

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
525828	1.0	21.1	216395	1.1	19.7	26779	1.1	17.2	533553	1.2	20.8	399231	1.3	20.5	32641	1.4	17.8
311568	1.0	19.4	538603	1.1	20.3	36861	1.1	18.3	222519	1.2	18.5	374372	1.3	20.9	350972	1.4	20.9
249807	1.0	19.8	189487	1.1	20.1	352475	1.1	21.8	320146	1.2	20.4	161744	1.3	19.8	486664	1.4	20.4
358391	1.0	21.2	16645	1.1	16.6	322402	1.1	20.6	438763	1.2	20.7	477612	1.3	19.4	219619	1.4	18.9
235364	1.0	18.7	222634	1.1	19.3	508675	1.1	20.1	304070	1.2	19.9	540892	1.3	21.4	187177	1.4	20.7
357212	1.0	21.7	133728	1.1	19.7	466585	1.1	19.7	213664	1.2	18.9	351206	1.3	20.3	395983	1.4	20.2
520223	1.0	21.0	106018	1.1	19.3	9889	1.1	16.7	349942	1.2	20.6	105363	1.3	18.9	119430	1.4	19.1
432844	1.0	19.9	266185	1.1	19.7	355750	1.1	20.7	308837	1.2	21.0	204078	1.3	19.8	389129	1.4	20.6
121085	1.0	19.5	381857	1.1	20.1	529433	1.1	22.5	510836	1.2	21.5	327833	1.3	20.0	38281	1.4	17.0
330005	1.0	20.6	332929	1.1	19.9	16596	1.1	18.4	9117	1.2	17.0	110622	1.3	19.7	466471	1.4	19.8
100959	1.0	18.3	179522	1.1	19.2	34563	1.1	18.4	111511	1.2	19.8	18366	1.3	18.0	56533	1.4	18.4
311189	1.0	18.7	239595	1.1	19.1	502670	1.1	21.4	311280	1.2	20.7	208397	1.3	19.7	474820	1.4	20.5
528714	1.0	21.9	27699	1.1	18.1	21181	1.1	17.9	480618	1.2	20.6	168888	1.3	19.3	56220	1.4	17.4
19983	1.0	16.4	264950	1.1	19.6	429279	1.1	20.6	433887	1.2	20.2	20915	1.3	18.9	28117	1.4	17.6
283891	1.0	20.9	334748	1.1	19.0	359778	1.1	20.4	15446	1.2	16.3	508610	1.3	20.4	60062	1.4	17.8
355586	1.0	20.0	109833	1.1	19.0	42070	1.1	18.9	398929	1.2	21.1	530836	1.3	20.9	10255	1.4	17.1
492700	1.0	19.4	420700	1.1	19.8	459307	1.1	20.4	477626	1.2	20.1	420472	1.3	21.3	214095	1.4	19.4
310886	1.0	19.2	19810	1.1	18.2	279590	1.2	21.5	336285	1.2	20.9	79034	1.3	17.9	475935	1.4	22.0
120655	1.0	20.0	93400	1.1	18.8	311290	1.2	20.2	524705	1.2	21.4	198235	1.3	19.3	19894	1.4	18.3
268494	1.0	19.9	55270	1.1	18.8	304382	1.2	20.0	87457	1.2	17.7	431372	1.3	20.5	331186	1.4	18.9
326452	1.0	20.1	462157	1.1	19.3	540187	1.2	18.4	352077	1.2	21.4	155342	1.3	19.8	116033	1.4	19.0
96137	1.0	19.6	374404	1.1	20.4	496672	1.2	20.8	371655	1.2	20.6	509835	1.3	21.1	360233	1.4	21.6
311268	1.0	20.9	8986	1.1	16.4	131244	1.2	20.3	108110	1.2	19.4	106414	1.3	18.6	179491	1.4	19.6
91904	1.0	19.4	336197	1.1	21.0	292033	1.2	18.6	208669	1.2	19.0	430977	1.3	20.2	30881	1.4	18.1
532425	1.0	20.9	409380	1.1	21.1	508559	1.2	20.9	414172	1.2	21.5	182733	1.3	19.4	493609	1.4	20.3
222525	1.0	19.9	309857	1.1	20.9	512998	1.2	19.9	56626	1.2	17.7	380637	1.3	19.1	64233	1.4	18.6
24598	1.0	18.4	518244	1.1	20.5	232555	1.2	19.5	381473	1.2	20.2	284444	1.3	21.4	250897	1.4	19.8
385183	1.0	18.2	458134	1.1	21.4	103098	1.2	18.8	299535	1.2	20.1	534978	1.3	21.8	343804	1.4	20.9
290378	1.0	19.4	248531	1.1	19.8	312872	1.2	20.9	169954	1.2	19.8	471702	1.3	20.8	383975	1.4	20.1
527436	1.0	21.1	121375	1.1	19.9	454517	1.2	20.5	476458	1.2	20.3	318631	1.3	20.5	519085	1.4	19.9
187090	1.0	19.9	281712	1.1	19.3	238251	1.2	20.1	480641	1.2	20.3	115883	1.3	19.2	60053	1.4	18.6
540877	1.0	21.0	380632	1.1	19.8	303851	1.2	19.8	128778	1.2	17.7	213073	1.3	19.5	83865	1.4	18.8
509035	1.0	19.8	288885	1.1	18.9	12262	1.2	16.8	535387	1.2	20.8	42613	1.3	19.4	78754	1.4	16.0
358012	1.0	20.2	34338	1.1	18.9	408817	1.2	20.6	75393	1.2	18.4	425500	1.3	20.9	488317	1.4	19.3
334425	1.0	20.9	308397	1.1	20.6	365203	1.2	20.6	156383	1.2	19.2	279753	1.3	17.8	508207	1.4	20.4
377815	1.0	20.6	152206	1.1	19.4	175435	1.2	18.3	250912	1.3	20.4	214966	1.3	20.3	475797	1.4	20.2
22177	1.0	16.7	513679	1.1	20.7	260551	1.2	21.2	318885	1.3	20.3	45903	1.3	18.9	184905	1.4	20.8
180150	1.0	19.5	177858	1.1	19.1	221113	1.2	19.9	360049	1.3	19.4	376798	1.3	19.3	221333	1.4	20.1
205015	1.0	20.0	432926	1.1	20.2	464934	1.2	20.7	17340	1.3	17.9	540564	1.3	21.0	513171	1.4	22.0
89572	1.0	18.0	14553	1.1	16.8	59223	1.2	19.3	22064	1.3	17.3	299813	1.3	20.2	334738	1.4	19.6
533860	1.0	19.9	143494	1.1	19.7	497457	1.2	21.0	296766	1.3	19.9	173998	1.3	19.8	240584	1.4	19.8
135543	1.0	19.7	203378	1.1	18.9	158520	1.2	18.8	427903	1.3	20.3	69537	1.3	19.4	159787	1.4	18.8
475563	1.0	20.8	248125	1.1	19.0	313728	1.2	19.3	276513	1.3	18.7	1478	1.3	15.9	16784	1.4	17.4
513790	1.0	21.5	227502	1.1	19.9	11854	1.2	16.4	7252	1.3	15.3	502008	1.3	21.1	99206	1.4	19.5
369049	1.0	21.2	159630	1.1	20.1	527771	1.2	20.3	407733	1.3	20.6	304709	1.3	20.0	187912	1.4	20.8
38717	1.0	17.9	146235	1.1	19.6	198529	1.2	19.3	74431	1.3	17.7	286740	1.3	20.4	138626	1.4	19.5
285055	1.0	19.8	305781	1.1	21.9	398203	1.2	19.9	19110	1.3	18.0	533511	1.3	21.7	474773	1.4	20.6
533111	1.0	21.1	492722	1.1	19.8	290613	1.2	20.2	199180	1.3	20.4	103326	1.3	19.4	11285	1.4	16.4
438204	1.0	20.3	337015	1.1	19.4	143398	1.2	19.9	151775	1.3	19.1	347434	1.3	20.4	324991	1.4	20.9
269309	1.0	18.6	127259	1.1	20.9	380867	1.2	20.4	488455	1.3	19.3	109729	1.3	19.3	472517	1.4	21.1
446038	1.0	21.2	67871	1.1	17.6	102586	1.2	18.7	389184	1.3	20.0	501227	1.3	20.0	145388	1.4	20.1
456213	1.0	19.3	149238	1.1	20.1	174328	1.2	18.8	38039	1.3	18.5	12731	1.3	16.6	66937	1.4	18.1
242716	1.0	19.5	284570	1.1	20.0	75932	1.2	18.9	530294	1.3	22.1	146907	1.3	19.6	130601	1.4	17.3
380865	1.0	21.5	391289	1.1	20.5	350974	1.2	20.8	33928	1.3	16.9	493711	1.3	20.7	414156	1.4	19.5
252942	1.0	19.5	44589	1.1	17.2	438361	1.2	20.6	138919	1.3	19.7	466184	1.3	20.3	389869	1.4	19.8
21019	1.0	17.2	412014	1.1	20.0	534013	1.2	20.5	404634	1.3	21.2	479172	1.3	20.9	303860	1.4	20.5
295661	1.1	21.3	56302	1.1	19.4	533313	1.2	20.8	113733	1.3	19.9	92122	1.4	18.9	159384	1.4	19.6
541706	1.1	20.6	262719	1.1	20.0	249456	1.2	19.6	84151	1.3	18.5	152659	1.4	19.0	21902	1.4	18.3
425641	1.1	21.6	209779	1.1	17.5	346092	1.2	21.1	252947	1.3	19.6	252131	1.4	19.9	289484	1.4	20.4
26230	1.1	18.3	497549	1.1	22.0	224341	1.2	19.4	173661	1.3	20.0	416424	1.4	21.8	48780	1.4	18.1
356682	1.1	20.2	304297	1.1	21.4	542615	1.2	21.0	466596	1.3	21.3	4361	1.4	16.8	159491	1.4	19.0
39873	1.1	18.4	340368	1.1	20.2	271807	1.2	20.5	263372	1.3	20.7	313745	1.4	20.6	359484	1.4	20.6
476516	1.1	20.9	435890	1.1	20.8	104654	1.2	18.7	405891	1.3	20.8	146940	1.4	20.2	65141	1.4	17.9
653	1.1	13.7	511886	1.1	20.4	430304	1.2	21.2	150132	1.3	20.7	191050	1.4	19.5	399644	1.5	19.0
60279	1.1	19.4	525323	1.1	21.5	99793	1.2	20.0	87484	1.3	18.3	154082	1.4	18.1	434767	1.5	21.1
6340	1.1	17.7	51289	1.1	17.7	321828	1.2	20.4	91850	1.3	19.4	540878	1.4	21.1	201542	1.5	18.0
208686	1.1	20.4	430356	1.1	20.2	31218	1.2	18.4	223216	1.3	20.6	24620	1.4	17.4	249641	1.5	19.6
372480	1.1	20.4	334632	1.1	19.2	4056	1.2	16.6	66767	1.3	18.3	382447	1.4	21.0	120235	1.5	19.5
38978	1.1	17.7	384797	1.1	20.9	128539	1.2	19.0	97218	1.3	19.0	316874	1.4	19.1	354885	1.5	21.1
87312	1.1	17.2	219264	1.1	19.7	1947	1.2	16.0	532631	1.3	20.5	100481	1.4	17.7	47563	1.5	18.7
87444	1.1	18.2	119433	1.1	19.4	137904	1.2	19.1	325235	1.3	19.9	335554	1.4	19.3	388053	1.5</	

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
515418	1.5	21.9	499363	1.5	20.4	270314	1.6	21.5	53976	1.7	18.8	30729	1.8	16.9	331114	1.9	19.6
159663	1.5	20.2	222642	1.5	19.9	91295	1.6	18.8	528332	1.7	20.1	432861	1.8	19.9	20304	1.9	18.0
290617	1.5	19.6	146095	1.5	18.5	110725	1.6	18.9	302015	1.7	19.5	539387	1.8	20.8	316204	1.9	20.0
288121	1.5	20.5	311943	1.5	19.9	438662	1.6	21.2	358879	1.7	21.4	52762	1.8	19.9	387186	1.9	21.0
425742	1.5	21.6	106310	1.6	19.5	431103	1.6	22.0	102189	1.7	17.5	138341	1.8	19.9	81434	1.9	17.3
377891	1.5	20.6	465323	1.6	22.1	63520	1.6	17.6	302274	1.7	20.4	313680	1.8	20.5	98824	1.9	19.7
386492	1.5	20.2	340470	1.6	19.0	57481	1.6	18.7	34729	1.7	18.6	501611	1.8	20.9	154089	1.9	19.3
303349	1.5	18.5	401072	1.6	20.1	153864	1.6	19.0	401321	1.7	20.2	416541	1.8	21.1	384014	1.9	20.8
120604	1.5	19.1	261058	1.6	20.6	384082	1.6	20.7	409816	1.7	20.6	237197	1.8	19.9	374984	1.9	19.8
401055	1.5	20.6	139568	1.6	18.2	349447	1.6	20.0	476475	1.7	21.5	164277	1.8	19.3	60155	1.9	19.4
222657	1.5	20.1	285398	1.6	19.5	311521	1.6	20.7	16800	1.7	19.2	265506	1.8	19.6	497947	1.9	21.2
17409	1.5	17.8	29952	1.6	18.5	115455	1.7	17.5	494288	1.7	20.6	282974	1.8	19.2	49864	1.9	17.5
258205	1.5	19.8	387088	1.6	20.6	382217	1.7	20.4	529369	1.7	22.3	134694	1.8	19.0	86285	1.9	18.5
162119	1.5	17.2	183626	1.6	18.6	311544	1.7	20.2	24948	1.7	18.3	248558	1.8	19.7	342497	1.9	20.8
435702	1.5	20.4	432339	1.6	20.3	467753	1.7	20.1	308981	1.7	20.0	233505	1.8	19.9	118405	1.9	18.7
102001	1.5	19.0	215210	1.6	19.2	353730	1.7	20.6	280279	1.7	21.3	387859	1.8	19.0	533517	1.9	21.9
418928	1.5	21.5	527624	1.6	22.4	86058	1.7	17.5	278382	1.7	20.7	364669	1.8	20.4	164807	1.9	19.5
62644	1.5	18.4	292771	1.6	20.8	494219	1.7	20.7	362708	1.7	20.3	105416	1.8	19.3	377689	1.9	20.6
71011	1.5	18.7	338868	1.6	20.2	35117	1.7	19.0	296452	1.7	21.0	391524	1.8	21.4	338841	1.9	20.5
411710	1.5	21.4	539910	1.6	20.0	75448	1.7	17.3	462596	1.7	20.5	449998	1.8	20.4	268386	1.9	19.6
192583	1.5	19.7	537702	1.6	17.3	526236	1.7	19.9	380643	1.8	19.4	249670	1.8	18.5	465882	1.9	21.3
201703	1.5	19.5	87070	1.6	17.8	64995	1.7	19.0	241585	1.8	19.7	290152	1.8	19.7	261980	1.9	19.4
243619	1.5	18.2	127018	1.6	19.2	393968	1.7	19.7	137535	1.8	19.9	250381	1.8	19.3	226001	1.9	19.9
225749	1.5	20.1	131678	1.6	19.9	491073	1.7	21.1	477603	1.8	20.2	79335	1.8	19.7	170265	1.9	18.5
53331	1.5	17.5	210595	1.6	18.9	363257	1.7	22.2	331789	1.8	19.9	172594	1.8	19.8	247208	1.9	18.9
343913	1.5	19.8	248457	1.6	19.8	247919	1.7	19.6	248243	1.8	21.1	390394	1.8	19.7	125409	1.9	19.6
507261	1.5	20.8	88913	1.6	17.4	309386	1.7	20.4	212778	1.8	21.2	131001	1.8	20.8	335140	1.9	19.6
529920	1.5	24.0	136890	1.6	20.5	149094	1.7	19.7	431058	1.8	20.4	454571	1.8	20.2	504726	1.9	20.9
228681	1.5	19.6	531909	1.6	21.2	404264	1.7	21.3	422325	1.8	20.3	523724	1.8	21.3	215208	1.9	19.2
176757	1.5	18.7	489501	1.6	20.6	308522	1.7	19.6	249677	1.8	19.3	537241	1.8	21.1	294128	1.9	19.0
369743	1.5	18.7	420775	1.6	20.2	17556	1.7	18.0	123209	1.8	19.6	118154	1.8	19.0	248643	1.9	19.8
466083	1.5	20.5	413364	1.6	21.7	427906	1.7	22.2	527970	1.8	21.4	531380	1.8	20.9	168007	1.9	19.6
403024	1.5	18.7	309138	1.6	20.8	266355	1.7	20.8	538182	1.8	22.2	438188	1.8	20.9	437362	1.9	19.6
231927	1.5	20.6	129663	1.6	19.1	13157	1.7	17.4	136814	1.8	20.1	413234	1.8	20.4	168858	1.9	20.0
240419	1.5	19.5	529737	1.6	19.2	289354	1.7	20.8	179379	1.8	19.7	298871	1.8	19.4	469872	1.9	20.7
258162	1.5	20.0	91281	1.6	18.9	513689	1.7	20.8	214170	1.8	20.7	235855	1.8	20.2	262147	1.9	20.3
176574	1.5	19.8	112875	1.6	18.4	154991	1.7	21.3	181629	1.8	19.6	31931	1.8	17.2	279605	1.9	21.4
181169	1.5	19.5	140913	1.6	18.5	510111	1.7	20.5	147449	1.8	17.5	303223	1.8	18.8	422962	1.9	19.4
477168	1.5	20.4	228602	1.6	18.9	525123	1.7	21.3	265318	1.8	19.3	59081	1.8	18.9	302276	1.9	19.7
374476	1.5	21.0	105957	1.6	19.0	518197	1.7	21.1	385686	1.8	18.9	208048	1.8	17.7	35010	1.9	18.9
501360	1.5	21.3	442780	1.6	20.3	257950	1.7	19.2	28273	1.8	17.9	103172	1.8	19.7	124224	1.9	18.9
261542	1.5	20.2	201593	1.6	19.8	430640	1.7	20.9	147329	1.8	19.7	120947	1.9	18.5	394678	1.9	21.7
427887	1.5	19.8	499233	1.6	20.5	11685	1.7	17.3	408953	1.8	21.4	245592	1.9	20.7	335824	1.9	20.1
106996	1.5	20.0	177234	1.6	19.9	250740	1.7	19.8	462202	1.8	20.8	312456	1.9	19.9	276559	1.9	19.8
476354	1.5	21.3	423528	1.6	20.7	417787	1.7	21.4	540709	1.8	20.5	11946	1.9	17.4	523516	1.9	21.0
524604	1.5	18.7	3766	1.6	17.1	394786	1.7	20.9	375769	1.8	20.6	543409	1.9	19.7	227880	1.9	21.4
321297	1.5	19.6	23230	1.6	16.5	527778	1.7	21.5	407288	1.8	19.9	497011	1.9	21.9	110710	1.9	19.9
219666	1.5	19.6	506688	1.6	20.9	150246	1.7	19.9	429636	1.8	20.7	428855	1.9	20.5	391305	1.9	19.7
381164	1.5	21.0	430798	1.6	20.9	316602	1.7	20.3	70808	1.8	18.9	307173	1.9	20.2	184569	1.9	19.4
71404	1.5	18.3	303697	1.6	19.8	501311	1.7	20.2	304514	1.8	20.4	467506	1.9	20.1	17382	1.9	15.8
255991	1.5	20.5	14343	1.6	15.8	103420	1.7	20.3	148093	1.8	20.1	499868	1.9	20.9	152260	1.9	20.4
453255	1.5	20.3	61807	1.6	18.6	83836	1.7	18.8	240776	1.8	19.6	454143	1.9	21.3	262675	1.9	19.9
303679	1.5	20.1	538096	1.6	20.4	453365	1.7	20.9	207816	1.8	20.3	419580	1.9	20.0	127204	1.9	19.8
281028	1.5	20.0	194406	1.6	18.9	196817	1.7	19.2	469266	1.8	20.7	31027	1.9	18.8	521261	1.9	21.1
29357	1.5	19.2	146205	1.6	18.6	12847	1.7	18.8	248350	1.8	19.5	314278	1.9	18.7	302037	1.9	19.5
35979	1.5	18.2	196212	1.6	20.3	358381	1.7	21.3	16855	1.8	16.9	114897	1.9	18.7	476517	1.9	20.4
187661	1.5	22.4	62933	1.6	18.3	42093	1.7	18.2	503990	1.8	19.0	118111	1.9	19.1	352055	1.9	20.2
105652	1.5	18.5	310348	1.6	20.6	424040	1.7	20.6	335776	1.8	20.0	40249	1.9	18.2	19026	1.9	18.3
531946	1.5	22.1	119304	1.6	19.2	414421	1.7	21.6	2639	1.8	16.2	196571	1.9	19.0	385121	1.9	19.6
258608	1.5	19.9	346735	1.6	20.8	161519	1.7	19.9	530255	1.8	21.2	488335	1.9	20.2	35774	1.9	18.5
386533	1.5	20.1	512053	1.6	19.9	231825	1.7	19.1	533570	1.8	20.6	99371	1.9	18.5	283104	1.9	19.3
534773	1.5	19.9	518173	1.6	20.8	200000	1.7	18.6	412765	1.8	20.3	88517	1.9	19.3	397793	1.9	20.3
59915	1.5	17.2	355741	1.6	21.0	267356	1.7	20.3	92172	1.8	19.1	526831	1.9	21.6	429652	1.9	20.4
290507	1.5	19.4	174490	1.6	18.7	329049	1.7	19.6	53	1.8	12.7	82384	1.9	18.5	104587	1.9	19.4
