.5	19.8	28405	17.5	18.8	295660	17.6	20.6
296659	17.3	20.7	81641	17.3	19.1	346404	17.4	20.2	193210	17.5	19.6	368288	17.5	20.8	183431	17.6	18.9
150093	17.3	20.7	1672	17.3	15.0	317633	17.4	21.5	96443	17.5	18.0	264788	17.5	19.4	117671	17.6	20.2
3428	17.3	15.0	379981	17.3	20.8	221591	17.4	21.2	492992	17.5	21.1	203754	17.5	19.7	311706	17.6	19.7
541902	17.3	20.6	297004	17.3	19.8	81082	17.4	18.7	434651	17.5	20.5	60545	17.5	18.7	453424	17.6	20.8
492120	17.3	21.6	485195	17.3	20.8	381627	17.4	20.9	110931	17.5	19.8	196026	17.5	19.1	26708	17.6	18.5
496803	17.3	20.5	333803	17.3	20.0	152275	17.4	20.6	130301	17.5	20.2	173425	17.5	19.4	331597	17.6	22.1
378388	17.3	20.6	503868	17.3	19.5	495738	17.4	20.9	340206	17.5	19.4	397177	17.5	20.6	514883	17.6	21.5
33356	17.3	17.2	262710	17.3	20.1	3426	17.4	16.7	241783	17.5	20.6	421246	17.5	20.9	181017	17.6	20.8
418430	17.3	21.2	86971	17.3	20.4	270634	17.4	20.9	516992	17.5	21.0	473289	17.5	21.5	406708	17.6	19.8
416770	17.3	19.8	179959	17.3	18.7	448976	17.4	20.4	127632	17.5	19.0	240730	17.5	20.4	81549	17.6	19.9
320812	17.3	20.8	237948	17.3	20.1	405721	17.4	21.6	488023	17.5	20.3	148579	17.5	19.1	465829	17.6	20.5
68676	17.3	18.7	164373	17.3	19.1	205217	17.4	19.9	327534	17.5	20.2	32759	17.5	18.3	467192	17.6	20.8
403021	17.3	20.5	450276	17.3	20.0	47808	17.4	18.4	51473	17.5	19.3	359938	17.5	20.2	300456	17.6	21.2
130329	17.3	18.5	219153	17.3	20.4	76515	17.4	18.9	202541	17.5	20.5	110350	17.5	19.3	488837	17.6	22.3
357644	17.3	19.6	133589	17.3	18.5	80397	17.4	18.9	491886	17.5	20.0	24344	17.5	18.2	270684	17.6	20.3
67866	17.3	17.4	542827	17.3	20.9	29394	17.4	18									

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
157281	17.6	19.7	136116	17.7	18.0	73403	17.7	19.6	444826	17.8	20.5	452409	17.8	21.7	455029	17.9	21.6
227791	17.6	20.5	260947	17.7	19.9	50053	17.7	17.9	157159	17.8	19.8	412458	17.8	20.2	521450	17.9	20.6
65051	17.6	19.3	285104	17.7	20.1	197913	17.7	21.0	234630	17.8	20.1	73464	17.8	19.3	290069	17.9	20.6
28631	17.6	19.2	292332	17.7	20.8	376311	17.7	20.1	196835	17.8	19.7	293252	17.8	19.7	75563	17.9	18.1
377513	17.6	20.4	162182	17.7	19.5	3390	17.7	15.7	298470	17.8	21.3	158896	17.8	20.7	405065	17.9	21.2
446508	17.6	20.7	323923	17.7	20.6	149510	17.7	19.9	366872	17.8	20.6	199148	17.8	19.9	16147	17.9	17.7
404023	17.6	18.5	80283	17.7	17.3	329060	17.7	20.5	74717	17.8	18.6	465036	17.9	19.8	493495	17.9	21.1
339688	17.6	20.9	406617	17.7	20.0	366787	17.7	21.0	375642	17.8	20.6	259178	17.9	19.4	516809	17.9	21.7
477280	17.6	20.4	541877	17.7	20.0	393363	17.7	20.4	78498	17.8	19.8	524839	17.9	20.3	176427	17.9	20.0
538341	17.6	21.3	466613	17.7	19.8	203296	17.7	20.2	163785	17.8	19.7	171139	17.9	20.3	82504	17.9	19.3
134322	17.6	19.9	122596	17.7	17.7	344058	17.7	21.6	98849	17.8	18.6	71624	17.9	18.0	219371	17.9	20.1
479617	17.6	20.1	466566	17.7	20.8	270850	17.7	21.6	196149	17.8	20.1	61268	17.9	18.6	322284	17.9	20.1
331974	17.6	20.6	280241	17.7	20.6	385487	17.7	20.1	449017	17.8	20.0	141750	17.9	19.9	255772	17.9	20.8
345111	17.6	20.9	347554	17.7	20.7	261162	17.7	20.0	168193	17.8	20.1	544836	17.9	21.0	502	17.9	12.7
241213	17.6	20.6	456107	17.7	20.6	52465	17.7	18.3	252486	17.8	20.9	151157	17.9	19.8	112127	17.9	20.2
231389	17.6	20.0	229812	17.7	20.3	386731	17.7	19.7	539934	17.8	21.5	541774	17.9	22.2	310400	17.9	18.9
160423	17.6	19.9	199037	17.7	19.2	358120	17.7	20.6	296655	17.8	21.3	256083	17.9	19.9	440330	17.9	20.0
32288	17.6	17.2	133011	17.7	19.6	131349	17.7	20.3	50056	17.8	17.4	30521	17.9	18.7	316897	17.9	20.8
178392	17.6	19.1	128623	17.7	20.3	295937	17.7	20.7	337940	17.8	19.6	351061	17.9	19.8	116005	17.9	19.9
129009	17.6	20.2	459421	17.7	20.8	276352	17.7	20.6	515773	17.8	21.7	344248	17.9	21.7	191204	17.9	19.1
80134	17.6	19.4	223078	17.7	20.2	157223	17.7	20.1	172939	17.8	20.3	452909	17.9	20.6	267777	17.9	20.2
236058	17.6	20.3	517019	17.7	21.9	197005	17.7	19.4	471966	17.8	20.4	339741	17.9	19.1	375105	17.9	20.6
377957	17.6	20.8	128120	17.7	19.5	291199	17.7	20.3	52112	17.8	18.6	461643	17.9	21.0	84325	17.9	19.0
74037	17.6	17.9	359859	17.7	20.9	51406	17.7	19.7	155628	17.8	19.2	508977	17.9	19.6	137337	17.9	19.1
216984	17.6	20.4	425464	17.7	21.0	143316	17.7	19.7	185957	17.8	18.2	169157	17.9	20.4	520255	17.9	20.2
243841	17.6	20.3	503614	17.7	20.5	269154	17.7	21.0	450282	17.8	19.9	210325	17.9	20.0	188190	17.9	19.5
467995	17.6	20.3	486443	17.7	20.4	414712	17.7	20.5	3893	17.8	17.7	100474	17.9	18.7	450838	17.9	20.7
275037	17.6	21.1	228129	17.7	19.9	489843	17.7	19.9	438697	17.8	21.3	249861	17.9	21.1	475451	17.9	21.1
75534	17.6	18.7	319028	17.7	21.0	230769	17.7	20.0	57464	17.8	18.6	251257	17.9	20.4	443268	17.9	20.9
499626	17.6	21.5	254658	17.7	20.9	48881	17.7	18.5	448829	17.8	23.1	543012	17.9	21.4	494778	17.9	21.4
67497	17.6	19.8	118375	17.7	20.3	324637	17.7	20.6	101167	17.8	19.1	486949	17.9	20.2	381339	17.9	21.1
275583	17.6	21.6	462495	17.7	20.3	167636	17.7	19.6	474763	17.8	20.8	467145	17.9	20.2	112758	17.9	19.7
398411	17.6	21.2	377562	17.7	21.0	122094	17.7	20.3	336066	17.8	20.5	55397	17.9	17.9	204191	17.9	20.3
181892	17.6	20.5	216736	17.7	20.2	435422	17.7	20.4	220464	17.8	19.5	371273	17.9	20.9	247655	17.9	21.0
234985	17.6	17.9	56677	17.7	18.3	400364	17.7	21.4	535371	17.8	21.0	527499	17.9	22.3	523490	17.9	20.0
410461	17.6	19.0	396537	17.7	19.9	31167	17.7	17.5	81198	17.8	19.4	298594	17.9	20.5	60090	17.9	18.7
132720	17.6	20.7	23749	17.7	18.1	489613	17.7	22.2	360566	17.8	20.3	318947	17.9	20.4	94012	17.9	17.7
487411	17.6	20.7	436118	17.7	20.9	12872	17.7	17.3	323967	17.8	20.3	262239	17.9	21.4	157172	17.9	19.3
12657	17.6	17.2	217208	17.7	21.3	99922	17.7	18.9	146281	17.8	18.8	84830	17.9	19.5	484286	17.9	21.3
105082	17.6	20.0	40793	17.7	19.1	276372	17.7	19.7	203333	17.8	20.4	534480	17.9	20.7	311315	17.9	20.5
393704	17.6	21.0	45783	17.7	18.5	426859	17.7	20.5	244480	17.8	21.1	339680	17.9	21.1	182601	17.9	19.9
542591	17.6	20.3	415415	17.7	20.2	324711	17.7	20.5	193934	17.8	19.6	416539	17.9	20.6	142159	17.9	19.7
544665	17.6	21.1	212629	17.7	20.6	373704	17.7	21.1	213107	17.8	17.8	360925	17.9	20.9	55353	17.9	18.0
327955	17.6	19.9	331450	17.7	19.0	139661	17.7	19.3	122574	17.8	19.7	101378	17.9	20.5	412185	17.9	20.0
139943	17.6	19.0	290616	17.7	20.6	303053	17.7	20.5	366781	17.8	21.0	417904	17.9	20.8	281126	17.9	19.9
79838	17.6	19.1	416325	17.7	20.9	527013	17.7	21.9	158358	17.8	18.8	447878	17.9	21.3	222931	17.9	21.7
359605	17.6	19.9	148978	17.7	20.8	238443	17.7	20.1	353725	17.8	20.9	188493	17.9	19.8	272221	17.9	20.0
340122	17.6	20.0	216032	17.7	20.0	188941	17.7	20.3	363625	17.8	21.5	165905	17.9	18.9	239530	17.9	19.7
55096	17.6	18.1	312437	17.7	19.2	66640	17.8	20.0	195957	17.8	20.0	421492	17.9	21.3	238084	17.9	19.2
103662	17.6	18.8	408380	17.7	20.2	388120	17.8	20.9	229564	17.8	19.1	81244	17.9	19.1	323492	17.9	20.6
104553	17.6	19.0	192968	17.7	20.0	186439	17.8	20.1	301670	17.8	20.3	109469	17.9	19.6	440221	17.9	21.3
427693	17.6	19.5	332599	17.7	20.4	308775	17.8	20.1	160813	17.8	19.1	289779	17.9	21.1	231043	17.9	18.4
459405	17.6	20.6	339817	17.7	21.4	520800	17.8	20.4	173730	17.8	20.0	334579	17.9	20.2	243930	17.9	20.1
397837	17.6	19.7	178271	17.7	20.5	463363	17.8	21.2	248452	17.8	19.3	486376	17.9	20.9	81467	17.9	19.4
270180	17.6	20.5	252349	17.7	19.7	339656	17.8	20.8	273268	17.8	20.3	271208	17.9	20.3	237222	17.9	20.0
281964	17.6	20.7	103299	17.7	16.9	475509	17.8	20.9	544981	17.8	20.5	362712	17.9	20.6	541757	17.9	21.1
446991	17.6	19.7	361310	17.7	19.8	106488	17.8	18.4	543171	17.8	21.2	291286	17.9	20.8	188713	17.9	19.8
108169	17.6	20.1	455192	17.7	20.4	507148	17.8	19.5	173347	17.8	20.0	262407	17.9	19.8	453399	17.9	20.7
488501	17.6	22.1	334550	17.7	20.3	10316	17.8	18.0	1319915	17.8	20.3	179595	17.9	20.3	311675	17.9	19.6
172663	17.6	18.7	261175	17.7	19.7	174081	17.8	19.2	505081	17.8	20.4	232043	17.9	19.9	118742	17.9	19.6
409262	17.6	20.8	524895	17.7	20.1	196125	17.8	19.9	452387	17.8	22.0	21497	17.9	17.7	4077	17.9	15.9
377483	17.6	19.7	52656	17.7	18.8	274242	17.8	21.2	182425	17.8	19.9	160125	17.9	20.6	252586	17.9	20.1
76342	17.6	18.2	154467	17.7	18.5	369956	17.8	21.2	373321	17.8	20.7	489794	17.9	20.9	232684	17.9	19.7
157275	17.6	20.1	119338	17.7	19.9	400532	17.8	19.8	57754	17.8	18.0	465556	17.9	19.7	55053	17.9	19.0
339992	17.6	20.3	252591	17.7	18.8	138247	17.8	20.1	387705	17.8	20.0	190863	17.9	19.9	496258	17.9	21.9
252628	17.6	19.6	12322	17.7	19.0	270085	17.8	21.3	84561	17.8	19.7	310303	17.9	20.3	331712	17.9	20.6
343617	17.6	20.4	187217	17.7	18.9	375532	17.8	20.4	155383	17.8	20.8	18892	17.9	17.9	81852	17.9	18.8
175218	17.6	19.5	180216	17.7	20.4	33631	17.8	19.0	223297	17.8	20.1	22300	17.9	18.1	31284	17.9	18.6
401294	17.6	21.2	266978	17.7	20.3	386266	17.8	20.6									

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
109233	17.9	19.1	495138	18.1	19.2	24348	18.1	18.7	38391	18.2	18.8	61052	18.3	19.4	237119	18.3	20.0
79400	17.9	19.3	26701	18.1	18.4	274045	18.1	20.7	192049	18.2	20.5	328580	18.3	20.9	244945	18.3	19.9
446147	17.9	20.2	269250	18.1	19.8	14782	18.1	17.8	70392	18.2	18.5	543206	18.3	20.4	277913	18.3	21.6
197021	17.9	19.7	56592	18.1	18.6	347750	18.1	20.2	485649	18.2	20.5	75425	18.3	19.0	285005	18.3	20.1
450284	17.9	18.7	191360	18.1	19.5	163765	18.1	20.4	413999	18.2	20.3	321044	18.3	20.5	9871	18.3	15.7
477360	17.9	20.1	354373	18.1	19.7	318703	18.1	20.8	189634	18.2	19.4	518934	18.3	20.5	220482	18.3	18.4
145927	17.9	19.3	7657	18.1	17.7	334932	18.1	19.8	143697	18.2	20.3	291342	18.3	20.7	100125	18.3	19.3
84052	17.9	19.2	336901	18.1	19.9	258221	18.1	21.3	541854	18.2	20.8	28374	18.3	18.5	287391	18.3	19.7
49525	17.9	17.9	189243	18.1	20.2	303036	18.1	19.8	403306	18.2	19.6	403035	18.3	19.5	73857	18.3	18.8
157152	17.9	20.2	160529	18.1	19.3	416622	18.1	20.5	400145	18.2	22.0	201250	18.3	19.8	136015	18.3	18.7
344020	17.9	20.5	462748	18.1	20.9	488705	18.1	18.8	344064	18.2	21.0	49622	18.3	18.3	82387	18.3	18.7
211680	17.9	18.9	463009	18.1	20.5	444821	18.1	20.9	76561	18.2	18.6	182108	18.3	19.6	62418	18.3	19.3
337410	17.9	20.7	83120	18.1	20.4	74500	18.1	19.2	669	18.2	14.6	402138	18.3	23.1	264598	18.3	20.6
383717	17.9	21.3	240057	18.1	20.6	98278	18.1	19.4	145398	18.2	19.7	75723	18.3	18.2	10399	18.3	17.1
485598	17.9	21.4	248679	18.1	20.6	72835	18.1	19.8	121067	18.2	19.1	228207	18.3	20.3	456559	18.3	20.2
388006	17.9	20.7	111446	18.1	19.5	335639	18.1	21.5	155148	18.2	20.3	170566	18.3	19.2	339062	18.3	19.5
542100	17.9	20.3	195872	18.1	20.6	66110	18.1	19.3	73508	18.2	17.0	415527	18.3	20.4	16754	18.3	20.4
269325	17.9	20.8	324325	18.1	21.8	197033	18.1	19.9	99280	18.2	20.1	155944	18.3	19.7	452892	18.3	21.1
270611	17.9	20.7	209715	18.1	19.3	31688	18.1	17.8	356947	18.2	21.2	484434	18.3	19.8	441516	18.3	22.1
148965	17.9	20.2	326257	18.1	20.0	390822	18.1	21.0	126026	18.2	18.2	373369	18.3	20.0	250260	18.3	20.1
424850	17.9	20.4	438486	18.1	21.7	194541	18.1	20.6	218405	18.2	19.9	155725	18.3	18.6	190757	18.3	20.2
35681	17.9	16.8	146599	18.1	18.8	11635	18.1	16.4	233678	18.2	21.3	47494	18.3	18.2	351316	18.3	21.5
444474	17.9	21.4	182157	18.1	20.7	293186	18.1	20.2	54809	18.2	19.3	275907	18.3	20.8	62949	18.3	17.7
473838	17.9	20.7	335358	18.1	20.6	521769	18.1	21.0	6863	18.2	16.7	306941	18.3	20.7	19341	18.3	17.1
445614	18.0	21.0	76461	18.1	18.7	19384	18.1	18.4	463948	18.2	20.8	398132	18.3	19.4	168213	18.3	19.9
407319	18.0	21.2	176860	18.1	20.8	373459	18.1	20.4	507626	18.2	20.8	262854	18.3	20.4	232947	18.3	19.1
113203	18.0	20.7	117842	18.1	19.3	415349	18.1	21.1	136442	18.2	19.2	460843	18.3	21.0	420122	18.3	19.9
327358	18.0	20.5	281369	18.1	19.7	128127	18.1	20.5	365279	18.2	21.1	291501	18.3	20.7	43146	18.3	17.9
32141	18.0	17.8	199193	18.1	17.9	427814	18.1	20.1	464465	18.2	20.8	90404	18.3	18.7	50727	18.3	18.3
139295	18.0	20.4	443808	18.1	21.9	136870	18.1	19.2	485458	18.2	21.3	356030	18.3	19.3	363600	18.3	20.3
158178	18.0	19.1	328365	18.1	20.3	269266	18.1	19.4	479453	18.2	20.8	447921	18.3	20.0	353303	18.3	20.9
192439	18.0	19.8	199707	18.1	20.5	501547	18.1	20.6	438254	18.2	22.3	218850	18.3	20.5	229319	18.3	20.4
50914	18.0	18.5	281723	18.1	20.0	285624	18.1	20.9	63629	18.2	18.5	200652	18.3	20.5	363618	18.3	21.7
395163	18.0	20.2	455674	18.1	18.7	55625	18.1	18.7	98388	18.2	18.7	265931	18.3	20.7	540032	18.3	20.7
366095	18.0	19.6	146975	18.1	20.1	274476	18.2	20.0	174825	18.2	20.4	490568	18.3	21.3	412929	18.3	20.8
51801	18.0	18.8	231153	18.1	19.7	218391	18.2	19.8	414	18.2	14.5	125769	18.3	18.5	78421	18.3	19.4
452841	18.0	20.9	312346	18.1	20.2	1057	18.2	15.7	402302	18.2	21.1	544534	18.3	21.5	337469	18.3	20.8
489249	18.0	21.2	79355	18.1	19.2	333623	18.2	20.6	458120	18.2	19.7	269273	18.3	19.7	353375	18.3	21.0
262617	18.0	20.2	346368	18.1	19.6	173672	18.2	20.1	309	18.2	14.7	250150	18.3	21.4	544705	18.3	20.9
363200	18.0	20.7	411872	18.1	20.5	278940	18.2	21.1	329982	18.2	21.1	443188	18.3	20.0	129295	18.3	19.4
488006	18.0	20.3	244869	18.1	20.4	373757	18.2	20.4	484856	18.2	21.0	432886	18.3	21.0	465243	18.3	21.7
230750	18.0	18.9	171695	18.1	20.0	37695	18.2	19.8	161822	18.2	20.0	489723	18.3	20.2	80087	18.3	19.1
307661	18.0	19.7	519060	18.1	20.2	279944	18.2	19.5	366778	18.2	21.2	340578	18.3	20.0	248198	18.3	18.8
233255	18.0	19.7	376582	18.1	20.8	446776	18.2	21.5	494038	18.2	20.4	222517	18.3	20.7	319109	18.3	21.1
78428	18.0	20.4	335240	18.1	20.4	324007	18.2	20.1	14282	18.2	18.1	140793	18.3	20.0	375070	18.3	21.0
362185	18.0	20.2	397937	18.1	20.2	254687	18.2	20.3	323856	18.2	20.6	32097	18.3	18.7	447965	18.4	20.1
344345	18.0	21.0	4155807	18.1	20.4	255807	18.2	20.4	112625	18.2	19.7	156904	18.3	19.1	410578	18.4	20.8
51273	18.0	18.4	509676	18.1	20.4	51432	18.2	18.8	484840	18.2	20.2	456252	18.3	21.2	152975	18.4	19.3
270106	18.0	20.2	97567	18.1	18.3	420073	18.2	20.3	408808	18.2	21.1	220320	18.3	20.6	148946	18.4	19.5
69890	18.0	20.0	482007	18.1	21.2	51151	18.2	18.7	459198	18.2	20.8	64594	18.3	19.7	181291	18.4	20.1
139325	18.0	20.7	241418	18.1	21.2	61008	18.2	18.9	20068	18.2	18.3	367438	18.3	21.0	306252	18.4	20.6
404314	18.0	19.4	34545	18.1	17.9	270205	18.2	20.9	334538	18.2	22.1	76636	18.3	18.1	336595	18.4	21.3
284730	18.0	21.0	396667	18.1	21.4	477794	18.2	21.3	522493	18.2	19.4	278406	18.3	20.2	285332	18.4	20.5
269815	18.0	20.2	180064	18.1	18.7	91275	18.2	18.5	372122	18.2	21.2	287532	18.3	19.5	77957	18.4	19.3
239043	18.0	19.6	409985	18.1	20.0	544597	18.2	20.9	496406	18.2	20.9	231025	18.3	19.6	86589	18.4	20.1
191338	18.0	19.8	541831	18.1	21.3	356504	18.2	19.8	52954	18.2	18.4	112771	18.3	19.9	502282	18.4	20.1
297338	18.0	20.5	313720	18.1	21.9	228833	18.2	19.3	247957	18.2	19.5	89021	18.3	17.7	201216	18.4	20.4
391112	18.0	21.2	53296	18.1	17.6	421925	18.2	21.3	216007	18.2	20.3	126438	18.3	18.0	386440	18.4	20.1
278452	18.0	21.3	360594	18.1	20.0	61236	18.2	18.6	90184	18.2	18.9	320116	18.3	20.6	249889	18.4	20.0
273606	18.0	19.7	53639	18.1	18.2	100935	18.2	19.5	136267	18.2	17.9	166446	18.3	18.6	260870	18.4	20.6
296594	18.0	21.0	285025	18.1	20.3	190317	18.2	19.8	507122	18.2	22.7	5803	18.3	17.2	496544	18.4	20.6
94891	18.0	19.4	460182	18.1	21.3	184750	18.2	19.9	101503	18.2	18.9	22272	18.3	18.3	82388	18.4	19.0
175861	18.0	18.8	298570	18.1	19.5	265127	18.2	20.1	400064	18.2	21.5	291854	18.3	20.4	191593	18.4	19.5
394449	18.0	21.8	132743	18.1	20.3	210174	18.2	20.0	252396	18.2	19.8	42226	18.3	18.5	297343	18.4	19.3
16534	18.0	18.7	343815	18.1	20.7	119610	18.2	19.5	84463	18.2	19.1	133838	18.3	18.9	61858	18.4	19.9
243311	18.0	21.2	490427	18.1	21.6	385958	18.2	20.9	166775	18.2	20.3	210678	18.3	19.5	67646	18.4	18.7
447022	18.0	22.6	487302	18.1	20.5	104954	18.2	19.2	359808	18.2	19.9	69728	18.3	19.2	73772	18.4	20.2
131999	18.0	19.2	159300	18.1	20.5	439447	18.2	20.2	55292	18.2	18.9	145726	18.3	19.4	433727	18.4	21.0
114311	18.0	19.7	369671	18.1	19.9	340941	18.2	19.9	247276	18.2	20.3						

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
466809	18.4	20.6	187538	18.5	20.4	26767	18.5	19.2	65460	18.6	18.1	42411	18.7	17.9	409570	18.7	21.0
247532	18.4	21.4	458202	18.5	20.6	88515	18.5	19.5	252006	18.6	19.5	140173	18.7	19.7	270916	18.7	20.0
203799	18.4	19.6	10828	18.5	17.8	448823	18.5	21.2	236969	18.6	21.0	155639	18.7	18.9	331098	18.7	20.7
50220	18.4	17.5	541490	18.5	22.1	461886	18.5	21.3	283407	18.6	20.5	542713	18.7	20.5	493656	18.7	20.8
193171	18.4	19.6	391815	18.5	21.5	71334	18.5	17.9	203722	18.6	19.8	543209	18.7	21.6	489308	18.7	21.4
188597	18.4	20.6	375374	18.5	20.8	97696	18.5	18.1	452483	18.6	19.4	477848	18.7	20.4	165685	18.7	19.9
191372	18.4	19.1	315744	18.5	20.1	59738	18.5	19.6	446328	18.6	20.1	286859	18.7	18.3	113742	18.7	18.6
46844	18.4	16.9	161587	18.5	18.8	340574	18.5	21.8	292879	18.6	20.6	372260	18.7	20.0	399495	18.7	20.7
281920	18.4	20.3	25639	18.5	18.5	235649	18.5	20.2	159339	18.6	21.0	517710	18.7	21.2	467379	18.7	20.2
388125	18.4	20.9	376868	18.5	21.1	57232	18.5	18.3	202462	18.6	19.9	139496	18.7	19.3	458383	18.7	21.2
233701	18.4	19.8	389379	18.5	20.5	148672	18.5	20.3	437877	18.6	21.1	207194	18.7	19.8	126608	18.7	19.2
185811	18.4	19.9	542948	18.5	21.5	280745	18.5	19.5	188863	18.6	19.1	392304	18.7	20.8	78272	18.7	19.3
521670	18.4	21.7	314816	18.5	20.9	265124	18.5	20.2	317085	18.6	21.0	456939	18.7	20.7	467187	18.7	21.3
48748	18.4	17.7	424325	18.5	22.3	274119	18.5	20.2	377949	18.6	21.3	83286	18.7	18.9	511520	18.7	20.8
468926	18.4	20.0	294949	18.5	20.3	376776	18.5	20.2	337828	18.6	20.7	398243	18.7	21.0	77826	18.8	19.2
285667	18.4	20.9	168521	18.5	20.5	313231	18.5	19.8	292517	18.6	19.8	443749	18.7	21.3	495260	18.8	20.6
466023	18.4	20.8	278429	18.5	19.7	248704	18.5	20.3	346315	18.6	21.0	276775	18.7	19.5	44268	18.8	17.9
512175	18.4	21.6	163492	18.5	19.2	202695	18.5	20.2	373525	18.6	21.1	201416	18.7	18.8	196275	18.8	18.6
207909	18.4	19.4	13479	18.5	18.1	84795	18.5	19.3	525388	18.6	20.6	214963	18.7	19.5	281452	18.8	21.3
351653	18.4	20.1	248495	18.5	19.0	275258	18.5	20.6	413059	18.6	20.8	350420	18.7	21.1	183621	18.8	19.5
110689	18.4	19.1	269334	18.5	20.7	366659	18.5	20.8	526470	18.6	21.8	405393	18.7	19.1	321637	18.8	20.8
249347	18.4	20.0	160439	18.5	20.6	233475	18.5	19.9	277139	18.6	20.4	164904	18.7	18.1	252646	18.8	20.2
54705	18.4	19.0	16259	18.5	18.0	131477	18.5	20.0	200063	18.6	20.6	543596	18.7	22.0	397261	18.8	20.2
75376	18.4	18.6	457457	18.5	20.8	538801	18.5	21.0	378747	18.6	21.7	367022	18.7	20.2	372195	18.8	19.7
176926	18.4	19.6	138675	18.5	19.5	196214	18.5	18.4	62762	18.6	17.3	9298	18.7	18.2	489233	18.8	22.1
189162	18.4	19.9	116179	18.5	19.4	483862	18.5	21.8	366593	18.6	21.2	196396	18.7	19.0	385879	18.8	21.1
434464	18.4	21.8	430478	18.5	19.7	230595	18.5	19.3	220881	18.6	19.4	77680	18.7	18.8	274462	18.8	20.1
469341	18.4	21.9	65650	18.5	19.0	289619	18.5	20.3	492980	18.6	20.9	120501	18.7	20.1	383833	18.8	20.0
418402	18.4	21.5	405501	18.5	20.4	267050	18.5	19.5	256141	18.6	21.6	27828	18.7	16.8	318706	18.8	20.1
310839	18.4	19.7	384644	18.5	20.6	166733	18.5	20.1	251589	18.6	19.8	325994	18.7	20.4	486338	18.8	20.6
92937	18.4	19.1	92848	18.5	20.0	339956	18.5	21.3	426750	18.6	21.3	452661	18.7	20.9	181603	18.8	19.1
379734	18.4	20.2	515125	18.5	20.7	168283	18.5	19.6	306375	18.6	21.8	51446	18.7	18.9	139960	18.8	20.5
194544	18.4	19.2	202675	18.5	20.2	493923	18.5	20.1	337647	18.6	20.8	130581	18.7	18.9	273124	18.8	19.1
443780	18.4	21.4	368335	18.5	21.1	416491	18.5	22.1	384618	18.6	20.7	491160	18.7	23.0	428353	18.8	20.1
395694	18.4	21.0	538365	18.5	21.4	190990	18.5	19.0	220615	18.6	20.9	519309	18.7	20.1	223769	18.8	20.8
520898	18.4	21.3	518785	18.5	21.1	158989	18.5	19.3	545117	18.6	21.0	493776	18.7	20.6	84972	18.8	18.5
22061	18.4	18.2	369017	18.5	19.8	194416	18.5	19.8	122715	18.6	18.8	527121	18.7	21.5	455820	18.8	21.3
401919	18.4	21.7	453619	18.5	21.0	148494	18.5	20.0	171698	18.6	19.3	205164	18.7	18.0	331808	18.8	20.6
466948	18.4	19.8	138906	18.5	18.7	489532	18.5	22.8	24123	18.6	17.6	510027	18.7	20.0	543707	18.8	21.6
503996	18.4	20.7	541796	18.5	20.7	44274	18.6	18.8	312246	18.6	19.6	30483	18.7	18.0	90974	18.8	17.8
253062	18.4	21.2	369856	18.5	20.7	34124	18.6	18.8	143670	18.6	18.9	306802	18.7	20.7	150801	18.8	18.8
189714	18.4	19.9	294085	18.5	20.6	210584	18.6	20.4	111088	18.6	19.3	233130	18.7	20.3	541148	18.8	20.6
276783	18.4	20.2	463023	18.5	20.1	29944	18.6	18.5	489816	18.6	20.7	239297	18.7	20.7	270609	18.8	20.7
426791	18.4	20.0	372031	18.5	21.1	163812	18.6	20.2	448148	18.6	21.7	492486	18.7	20.8	458718	18.8	19.6
100087	18.4	19.7	121417	18.5	19.3	335922	18.6	21.5	104909	18.6	19.4	166656	18.7	20.8	133244	18.8	19.3
184140	18.4	20.0	481175	18.5	21.0	345530	18.6	20.9	163558	18.6	19.5	134154	18.7	20.2	334566	18.8	21.2
118390	18.4	18.9	443667	18.5	19.6	339811	18.6	20.1	248892	18.6	20.8	147798	18.7	20.1	243913	18.8	18.7
320909	18.4	20.6	405965	18.5	21.1	541143	18.6	19.9	32618	18.6	17.4	370649	18.7	20.2	228783	18.8	19.8
218753	18.4	20.7	265383	18.5	20.0	362631	18.6	20.4	53406	18.6	18.1	366355	18.7	21.4	234224	18.8	20.1
3178	18.4	13.4	12710	18.5	16.9	247940	18.6	19.2	217483	18.6	20.2	168522	18.7	19.6	74452	18.8	18.7
180745	18.4	19.2	204801	18.5	19.9	394454	18.6	21.4	18013	18.6	18.2	411962	18.7	20.0	119120	18.8	20.1
544258	18.4	21.0	108964	18.5	19.4	102828	18.6	19.7	13339	18.6	18.3	118785	18.7	19.5	220598	18.8	20.5
298352	18.4	20.3	375119	18.5	21.2	244034	18.6	20.8	1103	18.6	15.0	421372	18.7	21.2	100137	18.8	18.8
424939	18.4	20.8	100267	18.5	18.8	235453	18.6	18.8	424919	18.6	20.3	321820	18.7	21.5	310857	18.8	18.5
465464	18.4	20.5	197371	18.5	20.1	372177	18.6	21.2	460319	18.6	22.3	248205	18.7	19.4	334439	18.8	21.0
499938	18.4	21.3	42274	18.5	20.3	398691	18.6	19.9	114689	18.6	19.7	405143	18.7	21.8	244782	18.8	21.0
222883	18.4	19.4	25602	18.5	18.9	92546	18.6	19.1	230425	18.6	20.0	388896	18.7	21.4	117632	18.8	19.7
68565	18.4	18.5	168357	18.5	19.1	126975	18.6	20.1	494678	18.6	22.0	23455	18.7	17.6	477456	18.8	19.5
299153	18.4	19.9	83287	18.5	18.7	74562	18.6	19.2	118027	18.6	19.9	544030	18.7	22.2	75478	18.8	17.2
96688	18.4	18.7	422173	18.5	19.9	267632	18.6	19.9	221131	18.6	19.6	243799	18.7	21.6	454197	18.8	20.9
452607	18.4	20.4	475760	18.5	21.2	408577	18.6	21.1	229312	18.6	19.4	37141	18.7	18.5	469552	18.8	20.3
505271	18.4	21.4	421026	18.5	20.4	359462	18.6	20.4	73766	18.7	19.4	125145	18.7	18.9	373100	18.8	20.7
388920	18.4	20.2	473762	18.5	20.7	440165	18.6	21.3	30132	18.7	18.5	528575	18.7	21.5	17342	18.8	17.5
119949	18.4	19.0	35142	18.5	18.5	162034	18.6	18.1	137117	18.7	18.4	459940	18.7	21.1	353026	18.8	19.4
456859	18.4	20.4	232787	18.5	21.3	359664	18.6	21.2	372243	18.7	20.0	360418	18.7	20.0	349636	18.8	21.0
284455	18.4	19.7	268986	18.5	20.0	493951	18.6	20.1	207929	18.7	19.9	9042	18.7	17.1	372176	18.8	20.9
282153	18.4	19.8	126787	18.5	19.0	440354	18.6	21.1	137629	18.7	19.5	363877	18.7	20.8	465543	18.8	20.9
400124	18.4	21.6	416068	18.5	20.0	486484	18.6	20.2	134898	18.7	18.7	195792	18.7	20.7	256122	18.8	21.2
215482	18.4	19.8	245804	18.5	20.0	372770	18.6	20									

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
266451	18.8	19.3	159185	18.9	19.2	452808	18.9	22.0	489359	18.9	20.1	242603	19.1	20.2	259426	19.1	19.7
226152	18.8	20.3	456011	18.9	20.4	53587	18.9	18.5	152902	18.9	19.4	162311	19.1	20.6	409595	19.1	20.9
155959	18.8	21.0	63330	18.9	18.4	412141	18.9	21.2	23664	18.9	16.7	129366	19.1	20.8	115934	19.1	19.1
216119	18.8	20.0	445690	18.9	21.1	45528	18.9	18.6	300436	18.9	21.8	163991	19.1	19.7	544892	19.1	20.0
451537	18.8	21.5	195930	18.9	19.5	438633	18.9	20.7	32049	18.9	18.0	446919	19.1	21.5	422372	19.1	21.3
165941	18.8	20.6	344838	18.9	20.0	414526	18.9	19.9	256567	18.9	20.3	18283	19.1	18.9	108664	19.1	17.9
244558	18.8	19.9	242386	18.9	19.5	510861	18.9	19.4	375057	18.9	21.5	419447	19.1	20.2	542949	19.1	21.6
464146	18.8	20.0	290964	18.9	21.0	232692	18.9	20.0	495075	19.0	20.3	52336	19.1	19.0	100611	19.1	20.6
416339	18.8	21.4	46989	18.9	17.8	419278	18.9	21.3	47392	19.0	18.4	295085	19.1	20.3	248866	19.1	22.0
221239	18.8	20.3	462035	18.9	20.1	177512	18.9	19.0	318741	19.0	20.3	293493	19.1	20.5	494673	19.1	21.9
506643	18.8	20.5	30682	18.9	18.4	117735	18.9	19.7	72716	19.0	18.7	445225	19.1	20.4	524517	19.1	20.9
494895	18.8	22.2	306425	18.9	20.3	344041	18.9	20.7	111295	19.0	18.9	150152	19.1	19.9	519652	19.1	20.0
201308	18.8	20.6	349523	18.9	21.6	24618	18.9	18.4	90590	19.0	20.0	8469	19.1	17.4	48214	19.1	18.4
127309	18.8	19.9	41020	18.9	19.7	31890	18.9	18.4	6892	19.0	19.6	6827	19.1	15.6	463004	19.1	20.8
38132	18.8	18.1	116857	18.9	19.4	6383	18.9	16.2	423341	19.0	21.3	110809	19.1	19.5	176905	19.1	20.0
448115	18.8	20.1	45410	18.9	17.4	413653	18.9	22.0	270811	19.0	19.6	405073	19.1	21.3	20154	19.1	16.7
274436	18.8	20.0	10283	18.9	17.6	242607	18.9	18.8	10032	19.0	18.4	321212	19.1	20.4	158013	19.1	19.9
296264	18.8	20.3	472260	18.9	19.4	63077	18.9	19.0	167931	19.0	20.2	92532	19.1	19.7	203563	19.1	18.9
167864	18.8	20.3	485408	18.9	21.3	60940	18.9	18.7	211746	19.0	19.4	236270	19.1	19.8	440331	19.1	21.4
350456	18.8	21.6	276308	18.9	20.2	511536	18.9	19.7	283272	19.0	20.6	88578	19.1	18.8	182982	19.1	20.1
407780	18.8	20.7	320973	18.9	20.0	427259	18.9	21.7	241911	19.0	19.3	423771	19.1	21.3	141542	19.1	19.7
222488	18.8	21.1	201376	18.9	20.9	94916	18.9	18.3	231605	19.0	19.0	376644	19.1	20.6	222520	19.1	21.4
366709	18.8	21.9	484776	18.9	19.9	75787	18.9	18.7	280498	19.0	21.7	293250	19.1	19.7	370450	19.1	19.7
413433	18.8	20.1	122541	18.9	19.7	365526	18.9	20.1	60409	19.0	19.4	318928	19.1	19.9	333390	19.1	20.6
88610	18.8	19.9	59528	18.9	18.9	153404	18.9	20.0	13046	19.0	19.5	108210	19.1	19.7	360575	19.1	19.7
143256	18.8	18.5	438216	18.9	21.8	84013	18.9	19.8	408504	19.0	21.0	542694	19.1	20.0	343948	19.1	21.4
491956	18.8	20.4	146782	18.9	20.0	481796	18.9	20.8	224635	19.0	19.5	28039	19.1	17.6	438142	19.1	21.7
172033	18.8	20.4	200381	18.9	20.3	479179	18.9	20.7	277907	19.0	20.7	116132	19.1	19.1	221294	19.1	20.3