489592	1.5	19.4	478188	1.6	20.4	67973	1.7	18.7	435834	1.8	21.3	219547	1.9	18.7	16748	1.9	17.4
346160	1.5	21.0	125686	1.6	19.3	341484	1.7	20.1	172293	1.8	18.4	408141	1.9	20.4	470345	1.9	20.5
519113	1.5	20.1	395531	1.6	20.4	5501	1.7	17.4	443360	1.8	20.5	154967	1.9	19.1	297631	1.9	20.4
426793	1.5	19.2	362380	1.6	20.1	494340	1.7	20.1	270316	1.8	19.6	355847	1.9	20.5	312025	1.9	19.5
468777	1.5	21.4	494192	1.6	20.8	33037	1.7	18.7	352541	1.8	21.1	63214	1.9	18.7	338842	1.9	20.4
443416	1.5	21.7	43071	1.6	18.4	398851	1.7	20.1	241591	1.8	19.5	134086	1.9	19.9	520597	1.9	20.9
136434	1.5	18.3	410744	1.6	20.9	355707	1.7	20.7	98216	1.8	19.2	351957	1.9				

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
478213	1.9	20.3	536680	2.0	21.4	359516	2.1	20.3	142145	2.2	18.4	214183	2.3	19.5	182089	2.3	20.2
325329	1.9	20.4	432457	2.0	21.0	207552	2.1	17.4	313408	2.2	18.6	114482	2.3	18.7	431801	2.3	20.1
264994	1.9	20.7	292938	2.0	21.2	443791	2.1	20.6	9151	2.2	18.3	535458	2.3	20.8	151191	2.3	20.2
289715	1.9	20.5	498474	2.0	21.3	437484	2.1	20.3	188262	2.2	19.8	381916	2.3	20.4	61806	2.3	17.8
275095	1.9	19.2	3962	2.0	17.5	228534	2.1	20.4	136857	2.2	20.5	115374	2.3	18.6	61307	2.3	17.4
3329	1.9	15.9	486124	2.0	20.0	390625	2.1	21.7	478245	2.2	20.7	258702	2.3	20.0	205829	2.4	18.9
437483	1.9	21.2	410369	2.0	21.2	495876	2.1	20.2	364738	2.2	20.4	310717	2.3	20.9	383948	2.4	20.4
297676	1.9	19.7	134967	2.0	19.5	157956	2.1	20.3	381546	2.2	20.8	89557	2.3	17.6	216449	2.4	20.3
350787	1.9	20.4	342591	2.0	20.1	410333	2.1	18.1	32935	2.2	17.9	132056	2.3	18.7	418129	2.4	20.5
189828	1.9	17.9	352543	2.0	20.7	208421	2.1	20.0	35342	2.2	18.5	254130	2.3	19.1	398799	2.4	21.5
143726	1.9	19.9	482439	2.0	19.2	286639	2.1	20.7	380195	2.2	19.0	94107	2.3	19.6	148423	2.4	19.9
380619	1.9	18.5	282631	2.0	19.5	229600	2.1	20.2	360920	2.2	20.9	519561	2.3	20.2	285413	2.4	19.8
245545	1.9	18.3	461569	2.0	19.8	408318	2.1	21.1	74952	2.2	18.9	269505	2.3	19.9	200258	2.4	20.3
479826	1.9	21.0	122115	2.0	18.6	393181	2.1	19.9	240118	2.2	20.1	277754	2.3	20.2	88187	2.4	17.9
239112	1.9	20.5	38965	2.0	17.4	13293	2.1	17.8	187630	2.2	20.3	98422	2.3	17.1	540333	2.4	20.2
71932	1.9	19.2	18509	2.0	17.0	528603	2.1	20.4	389773	2.2	20.0	325056	2.3	21.9	157626	2.4	19.8
14825	1.9	16.0	508106	2.0	20.9	290174	2.1	18.4	38185	2.2	18.6	518911	2.3	20.2	519553	2.4	17.9
510907	1.9	20.2	64132	2.0	18.7	158353	2.1	20.4	292552	2.2	19.8	18653	2.3	18.4	343970	2.4	20.3
290848	1.9	20.8	435663	2.0	20.8	11522	2.1	17.0	516	2.2	12.1	465992	2.3	19.1	497576	2.4	21.2
172519	1.9	19.8	56631	2.0	17.3	393131	2.1	20.2	403257	2.2	20.6	59840	2.3	17.1	188557	2.4	19.5
120178	1.9	20.3	438862	2.1	20.9	17666	2.1	17.4	71231	2.2	19.0	218654	2.3	20.9	182639	2.4	20.2
213769	1.9	20.5	12574	2.1	16.9	512400	2.1	20.9	236646	2.2	20.2	178688	2.3	19.1	429306	2.4	20.8
476411	1.9	20.7	250714	2.1	19.6	342888	2.1	20.9	450977	2.2	19.3	307074	2.3	20.0	93616	2.4	19.2
53083	1.9	19.5	128242	2.1	19.5	506558	2.1	21.5	25092	2.2	17.3	198705	2.3	19.7	416027	2.4	20.9
255908	1.9	20.3	113263	2.1	19.5	521336	2.1	21.7	497918	2.2	19.5	359416	2.3	19.9	478244	2.4	21.7
493195	1.9	21.5	426563	2.1	20.1	302298	2.1	20.4	467739	2.2	20.6	328902	2.3	20.4	119451	2.4	19.5
219682	1.9	18.8	215886	2.1	20.9	27899	2.1	18.1	242584	2.2	19.3	68624	2.3	19.1	518440	2.4	22.7
250453	1.9	19.8	27593	2.1	20.6	275973	2.1	21.0	346120	2.2	20.2	107069	2.3	19.7	499279	2.4	19.8
303656	1.9	19.9	167463	2.1	19.1	398920	2.1	20.5	319535	2.2	19.5	178416	2.3	18.6	527532	2.4	21.3
241607	1.9	18.9	378276	2.1	21.0	127050	2.1	19.7	380599	2.2	19.4	536639	2.3	21.2	114773	2.4	18.4
206638	1.9	18.9	398772	2.1	21.0	531965	2.1	21.4	485548	2.2	20.5	404618	2.3	20.5	48471	2.4	17.3
260510	1.9	19.8	143995	2.1	18.9	504577	2.1	20.5	176502	2.2	19.9	407760	2.3	20.8	279734	2.4	20.7
374978	1.9	19.7	70663	2.1	19.1	255140	2.1	19.8	129715	2.2	19.3	256598	2.3	19.8	36742	2.4	17.8
401778	1.9	20.6	453289	2.1	19.8	336396	2.1	20.3	522655	2.2	19.9	20456	2.3	17.5	123622	2.4	18.7
3430	1.9	15.7	130653	2.1	18.1	81131	2.1	18.6	15506	2.2	17.9	165243	2.3	18.3	194784	2.4	18.1
278513	1.9	19.0	285130	2.1	20.3	472974	2.1	21.1	360218	2.2	18.7	427316	2.3	20.9	124539	2.4	19.4
311442	1.9	20.4	195161	2.1	20.4	350039	2.1	19.6	181018	2.2	19.2	519133	2.3	20.7	238798	2.4	18.2
354900	1.9	20.0	224351	2.1	20.4	164815	2.1	19.4	477749	2.2	20.8	260932	2.3	19.7	230072	2.4	20.2
498002	1.9	21.5	129054	2.1	18.3	435746	2.1	21.1	540904	2.2	20.4	81451	2.3	19.1	432284	2.4	21.0
431011	1.9	22.1	365119	2.1	20.8	176868	2.1	19.9	189802	2.2	19.2	115729	2.3	19.0	301398	2.4	20.2
499055	1.9	21.8	538196	2.1	21.5	159640	2.2	19.9	35254	2.2	18.7	349117	2.3	21.1	250098	2.4	18.1
73347	1.9	18.7	362071	2.1	19.9	403880	2.2	19.0	139548	2.2	18.5	473581	2.3	21.1	430515	2.4	21.3
173382	1.9	19.9	427780	2.1	19.6	35398	2.2	18.6	236515	2.2	20.0	134293	2.3	18.6	346136	2.4	20.7
2502369	1.9	21.0	3615	2.1	15.9	155795	2.2	17.2	319607	2.2	21.0	23105	2.3	17.5	498491	2.4	20.8
303788	1.9	20.6	147691	2.1	19.2	540432	2.2	21.5	165519	2.2	19.5	263144	2.3	20.4	501196	2.4	20.9
28525	1.9	17.0	529680	2.1	19.4	117531	2.2	19.1	41182	2.2	19.1	408340	2.3	20.2	212331	2.4	18.6
168073	1.9	20.0	388369	2.1	20.2	394666	2.2	20.8	373566	2.2	19.8	482146	2.3	21.0	17636	2.4	17.0
141196	2.0	20.0	469986	2.1	21.5	427931	2.2	21.1	140331	2.2	20.2	506489	2.3	21.1	118411	2.4	18.1
321866	2.0	20.2	392413	2.1	19.1	363276	2.2	20.6	528392	2.2	20.6	163131	2.3	19.2	463103	2.4	21.0
148110	2.0	19.0	474159	2.1	19.7	279456	2.2	20.6	464904	2.2	21.1	14322	2.3	16.1	88046	2.4	19.6
30897	2.0	18.2	528669	2.1	20.4	208873	2.2	19.7	42202	2.2	18.6	480327	2.3	19.6	255763	2.4	20.3
313059	2.0	18.5	423712	2.1	22.4	162140	2.2	17.8	110995	2.2	19.5	96028	2.3	18.5	424106	2.4	19.8
96927	2.0	18.9	394248	2.1	20.8	63617	2.2	16.9	398050	2.2	20.3	243675	2.3	19.9	151385	2.4	20.4
472408	2.0	21.2	369084	2.1	18.8	146109	2.2	19.2	429566	2.2	22.1	276142	2.3	19.7	41123	2.4	18.0
363264	2.0	21.3	410752	2.1	21.6	207103	2.2	20.6	93268	2.2	18.4	38046	2.3	17.6	54663	2.4	18.8
496920	2.0	20.6	87173	2.1	17.3	522904	2.2	20.1	83828	2.2	18.9	453576	2.3	20.9	332532	2.4	20.8
497195	2.0	21.4	131929	2.1	20.0	535456	2.2	20.9	508431	2.2	20.2	102028	2.3	18.6	237361	2.4	20.5
121807	2.0	18.9	511427	2.1	21.3	430576	2.2	20.2	465191	2.2	20.7	263766	2.3	19.5	36215	2.4	17.8
512754	2.0	20.8	334384	2.1	20.9	537816	2.2	20.1	325023	2.2	20.5	11640	2.3	17.1	306699	2.4	19.6
177271	2.0	19.0	147219	2.1	20.4	260080	2.2	21.1	124080	2.2	17.7	141514	2.3	18.5	504985	2.4	20.8
180513	2.0	20.9	60983	2.1	17.9	357901	2.2	20.2	300256	2.2	20.0	402893	2.3	19.5	198744	2.4	20.7
482148	2.0	21.7	529748	2.1	20.4	143859	2.2	20.1	368675	2.2	20.8	161502	2.3	19.6	224323	2.4	20.3
125178	2.0	19.2	527876	2.1	20.2	171814	2.2	20.7	536215	2.2	21.3	120765	2.3	19.9	110083	2.4	17.8
34349	2.0	17.3	14443	2.1	16.9	476277	2.2	20.9	484403	2.2	22.6	151851	2.3	19.4	430214	2.4	18.9
467782	2.0	19.5	62077	2.1	18.9	20788	2.2	17.8	8093	2.2	17.3	294169	2.3	17.5	1559	2.4	15.6
350987	2.0	19.8	207513	2.1	19.6	89825	2.2	16.9	49157	2.3	17.6	132184	2.3	19.6	479884	2.4	21.4
107907	2.0	18.7	390405	2.1	20.6	236297	2.2	18.3	516381	2.3	20.2	193606	2.3	18.0	517276	2.4	20.7
105910	2.0	19.6	151068	2.1	19.4	123879	2.2	19.5	8416	2.3	15.1	28381	2.3	17.0	392596	2.4	20.2
255689	2.0	19.3	478385	2.1	19.8	39037	2.2	17.9	65517	2.3	19.1	518949	2.3	20.4	319142	2.4	21.4
367130	2.0	20.6	223643	2.1	19.6	335830	2.2	20.5	497417	2.3	20.2	333142	2.3	20.2	160285	2.4	19.9
181552	2.0	19.2	539227	2.1	20.9	160380	2.2	19.6	425993	2.3	20.2	412380	2.3	20.4			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
396360	2.4	20.5	156507	2.5	19.6	70859	2.6	18.5	533076	2.7	21.0	365176	2.8	20.8	524149	2.8	19.8
248332	2.4	19.2	163370	2.5	19.7	461574	2.6	19.4	361009	2.7	21.9	249129	2.8	19.4	427505	2.8	20.0
159096	2.4	18.5	418414	2.5	20.4	39923	2.6	17.4	251620	2.7	19.7	343891	2.8	20.6	524732	2.8	20.8
179386	2.4	20.7	265003	2.5	20.4	128768	2.6	19.2	356309	2.7	20.5	397564	2.8	19.5	309690	2.8	20.7
75026	2.4	18.1	428741	2.5	19.1	488756	2.6	20.9	75094	2.7	17.9	525179	2.8	20.9	501730	2.8	21.3
399862	2.4	21.1	44402	2.5	17.9	247726	2.6	19.9	297795	2.7	20.7	290855	2.8	19.5	4668	2.8	16.0
158387	2.4	20.3	354817	2.5	19.8	107435	2.6	20.7	347936	2.7	20.5	506246	2.8	20.9	20741	2.8	19.0
84148	2.4	16.8	23458	2.5	15.9	343361	2.6	19.6	530731	2.7	22.2	393963	2.8	20.5	530322	2.8	22.0
508198	2.5	21.2	388803	2.5	20.4	268308	2.6	20.0	237180	2.7	20.8	254548	2.8	21.2	313921	2.8	18.8
126740	2.5	19.0	110571	2.5	18.1	393652	2.6	19.6	178834	2.7	20.0	32441	2.8	16.9	334758	2.9	19.8
189760	2.5	19.7	235854	2.5	20.3	279736	2.6	20.2	105591	2.7	18.9	205671	2.8	19.9	199319	2.9	19.0
417455	2.5	19.1	190162	2.5	18.7	270581	2.6	19.9	110600	2.7	18.0	543307	2.8	20.4	85709	2.9	17.7
358918	2.5	21.1	287140	2.5	19.4	535617	2.6	20.8	209061	2.7	19.1	337205	2.8	20.3	200842	2.9	19.7
420002	2.5	21.1	438243	2.5	20.0	526118	2.6	21.3	108022	2.7	19.1	25325	2.8	17.9	410303	2.9	21.3
520300	2.5	20.7	333934	2.5	19.9	172109	2.6	18.5	527733	2.7	20.4	362692	2.8	20.2	72278	2.9	18.6
358815	2.5	20.7	276506	2.5	19.0	327236	2.6	19.6	165251	2.7	18.2	409164	2.8	21.0	245607	2.9	20.0
157675	2.5	19.3	141522	2.5	19.5	529596	2.6	21.2	289388	2.7	19.9	250945	2.8	20.1	68066	2.9	19.2
17506	2.5	18.0	359046	2.5	21.3	464585	2.6	22.1	204563	2.7	19.4	247142	2.8	19.3	320524	2.9	20.5
190651	2.5	19.7	267420	2.5	20.7	32237	2.6	18.5	137935	2.7	19.3	443508	2.8	21.0	157884	2.9	17.0
542779	2.5	20.0	477571	2.5	20.5	71690	2.6	19.8	267414	2.7	20.8	262843	2.8	20.6	510139	2.9	20.7
99499	2.5	20.6	475850	2.5	21.5	184673	2.6	19.5	427234	2.7	20.6	64764	2.8	19.0	138229	2.9	19.1
228644	2.5	20.7	187249	2.5	19.1	105701	2.6	18.9	246691	2.7	20.8	417674	2.8	21.4	474912	2.9	20.3
88884	2.5	18.3	533188	2.5	22.0	271628	2.6	19.3	202994	2.7	20.5	528639	2.8	20.4	165385	2.9	19.5
83527	2.5	19.0	151163	2.5	19.6	304291	2.6	20.4	272628	2.7	21.6	497362	2.8	20.6	350954	2.9	21.4
140698	2.5	19.3	475532	2.5	21.1	254204	2.6	19.8	204353	2.7	18.5	363925	2.8	20.7	526306	2.9	22.1
402383	2.5	21.4	540970	2.5	21.3	123155	2.6	18.3	374510	2.7	20.4	526571	2.8	21.9	531954	2.9	20.6
375866	2.5	19.0	267197	2.5	19.1	413202	2.6	21.2	336367	2.7	20.6	431034	2.8	20.6	141082	2.9	19.6
204080	2.5	20.1	495938	2.5	19.3	458935	2.6	21.6	413472	2.7	20.8	425210	2.8	20.1	340379	2.9	19.8
462178	2.5	19.9	508334	2.5	21.1	102406	2.6	19.5	347888	2.7	19.4	56923	2.8	18.4	17767	2.9	17.4
492500	2.5	20.4	384565	2.5	21.0	419295	2.6	20.0	90927	2.7	18.0	185683	2.8	19.3	511409	2.9	21.0
44328	2.5	18.8	241035	2.5	19.3	532031	2.6	20.6	359546	2.7	20.2	48712	2.8	18.6	305269	2.9	20.9
319518	2.5	20.7	336394	2.5	19.0	335571	2.6	20.5	151055	2.7	18.1	108156	2.8	19.4	334362	2.9	20.3
434486	2.5	18.4	421036	2.5	20.3	108504	2.6	17.1	288253	2.7	20.4	497515	2.8	20.9	416347	2.9	19.7
527881	2.5	22.1	152337	2.5	19.5	523066	2.6	20.9	281274	2.7	18.9	92179	2.8	18.9	276128	2.9	19.4
194044	2.5	20.2	344502	2.6	19.4	344521	2.6	20.3	208625	2.7	18.8	490076	2.8	21.2	322806	2.9	19.9
97207	2.5	19.0	474987	2.6	21.4	22783	2.6	19.0	213951	2.7	19.6	395718	2.8	19.8	25316	2.9	16.0
490672	2.5	21.1	539498	2.6	21.1	351540	2.6	20.9	497399	2.7	20.1	539476	2.8	21.4	263600	2.9	21.2
436998	2.5	20.9	219540	2.6	19.2	392553	2.6	20.1	508095	2.7	21.3	303309	2.8	18.7	240325	2.9	19.8
38589	2.5	17.8	292379	2.6	19.6	69374	2.6	18.5	97097	2.7	19.8	205801	2.8	19.4	312657	2.9	18.7
67823	2.5	18.3	459569	2.6	21.3	193658	2.6	19.8	342540	2.7	20.4	365905	2.8	21.5	376928	2.9	20.1
274338	2.5	20.2	270141	2.6	19.1	140918	2.6	19.7	459947	2.7	19.5	355667	2.8	20.4	224841	2.9	19.6
22883	2.5	15.9	84568	2.6	19.3	359524	2.6	20.0	408130	2.7	20.6	51252	2.8	18.6	140989	2.9	19.3
388830	2.5	20.7	396464	2.6	19.8	476573	2.6	20.4	530735	2.7	21.5	106291	2.8	18.6	200286	2.9	17.8
180168	2.5	20.1	169472	2.6	19.3	347908	2.6	19.2	281081	2.7	19.5	475500	2.8	20.9	128787	2.9	18.0
133989	2.5	19.1	495115	2.6	19.7	17719	2.6	17.9	156421	2.7	19.5	379290	2.8	20.3	380190	2.9	20.7
276123	2.5	20.5	385468	2.6	20.1	78919	2.6	17.5	383926	2.7	19.6	432483	2.8	21.3	15473	2.9	16.5
499455	2.5	21.8	435577	2.6	20.9	145515	2.6	19.6	375030	2.7	20.0	200655	2.8	18.7	349474	2.9	20.6
518219	2.5	20.3	45275	2.6	18.9	342572	2.6	20.3	338620	2.7	19.8	485051	2.8	22.7	418110	2.9	19.8
466974	2.5	21.2	348715	2.6	20.8	491161	2.6	19.9	247865	2.7	18.8	164656	2.8	19.3	50465	2.9	19.3
149626	2.5	18.9	288519	2.6	21.9	438629	2.6	21.1	476210	2.7	20.9	242175	2.8	21.1	421641	2.9	19.7
108305	2.5	19.2	106706	2.6	18.5	474916	2.6	20.4	333935	2.7	19.9	103106	2.8	18.6	308127	2.9	22.4
279347	2.5	19.9	393962	2.6	20.0	281688	2.6	19.8	537643	2.7	20.9	307397	2.8	19.7	473694	2.9	21.1
111172	2.5	18.0	185417	2.6	19.7	439174	2.6	19.7	326134	2.7	20.9	131114	2.8	19.8	299893	2.9	19.9
365547	2.5	20.4	122820	2.6	19.2	210420	2.6	19.7	354861	2.7	19.8	77142	2.8	19.7	173591	2.9	20.3
354546	2.5	20.2	497426	2.6	20.2	177349	2.6	20.9	70913	2.7	19.3	503673	2.8	21.0	193600	2.9	20.1
374406	2.5	18.7	417448	2.6	18.3	152590	2.6	19.3	164865	2.7	18.8	192728	2.8	19.5	401007	2.9	20.2
475880	2.5	21.0	417535	2.6	19.5	92939	2.7	18.5	401008	2.7	20.4	470411	2.8	21.0	55777	2.9	18.9