113353	18.8	20.3	68276	18.9	18.8	225169	18.9	20.2	68636	19.0	18.9	328747	19.1	20.8	64236	19.1	19.0
307405	18.8	20.4	165618	18.9	18.9	278829	18.9	20.3	208366	19.0	21.0	446699	19.1	20.9	215260	19.1	20.6
233542	18.8	19.7	78535	18.9	18.7	213663	18.9	20.2	484404	19.0	20.4	65568	19.1	19.5	147211	19.1	20.2
428458	18.8	21.1	21675	18.9	18.7	139625	18.9	19.6	287967	19.0	20.7	480533	19.1	20.3	179417	19.1	20.0
12190	18.8	17.0	77163	18.9	18.5	54211	18.9	19.2	353250	19.0	19.9	16042	19.1	17.6	104666	19.1	19.4
494689	18.8	23.8	363989	18.9	21.4	8579	18.9	17.6	117729	19.0	19.8	417016	19.1	20.4	425853	19.1	21.5
326251	18.8	19.7	492038	18.9	20.0	3604	18.9	16.4	247648	19.0	21.0	418875	19.1	20.5	124258	19.1	19.8
49387	18.8	18.6	464374	18.9	21.0	476370	18.9	19.9	445748	19.0	20.8	243655	19.1	20.6	272579	19.1	19.9
332	18.8	13.9	535350	18.9	20.3	340007	18.9	21.0	268617	19.0	20.3	441481	19.1	22.0	208817	19.1	20.2
180819	18.8	19.7	98112	18.9	20.3	529531	18.9	20.8	496623	19.0	21.2	441552	19.1	21.3	449360	19.1	20.1
316882	18.8	20.4	153390	18.9	19.8	362944	18.9	19.7	542898	19.0	20.0	506906	19.1	19.4	330796	19.1	20.3
472780	18.8	21.0	275139	18.9	19.8	81698	18.9	19.7	158911	19.0	20.9	485424	19.1	21.3	416599	19.1	21.7
247869	18.8	20.5	405670	18.9	21.0	331744	18.9	21.0	173528	19.0	19.1	57902	19.1	18.9	50427	19.1	18.4
57100	18.8	17.9	444880	18.9	21.5	337589	18.9	20.9	271242	19.0	20.4	356071	19.1	19.7	60809	19.1	18.4
493304	18.8	20.9	375540	18.9	19.9	102647	18.9	18.5	379779	19.0	20.9	285285	19.1	20.9	495166	19.1	20.8
122194	18.8	19.6	54135	18.9	18.6	518932	18.9	20.4	267880	19.0	20.4	335874	19.1	20.5	92505	19.1	20.6
474514	18.8	20.9	375320	18.9	20.4	108115	18.9	19.8	39792	19.0	18.5	464794	19.1	19.3	145932	19.1	18.9
213738	18.8	20.4	377502	18.9	20.6	485624	18.9	20.4	522063	19.0	21.5	132139	19.1	19.7	290836	19.1	19.7
401291	18.8	20.3	318899	18.9	21.0	373715	18.9	20.4	354014	19.0	20.1	243531	19.1	20.1	375317	19.1	21.3
377033	18.8	21.0	271200	18.9	20.1	201368	18.9	19.6	245548	19.0	19.9	349959	19.1	20.3	438274	19.1	20.7
271424	18.8	19.1	376719	18.9	20.3	152600	18.9	19.1	10193	19.0	19.2	266514	19.1	20.6	516470	19.1	21.4
366117	18.8	20.4	330800	18.9	20.5	337526	18.9	20.8	482853	19.0	19.9	120709	19.1	19.9	331086	19.1	20.4
81165	18.8	19.0	454839	18.9	20.6	433692	18.9	20.6	89325	19.0	18.8	420900	19.1	21.0	276963	19.1	21.1
390881	18.8	20.4	77114	18.9	19.1	28552	18.9	17.6	269722	19.0	20.3	274580	19.1	19.8	87133	19.1	18.8
174308	18.8	20.9	162366	18.9	19.5	237415	18.9	20.4	416372	19.0	21.4	76695	19.1	19.5	466383	19.1	20.5
279900	18.9	20.2	28212	18.9	18.6	370244	18.9	20.8	20482	19.0	17.6	436042	19.1	21.7	137800	19.1	17.9
59388	18.9	18.4	190460	18.9	19.1	216677	18.9	20.1	288500	19.0	20.3	1106	19.1	14.5	100243	19.1	20.0
445083	18.9	22.2	309332	18.9	20.8	250253	18.9	19.9	134502	19.0	16.9	492533	19.1	21.3	2756	19.1	17.0
187320	18.9	20.7	271491	18.9	20.5	301810	18.9	21.3	273229	19.0	20.3	131857	19.1	19.0	93760	19.1	18.9
64266	18.9	17.5	67146	18.9	18.4	390708	18.9	19.2	525330	19.0	21.1	117486	19.1	19.4	447802	19.1	21.4
392788	18.9	20.4	422231	18.9	21.3	448131	18.9	22.4	287993	19.0	21.0	81911	19.1	19.1	486704	19.1	20.9
179122	18.9	18.4	350564	18.9	20.8	320896	18.9	20.5	372171	19.0	20.9	112471	19.1	19.5	496792	19.1	19.8
316652	18.9	19.2	292534	18.9	19.8	281525	18.9	21.5	226327	19.0	18.5	120109	19.1	19.5	486893	19.1	20.4
103189	18.9	17.8	152991	18.9	19.7	175519	18.9	20.2	85838	19.0	18.2	290482	19.1	20.7	105209	19.1	18.7
482559	18.9	20.3	121170	18.9	19.0	495946	18.9	22.2	25556	19.0	17.5	54706	19.1	19.0	103218	19.1	19.3
242356	18.9	20.1	348752	18.9	20.3	120708	18.9	20.7	101235	19.0	19.8	492603	19.1	21.2	152998	19.1	19.8
463742	18.9	21.0	517006	18.9	21.0	455720	18.9	19.6	141792	19.0	20.0	239747	19.1	19.5	64462	19.1	18.0
36780	18.9	18.6	474412	18.9	19.7	74080	18.9	18.5	483711	19.1	21.4	235582	19.1	20.2	467214	19.1	19.9
360252	18.9	21.3	134384	18.9	20.0	318790	18.9	20.9	512278	19.1	20.3	287196	19.1	21.3	132928	19.1	19.3
170426	18.9	20.9	59442	18.9	17.6	488812	18.9	21.2	381353	19.1	20.1	104815	19.1	19.5	545019	19.1	20.6
239524	18.9	19.6	30359	18.9	18.8	25756	18.9	18.2	55849	19.1	18.4						

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
110820	19.2	18.2	235552	19.2	20.2	146360	19.3	19.3	34747	19.4	18.2	424238	19.4	21.2	434182	19.5	21.7
9613	19.2	18.4	42427	19.2	18.4	393072	19.3	21.3	396306	19.4	19.8	543773	19.4	21.4	107951	19.5	19.1
314881	19.2	19.6	102193	19.2	19.2	61724	19.3	17.8	86594	19.4	18.8	392857	19.4	20.3	248247	19.5	19.8
57047	19.2	19.4	349629	19.2	20.1	415450	19.3	20.2	203874	19.4	19.7	182368	19.4	20.5	199905	19.5	20.4
7575	19.2	16.5	196157	19.2	20.5	159480	19.3	20.7	318772	19.4	19.5	71557	19.4	18.9	280007	19.5	20.7
86811	19.2	18.2	212546	19.2	21.5	396040	19.3	20.5	161247	19.4	18.9	265406	19.4	20.4	193788	19.5	19.1
103964	19.2	19.6	136095	19.2	19.1	38672	19.3	19.5	20392	19.4	18.1	229785	19.4	20.7	272874	19.5	19.0
543886	19.2	20.3	257359	19.2	20.5	334509	19.3	20.8	424352	19.4	20.9	241038	19.4	20.6	132684	19.5	19.9
421352	19.2	20.8	337016	19.2	20.6	164741	19.3	19.0	56402	19.4	18.6	276674	19.4	19.3	41557	19.5	19.2
531276	19.2	21.7	421143	19.2	20.1	185949	19.3	18.3	252520	19.4	19.7	15256	19.4	17.3	154856	19.5	20.2
271132	19.2	20.6	197941	19.2	19.3	76404	19.3	18.0	432901	19.4	21.5	218958	19.4	19.5	344288	19.5	20.5
81918	19.2	19.3	49991	19.2	19.7	78221	19.3	19.4	453600	19.4	20.5	359212	19.4	20.6	16844	19.5	17.3
287277	19.2	20.2	361392	19.2	20.7	280440	19.3	19.5	29974	19.4	17.3	518568	19.4	22.4	133831	19.5	19.8
15319	19.2	18.4	10516	19.2	17.7	186290	19.3	19.7	128933	19.4	19.7	464320	19.4	21.2	166023	19.5	19.3
69840	19.2	17.8	33465	19.2	18.1	454238	19.3	20.4	266200	19.4	21.1	49194	19.4	17.9	10037	19.5	15.8
442209	19.2	21.3	416797	19.2	19.5	195115	19.3	19.5	393184	19.4	19.9	242090	19.4	21.0	400334	19.5	20.8
103964	19.2	21.4	226134	19.2	20.2	462444	19.3	20.3	415298	19.4	21.1	495240	19.4	20.5	159711	19.5	19.8
260190	19.2	20.5	163225	19.2	20.3	340667	19.3	20.2	94043	19.4	18.0	169368	19.4	20.3	164598	19.5	20.7
445694	19.2	20.3	134460	19.2	20.1	456061	19.3	20.9	335275	19.4	21.4	43559	19.4	19.1	110033	19.5	19.8
543264	19.2	22.2	339863	19.2	21.0	421047	19.3	20.9	391488	19.4	20.9	17112	19.4	17.7	271231	19.5	19.9
426872	19.2	21.0	370224	19.2	20.8	262294	19.3	20.5	273109	19.4	20.6	458385	19.4	21.7	441074	19.5	22.4
332434	19.2	21.1	289325	19.2	20.5	333388	19.3	20.9	112449	19.4	19.3	282444	19.4	19.3	129729	19.5	20.2
51662	19.2	20.2	523681	19.2	21.5	204787	19.3	20.0	510791	19.4	20.5	189654	19.4	19.8	363198	19.5	21.0
342059	19.2	20.1	324190	19.2	21.1	304886	19.3	20.0	248883	19.4	20.2	305372	19.4	18.5	122605	19.5	19.4
310147	19.2	19.8	460217	19.2	21.5	89667	19.3	19.5	282106	19.4	20.0	522147	19.4	21.1	6122	19.5	17.4
102017	19.2	20.2	199211	19.2	19.7	114383	19.3	19.7	111526	19.4	18.2	26743	19.4	18.4	67919	19.5	19.3
166815	19.2	18.6	182790	19.2	20.5	473364	19.3	21.3	26692	19.4	18.4	201289	19.4	20.3	452323	19.5	19.7
253294	19.2	17.9	330276	19.2	20.5	463634	19.3	21.0	348414	19.4	20.8	413031	19.4	21.3	269150	19.5	19.6
37533	19.2	18.6	21044	19.2	18.1	498891	19.3	20.5	165854	19.4	19.7	117054	19.4	20.4	483602	19.5	21.0
418812	19.2	20.4	142927	19.2	20.4	22996	19.3	19.2	179724	19.4	20.8	1062	19.4	13.8	80215	19.5	19.6
543196	19.2	21.1	286174	19.2	20.9	497959	19.3	20.6	456325	19.4	21.2	401640	19.4	19.5	57803	19.5	19.0
118171	19.2	18.6	451571	19.2	20.4	135846	19.3	20.1	464865	19.4	21.0	211724	19.4	19.2	212511	19.5	20.8
443968	19.2	21.2	37678	19.2	17.5	481511	19.3	20.5	309544	19.4	20.7	479912	19.4	20.6	373710	19.5	21.5
248659	19.2	20.2	1202	19.2	16.2	256048	19.3	20.4	172197	19.4	20.1	181761	19.4	20.2	242291	19.5	20.7
149906	19.2	19.0	352132	19.3	21.1	41614	19.3	17.6	33254	19.4	18.3	319678	19.4	20.7	330177	19.5	20.8
194414	19.2	19.6	276590	19.3	20.5	197743	19.3	20.6	489389	19.4	21.2	397596	19.5	21.3	66379	19.5	18.4
485611	19.2	21.4	261390	19.3	20.0	544018	19.3	21.6	263357	19.4	20.3	347594	19.5	20.3	163287	19.5	19.0
468275	19.2	20.5	246590	19.3	19.8	467216	19.3	20.4	109421	19.4	19.3	308210	19.5	20.7	176932	19.5	19.2
371326	19.2	20.6	124791	19.3	20.2	544585	19.3	20.8	207324	19.4	21.0	113149	19.5	19.8	48890	19.5	17.7
122850	19.2	20.9	387334	19.3	21.1	122513	19.3	20.4	161127	19.4	19.9	240263	19.5	20.2	148881	19.5	19.6
312240	19.2	20.6	143708	19.3	19.6	464249	19.3	20.9	168351	19.4	21.5	61846	19.5	18.7	448750	19.5	21.0
467000	19.2	20.7	336524	19.3	20.7	57268	19.3	18.6	515003	19.4	20.9	337930	19.5	20.3	48718	19.5	19.3
418995	19.2	20.8	305074	19.3	19.4	97769	19.3	18.3	361274	19.4	21.3	489742	19.5	21.4	118689	19.5	19.9
315542	19.2	20.1	199109	19.3	19.5	514855	19.3	20.7	443114	19.4	19.8	424891	19.5	22.0	361279	19.5	20.8
263530	19.2	20.7	544607	19.3	21.4	125490	19.3	19.1	424816	19.4	20.2	274290	19.5	19.8	434451	19.5	22.2
369230	19.2	20.1	152941	19.3	18.9	27594	19.3	17.7	101734	19.4	19.1	214958	19.5	19.6	429705	19.5	20.7
144123	19.2	19.5	241046	19.3	20.8	392555	19.3	21.5	490748	19.4	21.2	170555	19.5	19.0	333112	19.5	20.3
153383	19.2	19.5	360284	19.3	21.1	612	19.3	16.7	308217	19.4	20.7	185907	19.5	20.4	277057	19.5	20.4
313819	19.2	18.9	9439	19.3	18.5	78380	19.3	20.0	422276	19.4	21.0	16660	19.5	17.3	71238	19.5	18.8
396404	19.2	20.0	69652	19.3	18.1	31712	19.3	18.3	43667	19.4	18.1	456253	19.5	21.1	499919	19.5	20.5
461178	19.2	19.7	45344	19.3	18.5	319785	19.3	19.2	10062	19.4	18.4	70984	19.5	18.2	174692	19.5	20.5
381018	19.2	21.3	9543	19.3	16.8	349989	19.3	20.2	281313	19.4	21.0	455260	19.5	21.6	247704	19.5	18.9
375094	19.2	21.1	379488	19.3	19.8	251271	19.3	20.2	274585	19.4	20.4	487941	19.5	19.7	349511	19.5	22.1
113415	19.2	20.2	138424	19.3	19.3	230140	19.3	21.3	400641	19.4	20.8	11417	19.5	19.3	270648	19.5	21.0
200662	19.2	21.3	66210	19.3	18.2	343802	19.3	19.2	207659	19.4	19.6	398169	19.5	20.4	429843	19.5	21.4
160822	19.2	20.2	544692	19.3	20.9	267675	19.3	19.9	380457	19.4	20.9	288841	19.5	20.5	412844	19.5	21.3
14639	19.2	18.8	88651	19.3	16.9	370581	19.3	21.4	152571	19.4	20.8	61963	19.5	18.7	394073	19.5	20.5
465529	19.2	20.3	302600	19.3	20.1	164832	19.3	18.8	454498	19.4	21.2	440250	19.5	21.7	449521	19.5	21.4
464252	19.2	20.8	285754	19.3	20.8	337605	19.3	20.5	198807	19.4	19.6	297094	19.5	20.2	338370	19.5	21.1
280657	19.2	20.1	440176	19.3	20.8	128897	19.3	18.9	228131	19.4	20.9	467175	19.5	20.0	273099	19.5	20.4
220914	19.2	20.3	171574	19.3	19.8	416093	19.3	21.0	147064	19.4	18.7	421205	19.5	20.4	418876	19.5	20.8
47239	19.2	17.6	255961	19.3	21.1	32815	19.3	16.8	95848	19.4	19.6	13774	19.5	17.9	338475	19.5	19.6
349628	19.2	20.8	468938	19.3	20.2	110745	19.3	19.4	249165	19.4	20.0	190956	19.5	19.3	15166	19.5	17.3
209754	19.2	19.9	357825	19.3	21.0	36357	19.3	18.4	504503	19.4	19.9	479550	19.5	20.9	73782	19.5	18.6
447086	19.2	21.6	315713	19.3	20.2	227094	19.3	20.6	183283	19.4	19.9	172667	19.5	18.9	86478	19.5	17.7
273269	19.2	20.6	241813	19.3	20.1	437864	19.3	20.8	308887	19.4	19.8	202358	19.5	19.2	468339	19.6	20.9
237098	19.2	19.7	461638	19.3	20.5	307783	19.3	20.3	153147	19.4	20.3	119139	19.5	20.1	19759	19.6	17.1
518635	19.2	24.8	515467	19.3	20.6	401203	19.3	21.1	173195	19.4	21.3	198759	19.5	20.5	527257	19.6	21.7
132926	19.2	19.4	111918	19.3	19.9	544061	19.3	21.1	505015	19.4							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
379804	19.6	20.4	370887	19.6	19.6	358590	19.7	20.5	186091	19.8	19.2	247646	19.8	20.0	100005	19.9	19.3
188544	19.6	20.3	145154	19.6	21.3	356948	19.7	22.9	23467	19.8	19.6	57434	19.8	18.9	263605	19.9	20.7
158009	19.6	20.9	189999	19.6	19.7	239041	19.7	19.9	79206	19.8	19.2	83437	19.8	19.0	469449	19.9	20.1
116657	19.6	19.5	126430	19.6	19.1	237123	19.7	19.4	52792	19.8	18.8	266093	19.8	20.6	303507	19.9	20.1
133741	19.6	19.4	162986	19.6	19.7	439939	19.7	22.0	298562	19.8	18.5	93194	19.8	17.4	426233	19.9	21.2
270081	19.6	21.1	139317	19.6	20.1	279025	19.7	20.4	430090	19.8	19.8	13812	19.8	16.9	15255	19.9	19.1
86743	19.6	19.5	473483	19.6	20.0	103332	19.7	18.2	385218	19.8	20.0	270897	19.8	20.4	271244	19.9	20.7
69121	19.6	19.5	203239	19.6	20.3	178558	19.7	19.6	85257	19.8	19.6	281460	19.8	21.4	259294	19.9	20.0
394963	19.6	21.2	445653	19.6	21.1	271436	19.7	19.6	237544	19.8	20.8	348063	19.8	19.5	71692	19.9	18.2
449968	19.6	22.1	225490	19.6	18.9	83819	19.7	19.4	219488	19.8	19.4	156231	19.8	19.9	281191	19.9	19.4
455050	19.6	20.8	270231	19.6	20.6	114158	19.7	19.8	17557	19.8	18.6	414438	19.8	21.3	230169	19.9	19.9
113570	19.6	20.2	515015	19.6	21.4	421403	19.7	20.0	492089	19.8	20.3	311689	19.8	20.1	49607	19.9	17.6
129343	19.6	18.7	721	19.6	14.6	279176	19.7	19.9	53358	19.8	17.5	518651	19.8	21.8	192054	19.9	20.4
490747	19.6	20.5	239770	19.6	18.9	202025	19.7	21.1	69894	19.8	18.1	189993	19.8	20.2	380935	19.9	21.3
129638	19.6	18.5	161960	19.6	19.4	36527	19.7	18.8	283996	19.8	21.2	287346	19.8	19.9	155654	19.9	19.5
202115	19.6	20.8	413022	19.6	21.8	364284	19.7	19.7	126176	19.8	19.6	89695	19.8	20.3	243418	19.9	20.9
171661	19.6	21.3	251136	19.6	20.9	388942	19.7	21.0	296545	19.8	21.2	391495	19.8	20.9	495857	19.9	24.4
365387	19.6	20.8	15375	19.6	17.4	84736	19.7	19.3	481011	19.8	20.7	23538	19.8	18.8	438158	19.9	21.4
196844	19.6	19.8	458687	19.6	20.4	360468	19.7	21.1	146406	19.8	19.9	78741	19.8	17.8	515614	19.9	22.5
217614	19.6	20.2	269271	19.6	21.1	105445	19.7	17.4	264177	19.8	20.0	492177	19.8	21.3	90609	19.9	20.0
400141	19.6	20.5	256811	19.6	20.1	453945	19.7	21.2	254744	19.8	20.3	9670	19.8	16.5	83520	19.9	18.5
416438	19.6	21.1	109921	19.6	19.7	32674	19.7	18.3	92463	19.8	20.0	264523	19.8	20.5	76570	19.9	18.9
415520	19.6	21.1	335199	19.6	19.8	158708	19.7	20.1	213760	19.8	20.0	460058	19.8	20.8	150702	19.9	20.1
252265	19.6	20.2	364816	19.6	20.7	180622	19.7	19.9	294609	19.8	20.2	29881	19.8	19.1	207426	19.9	20.9
60528	19.6	19.0	133159	19.6	19.6	216997	19.7	21.1	180966	19.8	20.1	199460	19.8	20.5	301646	19.9	20.3
8260	19.6	16.8	172343	19.6	17.5	82396	19.7	19.0	358177	19.8	19.7	5186	19.8	15.3	458059	19.9	20.9
468406	19.6	19.9	169056	19.6	19.0	421982	19.7	20.9	400390	19.8	19.7	361217	19.8	20.3	103293	19.9	18.8
439071	19.6	21.7	325517	19.6	21.0	8564	19.7	18.0	122647	19.8	19.9	114385	19.8	19.5	277236	19.9	19.9
337221	19.6	20.1	208910	19.6	20.9	43697	19.7	19.1	368426	19.8	20.7	191485	19.8	20.2	239032	19.9	20.3
61397	19.6	19.1	43889	19.6	17.0	118289	19.7	19.3	520930	19.8	20.8	130211	19.8	19.8	234590	19.9	19.5
227511	19.6	20.1	10967	19.6	18.9	104762	19.7	19.7	400271	19.8	21.4	99615	19.8	18.4	273232	19.9	19.4
380695	19.6	20.4	35836	19.6	18.5	261379	19.7	20.3	55347	19.8	19.8	419297	19.8	21.2	385371	19.9	21.1
221593	19.6	19.7	196822	19.6	20.1	130261	19.7	19.7	171391	19.8	21.4	110002	19.9	19.1	123253	19.9	20.0
337430	19.6	21.3	161092	19.6	20.2	120979	19.7	20.5	222368	19.8	20.0	543392	19.9	20.0	150138	19.9	18.3
363109	19.6	19.8	144637	19.7	18.5	115329	19.7	19.4	49585	19.8	19.5	414675	19.9	20.4	267805	19.9	20.5
505777	19.6	19.7	108719	19.7	20.0	176340	19.7	19.7	506363	19.8	21.7	393721	19.9	20.2	402695	19.9	21.3
225726	19.6	18.7	543072	19.7	21.2	421309	19.7	20.5	260613	19.8	20.0	410580	19.9	20.7	38721	19.9	17.3
344243	19.6	21.7	7527	19.7	17.5	325863	19.7	19.4	75225	19.8	18.2	454291	19.9	21.7	190866	19.9	20.4
314204	19.6	21.2	49642	19.7	18.2	108414	19.7	19.7	135450	19.8	20.2	305035	19.9	20.1	51458	19.9	19.2
156057	19.6	19.7	544851	19.7	19.8	3337	19.7	16.5	333892	19.8	20.5	84355	19.9	18.9	214654	19.9	20.7
321769	19.6	20.7	496387	19.7	20.4	229618	19.7	19.9	135248	19.8	20.3	425891	19.9	21.4	424716	19.9	20.6
398463	19.6	21.0	349642	19.7	20.0	9078	19.7	17.3	23565	19.8	18.4	150362	19.9	20.6	490386	19.9	22.0
299	19.6	14.5	452402	19.7	21.4	85993	19.7	19.5	541926	19.8	20.8	80889	19.9	19.3	89511	19.9	19.7
446826	19.6	22.7	215554	19.7	19.8	133865	19.7	19.7	304782	19.8	21.3	143958	19.9	18.8	379955	19.9	19.9
96303	19.6	20.9	492568	19.7	21.5	357413	19.7	20.0	484591	19.8	21.8	433409	19.9	20.7	318250	19.9	21.0
122451	19.6	20.4	358208	19.7	20.0	234405	19.7	18.6	516428	19.8	23.8	261322	19.9	20.0	439471	19.9	20.1
53950	19.6	18.2	18495	19.7	18.3	201304	19.7	19.6	18825	19.8	19.0	541556	19.9	21.7	360466	19.9	20.5
159212	19.6	20.1	459727	19.7	21.5	243477	19.7	20.7	356933	19.8	21.4	239730	19.9	19.4	369272	19.9	20.8
46205	19.6	18.9	484779	19.7	20.6	456568	19.7	21.6	441451	19.8	22.3	101160	19.9	19.5	368539	19.9	20.0
447455	19.6	20.0	253007	19.7	20.8	365520	19.7	20.6	321178	19.8	20.9	525361	19.9	20.1	77660	19.9	19.2
497428	19.6	21.7	509297	19.7	20.9	396656	19.7	21.8	448746	19.8	21.8	144850	19.9	19.7	358130	19.9	20.7
47203	19.6	18.4	368771	19.7	20.0	289852	19.7	20.4	2845	19.8	16.4	441159	19.9	20.7	489831	19.9	21.8
421100	19.6	20.3	114116	19.7	19.8	489298	19.7	21.8	316865	19.8	21.3	171553	19.9	19.4	331837	19.9	20.2
113044	19.6	20.3	26502	19.7	18.3	362691	19.7	20.3	78359	19.8	19.4	271310	19.9	20.3	161481	19.9	19.0
523448	19.6	21.1	47373	19.7	18.0	383772	19.7	20.3	495154	19.8	20.0	80473	19.9	18.2	249878	19.9	20.1
212323	19.6	19.9	128931	19.7	20.1	474404	19.7	20.7	330824	19.8	20.0	285865	19.9	21.2	214166	19.9	20.1
137853	19.6	18.3	134854	19.7	19.6	276267	19.7	19.9	250212	19.8	20.1	292793	19.9	20.8	9674	19.9	16.4
414219	19.6	21.0	336963	19.7	20.1	363827	19.7	21.7	335365	19.8	20.3	361786	19.9	20.0	488347	19.9	20.1
118741	19.6	20.1	464080	19.7	19.8	253948	19.7	21.0	61980	19.8	18.6	204882	19.9	20.6	233507	19.9	19.5
411425	19.6	21.0	165003	19.7	17.9	392342	19.7	18.8	292257	19.8	20.8	418857	19.9	21.2	107753	19.9	18.7
46392	19.6	16.8	78296	19.7	19.0	122829	19.7	20.7	369789	19.8	20.0	349559	19.9	21.1	450074	19.9	21.2
123056	19.6	19.9	221426	19.7	20.3	52155	19.7	17.8	541082	19.8	22.9	422903	19.9	21.9	183655	19.9	19.3
95361	19.6	19.3	487746	19.7	21.3	225081	19.7	20.5	290600	19.8	20.8	197443	19.9	20.0	277501	19.9	20.9
314841	19.6	19.8	220650	19.7	20.1	544187	19.7	21.0	532543	19.8	21.6	279001	19.9	19.8	450218	19.9	21.3
415457	19.6	20.7	178794	19.7	19.2	333514	19.7	21.1	375088	19.8	19.9	336709	19.9	20.3	65786	19.9	16.7
423349	19.6	20.2	406022	19.7	21.0	201789	19.7	19.1	519080	19.8	19.9	142839	19.9	19.4	153526	19.9	20.5
331269	19.6	19.7	239706	19.7	20.1	422945	19.7	21.3	438700	19.8	21.5	542876	19.9	19.7	541906	19.9	20.1
430491	19.6	20.8	381721	19.7	20.6	522137	19.7	20.9	458729	19.8	21.3	148032	19.9	18.5	195973	19.9	19.6
64863	19.6	19.6	22451	19.7	18.1	440293	19.7	20.9	526388	19.8							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
192983	19.9	19.0	33812	20.0	18.0	310729	20.1	20.4	79781	20.2	19.1	103636	20.2	19.1	92512	20.3	20.5
333074	19.9	20.7	434165	20.0	21.8	201800	20.1	20.4	490591	20.2	21.5	353815	20.2	20.9	30827	20.3	17.3
101335	19.9	19.0	78709	20.0	18.5	151865	20.1	20.4	522366	20.2	21.0	222115	20.2	21.3	182154	20.3	19.8
543063	19.9	21.2	47864	20.0	18.5	408310	20.1	20.2	239008	20.2	20.1	430277	20.2	21.4	209246	20.3	20.2
388490	19.9	20.3	98355	20.0	18.1	405654	20.1	20.7	258450	20.2	20.0	542602	20.2	21.0	212659	20.3	20.4
495169	19.9	22.1	418606	20.0	20.5	292525	20.1	21.5	452843	20.2	21.3	73683	20.2	19.9	297364	20.3	18.5
215268	19.9	20.8	132965	20.0	19.3	483770	20.1	21.2	267894	20.2	19.4	410816	20.2	20.3	341481	20.3	20.5
522332	19.9	21.0	538643	20.0	22.0	394422	20.1	20.6	187398	20.2	20.6	543271	20.2	20.1	63842	20.3	17.6
302947	19.9	22.8	279073	20.0	20.5	16811	20.1	16.9	32016	20.2	18.6	400766	20.2	21.3	441570	20.3	21.1
174905	19.9	20.5	76562	20.0	18.1	164905	20.1	18.6	254419	20.2	22.7	30702	20.2	17.0	359246	20.3	19.2
309412	19.9	20.0	177492	20.0	19.5	263628	20.1	20.5	180270	20.2	20.9	243331	20.2	19.4	333391	20.3	22.0
218347	19.9	20.3	391439	20.0	20.2	194441	20.1	20.4	309481	20.2	20.0	435449	20.2	19.7	422932	20.3	21.3
143692	19.9	19.9	129155	20.0	19.9	328957	20.1	20.0	310813	20.2	20.1	235924	20.2	19.2	458319	20.3	20.8
462731	19.9	20.0	131467	20.0	19.4	491365	20.1	20.4	380958	20.2	21.4	197523	20.2	19.1	22340	20.3	18.5
452395	19.9	21.5	29448	20.0	18.8	14883	20.1	18.2	251211	20.2	19.6	194425	20.2	18.9	75548	20.3	19.5
164403	19.9	19.1	340976	20.1	20.1	43278	20.1	18.4	292169	20.2	20.9	427533	20.2	21.9	134358	20.3	20.1
409865	19.9	20.8	328621	20.1	20.5	151307	20.1	19.4	307320	20.2	21.0	223792	20.2	20.7	367369	20.3	20.0
237178	19.9	19.8	545022	20.1	20.1	450844	20.1	20.3	243562	20.2	20.0	384159	20.3	20.8	61012	20.3	18.9
233438	19.9	21.1	9182	20.1	16.3	64640	20.1	18.3	160461	20.2	19.6	438063	20.3	21.2	204950	20.3	19.4
158217	19.9	20.5	110090	20.1	19.8	339976	20.1	21.3	11871	20.2	17.0	270810	20.3	20.6	402678	20.3	21.2
215259	19.9	20.0	313548	20.1	18.9	184259	20.1	20.4	46482	20.2	18.0	204238	20.3	19.6	105198	20.3	19.7
49211	19.9	18.0	49728	20.1	17.9	170644	20.1	19.6	158683	20.2	19.0	155164	20.3	20.4	168443	20.3	18.4
248795	19.9	21.0	439343	20.1	21.7	43238	20.1	19.5	8441	20.2	15.6	223848	20.3	20.4	366771	20.3	20.8
321582	19.9	21.0	162993	20.1	20.0	516776	20.1	20.6	541198	20.2	21.3	63828	20.3	18.2	257853	20.3	20.5
495290	19.9	21.5	271945	20.1	19.5	114009	20.1	20.0	127784	20.2	18.6	104019	20.3	19.5	318971	20.3	20.3
1501	19.9	15.6	517760	20.1	22.3	37366	20.1	18.1	455859	20.2	21.1	406698	20.3	20.8	101818	20.3	19.7
298407	19.9	19.9	83667	20.1	18.7	59903	20.1	18.3	79574	20.2	18.6	290927	20.3	20.1	453955	20.3	20.8
146579	19.9	19.6	6996	20.1	17.4	278057	20.1	20.1	167158	20.2	21.0	119668	20.3	19.9	330768	20.3	21.1
203719	19.9	21.3	468728	20.1	20.8	424924	20.1	19.6	141596	20.2	21.7	425131	20.3	21.2	466473	20.3	20.9
242602	19.9	21.2	233334	20.1	19.8	367640	20.1	21.0	54132	20.2	19.3	324037	20.3	20.4	401953	20.3	20.1
455927	19.9	21.4	3114	20.1	17.3	398638	20.1	20.0	288730	20.2	20.9	336724	20.3	19.9	9549	20.3	15.8
188855	19.9	19.6	494046	20.1	21.2	81101	20.1	18.7	420174	20.2	20.8	117995	20.3	20.1	52209	20.3	20.5
391434	19.9	20.9	275644	20.1	20.1	329735	20.1	21.2	453178	20.2	20.6	324038	20.3	21.2	460031	20.3	20.8
196990	19.9	19.8	69901	20.1	19.4	495791	20.1	19.8	400077	20.2	21.3	396330	20.3	19.8	111337	20.3	18.7
492562	19.9	21.2	73192	20.1	18.6	315582	20.1	20.0	144984	20.2	20.0	335751	20.3	20.4	126781	20.3	18.8
94768	19.9	18.3	544608	20.1	20.2	381348	20.1	20.0	235047	20.2	20.1	363875	20.3	21.3	14041	20.3	17.5
392279	20.0	19.8	331037	20.1	19.6	353629	20.1	20.7	220603	20.2	21.1	67865	20.3	19.5	215277	20.3	20.8
385400	20.0	20.7	26120	20.1	19.3	116775	20.1	19.0	161577	20.2	19.3	431579	20.3	21.5	416618	20.3	20.9
358662	20.0	20.9	254624	20.1	21.0	481774	20.1	20.1	118487	20.2	19.3	324643	20.3	19.7	450082	20.3	21.1
25861	20.0	17.9	8409	20.1	17.8	270754	20.1	20.0	453844	20.2	21.2	204339	20.3	20.2	232250	20.3	20.6
521587	20.0	21.4	484870	20.1	21.1	367164	20.1	20.3	16455	20.2	18.5	480960	20.3	22.3	167664	20.3	19.6
349157	20.0	19.8	199948	20.1	20.6	50805	20.1	19.4	442690	20.2	21.1	408338	20.3	20.4	389952	20.3	20.7
196798	20.0	19.5	32040	20.1	19.4	84220	20.1	18.8	486411	20.2	20.3	543207	20.3	21.6	76555	20.3	18.1
382011	20.0	21.0	343731	20.1	21.0	363816	20.1	22.0	174304	20.2	19.6	387249	20.3	20.9	12263	20.3	16.3
361692	20.0	20.0	167852	20.1	19.3	492100	20.1	21.5	406955	20.2	21.4	36130	20.3	18.5	86448	20.3	18.9
169238	20.0	19.7	408461	20.1	20.6	332212	20.1	20.7	463633	20.2	20.5	54660	20.3	20.9	538246	20.3	20.0
492979	20.0	20.9	324004	20.1	20.8	182643	20.1	20.3	77753	20.2	19.7	378912	20.3	21.0	256145	20.3	20.8
359203	20.0	21.1	244519	20.1	20.2	317652	20.1	19.0	132959	20.2	19.5	447756	20.3	21.7	233973	20.3	20.0
236434	20.0	20.2	446404	20.1	20.5	373935	20.1	20.9	495602	20.2	21.0	215265	20.3	19.9	474205	20.3	22.1
280297	20.0	21.8	17983	20.1	18.8	207584	20.1	20.4	383849	20.2	20.3	467820	20.3	21.4	178530	20.3	20.3
264564	20.0	20.7	494108	20.1	20.5	47071	20.1	17.9	110151	20.2	17.9	58982	20.3	19.5	38091	20.3	19.8
484361	20.0	21.1	76091	20.1	18.6	31034	20.1	18.1	196249	20.2	18.5	70623	20.3	17.3	543630	20.4	20.9
307422	20.0	20.1	71721	20.1	17.7	281440	20.1	21.1	65177	20.2	18.3	250619	20.3	20.7	278085	20.4	19.9
323167	20.0	19.7	441428	20.1	20.5	475493	20.2	21.0	494394	20.2	22.2	109184	20.3	19.9	95810	20.4	18.7
530468	20.0	19.9	184907	20.1	20.6	278074	20.2	19.1	159217	20.2	19.4	69021	20.3	19.1	331344	20.4	20.5
492524	20.0	21.4	491031	20.1	22.5	133492	20.2	19.5	293678	20.2	20.8	105406	20.3	20.0	197496	20.4	18.5
178915	20.0	20.4	217725	20.1	20.4	117945	20.2	19.9	81874	20.2	18.8	146695	20.3	18.3	213651	20.4	19.1
194308	20.0	20.7	134069	20.1	19.6	410543	20.2	21.3	364136	20.2	18.8	382012	20.3	20.5	6927	20.4	16.1
335376	20.0	20.4	274861	20.1	20.6	210046	20.2	20.1	111652	20.2	19.5	429725	20.3	20.6	215284	20.4	21.2
196750	20.0	20.3	36981	20.1	18.6	229693	20.2	19.7	520754	20.2	20.7	215933	20.3	21.3	254874	20.4	20.4
283188	20.0	19.4	345404	20.1	20.6	182115	20.2	20.8	337373	20.2	20.8	37658	20.3	19.4	312704	20.4	20.5
441683	20.0	21.5	435461	20.1	21.1	451442	20.2	20.3	162963	20.2	18.8	468181	20.3	20.8	543020	20.4	20.9
412269	20.0	21.5	129179	20.1	18.5	232661	20.2	20.1	48092	20.2	18.7	146397	20.3	20.1	92569	20.4	20.0
473781	20.0	21.2	477401	20.1	21.3	313903	20.2	20.2	107564	20.2	19.4	254801	20.3	21.1	233457	20.4	20.5
11589	20.0	17.9	71728	20.1	17.3	235987	20.2	20.2	211654	20.2	20.0	488453	20.3	24.3	456220	20.4	20.9
454209	20.0	21.0	318704	20.1	20.4	194204	20.2	20.1	296137	20.2	20.9	69382	20.3	18.6	119029	20.4	18.9
307318	20.0	20.0	279618	20.1	20.8	28580	20.2	17.5	362218	20.2	18.5	38989	20.3	19.4	36707	20.4	18.3
524089	20.0	21.1	148998	20.1	19.4	264225	20.2	20.3	490488	20.2	22.0	151841	20.3	18.8	254944	20.4	20.3
130749	20.0	19.1	323920	20.1	20.3	303067	20.2	19.5	308637	20.2</							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
521667	20.4	21.1	194087	20.5	20.5	399386	20.5	20.1	88284	20.6	19.9	414504	20.7	21.4	115865	20.7	19.1
268503	20.4	20.2	113500	20.5	19.5	282470	20.5	20.7	10360	20.6	18.5	401375	20.7	20.2	334218	20.7	21.4
106015	20.4	19.9	44562	20.5	17.9	144874	20.5	19.9	222002	20.6	20.1	369010	20.7	21.1	184357	20.7	20.6
353968	20.4	19.9	83253	20.5	19.3	61691	20.5	17.9	134765	20.6	18.9	501997	20.7	20.8	321181	20.7	20.2
495523	20.4	20.3	490535	20.5	21.3	236943	20.5	20.3	240891	20.6	19.7	169724	20.7	19.6	340592	20.7	20.5
357291	20.4	20.3	543037	20.5	21.1	146640	20.5	20.5	121367	20.6	20.0	454560	20.7	21.3	465030	20.7	22.0
150411	20.4	20.4	390719	20.5	19.3	78948	20.5	19.7	14229	20.6	17.6	102208	20.7	19.6	517720	20.7	21.7
156067	20.4	21.0	483604	20.5	21.2	287432	20.5	21.1	457217	20.6	21.8	353956	20.7	19.8	372305	20.7	20.9
247030	20.4	19.2	54936	20.5	19.0	445642	20.5	21.0	193939	20.6	20.5	442644	20.7	21.4	369431	20.7	20.7
477774	20.4	20.5	315497	20.5	19.7	338287	20.5	20.6	26907	20.6	17.2	486797	20.7	20.9	421728	20.7	21.1
378482	20.4	21.3	335421	20.5	20.8	152968	20.5	20.2	274233	20.6	19.9	135367	20.7	21.0	542105	20.7	22.1
516495	20.4	21.6	366342	20.5	21.2	404374	20.5	19.5	455823	20.6	21.6	188612	20.7	20.6	411528	20.7	20.5
266803	20.4	20.4	477793	20.5	20.5	473932	20.5	21.0	109803	20.6	20.0	383481	20.7	20.1	26182	20.7	18.7
345223	20.4	21.4	146362	20.5	20.0	184527	20.5	20.6	159725	20.6	18.6	322726	20.7	20.2	346469	20.7	20.6
141643	20.4	20.3	315810	20.5	20.2	475450	20.5	21.2	408257	20.6	19.8	166957	20.7	20.3	346479	20.7	21.5
370626	20.4	20.0	524837	20.5	20.3	285265	20.5	20.1	439337	20.6	21.0	484611	20.7	21.5	188065	20.7	20.3
312410	20.4	20.0	150105	20.5	20.5	457778	20.5	20.5	184689	20.6	20.4	49796	20.7	18.1	249838	20.7	20.4
411466	20.4	21.2	290363	20.5	20.1	238304	20.5	20.2	327909	20.6	19.5	450787	20.7	21.2	505895	20.7	20.9
419017	20.4	21.8	163443	20.5	19.9	78645	20.5	19.2	159474	20.6	20.1	502254	20.7	21.0	437332	20.7	20.6
443841	20.4	21.0	319877	20.5	20.5	465019	20.5	21.0	411216	20.6	22.3	122604	20.7	20.0	62239	20.7	19.2
238944	20.4	20.0	235272	20.5	19.6	143992	20.5	19.5	250644	20.6	21.5	279948	20.7	20.2	424159	20.7	20.5
292650	20.4	20.8	477273	20.5	20.1	542055	20.5	21.0	142812	20.6	20.1	80902	20.7	18.8	4869	20.7	16.6
155191	20.4	20.4	544437	20.5	21.1	47591	20.5	17.4	465254	20.6	21.5	130950	20.7	18.9	13979	20.7	17.7
386984	20.4	20.6	409638	20.5	21.3	131506	20.5	19.7	149497	20.6	19.6	484375	20.7	20.4	490604	20.7	19.6
220773	20.4	19.6	395167	20.5	20.2	251149	20.5	20.5	163393	20.6	19.6	211284	20.7	21.2	48217	20.7	17.8
7739	20.4	16.6	98391	20.5	18.6	228247	20.5	19.1	425415	20.6	20.2	62055	20.7	19.6	85191	20.7	20.0
544086	20.4	21.3	21395	20.5	17.5	335257	20.5	19.5	487469	20.6	20.7	181639	20.7	20.0	455887	20.7	20.7
224784	20.4	20.5	121189	20.5	19.4	81400	20.5	19.4	143701	20.6	20.2	297086	20.7	19.7	465509	20.7	21.0
496743	20.4	19.8	32664	20.5	18.7	455770	20.5	22.0	289882	20.6	21.3	41242	20.7	18.2	392593	20.7	20.9
74470	20.4	18.2	409286	20.5	21.2	492750	20.5	20.8	75729	20.6	18.1	336543	20.7	21.6	496992	20.7	21.8
176891	20.4	19.4	223590	20.5	19.5	520798	20.5	21.9	85194	20.6	19.9	58809	20.7	18.7	166703	20.7	20.2
356925	20.4	20.6	335271	20.5	21.3	239210	20.5	20.9	270550	20.6	19.6	325336	20.7	20.6	10984	20.7	17.9
5671	20.4	16.3	292763	20.5	20.8	273120	20.5	20.5	274046	20.6	21.6	372300	20.7	20.7	245383	20.7	20.4
436068	20.4	21.6	63915	20.5	18.7	425483	20.5	21.1	99884	20.6	19.3	483592	20.7	20.8	541182	20.7	21.1
345227	20.4	20.9	360196	20.5	21.1	483475	20.5	20.6	314803	20.6	20.2	180070	20.7	19.3	77820	20.7	20.6
7551	20.4	16.6	454448	20.5	21.2	58815	20.5	19.4	38747	20.6	19.5	542073	20.7	20.6	516351	20.7	20.3
280312	20.4	19.9	296609	20.5	19.7	302984	20.5	21.0	179976	20.6	20.2	51983	20.7	19.3	466314	20.7	20.7
109168	20.4	19.6	390551	20.5	20.9	80797	20.5	18.7	217449	20.6	20.6	490362	20.7	21.0	251624	20.7	20.1
426449	20.4	21.0	404463	20.5	20.8	372192	20.5	21.0	33322	20.6	18.2	132878	20.7	20.7	529753	20.7	24.9
541758	20.4	21.2	165086	20.5	20.4	36583	20.5	18.5	234530	20.6	18.9	116191	20.7	19.0	372121	20.7	21.3
200413	20.4	19.8	503954	20.5	21.8	308175	20.5	19.2	197771	20.6	21.0	263550	20.7	20.1	323161	20.7	19.9
34308	20.4	18.4	12326	20.5	17.7	388061	20.5	20.9	10796	20.6	17.4	366799	20.7	19.3	140679	20.7	19.6
152960	20.4	18.4	292692	20.5	21.3	385346	20.5	21.4	28763	20.6	17.9	311769	20.7	20.0	150569	20.7	20.1
319417	20.4	20.7	418439	20.5	20.5	289638	20.5	20.1	332911	20.6	20.1	150507	20.7	19.1	286753	20.7	19.5
261197	20.4	20.6	265156	20.5	20.3	95972	20.5	20.0	274657	20.6	20.6	1419	20.7	13.7	104297	20.7	18.3
29168	20.4	17.4	105075	20.5	19.3	535373	20.5	20.4	140471	20.6	19.3	390870	20.7	21.0	23845	20.7	18.1
165108	20.4	19.9	366042	20.5	20.6	419015	20.5	22.4	337752	20.6	21.3	186397	20.7	20.3	512245	20.7	18.1
8376	20.4	18.2	116018	20.5	18.9	19707	20.5	17.2	398656	20.6	19.7	275858	20.7	19.9	51210	20.7	18.2
270745	20.4	20.0	101865	20.5	20.2	41414	20.5	18.9	230596	20.6	19.4	236026	20.7	18.9	440164	20.7	21.3
162983	20.4	19.3	405566	20.5	21.3	339739	20.5	22.5	127552	20.6	20.1	345270	20.7	19.7	188822	20.7	20.3
187776	20.4	20.8	399242	20.5	20.1	52893	20.5	18.4	15058	20.6	18.0	311381	20.7	19.3	183627	20.7	19.5
501613	20.4	20.4	293063	20.5	20.0	443192	20.5	19.9	405593	20.6	21.1	462680	20.7	21.1	391475	20.7	20.1
145595	20.4	19.1	99097	20.5	17.6	51821	20.5	16.6	179166	20.6	19.7	246330	20.7	20.6	218309	20.7	19.8
297294	20.4	19.5	171415	20.5	20.2	511539	20.5	21.2	513361	20.6	20.5	392234	20.7	21.1	449500	20.7	20.9
239284	20.4	21.2	12529	20.5	17.0	339802	20.5	21.3	13489	20.6	18.0	398806	20.7	19.9	200754	20.7	21.9
379036	20.4	20.7	454523	20.5	21.5	357348	20.5	19.4	138333	20.6	19.0	270101	20.7	21.1	147511	20.7	19.1
166707	20.4	20.3	354367	20.5	19.6	25114	20.5	19.6	51026	20.6	18.2	351718	20.7	20.1	87321	20.7	20.8
408326	20.4	20.5	39305	20.5	16.8	63465	20.5	19.6	148830	20.6	18.7	125087	20.7	19.6	452813	20.7	21.4
322539	20.4	20.3	456900	20.5	20.9	7380	20.5	18.0	82930	20.6	18.8	225434	20.7	18.8	70656	20.7	18.9
3246	20.4	16.4	62305	20.5	19.4	223025	20.5	20.0	56227	20.6	18.2	376095	20.7	21.3	47937	20.7	18.3
413381	20.4	20.5	491634	20.5	21.6	184500	20.5	20.1	114491	20.6	19.5	236802	20.7	20.3	90994	20.7	18.5
147981	20.4	20.2	216091	20.5	20.7	36347	20.5	20.0	397370	20.6	21.9	542787	20.7	21.1	516879	20.7	21.8
376353	20.4	21.0	223740	20.5	20.3	292676	20.5	21.1	2159	20.6	14.7	542708	20.7	20.7	473829	20.7	20.7
337705	20.4	21.1	230560	20.5	18.8	226190	20.5	20.9	328829	20.6	20.8	162976	20.7	18.7	121493	20.7	20.1
530449	20.4	21.4	159508	20.5	19.7	335883	20.5	20.6	126879	20.6	19.7	168606	20.7	18.9	362392	20.7	20.9
522165	20.4	21.1	157990	20.5	19.8	25735	20.5	17.1	138917	20.6	20.0	334968	20.7	19.6	45125	20.7	19.3
120037	20.4	18.8	318730	20.5	20.2	119802	20.5	19.2	56400	20.6	17.8	78707	20.7	19.0	149939	20.7	19.8
231063	20.4	21.2	394105	20.5	20.4	238841	20.5	19.8	429247	20.6	20.8	465	20.7	13.6	349953	20.7	20.0
148768	20.4	19.7	278528	20.5	20.1	180614	20.5	19.1	82267	20.6							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
467794	20.8	20.1	83000	20.9	18.8	92507	20.9	19.2	101334	20.9	20.5	335865	21.1	21.5	183204	21.1	20.4
197296	20.8	19.6	334490	20.9	20.4	387631	20.9	21.4	375648	20.9	20.6	231034	21.1	18.7	53193	21.1	17.0
444728	20.8	20.9	141190	20.9	18.8	328001	20.9	20.5	404862	20.9	20.8	26128	21.1	17.8	349512	21.1	21.4
122526	20.8	20.3	133025	20.9	20.8	397514	20.9	20.6	190952	20.9	19.8	397199	21.1	20.3	457782	21.1	20.3
125297	20.8	19.3	442315	20.9	22.1	103312	20.9	19.0	61459	20.9	19.2	77546	21.1	18.3	211231	21.1	19.5
68161	20.8	19.1	173227	20.9	19.7	197165	20.9	19.7	459446	20.9	19.9	89607	21.1	19.9	60207	21.1	19.2
285197	20.8	21.5	114237	20.9	19.0	472248	20.9	20.3	67322	20.9	19.7	367934	21.1	20.6	79430	21.1	19.8
118281	20.8	18.5	448950	20.9	20.8	140820	20.9	20.0	465223	20.9	21.9	366131	21.1	21.1	300241	21.1	18.6
420515	20.8	19.5	50355	20.9	17.8	189636	20.9	20.5	491402	20.9	20.6	282510	21.1	20.6	408008	21.1	20.4
532593	20.8	21.0	87318	20.9	20.0	427351	20.9	20.7	398163	20.9	19.9	25471	21.1	18.4	126326	21.1	17.9
57554	20.8	19.0	227087	20.9	19.7	180712	20.9	20.2	475501	21.0	21.2	413713	21.1	21.5	354247	21.1	20.7
544282	20.8	21.5	356477	20.9	20.1	45218	20.9	18.9	232030	21.0	20.3	452908	21.1	20.8	47773	21.1	18.3
452010	20.8	21.5	190844	20.9	20.7	163541	20.9	19.3	359476	21.0	21.5	177771	21.1	20.7	514149	21.1	21.0
407385	20.8	20.8	67607	20.9	19.6	279509	20.9	20.6	67404	21.0	17.1	24260	21.1	16.1	438060	21.1	20.8
45733	20.8	18.4	340095	20.9	19.2	172302	20.9	19.4	204309	21.0	19.0	462679	21.1	20.7	523800	21.1	21.3
232997	20.8	19.3	178159	20.9	20.2	372723	20.9	20.0	118769	21.0	19.4	414548	21.1	20.3	474142	21.1	20.5
398325	20.8	20.8	403172	20.9	21.2	199869	20.9	19.6	202578	21.0	19.4	412653	21.1	20.3	165704	21.1	20.4
121791	20.8	18.8	213108	20.9	20.2	379000	20.9	20.9	448117	21.0	21.5	5807	21.1	17.9	326502	21.1	21.0
26067	20.8	18.5	261308	20.9	20.5	541311	20.9	20.5	323816	21.0	20.5	538373	21.1	21.5	69417	21.1	19.9
50674	20.8	17.1	319435	20.9	20.0	487711	20.9	20.7	313441	21.0	21.8	391402	21.1	20.0	1377	21.1	15.6
177398	20.8	19.5	118211	20.9	20.2	259272	20.9	19.5	350203	21.0	20.3	40888	21.1	19.4	292615	21.1	20.2
68816	20.8	19.3	281131	20.9	19.9	466718	20.9	20.3	402583	21.0	22.5	144523	21.1	19.3	116549	21.1	18.9
47663	20.8	18.4	322907	20.9	20.0	163650	20.9	19.8	274062	21.0	21.1	58657	21.1	18.9	244416	21.1	20.4
372777	20.8	19.6	387476	20.9	19.5	492465	20.9	21.1	136482	21.0	19.4	82590	21.1	19.1	58170	21.1	19.2
310808	20.8	20.0	423314	20.9	20.8	295506	20.9	21.2	315530	21.0	20.7	157179	21.1	20.3	403528	21.1	20.9
136117	20.8	19.2	254460	20.9	19.8	542054	20.9	21.0	97110	21.0	19.8	306783	21.1	19.6	54169	21.1	18.1
234139	20.8	19.3	397949	20.9	19.6	152772	20.9	20.6	124110	21.0	19.5	176207	21.1	19.9	508944	21.1	21.1
266100	20.8	20.6	270856	20.9	20.2	4690	20.9	16.1	421976	21.0	21.0	286915	21.1	21.1	46899	21.1	18.4
264214	20.8	20.8	340143	20.9	19.7	25717	20.9	17.8	253307	21.0	19.1	419462	21.1	19.8	255378	21.1	20.2
481766	20.8	20.9	410927	20.9	20.8	43346	20.9	17.8	151218	21.0	19.6	132755	21.1	19.8	189385	21.1	20.2
222098	20.8	20.3	299186	20.9	19.5	419448	20.9	19.5	20804	21.0	18.3	543493	21.1	20.2	47439	21.1	18.0
237354	20.8	20.1	251520	20.9	20.0	78111	20.9	18.5	39059	21.0	18.6	310795	21.1	20.0	108338	21.1	18.5
181527	20.8	20.2	477162	20.9	22.2	334266	20.9	20.2	268679	21.0	19.5	158002	21.1	20.0	68374	21.1	19.8
232064	20.8	19.8	28373	20.9	17.0	131472	20.9	19.5	82244	21.0	20.0	441115	21.1	21.6	196933	21.1	20.0
40980	20.8	18.9	201785	20.9	19.4	207653	20.9	21.2	523768	21.0	22.1	313532	21.1	19.1	269734	21.1	19.9
48635	20.8	18.5	495193	20.9	20.5	370432	20.9	20.0	120059	21.0	18.0	17274	21.1	22.6	200585	21.1	19.9
43335	20.8	18.8	98002	20.9	19.4	345166	20.9	21.9	14003	21.0	18.9	80972	21.1	18.5	43918	21.1	19.7
236789	20.8	20.0	200404	20.9	20.3	62537	20.9	19.3	284132	21.0	19.3	209693	21.1	19.4	481216	21.1	21.4
231584	20.8	20.1	86734	20.9	19.6	96518	20.9	18.4	146836	21.0	19.5	99477	21.1	18.4	484612	21.1	21.9
232040	20.8	20.2	352145	20.9	20.8	87008	20.9	18.9	179020	21.0	19.0	50929	21.1	18.5	218664	21.1	20.1
507534	20.8	21.3	142031	20.9	20.7	213158	20.9	20.5	164207	21.0	20.7	158222	21.1	20.7	114372	21.1	18.9
399429	20.8	19.8	136819	20.9	20.2	258308	20.9	20.2	543478	21.0	21.5	396686	21.1	22.2	61525	21.1	18.8
322888	20.8	20.0	118346	20.9	17.6	503676	20.9	21.5	468089	21.0	20.8	401560	21.1	20.2	524489	21.2	22.7
250233	20.8	20.2	13466	20.9	17.9	49088	20.9	17.4	225447	21.0	19.4	56666	21.1	18.3	280008	21.2	20.9
45286	20.8	19.7	315773	20.9	20.4	289765	20.9	20.6	400854	21.0	20.8	376254	21.1	20.2	168027	21.2	19.7
318857	20.8	20.4	400179	20.9	21.8	220576	20.9	20.0	3043	21.0	16.0	323	21.1	13.2	204961	21.2	20.7
422113	20.8	21.7	315760	20.9	20.0	11505	20.9	17.5	90996	21.0	19.4	362232	21.1	21.0	10787	21.2	18.8
49517	20.8	17.8	243033	20.9	20.2	84367	20.9	17.3	212251	21.0	20.7	343399	21.1	20.1	425429	21.2	21.0
132157	20.8	20.0	516257	20.9	20.0	113765	20.9	19.6	262401	21.0	20.3	53141	21.1	17.5	111392	21.2	19.4
181871	20.8	23.7	325198	20.9	20.6	308244	20.9	19.8	456161	21.0	21.1	360538	21.1	19.8	61501	21.2	18.5
425420	20.8	19.8	110108	20.9	20.3	453989	20.9	20.0	345245	21.0	20.9	192435	21.1	20.2	45349	21.2	18.3
385922	20.8	21.1	70417	20.9	19.3	266513	20.9	20.0	107905	21.0	19.3	541668	21.1	20.5	178959	21.2	21.0
178086	20.8	19.7	364278	20.9	21.4	280510	20.9	21.2	171591	21.0	19.7	28139	21.1	18.0	373809	21.2	20.6
254772	20.8	20.6	133919	20.9	19.1	158027	20.9	20.2	79755	21.0	19.8	491978	21.1	21.3	174906	21.2	20.5
203772	20.8	20.4	263876	20.9	20.5	277141	20.9	19.4	461780	21.0	21.8	171166	21.1	19.1	271501	21.2	19.5
312857	20.8	19.6	363215	20.9	20.5	234186	20.9	20.7	437353	21.0	20.6	65667	21.1	18.3	381899	21.2	20.5
64159	20.8	19.0	79516	20.9	19.2	224605	20.9	20.8	150557	21.0	19.3	92620	21.1	17.0	114137	21.2	19.5
418848	20.8	20.6	157916	20.9	19.8	350281	20.9	21.6	10326	21.0	16.9	529855	21.1	22.3	60992	21.2	18.1
461623	20.8	19.1	74244	20.9	18.5	424824	20.9	21.3	312295	21.0	19.3	371763	21.1	21.6	197364	21.2	19.5
150184	20.8	18.7	47122	20.9	17.3	286152	20.9	19.3	504941	21.0	20.4	271452	21.1	19.6	63925	21.2	18.3
99531	20.8	19.3	377497	20.9	19.9	380680	20.9	20.2	135927	21.0	17.9	132929	21.1	19.9	65726	21.2	19.3
424217	20.8	20.3	127977	20.9	19.6	417138	20.9	20.6	34212	21.0	18.5	33395	21.1	17.9	50476	21.2	18.9
451447	20.8	23.2	61303	20.9	19.4	449698	20.9	20.4	186743	21.0	19.8	237231	21.1	20.1	314234	21.2	20.6
327382	20.8	20.3	365718	20.9	20.6	131435	20.9	19.8	326140	21.0	20.2	124882	21.1	18.9	82382	21.2	19.5
535751	20.8	21.4	273127	20.9	20.6	317645	20.9	19.8	91343	21.0	18.0	188359	21.1	19.4	134974	21.2	18.5
18806	20.8	18.0	78627	20.9	18.5	313467	20.9	21.1	436	21.0	14.7	532270	21.1	21.0	256208	21.2	21.4
221590	20.8	19.0	492115	20.9	20.0	197019	20.9	20.5	364376	21.0	21.4	284463	21.1	21.2	455892	21.2	21.6
489444	20.8	20.1	24984	20.9	19.0	343339	20.9	20.1	404929	21.0	21.0	285561	21.1	20.2	236820	21.2	19.6
395775	20.8	20.9	4427	20.9	17.0	409250	20.9	19.4	316145	21.0	21.2	460239</					

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
3258	21.2	16.8	455925	21.2	21.2	226967	21.3	20.7	317109	21.4	21.3	288073	21.4	20.9	255989	21.5	20.7
187632	21.2	20.0	234845	21.2	20.2	77	21.3	11.9	7749	21.4	17.7	410608	21.4	21.2	287270	21.5	20.8
181035	21.2	20.7	32006	21.2	19.1	305795	21.3	19.9	73699	21.4	18.7	116175	21.4	19.5	61974	21.5	18.6
418699	21.2	20.5	445605	21.2	21.4	33372	21.3	16.8	270660	21.4	20.5	369954	21.4	20.4	216903	21.5	19.3
246698	21.2	20.4	99247	21.2	18.8	92738	21.3	19.0	314865	21.4	19.9	200552	21.4	19.1	138481	21.5	20.6
96702	21.2	19.5	144029	21.2	19.3	223813	21.3	20.5	279960	21.4	21.4	409619	21.4	20.4	458948	21.5	20.5
319246	21.2	20.9	13876	21.2	17.8	226582	21.3	18.2	192431	21.4	21.6	375104	21.4	20.9	161167	21.5	20.5
298400	21.2	22.7	499964	21.2	21.0	185064	21.3	19.6	122335	21.4	19.1	486547	21.4	21.6	197201	21.5	20.3
105221	21.2	19.6	309471	21.2	20.3	320808	21.3	20.8	188689	21.4	20.5	369556	21.4	20.9	90343	21.5	19.6
158570	21.2	19.9	174996	21.2	19.4	498145	21.3	22.2	179852	21.4	19.0	163651	21.4	19.6	320968	21.5	20.8
194928	21.2	18.9	379474	21.2	20.7	233651	21.3	19.6	382325	21.4	20.5	189695	21.4	19.7	362446	21.5	20.1
156617	21.2	19.8	183651	21.3	19.7	180323	21.3	19.6	240865	21.4	19.8	341933	21.4	20.8	96616	21.5	17.4
362353	21.2	20.9	320805	21.3	20.0	438213	21.3	21.9	260150	21.4	19.5	415157	21.4	20.9	102217	21.5	19.4
149894	21.2	20.2	541933	21.3	20.9	314245	21.3	19.8	411713	21.4	19.7	372762	21.4	21.0	280707	21.5	21.1
174691	21.2	19.5	131502	21.3	20.2	402659	21.3	20.7	12479	21.4	17.4	484683	21.4	20.9	421646	21.5	21.3
55425	21.2	18.8	490145	21.3	21.6	20374	21.3	18.2	45362	21.4	18.0	246690	21.4	20.7	228832	21.5	19.6
348444	21.2	20.7	143270	21.3	18.8	339620	21.3	20.9	381060	21.4	19.6	30758	21.4	18.9	425336	21.5	20.1
24245	21.2	18.2	210219	21.3	20.4	361760	21.3	20.2	403679	21.4	21.6	337906	21.4	20.7	339728	21.5	21.6
349561	21.2	21.8	248770	21.3	20.0	198717	21.3	19.6	516936	21.4	20.9	11282	21.4	18.0	370366	21.5	20.2
112730	21.2	19.6	382230	21.3	20.5	506621	21.3	20.2	407851	21.4	20.0	280769	21.4	19.0	184845	21.5	19.6
200967	21.2	19.7	176071	21.3	19.2	75150	21.3	17.8	435190	21.4	20.9	70507	21.4	19.2	165888	21.5	20.2
485641	21.2	20.5	464216	21.3	20.1	359901	21.3	19.6	346038	21.4	20.1	175065	21.4	20.1	105030	21.5	20.7
29963	21.2	18.3	516745	21.3	21.7	95927	21.3	19.5	375078	21.4	20.6	8367	21.4	16.6	313547	21.5	19.7
211725	21.2	19.5	151971	21.3	19.0	267055	21.3	20.0	461464	21.4	21.2	58464	21.4	19.9	252463	21.5	20.8
410582	21.2	20.4	97795	21.3	19.4	108980	21.3	18.6	543574	21.4	20.8	243153	21.4	19.9	461053	21.5	20.0
348163	21.2	21.1	492962	21.3	21.5	277827	21.3	20.8	260927	21.4	20.8	446794	21.4	21.6	198632	21.5	20.1
165718	21.2	19.9	192116	21.3	19.4	110695	21.3	19.5	293367	21.4	20.2	527591	21.5	22.1	395176	21.5	20.8
331224	21.2	20.8	131254	21.3	18.7	399200	21.3	20.4	230519	21.4	20.3	455867	21.5	21.3	421722	21.5	21.8
409637	21.2	20.1	227553	21.3	20.4	316348	21.3	20.9	457040	21.4	20.6	249323	21.5	19.7	506294	21.5	20.7
52099	21.2	16.4	259235	21.3	19.1	18585	21.3	16.5	62652	21.4	18.2	453226	21.5	20.8	413875	21.5	20.5
153422	21.2	19.9	214301	21.3	20.3	294976	21.3	20.3	434846	21.4	20.7	316997	21.5	20.8	163503	21.5	19.7
108118	21.2	20.0	98745	21.3	19.1	282607	21.3	20.0	293423	21.4	20.3	269133	21.5	21.1	101217	21.5	19.4
481245	21.2	20.6	370619	21.3	20.4	427217	21.3	20.7	492777	21.4	21.2	325248	21.5	20.7	107617	21.5	18.2
204355	21.2	20.8	314976	21.3	20.5	410935	21.3	20.0	111348	21.4	18.9	455328	21.5	21.7	153073	21.5	20.7
396683	21.2	21.7	1228	21.3	15.1	431199	21.3	21.5	157942	21.4	20.5	4124	21.5	16.3	473208	21.5	21.9
82437	21.2	19.3	56627	21.3	18.8	49127	21.3	18.5	345202	21.4	21.5	473471	21.5	19.9	82758	21.5	18.2
224600	21.2	20.2	301170	21.3	20.0	531284	21.3	22.3	177570	21.4	19.7	200370	21.5	19.8	277372	21.5	19.8
352621	21.2	19.9	302503	21.3	19.3	424211	21.3	20.7	538586	21.4	21.0	413231	21.5	19.9	408371	21.5	20.1
117782	21.2	19.7	218747	21.3	20.4	251218	21.3	19.6	326716	21.4	19.1	397580	21.5	20.9	444493	21.5	20.4
116066	21.2	19.4	165837	21.3	19.9	526484	21.3	21.8	414688	21.4	21.2	62707	21.5	19.1	265862	21.5	20.8
256129	21.2	20.5	524828	21.3	20.1	117987	21.3	19.0	298473	21.4	21.4	373229	21.5	20.7	170589	21.5	18.9
69837	21.2	18.1	145924	21.3	19.2	129708	21.3	20.9	314693	21.4	20.4	136201	21.5	20.9	467399	21.5	20.7
292354	21.2	21.2	258314	21.3	21.8	463819	21.3	20.3	365258	21.4	21.5	469077	21.5	21.0	196837	21.5	19.1
449604	21.2	21.4	151271	21.3	20.1	111781	21.3	18.9	352902	21.4	20.5	188486	21.5	20.9	129446	21.5	18.7
319543	21.2	19.8	440306	21.3	21.2	175768	21.3	19.2	130157	21.4	19.7	194165	21.5	20.1	391841	21.5	21.0
28822	21.2	19.9	27696	21.3	18.3	424286	21.3	21.5	185065	21.4	21.0	356366	21.5	19.4	51677	21.5	19.5
257304	21.2	21.2	252559	21.3	20.4	463342	21.3	20.9	409359	21.4	20.5	61132	21.5	19.4	400027	21.5	21.3
200235	21.2	18.6	51181	21.3	19.2	87163	21.3	19.5	284231	21.4	20.4	134160	21.5	19.4	305145	21.5	19.9
441139	21.2	20.8	223994	21.3	20.6	194151	21.3	20.7	170725	21.4	19.7	226655	21.5	19.7	465287	21.5	21.5
202433	21.2	20.7	368550	21.3	20.2	186109	21.3	18.7	420616	21.4	20.9	349529	21.5	21.2	5857	21.5	17.4
134976	21.2	18.9	232025	21.3	19.6	522132	21.3	21.4	341083	21.4	19.8	326777	21.5	21.1	234521	21.5	20.5
417278	21.2	21.4	192254	21.3	19.9	543518	21.3	21.8	260657	21.4	20.1	491338	21.5	19.9	51723	21.5	19.3
299711	21.2	19.6	380679	21.3	19.8	276486	21.3	21.2	538313	21.4	21.3	256328	21.5	19.4	51907	21.5	16.9
267948	21.2	19.9	122691	21.3	20.7	165835	21.3	19.0	249871	21.4	20.6	376605	21.5	20.6	20395	21.5	16.6
119306	21.2	18.6	231048	21.3	19.1	177515	21.3	19.8	380068	21.4	20.1	107635	21.5	18.7	431622	21.5	21.4
227144	21.2	20.6	451519	21.3	20.5	293644	21.3	20.2	116968	21.4	19.8	301796	21.5	20.6	200914	21.5	19.1
327967	21.2	20.7	447783	21.3	21.2	130026	21.3	20.3	288644	21.4	20.8	73130	21.5	19.1	51186	21.5	17.7
165677	21.2	19.8	54299	21.3	17.9	80964	21.3	19.1	502222	21.4	20.9	335249	21.5	21.6	194861	21.5	19.1
288630	21.2	20.3	192099	21.3	20.4	311702	21.4	20.5	216995	21.4	20.4	128664	21.5	20.4	451885	21.5	20.7
10315	21.2	16.4	252538	21.3	19.8	293568	21.4	19.8	181501	21.4	19.4	414917	21.5	19.1	79876	21.5	19.2
309398	21.2	19.6	538676	21.3	21.6	407961	21.4	19.8	506296	21.4	21.2	486542	21.5	20.2	249702	21.5	20.5
538748	21.2	21.1	117845	21.3	18.9	443980	21.4	21.7	138113	21.4	19.2	118663	21.5	19.2	361246	21.5	21.3
484715	21.2	21.3	413410	21.3	21.1	125526	21.4	18.2	135423	21.4	20.8	378436	21.5	22.1	373771	21.5	20.2
449666	21.2	20.9	293634	21.3	20.5	450858	21.4	20.9	345267	21.4	21.3	458347	21.5	21.1	249518	21.5	20.3
261228	21.2	20.5	247335	21.3	21.2	158917	21.4	21.1	321784	21.4	20.8	7443	21.5	16.9	394443	21.5	21.6
145488	21.2	19.4	264258	21.3	20.5	395135	21.4	19.8	483120	21.4	20.5	489770	21.5	20.7	55851	21.5	19.2
84260	21.2	19.8	178916	21.3	20.8	228889	21.4	20.0	286128	21.4	19.2	190803	21.5	21.7	403637	21.5	21.2
343692	21.2	20.9	511524	21.3	20.9	456983	21.4	20.7	489708	21.4	20.3	158907	21.5	20.4	89547	21.5	19.8
277902	21.2	21.0	415340	21.3	22.2	136654	21.4	19.3									

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
490598	21.6	21.7	209726	21.6	20.2	438147	21.7	21.5	458559	21.7	20.1	154805	21.8	20.0	223116	21.8	20.5
517725	21.6	21.0	131468	21.6	21.0	25945	21.7	18.6	379756	21.7	20.2	424848	21.8	21.2	406012	21.8	22.2
226163	21.6	20.1	34695	21.6	18.7	544945	21.7	21.4	228967	21.7	18.3	495540	21.8	20.1	284662	21.8	20.8
90019	21.6	19.2	503609	21.6	21.3	54845	21.7	18.3	33537	21.7	17.8	541967	21.8	20.9	277148	21.8	20.2
411910	21.6	19.7	397193	21.6	19.9	94732	21.7	19.0	521939	21.7	20.9	77629	21.8	19.1	231159	21.8	19.2
279997	21.6	21.6	18809	21.6	17.7	277950	21.7	20.0	489061	21.7	20.8	116466	21.8	19.1	298472	21.9	20.0
414262	21.6	21.6	334549	21.6	21.3	332559	21.7	20.5	463429	21.7	20.5	203929	21.8	20.5	200324	21.9	19.6
366892	21.6	20.7	102981	21.6	20.1	389372	21.7	20.1	191341	21.7	21.2	318476	21.8	19.2	59279	21.9	18.8
227420	21.6	21.1	202072	21.6	20.8	303011	21.7	20.0	110943	21.7	19.3	26750	21.8	18.0	467737	21.9	20.7
89058	21.6	18.2	324195	21.6	19.9	200330	21.7	20.3	235920	21.7	20.8	246845	21.8	18.9	191531	21.9	19.8
77706	21.6	18.4	60876	21.6	18.7	418396	21.7	20.3	252319	21.7	20.5	337521	21.8	21.1	477395	21.9	21.3
131394	21.6	19.9	253000	21.6	20.9	324786	21.7	20.3	329010	21.7	19.0	402605	21.8	20.9	461556	21.9	20.8
458665	21.6	20.7	271161	21.6	20.5	327355	21.7	20.6	233424	21.7	20.8	368964	21.8	20.3	237833	21.9	19.8
247313	21.6	19.6	518656	21.6	20.7	124558	21.7	19.7	218601	21.7	20.3	34828	21.8	19.1	70071	21.9	20.2
10588	21.6	19.2	277253	21.6	21.0	440243	21.7	21.2	277840	21.7	20.8	274694	21.8	21.2	543150	21.9	20.6
335297	21.6	20.7	165006	21.6	18.4	302977	21.7	21.3	215536	21.7	20.6	516842	21.8	20.7	149644	21.9	20.3
405193	21.6	19.7	462772	21.6	21.1	426245	21.7	21.0	446052	21.7	20.5	491357	21.8	19.8	51495	21.9	17.6
443963	21.6	20.8	254999	21.6	19.9	247235	21.7	19.9	369154	21.7	21.6	339594	21.8	21.6	121423	21.9	21.1
273255	21.6	20.2	93610	21.6	18.3	257589	21.7	19.4	216819	21.7	20.3	104194	21.8	18.9	461460	21.9	22.2
213928	21.6	19.4	345080	21.6	21.4	394902	21.7	20.0	464177	21.7	20.2	448919	21.8	21.5	206076	21.9	20.0
247623	21.6	20.6	482856	21.6	20.6	350766	21.7	20.1	110112	21.7	20.5	307882	21.8	20.1	162931	21.9	20.7
183043	21.6	21.3	329620	21.6	20.2	484485	21.7	19.6	28462	21.7	17.2	307723	21.8	20.6	171659	21.9	20.4
494091	21.6	20.6	68468	21.6	18.5	367557	21.7	20.8	234481	21.7	18.8	97664	21.8	18.3	70042	21.9	17.3
414185	21.6	20.7	388993	21.6	21.0	251639	21.7	19.9	20247	21.7	18.8	334151	21.8	21.0	47458	21.9	18.1
223734	21.6	20.2	104681	21.6	19.5	420098	21.7	20.7	247232	21.7	19.6	75901	21.8	18.4	95198	21.9	20.0
322224	21.6	20.4	452954	21.6	19.9	445160	21.7	20.8	359430	21.7	20.2	243262	21.8	19.6	400524	21.9	20.4
446308	21.6	19.8	386700	21.6	20.4	522401	21.7	20.9	428455	21.7	21.9	280703	21.8	20.6	229951	21.9	19.4
218948	21.6	19.6	419130	21.6	21.7	241864	21.7	20.7	543513	21.7	20.9	410056	21.8	19.8	448922	21.9	21.8
62237	21.6	19.7	55593	21.6	19.4	73977	21.7	18.5	336383	21.7	19.4	360598	21.8	20.0	479328	21.9	20.5
251095	21.6	20.7	340917	21.6	19.8	274985	21.7	21.6	253280	21.8	18.7	122258	21.8	19.5	164647	21.9	20.1
364367	21.6	21.1	443989	21.6	20.2	424950	21.7	20.3	150516	21.8	20.0	359916	21.8	20.7	427840	21.9	21.3
84231	21.6	19.6	324628	21.6	18.6	247547	21.7	21.1	308634	21.8	22.7	179169	21.8	19.4	229286	21.9	20.4
46975	21.6	18.1	353579	21.6	20.3	76170	21.7	18.4	190856	21.8	18.9	204194	21.8	19.5	411253	21.9	21.8
227617	21.6	19.8	543878	21.6	21.1	457792	21.7	21.1	482841	21.8	20.4	80104	21.8	19.3	149447	21.9	18.4
273094	21.6	18.8	21018	21.6	17.9	287109	21.7	20.1	353297	21.8	19.2	373529	21.8	20.2	345950	21.9	20.7
274868	21.6	20.5	132054	21.6	19.0	377942	21.7	20.6	379484	21.8	20.4	187565	21.8	20.4	34928	21.9	18.9
541441	21.6	20.6	538391	21.6	20.3	492692	21.7	20.9	290527	21.8	20.2	101814	21.8	20.6	295250	21.9	21.3
487609	21.6	21.6	70088	21.6	18.1	256144	21.7	20.3	149352	21.8	20.0	138516	21.8	19.3	375385	21.9	20.0
364941	21.6	20.4	544303	21.6	21.0	151695	21.7	19.3	360580	21.8	19.9	543014	21.8	21.6	288232	21.9	19.5
195770	21.6	20.3	173437	21.6	19.8	267778	21.7	20.1	343781	21.8	19.9	6432	21.8	17.2	363986	21.9	21.8
60342	21.6	18.6	57815	21.6	18.3	436869	21.7	21.6	134479	21.8	19.6	444844	21.8	21.5	446986	21.9	20.4
229076	21.6	19.9	242076	21.6	20.0	295942	21.7	20.4	118818	21.8	19.9	404182	21.8	20.5	484415	21.9	21.0
174228	21.6	20.8	262249	21.6	20.3	122988	21.7	19.3	407955	21.8	20.8	114067	21.8	20.1	145303	21.9	19.6
52216	21.6	17.5	482083	21.6	20.4	156626	21.7	19.0	251410	21.8	21.1	406568	21.8	20.6	305962	21.9	20.2
86063	21.6	20.2	439434	21.6	19.0	521770	21.7	21.2	512881	21.8	20.8	160367	21.8	19.3	32398	21.9	18.9
339886	21.6	21.1	132277	21.6	19.6	309171	21.7	19.8	421300	21.8	21.0	247348	21.8	21.2	251103	21.9	21.0
337773	21.6	20.2	71581	21.7	18.9	477300	21.7	21.3	182139	21.8	20.6	214246	21.8	20.0	228996	21.9	19.9
110949	21.6	20.4	272156	21.7	21.1	279396	21.7	20.0	317888	21.8	20.6	535069	21.8	20.5	155842	21.9	19.3
16809	21.6	18.2	297354	21.7	19.2	72921	21.7	19.5	277383	21.8	20.2	364928	21.8	20.9	196998	21.9	20.1