352702	2.5	19.8	304578	2.6	20.6	421475	2.7	20.4	416184	2.7	20.5	377375	2.8	19.1	500265	2.9	21.4
374992	2.5	21.3	528998	2.6	20.1	403226	2.7	21.3	526815	2.7	21.9	535930	2.8	20.6	55884	2.9	19.3
518511	2.5	20.9	503882	2.6	21.4	222580	2.7	18.7	497436	2.7	20.6	199600	2.8	20.0	178597	2.9	20.4
508868	2.5	20.1	371893	2.6	21.2	462192	2.7	20.9	46149	2.7	19.2	499865	2.8	21.9	354905	2.9	20.5
427131	2.5	21.2	531687	2.6	21.1	503468	2.7	21.1	434730	2.7	20.7	275009	2.8	19.0	250404	2.9	19.4
300600	2.5	20.0	376958	2.6	20.6	70246	2.7	17.8	364713	2.7	20.6	478333	2.8	20.5	373563	2.9	18.3
170412	2.5	20.2	415995	2.6	21.1	309768	2.7	21.4	330342	2.7	20.1	510360	2.8	20.6	520222	2.9	21.1
436862	2.5	20.1	362510	2.6	21.2	428218	2.7	20.8	474778	2.7	20.8	94011	2.8	18.5	133981	2.9	19.1
276968	2.5	19.1	425895	2.6	21.2	356317	2.7	20.8	529925	2.7	19.4	507569	2.8	21.7	41888	2.9	17.4
208671	2.5	19.3	239097	2.6	20.0	237242	2.7	21.1	202733	2.7	19.4	507850	2.8	21.5	200773	2.9	20.7
276993	2.5	19.5	93436	2.6	20.1	252213	2.7	20.9	103390	2.7	19.0	263859	2.8	20.4	342693	2.9	20.4
529852	2.5	20.6	518401	2.6	21.3	195603	2.7	20.2	233870	2.7	20.1	472355	2.8	20.9	48483	2.9	18.5
16681	2.5	15.9	500222	2.6	18.8	512661	2.7	20.1	283086	2.7	20.4	357832	2.8	20.3	118258	2.9	19.5
192369	2.5	20.2	391714	2.6	21.3	72119	2.7	18.6	338604	2.7	19.4</						

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
433043	2.9	20.6	175095	3.0	18.3	354676	3.1	19.8	110537	3.2	18.8	313787	3.2	20.3	288025	3.3	20.1
479251	2.9	20.3	3071	3.0	16.8	203187	3.1	18.6	368558	3.2	19.1	342417	3.2	20.1	42043	3.3	18.5
501280	2.9	20.3	16631	3.0	17.9	369090	3.1	18.5	144143	3.2	20.0	397747	3.2	21.5	41601	3.3	19.2
77631	2.9	19.3	29175	3.0	17.4	59382	3.1	19.8	525048	3.2	19.5	302858	3.2	20.4	118427	3.3	18.5
424408	2.9	21.7	121002	3.0	19.3	433532	3.1	20.4	291051	3.2	19.7	98569	3.3	19.1	270545	3.3	19.5
32067	2.9	17.6	280347	3.0	19.2	103016	3.1	18.8	501365	3.2	20.8	12394	3.3	18.3	387175	3.3	20.0
135277	2.9	18.9	32473	3.0	18.1	75714	3.1	18.4	415090	3.2	20.6	53257	3.3	17.7	510622	3.3	20.2
501599	2.9	20.2	333291	3.0	18.3	507085	3.1	21.0	398505	3.2	20.7	351615	3.3	17.7	196570	3.3	18.8
312850	2.9	20.1	68732	3.0	18.9	59668	3.1	17.8	357836	3.2	20.6	276681	3.3	18.8	538041	3.3	20.9
423793	2.9	21.3	357882	3.0	19.0	533980	3.1	21.2	197475	3.2	20.2	107805	3.3	19.9	476492	3.3	21.4
131076	2.9	19.7	357756	3.0	20.6	274831	3.1	20.6	519703	3.2	21.5	219323	3.3	19.1	123260	3.3	19.6
17394	2.9	18.1	193781	3.0	18.5	531960	3.1	20.7	137882	3.2	18.4	429182	3.3	20.1	371105	3.3	19.1
98751	2.9	19.0	509044	3.0	19.4	342698	3.1	20.1	350845	3.2	20.3	105123	3.3	19.1	491244	3.3	20.2
423662	2.9	19.7	286117	3.0	19.8	122831	3.1	18.7	221086	3.2	19.3	346746	3.3	20.7	355568	3.3	21.1
437068	2.9	20.7	12142	3.0	18.2	67884	3.1	17.4	290476	3.2	20.1	174428	3.3	19.3	502826	3.3	21.1
152181	2.9	19.0	172860	3.0	20.0	196508	3.1	18.3	107395	3.2	19.1	145590	3.3	19.0	202295	3.3	20.2
391102	2.9	20.2	422843	3.0	20.9	532096	3.1	20.6	119467	3.2	17.8	367483	3.3	20.1	52538	3.3	20.1
241601	2.9	19.0	434662	3.0	21.2	222731	3.1	19.9	106452	3.2	18.1	356736	3.3	19.7	389793	3.4	20.4
172837	2.9	19.3	202811	3.0	18.9	297092	3.1	19.1	92541	3.2	17.7	249814	3.3	20.2	209460	3.4	19.3
83507	2.9	19.5	32488	3.0	18.4	41710	3.1	17.9	346984	3.2	20.5	247375	3.3	20.2	461567	3.4	20.6
497990	2.9	20.5	205839	3.0	20.2	10575	3.1	17.2	457690	3.2	21.0	95225	3.3	18.7	518573	3.4	21.3
428807	2.9	20.3	236598	3.0	20.8	460313	3.1	20.2	154674	3.2	19.7	70271	3.3	17.5	174556	3.4	19.6
1524	2.9	14.5	454379	3.0	20.6	533381	3.1	22.4	525447	3.2	21.8	210936	3.3	19.3	102720	3.4	19.8
436929	2.9	20.9	153877	3.0	19.8	453249	3.1	19.2	80692	3.2	18.5	467264	3.3	20.4	475618	3.4	20.0
175	2.9	11.5	359034	3.0	20.4	362525	3.1	21.3	219603	3.2	19.8	260396	3.3	19.2	247436	3.4	19.5
214171	2.9	20.0	380174	3.0	18.8	501803	3.1	20.9	20425	3.2	23.2	166008	3.3	19.6	479974	3.4	21.1
141938	2.9	19.0	133468	3.0	19.5	91012	3.1	19.1	375047	3.2	20.1	117957	3.3	18.9	107676	3.4	19.2
44805	2.9	18.3	64402	3.0	18.3	131645	3.1	18.8	476463	3.2	19.7	112150	3.3	18.3	432815	3.4	20.9
384002	2.9	19.9	33426	3.0	17.9	467126	3.1	21.0	13910	3.2	16.9	311589	3.3	20.1	362419	3.4	20.1
149433	2.9	19.2	530023	3.0	20.3	36027	3.1	17.7	307555	3.2	20.1	430235	3.3	19.0	408124	3.4	21.0
179686	2.9	19.8	64252	3.0	17.2	316024	3.1	20.7	157820	3.2	19.9	478095	3.3	20.3	199119	3.4	19.1
103646	2.9	19.6	55342	3.0	18.8	182940	3.1	19.3	307968	3.2	20.2	20969	3.3	16.2	165440	3.4	18.6
181072	2.9	19.7	333913	3.0	20.4	380189	3.1	19.2	426222	3.2	21.1	504519	3.3	20.5	62584	3.4	18.7
343743	2.9	20.7	336406	3.0	18.8	418094	3.1	23.3	302030	3.2	19.3	505902	3.3	20.2	20920	3.4	17.9
492697	2.9	18.8	537047	3.0	21.5	527561	3.1	20.3	48624	3.2	17.4	496081	3.3	19.0	168985	3.4	20.0
238874	2.9	20.9	434761	3.0	22.4	510504	3.1	21.5	468400	3.2	20.5	289940	3.3	19.2	14194	3.4	16.9
393913	2.9	20.4	276137	3.0	20.1	33014	3.1	18.8	357795	3.2	20.1	536669	3.3	20.5	418277	3.4	21.4
292475	2.9	20.3	421468	3.0	18.3	215298	3.1	18.8	478277	3.2	20.5	170076	3.3	19.3	267203	3.4	18.7
311389	2.9	20.3	326196	3.0	20.7	70872	3.1	18.2	443375	3.2	20.7	157595	3.3	20.0	263249	3.4	19.7
214423	2.9	20.1	355196	3.0	20.1	84905	3.1	19.0	289234	3.2	19.7	105988	3.3	19.0	20032	3.4	16.7
87385	2.9	18.1	248056	3.0	18.9	264998	3.1	19.6	317248	3.2	20.0	284545	3.3	20.4	433544	3.4	20.3
136541	2.9	18.3	242250	3.0	20.2	531877	3.1	21.2	459549	3.2	20.4	249631	3.3	18.4	536115	3.4	20.3
426505	2.9	19.7	482112	3.0	19.6	128634	3.1	18.1	320448	3.2	21.0	308943	3.3	20.7	170817	3.4	20.0
438465	2.9	21.1	469570	3.0	20.1	361502	3.1	21.2	11975	3.2	17.6	116304	3.3	19.1	1966	3.4	17.5
237516	2.9	19.4	392624	3.0	19.8	376947	3.1	20.5	497494	3.2	19.4	501805	3.3	21.1	182891	3.4	19.4
377747	2.9	20.4	151033	3.0	19.7	142808	3.1	19.7	299392	3.2	20.5	175048	3.3	19.1	296162	3.4	20.8
255065	2.9	19.8	153011	3.0	18.7	312537	3.1	20.7	500231	3.2	20.5	408713	3.3	19.7	472994	3.4	21.4
224268	2.9	20.2	320284	3.1	19.9	152216	3.1	20.6	410233	3.2	19.0	465359	3.3	19.7	226690	3.4	19.8
512620	2.9	20.7	234269	3.1	19.4	225912	3.1	20.0	228394	3.2	20.8	331918	3.3	18.3	211140	3.4	20.2
250813	2.9	20.0	464381	3.1	21.1	59184	3.1	16.9	81657	3.2	19.0	264558	3.3	18.9	193889	3.4	18.6
531792	2.9	20.6	65238	3.1	18.8	172965	3.1	18.2	478395	3.2	20.9	215212	3.3	19.1	521297	3.4	21.1
365078	2.9	21.1	332146	3.1	18.6	302396	3.1	21.3	64726	3.2	18.6	391367	3.3	20.4	41647	3.4	19.4
30645	2.9	18.2	143518	3.1	19.7	465426	3.1	18.6	72901	3.2	19.3	74763	3.3	18.2	349416	3.4	20.6
508196	2.9	20.4	303927	3.1	21.0	476388	3.1	21.5	290502	3.2	20.0	178460	3.3	18.4	384019	3.4	19.7
160681	2.9	18.2	5341	3.1	15.7	352494	3.1	20.7	343872	3.2	20.2	505972	3.3	20.0	380108	3.4	19.0
200863	2.9	19.7	501682	3.1	20.7	392626	3.1	19.9	372473	3.2	19.1	298348	3.3	20.4	498644	3.4	19.1
327218	2.9	19.9	425783	3.1	21.6	196236	3.1	19.7	174727	3.2	18.6	361434	3.3	19.2	369821	3.4	20.5
172377	2.9	17.9	456168	3.1	21.1	186118	3.1	18.7	524936	3.2	20.8	491146	3.3	19.6	522627	3.4	19.4
379289	2.9	20.9	337207	3.1	19.5	525117	3.1	21.0	126541	3.2	18.4	537427	3.3	19.7	249635	3.4	17.7
222687	2.9	20.2	117224	3.1	18.2	237403	3.1	18.0	98915	3.2	19.1	473695	3.3	21.7	228384	3.4	19.8
208685	2.9	20.2	263094	3.1	19.8	255009	3.1	19.7	371009	3.2	19.0	311267	3.3	20.8	246220	3.4	18.9
72101	2.9	18.7	33017	3.1	17.6	269079	3.1	19.5	52647	3.2	18.3	117871	3.3	18.8	233198	3.4	20.0
134184	2.9	19.9	380778	3.1	20.1	526001	3.1	21.0	389074	3.2	20.2	387806	3.3	21.0	182658	3.4	18.7
154497	2.9	20.0	32621	3.1	17.0	432043	3.1	20.9	76815	3.2	17.8	419556	3.3	19.4	228605	3.4	19.8
441375	2.9	20.9	2603	3.1	15.9	152469	3.1	19.2	209705	3.2	19.9	20659	3.3	16.9	236068	3.4	19.3
388403	2.9	21.3	445288	3.1	19.9	254723	3.1	19.8	131928	3.2	19.3	26468	3.3	18.1	396784	3.4	19.3
479246	2.9	20.0	120995	3.1	18.7	276093	3.1	20.6	79254	3.2	17.8	518791	3.3	20.4	491214	3.4	21.0
419911	2.9	21.0	161539	3.1	17.7	461919	3.1	19.9	260462	3.2	20.7	233267	3.3	19.5	74935	3.4	18.8
390652	2.9	18.7	215570	3.1	19.0	478086	3.1	20.9	392066	3.2	20.6	500983	3.3	19.6	272614	3.4	19.9
430485	2.9	20.9	39375	3.1	18.5	184882	3.1	19.5	206985	3.2	17.8	379889	3.3	19.9	480549	3.4	20.8
192725	2.9	19.4	522303	3.1	21.1	25490	3.1	17.6	375735	3.2	21.0	305583	3.3	2			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
125047	3.4	18.9	147685	3.5	19.3	540794	3.6	21.1	538237	3.6	20.6	42457	3.7	18.6	390385	3.8	21.0
89916	3.4	18.2	480497	3.5	19.8	425533	3.6	19.5	270339	3.6	20.9	243272	3.7	19.0	529364	3.8	21.3
47951	3.4	18.2	419831	3.5	21.3	436687	3.6	19.9	13212	3.6	17.3	494403	3.7	20.5	92636	3.8	17.8
203715	3.4	19.0	319989	3.5	20.2	5520	3.6	15.8	517139	3.6	20.9	198635	3.7	19.7	32186	3.8	17.6
126994	3.4	19.5	279449	3.5	19.7	34937	3.6	17.7	160738	3.6	16.7	259513	3.7	20.0	75169	3.8	18.8
193580	3.4	19.7	352001	3.5	20.2	131200	3.6	19.2	508443	3.6	20.0	297065	3.7	19.5	494185	3.8	19.6
30905	3.4	17.4	250806	3.5	19.7	466568	3.6	18.7	124199	3.6	17.8	153481	3.7	18.1	83177	3.8	18.4
358035	3.4	19.9	253323	3.5	21.2	272765	3.6	20.4	412019	3.6	20.5	85980	3.7	19.3	93391	3.8	18.7
408186	3.4	20.8	495419	3.5	19.9	523720	3.6	20.4	342708	3.6	19.5	201555	3.7	19.0	165043	3.8	19.2
72125	3.4	19.4	507498	3.5	21.3	243046	3.6	19.1	476403	3.6	20.4	94657	3.7	18.8	352519	3.8	20.7
477661	3.4	21.3	507826	3.5	20.1	533630	3.6	22.3	542941	3.6	20.5	522450	3.7	21.1	262295	3.8	21.3
60873	3.4	17.0	464801	3.5	21.6	509020	3.6	19.7	135642	3.6	19.2	308446	3.7	20.3	239330	3.8	19.4
194112	3.4	19.8	526294	3.5	21.9	358480	3.6	19.9	118969	3.6	19.8	118449	3.7	19.0	315471	3.8	19.4
250014	3.4	19.9	42390	3.5	18.9	41957	3.6	18.2	461445	3.6	20.2	321072	3.7	19.7	435628	3.8	20.6
370173	3.4	19.7	386116	3.5	20.3	330010	3.6	19.7	144590	3.7	20.1	413836	3.7	19.3	474206	3.8	19.6
474851	3.4	20.4	11080	3.5	16.6	201939	3.6	19.9	365935	3.7	19.9	84943	3.7	18.6	412528	3.8	19.7
376963	3.4	20.1	435653	3.5	21.2	106114	3.6	19.4	72199	3.7	19.2	110446	3.7	19.2	393180	3.8	19.9
496410	3.4	20.5	245173	3.5	19.8	472127	3.6	21.1	187435	3.7	20.4	203706	3.7	19.6	526279	3.8	21.2
160505	3.4	19.6	278330	3.5	19.7	510095	3.6	20.9	249185	3.7	18.9	466353	3.7	20.5	494326	3.8	19.9
219572	3.4	19.5	345242	3.5	19.9	379568	3.6	20.2	250899	3.7	20.1	94731	3.7	18.0	242693	3.8	19.3
137506	3.4	17.6	370967	3.5	21.0	209435	3.6	20.0	126676	3.7	19.4	401596	3.7	20.5	431120	3.8	21.0
457632	3.4	22.1	335614	3.5	20.1	416573	3.6	22.1	179525	3.7	18.8	536774	3.7	21.2	152256	3.8	19.8
280618	3.4	19.9	200622	3.5	20.0	464154	3.6	20.5	216116	3.7	20.4	464511	3.7	20.2	418224	3.8	20.6
53518	3.4	16.5	425832	3.5	20.4	40546	3.6	18.4	504772	3.7	20.4	307028	3.7	19.4	536618	3.8	20.3
356408	3.4	19.6	295837	3.5	18.9	458860	3.6	20.9	43453	3.7	19.6	352579	3.7	20.3	130452	3.8	19.0
24773	3.4	17.1	526051	3.5	19.9	501256	3.6	19.1	44895	3.7	18.1	289858	3.7	19.5	511651	3.8	21.1
523673	3.4	20.8	89117	3.5	19.1	302826	3.6	20.1	134051	3.7	19.9	508134	3.7	21.0	204214	3.8	18.7
91487	3.4	17.0	131842	3.5	19.3	349889	3.6	20.3	115393	3.7	19.0	434370	3.7	19.5	257300	3.8	20.2
467387	3.4	19.2	304836	3.5	19.1	55635	3.6	16.6	11550	3.7	17.2	479240	3.7	20.9	532083	3.8	22.1
72789	3.4	18.5	468345	3.5	20.1	379225	3.6	20.4	51338	3.7	18.2	198974	3.7	18.4	306142	3.8	19.8
168745	3.4	17.9	361442	3.5	21.7	481308	3.6	21.0	421164	3.7	18.8	537527	3.7	20.2	144806	3.8	19.1
57441	3.4	19.3	359500	3.5	19.5	361531	3.6	21.2	64873	3.7	19.6	496873	3.7	19.9	117621	3.8	19.6
401862	3.4	18.8	6169	3.5	16.8	160293	3.6	19.8	298863	3.7	18.2	215244	3.7	19.4	512492	3.8	20.7
241336	3.4	19.4	3839	3.5	15.6	88096	3.6	16.8	239560	3.7	20.2	19780	3.7	18.1	313940	3.8	20.0
320546	3.4	20.8	14981	3.5	17.2	224274	3.6	20.2	258794	3.7	20.3	501744	3.7	20.8	540475	3.8	20.6
281248	3.4	19.4	234633	3.5	18.9	398437	3.6	20.6	523543	3.7	20.5	303662	3.7	18.5	210503	3.8	18.6
166061	3.4	19.8	381509	3.5	19.5	453806	3.6	20.9	140285	3.7	18.4	93551	3.7	18.4	160286	3.8	19.8
224541	3.4	19.7	1144	3.5	14.7	488964	3.6	20.4	342780	3.7	20.7	502289	3.7	20.3	307989	3.8	19.4
198554	3.4	20.6	257723	3.5	18.5	392178	3.6	20.1	513246	3.7	21.9	16020	3.7	16.6	169024	3.8	20.9
254212	3.4	19.3	118970	3.5	19.7	452754	3.6	21.9	289607	3.7	19.8	477703	3.7	19.9	20976	3.8	18.8
497507	3.4	21.1	148618	3.5	18.3	193217	3.6	18.4	413458	3.7	20.7	61955	3.7	18.1	376930	3.8	20.7
54580	3.4	18.5	291578	3.5	19.4	306273	3.6	20.0	460279	3.7	19.8	24385	3.7	17.5	391356	3.8	20.8
148763	3.4	19.1	97911	3.5	18.3	80275	3.6	18.4	39762	3.7	18.1	95688	3.7	19.4	219415	3.8	19.6
470001	3.4	20.8	469566	3.5	20.1	200480	3.6	18.1	8587	3.7	17.7	280075	3.7	21.1	291101	3.8	18.5
110962	3.5	18.9	331924	3.5	19.7	479219	3.6	20.8	45117	3.7	19.3	320940	3.7	19.0	505851	3.8	19.6
377463	3.5	22.3	427762	3.5	18.9	428312	3.6	20.6	190462	3.7	18.8	510996	3.8	19.8	443010	3.8	21.4
12860	3.5	17.0	61185	3.5	18.1	403220	3.6	20.5	10679	3.7	18.3	361108	3.8	21.2	254409	3.8	19.8
214946	3.5	20.0	236564	3.5	20.4	128939	3.6	19.4	310476	3.7	18.7	520018	3.8	20.3	140688	3.8	19.9
529561	3.5	20.6	78782	3.5	19.0	253051	3.6	19.0	213206	3.7	19.3	532986	3.8	20.8	349902	3.8	20.6
392991	3.5	20.0	319475	3.5	18.6	117587	3.6	19.3	385533	3.7	23.3	242616	3.8	19.6	62195	3.8	17.8
395457	3.5	20.0	177348	3.5	20.5	506631	3.6	20.4	440681	3.7	19.5	524919	3.8	19.5	391708	3.8	19.0
159103	3.5	18.8	185181	3.5	20.2	345061	3.6	19.7	176439	3.7	19.9	302302	3.8	19.6	64915	3.8	19.6
282632	3.5	18.4	282933	3.5	18.0	155231	3.6	19.1	392820	3.7	22.0	64716	3.8	18.9	477651	3.8	20.7
109106	3.5	18.9	446601	3.5	20.5	532023	3.6	22.2	509834	3.7	20.1	215889	3.8	19.7	280318	3.8	19.1
349451	3.5	20.3	446040	3.5	20.7	533009	3.6	21.8	536641	3.7	21.3	492513	3.8	19.5	120441	3.8	18.2
360139	3.5	19.6	531029	3.5	21.4	127676	3.6	19.3	397791	3.7	20.5	168986	3.8	20.6	310010	3.8	20.3
144397	3.5	19.6	280815	3.5	19.3	145526	3.6	18.9	477152	3.7	20.1	521210	3.8	21.3	304523	3.8	20.5
495989	3.5	19.3	307862	3.5	21.1	312160	3.6	20.2	37536	3.7	20.0	185460	3.8	19.7	540966	3.8	22.3
107061	3.5	19.9	106121	3.5	17.6	440667	3.6	20.2	270444	3.7	20.4	209640	3.8	19.1	356930	3.8	19.7
68564	3.5	19.1	253825	3.5	20.1	390677	3.6	18.7	331538	3.7	18.8	503487	3.8	20.5	351906	3.9	20.4
510459	3.5	22.4	381576	3.5	20.7	332792	3.6	19.1	249629	3.7	20.2	379408	3.8	20.1	408248	3.9	20.4
289363	3.5	21.4	471490	3.5	20.0	61247	3.6	17.2	202579	3.7	19.9	505899	3.8	20.5	510805	3.9	21.3
424820	3.5	20.7	106161	3.5	19.2	507064	3.6	21.0	231777	3.7	19.7	410367	3.8	19.0	438235	3.9	20.2
427965	3.5	21.1	272662	3.5	20.8	499072	3.6	21.2	248536	3.7	19.2	442870	3.8	20.0	209857	3.9	20.0
72434	3.5	18.4	228336	3.6	18.6	184143	3.6	19.6	19354	3.7	17.8	119764	3.8	17.3	99719	3.9	18.8
18039	3.5	17.6	10784	3.6	17.1	315217	3.6	19.5	432443	3.7	21.4	538394	3.8	21.3	491228	3.9	21.1
106820	3.5	18.5	225570	3.6	18.5	472784	3.6	20.6	118834	3.7	18.4	533169	3.8	21.3	448570	3.9	20.2
469333	3.5	22.1	136958	3.6	19.4	162646	3.6	18.2	176381	3.7	19.9	332879	3.8	20.5	538233	3.9	20.4
535547	3.5	22.4	254620	3.6	20.2	200796	3.6	20.4	292011	3.7	19.5	38562	3.8	18.8	286430	3.9	19.7
1741	3.5	15.1	374474	3.6	20.2	466071	3.6	20.8	479239	3.7	20.4	243899	3.8	20.0	21233	3.9	18.0
281025	3.5	19.9	415491	3.6	19.7	183982	3.6	20.0	251965	3.7	18.8	223203	3.8				

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
429666	3.9	20.2	77106	3.9	18.9	512874	4.0	21.4	104409	4.1	19.1	36351	4.2	17.8	139633	4.3	18.6
411818	3.9	20.2	462181	3.9	20.3	411668	4.0	21.4	531902	4.1	20.8	4681	4.2	15.8	379209	4.3	19.1
329114	3.9	19.7	542607	3.9	20.4	96630	4.0	17.8	250847	4.1	19.3	56729	4.2	18.7	276913	4.3	19.5
412080	3.9	20.6	312554	3.9	19.6	71328	4.0	19.0	390669	4.1	20.2	35063	4.2	17.1	430675	4.3	20.7
530302	3.9	21.3	371158	3.9	19.1	336693	4.0	20.2	46169	4.1	18.4	523786	4.2	20.6	233363	4.3	19.8
443372	3.9	21.0	534092	3.9	20.4	272528	4.0	20.8	177076	4.1	21.0	416678	4.2	18.8	488848	4.3	20.3
343067	3.9	20.9	134093	3.9	20.1	460185	4.0	21.0	85868	4.1	18.7	539317	4.2	20.1	18876	4.3	17.5
250529	3.9	18.7	477972	3.9	20.5	330416	4.0	20.2	151390	4.1	20.1	32264	4.2	18.0	261464	4.3	20.1
533934	3.9	19.8	371643	3.9	20.3	534708	4.0	20.8	239152	4.1	19.9	504763	4.2	20.7	430456	4.3	20.6
71059	3.9	18.7	309899	3.9	20.8	98106	4.0	17.9	330426	4.1	20.2	204132	4.2	20.4	343260	4.3	20.6
358327	3.9	21.6	396864	3.9	20.4	311956	4.0	20.4	371627	4.1	21.0	179126	4.2	18.5	205940	4.3	19.8
178094	3.9	19.6	307170	3.9	21.1	394705	4.0	20.2	491575	4.1	19.5	512273	4.2	21.3	23294	4.3	17.2
57127	3.9	17.7	524793	3.9	20.7	203340	4.0	18.1	366243	4.1	20.8	165331	4.2	19.1	529123	4.3	20.9
411657	3.9	20.4	173582	3.9	19.9	87501	4.0	18.7	296512	4.1	19.9	299428	4.2	20.6	47135	4.3	16.9
496995	3.9	19.6	251883	3.9	21.0	304359	4.0	20.3	363555	4.1	20.1	29431	4.2	17.1	38510	4.3	18.2
309814	3.9	20.6	532588	3.9	21.1	387130	4.0	20.1	536261	4.1	20.4	294837	4.2	20.4	365193	4.3	20.7
35165	3.9	17.3	231199	3.9	19.6	235309	4.0	19.6	121655	4.1	19.8	503240	4.2	21.2	65322	4.3	18.4
186345	3.9	19.9	503385	3.9	21.0	310501	4.0	19.6	206579	4.1	20.2	267198	4.2	19.4	525341	4.3	20.5
539713	3.9	21.0	360924	3.9	21.3	205039	4.1	18.5	133325	4.1	19.3	473085	4.2	21.2	10757	4.3	16.3
12798	3.9	17.8	149161	3.9	19.0	201688	4.1	19.5	214882	4.1	19.3	349495	4.2	20.6	504621	4.3	20.9
478163	3.9	20.5	50168	3.9	17.7	384011	4.1	19.2	256406	4.1	20.3	417178	4.2	21.9	341515	4.3	20.7
108306	3.9	18.2	185440	3.9	19.7	126372	4.1	18.2	237056	4.1	19.6	117282	4.2	18.4	57410	4.3	18.5
51501	3.9	17.3	393043	3.9	19.9	74153	4.1	18.7	287473	4.1	19.5	399872	4.2	20.3	280647	4.3	19.6
161713	3.9	18.6	11916	3.9	17.2	196851	4.1	18.9	266340	4.1	19.4	501896	4.2	20.1	154878	4.3	20.1
354884	3.9	20.4	458839	3.9	20.0	451228	4.1	20.7	192014	4.1	18.4	492220	4.2	20.0	126845	4.3	20.0
270555	3.9	20.0	278920	3.9	19.5	140376	4.1	18.7	364041	4.1	19.9	355567	4.2	21.3	129315	4.3	18.4
432497	3.9	20.6	129575	3.9	17.9	328239	4.1	20.6	501158	4.1	20.0	36718	4.2	17.8	537606	4.3	20.8
169572	3.9	18.8	502800	3.9	20.3	1285	4.1	14.8	266359	4.1	20.2	325008	4.2	20.2	380603	4.3	19.7
406922	3.9	21.2	191289	3.9	19.7	502634	4.1	19.8	342950	4.1	20.0	62894	4.2	19.8	214082	4.3	20.3
197530	3.9	18.4	23142	3.9	16.6	235226	4.1	19.5	142556	4.1	18.0	471688	4.2	20.5	539670	4.3	20.8
207005	3.9	18.3	308623	3.9	19.7	395578	4.1	19.5	293926	4.1	19.6	244787	4.2	20.6	413711	4.3	20.0
240632	3.9	20.5	337197	3.9	19.9	247031	4.1	19.6	82668	4.1	17.4	422958	4.2	19.1	355512	4.3	20.1
343967	3.9	20.4	322439	3.9	21.4	352817	4.1	20.7	458941	4.1	19.4	400485	4.2	20.6	258580	4.3	20.3
310656	3.9	20.5	527080	3.9	20.6	199106	4.1	19.1	63541	4.1	18.8	49752	4.2	18.9	140380	4.3	19.5
240750	3.9	19.8	412232	3.9	20.4	76435	4.1	19.2	419826	4.1	20.2	398866	4.2	21.4	42796	4.3	18.0
428717	3.9	19.9	92470	3.9	18.1	313689	4.1	21.2	270423	4.1	19.9	241392	4.2	20.5	27010	4.3	16.9
107881	3.9	19.2	244759	3.9	19.3	270242	4.1	18.9	39973	4.1	16.0	165080	4.2	19.8	361085	4.3	21.2
323434	3.9	19.2	307200	3.9	20.6	208406	4.1	19.7	183986	4.1	20.7	379527	4.2	19.9	536867	4.3	21.0
53883	3.9	18.9	429583	3.9	20.9	165376	4.1	19.2	260570	4.1	20.7	510457	4.2	20.4	191592	4.3	19.0
123717	3.9	19.1	31844	3.9	17.1	367904	4.1	21.5	299901	4.1	20.9	59565	4.2	18.1	47059	4.3	16.7
4321	3.9	15.7	390181	3.9	21.2	90803	4.1	18.6	498640	4.1	20.2	543406	4.2	19.8	408700	4.3	20.0
470447	3.9	20.3	501326	3.9	20.1	500082	4.1	20.5	349905	4.1	20.1	227354	4.2	20.5	215586	4.3	20.1
9196	3.9	16.1	353614	3.9	19.4	333365	4.1	20.7	425825	4.1	20.5	312860	4.2	20.8	384856	4.3	20.3
343436	3.9	19.8	398708	3.9	20.0	530012	4.1	19.2	31282	4.1	18.5	377399	4.2	19.1	356575	4.3	19.3
35629	3.9	17.9	125651	3.9	19.6	539740	4.1	20.7	385447	4.1	22.9	106020	4.2	18.9	163690	4.3	19.1
276628	3.9	18.1	68411	3.9	18.9	429671	4.1	20.2	228651	4.1	20.2	520469	4.2	20.5	215146	4.3	18.8
6157	3.9	17.2	268993	3.9	20.9	293871	4.1	19.9	189020	4.1	19.1	528471	4.2	20.8	253967	4.3	20.6
342728	3.9	21.2	71024	3.9	18.3	507285	4.1	20.9	150122	4.1	19.4	457695	4.2	21.4	94218	4.3	19.1
164639	3.9	19.8	74613	3.9	17.4	393969	4.1	20.1	352620	4.1	21.8	148960	4.2	20.3	495950	4.3	19.1
295979	3.9	20.2	405842	3.9	21.1	519160	4.1	20.1	213061	4.1	18.5	16747	4.2	18.4	41397	4.3	17.3
333656	3.9	19.1	401441	3.9	20.8	440544	4.1	19.6	99974	4.1	18.7	37113	4.2	16.5	154162	4.3	20.2
178727	3.9	19.4	256960	3.9	20.1	303212	4.1	18.4	269026	4.1	20.7	398960	4.2	20.6	21385	4.3	17.9
346014	3.9	20.1	314663	3.9	19.0	294103	4.1	20.7	349306	4.1	20.3	513216	4.2	21.4	179503	4.3	18.9
474795	3.9	20.3	205845	3.9	19.9	522072	4.1	21.0	114600	4.1	17.2	13285	4.2	16.6	74263	4.3	18.6
509353	3.9	22.6	89199	4.0	17.5	222499	4.1	19.6	397813	4.1	19.5	525957	4.2	21.1	430530	4.3	20.8
301186	3.9	20.9	479898	4.0	20.7	208582	4.1	20.5	387021	4.2	18.9	93809	4.2	18.1	389094	4.3	20.4
257308	3.9	20.5	18484	4.0	17.7	309289	4.1	20.4	393961	4.2	19.8	508092	4.2	20.4	392823	4.3	20.1
177937	3.9	19.1	54355	4.0	17.4	208466	4.1	19.5	317407	4.2	19.5	356152	4.2	19.9	155290	4.3	19.5
153749	3.9	18.7	88238	4.0	17.3	408941	4.1	21.0	338675	4.2	19.9	309691	4.2	20.2	338658	4.3	20.1
437516	3.9	19.5	10097	4.0	17.0	182757	4.1	20.0	390994	4.2	19.7	59306	4.2	16.8	477655	4.3	19.2
539436	3.9	20.8	301098	4.0	20.4	448543	4.1	19.0	478330	4.2	20.2	533302	4.2	20.6	514375	4.3	21.1
321776	3.9	19.2	524706	4.0	20.1	467348	4.1	20.4	12882	4.2	16.2	177206	4.2	19.2	106449	4.3	18.1
104559	3.9	19.4	106319	4.0	17.7	383915	4.1	21.4	91126	4.2	19.1	144813	4.2	19.3	537768	4.3	20.7
229181	3.9	19.9	114914	4.0	19.0	443102	4.1	20.5	524556	4.2	21.1	392140	4.2	20.8	184714	4.3	20.6
133512	3.9	19.1	230392	4.0	18.9	94369	4.1	18.9	18316	4.2	17.6	144436	4.2	20.2	170169	4.3	19.1
466119	3.9	20.4	196692	4.0	19.7	292184	4.1	19.7	472335	4.2	20.1	360393	4.2	17.9	537919	4.3	21.5
97823	3.9	17.8	499099	4.0	21.7	307180	4.1	20.5	357843	4.2	20.2	438381	4.2	20.0	413470	4.3	21.2
527868	3.9	22.0	177830	4.0	18.6	493857	4.1	20.5	504061	4.2	20.6	120217	4.2	17.7	137427	4.3	20.8
152438	3.9	19.2	99988	4.0	18.4	306064	4.1	19.4	189850	4.2	18.8	93911	4.2	18.5	23255	4.3	16.6
355928	3.9	20.0	74053	4.0	18.2	525638	4.1	20.4	479139	4.2	20.4	133018	4.3	18.5	17952	4.3	18.4
38556	3.9	17.4	164411	4.0	19.5	457772	4.1	21.7	365064	4.2	21.7	42094	4.3	17.5			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
289558	4.3	20.1	497018	4.4	21.1	187634	4.5	20.1	111613	4.6	19.1	222165	4.7	22.7	244307	4.7	19.6
533891	4.3	19.9	141827	4.4	18.9	56876	4.5	18.3	2331	4.6	16.2	64294	4.7	18.4	315850	4.7	20.2
355745	4.4	21.0	171730	4.4	18.4	248472	4.5	20.0	101553	4.6	18.8	198348	4.7	18.9	422839	4.7	21.1
350981	4.4	20.6	335145	4.4	20.2	133520	4.5	18.7	17736	4.6	17.2	385448	4.7	18.7	272592	4.7	19.9
132089	4.4	19.9	20220	4.4	17.9	181140	4.5	19.1	507093	4.6	21.6	398927	4.7	21.4	524367	4.7	20.8
196326	4.4	19.6	387187	4.4	20.1	463200	4.5	22.0	490729	4.6	20.3	326950	4.7	21.8	350402	4.7	20.6
409087	4.4	21.2	299823	4.4	20.6	504914	4.5	21.0	129963	4.6	18.3	294373	4.7	20.4	5558	4.7	15.8
481231	4.4	19.6	300664	4.4	20.5	389273	4.5	20.0	181036	4.6	19.9	22582	4.7	17.4	248065	4.7	17.9
79047	4.4	18.1	137584	4.4	19.3	74888	4.5	19.1	225848	4.6	20.1	465418	4.7	20.8	151808	4.7	19.5
251425	4.4	19.3	300172	4.4	19.7	313835	4.5	20.3	391688	4.6	20.8	31658	4.7	17.6	177315	4.7	18.9
195357	4.4	20.5	86543	4.4	18.0	540742	4.5	20.7	72012	4.6	18.4	125839	4.7	20.3	475248	4.7	21.5
354508	4.4	19.6	120718	4.4	17.5	189846	4.5	19.5	224338	4.6	20.1	534183	4.7	20.8	478167	4.7	19.9
361618	4.4	18.9	475908	4.4	21.8	326973	4.5	18.6	205812	4.6	19.4	179698	4.7	19.1	219720	4.7	19.2
11045	4.4	16.5	528545	4.4	21.2	506002	4.5	21.0	394697	4.6	20.1	140508	4.7	18.7	275529	4.7	20.8
220289	4.4	19.8	452729	4.4	21.1	229165	4.5	18.8	509729	4.6	20.5	131776	4.7	18.7	93939	4.7	18.3
428257	4.4	20.6	18412	4.4	18.5	100016	4.5	17.5	6071	4.6	15.6	332336	4.7	20.3	255717	4.7	18.6
346387	4.4	19.3	89195	4.4	18.8	509920	4.5	21.3	86830	4.6	17.5	33046	4.7	16.1	535340	4.7	21.5
313130	4.4	20.4	422448	4.4	20.2	315390	4.5	20.5	533589	4.6	20.3	180137	4.7	19.4	509533	4.7	21.7
280385	4.4	19.8	437737	4.4	20.1	20176	4.5	17.2	157501	4.6	19.4	237640	4.7	19.2	93368	4.7	18.8
428791	4.4	19.1	219673	4.4	19.0	199436	4.5	19.1	473110	4.6	21.5	505451	4.7	20.7	190287	4.7	18.9
6987	4.4	17.4	13291	4.4	17.3	114619	4.5	19.9	106362	4.6	19.1	458643	4.7	19.9	383648	4.7	18.6
472638	4.4	21.0	334888	4.4	19.1	202556	4.5	19.3	495869	4.6	18.0	44829	4.7	17.8	453298	4.7	20.6
284607	4.4	20.4	123743	4.4	19.2	207028	4.5	19.7	300257	4.6	20.0	289221	4.7	20.3	213240	4.7	19.6
507772	4.4	20.9	170013	4.4	24.5	82672	4.5	18.8	235799	4.6	20.1	373657	4.7	19.9	19207	4.7	16.0
362433	4.4	18.6	56338	4.4	17.4	384920	4.5	20.0	305309	4.6	20.6	140243	4.7	19.1	475085	4.7	21.0
283177	4.4	21.2	59480	4.4	18.1	533462	4.5	20.9	90086	4.6	19.3	56558	4.7	18.6	20667	4.7	18.2
43295	4.4	16.9	431036	4.4	20.4	535763	4.5	21.6	22339	4.6	17.5	2182	4.7	15.8	176608	4.7	19.8
389800	4.4	20.2	128421	4.4	17.9	226340	4.5	20.6	393174	4.6	18.3	186670	4.7	20.3	244080	4.7	19.2
198939	4.4	19.9	60981	4.4	18.3	349456	4.5	20.8	105588	4.6	18.4	276471	4.7	20.4	206970	4.7	19.0
111657	4.4	19.0	278709	4.5	19.0	442932	4.5	20.2	530382	4.6	21.8	215684	4.7	18.7	379772	4.7	19.5
222653	4.4	19.9	521348	4.5	20.5	355153	4.5	20.8	354111	4.6	20.2	425838	4.7	20.7	141480	4.8	20.2
145483	4.4	18.4	196789	4.5	19.1	456642	4.5	20.5	216441	4.6	20.8	117152	4.7	18.9	171537	4.8	18.5
528465	4.4	20.2	464518	4.5	19.8	538181	4.5	21.5	312247	4.6	19.7	458933	4.7	21.0	356873	4.8	19.9
491271	4.4	19.1	510375	4.5	20.6	307988	4.5	17.9	78419	4.6	19.6	304638	4.7	20.0	475270	4.8	21.4
414173	4.4	21.8	19817	4.5	16.8	87983	4.5	18.7	375971	4.6	19.2	536874	4.7	22.1	496991	4.8	20.3
253865	4.4	19.8	182939	4.5	20.1	188917	4.5	20.0	489180	4.6	19.9	510987	4.7	21.4	497972	4.8	21.8
309875	4.4	21.5	28842	4.5	18.2	105962	4.5	19.2	272602	4.6	20.3	13361	4.7	16.0	361947	4.8	22.0
64934	4.4	18.7	245774	4.5	20.1	53308	4.5	17.4	377363	4.6	20.1	328211	4.7	21.2	387070	4.8	21.0
290756	4.4	19.4	233582	4.5	19.6	24674	4.5	17.2	471063	4.6	20.3	219062	4.7	20.4	544745	4.8	20.0
268453	4.4	19.4	3669	4.5	15.9	182881	4.5	20.6	365459	4.6	20.7	416475	4.7	20.2	471025	4.8	21.4
529968	4.4	20.1	299395	4.5	20.2	6813	4.5	17.3	161427	4.6	19.1	338704	4.7	20.0	249178	4.8	18.8
314459	4.4	19.4	373499	4.5	19.6	542256	4.5	20.3	432885	4.6	20.7	380947	4.7	20.2	473147	4.8	19.6
307258	4.4	18.9	528470	4.5	20.9	112265	4.5	19.0	242692	4.6	19.2	315476	4.7	21.5	187397	4.8	19.7