51012	21.6	18.3	79590	21.7	19.0	217305	21.7	20.5	230159	21.8	19.8	334170	21.8	20.8	541873	21.9	21.5
421019	21.6	20.9	339906	21.7	20.6	416504	21.7	20.0	252244	21.8	21.5	486908	21.8	21.2	340885	21.9	20.8
542215	21.6	21.4	477286	21.7	19.7	128329	21.7	20.1	148879	21.8	20.1	440694	21.8	20.6	465367	21.9	19.4
409031	21.6	19.5	53848	21.7	18.6	204623	21.7	20.1	323566	21.8	20.6	54731	21.8	19.1	278713	21.9	20.8
130489	21.6	19.5	145428	21.7	19.9	295820	21.7	20.3	230597	21.8	19.0	111180	21.8	20.1	425740	21.9	20.9
367937	21.6	19.4	458654	21.7	20.0	339864	21.7	19.8	395323	21.8	20.5	367997	21.8	20.3	422884	21.9	22.1
25615	21.6	18.1	440355	21.7	21.7	389953	21.7	21.0	215379	21.8	20.0	188439	21.8	19.9	317646	21.9	19.7
377278	21.6	19.7	242906	21.7	21.3	116071	21.7	18.6	419477	21.8	20.5	212103	21.8	19.3	431177	21.9	21.9
101210	21.6	19.6	163419	21.7	19.4	201336	21.7	20.4	283440	21.8	20.8	466402	21.8	21.7	11499	21.9	18.4
77828	21.6	18.2	269843	21.7	19.3	251436	21.7	20.5	457434	21.8	20.5	256005	21.8	21.8	5808	21.9	16.8
186612	21.6	19.2	272324	21.7	20.8	308181	21.7	20.4	502348	21.8	21.3	394424	21.8	20.9	169223	21.9	19.8
278978	21.6	20.4	484292	21.7	20.8	376617	21.7	21.2	393579	21.8	21.0	314783	21.8	21.3	489736	21.9	19.6
279414	21.6	20.2	313215	21.7	21.8	88013	21.7	19.8	6858	21.8	16.2	274153	21.8	20.3	319520	21.9	21.2
86972	21.6	19.7	363574	21.7	19.8	15954	21.7	17.3	208300	21.8	19.5	305686	21.8	20.7	208186	21.9	19.8
401448	21.6	20.1	209108	21.7	20.2	426948	21.7	21.2	336804	21.8	20.1	207953	21.8	20.1	321339	21.9	20.3
467172	21.6	20.7	452417	21.7	21.7	179194	21.7	19.9	406236	21.8	20.6	160278	21.8	19.0	236022	21.9	20.7
335187	21.6	19.6	465532	21.7	20.7	195777	21.7	19.7	75400	21.8	18.2	194813	21.8	18.5	420525	21.9	19.8
437934	21.6	21.7	103773	21.7	18.5	235480	21.7	19.5	466342	21.8	21.3	307719	21.8	19.8	466255	21.9	21.0
27524	21.6	18.2	142252	21.7	20.4	305088	21.7	19.6	18644	21.8	17.3	357281	21.8	20.7	89981	21.9	18.5
81865	21.6	19.3	251283	21.7	20.8	116518	21.7	18									

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
64143	21.9	18.7	214329	21.9	19.4	518132	22.0	20.4	440430	22.1	21.4	489361	22.2	21.8	120748	22.3	20.9
218704	21.9	20.1	441287	21.9	20.8	471280	22.0	20.1	125108	22.1	18.5	446349	22.2	20.5	35134	22.3	17.5
165807	21.9	19.9	225355	21.9	19.5	248987	22.0	20.0	362570	22.1	21.4	384285	22.2	20.8	469105	22.3	20.7
410872	21.9	20.7	188631	21.9	20.3	120368	22.0	21.0	12013	22.1	17.6	143258	22.2	19.1	414564	22.3	19.9
165082	21.9	20.0	458280	21.9	21.6	434137	22.0	21.4	341911	22.1	21.2	81693	22.2	19.6	343360	22.3	20.4
457001	21.9	19.3	389628	21.9	20.4	145951	22.0	19.1	449322	22.1	20.1	182347	22.2	20.2	270929	22.3	21.9
127492	21.9	19.3	90756	21.9	18.7	339912	22.0	20.0	523428	22.1	20.3	215691	22.2	19.5	114335	22.3	19.5
147864	21.9	20.2	136640	21.9	20.0	202949	22.0	19.1	335425	22.1	21.1	464103	22.2	21.2	333071	22.3	21.5
231834	21.9	19.1	369236	21.9	20.7	145313	22.0	19.7	383458	22.1	20.2	78316	22.2	18.6	253143	22.3	19.6
113893	21.9	20.4	463598	21.9	20.1	449821	22.0	21.0	281950	22.1	21.0	113085	22.2	19.1	77736	22.3	19.0
469031	21.9	20.2	275893	21.9	21.4	92741	22.0	18.9	6227	22.1	18.1	416897	22.2	20.9	446702	22.3	20.9
166201	21.9	19.0	14784	21.9	18.7	56529	22.0	19.2	240831	22.1	19.9	99910	22.2	19.3	88033	22.3	20.4
375584	21.9	19.6	36306	21.9	18.9	136213	22.0	19.4	486394	22.1	20.6	284794	22.2	21.1	98324	22.3	18.1
322339	21.9	20.6	309519	21.9	20.1	8743	22.0	17.4	334216	22.1	20.7	196854	22.2	20.6	162326	22.3	19.4
400105	21.9	21.2	460435	21.9	21.0	244035	22.1	20.7	375528	22.1	20.9	314977	22.2	19.8	30597	22.3	18.9
314210	21.9	20.9	455755	21.9	21.8	312944	22.1	20.3	345131	22.1	21.9	187334	22.2	19.9	176940	22.3	18.7
369013	21.9	20.8	155961	21.9	20.6	397226	22.1	19.3	256321	22.1	19.9	331312	22.2	20.4	455579	22.3	21.3
339785	21.9	21.1	248301	21.9	20.7	56243	22.1	18.0	442977	22.1	20.3	194569	22.2	21.1	541488	22.3	21.6
513652	21.9	20.4	513712	21.9	21.3	61295	22.1	19.0	379483	22.1	20.5	354407	22.2	20.2	486583	22.3	21.1
296982	21.9	19.8	541505	21.9	20.4	407147	22.1	20.4	53510	22.1	18.5	33183	22.2	18.1	337070	22.3	19.9
65735	21.9	19.2	161196	21.9	20.6	48900	22.1	17.9	108898	22.1	18.7	346303	22.2	21.7	100926	22.3	20.3
295927	21.9	20.2	83609	21.9	19.1	351348	22.1	18.2	55334	22.1	18.4	194725	22.2	19.3	122600	22.3	20.2
265239	21.9	19.1	61977	21.9	19.3	191252	22.1	19.2	283194	22.1	20.5	232655	22.2	18.8	283431	22.3	20.9
483679	21.9	21.3	203334	21.9	20.2	371657	22.1	19.5	99942	22.1	16.0	272075	22.2	20.5	61490	22.3	18.4
242592	21.9	20.5	278609	21.9	21.5	322509	22.1	20.4	370351	22.1	20.7	307306	22.2	20.4	430163	22.3	21.0
377173	21.9	21.6	164848	21.9	19.6	461457	22.1	21.0	97894	22.1	19.6	468388	22.2	21.4	99429	22.3	20.5
285094	21.9	20.7	414492	21.9	21.4	404063	22.1	20.3	416473	22.1	20.2	213908	22.2	19.8	147356	22.3	18.8
164063	21.9	19.7	475915	21.9	19.7	3622	22.1	16.8	234473	22.1	19.8	90104	22.2	18.3	474062	22.3	20.7
310733	21.9	20.5	25003	21.9	17.5	465431	22.1	19.9	391069	22.1	20.6	400828	22.2	20.2	530108	22.3	21.2
233765	21.9	19.2	410947	21.9	21.6	222893	22.1	19.9	237645	22.1	20.0	500801	22.2	20.8	543051	22.3	20.6
329631	21.9	20.3	490711	21.9	21.6	489743	22.1	20.5	237235	22.1	19.3	84703	22.2	18.8	228924	22.3	20.0
429312	21.9	19.4	240379	21.9	20.4	169349	22.1	20.6	62484	22.1	18.9	521817	22.2	21.7	212185	22.3	20.3
198403	21.9	20.0	229323	22.0	21.1	229049	22.1	20.1	135330	22.1	19.5	453089	22.2	21.4	441696	22.3	21.7
372858	21.9	21.1	29254	22.0	17.5	190888	22.1	20.0	236414	22.2	20.7	375100	22.2	21.0	139853	22.3	19.4
85571	21.9	19.6	373697	22.0	21.3	116570	22.1	19.0	228244	22.2	20.2	363886	22.2	21.4	404509	22.3	21.6
65858	21.9	19.6	426739	22.0	20.8	145603	22.1	20.4	335320	22.2	20.5	544697	22.2	20.9	460805	22.3	21.2
184644	21.9	20.1	359253	22.0	20.4	244585	22.1	20.4	334856	22.2	21.3	121787	22.2	19.3	542599	22.3	20.3
207654	21.9	20.8	111141	22.0	19.2	408533	22.1	20.0	151893	22.2	18.9	483011	22.2	21.5	535460	22.3	21.8
192311	21.9	20.4	92698	22.0	18.8	274380	22.1	21.1	485213	22.2	20.9	340032	22.2	20.8	57344	22.3	18.4
527478	21.9	21.9	522524	22.0	21.5	453141	22.1	20.6	184705	22.2	20.6	415008	22.2	19.7	352658	22.3	21.1
333797	21.9	20.1	75987	22.0	18.4	465461	22.1	21.9	163603	22.2	20.1	466250	22.2	20.4	81005	22.3	18.3
472313	21.9	19.8	375468	22.0	21.2	230776	22.1	19.1	488074	22.2	21.2	148567	22.2	19.7	107892	22.3	18.7
167633	21.9	19.1	460095	22.0	21.8	489012	22.1	21.2	196463	22.2	19.9	228757	22.2	20.9	464246	22.3	20.6
543215	21.9	21.6	318773	22.0	19.3	516187	22.1	21.0	359279	22.2	20.2	429739	22.2	21.4	276720	22.3	20.2
519449	21.9	19.6	231955	22.0	20.2	220322	22.1	20.2	193168	22.2	20.5	160493	22.2	20.2	377271	22.3	20.0
455913	21.9	21.7	158848	22.0	20.8	72808	22.1	18.9	469033	22.2	21.0	459292	22.2	20.5	240528	22.3	20.1
344156	21.9	19.7	170376	22.0	20.8	288059	22.1	20.1	83189	22.2	19.8	385403	22.2	20.0	409468	22.3	21.4
366740	21.9	19.6	94426	22.0	18.2	323176	22.1	19.8	146020	22.2	20.2	24035	22.2	17.9	167640	22.3	19.1
439570	21.9	21.4	266664	22.0	19.9	301389	22.1	19.4	332425	22.2	20.4	235472	22.2	19.7	44993	22.3	19.6
107929	21.9	19.4	73994	22.0	18.0	330300	22.1	20.9	28602	22.2	18.7	416641	22.2	20.7	117627	22.3	19.7
152520	21.9	19.1	27612	22.0	18.8	9238	22.1	17.9	105600	22.2	19.9	82624	22.2	19.2	228137	22.3	21.2
117314	21.9	20.5	193246	22.0	20.1	62649	22.1	19.2	113491	22.2	19.3	153382	22.2	20.1	495078	22.3	21.0
2589	21.9	16.7	20872	22.0	18.8	444818	22.1	20.3	62203	22.2	17.7	519887	22.2	21.3	256190	22.3	19.3
353417	21.9	21.3	15783	22.0	19.1	425926	22.1	20.4	453831	22.2	20.9	20061	22.2	18.2	465821	22.3	19.7
526481	21.9	22.1	92824	22.0	19.7	543829	22.1	20.9	101117	22.2	20.3	422423	22.2	22.3	490132	22.3	20.8
448885	21.9	21.1	493481	22.0	21.1	410111	22.1	20.5	388449	22.2	19.8	298523	22.2	20.1	51613	22.3	19.0
101287	21.9	20.4	323578	22.0	20.4	188490	22.1	20.1	386618	22.2	21.0	495687	22.2	21.3	130351	22.3	19.7
57969	21.9	18.3	17785	22.0	17.6	506181	22.1	21.9	494019	22.2	20.6	103399	22.2	17.8	22987	22.3	19.1
116470	21.9	20.2	536182	22.0	20.9	450675	22.1	19.8	260759	22.2	21.0	263266	22.2	20.2	122813	22.3	19.6
393356	21.9	20.2	368484	22.0	20.3	521852	22.1	20.3	120770	22.2	19.6	242924	22.2	20.4	100206	22.3	20.0
455899	21.9	21.4	465471	22.0	20.4	17254	22.1	17.5	356104	22.2	19.4	218050	22.2	19.7	356056	22.3	19.9
375359	21.9	20.8	279554	22.0	20.9	137194	22.1	19.9	113930	22.2	19.5	115167	22.2	19.0	455039	22.3	21.3
468116	21.9	21.9	346326	22.0	21.2	224891	22.1	19.4	450214	22.2	21.7	179131	22.2	21.0	33807	22.3	17.9
294639	21.9	19.6	489853	22.0	21.7	383821	22.1	20.3	61569	22.2	19.6	460421	22.2	20.9	442832	22.3	21.1
44275	21.9	17.9	92374	22.0	20.2	53654	22.1	18.6	339531	22.2	21.0	47015	22.2	17.5	371785	22.3	20.0
391412	21.9	20.5	227509	22.0	20.2	495257	22.1	21.0	293608	22.2	21.0	454734	22.2	20.2	37522	22.3	18.8
92895	21.9	20.1	26902	22.0	17.7	50539	22.1	17.8	244986	22.2	19.1	282721	22.2	21.0	394918	22.3	20.7
383475	21.9	20.7	87842	22.0	19.7	410823	22.1	21.3	294597	22.2	19.2	240472	22.2	18.7	43226	22.3	18.0
125798	21.9	20.5	10022	22.0	17.3	146462	22.1	20.1	418863								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
167971	22.3	19.9	468889	22.4	20.8	45999	22.5	18.0	133432	22.5	19.3	108616	22.6	19.6	104663	22.6	19.0
387204	22.3	20.6	363948	22.4	20.8	60494	22.5	18.6	64060	22.5	19.3	236254	22.6	19.5	163048	22.6	19.7
61572	22.3	19.3	512952	22.4	20.3	110122	22.5	18.2	150573	22.5	19.6	543772	22.6	21.2	27733	22.6	19.3
68805	22.3	19.5	191601	22.4	19.8	542718	22.5	20.4	81619	22.5	19.4	280823	22.6	20.4	249923	22.6	19.8
50935	22.3	19.1	420643	22.4	21.0	157531	22.5	19.6	251002	22.5	20.8	328537	22.6	20.8	494675	22.6	22.6
145724	22.3	19.7	143083	22.4	20.2	314834	22.5	20.6	347193	22.5	20.5	369183	22.6	19.9	192571	22.6	19.9
274770	22.3	20.3	157289	22.4	20.5	274558	22.5	19.8	458724	22.5	20.6	442667	22.6	21.1	490449	22.6	21.7
92383	22.3	20.0	400894	22.4	21.8	86792	22.5	19.4	147355	22.5	19.0	43741	22.6	18.3	279135	22.6	20.5
485425	22.3	21.6	361405	22.4	20.9	265740	22.5	20.6	517540	22.5	21.1	293092	22.6	20.1	127507	22.6	19.3
406574	22.3	20.2	9267	22.4	18.3	264433	22.5	20.3	251209	22.5	20.1	103434	22.6	18.8	16274	22.6	18.4
414569	22.3	21.1	283370	22.4	19.1	104618	22.5	19.9	80963	22.5	18.6	452309	22.6	21.7	493271	22.6	20.8
120592	22.3	19.9	340290	22.4	20.2	11293	22.5	17.8	39648	22.5	19.9	209682	22.6	19.1	122741	22.6	19.6
177973	22.3	20.8	92677	22.4	19.2	278828	22.5	19.8	532733	22.5	21.6	543156	22.6	20.9	372022	22.6	21.2
242611	22.3	19.7	455901	22.4	20.9	214786	22.5	20.5	33897	22.5	19.4	156312	22.6	20.2	175774	22.6	17.6
393577	22.3	22.1	408251	22.4	19.9	72181	22.5	18.2	27775	22.5	16.9	82003	22.6	19.4	397032	22.6	20.4
231479	22.3	21.5	215481	22.4	20.9	438072	22.5	21.3	157220	22.5	20.1	541653	22.6	21.9	278191	22.6	20.9
201898	22.3	19.5	238262	22.4	19.7	148921	22.5	19.5	388567	22.5	21.0	170453	22.6	20.8	316073	22.6	20.5
71408	22.3	18.9	48873	22.4	19.6	311642	22.5	21.5	365240	22.5	21.0	377539	22.6	20.3	372657	22.7	20.0
448760	22.3	21.7	288450	22.4	19.2	144013	22.5	19.1	389593	22.5	21.0	81920	22.6	19.4	37755	22.7	17.5
381270	22.3	20.3	60204	22.4	17.5	103848	22.5	19.0	370219	22.5	20.9	453947	22.6	20.7	307310	22.7	20.7
58578	22.3	20.0	453882	22.4	20.8	502477	22.5	20.2	161594	22.5	20.3	402288	22.6	21.1	489394	22.7	21.1
213289	22.3	20.6	487844	22.4	21.4	131476	22.5	20.6	460650	22.5	21.1	349623	22.6	20.5	355390	22.7	20.1
22281	22.3	16.9	453677	22.4	20.9	372705	22.5	20.4	481203	22.5	21.1	51117	22.6	18.6	267821	22.7	21.3
416821	22.3	20.4	348589	22.4	21.9	409519	22.5	21.0	92750	22.5	19.6	129432	22.6	18.9	33431	22.7	17.1
374190	22.3	20.6	110472	22.4	19.4	279379	22.5	19.4	235817	22.5	19.8	105712	22.6	19.0	464410	22.7	20.3
239840	22.3	20.7	110270	22.4	19.7	82718	22.5	18.5	181419	22.5	20.1	317051	22.6	21.1	352686	22.7	21.3
313531	22.3	20.8	541682	22.4	20.1	252578	22.5	20.2	467481	22.5	21.1	226814	22.6	20.2	58109	22.7	19.0
46698	22.3	19.0	73236	22.4	19.6	221860	22.5	20.4	298492	22.5	19.9	73662	22.6	18.6	86001	22.7	19.1
51599	22.3	19.1	109349	22.4	19.8	256890	22.5	19.1	1229	22.5	16.5	181726	22.6	20.7	182414	22.7	19.9
421621	22.3	21.1	489397	22.4	21.7	415553	22.5	21.0	233273	22.5	18.9	96207	22.6	18.6	86477	22.7	18.3
183295	22.3	19.5	77907	22.4	18.5	512225	22.5	20.6	484765	22.5	20.3	162409	22.6	18.3	491302	22.7	21.2
235471	22.3	19.2	214374	22.4	20.1	336699	22.5	19.5	244591	22.5	20.1	431440	22.6	21.8	440141	22.7	22.0
259591	22.4	21.5	33413	22.4	18.3	295142	22.5	20.4	292122	22.5	20.1	422562	22.6	21.2	94672	22.7	19.5
10090	22.4	16.8	156809	22.4	19.6	233011	22.5	19.6	357268	22.5	21.1	285744	22.6	21.1	17194	22.7	17.5
219504	22.4	19.4	254870	22.4	20.7	63901	22.5	18.7	474506	22.5	21.7	65803	22.6	18.9	406049	22.7	22.1
438054	22.4	22.0	349129	22.4	20.4	450336	22.5	22.0	163441	22.5	19.6	208036	22.6	20.6	47041	22.7	17.7
439050	22.4	21.1	212785	22.4	20.5	219366	22.5	21.3	451873	22.5	21.1	68978	22.6	19.2	265485	22.7	19.5
235550	22.4	19.3	27626	22.4	19.0	303052	22.5	19.9	96009	22.5	20.0	346460	22.6	21.0	341893	22.7	21.6
518431	22.4	21.9	46348	22.4	18.8	116298	22.5	20.9	375615	22.5	20.0	455949	22.6	21.0	53792	22.7	18.8
393740	22.4	21.1	256737	22.4	20.4	28783	22.5	18.1	151606	22.5	20.3	458302	22.6	21.3	505633	22.7	21.4
450876	22.4	20.6	177682	22.4	19.9	277020	22.5	19.8	520733	22.5	20.7	108942	22.6	19.7	337471	22.7	20.9
336619	22.4	20.6	82327	22.4	18.6	44242	22.5	19.1	15634	22.5	16.7	101710	22.6	18.9	242455	22.7	20.6
281850	22.4	20.4	159113	22.4	20.6	344387	22.5	21.1	237357	22.5	20.4	302966	22.6	20.4	117058	22.7	18.8
384747	22.4	20.5	111214	22.4	19.6	317118	22.5	21.4	63827	22.5	19.4	456386	22.6	21.2	218906	22.7	20.5
194107	22.4	19.6	376854	22.4	18.9	419315	22.5	20.8	428457	22.5	20.2	15225	22.6	19.0	247045	22.7	20.3
531017	22.4	22.0	494818	22.4	22.0	231021	22.5	18.8	206589	22.5	19.0	13668	22.6	17.9	421850	22.7	21.2
151233	22.4	19.1	243670	22.4	20.2	37738	22.5	18.1	226371	22.5	20.6	159550	22.6	20.3	142957	22.7	20.5
157367	22.4	20.1	55063	22.4	18.7	76707	22.5	18.6	339577	22.6	20.6	180261	22.6	19.6	252273	22.7	20.9
446455	22.4	20.0	285037	22.4	20.0	76708	22.5	18.9	12919	22.6	17.8	309449	22.6	21.0	152294	22.7	19.9
238960	22.4	19.4	267923	22.4	19.2	181318	22.5	19.6	395325	22.6	21.2	13611	22.6	18.2	181757	22.7	20.5
487713	22.4	19.4	333010	22.4	20.6	5366	22.5	17.7	217769	22.6	20.4	169323	22.6	20.8	465825	22.7	21.3
451487	22.4	22.1	427799	22.4	19.9	72792	22.5	18.9	132224	22.6	19.7	6440	22.6	18.0	414722	22.7	20.4
40089	22.4	17.8	201176	22.4	21.2	45690	22.5	18.1	150199	22.6	19.7	167018	22.6	20.7	101395	22.7	19.4
434805	22.4	20.9	58621	22.4	19.3	202149	22.5	19.8	258052	22.6	20.0	207349	22.6	20.0	165539	22.7	19.6
421440	22.4	20.3	206409	22.4	20.9	307736	22.5	20.8	196724	22.6	19.5	120355	22.6	19.1	233565	22.7	19.8
421014	22.4	20.0	236758	22.4	19.9	259066	22.5	21.0	460731	22.6	20.9	425329	22.6	20.3	461120	22.7	20.7
224970	22.4	19.8	424849	22.4	22.0	252543	22.5	20.1	81647	22.6	19.0	340704	22.6	21.2	74488	22.7	18.2
285793	22.4	20.3	408874	22.4	21.9	365644	22.5	21.5	127765	22.6	20.2	424210	22.6	20.5	494855	22.7	19.4
208755	22.4	20.7	25734	22.4	17.9	408156	22.5	20.3	90482	22.6	19.1	89754	22.6	20.1	272351	22.7	20.3
13053	22.4	17.6	10706	22.4	18.2	455326	22.5	20.4	139474	22.6	19.4	161572	22.6	19.0	326188	22.7	21.2
197995	22.4	20.8	132934	22.4	20.0	205487	22.5	18.5	399045	22.6	20.5	291427	22.6	20.3	463589	22.7	21.1
319834	22.4	20.7	344050	22.4	21.6	409600	22.5	21.6	449198	22.6	20.7	543546	22.6	21.2	18740	22.7	18.0
460513	22.4	20.6	94846	22.4	19.1	486241	22.5	20.6	122595	22.6	19.9	395940	22.6	20.3	179590	22.7	20.7
184550	22.4	19.9	246686	22.4	20.5	467314	22.5	19.8	301563	22.6	19.9	302892	22.6	21.0	529568	22.7	20.7
424306	22.4	20.9	183717	22.4	19.7	63342	22.5	18.9	167409	22.6	19.7	42949	22.6	18.8	281323	22.7	20.5
335318	22.4	20.9	450215	22.4	21.7	385152	22.5	20.5	174300	22.6	19.6	13378	22.6	16.4	226135	22.7	20.4
143755	22.4	18.8	516481	22.4	21.9	96300	22.5	20.4	290172	22.6	21.2	137987	22.6	18.5	418338	22.7	20.2
468364	22.4	21.0	75773	22.4	17.7	296232	22.5	20.5	246634	22.6	19.7	108557	22.6	19.5	452818	22.7	20.8
16979	22.4	17.0	417967	22.4	20.6	286292	22.5	20.9	373013	22.6							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
172926	22.7	19.6	413496	22.8	21.6	535482	22.8	21.1	194993	22.9	18.9	366820	22.9	20.0	399053	23.0	21.0
146528	22.7	20.0	266001	22.8	19.8	500052	22.8	22.1	135713	22.9	20.8	54038	22.9	19.3	128091	23.0	20.1
256106	22.7	21.5	293079	22.8	20.5	46809	22.8	18.4	483996	22.9	20.8	234057	22.9	19.5	42758	23.0	19.8
125531	22.7	20.1	339923	22.8	21.1	4107	22.8	14.6	261244	22.9	20.5	78171	22.9	18.6	143810	23.0	19.5
114655	22.7	19.0	25170	22.8	19.1	208739	22.8	20.7	380974	22.9	20.4	493389	22.9	20.8	362255	23.0	20.7
105307	22.7	19.9	296543	22.8	21.2	416909	22.8	21.4	407878	22.9	20.9	294004	22.9	20.6	372135	23.0	20.1
150151	22.7	19.8	522197	22.8	20.9	197836	22.8	19.7	314875	22.9	19.9	175595	22.9	20.6	541558	23.0	23.2
236081	22.7	20.7	191588	22.8	19.8	151593	22.8	20.1	218204	22.9	20.2	133207	22.9	19.5	23413	23.0	18.3
118727	22.7	20.6	89515	22.8	18.0	215754	22.8	19.5	238943	22.9	18.9	117700	22.9	18.6	332442	23.0	20.3
52979	22.7	18.2	148027	22.8	19.1	301951	22.8	20.6	468369	22.9	21.3	171255	22.9	19.3	5421	23.0	17.0
351250	22.7	20.9	544915	22.8	20.7	177588	22.8	18.7	492683	22.9	21.3	234811	22.9	20.2	102816	23.0	20.1
495105	22.7	20.8	101707	22.8	17.5	378581	22.8	18.6	289866	22.9	21.2	120366	22.9	18.6	499982	23.0	20.7
385526	22.7	20.5	462517	22.8	20.5	160575	22.8	18.2	423136	22.9	20.2	74563	22.9	19.8	317454	23.0	21.0
339600	22.7	21.1	48464	22.8	18.3	84174	22.8	19.3	193334	22.9	20.0	444535	22.9	20.9	41169	23.0	19.2
100222	22.7	20.5	322189	22.8	20.4	351222	22.8	20.7	236319	22.9	20.5	487723	22.9	21.6	244736	23.0	20.5
238706	22.7	20.8	214729	22.8	20.6	271121	22.9	20.8	205454	22.9	20.2	374197	22.9	19.9	237196	23.0	20.7
113740	22.7	19.7	194398	22.8	18.4	211337	22.9	21.8	219890	22.9	20.5	275814	22.9	20.7	238170	23.0	20.2
328848	22.7	21.1	141360	22.8	19.2	105201	22.9	18.9	544730	22.9	20.4	529704	22.9	21.0	117952	23.1	20.3
31591	22.7	17.9	247608	22.8	20.6	173508	22.9	20.2	38466	22.9	18.8	56597	22.9	18.9	236054	23.1	19.3
73034	22.7	20.1	38428	22.8	19.2	195998	22.9	18.9	303145	22.9	19.6	462414	22.9	20.7	451425	23.1	21.8
282482	22.7	18.6	278154	22.8	20.0	77703	22.9	18.2	195820	22.9	20.3	401651	22.9	19.8	217437	23.1	20.8
521631	22.7	21.4	416959	22.8	21.1	110953	22.9	19.2	97961	22.9	20.2	146480	22.9	19.8	464668	23.1	21.7
213515	22.7	19.3	267511	22.8	20.3	456410	22.9	22.3	464734	22.9	19.8	420502	22.9	20.6	452418	23.1	22.0
132899	22.7	19.2	249908	22.8	20.3	531536	22.9	21.1	410835	22.9	21.2	491229	22.9	21.3	211385	23.1	20.2
47676	22.7	18.1	346420	22.8	19.9	408483	22.9	21.4	117930	22.9	19.4	85668	22.9	19.9	535556	23.1	20.5
337402	22.7	21.3	104959	22.8	19.6	523762	22.9	21.9	236942	22.9	20.5	177930	22.9	19.6	198711	23.1	19.7
464344	22.7	20.5	267085	22.8	20.3	444865	22.9	22.2	244973	22.9	19.2	75888	22.9	17.5	380945	23.1	20.5
226211	22.7	20.0	71843	22.8	18.6	197387	22.9	19.7	407408	22.9	21.2	462744	22.9	20.7	408097	23.1	20.3
376010	22.7	19.1	162424	22.8	20.4	42381	22.9	19.1	312012	22.9	20.8	334728	22.9	20.4	3041	23.1	15.9
81225	22.7	18.3	227644	22.8	20.2	407398	22.9	21.4	298409	22.9	21.1	238350	22.9	19.1	187220	23.1	20.0
425117	22.7	21.9	85924	22.8	18.1	458429	22.9	21.0	161185	22.9	19.2	422085	22.9	20.2	142512	23.1	20.2
532660	22.7	23.1	279264	22.8	20.1	334102	22.9	21.6	154370	22.9	19.7	79119	22.9	19.1	94786	23.1	17.1
123182	22.7	20.6	462113	22.8	21.0	193105	22.9	20.5	458196	22.9	20.9	242135	22.9	20.3	242930	23.1	19.9
544444	22.7	20.6	292187	22.8	21.5	372210	22.9	20.7	313478	22.9	20.6	341905	22.9	20.4	440303	23.1	21.7
58249	22.7	19.0	204321	22.8	21.6	436109	22.9	21.4	105415	22.9	19.2	346444	22.9	20.8	222967	23.1	19.6
215373	22.7	20.2	294791	22.8	20.9	128174	22.9	20.0	235100	22.9	20.4	68709	22.9	18.2	428423	23.1	20.9
411436	22.7	21.1	541131	22.8	21.0	31099	22.9	19.5	348504	22.9	20.9	212657	22.9	20.6	85365	23.1	18.8
419936	22.7	21.2	440276	22.8	21.9	445082	22.9	21.7	93311	22.9	19.8	369184	22.9	20.4	234387	23.1	19.8
26264	22.7	19.6	332839	22.8	19.1	215058	22.9	19.9	132775	22.9	20.1	43151	22.9	17.2	18896	23.1	16.2
14957	22.7	19.2	105682	22.8	19.4	106562	22.9	19.0	282164	22.9	20.1	195728	23.0	20.7	280486	23.1	19.7
113481	22.7	19.2	82837	22.8	18.2	64038	22.9	18.1	249910	22.9	18.8	490673	23.0	21.7	354614	23.1	19.8
237113	22.7	19.3	80525	22.8	18.0	418623	22.9	21.5	352540	22.9	19.5	408895	23.0	22.1	111491	23.1	20.2
90771	22.7	19.5	152907	22.8	19.8	327462	22.9	19.8	153580	22.9	20.6	104119	23.0	19.5	514658	23.1	21.4
388862	22.7	20.9	381254	22.8	21.2	446975	22.9	21.7	154345	22.9	20.5	109915	23.0	19.8	110343	23.1	19.6
169358	22.7	20.2	521913	22.8	21.5	341981	22.9	20.9	110310	22.9	19.6	162919	23.0	20.0	149101	23.1	20.2
256964	22.7	20.6	6970	22.8	16.2	199499	22.9	20.1	339420	22.9	20.2	451543	23.0	21.0	68458	23.1	19.6
298418	22.7	20.7	144679	22.8	18.4	149230	22.9	20.2	2114	22.9	16.0	1152	23.0	14.0	239719	23.1	20.6
105023	22.7	19.2	213612	22.8	20.7	502211	22.9	19.6	395427	22.9	21.3	465291	23.0	21.2	233053	23.1	19.7
541404	22.7	21.4	25573	22.8	18.6	9901	22.9	17.9	269736	22.9	21.3	306224	23.0	21.8	110876	23.1	19.4
26680	22.7	17.1	462415	22.8	20.9	45089	22.9	18.3	32299	22.9	18.6	381290	23.0	21.1	464842	23.1	20.4
158628	22.7	18.5	451883	22.8	21.7	189696	22.9	20.2	242925	22.9	20.8	276642	23.0	20.1	467819	23.1	20.3
189190	22.7	20.2	331732	22.8	20.4	11648	22.9	17.3	303043	22.9	20.2	368840	23.0	20.6	118645	23.1	18.1
207329	22.7	20.1	320813	22.8	20.6	370342	22.9	20.3	257878	22.9	21.4	10409	23.0	17.8	448850	23.1	20.2
131483	22.7	20.0	249935	22.8	20.3	4774	22.9	15.1	308088	22.9	21.4	350446	23.0	20.2	408446	23.1	19.6
94433	22.7	18.4	295438	22.8	20.3	82371	22.9	17.7	164398	22.9	18.9	1429	23.0	17.1	498859	23.1	20.4
74949	22.7	19.6	81465	22.8	19.2	81849	22.9	19.1	62443	22.9	19.9	47342	23.0	18.3	416990	23.1	20.8
231905	22.7	19.2	277351	22.8	20.1	373716	22.9	20.6	327501	22.9	20.2	388078	23.0	21.4	273693	23.1	19.0
124255	22.7	20.7	333843	22.8	20.5	159019	22.9	20.1	395330	22.9	21.0	538430	23.0	20.4	192394	23.1	19.4
370662	22.7	18.8	414731	22.8	19.8	175883	22.9	19.1	408344	22.9	19.6	165864	23.0	19.4	288346	23.1	19.4
204917	22.7	20.9	464240	22.8	20.9	164696	22.9	19.5	461917	22.9	20.9	110892	23.0	19.9	12849	23.1	16.3
427649	22.8	19.2	330762	22.8	20.2	53963	22.9	19.7	125362	22.9	19.6	520724	23.0	20.3	63891	23.1	18.2
376269	22.8	20.4	108495	22.8	17.8	98641	22.9	19.0	100714	22.9	19.4	26242	23.0	19.1	417571	23.1	21.5
276215	22.8	20.7	520902	22.8	21.1	241637	22.9	19.6	319817	22.9	21.4	51789	23.0	18.7	287466	23.1	19.6
111342	22.8	19.9	319228	22.8	19.9	50860	22.9	18.6	421666	22.9	21.4	111314	23.0	19.9	2358	23.1	15.6
451930	22.8	21.7	467479	22.8	21.1	495603	22.9	21.2	281069	22.9	20.6	446981	23.0	20.4	169052	23.1	18.6
340841	22.8	20.8	101531	22.8	19.9	249130	22.9	19.5	273426	22.9	19.6	109250	23.0	19.1	184065	23.1	20.2
347366	22.8	21.5	120229	22.8	19.1	5564	22.9	16.3	17271	22.9	16.4	529534	23.0	21.0	232834	23.1	20.0
448845	22.8	21.0	158886	22.8	20.1	347192	22.9	20.7	369418	22.9	20.8	353397	23.0	20.8	443952	23.1	17.5
188088	22.8	19.9	237112	22.8	20.2	89069	22.9	19.1	88177	22.9							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
159973	23.1	20.3	409483	23.2	21.8	76540	23.3	19.2	151519	23.3	19.4	430212	23.4	21.1	189688	23.5	19.9
393400	23.1	21.6	90786	23.2	19.5	254879	23.3	19.2	439045	23.3	20.5	92709	23.4	20.3	369142	23.5	21.1
522628	23.1	21.0	461657	23.2	20.7	463498	23.3	20.7	361216	23.3	20.0	228867	23.4	20.0	465511	23.5	21.6
281910	23.1	20.0	271322	23.2	20.1	420140	23.3	20.6	208950	23.3	20.2	203639	23.4	19.8	70011	23.5	19.1
207348	23.1	20.1	260800	23.2	21.4	421399	23.3	20.0	72883	23.3	18.9	453100	23.4	24.4	129851	23.5	20.1
277335	23.1	20.8	268135	23.2	20.8	105948	23.3	20.3	380076	23.3	20.1	224840	23.4	19.7	147675	23.5	19.9
58665	23.1	19.4	257727	23.2	19.4	143786	23.3	20.1	538142	23.3	21.0	475555	23.4	21.9	245848	23.5	21.4
186579	23.1	18.4	72703	23.2	19.1	243538	23.3	20.8	198823	23.3	20.2	380436	23.4	20.9	81006	23.5	19.0
100448	23.1	18.5	93865	23.2	19.0	392232	23.3	19.6	103632	23.3	19.1	391104	23.4	21.0	25148	23.5	17.7
164168	23.1	18.8	396779	23.2	20.7	415207	23.3	20.9	372310	23.3	21.5	370713	23.4	21.0	292977	23.5	21.2
419364	23.1	20.3	113621	23.2	18.6	486787	23.3	21.9	448917	23.3	19.9	150435	23.4	19.9	89244	23.5	19.0
393567	23.1	20.8	455967	23.2	21.3	61098	23.3	18.5	6473	23.3	16.2	198983	23.4	20.2	95720	23.5	18.8
203149	23.1	20.7	281336	23.2	19.6	64296	23.3	18.0	271484	23.3	19.4	31254	23.4	16.5	423165	23.5	19.8
290189	23.1	21.0	541443	23.2	20.6	25742	23.3	18.5	477333	23.3	20.4	14004	23.4	18.9	541496	23.5	21.8
64777	23.1	18.4	104505	23.2	19.0	424918	23.3	20.3	394439	23.3	22.1	248816	23.4	20.6	277909	23.5	20.8
232673	23.1	20.0	300373	23.2	20.8	200021	23.3	20.0	11221	23.3	17.1	446956	23.4	20.8	415456	23.5	21.7
355423	23.1	20.7	473789	23.2	20.3	237501	23.3	20.7	290414	23.3	20.4	262723	23.4	20.9	257135	23.5	20.3
366792	23.1	20.3	422301	23.2	20.1	446752	23.3	21.1	463604	23.3	21.1	426002	23.4	21.2	168371	23.5	20.8
542536	23.1	20.6	113644	23.2	18.2	446747	23.3	21.7	91508	23.3	19.7	283265	23.4	20.4	116472	23.5	19.1
196643	23.1	20.0	182464	23.2	20.0	72037	23.3	18.3	391807	23.3	20.2	105144	23.4	19.9	74458	23.5	17.8
70715	23.1	18.2	124977	23.2	19.8	39246	23.3	19.3	81666	23.3	18.7	244601	23.4	19.4	243285	23.5	20.4
460369	23.1	21.8	27559	23.2	19.6	366894	23.3	21.4	331684	23.3	20.5	130249	23.4	18.3	181166	23.5	21.0
234824	23.1	19.7	532477	23.2	20.8	40266	23.3	18.0	200915	23.3	19.1	405565	23.4	22.7	197327	23.5	19.5
529440	23.1	20.5	403096	23.2	20.5	62498	23.3	18.6	363908	23.3	21.3	55660	23.4	20.9	33526	23.5	18.0
385130	23.1	20.0	307930	23.2	18.8	390773	23.3	20.4	144389	23.3	20.0	405161	23.4	21.1	318958	23.5	19.9