183795	4.4	19.8	183247	4.5	19.0	171277	4.5	18.9	308530	4.6	21.1	222749	4.7	20.3	469990	4.8	20.3
438372	4.4	20.6	131138	4.5	19.8	111102	4.6	18.1	457489	4.6	19.7	155650	4.7	17.4	197540	4.8	19.3
411758	4.4	20.3	3579	4.5	19.2	509112	4.6	21.6	501296	4.6	20.0	506834	4.7	21.3	77130	4.8	19.0
242882	4.4	19.8	466814	4.5	19.7	13535	4.6	16.2	380043	4.6	19.4	119499	4.7	19.4	82153	4.8	18.9
289651	4.4	21.2	499300	4.5	21.3	408712	4.6	19.1	357760	4.6	20.4	406851	4.7	20.2	111725	4.8	19.6
169466	4.4	17.5	127045	4.5	19.1	303811	4.6	19.7	125150	4.6	19.8	335170	4.7	20.2	88158	4.8	18.0
394651	4.4	19.5	433354	4.5	20.0	459339	4.6	20.1	31706	4.6	19.1	121609	4.7	19.1	418896	4.8	20.4
402284	4.4	20.3	380070	4.5	20.2	168863	4.6	18.9	330054	4.6	20.0	110079	4.7	18.7	471121	4.8	20.3
295890	4.4	20.1	356629	4.5	19.8	250993	4.6	19.2	349133	4.6	20.4	117135	4.7	18.8	88140	4.8	18.7
96331	4.4	19.7	146568	4.5	19.4	397034	4.6	19.5	382082	4.6	21.1	70751	4.7	17.9	147944	4.8	18.7
438055	4.4	20.0	526139	4.5	19.4	397408	4.6	21.8	303776	4.6	19.6	216598	4.7	18.4	348236	4.8	19.4
518787	4.4	20.8	440513	4.5	20.9	255769	4.6	20.1	496218	4.6	21.8	19050	4.7	18.2	171898	4.8	18.6
113320	4.4	19.0	105911	4.5	19.6	302300	4.6	21.1	439377	4.6	20.3	471855	4.7	21.0	377904	4.8	20.5
497885	4.4	19.7	246783	4.5	19.8	211422	4.6	20.0	94640	4.6	19.4	368672	4.7	19.6	509312	4.8	21.6
103043	4.4	17.8	434259	4.5	19.6	205758	4.6	19.8	125776	4.6	19.5	299865	4.7	21.5	387542	4.8	19.6
316199	4.4	19.1	530329	4.5	21.7	342937	4.6	19.9	476399	4.6	20.8	524610	4.7	19.9	68814	4.8	16.7
362032	4.4	20.2	272706	4.5	19.8	372918	4.6	21.3	504100	4.6	20.4	236641	4.7	19.5	449614	4.8	20.5
89693	4.4	17.6	469550	4.5	19.6	36817	4.6	16.9	151966	4.6	19.7	336975	4.7	20.1	186391	4.8	18.2
96377	4.4	19.5	298290	4.5	20.6	504081	4.6	21.1	24030	4.6	16.4	405833	4.7	20.6	381557	4.8	20.2
346943	4.4	20.1	393950	4.5	20.2	8278	4.6	16.3	127043	4.6	17.1	430094	4.7	19.4	291949	4.8	19.5
381428	4.4	19.4	311416	4.5	19.7	115112	4.6	19.0	266363	4.6	20.1	200647	4.7	19.1	427595	4.8	19.6
349457	4.4	20.2	29716	4.5	17.9	261890	4.6	20.3	526233	4.6	22.0	309807	4.7	18.8	497334	4.8	19.6
142175	4.4	18.1	170451	4.5	19.5	301783	4.6	20.2	63025	4.6	19.3	494413	4.7	20.3	233282	4.8	21.0
415694	4.4	21.2	211483	4.5	19.2	412413	4.6	19.7	133231	4.6	17.8	494268	4.7	20.8	478325	4.8	21.5
373594	4.4	19.9	309930	4.5	21.2	198581	4.6	19.5	261190	4.6	21.1	299466	4.7	19.8	355179	4.8	21.6
128420	4.4	18.4	83238	4.5	17.9	50062	4.6	18.4	250026	4.6	20.0	429574	4.7	21.5	390795	4.8	21.8
539752	4.4	21.2	353394	4.5	18.9	304393	4.6	20.2	206994	4.6	19.2	357160	4.7	21.8	266709	4.8	18.9
289271	4.4	20.2	103591	4.5	19.7	252938	4.6	19.0	143876	4.7	19.9	37127	4.7				

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
264279	4.8	19.5	158055	4.9	19.0	282800	4.9	19.3	496723	5.0	21.0	17740	5.1	17.6	374409	5.2	19.7
403432	4.8	20.7	528127	4.9	21.7	165975	4.9	19.3	1774	5.0	15.8	318325	5.1	20.4	17684	5.2	17.7
73257	4.8	18.7	508727	4.9	21.1	156853	4.9	18.3	127947	5.0	18.7	473736	5.1	20.2	510587	5.2	19.7
258855	4.8	18.5	268049	4.9	19.0	365048	4.9	20.7	433372	5.0	18.4	144962	5.1	19.3	4970	5.2	16.2
291031	4.8	20.0	69615	4.9	19.6	375857	4.9	19.2	525345	5.0	20.2	431356	5.1	20.3	131942	5.2	18.1
542332	4.8	20.6	515251	4.9	20.4	87244	4.9	16.7	232567	5.0	19.4	30259	5.1	16.6	282600	5.2	19.0
55495	4.8	18.3	499262	4.9	20.7	6620	4.9	16.3	370072	5.0	19.2	170897	5.1	19.0	307202	5.2	20.8
154841	4.8	19.2	240301	4.9	20.2	191095	4.9	18.5	482836	5.0	19.4	85207	5.1	17.6	28121	5.2	17.5
12185	4.8	17.3	475833	4.9	21.3	415923	4.9	21.2	62909	5.0	19.3	255306	5.1	20.0	425837	5.2	20.1
500774	4.8	20.4	124325	4.9	17.4	246434	4.9	19.6	57824	5.0	18.7	475604	5.1	21.2	35581	5.2	18.8
393207	4.8	20.6	428767	4.9	19.1	531887	4.9	20.5	523991	5.0	19.9	246328	5.1	20.5	311362	5.2	20.4
406810	4.8	20.5	470465	4.9	20.8	499676	4.9	20.0	455158	5.0	18.9	127247	5.1	19.1	179545	5.2	19.6
12114	4.8	17.2	521044	4.9	20.3	183735	4.9	19.4	382195	5.0	19.3	365432	5.1	19.9	260068	5.2	20.1
507915	4.8	21.0	169674	4.9	20.4	391719	4.9	20.9	248127	5.0	19.9	23275	5.1	17.5	233121	5.2	20.4
408236	4.8	20.4	495399	4.9	19.6	18768	4.9	18.3	519886	5.1	20.2	197382	5.1	18.7	453236	5.2	19.0
9436	4.8	16.7	438338	4.9	19.9	178772	4.9	19.5	58650	5.1	17.0	140896	5.1	19.6	505568	5.2	19.9
24502	4.8	19.1	311301	4.9	21.3	272647	4.9	19.0	279609	5.1	19.9	272444	5.1	21.3	57428	5.2	19.4
304616	4.8	20.0	16756	4.9	17.0	153753	4.9	20.0	306421	5.1	16.8	241672	5.1	18.5	173297	5.2	19.6
422340	4.8	20.1	438980	4.9	19.6	136282	4.9	18.8	173880	5.1	19.1	479287	5.1	21.6	111915	5.2	19.7
211999	4.8	20.6	254136	4.9	19.2	227443	4.9	18.5	77668	5.1	16.7	512049	5.1	20.5	375850	5.2	17.9
247395	4.8	19.5	443916	4.9	19.0	358910	4.9	20.1	214994	5.1	19.6	314273	5.1	18.9	43303	5.2	18.4
401032	4.8	20.0	161418	4.9	19.2	394196	4.9	20.0	525419	5.1	21.9	504793	5.1	21.2	73212	5.2	18.3
355110	4.8	19.9	66452	4.9	23.5	540570	4.9	20.2	376222	5.1	20.9	85873	5.1	18.4	508847	5.2	21.1
447684	4.8	20.7	59748	4.9	17.1	404705	4.9	20.2	311138	5.1	18.7	376577	5.1	18.8	311339	5.2	19.5
53872	4.8	17.1	384087	4.9	20.9	11544	4.9	16.2	480516	5.1	20.0	182711	5.1	18.6	542493	5.2	18.9
471621	4.8	20.2	189382	4.9	21.0	353957	4.9	20.1	396376	5.1	19.8	39001	5.1	19.3	266280	5.2	20.3
511452	4.8	21.1	227779	4.9	19.5	263265	4.9	19.4	414425	5.1	20.4	539327	5.1	21.2	244642	5.2	19.9
53991	4.8	19.0	528511	4.9	21.4	106346	4.9	19.7	270475	5.1	20.5	233344	5.1	19.8	182808	5.2	19.5
322312	4.8	21.0	23862	4.9	16.8	503958	4.9	19.3	299993	5.1	20.4	176000	5.1	19.0	153924	5.2	19.1
517154	4.8	20.9	360028	4.9	20.6	230056	4.9	19.2	91394	5.1	19.1	273557	5.1	20.4	394043	5.2	19.3
455342	4.8	18.4	312902	4.9	20.2	258978	4.9	19.8	496216	5.1	19.4	169677	5.1	19.2	311528	5.2	19.7
207096	4.8	19.6	34578	4.9	18.5	355574	4.9	20.0	475254	5.1	20.0	250604	5.1	20.0	40027	5.2	18.4
228646	4.8	20.7	530348	4.9	21.4	14801	4.9	16.9	262569	5.1	19.9	408337	5.1	21.0	230306	5.2	19.5
58471	4.8	18.3	111582	4.9	19.2	438809	4.9	20.4	257043	5.1	20.3	125952	5.1	19.1	463617	5.2	19.4
475264	4.8	20.8	240434	4.9	19.5	377922	4.9	21.1	339417	5.1	19.2	92129	5.1	19.1	384728	5.2	20.5
270337	4.8	19.7	269708	4.9	20.3	479840	4.9	21.2	254023	5.1	20.1	525698	5.1	20.2	177906	5.2	19.0
510392	4.8	20.6	7359	4.9	16.5	155460	4.9	19.5	197612	5.1	19.4	309673	5.1	20.2	279256	5.2	21.5
274684	4.8	20.1	199169	4.9	19.8	57836	4.9	18.5	206051	5.1	19.7	328440	5.1	20.5	224572	5.2	20.3
185574	4.8	20.4	157838	4.9	19.7	356618	4.9	19.7	99416	5.1	18.9	72236	5.1	17.3	293121	5.2	19.4
73214	4.8	18.9	75365	4.9	18.3	386498	4.9	20.1	75739	5.1	18.9	289730	5.1	20.5	390092	5.2	20.8
143447	4.9	19.8	274259	4.9	18.4	469602	4.9	21.7	417640	5.1	20.3	119454	5.1	19.2	203463	5.2	20.8
518457	4.9	20.8	167241	4.9	19.5	532021	4.9	21.7	443805	5.1	19.6	370456	5.1	20.5	396559	5.2	19.7
96689	4.9	18.7	358001	4.9	20.5	331801	4.9	18.4	62765	5.1	18.3	317798	5.1	18.9	499377	5.2	20.2
310286	4.9	19.3	358424	4.9	20.5	295092	4.9	20.8	66998	5.1	17.7	361065	5.1	19.3	312563	5.2	20.0
50648	4.9	18.2	163033	4.9	19.3	92181	5.0	19.3	280802	5.1	18.3	540013	5.1	19.2	234687	5.2	20.6
107081	4.9	18.8	400954	4.9	19.7	413246	5.0	20.0	519455	5.1	20.2	496102	5.1	19.8	442946	5.2	21.4
123672	4.9	19.2	100742	4.9	20.1	151147	5.0	18.4	200305	5.1	18.4	336190	5.1	19.6	200293	5.2	18.6
368561	4.9	18.9	491240	4.9	17.9	362807	5.0	21.2	346083	5.1	21.2	257116	5.2	20.6	258509	5.2	19.9
106708	4.9	18.6	202926	4.9	18.0	436715	5.0	19.5	140112	5.1	19.5	477117	5.2	20.4	363039	5.2	18.8
414803	4.9	20.7	93726	4.9	18.3	302282	5.0	19.2	504955	5.1	21.2	3594	5.2	16.3	271768	5.2	19.9
489451	4.9	20.8	59112	4.9	17.6	1469	5.0	14.1	379642	5.1	20.5	177764	5.2	18.7	67794	5.2	17.4
208676	4.9	19.8	537133	4.9	21.6	172850	5.0	20.3	17589	5.1	17.1	271835	5.2	19.9	291725	5.2	20.5
264771	4.9	20.8	21666	4.9	16.7	326926	5.0	20.3	214139	5.1	20.5	543448	5.2	19.5	388763	5.2	20.0
123804	4.9	19.7	509662	4.9	20.6	254401	5.0	20.3	40147	5.1	17.2	99717	5.2	19.1	393990	5.2	19.1
414461	4.9	20.6	193010	4.9	19.8	475954	5.0	21.2	187618	5.1	20.2	471428	5.2	20.2	366107	5.2	20.3
17885	4.9	18.6	276579	4.9	19.4	426826	5.0	19.1	143588	5.1	19.5	198919	5.2	19.3	213892	5.2	19.5
131183	4.9	19.3	278224	4.9	20.2	249251	5.0	19.6	47152	5.1	18.0	157598	5.2	20.5	365504	5.2	19.5
431044	4.9	21.0	507491	4.9	20.4	259220	5.0	20.6	512876	5.1	19.9	182468	5.2	19.6	267736	5.2	20.6
477706	4.9	20.4	399528	4.9	20.4	522438	5.0	19.8	87140	5.1	17.5	313394	5.2	20.0	192304	5.2	19.4
170365	4.9	18.8	4442	4.9	18.4	451497	5.0	20.9	472015	5.1	20.1	215880	5.2	19.5	438991	5.2	20.2
191783	4.9	18.5	381506	4.9	21.5	63860	5.0	18.4	241151	5.1	18.4	247752	5.2	18.0	465412	5.2	21.2
117761	4.9	19.4	140486	4.9	19.6	365069	5.0	20.4	459565	5.1	20.8	464013	5.2	19.7	272484	5.2	21.3
463939	4.9	20.5	57408	4.9	18.8	140308	5.0	18.5	395068	5.1	21.4	396262	5.2	20.1	36669	5.2	18.3
504745	4.9	20.1	303988	4.9	20.2	206188	5.0	19.8	232136	5.1	20.8	251650	5.2	18.8	214674	5.2	20.5
264749	4.9	19.4	294039	4.9	20.2	431042	5.0	21.5	65571	5.1	19.1	35311	5.2	17.5	202452	5.2	21.0
185559	4.9	21.6	32368	4.9	17.9	330321	5.0	21.0	199520	5.1	19.4	75378	5.2	17.8	521067	5.2	21.0
214160	4.9	20.3	214169	4.9	20.0	113093	5.0	18.6	366830	5.1	20.1	149977	5.2	19.4	110237	5.2	19.2
116923	4.9	18.5	312912	4.9	20.1	333922	5.0	19.1	463185	5.1	21.1	244228	5.2	18.9	240896	5.2	18.0
439414	4.9	20.7	112211	4.9	19.9	422247	5.0	18.5	86437	5.1	18.7	57677	5.2	19.1	383748	5.2	20.3
334788	4.9	19.0	250755	4.9	18.7	338086	5.0	19.9	21786	5.1	17.5	462375	5.2	19.9	14151	5.2	16.9
190146	4.9	19.3	155792	4.9	19.0	3974	5.0	16.3	200206	5.1	19.7	399444	5.2	21.0			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
38054	5.3	16.6	177446	5.3	18.8	31100	5.4	17.1	127557	5.5	19.5	333555	5.6	21.8	501308	5.7	19.8
199130	5.3	19.1	109013	5.3	19.3	296025	5.4	20.5	278727	5.5	18.8	253902	5.6	20.1	380201	5.7	19.7
29684	5.3	16.4	128591	5.3	19.2	106817	5.4	19.5	396164	5.5	21.1	486832	5.6	21.2	64309	5.7	18.2
169652	5.3	19.7	295907	5.3	19.5	211673	5.4	19.0	363240	5.5	21.3	249193	5.6	19.5	206068	5.7	18.6
236644	5.3	19.9	112535	5.3	19.1	19260	5.4	17.4	225960	5.5	20.4	498456	5.6	21.7	507074	5.7	20.9
498614	5.3	20.5	382256	5.3	20.1	268388	5.4	19.6	241950	5.5	19.5	78979	5.6	18.4	44751	5.7	18.4
23659	5.3	18.4	394698	5.3	21.5	401851	5.4	21.3	370467	5.5	20.1	331546	5.6	18.6	44940	5.7	17.8
29892	5.3	16.5	355698	5.3	21.2	370102	5.4	19.6	463201	5.5	21.5	505404	5.6	20.2	351891	5.7	21.1
64960	5.3	19.5	107212	5.4	18.9	533906	5.4	19.8	413832	5.5	19.8	437206	5.6	20.3	291990	5.7	18.9
523184	5.3	20.2	401127	5.4	20.4	300895	5.4	19.7	17019	5.5	16.5	149720	5.6	18.9	360429	5.7	20.4
284139	5.3	20.4	241471	5.4	18.9	494406	5.4	20.6	502813	5.5	20.8	269962	5.6	18.8	102047	5.7	17.6
357841	5.3	19.7	379705	5.4	20.7	169500	5.4	19.7	308457	5.5	19.8	531869	5.6	20.5	421544	5.7	20.8
245591	5.3	19.2	533361	5.4	20.7	355627	5.4	20.9	224561	5.5	20.1	13459	5.6	17.5	377362	5.7	19.0
523898	5.3	21.6	475099	5.4	21.1	524782	5.4	20.5	192547	5.5	18.5	500976	5.6	20.4	89408	5.7	19.4
519753	5.3	21.1	86955	5.4	18.1	433822	5.4	20.5	212062	5.5	20.7	14277	5.6	18.6	30816	5.7	16.1
16552	5.3	16.7	365171	5.4	19.6	42586	5.4	18.4	530972	5.5	21.8	478224	5.6	21.2	153594	5.7	19.1
216591	5.3	18.5	175351	5.4	18.0	237495	5.4	19.4	464820	5.5	20.4	243902	5.6	20.0	139983	5.7	19.4
94535	5.3	18.7	509541	5.4	21.3	263219	5.4	19.9	73903	5.5	19.3	157955	5.6	19.1	316216	5.7	20.3
29502	5.3	17.3	504594	5.4	20.7	241690	5.4	18.9	216192	5.5	20.5	304478	5.6	19.4	276047	5.7	19.1
212018	5.3	19.3	62807	5.4	19.1	136936	5.5	18.0	316961	5.5	19.6	442012	5.6	20.4	502816	5.7	22.0
418900	5.3	20.6	469964	5.4	21.1	58625	5.5	18.8	206575	5.5	18.7	129800	5.6	19.1	363344	5.7	19.5
518904	5.3	20.3	233514	5.4	20.1	324481	5.5	19.8	53234	5.5	18.7	98631	5.6	20.0	453243	5.7	20.8
429817	5.3	19.3	157379	5.4	19.0	395693	5.5	19.6	419532	5.5	19.4	155498	5.6	19.7	525308	5.7	20.7
19006	5.3	17.9	543830	5.4	20.8	499421	5.5	20.9	135338	5.5	17.2	249660	5.6	20.6	144445	5.7	19.6
398560	5.3	21.6	303907	5.4	21.1	209938	5.5	19.3	266260	5.5	20.5	307187	5.6	19.8	394331	5.7	20.2
142442	5.3	18.2	210957	5.4	19.4	525387	5.5	20.9	443671	5.5	19.9	46979	5.6	19.1	243444	5.7	18.8
193556	5.3	19.8	386548	5.4	20.0	351933	5.5	20.8	170413	5.5	18.9	246850	5.6	19.9	341336	5.7	20.8
316030	5.3	19.5	29199	5.4	16.3	497016	5.5	21.5	100386	5.5	18.2	358396	5.6	20.8	216445	5.7	20.6
146128	5.3	19.1	254287	5.4	19.1	312929	5.5	21.5	461633	5.5	21.1	360084	5.6	20.3	533187	5.7	21.2
211072	5.3	19.2	404219	5.4	20.9	360666	5.5	18.7	498845	5.5	20.7	477190	5.6	20.9	230400	5.7	20.2
278148	5.3	20.1	38236	5.4	17.8	481006	5.5	18.6	120166	5.5	18.7	59259	5.6	18.4	106463	5.7	19.8
374300	5.3	21.0	437405	5.4	20.2	428278	5.5	20.6	441370	5.5	21.1	361938	5.6	21.8	79065	5.7	18.0
221170	5.3	19.2	391306	5.4	21.4	545087	5.5	20.1	193655	5.5	19.7	190807	5.6	19.0	306992	5.7	20.0
443349	5.3	20.5	13957	5.4	16.1	19262	5.5	17.6	503782	5.5	19.7	297667	5.6	19.5	199358	5.7	18.9
534718	5.3	19.5	521377	5.4	20.4	362107	5.5	18.5	7631	5.5	15.6	510735	5.6	20.5	482505	5.7	20.6