306969	23.1	20.0	402647	23.2	22.1	491016	23.3	21.5	13869	23.3	18.4	462502	23.4	21.1	99917	23.5	18.7
77329	23.1	18.4	47841	23.2	18.0	543592	23.3	21.6	190457	23.3	19.5	221637	23.4	20.2	491991	23.5	21.3
174844	23.1	18.8	14388	23.2	18.3	109319	23.3	19.0	397653	23.3	21.3	340762	23.4	20.9	101123	23.5	19.6
61792	23.1	19.1	429260	23.2	20.9	178065	23.3	20.5	525516	23.3	20.3	448480	23.4	20.6	55209	23.5	17.8
196118	23.1	20.1	138325	23.2	22.5	211604	23.3	19.2	320048	23.3	19.5	200168	23.4	19.9	67051	23.5	18.4
287644	23.1	20.3	32076	23.2	18.0	310771	23.3	20.2	251045	23.3	19.5	143841	23.4	19.2	245867	23.5	20.9
334524	23.1	21.7	396103	23.2	20.6	139799	23.3	19.9	106474	23.3	18.1	313873	23.4	19.0	335286	23.5	21.0
512309	23.1	20.8	372062	23.2	21.3	35869	23.3	19.4	328242	23.3	19.9	360208	23.4	21.3	400176	23.5	21.9
26352	23.1	17.7	379133	23.2	21.0	410822	23.3	21.0	151631	23.3	19.8	463048	23.4	20.8	448838	23.5	20.9
29890	23.1	18.3	351683	23.2	20.5	46720	23.3	20.8	139545	23.3	19.9	300375	23.4	19.8	491330	23.5	20.8
340637	23.1	21.4	429315	23.2	20.1	80634	23.3	19.6	409589	23.3	20.7	145958	23.4	19.6	312311	23.5	18.7
258229	23.1	21.6	460535	23.2	21.6	148318	23.3	19.2	419237	23.3	21.1	128343	23.4	20.5	491145	23.5	22.4
375310	23.1	20.8	404295	23.2	20.2	475733	23.3	21.5	373810	23.3	20.1	266912	23.4	20.8	82949	23.5	19.4
284476	23.1	20.8	218814	23.2	20.4	77075	23.3	18.8	399244	23.3	21.2	43709	23.4	18.7	23017	23.5	18.3
216354	23.1	20.1	465253	23.2	21.5	311736	23.3	21.1	295055	23.3	20.4	275372	23.4	19.9	383533	23.5	19.2
280503	23.1	21.7	47492	23.2	18.5	196331	23.3	19.8	321672	23.3	20.3	286647	23.4	19.7	33663	23.5	18.3
240445	23.1	19.4	138417	23.2	19.3	313440	23.3	22.2	23777	23.3	17.5	178071	23.4	20.3	299573	23.5	21.0
110211	23.1	19.3	33491	23.2	17.6	230827	23.3	20.3	382490	23.3	18.5	341423	23.4	21.7	232478	23.5	18.9
229711	23.1	19.5	227874	23.2	19.2	42692	23.3	19.3	499395	23.3	20.5	295251	23.4	20.9	541477	23.5	21.0
402763	23.1	20.4	242138	23.2	20.8	391444	23.3	20.4	62655	23.4	19.2	442200	23.4	20.3	136855	23.5	20.2
18093	23.1	17.0	275290	23.2	20.6	164921	23.3	18.9	81301	23.4	19.8	329655	23.4	21.5	357650	23.5	20.3
280015	23.1	20.9	454456	23.2	21.3	360334	23.3	21.3	411147	23.4	21.1	201224	23.4	19.8	258939	23.5	20.5
109303	23.1	18.8	62068	23.2	19.4	8988	23.3	18.4	153600	23.4	19.7	458719	23.4	20.6	192070	23.5	19.8
461200	23.1	20.6	170180	23.2	19.8	101525	23.3	19.8	76590	23.4	17.6	5128	23.4	15.8	24706	23.5	18.6
26638	23.1	18.6	112985	23.2	21.0	295906	23.3	21.0	213114	23.4	18.9	13927	23.4	17.9	291504	23.5	21.0
281353	23.1	21.1	276503	23.2	20.2	257322	23.3	20.6	460428	23.4	20.7	65890	23.4	20.6	421770	23.5	21.1
477268	23.2	21.5	412719	23.2	20.5	489319	23.3	21.3	358584	23.4	21.2	461077	23.4	20.5	412895	23.5	21.3
125193	23.2	19.4	232431	23.2	19.9	488957	23.3	21.0	93025	23.4	20.1	26362	23.4	18.8	143038	23.5	19.4
482247	23.2	20.7	182177	23.2	20.5	200971	23.3	18.7	318417	23.4	20.2	482850	23.4	20.7	183998	23.5	19.4
234237	23.2	19.8	386655	23.2	21.0	92645	23.3	20.3	480906	23.4	21.5	375646	23.4	19.6	67289	23.5	18.4
45595	23.2	18.7	60183	23.2	19.4	281366	23.3	18.9	199127	23.4	18.5	181889	23.4	20.0	440073	23.5	20.8
162244	23.2	18.3	44391	23.2	18.8	475645	23.3	20.9	147517	23.4	19.1	466024	23.4	20.3	230304	23.5	19.8
491452	23.2	21.3	18630	23.2	18.7	262412	23.3	20.4	17771	23.4	19.0	379982	23.4	20.5	64171	23.5	19.8
345396	23.2	20.2	111487	23.2	19.2	230534	23.3	19.9	351298	23.4	20.3	481103	23.4	20.3	379745	23.5	20.7
24283	23.2	18.4	335921	23.2	20.2	331843	23.3	20.9	424663	23.4	21.4	167528	23.4	18.8	457184	23.5	20.1
244028	23.2	20.0	463586	23.2	20.9	120663	23.3	19.8	194821	23.4	19.1	23165	23.4	18.9	188113	23.5	20.2
118870	23.2	19.3	36928	23.2	19.2	265415	23.3	21.2	409994	23.4	20.4	114016	23.4	19.3	460966	23.5	20.6
321477	23.2	20.5	486204	23.2	19.9	145467	23.3	20.2	307752	23.4	21.9	460466	23.4	21.5	139963	23.5	18.9
195767	23.2	19.9	457985	23.2	21.4	460264	23.3	21.7	487190	23.4	21.0	373344	23.4	20.9	236322	23.5	20.3
340735	23.2	21.2	150821	23.2	20.3	378380	23.3	20.4	375509	23.4	19.8	227243	23.4	19.6	353222	23.5	22.2
236165	23.2	19.8	81579	23.2	19.0	13671	23.3	19.0	298438	23.4	19.8	257845	23.4	20.3	246095	23.5	19.8
454373	23.2	21.8	452822	23.2	21.3	230030	23.3	19.3	29	23.4	9.2	412938	23.4	20.9	175785	23.5	20.0
292090	23.2	20.9	232053	23.2	18.4	486186	23.3	20.4	307701	23.4	20.8	246870	23.4	21.7	145888	23.5	20.4
110368	23.2	19.3	482858	23.2	20.7	283965	23.3	21.1	9366	23.4							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
104370	23.5	19.2	545074	23.6	20.0	332667	23.7	21.2	158253	23.7	19.4	157648	23.8	20.4	516667	23.9	22.5
475497	23.5	20.8	292343	23.6	19.9	275639	23.7	20.0	135754	23.7	18.8	100550	23.8	17.7	81125	23.9	19.0
261203	23.5	20.2	82960	23.6	19.0	290846	23.7	20.5	1944	23.7	17.7	349595	23.8	20.3	288071	23.9	21.2
174348	23.5	18.8	324000	23.6	20.5	412884	23.7	20.9	1531	23.7	15.4	416222	23.8	20.9	372009	23.9	21.6
5320	23.5	17.8	427389	23.6	21.0	362445	23.7	21.2	185609	23.7	19.4	63584	23.8	19.3	25369	23.9	18.0
451235	23.5	20.7	542730	23.6	20.6	440734	23.7	19.9	120458	23.7	20.2	361269	23.8	20.9	110978	23.9	19.3
54624	23.5	18.6	135871	23.6	19.2	81837	23.7	19.5	54962	23.7	18.5	362393	23.8	20.5	359216	23.9	20.5
171992	23.5	20.8	64460	23.6	19.0	492960	23.7	20.7	408060	23.7	20.2	48209	23.8	18.1	194499	23.9	19.5
139471	23.5	19.9	372297	23.6	21.8	251038	23.7	20.3	491420	23.7	19.4	466812	23.8	21.1	258135	23.9	20.8
176831	23.5	20.6	228695	23.6	22.1	286990	23.7	20.1	105039	23.7	19.0	97245	23.8	18.8	333733	23.9	21.4
52558	23.5	18.3	188480	23.6	20.2	298604	23.7	19.6	171024	23.7	19.7	452	23.8	15.7	113874	23.9	19.4
246058	23.5	20.1	290034	23.6	21.2	404797	23.7	21.4	238951	23.7	20.3	232463	23.8	20.3	481092	23.9	20.8
197170	23.5	19.7	446901	23.6	20.9	98755	23.7	18.9	142849	23.7	19.6	434906	23.8	21.5	351313	23.9	21.1
279969	23.5	20.2	160249	23.6	19.6	421142	23.7	21.1	30257	23.7	18.7	229830	23.8	19.9	411307	23.9	22.1
434889	23.5	21.4	53032	23.6	17.8	18211	23.7	18.0	350534	23.7	21.3	26392	23.8	17.3	14466	23.9	19.0
391999	23.5	21.3	271954	23.6	19.7	187713	23.7	19.9	16485	23.7	18.9	59582	23.8	18.3	456017	23.9	21.2
76786	23.5	18.5	294189	23.6	20.0	200082	23.7	20.3	434875	23.7	21.4	356069	23.8	20.8	187892	23.9	20.2
101939	23.5	20.1	171210	23.6	19.6	5931	23.7	16.2	332632	23.7	20.9	527057	23.8	22.1	437876	23.9	21.6
275913	23.5	20.3	61384	23.6	20.2	336572	23.7	21.5	414742	23.7	19.5	535976	23.8	20.9	147901	23.9	20.0
34233	23.5	18.9	161668	23.6	19.8	88623	23.7	19.2	14251	23.7	17.9	157017	23.8	20.1	11332	23.9	17.2
311018	23.5	19.3	143176	23.6	19.3	262044	23.7	20.8	120856	23.7	19.2	191342	23.8	19.9	44614	23.9	18.8
127868	23.5	20.0	510283	23.6	21.3	48658	23.7	18.5	235990	23.7	19.9	11361	23.8	16.7	227764	23.9	21.3
496390	23.5	21.5	167922	23.6	19.8	101358	23.7	20.1	471991	23.8	20.9	529524	23.8	20.7	424832	23.9	20.7
466032	23.5	20.9	194339	23.6	20.5	486118	23.7	21.1	44916	23.8	19.7	269533	23.8	21.2	378462	23.9	20.4
184119	23.5	19.7	114874	23.6	19.2	128187	23.7	20.2	375499	23.8	20.3	391160	23.8	20.5	206431	23.9	20.6
32579	23.5	18.0	303062	23.6	19.5	267074	23.7	20.3	94692	23.8	18.3	110711	23.8	19.5	213955	23.9	19.3
75801	23.5	17.6	322254	23.6	21.4	275903	23.7	21.2	445028	23.8	22.4	320712	23.8	20.1	326738	23.9	21.7
313571	23.5	20.1	419020	23.6	21.2	285035	23.7	19.9	190957	23.8	20.3	324626	23.8	20.1	87959	23.9	18.4
255770	23.6	21.0	484654	23.6	21.5	534422	23.7	22.1	190897	23.8	20.1	10900	23.8	17.4	290773	23.9	20.1
416585	23.6	21.2	33329	23.6	16.8	143762	23.7	19.5	235548	23.8	19.7	24867	23.8	18.9	294182	23.9	19.9
51773	23.6	18.9	339965	23.6	21.5	344208	23.7	21.9	316472	23.8	22.3	188312	23.8	20.1	542945	23.9	21.9
153842	23.6	22.1	411149	23.6	20.6	353485	23.7	20.9	217776	23.8	20.4	65620	23.8	19.4	197506	23.9	19.1
109695	23.6	19.1	425357	23.6	20.3	452604	23.7	19.3	341852	23.8	21.0	136552	23.8	20.3	318037	23.9	19.7
541320	23.6	20.9	285540	23.6	22.7	115706	23.7	19.2	97358	23.8	18.6	23412	23.8	19.0	230456	23.9	20.1
207652	23.6	20.5	428936	23.6	20.7	221568	23.7	20.1	14885	23.8	16.6	298391	23.8	21.2	523273	23.9	20.1
43079	23.6	18.9	464596	23.6	21.2	367998	23.7	19.7	280708	23.8	20.0	280422	23.8	19.9	7201	23.9	16.6
144505	23.6	19.7	473261	23.6	21.9	227664	23.7	20.0	375445	23.8	21.7	284242	23.8	21.2	87207	23.9	19.9
152974	23.6	19.4	447418	23.6	20.7	118131	23.7	20.5	159866	23.8	20.9	158951	23.8	20.0	241062	23.9	20.6
180077	23.6	19.2	376989	23.6	21.5	125962	23.7	20.4	165828	23.8	20.1	454424	23.8	20.3	222968	23.9	20.9
434387	23.6	20.2	343983	23.6	20.9	404733	23.7	20.1	452890	23.8	21.0	378522	23.8	21.2	337363	23.9	21.3
412935	23.6	20.3	463851	23.6	21.0	139427	23.7	19.7	42831	23.8	18.5	134330	23.8	20.6	88730	23.9	19.7
351238	23.6	20.5	507290	23.6	21.0	47523	23.7	17.6	208092	23.8	19.6	182241	23.8	18.9	263954	23.9	21.0
53929	23.6	18.4	34506	23.6	19.3	69893	23.7	19.4	401882	23.8	22.1	10699	23.8	18.7	163278	23.9	19.9
495225	23.6	20.0	451558	23.6	20.9	285335	23.7	20.3	145777	23.8	19.5	42596	23.8	19.4	85492	23.9	19.6
275311	23.6	21.6	305124	23.6	20.1	285800	23.7	18.8	522432	23.8	21.2	292020	23.8	20.7	261311	23.9	19.9
260919	23.6	20.8	422	23.6	14.3	463845	23.7	20.6	223679	23.8	19.6	495287	23.8	20.7	269199	23.9	20.1
410610	23.6	20.5	488775	23.6	21.9	390139	23.7	19.9	272796	23.8	20.7	467218	23.8	20.3	45258	23.9	17.9
59622	23.6	19.3	27286	23.6	18.5	445758	23.7	22.1	105189	23.8	19.1	543245	23.9	20.8	345266	23.9	22.1
373066	23.6	20.6	83812	23.6	18.8	413682	23.7	21.2	418496	23.8	20.9	174169	23.9	21.0	453891	23.9	20.9
403934	23.6	20.0	44873	23.6	18.6	415256	23.7	20.6	195949	23.8	18.6	265128	23.9	19.2	160902	23.9	18.4
350246	23.6	20.8	522342	23.6	20.9	419792	23.7	20.6	445764	23.8	20.3	483182	23.9	20.8	116101	23.9	19.6
296640	23.6	21.5	270829	23.6	20.2	233120	23.7	20.7	464161	23.8	20.6	455769	23.9	22.1	348178	23.9	19.8
256327	23.6	20.4	363855	23.6	21.2	338950	23.7	20.0	187362	23.8	20.3	343364	23.9	20.0	83604	23.9	18.9
443796	23.6	21.1	50837	23.6	18.9	216873	23.7	19.9	295213	23.8	20.0	36556	23.9	19.5	486746	23.9	19.7
197877	23.6	21.3	231069	23.6	20.4	229044	23.7	19.9	270747	23.8	20.6	12450	23.9	16.4	236403	23.9	19.7
182068	23.6	20.7	389325	23.6	21.3	453125	23.7	20.6	316899	23.8	20.5	143561	23.9	19.4	403951	23.9	20.2
130081	23.6	20.5	45011	23.6	17.9	245470	23.7	20.9	467159	23.8	21.0	117613	23.9	18.3	9644	23.9	17.7
336029	23.6	20.5	411802	23.6	20.7	421145	23.7	20.7	289256	23.8	20.0	236255	23.9	20.0	34997	23.9	17.7
150733	23.6	20.8	52110	23.6	19.6	503320	23.7	20.2	29652	23.8	18.4	396283	23.9	20.0	270025	23.9	19.7
145120	23.6	20.8	30398	23.6	18.9	421263	23.7	20.8	269392	23.8	20.8	130135	23.9	18.4	52090	23.9	19.8
207709	23.6	20.7	260887	23.6	20.8	415312	23.7	20.5	220036	23.8	20.0	214691	23.9	20.4	518141	23.9	20.9
191042	23.6	19.3	85089	23.6	19.6	356079	23.7	19.8	197439	23.8	20.3	360833	23.9	19.9	387712	23.9	18.9
212122	23.6	19.7	174407	23.6	19.7	386890	23.7	20.9	322467	23.8	20.8	172205	23.9	20.1	271243	23.9	20.2
274274	23.6	20.2	42736	23.6	19.2	283261	23.7	20.4	194746	23.8	18.8	440416	23.9	21.5	151811	23.9	19.6
61658	23.6	18.9	198357	23.6	19.7	164695	23.7	21.6	285548	23.8	20.8	463792	23.9	20.4	523462	23.9	20.5
408308	23.6	19.4	174184	23.6	19.3	388432	23.7	19.7	346319	23.8	21.6	9806	23.9	17.7	191333	23.9	20.9
301945	23.6	18.9	365522	23.6	19.7	542955	23.7	21.5	218348	23.8	20.1	158250	23.9	20.0	365662	23.9	20.9
40754	23.6	19.2	382252	23.6	20.9	142092	23.7	20.2	64168	23.8	18.7	117726	23.9	18.6	90952	23.9	19.3
403071	23.6	20.5	498907	23.6	20.9	221556	23.7	19.5	194171	23.8	2						

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
232974	23.9	19.8	277987	24.0	21.2	403590	24.1	20.8	296830	24.1	19.8	1505	24.2	15.1	464242	24.3	21.0
416802	23.9	19.4	466689	24.0	20.9	258568	24.1	19.6	408637	24.1	20.5	545031	24.2	21.3	117105	24.3	19.7
50748	23.9	18.7	516554	24.0	21.8	234877	24.1	20.1	434118	24.1	22.4	461078	24.2	20.9	274007	24.3	19.8
54404	23.9	18.8	450197	24.0	20.7	452911	24.1	21.9	163507	24.1	19.5	320060	24.2	20.2	60295	24.3	18.9
54526	23.9	19.6	149342	24.0	19.3	3205	24.1	17.1	318923	24.2	20.9	495137	24.2	19.5	224646	24.3	19.6
131250	23.9	19.5	481460	24.0	20.0	231974	24.1	19.8	401643	24.2	20.2	131341	24.2	19.3	295551	24.3	19.4
91704	23.9	19.1	322204	24.0	20.4	114118	24.1	20.1	488808	24.2	20.7	368130	24.2	21.2	464007	24.3	21.3
178075	23.9	19.3	278480	24.0	20.5	102599	24.1	19.0	307370	24.2	21.0	95431	24.2	19.2	495146	24.3	20.5
337650	23.9	20.8	156796	24.0	18.9	359921	24.1	20.8	115369	24.2	18.5	199864	24.2	19.9	252593	24.3	20.0
383638	23.9	21.9	11578	24.0	16.9	30040	24.1	18.9	266728	24.2	21.0	353939	24.2	19.6	541802	24.3	20.7
35985	23.9	18.3	442682	24.0	20.1	516546	24.1	21.5	29223	24.2	19.2	104901	24.2	19.8	114284	24.3	20.3
377956	23.9	20.7	463051	24.0	20.6	542509	24.1	21.1	490467	24.2	21.4	77856	24.2	17.6	366322	24.3	20.3
223803	23.9	20.0	315618	24.0	20.9	455880	24.1	21.1	266917	24.2	19.8	543744	24.2	20.8	541480	24.3	22.6
412858	23.9	20.5	445561	24.0	21.1	321835	24.1	20.0	244274	24.2	21.4	167868	24.2	19.8	418698	24.3	19.5
485124	23.9	21.1	136437	24.0	19.6	296846	24.1	20.8	310790	24.2	20.7	391068	24.2	20.7	249298	24.3	19.6
188611	23.9	20.1	64768	24.0	19.5	53681	24.1	19.0	324648	24.2	20.6	494171	24.2	20.3	188204	24.3	19.7
198820	23.9	19.2	177562	24.0	19.1	378471	24.1	21.7	311260	24.2	20.0	307263	24.2	19.8	221276	24.3	20.9
219152	23.9	20.9	409853	24.0	20.0	132989	24.1	19.1	2192	24.2	16.6	295237	24.2	21.1	186912	24.3	20.8
404820	23.9	20.3	423839	24.0	21.1	64559	24.1	19.7	411433	24.2	20.3	499956	24.2	21.7	46781	24.3	19.3
129222	23.9	19.5	350852	24.0	19.8	58942	24.1	19.0	532568	24.2	21.3	127793	24.2	19.7	420215	24.3	20.2
495700	23.9	21.1	310819	24.0	20.8	139396	24.1	19.6	254736	24.2	20.5	87957	24.2	19.5	543504	24.3	20.1
402739	23.9	21.4	351267	24.0	21.3	229702	24.1	19.7	30411	24.2	18.9	383690	24.2	21.5	545036	24.3	20.8
481230	23.9	21.5	91399	24.0	19.3	190900	24.1	20.4	215659	24.2	20.6	50622	24.2	18.1	219418	24.3	20.5
325619	23.9	20.8	538281	24.0	20.9	473918	24.1	20.1	150677	24.2	19.7	17321	24.2	18.8	89471	24.3	19.4
61492	23.9	19.2	252355	24.0	21.1	217001	24.1	21.3	389394	24.2	19.6	322887	24.2	20.0	466229	24.3	22.6
418990	23.9	21.4	370541	24.0	21.9	49245	24.1	18.4	444807	24.2	21.7	446697	24.2	21.4	343859	24.3	21.0
522036	23.9	21.4	24675	24.0	18.2	337895	24.1	19.7	315725	24.2	20.2	181660	24.2	20.0	388512	24.3	20.4
463071	23.9	21.7	347659	24.0	21.8	282602	24.1	20.5	493850	24.2	21.2	179211	24.2	20.8	151665	24.3	19.2
456197	23.9	19.9	463016	24.0	20.8	181616	24.1	21.3	341912	24.2	20.7	378433	24.2	21.0	176748	24.3	20.0
541358	23.9	20.7	253043	24.0	20.9	313191	24.1	21.3	46233	24.2	19.4	63538	24.2	17.5	119384	24.3	18.8
132869	23.9	20.4	317933	24.0	19.9	222966	24.1	19.7	467276	24.2	21.3	1130	24.2	15.7	506622	24.3	21.3
3772	23.9	15.9	110167	24.0	18.8	386637	24.1	20.8	442971	24.2	19.7	104819	24.2	19.7	254666	24.3	21.1
54021	23.9	19.2	334691	24.0	19.8	160651	24.1	18.8	268184	24.2	19.6	446286	24.2	21.3	276203	24.3	20.4
97711	23.9	18.6	145332	24.0	19.7	61740	24.1	19.1	13045	24.2	18.4	215206	24.2	21.1	18143	24.3	18.4
117309	23.9	19.7	215112	24.0	20.4	243790	24.1	20.0	303048	24.2	21.1	79978	24.2	22.4	255884	24.3	21.9
182731	23.9	19.3	317205	24.0	21.1	108060	24.1	18.6	378385	24.2	21.5	59594	24.2	19.2	183598	24.3	19.8
78785	23.9	18.7	95786	24.0	18.4	381918	24.1	20.5	440135	24.2	21.9	324618	24.2	20.8	252552	24.3	21.1
390698	23.9	19.4	444817	24.0	20.1	326223	24.1	20.3	352196	24.2	20.4	194858	24.2	18.9	491396	24.3	20.8
41019	23.9	19.4	456516	24.0	20.2	488688	24.1	20.4	231719	24.2	18.2	419082	24.2	21.9	79395	24.3	18.6
455814	23.9	21.5	336778	24.0	21.1	179061	24.1	19.9	320906	24.2	20.1	455266	24.2	21.0	521881	24.3	20.7
515764	23.9	20.8	57455	24.0	18.7	260853	24.1	20.2	484425	24.2	20.8	207580	24.2	19.6	274002	24.3	20.1
130503	23.9	18.9	226601	24.1	19.8	4087	24.1	16.6	288754	24.2	20.6	151531	24.2	19.6	219427	24.3	20.7
339558	23.9	19.9	105149	24.1	19.8	340850	24.1	20.0	334449	24.2	20.8	276709	24.3	20.4	121553	24.3	20.1
317008	23.9	21.6	400352	24.1	20.1	105224	24.1	19.5	89509	24.2	20.8	330593	24.3	18.6	47877	24.3	18.2
413218	23.9	21.1	979	24.1	15.0	166885	24.1	19.1	236083	24.2	18.4	39024	24.3	18.9	215751	24.3	20.6
399508	23.9	20.5	49561	24.1	18.3	308243	24.1	19.4	454233	24.2	20.6	88583	24.3	19.7	251438	24.3	19.6
302103	23.9	19.1	300548	24.1	20.0	282196	24.1	20.6	514848	24.2	20.5	369929	24.3	20.4	542899	24.3	21.6
215204	23.9	21.1	29437	24.1	18.9	314264	24.1	20.5	232322	24.2	20.3	52857	24.3	19.2	90138	24.3	19.8
460395	23.9	20.6	452898	24.1	20.6	116649	24.1	19.5	451771	24.2	20.7	173258	24.3	21.1	31728	24.3	18.2
401228	23.9	20.2	399849	24.1	20.9	168563	24.1	18.3	362763	24.2	20.1	240493	24.3	19.6	137144	24.3	17.9
214333	23.9	20.1	363138	24.1	21.7	109750	24.1	19.5	487232	24.2	21.3	454664	24.3	20.6	59740	24.3	18.7
421056	23.9	21.4	351277	24.1	21.6	213868	24.1	19.0	186268	24.2	20.4	194428	24.3	19.3	322845	24.3	20.7
375097	23.9	19.8	444846	24.1	22.0	541100	24.1	22.0	462510	24.2	20.9	8018	24.3	17.2	164957	24.3	19.7
81771	23.9	18.1	235077	24.1	19.7	253105	24.1	20.4	114221	24.2	19.9	134198	24.3	20.2	465558	24.3	20.6
200177	23.9	19.8	407538	24.1	20.6	348769	24.1	20.5	25583	24.2	16.9	211204	24.3	20.3	125665	24.3	20.9
76572	23.9	20.1	347608	24.1	21.1	218729	24.1	18.8	294973	24.2	20.3	101154	24.3	18.9	111753	24.3	17.8
148964	23.9	19.7	462125	24.1	22.1	403354	24.1	21.2	279617	24.2	20.7	455905	24.3	21.4	370668	24.3	20.0
178106	23.9	20.0	256102	24.1	20.9	250220	24.1	19.9	173695	24.2	19.0	242082	24.3	20.3	458701	24.3	20.5
392301	24.0	20.3	103463	24.1	19.5	100990	24.1	19.7	257913	24.2	20.3	493292	24.3	20.8	215122	24.3	20.5
399202	24.0	20.5	328041	24.1	20.5	345402	24.1	20.0	43936	24.2	18.5	466435	24.3	21.2	36044	24.3	18.1
516198	24.0	20.4	172133	24.1	19.5	480892	24.1	21.6	519563	24.2	21.2	436724	24.3	21.9	414507	24.3	21.2
251611	24.0	21.1	490480	24.1	21.2	169355	24.1	18.7	489392	24.2	21.6	500537	24.3	20.9	432292	24.3	21.7
139326	24.0	20.4	151620	24.1	19.6	541127	24.1	20.8	228297	24.2	18.9	118773	24.3	18.9	89494	24.3	19.1
247258	24.0	21.3	178951	24.1	20.8	379805	24.1	20.6	363383	24.2	21.2	96392	24.3	18.9	247565	24.3	21.9
301095	24.0	21.2	273197	24.1	19.4	187778	24.1	21.2	258382	24.2	20.4	413951	24.3	20.6	33696	24.3	17.4
479397	24.0	21.1	340091	24.1	19.9	363101	24.1	21.6	123390	24.2	18.9	163138	24.3	19.2	376049	24.3	20.0
484070	24.0	21.0	19767	24.1	17.7	369533	24.1	19.9	306774	24.2	19.2	116840	24.3	19.3	25280	24.3	18.4
303482	24.0	19.7	195033	24.1	19.6	31633	24.1	18.7	225430	24.2	20.0	364235	24.3	20.7	84863	24.3	19.3
83062	24.0	18.1	422992	24.1	21.1	159879	24.1	21.1	2840								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
445692	24.3	20.7	411273	24.4	21.7	25594	24.5	18.1	170712	24.5	18.8	340047	24.6	20.5	66521	24.7	19.7
188685	24.4	20.8	454541	24.4	21.0	183134	24.5	19.4	353426	24.5	20.9	248761	24.6	21.2	357667	24.7	20.1
347270	24.4	20.9	219163	24.4	20.6	473851	24.5	20.7	392252	24.5	20.4	19566	24.6	18.5	454376	24.7	21.4
451877	24.4	20.8	457510	24.4	20.5	311768	24.5	20.9	336018	24.5	20.4	483482	24.6	21.2	249975	24.7	20.2
307288	24.4	20.1	390449	24.4	19.4	7736	24.5	17.2	522129	24.5	21.0	131278	24.6	19.4	499994	24.7	21.5
177684	24.4	19.2	405075	24.4	21.5	414489	24.5	20.2	371821	24.5	21.2	30735	24.6	18.4	135237	24.7	19.2
327437	24.4	19.7	13309	24.4	17.4	317744	24.5	21.1	526437	24.5	21.7	271520	24.6	20.5	454208	24.7	20.9
345777	24.4	20.6	223574	24.4	18.7	544826	24.5	20.7	351803	24.5	19.4	333573	24.6	20.3	33249	24.7	18.5
181867	24.4	23.7	250261	24.4	20.2	250654	24.5	19.4	475384	24.5	21.4	334664	24.6	20.2	112815	24.7	19.2
408683	24.4	21.2	418505	24.4	20.5	27624	24.5	18.8	26870	24.5	18.7	415534	24.6	21.9	488630	24.7	22.6
187566	24.4	19.4	334132	24.4	20.6	193285	24.5	19.6	413015	24.5	21.2	131301	24.6	19.2	449856	24.7	22.1
9522	24.4	17.7	418572	24.4	20.3	369526	24.5	20.0	243999	24.5	20.4	272214	24.6	20.1	383551	24.7	20.3
458145	24.4	22.3	302891	24.4	21.5	1800	24.5	16.5	85134	24.5	20.6	232970	24.6	19.8	480925	24.7	19.4
220927	24.4	20.5	228773	24.4	20.4	235381	24.5	19.1	464784	24.5	20.1	17339	24.6	19.0	10351	24.7	17.0
465781	24.4	20.4	28540	24.4	18.2	468312	24.5	19.4	255966	24.5	20.4	319428	24.6	20.8	361238	24.7	20.5
128094	24.4	20.8	445100	24.4	21.8	126381	24.5	19.8	238860	24.5	20.1	101618	24.6	17.7	112941	24.7	20.0
413495	24.4	21.4	404376	24.4	20.3	450798	24.5	20.2	400269	24.5	21.8	436044	24.6	21.7	375541	24.7	21.1
317659	24.4	19.4	160577	24.4	18.2	193705	24.5	19.6	512272	24.5	20.2	320976	24.6	20.3	300416	24.7	18.5
274792	24.4	20.8	197253	24.4	19.7	379944	24.5	20.0	46275	24.5	19.1	407838	24.6	19.7	21366	24.7	17.2
380948	24.4	21.4	188217	24.4	20.1	426899	24.5	21.5	177715	24.5	19.3	99733	24.6	19.7	329641	24.7	20.7
9825	24.4	17.3	278716	24.4	21.5	201014	24.5	20.1	241875	24.5	20.5	150475	24.6	20.0	8155	24.7	18.3
252274	24.4	20.8	384610	24.4	20.2	360318	24.5	21.0	381243	24.5	21.4	490800	24.6	19.9	240859	24.7	20.1
60597	24.4	18.1	4159	24.4	14.9	48349	24.5	18.5	494771	24.5	22.6	164413	24.6	18.9	190891	24.7	20.1
202068	24.4	20.7	99262	24.4	19.3	79402	24.5	19.3	261316	24.5	20.8	524279	24.6	22.4	417067	24.7	20.8
104457	24.4	19.1	543201	24.4	22.0	298382	24.5	20.8	369305	24.5	20.9	488912	24.6	21.3	491049	24.7	20.7
78601	24.4	18.8	348437	24.4	22.0	467818	24.5	20.6	388145	24.5	21.7	485443	24.6	21.4	112526	24.7	19.8
67886	24.4	18.8	384294	24.4	21.3	252268	24.5	20.7	291893	24.5	20.9	441553	24.6	21.4	66769	24.7	18.7
221074	24.4	20.0	219015	24.4	21.6	121119	24.5	17.9	296514	24.5	19.7	197462	24.6	18.4	162977	24.7	19.8
292815	24.4	21.2	111091	24.4	20.1	229819	24.5	20.1	378997	24.5	20.6	302976	24.6	21.5	46980	24.7	18.8
541493	24.4	20.2	206332	24.4	20.0	256914	24.5	20.5	545033	24.5	19.9	271375	24.6	20.0	332412	24.7	20.9
75907	24.4	18.5	419193	24.4	21.1	365854	24.5	20.5	232289	24.5	20.0	88049	24.6	20.0	281195	24.7	21.0
532185	24.4	21.2	218093	24.4	19.3	66489	24.5	19.3	49780	24.5	18.5	26955	24.6	18.4	165902	24.7	19.9
76407	24.4	18.3	269202	24.4	20.1	152702	24.5	21.0	337489	24.5	20.3	283957	24.6	20.1	418589	24.7	20.1
30849	24.4	16.9	138191	24.4	18.9	230439	24.5	20.2	447868	24.6	20.5	440252	24.6	22.0	492569	24.7	21.2
138716	24.4	19.3	407430	24.4	21.1	57893	24.5	19.6	262474	24.6	20.9	51272	24.6	18.7	456303	24.7	22.3
401634	24.4	19.3	84627	24.4	18.4	165093	24.5	19.3	441253	24.6	20.0	398145	24.6	21.1	234446	24.7	20.7
62763	24.4	19.2	2249	24.4	15.9	415195	24.5	20.4	258985	24.6	21.0	319924	24.6	19.6	4809	24.7	17.6
122763	24.4	19.9	180049	24.4	19.1	367391	24.5	20.0	306442	24.6	21.0	405660	24.6	20.8	304852	24.7	21.3
313562	24.4	19.4	103223	24.4	18.2	172420	24.5	20.2	405581	24.6	22.1	125015	24.6	19.8	19792	24.7	18.4
414213	24.4	21.0	37871	24.4	17.4	408731	24.5	21.0	389096	24.6	20.4	382634	24.6	20.1	217584	24.7	20.6
34693	24.4	19.8	75289	24.4	19.7	102379	24.5	19.5	420036	24.6	20.7	466755	24.6	21.2	100389	24.7	20.0
422338	24.4	21.8	467907	24.4	20.8	181719	24.5	21.6	447862	24.6	21.2	105611	24.6	18.8	177292	24.7	19.2
136725	24.4	19.9	396960	24.4	21.2	147590	24.5	20.2	79149	24.6	18.0	230966	24.6	20.3	72895	24.7	18.6
149917	24.4	19.8	164205	24.4	20.1	349125	24.5	20.3	226106	24.6	20.8	375604	24.6	20.6	51906	24.7	18.3
233219	24.4	19.2	262337	24.4	21.0	452825	24.5	20.8	58037	24.6	20.5	485691	24.6	20.5	28588	24.7	18.2
143034	24.4	19.2	541275	24.4	20.7	230190	24.5	18.6	314433	24.6	20.2	16291	24.6	18.8	507287	24.7	20.7
444957	24.4	19.6	518554	24.4	20.9	132919	24.5	19.8	80185	24.6	18.3	274234	24.6	21.4	323772	24.7	20.5
437933	24.4	21.0	372211	24.4	20.3	197318	24.5	19.7	162315	24.6	19.1	1445	24.6	17.0	233519	24.7	21.7
273311	24.4	21.4	397576	24.5	21.7	284931	24.5	19.8	309864	24.6	20.2	242599	24.6	20.2	193046	24.7	19.9
336529	24.4	20.5	391846	24.5	21.1	256716	24.5	21.1	427726	24.6	21.0	311628	24.6	21.9	378601	24.7	20.8
244272	24.4	19.8	368384	24.5	20.1	163611	24.5	20.0	238297	24.6	19.1	271467	24.6	19.5	194620	24.7	20.7
335654	24.4	20.4	113436	24.5	20.5	231293	24.5	20.7	89317	24.6	19.6	51505	24.6	18.8	315436	24.7	20.7
400002	24.4	19.9	368496	24.5	21.3	444830	24.5	20.4	329724	24.6	21.1	268274	24.6	20.5	455344	24.7	21.9
24578	24.4	18.9	169040	24.5	18.8	216734	24.5	20.5	487611	24.6	21.0	33707	24.6	18.5	488921	24.7	20.5
365249	24.4	21.2	141314	24.5	19.4	345420	24.5	20.2	445539	24.6	21.5	473769	24.6	20.8	354608	24.7	20.3
446657	24.4	22.3	140171	24.5	19.7	310193	24.5	21.3	421751	24.6	21.0	373887	24.6	20.5	451495	24.7	22.0
178275	24.4	20.6	115961	24.5	19.6	135445	24.5	18.8	391902	24.6	21.5	317945	24.6	21.1	122389	24.7	20.5
234532	24.4	18.6	144000	24.5	18.6	462767	24.5	20.6	372273	24.6	20.4	429718	24.6	20.9	12330	24.7	18.5
202825	24.4	19.7	459017	24.5	20.8	523471	24.5	20.9	321433	24.6	20.6	331713	24.6	21.1	14524	24.7	18.4
253246	24.4	20.3	236019	24.5	20.4	38080	24.5	18.9	168296	24.6	20.1	86432	24.6	18.9	141774	24.7	18.9
496051	24.4	21.1	364326	24.5	20.0	65770	24.5	18.8	69152	24.6	19.2	54924	24.6	20.2	100111	24.7	18.9
183124	24.4	20.5	359869	24.5	20.6	172152	24.5	20.7	174385	24.6	19.8	337946	24.6	20.6	459927	24.7	21.9
342517	24.4	20.8	239581	24.5	19.9	310119	24.5	19.7	9533	24.6	17.1	116100	24.6	18.5	218359	24.7	19.5
492813	24.4	21.3	458685	24.5	20.1	441843	24.5	20.3	462400	24.6	21.5	35949	24.6	18.1	400589	24.7	19.9
135748	24.4	19.6	414860	24.5	21.6	199369	24.5	20.6	69921	24.6	18.9	376293	24.6	20.4	384309	24.7	20.4
142470	24.4	21.1	170445	24.5	19.4	399190	24.5	21.0	5655	24.6	16.7	420145	24.6	20.3	387864	24.7	20.0
232948	24.4	19.7	103216	24.5	17.7	460826	24.5	21.4	25961	24.6	18.5	154732	24.6	20.6	435414	24.7	20.4
52599	24.4	19.4	222205	24.5	19.5	297937	24.5	19.8	498868	24.6	21.1	409464	24.6	20.6	54928	24.7	19.9
535027	24.4	22.2	482565	24.5	21.2	27970	24.5	19.0	400657	2							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
89122	24.7	19.3	4304	24.8	17.9	297830	24.9	19.5	196926	24.9	20.3	155436	24.9	20.2	307738	25.1	21.3