357113	5.3	19.3	104060	5.4	19.6	154958	5.5	19.6	173163	5.5	19.5	91063	5.6	18.4	140281	5.7	18.7
307829	5.3	19.9	412267	5.4	19.9	125920	5.5	19.6	90919	5.5	17.6	219543	5.6	18.7	496881	5.7	18.6
86160	5.3	18.4	506196	5.4	20.0	443096	5.5	21.7	499148	5.5	21.3	19649	5.6	17.6	412027	5.7	20.7
59779	5.3	17.1	106082	5.4	18.1	352616	5.5	19.8	64443	5.5	18.2	117993	5.6	17.2	169676	5.7	19.1
512642	5.3	20.7	432462	5.4	21.0	91981	5.5	18.8	450722	5.5	20.1	474852	5.6	20.3	377724	5.7	20.5
530213	5.3	21.7	316384	5.4	20.1	179228	5.5	20.1	74111	5.5	18.1	224230	5.6	19.6	534384	5.7	19.2
431008	5.3	21.2	35552	5.4	17.5	148462	5.5	19.9	281970	5.5	19.1	479894	5.6	20.0	9143	5.7	15.0
73433	5.3	19.3	526578	5.4	20.4	16339	5.5	17.7	489316	5.6	21.1	204880	5.6	20.0	361708	5.7	19.8
204803	5.3	20.1	216612	5.4	18.7	306262	5.5	21.0	258526	5.6	20.7	357972	5.6	20.3	257218	5.7	20.6
277213	5.3	20.0	137881	5.4	19.4	249790	5.5	19.6	73774	5.6	18.6	179845	5.6	18.8	236163	5.7	20.9
513210	5.3	20.2	194853	5.4	20.0	281819	5.5	20.5	204663	5.6	20.2	524059	5.6	20.2	482161	5.7	20.1
72022	5.3	17.4	474324	5.4	22.0	213795	5.5	19.2	436987	5.6	21.0	61273	5.6	17.6	370956	5.7	20.2
207708	5.3	19.8	524755	5.4	20.5	352836	5.5	19.8	289199	5.6	20.4	526122	5.6	20.8	208614	5.7	18.9
88171	5.3	18.7	400792	5.4	20.3	61864	5.5	18.8	244430	5.6	20.2	93496	5.6	19.2	5781	5.7	15.8
294921	5.3	20.6	512451	5.4	20.3	384010	5.5	20.5	381828	5.6	20.5	293858	5.6	18.9	336407	5.7	19.5
440943	5.3	20.2	424021	5.4	20.0	71109	5.5	17.2	471642	5.6	20.6	301292	5.6	20.1	522456	5.7	20.1
270383	5.3	19.3	190071	5.4	18.7	47486	5.5	19.0	119905	5.6	17.7	502795	5.6	21.2	149507	5.7	20.7
492375	5.3	21.0	93179	5.4	18.9	157589	5.5	18.9	232654	5.6	20.6	427795	5.6	19.3	469262	5.7	19.7
307182	5.3	19.9	436306	5.4	21.3	395620	5.5	20.0	291649	5.6	20.2	31950	5.6	17.4	14994	5.7	17.7
439546	5.3	20.3	417522	5.4	19.9	48055	5.5	18.5	188937	5.6	20.3	286527	5.6	20.1	471875	5.7	20.5
351282	5.3	19.8	25350	5.4	17.7	138204	5.5	19.9	7149	5.6	17.6	523793	5.6	22.1	129801	5.7	19.4
123264	5.3	19.7	59558	5.4	16.9	3645	5.5	15.7	334840	5.6	20.4	314138	5.6	20.0	502157	5.7	20.3
255592	5.3	18.4	173923	5.4	19.5	467243	5.5	18.2	166101	5.6	19.0	379385	5.6	21.3	78255	5.7	19.0
309808	5.3	20.7	314600	5.4	20.1	347915	5.5	20.5	524421	5.6	21.9	48308	5.6	17.8	169529	5.7	19.0
86554	5.3	17.7	42808	5.4	17.2	12037	5.5	18.1	297661	5.6	19.4	438271	5.6	19.3	540755	5.7	20.4
54366	5.3	19.3	512683	5.4	20.6	192946	5.5	18.9	305834	5.6	19.7	413161	5.6	20.4	534965	5.7	20.0
250833	5.3	18.5	442991	5.4	20.0	406884	5.5	20.3	393956	5.6	19.9	364645	5.6	20.0	473247	5.7	20.4
401497	5.3	20.3	366285	5.4	20.9	175610	5.5	19.6	299478	5.6	20.9	153759	5.6	18.9	477985	5.7	20.7
503708	5.3	20.1	538477	5.4	21.2	175659	5.5	19.6	14920	5.6	16.9	294507	5.6	20.9	501977	5.7	20.6
205563	5.3	19.1	170167	5.4	19.2	105820	5.5	18.5	404909	5.6	19.7	387445	5.6	19.5	496929	5.7	19.7
533364	5.3	21.1	78146	5.4	18.0	290341	5.5	20.3	286529	5.6	19.6	442926	5.7	20.5	2848	5.7	15.2
331783	5.3	19.0	398623	5.4	20.2	153803	5.5	18.9	298802	5.6	19.2	488981	5.7	21.0	537983	5.7	21.1
266288	5.3	20.8	286498	5.4	21.0	393932	5.5	21.2	162532	5.6	18.0	313051	5.7	18.5	535468	5.7	19.3
524180	5.3	20.7	147433	5.4	19.5	363015	5.5	19.8	202317	5.6	19.5	526019	5.7	21.2	394261	5.7	19.2
218775	5.3	20.4	491411	5.4	21.3	530960	5.5	21.8	528508	5.6	20.8	348795	5.7	18.1	285377	5.7	19.7
285846	5.3	20.7	124184	5.4	19.0	525969	5.5	20.5	126750	5.6	18.8	432754	5.7				

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
118625	5.7	19.3	399810	5.8	20.8	52872	5.9	21.0	539921	5.9	19.4	134609	6.0	18.6	290540	6.1	19.9
364174	5.7	20.9	181644	5.8	20.2	135081	5.9	18.2	209051	5.9	18.2	151051	6.0	18.9	219329	6.1	19.9
391526	5.7	19.7	464741	5.8	18.4	494399	5.9	20.0	11609	5.9	17.6	327234	6.0	20.0	166118	6.1	18.9
158256	5.7	18.6	175454	5.8	18.8	173098	5.9	19.5	229213	5.9	19.0	37147	6.0	19.5	94184	6.1	18.9
373600	5.7	20.6	184219	5.8	19.7	229667	5.9	20.9	495337	5.9	20.6	50715	6.1	18.2	540295	6.1	20.9
142458	5.7	19.0	481166	5.8	21.3	289004	5.9	18.7	539600	5.9	20.4	131212	6.1	20.2	208672	6.1	20.3
477682	5.7	19.9	200583	5.8	18.7	99142	5.9	18.5	161398	5.9	18.5	290505	6.1	20.2	284567	6.1	19.9
105512	5.7	18.5	512722	5.8	20.7	278266	5.9	19.8	304053	5.9	19.3	119015	6.1	20.0	166532	6.1	18.4
49159	5.7	18.7	316706	5.8	19.9	342979	5.9	20.5	99200	5.9	19.6	209323	6.1	20.3	114580	6.1	18.8
83810	5.8	18.0	279781	5.8	19.5	500151	5.9	20.4	146795	5.9	19.6	390779	6.1	18.1	382249	6.1	19.9
393067	5.8	20.1	73517	5.8	18.6	411677	5.9	20.7	404692	5.9	20.5	528770	6.1	22.2	536787	6.1	20.6
505394	5.8	19.7	255896	5.8	19.6	530338	5.9	21.1	328158	5.9	22.0	505572	6.1	20.0	20835	6.1	16.9
24145	5.8	19.0	284120	5.8	19.8	102666	5.9	18.0	86619	5.9	19.0	19869	6.1	17.2	508165	6.1	19.3
118207	5.8	19.7	159172	5.8	18.5	379719	5.9	21.0	412097	5.9	21.2	31461	6.1	18.2	225154	6.1	19.7
538567	5.8	21.1	94468	5.8	18.6	251842	5.9	20.4	479781	5.9	20.1	297717	6.1	19.5	302450	6.1	20.7
235410	5.8	20.1	140914	5.8	19.2	220263	5.9	19.9	414178	5.9	21.2	469875	6.1	21.1	90722	6.1	17.2
193820	5.8	19.0	62831	5.8	17.9	488790	5.9	19.8	370160	5.9	20.1	130175	6.1	19.5	400551	6.1	19.7
162559	5.8	18.5	424085	5.8	19.7	514363	5.9	21.1	377755	5.9	21.6	520080	6.1	20.9	132124	6.1	19.4
241934	5.8	20.3	288646	5.8	18.9	504057	5.9	21.2	42664	5.9	18.8	269951	6.1	18.6	79458	6.1	18.6
356756	5.8	20.6	380807	5.8	20.0	243328	5.9	20.4	305466	5.9	20.5	117552	6.1	20.0	472290	6.1	20.4
316	5.8	14.5	441394	5.8	21.2	531978	5.9	21.8	214438	5.9	18.9	34665	6.1	16.9	250695	6.1	19.5
156195	5.8	19.9	66427	5.8	17.8	373838	5.9	20.7	8031	5.9	16.7	181151	6.1	18.8	497989	6.1	21.2
47267	5.8	18.9	22541	5.8	17.9	110009	5.9	18.8	152427	5.9	19.1	402906	6.1	20.3	64019	6.1	18.6
440937	5.8	20.6	103975	5.8	18.4	519325	5.9	21.0	68642	5.9	16.8	362151	6.1	20.3	281682	6.1	20.6
184549	5.8	19.1	152225	5.8	19.5	363451	5.9	19.0	172779	5.9	19.5	311406	6.1	19.9	494436	6.1	20.6
112267	5.8	18.3	398039	5.8	21.2	238765	5.9	20.1	30369	5.9	17.3	475234	6.1	19.5	248448	6.1	18.7
306296	5.8	20.5	227343	5.9	19.2	171323	5.9	19.6	273899	5.9	20.5	394729	6.1	21.7	39583	6.1	18.0
158418	5.8	19.7	409400	5.9	21.3	200988	5.9	19.5	433373	5.9	19.9	24077	6.1	17.3	94305	6.1	19.7
214066	5.8	20.3	486879	5.9	19.1	267040	5.9	20.2	111504	5.9	19.4	90518	6.1	19.0	156918	6.1	20.2
37052	5.8	18.0	427281	5.9	21.1	31153	5.9	16.3	504572	5.9	20.6	307590	6.1	19.7	82141	6.1	19.3
375280	5.8	17.0	236074	5.9	19.5	125667	5.9	19.7	260321	5.9	20.6	370109	6.1	19.0	507873	6.1	22.0
127230	5.8	19.4	222775	5.9	19.6	412459	5.9	20.7	535912	6.0	22.0	134724	6.1	17.2	335608	6.1	20.1
512474	5.8	19.4	375285	5.9	20.0	537079	5.9	20.2	106667	6.0	19.3	460434	6.1	20.0	470539	6.1	20.2
540390	5.8	21.1	253021	5.9	19.5	248852	5.9	20.3	19464	6.0	18.6	502224	6.1	20.1	123243	6.1	18.2
277133	5.8	19.8	145043	5.9	18.8	528701	5.9	21.1	106749	6.0	18.4	389116	6.1	19.5	111259	6.1	16.7
375886	5.8	20.3	353599	5.9	19.5	145563	5.9	17.9	270512	6.0	20.7	465861	6.1	19.7	133220	6.1	18.5
303295	5.8	18.7	200474	5.9	17.6	199622	5.9	19.4	129763	6.0	19.6	98264	6.1	19.0	122708	6.1	18.0
311405	5.8	20.7	518777	5.9	20.6	62838	5.9	16.8	505527	6.0	21.6	386245	6.1	19.6	11049	6.1	16.8
190637	5.8	18.7	263751	5.9	20.3	427908	5.9	20.3	462279	6.0	21.8	29364	6.1	17.9	98049	6.1	17.9
126398	5.8	19.1	497429	5.9	20.9	126818	5.9	19.7	120041	6.0	19.4	529316	6.1	20.6	307222	6.1	20.3
514465	5.8	20.2	415395	5.9	21.0	127943	5.9	20.2	101993	6.0	18.2	440700	6.1	20.2	44874	6.1	18.6
2773	5.8	15.3	18704	5.9	18.2	528521	5.9	20.9	157366	6.0	19.0	311342	6.1	20.0	540329	6.1	21.3
268096	5.8	19.6	537486	5.9	20.5	102648	5.9	18.5	479806	6.0	20.6	145118	6.1	19.3	394740	6.2	19.8
364710	5.8	19.2	390572	5.9	19.3	161602	5.9	20.2	425237	6.0	19.9	504795	6.1	20.8	330633	6.2	20.2
198507	5.8	19.8	416118	5.9	19.0	370982	5.9	19.8	435298	6.0	19.4	39958	6.1	17.5	199981	6.2	19.7
534128	5.8	20.2	59798	5.9	18.9	346052	5.9	20.8	392136	6.0	20.4	390826	6.1	18.3	455171	6.2	23.7
476500	5.8	20.6	537453	5.9	20.5	59378	5.9	18.5	73862	6.0	19.2	507266	6.1	19.1	81703	6.2	17.8
183642	5.8	19.4	336796	5.9	19.6	137397	5.9	19.5	150302	6.0	19.0	215151	6.1	18.6	275586	6.2	19.8
36121	5.8	17.9	416261	5.9	23.0	248437	5.9	20.5	535882	6.0	21.4	468830	6.1	20.9	79140	6.2	19.0
204913	5.8	19.6	316228	5.9	19.4	441817	5.9	20.1	305847	6.0	20.9	380904	6.1	18.6	356698	6.2	20.3
312760	5.8	19.9	172609	5.9	19.0	92999	5.9	19.0	434974	6.0	20.0	43126	6.1	18.7	325121	6.2	20.7
42929	5.8	17.0	392170	5.9	21.3	195549	5.9	19.5	438229	6.0	19.0	120370	6.1	17.9	6449	6.2	16.9
189352	5.8	19.4	294545	5.9	20.6	300941	5.9	19.3	477636	6.0	19.2	216851	6.1	19.5	405870	6.2	20.6
428017	5.8	20.5	124631	5.9	19.2	261071	5.9	20.7	363274	6.0	20.8	305533	6.1	21.1	320592	6.2	21.2
519992	5.8	21.1	263581	5.9	20.2	215629	5.9	19.8	22389	6.0	18.6	184317	6.1	20.2	244168	6.2	19.9
135104	5.8	17.9	325846	5.9	20.8	311408	5.9	20.9	462211	6.0	21.9	391760	6.1	21.1	305425	6.2	20.8
353519	5.8	20.8	222560	5.9	19.0	346024	5.9	20.2	433420	6.0	20.0	336364	6.1	20.7	256531	6.2	20.4
530729	5.8	21.2	55147	5.9	18.3	80411	5.9	18.7	255422	6.0	20.8	201136	6.1	19.3	438389	6.2	20.4
377821	5.8	19.8	412932	5.9	19.5	278583	5.9	20.3	171577	6.0	19.0	520919	6.1	19.9	156710	6.2	19.3
224997	5.8	20.8	98555	5.9	19.1	367437	5.9	20.2	418935	6.0	19.8	423684	6.1	19.9	161026	6.2	18.3
38457	5.8	17.4	420915	5.9	20.3	37994	5.9	18.0	118415	6.0	17.4	286104	6.1	18.9	533755	6.2	20.1
523925	5.8	20.5	55526	5.9	18.7	172754	5.9	19.3	491220	6.0	19.1	306151	6.1	19.4	66004	6.2	18.8
443771	5.8	20.2	523608	5.9	23.5	94974	5.9	18.5	528037	6.0	21.6	347424	6.1	20.1	39237	6.2	16.7
231343	5.8	19.9	186330	5.9	19.5	537422	5.9	20.9	358936	6.0	21.2	128360	6.1	17.5	534424	6.2	21.4
354680	5.8	19.9	394706	5.9	20.7	336147	5.9	20.1	507788	6.0	20.3	251880	6.1	19.8	526034	6.2	20.3
40473	5.8	17.2	175150	5.9	20.5	536833	5.9	20.7	535956	6.0	20.5	287262	6.1	19.4	45002	6.2	18.1
362180	5.8	20.6	526854	5.9	20.5	107713	5.9	18.9	315347	6.0	19.4	379294	6.1	18.6	156872	6.2	20.8
397624	5.8	20.4	300721	5.9	20.9	66863	5.9	18.4	30766	6.0	17.6	404194	6.1	20.9	508454	6.2	19.5
9064	5.8	17.1	161391	5.9	19.5	386801	5.9	20.8	280116	6.0	21.0	178744	6.1	19.3	37675	6.2	18.4
273932	5.8	20.7	71953	5.9	18.7	118692	5.9	18.1	312194	6.0	20.4	69104	6.1	19.2	260487	6.2	19.6
457627	5.8	20.7	320345	5.9	19.7	232923	5.9	20.3	528752	6.0	21.0	522756	6.1	2			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
192794	6.2	20.4	350403	6.3	20.6	418347	6.4	20.6	341565	6.5	20.7	379784	6.5	20.5	519226	6.6	19.8
247064	6.2	18.9	201900	6.3	19.4	505880	6.4	20.3	82628	6.5	18.4	352479	6.5	21.3	22638	6.6	16.8
11094	6.2	16.8	409215	6.3	19.9	257547	6.4	19.1	256491	6.5	20.4	460345	6.5	20.5	311632	6.6	19.1
311392	6.2	18.8	352532	6.3	20.9	264718	6.4	20.4	237187	6.5	19.3	96362	6.5	19.0	124147	6.6	19.1
119874	6.2	19.0	425766	6.3	20.1	377892	6.4	20.8	204094	6.5	18.7	475860	6.5	20.8	540005	6.6	19.8
300087	6.2	20.1	497678	6.3	19.6	170341	6.4	19.2	219007	6.5	18.0	350726	6.5	20.0	280570	6.6	19.9
250876	6.2	19.5	183620	6.3	19.4	131619	6.4	19.0	356975	6.5	19.9	508760	6.5	20.5	76405	6.6	18.7
365534	6.2	19.8	103069	6.3	19.5	180370	6.4	19.8	360923	6.5	20.3	14335	6.5	15.1	198203	6.6	20.5
74119	6.2	17.3	256494	6.3	20.4	41036	6.4	18.7	82261	6.5	18.6	16134	6.5	17.6	351490	6.6	20.2
160676	6.2	18.8	36758	6.3	18.0	404746	6.4	20.3	383322	6.5	20.3	540711	6.5	20.2	35610	6.6	19.1
351767	6.2	20.0	381527	6.3	20.6	37586	6.4	17.7	266271	6.5	21.1	286374	6.5	20.8	250892	6.6	19.9
297378	6.2	21.2	121446	6.3	18.8	117333	6.4	18.3	504732	6.5	20.8	534578	6.5	21.1	389769	6.6	19.7
358085	6.2	19.2	531794	6.3	20.6	441429	6.4	20.5	377130	6.5	18.5	128810	6.5	19.0	252754	6.6	20.0
469626	6.2	19.7	402841	6.3	21.3	80619	6.4	17.8	353819	6.5	18.7	37192	6.5	17.7	528507	6.6	19.5
367675	6.2	19.7	303900	6.3	20.9	483416	6.4	19.1	398950	6.5	20.4	44566	6.6	16.5	306222	6.6	19.6
254476	6.2	19.8	254612	6.3	20.1	471177	6.4	21.3	255056	6.5	21.1	305552	6.6	20.8	79456	6.6	19.8
121460	6.2	18.5	72768	6.3	18.5	373531	6.4	20.0	476028	6.5	21.0	150101	6.6	18.5	333850	6.6	20.6
244500	6.2	20.2	281565	6.3	20.2	364668	6.4	20.4	413342	6.5	19.5	507435	6.6	20.6	145427	6.6	19.4
62119	6.2	17.6	253601	6.3	19.0	431379	6.4	21.1	280402	6.5	19.9	33779	6.6	17.7	114203	6.6	17.7
408818	6.2	19.3	401872	6.3	21.2	466607	6.4	21.0	395529	6.5	20.5	121255	6.6	18.7	117648	6.6	19.9
232161	6.2	19.5	181737	6.3	19.0	510958	6.4	21.2	519121	6.5	20.3	51375	6.6	16.0	541880	6.6	20.1
121050	6.2	18.9	88231	6.3	18.7	291117	6.4	20.1	59693	6.5	18.9	312062	6.6	19.9	343415	6.6	19.8
444933	6.2	21.0	478191	6.3	20.9	410640	6.4	20.6	512725	6.5	21.2	219591	6.6	18.8	146192	6.6	18.7
132643	6.2	17.9	86221	6.3	18.5	120197	6.4	19.0	502820	6.5	20.2	528216	6.6	20.4	533606	6.6	19.9
141458	6.2	19.7	131990	6.3	19.9	258892	6.4	19.4	249234	6.5	19.5	525967	6.6	20.9	86355	6.6	18.3
232284	6.2	19.9	380284	6.3	20.7	537974	6.4	20.6	346764	6.5	20.3	185758	6.6	18.3	40397	6.6	17.9
425861	6.2	20.0	318110	6.3	20.1	235020	6.4	19.4	497350	6.5	20.9	125244	6.6	19.3	491309	6.6	20.9
163212	6.2	20.2	497234	6.3	21.2	512559	6.4	20.8	272781	6.5	18.2	126986	6.6	19.2	353948	6.6	21.1
289554	6.2	20.7	190159	6.3	17.9	343949	6.4	18.9	146080	6.5	18.4	525074	6.6	20.4	510404	6.6	21.1
408701	6.2	20.7	181337	6.3	18.9	100441	6.4	17.9	169146	6.5	18.9	42677	6.6	19.0	535244	6.6	20.7
251333	6.2	19.3	272890	6.3	21.1	479264	6.4	21.3	131710	6.5	18.7	517147	6.6	20.0	510420	6.6	21.8
472763	6.2	20.6	229587	6.3	19.8	64680	6.4	19.5	205771	6.5	19.2	50344	6.6	18.5	475736	6.6	20.6
505179	6.2	20.5	295270	6.3	19.9	157180	6.4	18.8	364470	6.5	20.7	417471	6.6	20.0	76803	6.6	23.1
41483	6.2	18.4	14843	6.3	17.4	457720	6.4	20.6	342859	6.5	21.0	124492	6.6	19.2	173727	6.7	19.9
174484	6.2	19.5	501788	6.3	21.5	251409	6.4	19.9	503195	6.5	20.3	21791	6.6	16.5	330065	6.7	19.6
204395	6.2	19.0	402146	6.3	19.2	70759	6.4	17.9	175155	6.5	18.4	63075	6.6	18.4	440677	6.7	21.3
310081	6.2	19.6	176404	6.3	19.0	363980	6.4	20.4	82843	6.5	18.4	14766	6.6	18.5	89245	6.7	17.9
505533	6.2	21.5	432741	6.3	21.5	507443	6.4	19.5	328208	6.5	21.3	520899	6.6	20.8	182706	6.7	19.5
34660	6.2	18.5	433096	6.3	20.0	120407	6.4	18.4	364357	6.5	21.0	70936	6.6	17.9	540765	6.7	20.4
111761	6.2	17.6	136916	6.3	19.6	461580	6.4	19.6	203668	6.5	19.2	311376	6.6	19.7	400251	6.7	19.1
141283	6.2	19.1	16863	6.3	16.9	207379	6.4	19.5	97067	6.5	18.4	285727	6.6	19.7	87274	6.7	17.3
460288	6.2	20.5	152548	6.3	19.6	224347	6.4	20.4	248865	6.5	19.7	63575	6.6	18.4	307141	6.7	19.7
461948	6.2	19.6	4760	6.3	16.1	159727	6.4	19.7	261492	6.5	20.3	53213	6.6	16.6	372424	6.7	20.9
518466	6.2	21.1	116374	6.3	18.8	476160	6.4	21.0	115158	6.5	18.6	424170	6.6	20.4	146756	6.7	19.7
379277	6.2	20.3	366704	6.3	19.6	395490	6.4	20.5	360417	6.5	19.8	59768	6.6	18.0	172602	6.7	19.6
521249	6.2	21.3	151155	6.3	19.4	528271	6.4	19.2	64660	6.5	18.9	100696	6.6	18.9	154278	6.7	20.8
350965	6.2	20.6	342906	6.3	19.8	136822	6.4	19.0	32717	6.5	17.8	189596	6.6	18.4	303250	6.7	17.6
142563	6.2	19.5	181475	6.3	19.3	121431	6.4	19.3	283139	6.5	19.5	462228	6.6	21.5	245602	6.7	19.9
193773	6.2	18.4	299383	6.3	19.7	206712	6.4	19.9	411723	6.5	21.2	242807	6.6	19.3	538446	6.7	21.8
148842	6.2	18.8	251001	6.3	19.0	359729	6.4	20.5	537121	6.5	21.0	182155	6.6	19.2	479236	6.7	20.5
509568	6.2	21.9	131634	6.3	19.7	235721	6.4	21.3	17854	6.5	16.9	236146	6.6	18.5	43848	6.7	18.6
379321	6.2	20.7	528913	6.3	20.9	112906	6.4	19.6	84960	6.5	18.6	189861	6.6	19.3	31533	6.7	18.2
124831	6.2	19.5	260553	6.3	20.3	1943	6.4	16.3	410337	6.5	21.3	37049	6.6	18.5	163801	6.7	18.4
481298	6.3	20.1	214756	6.4	20.1	336282	6.4	19.9	293151	6.5	21.4	61637	6.6	18.3	244388	6.7	19.5
479253	6.3	21.5	315884	6.4	19.9	509443	6.4	22.0	18289	6.5	21.3	154560	6.6	19.2	495621	6.7	20.1
233335	6.3	19.4	66321	6.4	18.4	407672	6.4	20.2	234143	6.5	19.7	290557	6.6	20.6	427969	6.7	21.7
94723	6.3	18.4	429580	6.4	22.1	276204	6.4	20.2	401484	6.5	21.2	14115	6.6	17.2	378995	6.7	20.0
300910	6.3	20.0	527645	6.4	20.5	208679	6.4	20.5	376780	6.5	18.1	417556	6.6	19.6	160404	6.7	17.4
29220	6.3	18.0	414121	6.4	21.2	192502	6.4	18.8	95315	6.5	19.6	499179	6.6	20.3	151483	6.7	19.8
421632	6.3	19.9	164711	6.4	19.9	429181	6.4	20.2	360889	6.5	21.3	66671	6.6	18.6	236539	6.7	19.8
8578	6.3	16.4	199045	6.4	19.1	63906	6.4	18.9	532029	6.5	20.8	457763	6.6	20.3	469009	6.7	20.0
98026	6.3	18.2	446336	6.4	21.1	95503	6.4	18.1	175369	6.5	19.5	33875	6.6	17.7	433476	6.7	20.6
464297	6.3	20.8	525161	6.4	21.1	269117	6.4	19.9	375001	6.5	20.9	304010	6.6	20.2	414048	6.7	20.7
285411	6.3	19.6	511565	6.4	21.2	455678	6.4	21.3	338087	6.5	20.4	305526	6.6	21.1	353224	6.7	21.1
536731	6.3	22.0	274535	6.4	20.1	532009	6.4	22.1	390169	6.5	21.1	345890	6.6	20.3	304763	6.7	21.2
904	6.3	14.8	208707	6.4	18.1	185604	6.4	20.2	375875	6.5	19.1	480486	6.6	19.9	242740	6.7	19.6
275701	6.3	19.6	131328	6.4	19.6	117428	6.4	20.1	107107	6.5	19.3	489954	6.6	20.8	186202	6.7	19.0
241650	6.3	19.9	536648	6.4	21.4	536989	6.4	21.1	88671	6.5	19.1	248539	6.6	18.3	340509	6.7	20.9
153099	6.3	21.0	395656	6.4	20.8	58738	6.4	19.7	356353	6.5	19.5	262764	6.6	21.2	34294	6.7	18.0
159203	6.3	19.3	528057	6.4	22.0	22700	6.4	18.3	240715	6.5	19.6	47185	6.6	19.2	122891	6.7	18.2
119448	6.3	18.2	126858	6.4	18.9	216823	6.4	20.5	333760	6.5	19.4	5277	6.6	17			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
187165	6.7	20.5	377612	6.8	19.4	95216	6.9	17.5	192026	6.9	19.9	49713	7.0	19.1	105323	7.1	18.6
480596	6.7	20.7	257968	6.8	20.1	65929	6.9	19.1	519332	6.9	21.3	62336	7.0	18.9	402490	7.1	20.3
101703	6.7	18.2	407687	6.8	20.6	259286	6.9	18.9	428706	6.9	19.2	193819	7.0	18.7	219617	7.1	19.0
498014	6.7	20.5	68696	6.8	17.8	197635	6.9	19.1	25607	6.9	18.4	40941	7.0	18.4	415056	7.1	21.6
160499	6.7	20.9	40656	6.8	17.1	195369	6.9	20.0	383727	6.9	19.7	84441	7.0	18.1	19015	7.1	19.9
2969	6.7	16.4	526846	6.8	21.6	259498	6.9	19.7	355799	6.9	18.4	354360	7.0	20.6	381953	7.1	20.8
302295	6.7	20.0	23055	6.8	17.4	27512	6.9	17.9	45919	6.9	18.2	432413	7.0	20.9	479110	7.1	21.3
921	6.7	14.2	90594	6.8	18.4	777	6.9	15.1	411646	6.9	18.8	437205	7.0	20.5	30484	7.1	17.5
154065	6.7	19.9	94828	6.8	18.3	302007	6.9	19.1	405259	6.9	19.3	28058	7.0	17.5	105351	7.1	18.2
442840	6.7	21.4	78043	6.8	18.7	383283	6.9	20.5	406326	6.9	18.9	175985	7.0	18.0	175086	7.1	19.7
540824	6.7	20.2	356363	6.8	19.1	485670	6.9	19.4	478230	6.9	20.7	53431	7.0	16.2	254207	7.1	18.1
245975	6.7	18.9	338657	6.8	20.0	207191	6.9	19.4	204676	6.9	19.3	245523	7.0	19.1	531439	7.1	20.2
64572	6.7	18.4	273770	6.8	20.2	499320	6.9	21.6	508328	6.9	21.6	62725	7.0	18.8	363517	7.1	19.1
162554	6.7	18.5	6230	6.8	16.8	474310	6.9	21.0	267393	6.9	19.9	288204	7.0	19.8	272690	7.1	20.5
42543	6.7	18.5	508053	6.8	20.2	244273	6.9	18.4	91504	6.9	18.4	133111	7.0	18.5	518999	7.1	19.7
224438	6.7	20.1	360289	6.8	20.7	205750	6.9	20.6	34405	6.9	17.9	68758	7.0	19.2	470289	7.1	21.3
500397	6.7	20.4	83835	6.8	17.8	204111	6.9	19.4	525403	6.9	19.7	445793	7.0	20.6	436943	7.1	20.9
510447	6.7	20.8	509681	6.8	19.1	476441	6.9	20.8	56254	6.9	18.4	434284	7.0	19.7	181578	7.1	19.5
540397	6.7	20.9	135686	6.8	18.4	143525	6.9	20.0	356696	6.9	21.0	137857	7.0	19.5	127858	7.1	18.8
185459	6.7	19.7	25381	6.8	19.6	523175	6.9	20.4	119899	6.9	19.8	156119	7.0	19.9	98587	7.1	17.9
245381	6.7	19.5	285809	6.8	19.8	33757	6.9	17.8	272683	6.9	21.5	94280	7.0	19.2	155793	7.1	18.1
318818	6.7	19.2	282641	6.8	19.6	358025	6.9	19.0	540118	6.9	21.0	250934	7.0	19.1	301879	7.1	20.4
186239	6.7	18.3	268959	6.8	19.6	482823	6.9	19.5	122921	6.9	19.1	304733	7.0	20.1	133533	7.1	18.1
248379	6.7	18.5	40759	6.8	18.6	247150	6.9	19.1	177854	6.9	19.7	507456	7.0	21.3	19712	7.1	17.2
519362	6.7	21.6	22749	6.8	18.0	370123	6.9	19.5	260671	6.9	19.9	510816	7.0	20.0	231548	7.1	19.7
70699	6.7	19.0	117663	6.8	19.8	259344	6.9	20.3	294901	6.9	20.3	474924	7.0	20.4	469917	7.1	19.6
328317	6.7	20.3	361893	6.8	19.7	421512	6.9	20.5	414788	6.9	19.6	141092	7.0	19.4	169053	7.1	19.7
125749	6.7	19.6	412010	6.8	20.1	39068	6.9	19.1	297581	6.9	19.1	394004	7.0	20.0	359622	7.1	20.6
333209	6.7	20.0	342809	6.8	20.1	233454	6.9	20.5	366823	6.9	20.6	242695	7.0	19.3	480644	7.1	20.5
193579	6.7	18.9	297651	6.8	18.5	275131	6.9	20.6	336686	6.9	19.9	424615	7.0	20.1	253690	7.1	19.1
436280	6.7	20.2	415109	6.8	20.9	377797	6.9	20.7	104650	6.9	18.5	469355	7.0	20.6	136507	7.1	19.2
151969	6.7	19.3	127921	6.8	18.8	481154	6.9	22.0	72592	6.9	18.8	385056	7.0	19.6	111241	7.1	19.2
420398	6.7	21.1	343185	6.8	19.1	155610	6.9	19.6	120443	6.9	20.4	177646	7.0	19.4	65577	7.1	18.7
507084	6.7	22.0	13201	6.8	17.0	355511	6.9	21.3	431030	6.9	20.0	215484	7.0	19.8	437316	7.1	22.6
498015	6.7	21.9	506922	6.8	21.8	72104	6.9	19.7	86256	6.9	18.1	75777	7.0	18.2	468538	7.1	19.4
353715	6.7	19.8	61160	6.8	18.0	345078	6.9	21.8	214217	6.9	20.4	305517	7.0	20.0	438264	7.1	20.0
192620	6.7	20.7	361525	6.8	21.1	355746	6.9	20.8	87331	6.9	18.6	313963	7.0	20.3	200614	7.1	18.8
295	6.7	13.4	540721	6.8	21.0	16103	6.9	17.8	506599	6.9	21.3	374505	7.0	20.5	415737	7.1	21.1
474954	6.7	20.5	9100	6.8	17.2	114899	6.9	17.8	206982	6.9	18.2	120090	7.0	19.6	32919	7.1	17.9
17372	6.7	18.1	280338	6.8	19.5	175877	6.9	20.1	363531	6.9	18.9	505596	7.0	21.8	308549	7.1	20.9
175705	6.7	20.2	103916	6.8	19.5	201692	6.9	19.6	413255	6.9	20.4	131238	7.0	19.6	232888	7.1	19.1
165325	6.7	19.4	268975	6.8	19.7	247703	6.9	19.4	511381	6.9	21.0	472329	7.0	21.3	452677	7.1	20.6
75635	6.7	18.7	509690	6.8	18.2	275898	6.9	19.5	462888	6.9	19.9	49845	7.0	16.4	287562	7.1	20.2
522654	6.8	19.8	377773	6.8	20.2	352108	6.9	20.2	107272	6.9	20.0	11852	7.0	15.4	22903	7.1	16.5
397134	6.8	19.5	93981	6.8	17.5	510414	6.9	20.3	374457	6.9	20.7	314658	7.1	18.8	121038	7.1	17.6
533469	6.8	21.2	27577	6.8	18.1	140786	6.9	20.5	233577	6.9	19.6	260490	7.1	20.3	256519	7.1	19.4
291017	6.8	19.9	323601	6.8	19.8	512791	6.9	20.2	497568	6.9	20.3	462121	7.1	20.3	297069	7.1	19.2
188523	6.8	19.4	533011	6.8	22.7	305362	6.9	20.9	193956	6.9	18.1	226764	7.1	19.6	253871	7.1	19.0
279451	6.8	18.0	11875	6.8	17.4	397822	6.9	19.0	467083	6.9	21.5	32746	7.1	18.2	425749	7.1	20.6
38305	6.8	17.2	123090	6.8	19.1	381813	6.9	20.2	126170	6.9	19.4	257614	7.1	19.8	125770	7.1	19.5
146892	6.8	19.2	20110	6.8	16.2	123796	6.9	19.0	225322	6.9	19.5	115719	7.1	19.2	219578	7.1	19.5
259384	6.8	20.1	506964	6.8	21.1	393213	6.9	20.4	331625	6.9	20.7	497976	7.1	21.8	255623	7.1	18.8
458906	6.8	21.8	259319	6.8	20.1	217017	6.9	20.0	12093	6.9	17.9	199817	7.1	18.5	38605	7.1	17.6
418164	6.8	21.4	472208	6.8	21.1	312680	6.9	20.3	458837	6.9	20.1	355693	7.1	20.3	327381	7.1	19.4
290544	6.8	20.9	248546	6.8	19.7	492815	6.9	20.3	364667	6.9	20.3	542374	7.1	20.7	63147	7.1	18.4
533867	6.8	19.7	354125	6.8	20.0	402900	6.9	18.4	175903	6.9	18.9	508032	7.1	20.8	404725	7.1	21.1
530410	6.8	21.5	416246	6.8	21.0	118423	6.9	19.6	377411	6.9	20.2	146716	7.1	19.3	526324	7.1	21.5
523723	6.8	22.0	470699	6.8	20.9	468386	6.9	19.7	419790	6.9	19.4	340125	7.1	18.6	334784	7.1	19.5
258604	6.8	20.1	375015	6.8	20.5	182949	6.9	19.8	313137	6.9	20.1	109736	7.1	19.2	157318	7.1	19.3
204848	6.8	19.9	30324	6.8	18.6	336299	6.9	20.0	204711	6.9	19.1	223252	7.1	19.2	68442	7.1	19.1
87019	6.8	18.9	21784	6.8	17.1	79767	6.9	19.1	542528	6.9	20.4	65634	7.1	18.6	320645	7.1	21.2
156387	6.8	20.1	207472	6.8	19.3	174554	6.9	20.5	355794	6.9	20.6	238459	7.1	19.5	510440	7.1	21.4
443754	6.8	20.0	459635	6.8	20.5	275205	6.9	18.9	354349	6.9	20.9	142050	7.1	19.0	291235	7.1	19.8
150964	6.8	19.9	41772	6.9	19.4	21673	6.9	18.1	259278	6.9	20.4	146209	7.1	19.6	125204	7.1	19.7
395858	6.8	21.4	192586	6.9	20.1	109665	6.9	18.7	392146	6.9	20.4	309281	7.1	19.0	311446	7.1	20.9
190652	6.8	19.3	253451	6.9	18.6	8302	6.9	16.4	338074	6.9	19.6	11235	7.1	16.5	199627	7.1	20.3
519180	6.8	20.6	146942	6.9	18.8	456002	6.9	20.7	474949	6.9	20.4	470344	7.1	20.6	32063	7.1	17.9
354709	6.8	20.7	518745	6.9	20.4	211979	6.9	19.9	3792	6.9	17.4	405464	7.1	19.9	436162	7.1	20.5
350808	6.8	20.6	225945	6.9	20.8	135919	6.9	19.2	396272	6.9	20.0	524818	7.1	19.4	527270	7.1	20.6
310130	6.8	20.7	146115	6.9	18.7	531962	6.9	21.1	478208	7.0	20.8	189365	7.1	20.6	216444	7.1	20.7
67873	6.8	17.8	106342	6.9	19.4	360963	6.9	20.2	502776	7.0	21.3	125831	7.1	18.4	35		

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
428336	7.2	20.0	337228	7.2	20.0	360514	7.3	19.2	13114	7.4	17.5	467233	7.5	21.2	501240	7.5	20.3
29688	7.2	17.7	149151	7.2	20.3	272365	7.3	20.8	222630	7.4	20.7	131938	7.5	19.3	65140	7.5	18.8
377753	7.2	19.7	175088	7.2	18.9	315129	7.3	21.4	361177	7.4	18.6	201470	7.5	20.0	218262	7.5	20.4
59257	7.2	17.7	38577	7.2	17.6	388277	7.3	21.0	437395	7.4	20.2	504717	7.5	20.7	63258	7.5	18.9
293265	7.2	19.6	19062	7.2	17.5	98078	7.3	17.1	250868	7.4	19.8	357008	7.5	19.5	207758	7.5	20.0
513222	7.2	21.0	384677	7.2	19.8	251642	7.3	18.1	251009	7.4	18.7	93298	7.5	18.6	92590	7.5	17.3
63369	7.2	18.7	476459	7.2	20.7	266406	7.3	20.5	429198	7.4	21.1	86636	7.5	17.8	528436	7.5	18.8
518402	7.2	20.5	82990	7.2	17.7	433468	7.3	19.8	140894	7.4	19.8	328302	7.5	19.3	149128	7.5	20.2
105801	7.2	18.6	261978	7.2	19.0	118944	7.3	19.6	56179	7.4	18.3	371005	7.5	20.1	317080	7.5	20.2
303926	7.2	20.0	482413	7.2	20.9	5358	7.3	15.1	459506	7.4	20.7	195766	7.5	18.8	148105	7.5	18.8
396326	7.2	20.3	2156	7.2	14.0	529455	7.3	22.0	317505	7.4	19.2	521056	7.5	20.8	195160	7.5	19.3
12906	7.2	17.7	393570	7.2	21.2	28751	7.3	18.1	142657	7.4	19.1	176481	7.5	19.7	326154	7.5	21.4
187383	7.2	20.5	125236	7.2	19.9	30450	7.3	18.6	32831	7.4	18.4	515420	7.5	21.7	87527	7.5	17.7
43794	7.2	18.9	255823	7.2	20.1	213096	7.3	18.1	166361	7.4	20.0	440556	7.5	21.7	122692	7.5	17.1
312140	7.2	20.7	533465	7.2	23.1	77082	7.3	19.0	193558	7.4	18.4	160961	7.5	18.0	439567	7.5	20.4
326092	7.2	20.9	17676	7.2	17.7	355632	7.3	19.7	370458	7.4	20.7	424732	7.5	20.4	14850	7.5	16.4
423214	7.2	19.3	142481	7.2	19.4	473040	7.3	21.0	486672	7.4	20.2	86055	7.5	18.6	474952	7.5	20.2
521053	7.2	20.9	528495	7.2	19.4	466864	7.3	20.1	438122	7.4	20.0	141078	7.5	22.4	401040	7.5	20.4
225955	7.2	19.7	41739	7.2	18.3	222590	7.3	19.5	300809	7.4	21.1	391765	7.5	20.8	135191	7.5	19.1
415966	7.2	20.8	368438	7.2	19.1	386818	7.3	21.0	82087	7.4	18.2	162103	7.5	18.7	107090	7.5	18.6
72397	7.2	19.6	153890	7.2	19.4	177838	7.3	19.3	245111	7.4	19.0	539882	7.5	20.5	356376	7.5	20.0