142914	24.7	19.1	240705	24.8	20.3	159391	24.9	20.0	322880	24.9	19.9	486608	24.9	20.8	149766	25.1	20.2
153462	24.7	18.1	334475	24.8	21.0	278158	24.9	19.5	544152	24.9	20.7	487449	25.0	20.4	252425	25.1	20.1
247324	24.7	19.6	47233	24.8	19.3	231958	24.9	18.8	316185	24.9	21.7	545102	25.0	20.5	452424	25.1	20.9
348224	24.7	20.3	98394	24.8	19.5	101742	24.9	16.5	43819	24.9	17.8	2717	25.0	15.6	365755	25.1	20.4
250685	24.7	19.8	79435	24.8	18.9	179926	24.9	20.2	300475	24.9	21.0	62003	25.0	19.1	361180	25.1	20.3
7022	24.7	16.8	224485	24.8	20.4	25395	24.9	17.4	271486	24.9	19.6	441133	25.0	22.0	206328	25.1	20.1
422749	24.7	20.6	7559	24.8	17.3	218337	24.9	19.6	271233	24.9	20.4	53211	25.0	17.7	112880	25.1	19.9
452915	24.7	21.5	290919	24.8	19.7	519798	24.9	21.6	18379	24.9	18.8	389416	25.0	20.0	489252	25.1	20.9
282462	24.7	19.9	133002	24.8	19.2	188723	24.9	20.7	444126	24.9	21.9	323481	25.0	21.2	69278	25.1	17.4
483808	24.7	21.8	391799	24.8	20.7	497256	24.9	20.2	231083	24.9	20.4	408160	25.0	21.1	226136	25.1	20.6
235643	24.7	19.8	436134	24.8	21.2	12948	24.9	18.1	330723	24.9	20.5	136080	25.0	19.2	101795	25.1	20.3
173457	24.7	20.9	40814	24.8	19.2	493821	24.9	20.8	240458	24.9	19.8	258141	25.0	21.1	473739	25.1	19.8
108475	24.7	20.0	281601	24.8	19.9	324625	24.9	20.5	201032	24.9	20.1	54215	25.0	17.7	138882	25.1	18.8
425437	24.7	21.1	225304	24.8	19.6	313390	24.9	20.9	300336	24.9	20.6	14111	25.0	18.1	455924	25.1	21.5
394830	24.7	20.9	215877	24.8	20.7	412002	24.9	20.5	283872	24.9	19.6	171135	25.0	20.5	378848	25.1	21.4
493707	24.7	20.0	461819	24.8	21.2	443294	24.9	20.6	55482	24.9	17.9	524499	25.0	21.8	230711	25.1	20.5
458592	24.7	19.8	377954	24.8	20.7	496079	24.9	22.3	322503	24.9	21.2	294231	25.0	20.5	113919	25.1	19.8
164412	24.7	19.5	214624	24.8	19.8	19900	24.9	18.8	19627	24.9	17.7	349293	25.0	21.1	23444	25.1	17.7
386416	24.7	20.5	516211	24.8	20.6	520561	24.9	21.3	211326	24.9	19.8	36350	25.0	19.0	26399	25.1	17.7
518522	24.7	22.5	520027	24.8	21.0	236786	24.9	20.6	190893	24.9	19.9	53805	25.0	18.8	228318	25.1	19.9
161471	24.7	19.3	285563	24.8	19.4	361631	24.9	20.6	271155	24.9	21.2	7345	25.0	19.2	413760	25.1	19.9
85738	24.7	19.1	223868	24.8	19.9	135761	24.9	19.1	287867	24.9	21.2	202516	25.0	20.8	252491	25.1	20.5
91269	24.7	19.6	288376	24.8	20.2	406229	24.9	20.4	392336	24.9	20.7	413380	25.0	20.0	543690	25.1	22.0
474589	24.7	21.1	312846	24.8	21.0	80199	24.9	18.7	302097	24.9	19.3	17162	25.0	16.0	37566	25.1	18.2
190869	24.7	21.0	344310	24.8	21.9	109544	24.9	18.8	408843	24.9	21.4	397620	25.0	21.7	107675	25.1	19.7
333610	24.7	19.7	365572	24.8	20.6	23653	24.9	18.8	188437	24.9	19.6	92544	25.0	19.4	436090	25.1	21.5
461087	24.7	20.6	463651	24.8	20.6	332997	24.9	20.2	193231	24.9	19.2	84022	25.0	19.7	353289	25.1	20.5
125922	24.7	19.1	162981	24.8	20.3	295912	24.9	19.8	49147	24.9	19.4	255891	25.0	20.1	250640	25.1	19.6
244688	24.7	20.0	277259	24.8	21.3	538726	24.9	21.0	494149	24.9	21.3	411789	25.0	20.2	248006	25.1	19.7
425930	24.7	20.7	424898	24.8	21.1	414643	24.9	20.9	233981	24.9	20.6	480253	25.0	20.0	535177	25.1	20.7
421989	24.8	21.8	277847	24.8	20.5	27554	24.9	18.5	330809	24.9	22.2	527044	25.0	22.0	340600	25.1	21.5
150022	24.8	19.9	256029	24.8	21.2	36421	24.9	20.1	544156	24.9	20.7	446905	25.0	20.5	379002	25.1	21.7
423366	24.8	21.3	26371	24.8	18.5	243336	24.9	19.9	330163	24.9	20.3	411013	25.0	20.7	369793	25.1	20.5
197422	24.8	20.0	380440	24.8	21.1	334188	24.9	21.0	235956	24.9	20.3	470471	25.0	20.2	29991	25.1	18.9
491427	24.8	20.4	494003	24.8	21.0	44129	24.9	18.8	161138	24.9	19.7	109700	25.0	20.2	228849	25.1	18.9
148155	24.8	19.9	87125	24.8	19.0	440463	24.9	21.8	460823	24.9	20.7	427354	25.0	20.9	542299	25.1	20.4
160669	24.8	20.3	285078	24.8	21.0	217551	24.9	20.6	268777	24.9	20.9	465814	25.0	20.4	336020	25.1	20.7
139301	24.8	18.8	229443	24.8	20.7	214529	24.9	20.3	405557	24.9	21.7	429	25.0	13.9	348790	25.1	21.8
421183	24.8	20.3	101402	24.8	20.1	134111	24.9	19.4	543275	24.9	20.3	295898	25.0	21.0	452448	25.1	21.7
282092	24.8	21.2	370618	24.8	20.2	399384	24.9	22.0	328612	24.9	20.6	410570	25.0	20.9	197214	25.1	18.8
401167	24.8	20.3	516193	24.8	20.4	420691	24.9	21.3	201355	24.9	20.1	329099	25.0	20.8	5051	25.1	17.0
397397	24.8	20.8	458313	24.8	21.7	418593	24.9	21.8	363186	24.9	21.3	456261	25.0	20.4	59409	25.1	18.2
143172	24.8	20.2	484451	24.8	19.9	74666	24.9	19.1	39406	24.9	17.8	543602	25.0	22.3	14893	25.1	17.4
218332	24.8	20.0	43821	24.8	20.1	233809	24.9	19.5	446354	24.9	21.2	115209	25.0	19.3	336596	25.1	20.2
434920	24.8	21.2	134306	24.8	19.8	64448	24.9	19.4	191147	24.9	20.4	268136	25.0	20.6	13612	25.1	18.3
388487	24.8	20.6	39158	24.8	18.5	120583	24.9	19.6	435022	24.9	22.3	8418	25.0	17.3	260725	25.1	20.3
18088	24.8	17.1	477458	24.8	21.3	348204	24.9	20.3	245883	24.9	20.6	412326	25.0	21.1	229438	25.1	20.2
291311	24.8	20.4	522199	24.8	21.3	196607	24.9	19.3	83214	24.9	18.9	222234	25.0	20.5	79322	25.1	18.3
1223	24.8	14.6	284235	24.8	20.8	85845	24.9	20.1	26574	24.9	18.7	348729	25.0	20.8	255827	25.1	20.7
389630	24.8	20.8	214282	24.8	20.9	405558	24.9	19.8	206402	24.9	20.6	443996	25.0	20.7	224742	25.1	20.1
91617	24.8	18.1	351314	24.8	20.6	202513	24.9	20.9	340278	24.9	20.4	142944	25.0	18.1	347551	25.1	20.2
323945	24.8	20.6	242098	24.8	20.4	388025	24.9	20.5	395882	24.9	20.5	411423	25.0	20.8	518109	25.1	20.3
50035	24.8	18.2	440674	24.8	20.2	216275	24.9	20.7	197066	24.9	20.2	490395	25.0	20.4	520885	25.1	21.6
316214	24.8	21.8	345194	24.8	21.6	143143	24.9	19.7	339694	24.9	21.4	398084	25.0	20.4	576781	25.1	19.6
18079	24.8	18.5	19510	24.8	16.8	468019	24.9	19.9	198787	24.9	20.5	169046	25.0	18.7	64762	25.1	19.7
372585	24.8	20.0	383003	24.8	20.7	218374	24.9	21.0	482829	24.9	20.9	6949	25.0	16.5	241867	25.1	19.7
161128	24.8	20.5	196483	24.8	19.2	208737	24.9	19.8	222962	24.9	20.3	76881	25.0	19.4	139675	25.1	20.0
380483	24.8	21.3	13521	24.8	15.6	102881	24.9	20.2	527616	24.9	21.1	105641	25.1	17.7	440687	25.1	21.2
150229	24.8	20.3	162252	24.8	20.5	248921	24.9	20.9	151148	24.9	19.6	171095	25.1	19.0	124503	25.1	18.8
406196	24.8	19.0	361360	24.8	20.2	198802	24.9	19.8	177797	24.9	18.0	419055	25.1	21.4	156622	25.1	20.2
124502	24.8	19.3	526469	24.8	21.6	104038	24.9	19.7	379037	24.9	20.9	381009	25.1	19.3	239590	25.1	20.1
333066	24.8	20.2	271914	24.8	19.4	274733	24.9	20.2	249909	24.9	18.7	301599	25.1	20.8	343176	25.1	19.6
273061	24.8	20.6	251078	24.8	19.6	47230	24.9	19.1	187571	24.9	19.0	108213	25.1	19.1	344219	25.1	21.1
144722	24.8	18.7	392523	24.8	20.8	126012	24.9	18.3	169951	24.9	19.5	376631	25.1	19.1	86677	25.1	17.9
170646	24.8	20.3	403732	24.8	21.2	257525	24.9	20.0	427247	24.9	20.0	381061	25.1	19.7	105040	25.1	19.5
24629	24.8	18.9	441230	24.8	20.8	287568	24.9	20.5	295959	24.9	18.6	118206	25.1	19.9	477423	25.1	20.3
326011	24.8	20.4	107282	24.8	19.0	242873	24.9	19.9	298561	24.9	19.9	368497	25.1	19.8	467921	25.1	20.7
422087	24.8	19.7	244959	24.8	19.8	344301	24.9	22.2	272704								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
322556	25.1	20.7	456558	25.2	21.0	504983	25.3	20.6	489280	25.3	21.5	191425	25.4	20.5	57209	25.4	18.7
132348	25.1	19.5	3350	25.2	18.2	161144	25.3	19.4	221825	25.3	20.0	138280	25.4	19.3	297320	25.4	20.0
177488	25.1	19.6	433025	25.2	21.3	218316	25.3	19.6	102970	25.3	18.8	144091	25.4	19.2	183004	25.4	19.4
87375	25.1	18.6	315687	25.2	19.8	350208	25.3	20.9	204760	25.3	20.4	115111	25.4	19.6	4608	25.4	15.9
527389	25.1	21.8	515002	25.2	21.5	180565	25.3	20.2	484584	25.3	21.4	78568	25.4	19.8	411424	25.4	21.9
23625	25.1	18.3	422318	25.2	20.5	180730	25.3	19.5	252959	25.3	20.5	4296	25.4	16.0	184173	25.4	19.9
506573	25.1	21.4	543926	25.2	20.8	465542	25.3	21.4	31965	25.3	18.7	128409	25.4	20.1	122140	25.4	19.9
419189	25.1	21.6	221339	25.2	20.9	381261	25.3	20.7	50464	25.3	19.1	222873	25.4	19.8	101811	25.4	16.5
360870	25.1	21.3	82204	25.2	19.5	128585	25.3	18.9	151872	25.3	19.3	348667	25.4	20.5	77645	25.4	17.4
520593	25.1	21.4	99295	25.2	19.9	341006	25.3	19.8	271253	25.3	20.1	289985	25.4	20.7	519067	25.4	20.9
80612	25.1	16.6	257466	25.2	19.5	272478	25.3	20.7	313173	25.3	20.6	503578	25.4	21.1	474050	25.4	19.7
244154	25.1	20.6	192766	25.2	19.0	252957	25.3	21.5	84145	25.3	19.5	24490	25.4	18.5	346325	25.4	20.6
288706	25.1	21.1	445934	25.2	20.2	348919	25.3	20.6	329642	25.3	21.1	353219	25.4	19.3	132509	25.4	18.2
67105	25.1	18.6	453012	25.2	21.9	83098	25.3	18.3	111356	25.3	20.1	405177	25.4	20.0	373047	25.4	19.2
239237	25.1	20.3	432099	25.2	21.0	363848	25.3	20.9	479359	25.3	20.4	32930	25.4	19.3	279941	25.4	20.7
322380	25.1	20.9	136610	25.2	19.7	112481	25.3	20.7	56050	25.3	16.8	319850	25.4	20.5	247571	25.4	20.8
120110	25.1	19.9	354597	25.2	19.2	381603	25.3	20.5	505824	25.3	21.2	335419	25.4	19.9	249252	25.4	18.7
246861	25.1	19.7	239472	25.2	20.1	361659	25.3	19.9	148831	25.3	19.0	97005	25.4	19.0	209760	25.4	19.6
333320	25.1	20.9	165904	25.2	19.8	499937	25.3	20.2	79882	25.3	17.7	216504	25.4	20.3	110481	25.4	19.3
92970	25.1	19.2	267803	25.2	20.3	448832	25.3	20.3	360800	25.3	20.3	157230	25.4	19.7	274052	25.4	21.8
90060	25.1	18.7	69130	25.2	19.4	279952	25.3	21.7	162812	25.3	19.8	287717	25.4	21.1	236250	25.4	19.6
263242	25.1	19.7	62142	25.2	18.9	279133	25.3	21.0	251169	25.3	19.7	428928	25.4	21.3	365730	25.4	20.2
423362	25.1	20.9	236693	25.2	20.5	336427	25.3	20.2	393691	25.3	21.1	409344	25.4	19.3	288846	25.4	19.0
300279	25.1	20.1	301657	25.2	19.0	192445	25.3	19.5	2885	25.3	16.8	264080	25.4	20.9	249868	25.4	20.6
542021	25.1	20.7	247215	25.2	20.2	132795	25.3	20.5	247320	25.3	19.8	232690	25.4	19.6	238172	25.4	20.7
30435	25.1	19.4	245789	25.2	20.6	446978	25.3	21.0	185884	25.3	20.0	435540	25.4	21.5	442618	25.5	21.5
421764	25.1	21.2	30495	25.2	18.0	162413	25.3	19.7	410861	25.3	20.1	113401	25.4	19.5	311713	25.5	20.8
8504	25.1	16.6	121555	25.2	19.0	481123	25.3	20.6	114509	25.3	18.5	290017	25.4	20.3	87287	25.5	19.3
87599	25.1	18.3	26500	25.2	17.1	11092	25.3	17.8	194956	25.3	19.4	319141	25.4	19.9	160250	25.5	19.6
353491	25.1	20.4	373976	25.2	20.5	262146	25.3	21.6	67442	25.3	19.6	239289	25.4	20.5	135703	25.5	20.0
110471	25.1	18.7	414542	25.2	20.3	446918	25.3	21.0	106213	25.3	19.2	294738	25.4	20.1	53034	25.5	18.6
164440	25.1	19.4	495849	25.2	21.3	443674	25.3	22.2	256939	25.3	19.5	183278	25.4	19.7	405545	25.5	20.2
25849	25.1	18.0	300913	25.2	19.8	321440	25.3	20.7	173413	25.3	19.2	2822	25.4	15.7	406087	25.5	20.3
279093	25.1	19.3	131441	25.2	16.7	179617	25.3	19.5	367586	25.3	21.6	86526	25.4	18.6	101786	25.5	17.9
9625	25.2	16.5	326277	25.2	20.6	519123	25.3	21.5	10720	25.3	17.2	278404	25.4	21.0	419264	25.5	21.4
416322	25.2	21.5	89455	25.2	19.4	492584	25.3	20.2	104054	25.3	19.0	499797	25.4	20.2	414476	25.5	21.8
333006	25.2	20.8	467549	25.2	21.5	454101	25.3	22.8	197732	25.3	20.4	201213	25.4	19.6	185315	25.5	20.1
345322	25.2	20.4	331661	25.2	21.9	527469	25.3	20.6	83616	25.3	19.0	277218	25.4	19.7	267952	25.5	19.9
154511	25.2	19.4	236864	25.2	20.8	349964	25.3	20.3	199618	25.3	19.7	149034	25.4	19.7	460407	25.5	20.4
159464	25.2	20.7	77048	25.2	19.0	395328	25.3	21.3	287370	25.3	20.6	135826	25.4	20.3	33536	25.5	17.7
104498	25.2	19.4	429333	25.2	20.5	337504	25.3	20.8	403668	25.3	21.3	97897	25.4	20.2	326256	25.5	20.1
429007	25.2	20.3	263184	25.2	19.4	56603	25.3	18.0	1476	25.3	16.3	104537	25.4	19.7	337433	25.5	21.2
89632	25.2	18.3	46324	25.2	18.1	267127	25.3	20.0	116497	25.3	19.7	192440	25.4	19.2	9689	25.5	17.3
307283	25.2	19.9	505093	25.2	18.8	481829	25.3	20.3	196939	25.3	20.0	113915	25.4	20.2	377516	25.5	20.3
155063	25.2	19.8	480905	25.2	21.8	136984	25.3	20.7	115749	25.3	17.5	237301	25.4	19.4	463357	25.5	21.6
541924	25.2	20.6	450929	25.2	19.2	438129	25.3	21.5	339777	25.3	20.8	348483	25.4	20.7	56434	25.5	19.3
104990	25.2	18.9	427418	25.2	20.3	73858	25.3	17.6	419000	25.3	20.9	1257	25.4	15.1	82782	25.5	18.8
406029	25.2	20.8	322808	25.2	20.2	121821	25.3	19.1	23530	25.4	18.7	467291	25.4	20.0	284496	25.5	20.6
224641	25.2	19.8	120046	25.2	18.5	313228	25.3	20.3	357359	25.4	20.4	315829	25.4	19.6	275783	25.5	21.1
236456	25.2	20.0	336412	25.2	20.2	80908	25.3	19.1	407432	25.4	21.8	436420	25.4	20.4	135376	25.5	20.3
493329	25.2	21.4	32524	25.2	18.2	142281	25.3	19.9	59111	25.4	18.4	228234	25.4	20.8	495755	25.5	21.0
420779	25.2	21.0	337618	25.2	20.3	135852	25.3	20.2	371282	25.4	20.2	162419	25.4	18.9	484703	25.5	21.6
479665	25.2	20.3	52955	25.2	19.0	211200	25.3	20.3	489404	25.4	21.2	114078	25.4	19.7	537193	25.5	21.4
173404	25.2	19.1	158702	25.2	19.6	252546	25.3	20.4	117998	25.4	19.8	228749	25.4	20.2	484681	25.5	21.0
199431	25.2	20.8	372189	25.2	20.0	385379	25.3	20.7	91124	25.4	17.9	182519	25.4	18.9	8874	25.5	17.8
131402	25.2	20.2	522480	25.2	20.8	20397	25.3	17.8	358632	25.4	19.5	372141	25.4	21.0	426220	25.5	20.8
49486	25.2	19.0	142359	25.2	20.0	200873	25.3	18.7	68932	25.4	18.9	178100	25.4	20.4	66720	25.5	19.7
159157	25.2	20.1	121495	25.2	19.4	184544	25.3	20.3	462722	25.4	19.3	203146	25.4	20.5	402871	25.5	20.7
14451	25.2	17.5	468560	25.2	20.4	67431	25.3	18.8	357000	25.4	20.2	505671	25.4	20.2	41733	25.5	17.4
263312	25.2	19.4	456093	25.2	20.5	415244	25.3	20.0	484168	25.4	21.4	250216	25.4	19.8	438458	25.5	20.3
307304	25.2	20.2	130802	25.2	19.0	378820	25.3	20.8	186436	25.4	19.8	235545	25.4	19.8	233996	25.5	20.6
335191	25.2	18.3	378457	25.2	20.7	361383	25.3	20.9	541864	25.4	20.1	466370	25.4	20.2	15084	25.5	18.7
68780	25.2	19.0	171607	25.2	17.9	143004	25.3	19.4	182110	25.4	21.0	49451	25.4	19.1	132165	25.5	18.8
353432	25.2	20.2	268827	25.2	20.1	153642	25.3	19.6	494707	25.4	20.2	452982	25.4	19.9	421943	25.5	20.5
160745	25.2	19.8	267018	25.2	20.5	400885	25.3	21.3	339821	25.4	20.8	364214	25.4	21.0	196253	25.5	19.4
198044	25.2	19.8	544183	25.2	21.3	201018	25.3	19.5	348182	25.4	20.9	94466	25.4	18.6	170869	25.5	19.6
387269	25.2	20.3	201222	25.2	20.2	184674	25.3	20.0	541593	25.4	22.5	63849	25.4	18.7	495577	25.5	20.5
492876	25.2	21.5	180566	25.2	19.4	150034	25.3	19.7	86370	25.4	18.8	44675	25.4	17.6	338297	25.5	21.8
174344	25.2	20.5	61684	25.2	18.3	81152	25.3	18.6	521920	25.4</							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
101767	25.5	18.4	315684	25.6	19.6	128894	25.6	19.0	197940	25.7	19.9	234969	25.8	19.7	271620	25.8	20.7
273469	25.5	20.2	508657	25.6	19.9	378505	25.6	20.6	261215	25.7	20.2	43753	25.8	18.4	111699	25.8	18.1
78275	25.5	19.8	467108	25.6	20.6	46797	25.7	18.6	166231	25.7	19.8	307682	25.8	20.0	193917	25.8	19.6
91694	25.5	19.4	410535	25.6	20.4	214368	25.7	20.1	418705	25.7	20.3	118808	25.8	19.7	331880	25.8	19.7
351287	25.5	18.8	21270	25.6	19.3	173044	25.7	20.9	17059	25.7	17.5	532066	25.8	21.6	489340	25.8	22.1
83564	25.5	18.9	11152	25.6	17.3	251399	25.7	19.1	152982	25.7	19.0	232977	25.8	20.0	92530	25.8	20.2
163504	25.5	19.3	164397	25.6	20.2	182596	25.7	18.8	9464	25.7	18.4	325490	25.8	21.2	392925	25.8	20.0
159597	25.5	20.0	452155	25.6	20.8	379444	25.7	20.3	453581	25.7	19.6	462677	25.8	21.3	364379	25.8	21.5
367178	25.5	20.0	541191	25.6	20.6	399031	25.7	20.7	74420	25.7	18.5	48331	25.8	19.9	490929	25.8	21.1
119990	25.5	18.4	56194	25.6	18.1	186088	25.7	20.3	292048	25.7	21.2	65815	25.8	19.3	462631	25.8	19.8
173178	25.5	20.0	527225	25.6	22.2	341457	25.7	20.4	183212	25.7	20.0	197461	25.8	20.1	176790	25.8	20.1
391975	25.5	21.2	152255	25.6	19.9	288956	25.7	20.3	218746	25.7	19.8	424985	25.8	20.4	146481	25.8	20.4
190805	25.5	20.1	52601	25.6	19.8	236933	25.7	20.0	450075	25.7	20.3	415293	25.8	21.1	481416	25.8	21.0
489696	25.5	21.1	363566	25.6	19.7	261230	25.7	21.0	272305	25.7	20.2	221554	25.8	20.5	86973	25.8	18.5
310826	25.5	20.1	282719	25.6	19.4	26380	25.7	18.4	101754	25.7	18.9	98882	25.8	18.4	5565	25.9	16.1
71668	25.5	18.7	77685	25.6	18.9	395935	25.7	19.7	255804	25.7	21.5	195025	25.8	19.4	164924	25.9	20.3
467694	25.5	20.9	218743	25.6	20.1	147843	25.7	19.8	209727	25.7	19.8	277784	25.8	20.2	377490	25.9	20.4
37126	25.5	19.2	198008	25.6	20.3	201312	25.7	19.8	541719	25.7	21.5	142692	25.8	20.9	395303	25.9	21.1
330484	25.5	20.8	541919	25.6	19.8	155674	25.7	19.6	18820	25.7	16.8	158626	25.8	18.6	125721	25.9	19.4
85931	25.5	18.4	170872	25.6	19.6	51263	25.7	18.0	100939	25.7	19.9	389397	25.8	20.0	40236	25.9	17.8
196893	25.5	20.2	541494	25.6	22.0	14095	25.7	18.1	129120	25.7	19.6	229038	25.8	19.8	34787	25.9	17.6
294218	25.5	18.3	218705	25.6	20.1	15380	25.7	18.5	205492	25.7	20.4	143967	25.8	18.9	251692	25.9	21.2
176215	25.5	18.7	252279	25.6	20.9	380983	25.7	20.6	151241	25.7	19.5	64407	25.8	18.9	278469	25.9	20.1
190778	25.5	19.4	438053	25.6	20.9	273154	25.7	20.3	419013	25.7	20.3	433495	25.8	20.9	538551	25.9	21.7
490821	25.5	20.9	482492	25.6	21.2	468565	25.7	20.2	349546	25.7	20.9	427833	25.8	20.1	7754	25.9	16.8
317007	25.5	20.8	143521	25.6	18.5	495836	25.7	22.1	86691	25.7	18.8	76674	25.8	19.0	137183	25.9	19.8
143884	25.5	19.9	76756	25.6	17.4	221331	25.7	19.9	391496	25.7	20.7	192177	25.8	19.3	188706	25.9	20.6
88858	25.5	19.4	221574	25.6	21.0	493206	25.7	21.3	187445	25.7	20.6	58937	25.8	18.8	35520	25.9	18.5
122029	25.5	19.3	486437	25.6	20.4	81948	25.7	20.1	83951	25.7	19.9	44252	25.8	18.2	244530	25.9	19.7
428952	25.5	20.1	448794	25.6	21.0	80599	25.7	18.6	235668	25.7	20.4	125038	25.8	18.8	357655	25.9	19.7
534459	25.5	21.5	349009	25.6	20.7	234180	25.7	20.9	498872	25.7	20.5	488156	25.8	20.1	380123	25.9	20.8
48341	25.5	19.4	7125	25.6	16.4	445734	25.7	21.5	543427	25.7	20.8	252583	25.8	20.6	148996	25.9	19.7
290329	25.5	20.9	194490	25.6	19.8	135283	25.7	19.0	412289	25.7	19.8	94843	25.8	18.3	314817	25.9	20.8
364495	25.5	19.8	321982	25.6	21.0	454198	25.7	20.5	332257	25.7	21.0	101717	25.8	17.5	322801	25.9	20.0
369130	25.5	21.0	377566	25.6	19.6	516399	25.7	21.3	475938	25.7	20.2	400846	25.8	21.1	246520	25.9	19.6
522210	25.5	20.9	348208	25.6	21.4	543160	25.7	21.7	44622	25.7	19.1	315658	25.8	19.8	364392	25.9	20.5
296359	25.5	20.1	346528	25.6	20.0	309918	25.7	20.5	272190	25.7	19.6	4609	25.8	16.7	544045	25.9	21.6
117376	25.5	19.7	134770	25.6	19.6	238445	25.7	19.8	83138	25.7	19.0	266757	25.8	20.8	274797	25.9	20.8
103586	25.5	19.3	378926	25.6	21.0	19892	25.7	20.2	465232	25.7	21.4	61618	25.8	19.1	232907	25.9	20.2
124392	25.5	19.2	416621	25.6	22.1	413601	25.7	20.8	485514	25.7	19.0	3371	25.8	15.9	244288	25.9	19.8
76262	25.5	17.1	459216	25.6	20.1	320891	25.7	20.6	274255	25.7	20.4	167582	25.8	19.4	323970	25.9	20.3
544336	25.5	21.2	456240	25.6	20.9	166872	25.7	18.5	474485	25.7	21.5	203270	25.8	20.5	222137	25.9	20.2
360849	25.5	20.8	484056	25.6	20.2	1337	25.7	15.5	334246	25.7	20.9	387559	25.8	21.0	178438	25.9	20.7
65588	25.5	21.1	300313	25.6	19.9	466770	25.7	20.5	175298	25.7	19.8	52765	25.8	19.9	220641	25.9	20.5
443160	25.5	20.3	536152	25.6	20.4	218930	25.7	19.7	448888	25.7	21.5	194049	25.8	19.2	395335	25.9	21.9
405568	25.5	20.4	310719	25.6	20.6	54444	25.7	17.2	77713	25.7	17.7	378927	25.8	20.7	55068	25.9	19.0
95767	25.5	19.4	545075	25.6	20.1	343340	25.7	18.9	281871	25.7	19.8	245135	25.8	19.8	216224	25.9	20.8
444746	25.5	21.5	306566	25.6	21.0	380360	25.7	21.6	333064	25.7	21.2	245959	25.8	20.5	136379	25.9	18.7
428944	25.5	20.6	429011	25.6	20.3	25870	25.7	19.4	175934	25.7	18.0	270922	25.8	20.6	231681	25.9	20.6
400058	25.5	21.7	411759	25.6	20.0	409516	25.7	21.5	509736	25.7	21.5	384676	25.8	20.2	200412	25.9	20.5
123530	25.5	17.8	264337	25.6	20.6	143006	25.7	19.6	118142	25.7	19.0	315517	25.8	21.0	413606	25.9	21.1
459105	25.5	21.5	253172	25.6	20.0	166293	25.7	20.5	454648	25.8	20.8	273264	25.8	22.0	378489	25.9	21.2
205478	25.5	19.7	373712	25.6	20.9	481221	25.7	21.1	147647	25.8	20.3	491324	25.8	20.6	488701	25.9	18.9
174309	25.6	20.3	74327	25.6	19.2	454572	25.7	20.7	359163	25.8	20.4	163547	25.8	19.6	390116	25.9	21.2
229337	25.6	19.8	379010	25.6	20.0	197227	25.7	20.1	345557	25.8	21.5	136102	25.8	18.4	459219	25.9	20.1
459903	25.6	21.6	325973	25.6	20.7	143988	25.7	18.7	30953	25.8	18.3	405659	25.8	20.4	310742	25.9	20.9
544170	25.6	22.0	544192	25.6	21.0	426646	25.7	20.7	251986	25.8	19.3	6877	25.8	17.1	18350	25.9	18.2
335274	25.6	19.3	532624	25.6	21.6	52009	25.7	19.1	258977	25.8	20.5	430364	25.8	20.8	7140	25.9	17.3
36308	25.6	20.0	226197	25.6	20.7	149833	25.7	20.0	465299	25.8	21.0	88351	25.8	19.7	391901	25.9	21.0
213591	25.6	19.9	169686	25.6	19.2	288374	25.7	19.8	383450	25.8	20.5	328604	25.8	21.0	118853	25.9	19.6
159563	25.6	18.9	441052	25.6	21.2	388463	25.7	20.6	82256	25.8	18.0	372219	25.8	20.4	129477	25.9	19.3
307797	25.6	20.9	543505	25.6	21.0	353251	25.7	20.2	86602	25.8	18.8	335983	25.8	21.0	95266	25.9	19.4
150203	25.6	21.0	305116	25.6	20.4	175476	25.7	20.0	18275	25.8	18.4	456375	25.8	20.7	174305	25.9	20.6
319963	25.6	20.9	104905	25.6	19.2	330376	25.7	20.8	289577	25.8	20.7	161420	25.8	18.8	251112	25.9	20.5
535209	25.6	20.0	439237	25.6	20.7	507867	25.7	21.0	466833	25.8	20.7	240985	25.8	20.3	198092	25.9	19.9
373000	25.6	21.0	378426	25.6	21.1	109419	25.7	19.2	280674	25.8	19.0	373812	25.8	20.9	247519	25.9	20.5
188073	25.6	20.4	388018	25.6	21.3	287143	25.7	21.0	352147	25.8	21.4	402651	25.8	21.9	201314	25.9	19.6
65836	25.6	19.3	60459	25.6	19.0	197298	25.7	18.7	196291	25.8	19.5	155918	25.8	20.6	88310	25.9	18.2
381974	25.6	20.1	285588	25.6	20.6	232946	25.7	19.0	242612								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
375102	25.9	21.3	45795	25.9	18.7	366745	26.0	20.5	137514	26.1	19.2	359254	26.2	20.2	487111	26.2	21.2
218954	25.9	20.1	288716	25.9	21.5	411924	26.0	20.2	345733	26.1	19.5	429286	26.2	19.3	195162	26.2	18.7
142971	25.9	19.0	351320	25.9	21.0	280195	26.0	20.2	100494	26.1	18.6	343307	26.2	20.1	215698	26.2	19.7
228428	25.9	20.3	391135	25.9	19.7	440345	26.0	21.4	3847	26.1	16.5	281331	26.2	21.3	240867	26.2	20.1
82931	25.9	19.5	266138	25.9	20.8	541888	26.0	20.5	131631	26.1	18.7	143233	26.2	19.5	314815	26.2	20.1
421331	25.9	21.0	494860	25.9	19.3	244490	26.0	20.4	310398	26.1	20.0	29344	26.2	17.5	226850	26.2	20.5
379958	25.9	20.7	64274	25.9	19.1	454660	26.0	21.0	407905	26.1	20.5	378401	26.2	21.5	7465	26.2	18.4
309442	25.9	19.8	140674	25.9	18.7	375557	26.0	20.6	303012	26.1	20.3	85386	26.2	18.9	26871	26.2	17.6
405710	25.9	20.5	179315	25.9	19.6	118699	26.0	19.3	516995	26.1	21.6	136456	26.2	19.8	202479	26.2	19.5
448788	25.9	21.3	408520	25.9	20.0	21357	26.0	18.3	506123	26.1	20.0	194325	26.2	20.9	174201	26.2	20.1
28329	25.9	17.7	92560	25.9	19.5	135138	26.1	19.0	176375	26.1	19.1	222988	26.2	20.5	154656	26.2	21.0
347218	25.9	20.0	43777	25.9	17.9	120070	26.1	19.8	364262	26.1	19.5	377223	26.2	19.6	290554	26.2	20.6
450793	25.9	22.6	209171	25.9	19.4	375485	26.1	20.2	23232	26.1	18.0	544021	26.2	20.7	336508	26.2	20.1
266704	25.9	19.8	364864	25.9	20.5	55263	26.1	19.6	10774	26.1	18.3	232439	26.2	19.3	441120	26.2	21.4
461123	25.9	21.2	43599	25.9	17.0	90964	26.1	17.9	360237	26.1	20.2	13334	26.2	18.5	157817	26.2	19.4
411391	25.9	20.2	165859	25.9	20.0	120079	26.1	19.4	516744	26.1	20.3	191916	26.2	18.3	53260	26.2	18.6
253962	25.9	19.4	239618	25.9	21.0	51943	26.1	18.7	400070	26.1	21.6	312958	26.2	18.6	108154	26.3	18.1
542717	25.9	20.6	446670	25.9	20.6	469282	26.1	21.2	286149	26.1	20.5	412605	26.2	19.9	67130	26.3	17.6
453142	25.9	20.6	428144	25.9	19.5	86942	26.1	19.9	252422	26.1	20.4	322292	26.2	20.4	15763	26.3	17.2
57326	25.9	17.9	234204	25.9	20.9	390714	26.1	20.2	499474	26.1	22.0	27623	26.2	18.1	541500	26.3	21.7
122839	25.9	20.1	31450	25.9	17.4	49860	26.1	18.1	147933	26.1	19.4	292896	26.2	20.5	115978	26.3	19.9
341651	25.9	21.0	393465	25.9	21.0	12954	26.1	18.2	496036	26.1	20.4	415617	26.2	20.6	541934	26.3	20.6
110482	25.9	18.9	69001	26.0	19.1	459165	26.1	20.9	26091	26.1	19.0	85823	26.2	18.7	372114	26.3	19.8
468975	25.9	19.7	223006	26.0	20.2	101488	26.1	19.4	274051	26.1	20.5	446322	26.2	19.6	281362	26.3	21.8
415690	25.9	22.3	223500	26.0	19.6	307371	26.1	18.6	124346	26.1	19.8	278473	26.2	20.4	55493	26.3	17.7
297153	25.9	20.0	222946	26.0	20.7	442620	26.1	21.1	77593	26.1	19.7	391876	26.2	20.1	441101	26.3	21.1
386931	25.9	19.4	317667	26.0	20.5	43121	26.1	18.3	24345	26.1	17.3	190861	26.2	20.1	474049	26.3	20.3
3936	25.9	16.4	48540	26.0	18.4	130978	26.1	19.7	91030	26.1	19.2	63495	26.2	19.5	214808	26.3	19.9
362904	25.9	19.9	310818	26.0	20.7	401977	26.1	21.4	541936	26.1	19.6	498324	26.2	21.8	453787	26.3	21.4
541510	25.9	21.8	122772	26.0	20.0	451905	26.1	21.2	7882	26.1	17.2	240005	26.2	20.7	180595	26.3	19.8
153316	25.9	19.5	201277	26.0	20.2	263506	26.1	20.3	39089	26.1	19.8	364927	26.2	20.6	25019	26.3	18.2
436325	25.9	22.4	37053	26.0	19.0	76164	26.1	19.4	231126	26.1	20.6	401820	26.2	21.7	162711	26.3	19.3
252023	25.9	21.1	269704	26.0	20.2	508350	26.1	21.0	434210	26.1	21.5	422907	26.2	21.3	333715	26.3	20.8
444411	25.9	21.0	109946	26.0	17.4	167911	26.1	19.7	160721	26.1	19.8	382120	26.2	20.0	406602	26.3	20.2
30520	25.9	17.8	114516	26.0	19.1	172285	26.1	19.7	335876	26.1	20.3	50851	26.2	18.8	413363	26.3	20.0
392298	25.9	20.4	283958	26.0	20.5	464194	26.1	20.1	69909	26.1	20.3	496339	26.2	20.4	434834	26.3	22.0
213669	25.9	20.0	141990	26.0	20.5	243269	26.1	19.7	360304	26.1	20.5	156854	26.2	19.2	318179	26.3	19.9
466367	25.9	21.2	161321	26.0	19.5	37978	26.1	19.1	5841	26.1	16.4	110987	26.2	19.0	52363	26.3	18.4
324658	25.9	19.4	465027	26.0	21.5	490726	26.1	21.4	449114	26.1	20.4	486830	26.2	20.7	10513	26.3	16.6
125122	25.9	19.3	54762	26.0	19.3	202890	26.1	20.2	383430	26.1	20.6	278949	26.2	20.2	138936	26.3	19.4
256231	25.9	19.9	396603	26.0	21.6	360612	26.1	20.8	400087	26.1	21.9	122979	26.2	20.0	542141	26.3	21.9
307726	25.9	20.9	124610	26.0	19.2	55226	26.1	18.5	175729	26.1	20.3	482549	26.2	21.2	488385	26.3	19.6
175409	25.9	20.5	201998	26.0	20.9	260618	26.1	19.9	379704	26.1	20.5	275212	26.2	20.0	154347	26.3	19.9
52373	25.9	18.4	519091	26.0	20.8	518123	26.1	20.9	447438	26.1	19.9	322152	26.2	20.7	162935	26.3	20.4
484603	25.9	21.5	271027	26.0	20.3	58516	26.1	19.3	149302	26.1	20.1	543431	26.2	21.2	141259	26.3	19.8
233036	25.9	19.1	260212	26.0	20.1	359248	26.1	21.1	252301	26.1	20.1	189641	26.2	21.1	61826	26.3	18.5
440051	25.9	21.9	43404	26.0	17.9	297850	26.1	19.6	121381	26.1	20.4	448368	26.2	19.6	489766	26.3	19.2
241811	25.9	20.5	234901	26.0	19.8	403629	26.1	20.3	254986	26.1	20.6	333711	26.2	19.9	541764	26.3	21.5
81702	25.9	18.1	362605	26.0	20.6	101386	26.1	19.6	188651	26.1	19.6	480888	26.2	19.2	1456	26.3	16.7
278590	25.9	20.8	444917	26.0	19.7	291426	26.1	20.6	213462	26.1	20.4	377078	26.2	20.8	276370	26.3	19.7
521585	25.9	20.5	543086	26.0	20.8	174296	26.1	20.1	83254	26.1	18.4	465344	26.2	21.3	416985	26.3	21.4
474762	25.9	20.9	452896	26.0	21.5	413842	26.1	20.8	39145	26.1	18.7	336937	26.2	21.0	10205	26.3	17.4
114184	25.9	19.7	484004	26.0	20.6	279665	26.1	20.3	186189	26.2	20.0	69976	26.2	18.0	346891	26.3	21.1
366580	25.9	20.7	427152	26.0	21.3	222157	26.1	18.1	251998	26.2	18.6	7716	26.2	17.4	224713	26.3	19.7
522116	25.9	20.3	258437	26.0	20.4	51865	26.1	19.1	201343	26.2	20.1	443520	26.2	21.0	12507	26.3	18.0
27122	25.9	18.4	152276	26.0	19.9	195109	26.1	18.5	268569	26.2	20.5	473951	26.2	20.9	443218	26.3	20.8
13789	25.9	17.9	421057	26.0	20.8	466459	26.1	21.2	440340	26.2	20.8	258195	26.2	20.3	53384	26.3	17.8
420500	25.9	20.6	31964	26.0	19.0	86371	26.1	18.7	76240	26.2	18.6	370453	26.2	20.2	171043	26.3	19.5
528689	25.9	21.4	143308	26.0	18.6	458322	26.1	20.8	92476	26.2	19.7	292361	26.2	20.4	340005	26.3	20.6
142511	25.9	20.7	50202	26.0	17.4	48335	26.1	18.8	121549	26.2	19.7	375382	26.2	20.4	270629	26.3	19.9
226649	25.9	19.5	452398	26.0	21.4	38663	26.1	18.8	274713	26.2	19.8	289672	26.2	19.6	104837	26.3	19.3
33942	25.9	19.1	74929	26.0	19.1	489248	26.1	21.5	193795	26.2	20.1	312667	26.2	19.7	79693	26.3	19.1
17156	25.9	17.7	310780	26.0	20.8	393596	26.1	22.1	432238	26.2	21.3	167345	26.2	18.0	493517	26.3	20.7
26593	25.9	18.6	421908	26.0	20.9	224844	26.1	20.4	442714	26.2	20.4	206864	26.2	20.6	124452	26.3	20.3
237149	25.9	19.3	411725	26.0	19.4	421902	26.1	21.5	489295	26.2	20.8	393054	26.2	20.5	236722	26.3	20.2
518106	25.9	19.9	424212	26.0	21.0	218919	26.1	19.3	273148	26.2	20.5	194143	26.2	19.0	339874	26.3	19.9
411445	25.9	20.7	49401	26.0	17.2	243813	26.1	20.2	351258	26.2	20.7	543148	26.2	20.7	278020	26.3	21.1
90947	25.9	19.3	169998	26.0	19.4	463356	26.1	21.3	172943	26.2	20.1	377015	26.2	21.6	218962	26.3	20.0
159373	25.9	18.7	213629	26.0	20.5	233838	26.1	19.7	341433	26.2							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
291958	26.3	20.7	473499	26.4	20.8	13922	26.4	17.1	401894	26.5	20.5	346374	26.6	19.1	343752	26.6	21.3
15342	26.3	17.6	162448	26.4	19.1	474208	26.4	21.7	446537	26.5	20.7	108727	26.6	18.8	305855	26.6	20.3
143631	26.3	19.5	124593	26.4	19.7	343862	26.4	20.5	457844	26.5	20.5	125356	26.6	17.9	320899	26.6	19.7
369679	26.3	20.1	387290	26.4	20.5	185908	26.4	20.4	487659	26.5	20.8	6263	26.6	18.2	464605	26.6	21.0
455846	26.3	21.3	79145	26.4	18.8	213290	26.4	20.1	482027	26.5	20.6	81512	26.6	19.6	468240	26.6	20.2
82883	26.3	19.2	50993	26.4	18.5	461252	26.4	21.1	5137	26.5	16.8	206231	26.6	20.5	332975	26.6	19.8
66874	26.3	18.8	489811	26.4	20.6	461019	26.4	21.0	502189	26.5	20.6	271321	26.6	20.7	66648	26.6	19.5
327342	26.3	20.1	277933	26.4	20.2	201483	26.4	19.5	484811	26.5	20.2	125679	26.6	19.9	9416	26.6	18.2
187204	26.3	19.6	141506	26.4	18.7	542523	26.4	20.9	468370	26.5	20.9	223705	26.6	20.3	458125	26.6	20.2
491172	26.3	20.9	414277	26.4	21.1	274743	26.4	20.4	466862	26.5	21.1	216198	26.6	20.0	442418	26.6	20.6
452285	26.3	21.4	124221	26.4	19.1	196912	26.4	19.2	405153	26.5	19.5	53913	26.6	18.4	388978	26.6	21.4
414528	26.3	21.3	190732	26.4	20.5	422112	26.4	20.8	220594	26.5	20.9	197090	26.6	19.7	109219	26.6	19.1
339502	26.3	19.3	377035	26.4	21.3	162348	26.4	19.3	52643	26.5	18.4	269249	26.6	20.5	275883	26.6	21.3
165899	26.3	18.6	441170	26.4	21.8	352534	26.4	18.4	61697	26.5	20.3	260883	26.6	20.8	337464	26.6	21.2
467613	26.3	20.6	459451	26.4	21.6	496043	26.4	21.5	317083	26.5	20.4	411813	26.6	19.9	540583	26.6	21.8
376059	26.3	19.9	193861	26.4	18.6	421590	26.4	21.1	364314	26.5	21.1	486496	26.6	20.6	197180	26.6	19.3
176281	26.3	20.6	279744	26.4	23.2	538522	26.4	21.6	298557	26.5	19.2	441685	26.6	20.6	23490	26.6	17.1
319940	26.3	20.9	128932	26.4	19.9	65974	26.4	18.7	366857	26.5	21.0	203924	26.6	19.5	149949	26.6	19.3
145915	26.3	18.9	8362	26.4	18.0	129195	26.4	19.5	392489	26.5	21.2	60777	26.6	18.2	400835	26.6	20.7
25180	26.3	17.7	400348	26.4	21.2	518008	26.4	21.0	446973	26.5	21.2	437881	26.6	21.6	314377	26.6	19.6
380690	26.3	20.6	336792	26.4	20.2	279403	26.4	19.9	27038	26.5	16.8	18995	26.6	19.1	384275	26.6	21.7
151298	26.3	19.8	176190	26.4	19.6	155138	26.4	19.0	6072	26.5	16.6	73012	26.6	19.0	440211	26.6	20.7
109066	26.3	19.0	78240	26.4	19.3	272015	26.4	19.7	36617	26.5	18.6	253261	26.6	19.4	52389	26.6	19.8
284006	26.3	20.0	130327	26.4	19.8	287632	26.4	19.8	185155	26.5	20.6	103407	26.6	18.8	543204	26.7	21.4
3318	26.3	15.1	14869	26.4	18.7	438762	26.4	20.9	495262	26.5	21.1	370281	26.6	20.5	68042	26.7	19.2
442820	26.3	20.7	139182	26.4	19.1	108294	26.4	17.9	269665	26.5	20.2	503923	26.6	21.2	386623	26.7	20.4
236823	26.3	19.4	311746	26.4	19.6	180317	26.4	20.3	41329	26.5	18.9	34438	26.6	16.8	104764	26.7	19.3
288894	26.3	20.7	439942	26.4	22.1	258071	26.5	20.2	192124	26.5	19.9	287272	26.6	19.8	115004	26.7	19.1
41230	26.3	18.8	427557	26.4	21.5	221698	26.5	19.7	446990	26.5	21.3	293452	26.6	20.2	84851	26.7	17.7
464124	26.3	20.1	373098	26.4	20.4	71359	26.5	18.7	489903	26.5	19.4	387583	26.6	21.4	48182	26.7	18.1
131458	26.3	19.4	544227	26.4	20.8	113817	26.5	18.5	363834	26.5	21.3	339671	26.6	21.4	520792	26.7	21.0
422357	26.3	21.0	430148	26.4	21.4	459914	26.5	21.6	23159	26.5	18.1	49981	26.6	17.4	35983	26.7	18.1
130585	26.3	19.2	286047	26.4	21.7	165682	26.5	19.6	344232	26.5	21.6	169329	26.6	19.6	247376	26.7	18.9
332409	26.3	20.5	254805	26.4	20.3	223001	26.5	20.2	306441	26.5	21.7	70645	26.6	19.2	149318	26.7	18.6
291403	26.3	20.1	460757	26.4	21.2	489727	26.5	21.0	9650	26.5	17.6	346916	26.6	21.0	189224	26.7	19.2
43114	26.3	17.0	365727	26.4	20.6	396337	26.5	20.8	217002	26.5	19.9	468277	26.6	21.0	251439	26.7	20.7
22237	26.3	18.8	231667	26.4	19.2	393649	26.5	21.4	535812	26.5	20.6	156777	26.6	19.0	411463	26.7	20.7
75841	26.3	19.3	24130	26.4	19.3	285297	26.5	20.7	15861	26.5	17.4	401423	26.6	20.3	372206	26.7	20.0
196845	26.3	20.6	207166	26.4	18.8	5286	26.5	16.5	368013	26.5	20.7	129616	26.6	19.5	19513	26.7	17.9
271218	26.3	19.6	85377	26.4	18.3	292518	26.5	20.1	460318	26.5	21.4	175215	26.6	19.7	389987	26.7	21.3
464149	26.3	20.4	335372	26.4	19.9	168009	26.5	20.9	273839	26.5	20.8	63834	26.6	17.6	237615	26.7	18.8
30047	26.3	18.5	516845	26.4	20.4	508700	26.5	21.0	190459	26.5	19.0	170769	26.6	19.9	405948	26.7	20.9
189640	26.3	19.8	532305	26.4	21.6	417150	26.5	20.4	317357	26.5	20.1	410503	26.6	20.1	195681	26.7	20.5
218851	26.3	20.6	244468	26.4	20.5	10146	26.5	16.8	287054	26.5	21.2	91403	26.6	19.8	155934	26.7	20.3
375404	26.3	20.5	428098	26.4	20.7	430849	26.5	21.0	262001	26.5	20.8	99607	26.6	17.6	340581	26.7	20.9
193900	26.3	20.6	63922	26.4	18.3	410486	26.5	19.8	254097	26.5	18.8	261155	26.6	20.6	103918	26.7	18.5
365981	26.3	20.4	236783	26.4	20.4	183542	26.5	20.1	232540	26.5	19.5	136393	26.6	19.7	197652	26.7	20.7
391908	26.3	20.5	51286	26.4	18.1	339803	26.5	20.3	234207	26.5	21.2	280828	26.6	20.1	443142	26.7	19.9
541174	26.3	20.9	35878	26.4	17.6	243524	26.5	19.5	259244	26.5	19.2	134512	26.6	19.1	201863	26.7	19.9
350540	26.3	21.3	183762	26.4	19.1	217767	26.5	20.8	331004	26.5	20.9	463635	26.6	20.5	276380	26.7	20.8
36880	26.3	18.9	289112	26.4	20.6	492881	26.5	20.7	148856	26.5	19.8	97106	26.6	19.2	467914	26.7	20.7
224322	26.3	20.5	362667	26.4	19.0	407353	26.5	20.7	127995	26.5	19.8	226160	26.6	19.8	82363	26.7	19.2
467202	26.3	20.3	490580	26.4	20.3	38850	26.5	18.5	340866	26.5	18.9	495746	26.6	21.4	282616	26.7	20.7
357387	26.3	20.3	179051	26.4	20.5	395168	26.5	20.6	146572	26.5	18.8	321469	26.6	19.6	336793	26.7	20.0
271394	26.4	21.0	228803	26.4	19.9	277808	26.5	21.0	233748	26.5	20.5	492117	26.6	21.2	194174	26.7	21.1
53960	26.4	19.5	251496	26.4	19.4	515307	26.5	21.4	489759	26.5	20.9	52131	26.6	19.5	438488	26.7	20.0
50943	26.4	18.3	83904	26.4	18.9	545129	26.5	20.9	396679	26.5	21.4	33825	26.6	18.6	211373	26.7	20.5
357014	26.4	20.3	473795	26.4	20.6	25456	26.5	17.8	229253	26.5	18.9	388119	26.6	20.7	201916	26.7	20.7
366743	26.4	20.5	80261	26.4	19.5	298351	26.5	20.3	450194	26.5	19.2	122872	26.6	19.8	6038	26.7	16.6
114201	26.4	19.3	283385	26.4	20.7	458646	26.5	20.0	148961	26.5	19.6	170327	26.6	20.3	335674	26.7	20.1
450903	26.4	19.9	298553	26.4	20.2	41890	26.5	18.8	180033	26.5	20.1	54997	26.6	18.3	276780	26.7	20.7
67021	26.4	18.2	466049	26.4	20.4	370318	26.5	21.4	61540	26.5	19.7	232455	26.6	19.4	446673	26.7	21.0
340624	26.4	19.8	113622	26.4	18.3	75914	26.5	17.6	493039	26.5	21.1	413423	26.6	20.5	158926	26.7	20.5
16125	26.4	17.7	301968	26.4	16.5	109422	26.5	19.1	165974	26.5	19.9	441512	26.6	21.5	112975	26.7	19.1
194004	26.4	19.7	518523	26.4	21.5	314322	26.5	20.4	311661	26.6	20.5	446696	26.6	21.3	200435	26.7	20.3
165741	26.4	18.6	163006	26.4	19.9	61533	26.5	18.9	444061	26.6	21.9	152184	26.6	20.2	519890	26.7	21.6
106442	26.4	18.4	133790	26.4	19.5	324002	26.5	20.7	541901	26.6	21.1	479737	26.6	20.0	448556	26.7	20.4
319903	26.4	20.4	460925	26.4	20.3	55684	26.5	18.4	339442	26.6	20.6	464201	26.6	20.3	184995	26.7	19.9
248789	26.4	19.6	102469	26.4	19.2	252327	26.5	20.4	318579	26							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
141752	26.7	19.7	127697	26.8	18.0	315504	26.8	20.2	489841	26.9	21.7	1099	26.9	15.6	156142	27.0	19.3
145916	26.7	18.9	364827	26.8	21.1	522083	26.8	20.7	325309	26.9	19.7	231995	26.9	20.6	444149	27.0	21.1
186487	26.7	20.0	32787	26.8	17.6	407521	26.8	21.2	372972	26.9	19.7	155531	26.9	19.6	464665	27.0	21.3
100854	26.7	19.0	192444	26.8	20.4	216520	26.8	19.5	379969	26.9	21.4	59134	26.9	17.7	341903	27.0	20.5
105562	26.7	18.0	173055	26.8	20.0	144789	26.8	19.5	337766	26.9	20.7	76604	26.9	19.0	122005	27.0	18.8
331055	26.7	20.7	447819	26.8	19.6	544252	26.8	20.4	71833	26.9	18.4	362349	26.9	20.9	306797	27.0	20.9
52633	26.7	19.4	466874	26.8	19.7	493473	26.8	20.8	113331	26.9	20.0	292168	26.9	21.2	266128	27.0	19.9
518149	26.7	20.6	137087	26.8	20.0	266081	26.8	19.7	335622	26.9	20.0	426833	26.9	20.5	89335	27.0	19.5
52781	26.7	18.6	76697	26.8	19.3	77818	26.8	18.1	360793	26.9	19.9	111074	26.9	19.6	348225	27.0	20.9
528523	26.7	21.6	140686	26.8	19.2	134433	26.8	19.2	396778	26.9	20.6	120660	26.9	18.8	375109	27.0	20.6
30149	26.7	17.3	398403	26.8	20.4	339568	26.8	20.8	99830	26.9	20.0	110703	26.9	21.0	110607	27.0	19.1
78772	26.7	19.4	85086	26.8	19.0	457045	26.8	19.8	520780	26.9	21.0	248038	26.9	19.1	445936	27.0	19.9
328684	26.7	20.8	29763	26.8	18.4	274766	26.8	21.5	361210	26.9	20.8	3546	26.9	15.7	484801	27.0	20.2
403524	26.7	20.7	522311	26.8	20.9	139587	26.8	18.2	520551	26.9	21.0	468292	26.9	20.7	4226	27.0	16.8
409628	26.7	21.0	419296	26.8	21.1	353206	26.8	20.1	92694	26.9	19.5	308264	26.9	19.5	14152	27.0	18.8
192951	26.7	19.6	128876	26.8	19.8	38438	26.8	18.9	372142	26.9	20.6	16746	26.9	18.4	482498	27.0	21.1
77562	26.7	20.5	271146	26.8	20.4	363840	26.8	21.0	156014	26.9	20.2	7992	26.9	18.0	141324	27.0	19.8
404947	26.7	20.2	21362	26.8	18.7	187745	26.8	20.3	421351	26.9	20.5	400123	26.9	21.2	153116	27.0	20.2
169233	26.7	20.4	118624	26.8	19.2	482022	26.8	20.5	484419	26.9	20.2	339638	26.9	20.0	179638	27.0	19.7
408833	26.7	22.0	48374	26.8	18.7	520241	26.8	20.8	396740	26.9	22.1	195912	26.9	20.9	26386	27.0	17.4
49980	26.7	18.8	421677	26.8	21.5	247596	26.8	19.8	35081	26.9	18.0	412172	26.9	19.8	236844	27.0	20.7
66434	26.7	20.1	36585	26.8	18.7	162420	26.8	19.1	396865	26.9	21.2	122563	26.9	19.9	148970	27.0	20.0
27166	26.7	19.2	363841	26.8	21.1	235542	26.8	19.6	420068	26.9	20.4	193039	26.9	19.5	466207	27.0	21.6
109246	26.7	19.9	306068	26.8	20.0	277678	26.8	20.1	169528	26.9	19.7	197937	26.9	20.2	460614	27.0	21.3
166302	26.7	18.5	464122	26.8	20.3	487245	26.8	20.8	330127	26.9	20.1	337718	26.9	20.5	507161	27.0	20.4
503813	26.7	21.0	227104	26.8	20.2	20240	26.8	17.7	201094	26.9	18.7	463622	26.9	20.1	517611	27.0	21.2
230724	26.7	19.9	104420	26.8	18.7	544171	26.8	21.4	6472	26.9	18.3	486243	26.9	20.1	473783	27.0	20.6
325518	26.7	21.2	74631	26.8	20.0	108379	26.9	19.5	134057	26.9	19.3	271489	26.9	19.3	127611	27.0	19.1
464520	26.7	20.4	82696	26.8	17.8	395159	26.9	20.4	379103	26.9	21.2	385976	26.9	19.8	413507	27.0	20.9
440006	26.7	19.9	450786	26.8	22.3	122327	26.9	19.4	326028	26.9	19.4	35591	26.9	18.7	148772	27.0	20.2
58555	26.7	18.1	84527	26.8	18.8	382009	26.9	20.3	24745	26.9	18.0	110286	26.9	19.8	76829	27.0	18.6
225461	26.7	19.1	238722	26.8	19.6	140881	26.9	19.4	402125	26.9	19.7	291818	26.9	19.8	182785	27.0	19.8
300590	26.7	19.9	190762	26.8	20.3	346338	26.9	20.6	541775	26.9	20.9	229380	26.9	20.6	122218	27.0	19.8
406243	26.7	19.5	25008	26.8	18.3	23422	26.9	18.3	182741	26.9	20.4	169379	26.9	19.9	227839	27.0	20.6
116844	26.7	19.3	397538	26.8	22.3	152576	26.9	20.8	32136	26.9	17.2	356985	26.9	21.2	385901	27.0	20.2
292914	26.7	22.0	449326	26.8	19.6	519026	26.9	20.7	460368	26.9	21.2	443739	26.9	20.6	458115	27.0	18.6
232667	26.7	18.9	152197	26.8	19.5	400633	26.9	19.7	539905	26.9	20.4	256061	26.9	20.0	95018	27.0	18.7
196953	26.7	20.1	398378	26.8	21.5	442689	26.9	20.8	426532	26.9	20.5	86910	26.9	19.4	314952	27.0	20.2
485233	26.7	20.7	318819	26.8	21.0	11245	26.9	17.5	97435	26.9	18.7	544515	26.9	21.5	508570	27.0	19.5
295225	26.7	20.5	27730	26.8	17.8	935	26.9	15.3	206457	26.9	20.2	458722	26.9	19.9	492062	27.1	20.8
217257	26.7	21.6	83723	26.8	19.1	280485	26.9	20.2	201275	26.9	19.8	139181	26.9	18.6	339732	27.1	21.4
362245	26.7	20.4	135084	26.8	19.6	359486	26.9	20.2	105106	26.9	20.4	139822	26.9	20.5	13487	27.1	16.6
104858	26.7	19.2	91960	26.8	19.2	439380	26.9	20.0	341709	26.9	21.3	448862	26.9	21.4	91509	27.1	19.6
245357	26.7	19.5	65004	26.8	19.6	84667	26.9	19.9	394908	26.9	19.8	539883	26.9	20.8	42544	27.1	18.8
303042	26.7	20.1	127458	26.8	19.9	28685	26.9	18.7	51946	26.9	18.5	2128	26.9	19.8	372208	27.1	19.4
507618	26.7	20.5	148152	26.8	18.7	516781	26.9	20.2	357390	26.9	20.2	117078	26.9	19.4	116851	27.1	18.8
182644	26.7	19.8	181112	26.8	18.0	483791	26.9	20.9	5639	26.9	16.2	441457	26.9	21.5	422889	27.1	21.3
416171	26.7	20.0	477759	26.8	21.1	85782	26.9	19.3	489722	26.9	21.0	288306	26.9	20.3	321646	27.1	19.4
85896	26.7	17.7	310755	26.8	21.0	110465	26.9	19.5	373690	26.9	20.1	276668	26.9	19.7	33575	27.1	18.0
468602	26.7	21.0	272548	26.8	20.2	372126	26.9	20.0	281288	26.9	20.3	343856	26.9	21.0	341323	27.1	20.0
223086	26.7	19.8	66913	26.8	19.2	89456	26.9	19.5	299522	26.9	20.0	191813	26.9	19.2	233249	27.1	19.6
203880	26.7	19.2	117096	26.8	19.9	292046	26.9	21.0	142564	26.9	20.2	464912	26.9	21.2	377077	27.1	20.7
348546	26.7	21.2	109415	26.8	19.4	542966	26.9	21.0	136491	26.9	19.7	218735	26.9	19.9	493216	27.1	21.0
251104	26.7	19.8	262508	26.8	20.5	284918	26.9	19.9	9519	26.9	16.9	474845	27.0	20.1	37901	27.1	19.1
432518	26.7	21.0	108827	26.8	19.7	295893	26.9	20.3	206565	26.9	19.3	277820	27.0	20.9	56031	27.1	18.9
339661	26.7	20.1	478427	26.8	21.4	544143	26.9	20.2	441560	26.9	21.2	442744	27.0	21.8	189674	27.1	19.9
127573	26.8	19.4	169540	26.8	20.1	445191	26.9	20.9	454399	26.9	20.5	233218	27.0	20.4	233134	27.1	18.9
407496	26.8	20.8	314951	26.8	19.7	67135	26.9	17.9	149632	26.9	19.7	146589	27.0	19.8	368783	27.1	20.5
378480	26.8	21.2	398369	26.8	21.8	521576	26.9	20.1	214261	26.9	19.7	92807	27.0	20.3	31979	27.1	18.1
266085	26.8	19.6	426005	26.8	20.5	321818	26.9	21.0	29730	26.9	16.0	149671	27.0	19.2	94821	27.1	19.7
395459	26.8	21.0	215312	26.8	20.7	332843	26.9	19.9	85539	26.9	18.0	179034	27.0	20.3	196200	27.1	19.1
35537	26.8	18.3	449955	26.8	21.0	522435	26.9	21.0	246018	26.9	20.7	173043	27.0	20.2	541829	27.1	20.2
90401	26.8	19.2	465578	26.8	20.5	30531	26.9	19.3	207334	26.9	19.4	440237	27.0	21.2	452953	27.1	20.8
112257	26.8	19.6	86651	26.8	18.4	57638	26.9	18.5	49567	26.9	18.6	111200	27.0	17.4	97510	27.1	19.1
14146	26.8	17.2	490230	26.8	21.8	408377	26.9	20.4	14848	26.9	18.5	333981	27.0	21.3	215117	27.1	19.4
450455	26.8	20.5	413372	26.8	19.7	296872	26.9	20.7	334921	26.9	20.8	464212	27.0	21.4	409444	27.1	21.0
181092	26.8	19.9	18134	26.8	16.9	83451	26.9	19.4	242117	26.9	21.9	4912	27.0	16.2	399493	27.1	20.9
209811	26.8	19.1	353982	26.8	19.3	347147	26.9	20.9	428097	26.9	20.6	21730	27.0	18.1	448869	27.1	20.4
345395	26.8	20.5	29480	26.8	18.1	424273	26.9	20.9	86560	26.9	18.8						

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
228520	27.1	19.7	80469	27.2	19.0	450896	27.2	19.5	76203	27.3	17.5	166541	27.4	19.4	333618	27.4	22.6
427085	27.1	20.5	99539	27.2	18.9	340089	27.2	20.9	258201	27.3	20.6	11232	27.4	17.1	34178	27.4	18.5
270728	27.1	21.2	274798	27.2	20.6	405970	27.2	19.6	82095	27.3	19.2	240364	27.4	20.6	543677	27.4	21.3
489799	27.1	20.9	179195	27.2	20.1	331711	27.2	20.6	13486	27.3	17.3	449510	27.4	20.7	179179	27.4	19.2
195185	27.1	19.8	375472	27.2	21.4	262112	27.2	20.9	347506	27.3	20.0	455775	27.4	21.7	431452	27.4	21.3
29680	27.1	17.0	11175	27.2	18.6	373705	27.2	20.3	403626	27.3	21.2	45318	27.4	18.0	34026	27.4	18.4
198324	27.1	20.3	148180	27.2	18.8	433759	27.2	20.5	275855	27.3	20.5	257119	27.4	20.1	26265	27.4	19.7
125075	27.1	19.3	489673	27.2	20.8	73891	27.2	18.0	266119	27.3	20.3	309831	27.4	19.8	91402	27.4	19.7
21814	27.1	16.3	310762	27.2	20.7	101506	27.2	17.6	307269	27.3	20.4	379425	27.4	18.9	247346	27.4	19.9
159821	27.1	20.3	405569	27.2	22.0	138068	27.2	18.6	84459	27.3	18.9	230272	27.4	19.6	215541	27.4	19.8
247228	27.1	19.5	53111	27.2	18.5	541088	27.2	21.6	496122	27.3	20.6	314801	27.4	19.6	245350	27.4	20.2
541388	27.1	19.8	453072	27.2	21.3	150840	27.2	20.2	440247	27.3	21.2	471208	27.4	21.5	135766	27.4	19.5
110485	27.1	19.6	155684	27.2	20.8	26094	27.2	18.6	236294	27.3	19.2	26241	27.4	18.4	94966	27.4	19.2
339771	27.1	20.3	337439	27.2	21.4	148209	27.2	24.3	145803	27.3	20.0	231430	27.4	19.3	214291	27.4	19.9
362233	27.1	20.9	502420	27.2	20.5	301568	27.2	20.7	84733	27.3	19.1	277144	27.4	19.9	450770	27.4	23.1
326475	27.1	19.6	202777	27.2	20.3	109363	27.2	18.2	248783	27.3	21.2	108672	27.4	20.3	329067	27.4	20.4
87161	27.1	19.3	156176	27.2	20.1	126230	27.2	19.5	52253	27.3	18.8	296952	27.4	19.1	452247	27.5	20.2
519377	27.1	21.8	272560	27.2	20.9	185133	27.2	20.1	107995	27.3	19.1	427242	27.4	22.0	200423	27.5	19.8
387529	27.1	19.5	262629	27.2	20.2	78612	27.2	19.6	197259	27.3	19.7	494903	27.4	21.3	481064	27.5	21.6
40248	27.1	17.9	284221	27.2	20.6	165891	27.2	19.7	337628	27.3	20.2	487809	27.4	20.7	312242	27.5	19.8
415803	27.1	22.3	180893	27.2	20.0	24727	27.2	17.6	464207	27.3	21.0	136115	27.4	19.3	130453	27.5	19.9
466819	27.1	21.2	76539	27.2	19.2	218326	27.2	19.8	27463	27.3	17.0	436047	27.4	21.2	88452	27.5	19.1
313481	27.1	21.8	474536	27.2	22.2	482873	27.2	20.7	32654	27.3	19.4	135520	27.4	18.7	36574	27.5	18.0
118002	27.1	19.4	111493	27.2	19.1	125853	27.2	19.5	142280	27.3	20.1	382064	27.4	20.0	543198	27.5	20.5
338332	27.1	20.3	401679	27.2	20.4	281960	27.2	20.3	89014	27.3	18.7	211694	27.4	20.2	465016	27.5	20.8
277869	27.1	20.2	129485	27.2	20.5	105132	27.2	19.9	237084	27.3	19.5	253981	27.4	19.9	273452	27.5	19.5
278400	27.1	20.3	482501	27.2	20.8	316993	27.2	21.4	439870	27.3	21.9	242360	27.4	20.1	91250	27.5	18.0
109697	27.1	19.0	370380	27.2	19.7	494590	27.2	20.9	381697	27.3	20.2	523305	27.4	21.2	340043	27.5	20.1
387851	27.1	20.1	423687	27.2	21.2	185760	27.2	20.0	80408	27.3	17.9	419405	27.4	19.9	99266	27.5	17.8
26597	27.1	18.4	118721	27.2	19.7	346956	27.2	20.7	366765	27.3	21.3	434573	27.4	21.1	297822	27.5	19.1
202839	27.1	21.3	27643	27.2	18.4	32196	27.2	17.4	482838	27.3	20.4	293232	27.4	20.3	372736	27.5	20.7
448127	27.1	22.0	403714	27.2	21.5	139123	27.2	19.0	286882	27.3	20.4	101263	27.4	20.2	91105	27.5	19.5
135729	27.1	19.7	363170	27.2	20.8	409643	27.2	20.7	81298	27.3	18.7	389622	27.4	20.9	71391	27.5	18.0
274387	27.1	20.3	280010	27.2	21.3	30908	27.2	18.0	318664	27.3	20.8	450863	27.4	19.9	109862	27.5	20.0
287088	27.1	20.9	149705	27.2	20.0	291333	27.2	20.8	330502	27.3	21.1	117652	27.4	19.8	542850	27.5	20.7
215757	27.1	21.4	289924	27.2	21.2	314732	27.2	21.1	53942	27.3	18.9	60740	27.4	18.8	404951	27.5	21.3
492101	27.1	21.3	131425	27.2	19.8	346388	27.2	21.0	385203	27.3	21.4	27382	27.4	18.2	453630	27.5	21.0
238040	27.1	20.3	496263	27.2	21.1	368449	27.2	20.6	144345	27.3	19.3	377281	27.4	19.1	30595	27.5	17.7
59681	27.1	19.5	446367	27.2	21.2	277393	27.2	21.2	218658	27.3	19.6	307702	27.4	20.0	521004	27.5	21.4
544335	27.1	20.1	238414	27.2	19.3	378432	27.2	20.1	244980	27.3	18.9	164809	27.4	19.6	146456	27.5	18.8
53675	27.1	19.2	192452	27.2	20.4	201361	27.2	19.7	156041	27.3	19.2	277947	27.4	20.8	108501	27.5	20.2
473914	27.1	20.6	3880	27.2	16.7	376368	27.2	20.0	252679	27.3	19.2	319669	27.4	21.0	89601	27.5	19.7
507422	27.1	22.8	188112	27.2	20.0	222786	27.2	19.5	223748	27.3	20.2	460801	27.4	20.6	19127	27.5	19.2
353396	27.1	21.3	113460	27.2	19.3	63505	27.3	19.2	405934	27.3	19.6	16022	27.4	17.8	45487	27.5	16.5
253289	27.1	20.1	51479	27.2	19.4	421227	27.3	21.2	78648	27.3	20.4	37125	27.4	19.3	318723	27.5	20.6
187766	27.1	20.3	208517	27.2	19.7	108438	27.3	19.7	39150	27.3	18.6	233251	27.4	19.8	417058	27.5	21.3
116149	27.1	19.1	376763	27.2	20.6	338192	27.3	21.3	339606	27.3	20.9	12417	27.4	17.4	484145	27.5	21.0
454189	27.1	20.2	81907	27.2	18.9	81464	27.3	18.8	316634	27.3	20.4	276199	27.4	20.9	310198	27.5	20.7
14742	27.1	18.6	397510	27.2	21.6	45376	27.3	18.9	303602	27.3	20.0	83511	27.4	19.0	283430	27.5	20.1
202097	27.1	19.9	42984	27.2	19.3	535987	27.3	22.7	178150	27.3	20.3	164783	27.4	19.6	148311	27.5	20.4
104385	27.1	18.6	89681	27.2	18.8	418568	27.3	20.2	388430	27.3	19.8	59043	27.4	19.9	237620	27.5	20.7
299565	27.1	20.1	448970	27.2	21.1	88703	27.3	17.7	243220	27.3	20.7	545098	27.4	20.7	383375	27.5	21.2
318177	27.1	20.2	228069	27.2	20.1	234843	27.3	21.0	334663	27.3	21.4	414717	27.4	21.3	27735	27.5	17.7
476402	27.1	20.1	369882	27.2	20.1	541337	27.3	20.7	22409	27.3	16.6	76109	27.4	19.1	440321	27.5	20.6
318603	27.1	20.0	51205	27.2	17.5	451727	27.3	20.6	330326	27.3	20.2	259075	27.4	19.9	31690	27.5	19.2
100459	27.1	19.9	203824	27.2	20.5	137438	27.3	19.7	336807	27.3	19.8	25076	27.4	17.9	397007	27.5	20.7
88587	27.1	18.6	76724	27.2	18.9	458647	27.3	19.9	106232	27.3	17.5	353249	27.4	19.6	252484	27.5	20.5
111175	27.1	19.7	187844	27.2	19.9	330154	27.3	20.8	125505	27.3	20.6	43122	27.4	18.6	220537	27.5	19.4
44243	27.1	18.3	240478	27.2	19.9	431644	27.3	21.4	236604	27.3	20.4	434959	27.4	20.9	465834	27.5	20.5
284505	27.1	20.2	419261	27.2	21.2	450792	27.3	20.9	309397	27.3	19.6	148018	27.4	18.9	113555	27.5	19.1
307810	27.1	19.7	178182	27.2	19.9	535979	27.3	20.8	321022	27.3	20.3	216806	27.4	20.2	299483	27.5	20.2
346436	27.1	20.7	37676	27.2	19.2	301612	27.3	18.8	152427	27.3	19.7	493935	27.4	19.9	84803	27.5	19.1
152130	27.1	18.8	392261	27.2	19.6	141032	27.3	20.3	486201	27.3	20.0	194300	27.4	19.8	460958	27.5	20.6
125282	27.1	18.8	541970	27.2	21.1	39811	27.3	18.8	30178	27.3	19.3	403117	27.4	19.8	138772	27.5	19.9
339597	27.1	20.6	235479	27.2	18.5	249471	27.3	20.1	431468	27.3	21.4	402691	27.4	22.3	110739	27.5	19.6
53956	27.1	18.7	319346	27.2	20.6	159446	27.3	19.2	119983	27.3	19.3	492600	27.4	20.5	48663	27.5	18.7
391817	27.1	20.4	395811	27.2	20.0	418375	27.3	19.5	44520	27.3	17.8	411342	27.4	22.3	60701	27.5	19.0
247245	27.1	19.5	98206	27.2	18.0	111354	27.3	19.7	42710	27.3	18.4	487596	27.4	20.6	431211	27.5	21.3
334959	27.1	19.0	410508	27.2	19.7	177275	27.3	18.8	370255	27.3							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
42385	27.5	19.7	313438	27.6	21.7	115147	27.6	19.0	281300	27.7	20.0	427806	27.7	20.0	206919	27.8	21.1
518680	27.5	21.3	444066	27.6	21.0	48458	27.6	18.1	292452	27.7	20.8	263557	27.7	20.0	149309	27.8	18.6
122422	27.5	20.5	543691	27.6	22.0	464684	27.6	20.0	287070	27.7	21.1	249970	27.7	20.8	147032	27.8	18.6
358136	27.5	20.9	300397	27.6	19.8	124519	27.6	20.0	337544	27.7	21.9	317000	27.7	20.8	148989	27.8	19.7
73700	27.5	19.6	375594	27.6	20.4	36955	27.6	18.7	210608	27.7	20.2	116353	27.7	19.1	406188	27.8	22.3
289383	27.5	19.6	7195	27.6	17.6	285704	27.6	21.0	495947	27.7	22.2	298913	27.7	20.1	19723	27.8	18.2
128944	27.5	19.3	167649	27.6	19.6	20064	27.6	17.7	489777	27.7	20.2	190906	27.7	20.8	55398	27.8	18.1
179313	27.5	19.0	129676	27.6	20.4	219261	27.6	19.8	491360	27.7	21.0	22341	27.7	18.2	491346	27.8	21.0
44390	27.5	17.7	176630	27.6	19.2	538279	27.6	21.1	84043	27.7	19.7	288795	27.7	21.6	365882	27.8	20.2
494912	27.5	21.1	486347	27.6	20.8	40365	27.6	17.1	125967	27.7	18.1	442278	27.7	22.0	413594	27.8	21.8
455791	27.5	21.5	334786	27.6	20.3	349220	27.6	20.8	452899	27.7	20.6	84606	27.7	18.7	348237	27.8	19.8
113011	27.5	19.6	366215	27.6	21.2	524240	27.6	22.3	218078	27.7	20.8	473443	27.8	20.6	22142	27.8	18.0
336698	27.5	19.9	227000	27.6	20.2	499138	27.6	22.6	110234	27.7	19.6	468034	27.8	20.9	412836	27.8	21.3
347542	27.5	20.2	191683	27.6	19.2	455865	27.6	21.3	133611	27.7	20.9	288324	27.8	19.6	465503	27.8	21.4
543810	27.5	21.7	109768	27.6	19.3	461852	27.6	22.0	451967	27.7	19.1	191436	27.8	19.5	488816	27.8	22.2
139323	27.5	20.0	203266	27.6	20.4	207923	27.6	19.6	544779	27.7	20.3	5161	27.8	16.9	171402	27.8	19.6
6899	27.5	17.4	113441	27.6	19.5	75805	27.6	18.8	240	27.7	12.5	392532	27.8	20.4	376997	27.8	21.9
310134	27.5	21.1	25886	27.6	17.0	104915	27.6	18.5	258463	27.7	20.3	198582	27.8	19.9	60048	27.8	19.4
283989	27.5	20.6	391832	27.6	20.7	334507	27.6	20.2	32366	27.7	16.2	375422	27.8	20.7	291625	27.8	19.4
366353	27.5	21.5	493084	27.6	21.6	60963	27.6	17.9	17017	27.7	18.3	162050	27.8	20.0	362896	27.8	20.0
113076	27.5	19.8	319522	27.6	21.8	339650	27.6	21.5	399378	27.7	21.5	194913	27.8	20.0	426012	27.8	19.9
165882	27.5	20.2	363871	27.6	21.0	467673	27.6	21.1	242851	27.7	21.1	485492	27.8	21.6	83316	27.8	19.4
60458	27.5	22.5	344906	27.6	20.0	69259	27.6	18.4	279932	27.7	20.6	310713	27.8	20.9	136350	27.8	19.6
347768	27.5	19.5	248723	27.6	21.8	545051	27.6	20.5	431776	27.7	22.6	31841	27.8	17.5	7954	27.8	17.5
132923	27.5	19.5	213432	27.6	18.7	543189	27.6	21.9	473993	27.7	20.2	164920	27.8	19.1	196764	27.8	20.4
49868	27.5	17.4	458328	27.6	20.8	29647	27.6	17.6	197828	27.7	21.2	325600	27.8	20.5	80545	27.8	17.9
475574	27.5	19.9	59458	27.6	18.9	83108	27.6	19.1	425890	27.7	19.9	185829	27.8	19.4	65164	27.8	18.7
492023	27.5	21.0	81754	27.6	18.8	361239	27.6	20.6	229326	27.7	20.4	230997	27.8	19.5	397933	27.8	20.6
394416	27.5	20.5	189647	27.6	20.9	358200	27.6	21.6	168560	27.7	18.0	485411	27.8	21.2	247049	27.8	19.2
340126	27.5	20.6	339828	27.6	21.3	103633	27.6	18.9	78173	27.7	19.0	223034	27.8	19.5	363881	27.8	21.4
378918	27.5	20.7	191686	27.6	19.7	103778	27.7	18.2	113077	27.7	19.8	180284	27.8	20.5	51776	27.8	18.4
206156	27.5	20.1	379821	27.6	20.6	289254	27.7	19.2	55631	27.7	17.7	230727	27.8	19.7	144667	27.8	20.4
125348	27.5	18.4	424903	27.6	20.3	438208	27.7	21.9	9497	27.7	17.3	195039	27.8	19.3	444879	27.8	20.7
202018	27.5	20.5	482525	27.6	20.8	519127	27.7	19.9	378453	27.7	20.3	337374	27.8	20.7	310730	27.8	21.0
538709	27.5	21.6	180674	27.6	19.9	259157	27.7	19.6	460332	27.7	20.7	289997	27.8	20.6	4711	27.8	16.7
15268	27.5	18.5	339868	27.6	20.9	221827	27.7	19.7	541830	27.7	20.2	232719	27.8	19.3	245896	27.8	20.5
489707	27.5	20.0	113784	27.6	19.0	33675	27.7	17.1	449011	27.7	20.3	392497	27.8	19.5	379740	27.8	20.1
130345	27.5	19.0	381282	27.6	21.6	27472	27.7	18.7	449146	27.7	20.2	463055	27.8	20.4	143974	27.8	18.8
56518	27.5	19.4	519952	27.6	20.4	170799	27.7	19.0	241815	27.7	19.7	226231	27.8	19.9	283090	27.8	20.7
9628	27.5	16.8	102399	27.6	19.2	425417	27.7	20.6	460922	27.7	21.1	127601	27.8	18.6	426355	27.8	22.3
139547	27.5	18.9	334458	27.6	20.6	340838	27.7	19.7	970	27.7	15.8	124304	27.8	19.1	545064	27.8	21.4
398397	27.5	21.7	484575	27.6	20.8	44375	27.7	18.3	161724	27.7	20.0	467665	27.8	21.4	544092	27.8	20.8
226356	27.5	19.0	3209	27.6	15.4	110986	27.7	19.2	288484	27.7	20.0	251296	27.8	20.4	405253	27.8	20.7
51924	27.5	17.8	277377	27.6	20.4	136545	27.7	20.2	282864	27.7	19.5	65543	27.8	18.9	455835	27.8	20.9
370332	27.5	20.9	87629	27.6	19.9	223520	27.7	18.6	243133	27.7	19.8	485447	27.8	19.2	461528	27.8	20.8
481984	27.5	22.4	440469	27.6	20.4	17609	27.7	17.1	273252	27.7	20.7	543753	27.8	21.3	417391	27.9	20.2
280001	27.5	21.0	284482	27.6	20.6	76155	27.7	18.8	113600	27.7	19.2	541652	27.8	21.5	337816	27.9	20.0
213680	27.5	20.2	237317	27.6	20.6	202833	27.7	19.6	335244	27.7	19.8	207573	27.8	20.5	481371	27.9	19.6
373871	27.5	21.4	150693	27.6	20.4	272020	27.7	19.7	90384	27.7	19.9	309482	27.8	18.4	118674	27.9	20.5
372284	27.5	20.5	325197	27.6	20.9	171602	27.7	19.5	182727	27.7	19.8	233067	27.8	19.5	113881	27.9	19.2
438696	27.5	22.3	242089	27.6	20.1	279381	27.7	19.5	444809	27.7	20.5	343926	27.8	20.8	400350	27.9	20.7
483419	27.5	20.8	498818	27.6	21.4	277432	27.7	21.2	402295	27.7	21.4	466876	27.8	20.1	20089	27.9	19.1
316186	27.5	21.5	276685	27.6	20.1	473936	27.7	20.5	455141	27.7	21.3	335980	27.8	20.4	241439	27.9	20.4
261384	27.5	19.4	89213	27.6	19.6	171116	27.7	20.6	100109	27.7	19.5	495528	27.8	20.8	145518	27.9	19.2
416370	27.5	20.6	1038	27.6	17.1	137004	27.7	20.1	134465	27.7	20.0	314675	27.8	22.0	538737	27.9	21.3
432009	27.5	21.9	91820	27.6	19.2	544285	27.7	20.9	226897	27.7	20.7	315665	27.8	20.1	381265	27.9	21.0
347561	27.5	20.5	338142	27.6	21.3	144379	27.7	19.5	340835	27.7	20.3	523435	27.8	21.2	272027	27.9	19.4
451491	27.5	20.7	160581	27.6	19.2	195776	27.7	19.7	199897	27.7	20.6	492174	27.8	20.5	132898	27.9	19.8
243224	27.5	19.6	460738	27.6	21.1	543561	27.7	21.8	498898	27.7	19.8	440561	27.8	22.0	543111	27.9	21.3
142327	27.5	20.5	48190	27.6	18.7	340594	27.7	19.8	464432	27.7	20.3	13893	27.8	17.6	420760	27.9	20.0
283994	27.5	20.1	202742	27.6	20.3	103797	27.7	19.3	186105	27.7	19.4	400852	27.8	20.7	512293	27.9	21.0
77532	27.5	18.4	272087	27.6	19.6	428892	27.7	20.9	167529	27.7	19.5	230553	27.8	19.8	172323	27.9	19.5
167976	27.5	19.4	47030	27.6	17.1	491312	27.7	20.4	424300	27.7	21.6	2620	27.8	16.9	403610	27.9	21.3
198074	27.6	20.4	98140	27.6	20.1	477373	27.7	20.1	269911	27.7	21.0	292095	27.8	20.4	494383	27.9	20.4
28050	27.6	18.4	36586	27.6	18.4	280455	27.7	19.6	493981	27.7	21.0	126132	27.8	20.0	376860	27.9	20.9
462388	27.6	21.2	457033	27.6	19.8	195812	27.7	19.8	486146	27.7	21.3	517579	27.8	20.7	28334	27.9	18.0
224585	27.6	20.0	189642	27.6	19.9	203854	27.7	20.7	27312	27.7	17.4	281503	27.8	19.6	466739	27.9	20.7
274024	27.6	20.5	295187	27.6	20.1	60405	27.7	19.1	482573	27.7	20.1	51953	27.8	17.5	122317	27.9	20.4
543225	27.6	21.5	412106	27.6	21.3	411294	27.7	20.6	419182	2							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
5278	27.9	15.7	418773	27.9	19.9	2046	27.9	16.6	234478	28.1	19.9	131941	28.1	19.1	196934	28.2	20.4
328915	27.9	19.8	376199	27.9	20.5	283939	28.0	20.3	401832	28.1	20.8	3581	28.1	18.0	140953	28.2	19.0
10396	27.9	17.2	464106	27.9	20.7	230542	28.0	19.7	195636	28.1	20.4	272053	28.1	20.1	179944	28.2	19.5
179775	27.9	20.2	332086	27.9	20.7	413543	28.0	20.4	162889	28.1	18.8	436095	28.1	21.7	438275	28.2	20.9
442706	27.9	20.3	357241	27.9	20.7	298390	28.0	19.5	360479	28.1	20.6	124143	28.1	20.4	462466	28.2	20.8
39861	27.9	18.9	198494	27.9	19.8	450225	28.0	21.1	24323	28.1	19.1	99279	28.1	18.7	186085	28.2	20.3
407522	27.9	20.1	313029	27.9	19.1	196090	28.0	19.5	452816	28.1	20.6	190868	28.1	20.2	310829	28.2	19.0
492602	27.9	20.5	148660	27.9	18.8	489005	28.0	21.4	337406	28.1	20.3	322881	28.1	20.6	369178	28.2	18.8
408538	27.9	21.5	125720	27.9	18.9	394978	28.0	21.2	414535	28.1	21.0	41069	28.1	18.5	75772	28.2	19.5
493814	27.9	20.5	187345	27.9	20.1	238132	28.0	21.0	535525	28.1	21.3	225178	28.1	20.6	88846	28.2	19.1
105073	27.9	20.4	544567	27.9	20.9	449115	28.0	21.1	468945	28.1	20.3	138892	28.1	19.5	317585	28.2	19.9
523472	27.9	21.0	544207	27.9	21.2	221320	28.0	19.9	378476	28.1	21.5	101747	28.1	18.7	67432	28.2	19.4
244512	27.9	20.7	280726	27.9	20.0	370554	28.0	20.4	105126	28.1	19.2	390813	28.1	20.3	373251	28.2	20.6
253938	27.9	18.3	246914	27.9	20.7	142492	28.0	19.9	143817	28.1	18.7	146963	28.1	18.4	262925	28.2	20.6
76377	27.9	18.7	337456	27.9	21.3	171393	28.0	20.1	321246	28.1	20.3	218276	28.1	20.2	8471	28.2	18.2
462358	27.9	21.0	30515	27.9	19.2	405564	28.0	21.5	186154	28.1	19.2	281311	28.1	20.7	81995	28.2	19.4
420625	27.9	20.6	474419	27.9	20.4	215258	28.0	19.8	27220	28.1	16.4	78592	28.1	18.1	340076	28.2	20.9
202096	27.9	21.2	406089	27.9	21.3	233821	28.0	21.2	196748	28.1	19.4	75938	28.1	17.9	174972	28.2	18.8
214380	27.9	19.0	145749	27.9	18.8	492754	28.0	20.5	113357	28.1	19.7	343278	28.1	19.8	268279	28.2	20.8
215161	27.9	18.4	541969	27.9	21.2	316717	28.0	21.0	279666	28.1	20.2	113955	28.1	19.0	378394	28.2	20.7
485662	27.9	21.1	232513	27.9	19.8	70543	28.0	19.6	543134	28.1	21.4	29664	28.1	16.6	123011	28.2	19.3
139334	27.9	20.0	488933	27.9	21.2	61366	28.0	18.5	421410	28.1	20.3	276228	28.1	20.2	180740	28.2	19.8
78536	27.9	18.0	543524	27.9	21.2	163458	28.0	19.4	104677	28.1	19.7	373751	28.1	21.2	464392	28.2	20.3
202019	27.9	20.2	90397	27.9	20.4	134718	28.0	19.0	492119	28.1	20.9	207895	28.1	20.6	522566	28.2	21.4
423392	27.9	20.8	541436	27.9	20.4	39703	28.0	16.9	159341	28.1	19.7	283376	28.1	21.3	345439	28.2	20.2
361724	27.9	20.1	239220	27.9	20.8	379775	28.0	20.5	475431	28.1	21.3	155625	28.1	19.0	459837	28.2	19.6
134996	27.9	19.6	318791	27.9	19.5	248886	28.0	21.5	243461	28.1	20.6	386262	28.1	20.5	318915	28.2	19.9
20539	27.9	18.6	267783	27.9	20.4	143071	28.0	18.7	258070	28.1	21.6	347378	28.1	21.0	7833	28.2	18.2
286755	27.9	19.3	300295	27.9	21.1	101932	28.0	18.8	520934	28.1	21.1	307282	28.1	20.1	65920	28.2	18.2
156583	27.9	19.8	157477	27.9	19.8	76189	28.0	18.1	365252	28.1	21.1	23101	28.1	16.9	32844	28.2	19.3
109792	27.9	19.2	146520	27.9	18.7	57625	28.0	18.6	453939	28.1	21.3	186413	28.1	19.7	112834	28.2	18.8
92864	27.9	18.1	344922	27.9	20.0	31944	28.0	18.7	397599	28.1	21.2	331883	28.1	19.7	23425	28.2	18.2
279815	27.9	20.3	422875	27.9	21.4	403054	28.0	19.6	108580	28.1	19.6	227625	28.1	20.8	40651	28.2	19.1
403672	27.9	21.6	272999	27.9	20.6	391109	28.0	21.2	335882	28.1	20.8	309741	28.1	23.2	422947	28.2	20.9
318685	27.9	21.0	455602	27.9	21.3	241980	28.0	19.2	30472	28.1	18.2	517681	28.1	19.3	482001	28.2	20.1
464075	27.9	20.0	90842	27.9	19.3	275125	28.0	20.2	372691	28.1	21.1	198017	28.1	20.1	61091	28.2	19.0
532509	27.9	20.9	258054	27.9	21.4	155405	28.0	20.0	241824	28.1	20.8	40323	28.1	19.4	93089	28.2	19.7
122749	27.9	19.4	136477	27.9	19.7	440216	28.0	20.6	102165	28.1	18.7	286121	28.1	20.2	295218	28.2	20.8
252223	27.9	21.4	361833	27.9	19.9	481194	28.0	21.0	58590	28.1	18.9	319852	28.1	19.8	54749	28.2	17.9
41744	27.9	19.5	190923	27.9	19.5	169203	28.0	19.9	403058	28.1	20.9	290023	28.1	20.2	383800	28.2	20.6
352652	27.9	21.1	517838	27.9	21.5	318747	28.0	20.3	496118	28.1	20.6	244718	28.1	20.9	204164	28.2	20.0
59221	27.9	17.8	482807	27.9	20.7	454568	28.0	21.5	264189	28.1	19.8	54339	28.1	18.2	491063	28.2	21.7
227556	27.9	20.7	165735	27.9	20.1	447745	28.0	20.9	366162	28.1	20.4	490542	28.1	21.6	388131	28.2	20.3
183252	27.9	19.2	311607	27.9	21.6	94089	28.0	18.5	220932	28.1	19.0	248715	28.1	21.3	87735	28.2	19.0
428110	27.9	21.5	107849	27.9	18.4	99395	28.0	17.1	173225	28.1	19.7	32220	28.1	18.9	314836	28.2	19.6
137902	27.9	19.6	316723	27.9	19.7	2122	28.0	15.2	19382	28.1	17.2	235922	28.1	19.8	177561	28.2	18.9
82759	27.9	19.0	188589	27.9	20.7	194929	28.0	19.2	8796	28.1	17.7	114638	28.2	18.0	360596	28.2	20.1
182117	27.9	20.4	343410	27.9	20.0	62228	28.0	19.8	333399	28.1	20.4	542664	28.2	21.1	454389	28.2	20.8
104418	27.9	18.3	387845	27.9	21.3	10277	28.0	17.8	333752	28.1	19.9	403044	28.2	20.5	16230	28.2	18.0
442215	27.9	20.6	241158	27.9	19.8	267830	28.0	20.0	375418	28.1	19.7	1773	28.2	14.9	404318	28.2	20.0
102999	27.9	18.8	60518	27.9	18.1	133798	28.0	19.7	196869	28.1	20.4	252237	28.2	20.1	182384	28.2	20.2
407437	27.9	21.1	409331	27.9	21.9	460897	28.0	20.6	314724	28.1	21.2	124158	28.2	20.6	114492	28.2	19.2
102066	27.9	19.2	212583	27.9	19.3	39200	28.0	19.2	289916	28.1	20.1	98208	28.2	17.7	514090	28.2	20.2
32978	27.9	18.7	172665	27.9	19.5	205445	28.0	20.0	53933	28.1	20.2	359620	28.2	19.8	253335	28.2	19.2
110008	27.9	19.2	159129	27.9	19.7	337551	28.0	20.6	412086	28.1	20.4	452910	28.2	21.3	172973	28.2	19.7
55730	27.9	18.7	46708	27.9	18.3	449988	28.0	21.0	434958	28.1	21.4	259918	28.2	19.5	475572	28.2	20.7
495486	27.9	21.2	449638	27.9	20.9	298447	28.0	20.9	251322	28.1	20.2	477454	28.2	22.2	322485	28.2	19.2
221240	27.9	18.6	452261	27.9	20.3	242976	28.0	20.2	373977	28.1	20.3	339669	28.2	21.5	201357	28.2	19.9
423141	27.9	19.6	89680	27.9	19.4	126583	28.0	20.1	483022	28.1	20.4	277935	28.2	20.4	190799	28.2	19.9
377264	27.9	20.0	119154	27.9	20.4	433477	28.0	20.7	13205	28.1	17.0	25492	28.2	18.9	289134	28.2	20.7
420237	27.9	21.0	254860	27.9	20.0	171948	28.0	21.0	217778	28.1	20.0	541777	28.2	20.4	190128	28.2	19.5
159032	27.9	19.9	149476	27.9	19.1	380461	28.0	20.5	137006	28.1	19.7	84963	28.2	19.0	477313	28.2	21.2
76139	27.9	18.7	115285	27.9	19.1	439869	28.0	20.2	354241	28.1	20.4	82565	28.2	18.6	165814	28.2	19.6
59214	27.9	18.1	17198	27.9	17.7	15394	28.0	18.8	4816	28.1	17.6	443926	28.2	21.1	296705	28.2	20.8
301281	27.9	20.7	461350	27.9	21.4	235507	28.0	18.8	79706	28.1	19.8	320257	28.2	21.2	42021	28.2	19.1
447896	27.9	20.7	424362	27.9	20.9	6881	28.0	17.7	301915	28.1	20.1	223228	28.2	19.4	493806	28.2	20.9
228969	27.9	19.3	114952	27.9	18.9	36237	28.0	16.9	3599	28.1	16.4	446363	28.2	20.7	360837	28.2	21.1
422912	27.9	20.8	465710	27.9	21.9	114157	28.0	19.6	300340	28.1	20.2	113872	28.2	18.7	350631	28.2	20.3
501903	27.9	20.7	485525	27.9	19.8	236799	28.0	19.3	179225	28.1							

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
275777	28.2	20.7	496536	28.3	20.2	420510	28.4	20.7	541565	28.4	21.6	517414	28.5	21.8	270699	28.6	20.2
467906	28.2	21.0	303107	28.3	19.4	310782	28.4	21.2	479643	28.4	20.2	408888	28.5	22.2	372158	28.6	20.4
256392	28.2	19.4	356467	28.3	20.9	404808	28.4	20.8	520909	28.4	20.2	389891	28.5	21.3	195130	28.6	18.6
449394	28.2	20.2	494589	28.3	19.9	189652	28.4	20.9	521768	28.4	21.8	855	28.5	14.6	142653	28.6	19.6
318831	28.3	20.2	439455	28.3	20.0	226501	28.4	18.2	339641	28.4	20.9	98024	28.5	20.1	299979	28.6	20.8
244011	28.3	20.1	235050	28.3	20.1	112717	28.4	19.3	223651	28.5	21.3	61037	28.5	19.1	266882	28.6	20.0
288532	28.3	21.4	170000	28.3	19.7	191899	28.4	19.9	72978	28.5	19.0	202045	28.5	20.6	82776	28.6	19.2
441531	28.3	22.5	17713	28.3	17.9	82820	28.4	19.8	152449	28.5	19.5	80672	28.5	18.3	256352	28.6	19.5
543567	28.3	21.1	274228	28.3	21.3	493154	28.4	21.2	95031	28.5	18.3	260884	28.5	20.7	345089	28.6	21.6
102213	28.3	19.1	237406	28.3	20.1	369867	28.4	20.7	165944	28.5	19.5	12451	28.5	16.8	379867	28.6	21.0
176295	28.3	20.5	246598	28.3	19.4	397209	28.4	19.9	296129	28.5	20.7	446275	28.5	20.8	60766	28.6	16.8
251193	28.3	21.4	282503	28.3	19.9	283381	28.4	20.7	400366	28.5	20.4	483727	28.5	21.6	443504	28.6	20.4
131935	28.3	18.6	394031	28.3	20.1	411736	28.4	20.1	264165	28.5	20.6	447299	28.5	21.0	399473	28.6	21.2
220645	28.3	19.9	104301	28.3	19.6	28107	28.4	17.5	192252	28.5	19.9	419311	28.5	21.0	383572	28.6	18.4
489840	28.3	20.7	99297	28.3	17.0	183981	28.4	19.6	450653	28.5	19.9	416937	28.5	20.9	188310	28.6	20.1
422273	28.3	21.2	280235	28.3	20.2	158158	28.4	21.4	488600	28.5	21.9	223601	28.5	19.1	13068	28.6	17.8
32740	28.3	19.0	251612	28.3	20.7	162006	28.4	19.1	527605	28.5	21.4	338461	28.5	19.3	452834	28.6	21.4
378886	28.3	21.5	406018	28.3	20.0	151564	28.4	19.2	76463	28.5	18.4	301931	28.5	20.1	450751	28.6	21.3
447845	28.3	20.6	237023	28.3	20.0	489408	28.4	21.0	481719	28.5	20.4	109910	28.5	19.2	408431	28.6	20.1
543088	28.3	21.1	219423	28.3	21.2	394994	28.4	21.2	98087	28.5	19.4	50501	28.5	18.6	428967	28.6	20.7
16702	28.3	17.6	85696	28.3	18.0	281343	28.4	20.4	27377	28.5	17.8	318782	28.5	20.8	369883	28.6	21.5
104283	28.3	19.2	283112	28.3	20.2	296652	28.4	20.3	358203	28.5	21.2	337661	28.5	20.5	255924	28.6	19.6
320789	28.3	20.4	282173	28.3	19.9	320992	28.4	20.9	229941	28.5	20.6	74861	28.5	18.8	123793	28.6	19.6
160319	28.3	19.9	480876	28.3	21.1	233997	28.4	20.2	126089	28.5	19.7	247249	28.5	20.5	458214	28.6	20.2
182485	28.3	19.7	104413	28.3	18.9	444871	28.4	21.6	401952	28.5	20.8	62744	28.5	18.5	314219	28.6	20.4
94194	28.3	18.9	270599	28.3	19.6	437773	28.4	20.1	40407	28.5	19.4	109732	28.5	18.7	171237	28.6	20.2
304901	28.3	21.4	525410	28.3	20.2	117608	28.4	19.5	306488	28.5	20.0	495637	28.5	20.4	22297	28.6	16.6
504353	28.3	20.9	197694	28.3	21.1	219461	28.4	20.2	201390	28.5	19.9	449041	28.5	20.6	306924	28.6	19.3
452411	28.3	20.9	240382	28.3	21.1	415958	28.4	20.6	305192	28.5	19.4	345145	28.5	20.8	363931	28.6	20.8
112179	28.3	18.0	56021	28.3	19.2	248904	28.4	21.2	31351	28.5	18.0	258216	28.5	21.0	135647	28.6	20.3
211304	28.3	20.7	125111	28.3	19.6	392971	28.4	20.2	60700	28.5	17.6	543106	28.5	21.6	363129	28.6	21.4
387340	28.3	19.7	281304	28.3	20.4	479895	28.4	19.8	323839	28.5	21.3	112725	28.5	19.2	358318	28.6	20.5
152306	28.3	20.2	177235	28.3	20.5	120035	28.4	18.8	480880	28.5	20.9	143703	28.5	19.7	290228	28.6	20.8
21427	28.3	18.3	105909	28.3	18.8	290236	28.4	20.3	239614	28.5	19.8	369107	28.5	20.7	49311	28.6	19.4
456392	28.3	20.9	322343	28.3	19.7	464487	28.4	20.8	34916	28.5	19.5	299347	28.5	20.9	90178	28.6	19.6
244549	28.3	20.4	337905	28.3	21.9	493165	28.4	22.3	956	28.5	15.8	496734	28.5	21.0	312349	28.6	19.7
138541	28.3	19.5	521662	28.3	21.4	195637	28.4	19.7	373725	28.5	21.0	543266	28.5	20.9	171432	28.6	19.9
339951	28.3	20.8	73743	28.3	19.0	179057	28.4	20.0	277132	28.5	19.5	181966	28.5	20.2	447736	28.6	21.2
247364	28.3	20.3	518379	28.3	20.1	421201	28.4	20.4	197622	28.5	20.7	126046	28.5	19.4	239836	28.6	19.0
191359	28.3	20.8	419438	28.3	20.4	297141	28.4	20.4	31249	28.5	17.3	27011	28.5	17.6	337044	28.6	19.0
365851	28.3	19.9	61170	28.3	19.3	51053	28.4	18.8	544571	28.5	20.8	124178	28.5	19.8	544716	28.6	20.6
448911	28.3	21.1	78259	28.3	19.8	243965	28.4	19.9	295985	28.5	20.6	223140	28.5	20.2	268608	28.6	20.4
347686	28.3	21.3	535305	28.3	20.5	210930	28.4	21.4	266486	28.5	19.3	170878	28.5	20.0	461530	28.6	20.2
289152	28.3	19.6	90651	28.3	17.9	350562	28.4	21.0	385617	28.5	21.3	341924	28.5	21.1	133666	28.6	19.0
113180	28.3	18.9	511509	28.3	20.8	157576	28.4	19.1	399238	28.5	20.6	232694	28.5	19.2	351261	28.6	21.5
543899	28.3	19.9	265139	28.3	19.6	407364	28.4	21.6	543977	28.5	20.9	164193	28.6	20.1	3226	28.6	17.2
489701	28.3	20.2	279891	28.3	20.6	16570	28.4	18.7	288641	28.5	21.2	122406	28.6	19.0	489381	28.6	21.5
544122	28.3	20.8	324095	28.3	20.2	243604	28.4	21.0	229035	28.5	19.2	483487	28.6	21.0	452894	28.6	21.5
491196	28.3	20.8	340572	28.3	20.8	122917	28.4	19.9	396673	28.5	21.8	1164	28.6	14.1	454945	28.6	21.2
523583	28.3	20.4	186230	28.4	19.3	493675	28.4	19.9	287235	28.5	20.9	474546	28.6	21.5	78650	28.6	18.7
462872	28.3	21.0	366986	28.4	19.8	224007	28.4	20.6	445693	28.5	21.6	468962	28.6	20.7	322282	28.6	20.7
195685	28.3	20.2	446353	28.4	20.8	47383	28.4	18.4	264428	28.5	20.7	92570	28.6	19.9	115892	28.6	19.1
471148	28.3	20.7	336923	28.4	20.7	370536	28.4	20.7	77657	28.5	18.5	271290	28.6	21.4	262003	28.6	20.9
206108	28.3	21.6	185069	28.4	19.5	197808	28.4	21.0	406134	28.5	21.4	535022	28.6	22.4	320678	28.6	20.5
187166	28.3	19.9	363832	28.4	21.4	362242	28.4	20.1	517730	28.5	21.2	37642	28.6	19.7	319413	28.6	19.9
56515	28.3	18.5	78446	28.4	20.1	453182	28.4	20.1	65826	28.5	19.2	267864	28.6	20.4	365222	28.6	21.4
174283	28.3	21.0	115755	28.4	18.2	364960	28.4	20.2	121835	28.5	19.5	416415	28.6	20.3	237432	28.6	19.4
149645	28.3	19.3	494209	28.4	20.8	270758	28.4	20.6	238320	28.5	20.0	85622	28.6	19.4	277919	28.6	20.7
413371	28.3	20.4	234868	28.4	19.7	466696	28.4	20.3	252311	28.5	20.3	439922	28.6	22.2	230765	28.6	19.4
382075	28.3	21.1	400115	28.4	21.6	337360	28.4	20.6	486939	28.5	21.3	131449	28.6	19.5	45683	28.6	19.2
144355	28.3	18.9	150773	28.4	19.9	1359	28.4	15.0	48970	28.5	18.9	6717	28.6	18.7	8235	28.6	17.8
413056	28.3	21.5	203646	28.4	19.4	436156	28.4	22.1	53678	28.5	18.6	36796	28.6	17.0	91442	28.6	20.1
78113	28.3	19.0	375637	28.4	20.4	44005	28.4	18.4	148968	28.5	19.8	223829	28.6	20.6	14854	28.6	17.2
339930	28.3	21.2	35891	28.4	18.1	165137	28.4	20.1	404332	28.5	19.9	314769	28.6	19.9	204583	28.6	19.5
217572	28.3	19.2	48321	28.4	19.5	281657	28.4	19.6	45091	28.5	19.0	141545	28.6	19.4	76388	28.6	18.9
125522	28.3	19.7	87551	28.4	17.2	51543	28.4	18.6	152609	28.5	19.5	408665	28.6	21.5	97954	28.6	19.2
249946	28.3	19.9	311676	28.4	20.0	262072	28.4	20.5	322217	28.5	19.7	352234	28.6	19.9	82014	28.6	19.4
332238	28.3	19.1	76637	28.4	18.9	490717	28.4	21.4	465540	28.5	20.4	461646	28.6	19.5	110288	28.6	18.9
373919	28.3	20.8	440112	28.4	21.6	136215	28.4	19.3	329635								

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

№	02	V	№	02	V	№	02	V	№	02	V	№	02	V	№	02	V
372753	28.6	20.0	330430	28.7	20.4	189651	28.8	20.5	295918	28.8	20.5	488452	28.9	21.8	343394	28.9	19.2
500027	28.6	21.9	372036	28.7	21.3	167983	28.8	19.1	51979	28.8	19.1	227063	28.9	19.2	272129	28.9	20.1
296168	28.6	20.0	328701	28.7	20.5	199087	28.8	19.7	24774	28.8	18.5	7098	28.9	16.1	143776	28.9	19.4
124441	28.6	19.9	203895	28.7	19.2	223811	28.8	20.2	482006	28.8	21.6	289046	28.9	20.6	239777	28.9	19.4
244084	28.6	19.9	335869	28.7	21.3	42401	28.8	18.0	39836	28.8	18.7	220644	28.9	19.4	47470	28.9	18.4
241154	28.6	20.2	219361	28.7	21.3	162469	28.8	20.5	230083	28.8	20.3	128892	28.9	20.7	406942	28.9	19.7
419523	28.6	19.7	28915	28.7	19.5	256426	28.8	19.7	177402	28.8	19.7	407488	28.9	20.6	27136	28.9	17.2
104770	28.6	18.0	100472	28.7	20.2	25391	28.8	16.4	76437	28.8	18.4	186220	28.9	20.2	315779	28.9	20.1
489884	28.6	20.7	236934	28.7	20.0	290825	28.8	20.6	37946	28.8	18.0	451941	28.9	21.0	295544	28.9	20.5
414486	28.6	20.8	316887	28.7	21.4	45672	28.8	18.8	197112	28.8	20.3	433799	28.9	20.4	331725	28.9	20.1
19993	28.6	19.4	190766	28.7	20.4	134978	28.8	19.1	484407	28.8	21.2	418574	28.9	20.5	465535	28.9	21.5
58338	28.7	17.0	466351	28.7	21.0	186933	28.8	20.1	56341	28.8	18.9	479562	28.9	20.1	283434	28.9	20.2
160653	28.7	19.6	21973	28.7	17.5	162939	28.8	20.4	241841	28.8	20.7	164084	28.9	19.4	464008	28.9	21.5
108742	28.7	18.6	290028	28.7	21.0	14863	28.8	18.4	49161	28.8	18.7	438140	28.9	22.2	22715	28.9	18.7
11127	28.7	17.1	404630	28.7	20.9	345455	28.8	19.2	265836	28.9	20.4	269738	28.9	20.7	122340	28.9	19.8
418996	28.7	20.9	146696	28.7	20.4	210162	28.8	20.7	127966	28.9	20.5	465302	28.9	21.1	345276	28.9	21.2
265412	28.7	20.6	84929	28.7	19.0	329688	28.8	20.8	419216	28.9	22.5	88652	28.9	20.1	306532	28.9	19.9
454774	28.7	20.3	174893	28.7	18.7	177879	28.8	20.7	227754	28.9	19.4	146690	28.9	20.3			
380666	28.7	19.9	13902	28.7	18.1	502733	28.8	21.5	263149	28.9	20.7	77084	28.9	18.6			
198049	28.7	19.9	29899	28.7	18.0	331984	28.8	21.0	380673	28.9	20.4	363227	28.9	20.7			
155963	28.7	20.2	33925	28.7	18.6	247029	28.8	20.1	235944	28.9	19.9	261433	28.9	20.4			
45800	28.7	19.5	101419	28.7	20.2	510765	28.8	19.9	74790	28.9	20.2	7458	28.9	16.4			
45741	28.7	18.7	493704	28.7	20.9	522395	28.8	20.9	401081	28.9	21.7	263458	28.9	19.4			
292944	28.7	19.8	128789	28.7	19.6	75015	28.8	20.0	543055	28.9	20.6	284808	28.9	21.4			
197307	28.7	19.6	132896	28.7	19.0	20585	28.8	17.1	128827	28.9	20.1	26874	28.9	17.8			
256329	28.7	20.1	451820	28.7	20.8	62416	28.8	18.5	458708	28.9	20.7	334214	28.9	20.2			
362634	28.7	19.9	233321	28.7	19.7	161882	28.8	19.3	543676	28.9	21.6	302607	28.9	19.9			
51349	28.7	18.2	448807	28.7	21.9	309569	28.8	19.9	395314	28.9	21.3	349712	28.9	20.2			
164295	28.7	18.3	66021	28.7	19.8	334717	28.8	19.9	319980	28.9	20.4	74242	28.9	19.0			
417727	28.7	20.3	151694	28.7	18.4	331743	28.8	22.0	47722	28.9	19.5	68346	28.9	19.5			
104133	28.7	19.4	81274	28.7	20.0	361406	28.8	20.5	223686	28.9	20.8	339589	28.9	20.0			
372152	28.7	20.2	137973	28.7	17.9	238805	28.8	21.0	449960	28.9	20.8	290499	28.9	20.0			
180531	28.7	20.2	201282	28.7	20.2	447876	28.8	21.1	28875	28.9	18.6	244145	28.9	20.3			
188860	28.7	20.0	371349	28.7	21.0	22982	28.8	18.2	140751	28.9	20.2	201058	28.9	19.1			
148345	28.7	19.4	447750	28.7	21.7	421613	28.8	21.1	364223	28.9	20.9	195831	28.9	19.8			
406179	28.7	22.0	24779	28.7	17.3	413656	28.8	20.7	486474	28.9	20.1	104978	28.9	19.4			
229867	28.7	20.7	34955	28.7	18.3	534449	28.8	21.5	16051	28.9	17.9	177737	28.9	18.8			
426010	28.7	20.7	100232	28.7	19.8	116205	28.8	18.4	118294	28.9	19.7	247240	28.9	19.6			
139616	28.7	19.3	214324	28.7	20.5	208883	28.8	20.6	452847	28.9	21.6	345184	28.9	20.8			
290445	28.7	21.2	10694	28.7	18.0	448757	28.8	21.6	153588	28.9	19.6	220033	28.9	19.8			
111173	28.7	19.7	274846	28.7	20.7	261007	28.8	20.6	267788	28.9	19.7	404009	28.9	19.9			
380314	28.7	19.5	124549	28.7	18.7	455838	28.8	21.0	234464	28.9	20.3	197850	28.9	19.2			
492691	28.7	21.0	282200	28.7	20.9	146748	28.8	19.9	179049	28.9	20.1	144076	28.9	20.1			
210682	28.7	20.4	176911	28.7	19.6	494807	28.8	21.1	48609	28.9	17.9	544477	28.9	20.8			
32552	28.7	19.4	135097	28.8	18.3	281394	28.8	20.6	439904	28.9	21.7	208004	28.9	19.9			
15261	28.7	18.4	274896	28.8	21.2	212369	28.8	19.9	221548	28.9	19.6	465456	28.9	20.9			
426008	28.7	20.8	204804	28.8	19.8	158887	28.8	20.0	462385	28.9	21.0	228740	28.9	20.6			
290826	28.7	20.7	194529	28.8	20.1	319949	28.8	20.2	481814	28.9	20.5	543594	28.9	21.1			
144471	28.7	19.0	158936	28.8	19.6	173454	28.8	19.4	152901	28.9	19.4	336592	28.9	19.5			
466230	28.7	21.1	270681	28.8	20.5	349639	28.8	19.4	395849	28.9	19.9	372698	28.9	20.0			
128703	28.7	19.9	219431	28.8	20.3	55150	28.8	19.3	102547	28.9	19.9	45537	28.9	18.3			
233193	28.7	19.5	543633	28.8	21.9	56777	28.8	19.1	59094	28.9	19.1	457911	28.9	21.1			
435482	28.7	21.4	29591	28.8	19.1	182405	28.8	20.5	24692	28.9	18.1	289783	28.9	20.4			
56511	28.7	19.1	182364	28.8	19.6	79186	28.8	19.3	309329	28.9	20.4	488222	28.9	20.5			
237998	28.7	18.8	145142	28.8	19.1	217761	28.8	20.8	503640	28.9	21.3	43840	28.9	19.8			
160933	28.7	20.3	485134	28.8	21.1	197507	28.8	19.5	206697	28.9	19.3	78475	28.9	19.0			
465763	28.7	21.5	466242	28.8	19.4	254091	28.8	20.2	251188	28.9	20.6	179967	28.9	20.4			
146541	28.7	19.5	180224	28.8	19.2	215462	28.8	20.1	10415	28.9	16.3	174053	28.9	19.0			
400680	28.7	18.9	274564	28.8	20.9	492719	28.8	21.3	242065	28.9	20.3	389378	28.9	20.3			
372166	28.7	20.9	278088	28.8	20.0	17587	28.8	18.0	456217	28.9	20.8	180587	28.9	19.3			
31437	28.7	17.5	183661	28.8	20.1	262132	28.8	20.1	465778	28.9	20.2	101690	28.9	18.3			
338284	28.7	20.9	188334	28.8	18.4	230598	28.8	18.6	522275	28.9	20.8	119878	28.9	22.1			
322251	28.7	20.0	532947	28.8	21.0	460758	28.8	21.1	112936	28.9	19.2	150657	28.9	18.7			
269681	28.7	20.5	317176	28.8	20.6	135406	28.8	19.9	102607	28.9	18.5	277948	28.9	20.8			
373693	28.7	21.1	142815	28.8	19.6	39718	28.8	19.2	473693	28.9	20.2	261377	28.9	20.2			
251087	28.7	20.6	340130	28.8	20.5	469461	28.8	22.2	421582	28.9	21.4	368851	28.9	21.2			
53042	28.7	18.3	314696	28.8	20.0	185885	28.8	20.7	428999	28.9	20.6	71980	28.9	19.6			
522522	28.7	20.9	438062	28.8	20.9	245924	28.8	21.1	45518	28.9	18.5	236896	28.9	20.9			
301672	28.7	19.6	157780	28.8	20.3	201274	28.8	19.9	487260	28.9	20.4	535645	28.9	20.0			
466463	28.7	21.0	287008	28.8	20.7	354637	28.8	19.5	29032	28.9	17.8	370375	28.9	21.5			
234780	28.7	20.6	448035	28.8	19.6	152579	28.8	20.1	66519	28.9	18.9	459895	28.9	21.1			
88488	28.7	18.8	324054	28.8	20.8	278931	28.8	20.9	239654	28.9	19.9	81306	28.9	19.3			
365539	28.7	20.8	247544	28.8	20.0	261750	28.8	20.2	49500	28.9	17.3	77839	28.9	18.8			
106111	28.7	19.1	245704	28.8	20.3	380235	28.8	20.1	73121	28.9	19.3	164617	28.9	22.0			