499932	7.2	20.0	388714	7.2	20.7	316319	7.3	20.2	528318	7.4	20.9	7191	7.5	16.1	53552	7.6	17.2
187287	7.2	19.7	316668	7.2	19.5	10411	7.3	16.9	315165	7.4	20.3	338782	7.5	20.3	126463	7.6	19.3
415365	7.2	19.9	397738	7.3	20.7	472685	7.3	21.4	423468	7.4	19.7	370188	7.5	19.0	151056	7.6	19.8
348962	7.2	20.3	159684	7.3	18.7	74289	7.3	17.6	388314	7.4	20.7	411712	7.5	21.3	359917	7.6	20.5
528461	7.2	20.9	347889	7.3	18.7	229109	7.3	19.8	432989	7.4	20.2	23342	7.5	18.2	139952	7.6	18.4
59837	7.2	18.8	300914	7.3	19.5	344817	7.3	19.9	350968	7.4	21.0	384246	7.5	21.5	87426	7.6	18.1
123510	7.2	17.8	182175	7.3	19.5	80891	7.3	18.6	379293	7.4	19.0	260153	7.5	19.6	32015	7.6	17.1
170990	7.2	19.6	280135	7.3	19.2	387314	7.3	20.4	509315	7.4	21.0	504011	7.5	20.3	60377	7.6	16.9
193309	7.2	19.0	406422	7.3	20.0	472389	7.3	20.9	391034	7.4	20.1	496884	7.5	19.9	19795	7.6	17.4
457602	7.2	21.4	33236	7.3	18.1	143597	7.3	20.7	102949	7.4	19.2	442040	7.5	20.0	405406	7.6	19.4
519088	7.2	21.4	146425	7.3	18.9	242332	7.3	20.8	14311	7.4	18.1	377668	7.5	20.0	309867	7.6	19.3
143626	7.2	20.5	503361	7.3	21.0	208682	7.3	19.6	94367	7.4	18.6	19497	7.5	18.0	2054	7.6	17.0
539219	7.2	20.0	501082	7.3	19.3	312434	7.3	20.5	424697	7.4	20.2	276113	7.5	21.5	89900	7.6	17.7
255101	7.2	19.9	442841	7.3	20.8	55446	7.3	18.3	60834	7.4	19.7	334747	7.5	19.2	174265	7.6	19.8
477183	7.2	20.1	62844	7.3	19.5	354148	7.3	20.9	418130	7.4	20.8	45233	7.5	18.4	426259	7.6	20.3
119481	7.2	18.0	112259	7.3	18.0	191958	7.3	19.0	107649	7.4	19.4	297842	7.5	19.6	337105	7.6	18.3
290939	7.2	19.9	188303	7.3	18.6	362374	7.3	19.7	497248	7.4	22.1	202454	7.5	20.3	356361	7.6	19.9
538669	7.2	21.6	95800	7.3	18.7	312516	7.3	20.8	237541	7.4	20.4	53496	7.5	18.5	437391	7.6	21.4
310044	7.2	18.9	353435	7.3	20.3	137005	7.3	18.6	303822	7.4	19.5	20404	7.5	18.1	407762	7.6	21.1
521523	7.2	21.2	49688	7.3	17.1	96900	7.3	19.4	311219	7.4	20.3	295901	7.5	20.5	134135	7.6	19.7
501043	7.2	20.5	522309	7.3	21.5	239018	7.3	18.5	535411	7.4	20.4	209904	7.5	18.4	278145	7.6	20.1
152360	7.2	18.9	510475	7.3	21.4	442074	7.3	20.0	398831	7.4	19.9	459627	7.5	21.1	501300	7.6	21.0
291697	7.2	20.9	203919	7.3	18.8	192825	7.3	17.9	492523	7.4	21.0	374502	7.5	20.1	67566	7.6	18.9
439508	7.2	20.5	114370	7.3	19.1	87879	7.3	18.7	35207	7.4	18.8	106030	7.5	19.1	8424	7.6	15.4
237404	7.2	18.1	248362	7.3	19.3	315479	7.3	21.0	158529	7.4	19.2	258948	7.5	18.6	105559	7.6	18.2
16531	7.2	18.5	258667	7.3	20.4	278902	7.3	20.4	361670	7.4	19.1	120790	7.5	19.4	93863	7.6	19.2
295863	7.2	20.6	495347	7.3	19.8	456913	7.3	20.7	278535	7.4	20.1	395345	7.5	19.0	37607	7.6	17.6
542356	7.2	21.5	143500	7.3	19.4	153531	7.3	19.2	533866	7.4	19.7	482795	7.5	20.3	354736	7.6	19.3
39320	7.2	16.8	503098	7.3	19.5	399250	7.3	21.3	413475	7.4	19.9	154814	7.5	18.7	310486	7.6	18.9
111952	7.2	18.7	110252	7.3	18.4	225026	7.3	20.8	2485	7.4	17.6	392630	7.5	20.3	434257	7.6	20.2
437191	7.2	20.9	76478	7.3	17.9	392162	7.3	21.3	342700	7.4	20.3	463307	7.5	20.4	497526	7.6	20.9
499579	7.2	21.3	309644	7.3	19.9	527907	7.3	20.4	375755	7.4	19.8	189251	7.5	18.2	235598	7.6	18.9
438891	7.2	20.6	356798	7.3	19.9	202451	7.3	19.1	33090	7.4	18.1	500171	7.5	21.6	32376	7.6	17.0
415922	7.2	20.1	211003	7.3	20.5	504082	7.3	21.1	243299	7.4	19.5	338651	7.5	20.4	270556	7.6	20.6
311308	7.2	20.7	504790	7.3	21.5	457604	7.3	21.6	182966	7.4	19.6	425750	7.5	20.9	519922	7.6	20.3
317921	7.2	19.9	170638	7.3	19.4	317952	7.3	20.3	370079	7.4	19.9	17895	7.5	18.4	510416	7.6	20.4
494725	7.2	20.6	534102	7.3	19.7	311525	7.4	20.6	476384	7.4	20.9	97497	7.5	18.7	136893	7.6	20.7
542889	7.2	22.3	26999	7.3	17.7	217389	7.4	20.6	414170	7.4	20.8	236100	7.5	18.5	180786	7.6	19.4
490833	7.2	20.4	12485	7.3	16.3	505155	7.4	18.9	158033	7.4	19.0	479662	7.5	20.5	311602	7.6	20.5
176716	7.2	20.1	199307	7.3	18.7	411860	7.4	20.9	241756	7.4	20.2	136426	7.5	19.5	540416	7.6	20.8
101833	7.2	17.9	14772	7.3	17.9	304051	7.4	21.1	231234	7.4	19.1	173878	7.5	20.1	218439	7.6	19.0
227868	7.2	19.8	349588	7.3	19.5	125381	7.4	18.6	321331	7.4	20.2	267368	7.5	19.9	380872	7.6	20.4
491318	7.2	20.1	425805	7.3	21.4	383961	7.4	20.7	456024	7.4	18.6	358005	7.5	19.1	216860	7.6	19.9
414133	7.2	21.1	250789	7.3	20.2	21334	7.4	18.7	96665	7.4	18.8	115272	7.5	19.6	159536	7.6	17.2
96366	7.2	19.4	444333	7.3	20.8	412210	7.4	20.0	332187	7.4	19.7	505973	7.5	21.1	96414	7.6	19.4
418080	7.2	20.3	311946	7.3	18.1	128014	7.4	19.4	435929	7.4	20.4	92527	7.5	18.5	418237	7.6	21.9
415599	7.2	20.1	305527	7.3	20.2	106735	7.4	19.4	427883	7.4	21.1	156158	7.5	18.6	253931	7.6	20.8
509410	7.2	21.2	64804	7.3	19.6	86327	7.4	18.6	465408	7.4	20.1	394236	7.5	20.6	158475	7.6	19.6
403268	7.2	21.4	276887	7.3	20.2	467261	7.4	21.1	155751	7.4	18.9	276688	7.5	20.2	533531	7.6	20.2
72366	7.2	19.1	541044	7.3	20.3	28422	7.4	18.3	126293	7.4	19.1	55480	7.5	18.5			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
357384	7.6	19.3	536170	7.7	20.3	468237	7.8	19.7	56742	7.8	17.4	299303	7.9	19.4	242419	8.0	18.7
208031	7.6	17.9	22588	7.7	18.5	208727	7.8	19.4	394721	7.8	20.7	379650	7.9	19.0	395895	8.0	20.1
59937	7.6	18.7	291074	7.7	19.3	211567	7.8	18.0	18710	7.8	18.0	442025	7.9	20.4	40640	8.0	17.8
510559	7.6	21.0	302269	7.7	19.7	179520	7.8	19.9	54277	7.8	18.1	340304	7.9	19.4	190630	8.0	19.4
373530	7.6	20.8	454115	7.7	21.3	92598	7.8	18.9	274503	7.8	19.2	48486	7.9	19.2	336349	8.0	20.2
386121	7.6	20.9	305797	7.7	19.5	393868	7.8	20.1	529445	7.8	19.9	132418	7.9	19.1	524867	8.0	20.8
360568	7.6	18.4	335569	7.7	20.2	122424	7.8	18.8	79972	7.8	19.2	33582	7.9	18.2	37681	8.0	18.0
2091	7.6	14.7	502371	7.7	19.6	167249	7.8	20.0	163108	7.8	19.3	325126	7.9	21.2	410780	8.0	21.0
90571	7.6	17.0	19960	7.7	17.6	149734	7.8	18.1	257065	7.8	20.6	335541	7.9	20.8	328259	8.0	19.6
260520	7.6	20.3	361082	7.7	20.0	150920	7.8	19.5	373569	7.8	20.2	204639	7.9	20.7	362359	8.0	19.8
346140	7.6	20.7	525802	7.7	19.5	391898	7.8	19.9	233865	7.8	20.5	87729	7.9	18.4	395630	8.0	20.5
9444	7.6	17.8	134693	7.7	19.2	352111	7.8	19.8	471075	7.9	21.2	368741	7.9	20.6	480713	8.0	20.4
457675	7.6	20.9	106989	7.7	17.5	431979	7.8	20.1	286562	7.9	20.3	4101	7.9	15.2	92865	8.0	19.1
79345	7.6	18.6	16085	7.7	17.9	179561	7.8	19.7	163069	7.9	19.7	174835	7.9	19.4	164701	8.0	19.9
375953	7.6	19.6	30937	7.7	18.3	285188	7.8	20.2	349418	7.9	19.5	497991	7.9	20.1	204375	8.0	19.2
172886	7.6	20.1	535791	7.7	21.9	275138	7.8	20.8	363648	7.9	20.1	427982	7.9	19.4	188555	8.0	19.3
157559	7.6	20.6	334025	7.7	19.8	305615	7.8	20.2	384998	7.9	20.1	64699	7.9	16.1	161791	8.0	18.4
23417	7.6	17.8	280982	7.7	20.6	159933	7.8	19.9	507360	7.9	21.8	389690	7.9	19.7	291691	8.0	21.0
334713	7.6	21.0	343263	7.7	20.6	359863	7.8	20.4	272715	7.9	20.0	506340	7.9	19.8	497589	8.0	21.3
479978	7.6	21.2	381923	7.7	20.8	439371	7.8	20.2	350843	7.9	20.9	387779	7.9	19.6	240853	8.0	18.9
501908	7.6	20.2	95081	7.7	19.1	465334	7.8	20.9	246632	7.9	21.4	465398	7.9	22.3	273835	8.0	20.0
352436	7.6	20.6	508087	7.7	20.9	218281	7.8	21.0	67296	7.9	17.3	204165	7.9	19.7	55471	8.0	18.7
478337	7.6	21.5	21699	7.7	17.6	540795	7.8	20.7	159916	7.9	19.6	370059	7.9	19.7	316806	8.0	20.4
354769	7.6	19.5	328892	7.7	20.4	290517	7.8	20.2	479248	7.9	20.3	122348	7.9	18.4	401770	8.0	18.1
304043	7.6	19.4	539281	7.7	20.2	46833	7.8	17.5	43670	7.9	19.3	156949	7.9	20.0	77633	8.0	19.2
204587	7.6	19.8	424823	7.7	21.0	353954	7.8	19.9	387876	7.9	20.7	258982	7.9	19.2	305359	8.0	20.8
475822	7.6	18.0	267071	7.7	20.0	202947	7.8	21.2	31678	7.9	17.3	359897	7.9	19.0	316253	8.0	19.1
43532	7.6	21.9	355690	7.7	20.3	312694	7.8	19.5	102255	7.9	18.9	140797	7.9	19.9	366596	8.0	18.7
382916	7.6	19.5	216836	7.7	20.6	153860	7.8	18.2	132238	7.9	18.6	187842	7.9	19.5	320862	8.0	19.5
376959	7.6	21.2	439903	7.7	18.9	386558	7.8	20.7	125491	7.9	19.3	235121	7.9	18.7	290651	8.0	19.5
492222	7.6	19.8	228224	7.7	19.2	204015	7.8	19.4	513227	7.9	21.2	73732	7.9	19.5	412221	8.0	21.4
332075	7.6	20.3	520089	7.7	21.0	341429	7.8	20.4	56713	7.9	16.8	122500	7.9	18.1	151719	8.0	19.5
466118	7.6	21.1	263317	7.7	19.5	510435	7.8	20.8	525416	7.9	22.0	8865	7.9	18.0	249581	8.0	21.0
32835	7.6	16.7	280330	7.7	19.2	377862	7.8	20.2	336268	7.9	18.9	16415	7.9	16.3	509103	8.0	20.5
348424	7.6	20.1	262341	7.7	20.8	354358	7.8	19.8	122387	7.9	18.0	243052	7.9	18.6	258638	8.0	20.5
443442	7.6	20.7	318636	7.7	20.4	380323	7.8	20.3	162661	7.9	19.1	465748	7.9	19.4	172584	8.0	19.1
433723	7.6	21.4	196703	7.7	19.6	131657	7.8	19.2	94544	7.9	19.0	177896	7.9	18.9	366711	8.0	19.8
224950	7.6	20.6	388629	7.7	20.8	393069	7.8	21.0	538036	7.9	21.1	358441	7.9	20.7	140057	8.0	19.8
118441	7.6	19.3	102443	7.7	19.3	150296	7.8	17.8	106725	7.9	19.4	238530	7.9	18.8	70134	8.0	17.9
51417	7.7	18.5	252001	7.7	20.4	34952	7.8	20.0	221894	7.9	19.0	155135	7.9	19.7	89688	8.1	19.3
521282	7.7	20.3	537511	7.7	20.2	438619	7.8	20.3	200175	7.9	20.6	146929	7.9	20.3	531851	8.1	21.8
379770	7.7	21.7	395887	7.7	21.2	358461	7.8	20.6	227500	7.9	20.2	537397	7.9	20.0	33516	8.1	18.5
5306	7.7	16.1	360700	7.7	19.6	509897	7.8	20.2	93659	7.9	19.0	244170	7.9	19.6	41548	8.1	17.4
110068	7.7	18.9	90224	7.7	19.3	474429	7.8	21.4	63061	7.9	18.5	394218	7.9	20.9	219706	8.1	18.1
55651	7.7	17.6	104477	7.7	19.6	68000	7.8	17.3	387141	7.9	20.4	426059	7.9	20.7	415088	8.1	21.3
233771	7.7	19.3	166416	7.7	19.0	395470	7.8	20.4	338700	7.9	20.3	496454	7.9	21.4	157674	8.1	19.1
288268	7.7	21.1	358015	7.7	20.2	316093	7.8	20.5	540463	7.9	21.4	504619	7.9	19.6	216313	8.1	19.3
1247	7.7	14.1	93203	7.7	18.5	304480	7.8	19.4	11885	7.9	20.5	222725	7.9	18.3	336237	8.1	20.1
513669	7.7	20.1	76172	7.7	17.3	325195	7.8	19.8	144904	7.9	19.6	234340	7.9	20.5	428579	8.1	21.1
297618	7.7	19.6	540775	7.7	19.7	37239	7.8	18.8	164460	7.9	18.2	165320	7.9	19.2	417508	8.1	20.4
223003	7.7	19.9	126204	7.7	19.9	228628	7.8	20.8	124819	7.9	19.6	175581	7.9	20.3	491068	8.1	20.1
374313	7.7	20.1	149110	7.7	19.9	340483	7.8	20.7	188124	7.9	20.3	475751	7.9	20.6	179550	8.1	19.7
539506	7.7	20.9	286538	7.7	20.3	454403	7.8	19.5	314575	7.9	19.7	74526	7.9	18.3	65244	8.1	18.0
350734	7.7	20.9	442888	7.7	21.5	465443	7.8	19.0	251975	7.9	21.0	496959	7.9	22.1	65085	8.1	20.3
526389	7.7	19.1	310420	7.7	20.6	410174	7.8	20.0	271646	7.9	17.6	508620	7.9	19.6	536352	8.1	21.9
461500	7.7	20.7	277461	7.7	19.1	393971	7.8	19.4	140231	7.9	18.7	72922	7.9	20.5	48040	8.1	19.1
16107	7.7	17.9	62624	7.7	18.1	240596	7.8	21.0	528690	7.9	20.8	534509	7.9	21.0	40947	8.1	18.5
441818	7.7	20.6	236229	7.7	20.8	430932	7.8	20.5	385199	7.9	23.1	198681	7.9	20.2	208569	8.1	19.7
438994	7.7	20.2	491234	7.7	18.2	385362	7.8	23.3	55915	7.9	18.1	93020	7.9	18.2	65382	8.1	18.3
127282	7.7	18.8	290151	7.7	19.2	222645	7.8	18.6	427912	7.9	20.3	236588	7.9	20.5	459093	8.1	20.9
303315	7.7	19.1	225920	7.8	20.9	265018	7.8	19.3	531424	7.9	20.8	347158	7.9	20.4	427305	8.1	20.0
540719	7.7	20.7	61660	7.8	18.7	422215	7.8	21.3	535247	7.9	19.8	250552	7.9	19.7	394636	8.1	20.9
72935	7.7	17.9	432850	7.8	21.3	332098	7.8	20.0	308584	7.9	19.7	105972	7.9	19.6	159664	8.1	20.1
144136	7.7	19.3	527412	7.8	21.6	366858	7.8	20.3	84812	7.9	19.4	8989	7.9	15.2	478216	8.1	21.7
39138	7.7	18.9	308703	7.8	19.9	509360	7.8	20.9	282980	7.9	20.1	86056	7.9	17.5	208714	8.1	19.6
290242	7.7	19.5	321079	7.8	20.6	454112	7.8	21.0	531991	7.9	21.2	410306	7.9	21.1	308953	8.1	20.7
479258	7.7	20.1	244297	7.8	19.9	533614	7.8	19.1	302883	7.9	21.1	122579	7.9	18.1	513699	8.1	20.7
164693	7.7	19.4	512549	7.8	20.8	357574	7.8	20.7	536619	7.9	21.8	295700	7.9	20.9	507063	8.1	20.0
412192	7.7	20.8	504088	7.8	20.4	505765	7.8	19.9	490694	7.9	19.7	199738	7.9	20.2	187180	8.1	19.3
43394	7.7	18.9	26816	7.8	16.1	307158	7.8	21.3	114423	7.9	18.6	69816	7.9	18.0	463857	8.1	20.7
480297	7.7	21.3	604	7.8	13.1	71278	7.8	17.7	163803	7.9	18.4	493229	7.9	20.8			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
93081	8.1	18.8	72509	8.2	18.5	71182	8.2	18.4	351931	8.3	20.3	539719	8.4	20.9	434266	8.5	20.2
450743	8.1	21.2	366814	8.2	21.1	295620	8.2	20.6	291432	8.3	18.8	1177	8.4	14.7	449999	8.5	20.2
328220	8.1	20.2	213234	8.2	18.5	376684	8.2	19.7	479116	8.3	20.3	270305	8.4	21.0	356981	8.5	21.3
89726	8.1	17.2	395089	8.2	20.4	12477	8.2	17.7	326964	8.3	20.0	87255	8.4	18.5	383213	8.5	19.4
192031	8.1	19.7	518871	8.2	20.4	331526	8.2	18.3	477637	8.3	20.3	59547	8.4	18.9	84927	8.5	18.5
245508	8.1	18.4	222503	8.2	18.4	9286	8.3	18.0	312684	8.3	19.6	233258	8.4	20.5	78517	8.5	18.4
127299	8.1	19.7	127106	8.2	18.8	128369	8.3	19.0	377611	8.3	20.4	440923	8.4	21.4	427978	8.5	20.0
527195	8.1	20.5	355125	8.2	20.5	76821	8.3	17.4	217859	8.3	18.4	442866	8.4	21.0	420658	8.5	20.4
357511	8.1	19.2	506997	8.2	19.4	80152	8.3	18.5	364604	8.3	19.0	80225	8.4	18.6	479319	8.5	20.1
352114	8.1	19.6	279458	8.2	20.1	127638	8.3	18.9	381812	8.3	16.8	280390	8.4	19.6	221863	8.5	19.6
87844	8.1	19.1	512090	8.2	20.4	291476	8.3	20.2	510049	8.3	20.7	534745	8.4	20.7	21207	8.5	17.8
296149	8.1	19.6	533534	8.2	19.4	475118	8.3	18.6	481016	8.3	20.6	498748	8.4	20.1	47433	8.5	18.7
155284	8.1	18.9	102916	8.2	17.6	6786	8.3	17.9	410713	8.3	21.2	275427	8.4	19.3	86844	8.5	17.3
275464	8.1	20.5	15919	8.2	16.1	462825	8.3	21.1	330340	8.3	20.8	536625	8.4	21.3	423772	8.5	21.2
67841	8.1	18.8	114813	8.2	17.4	428318	8.3	20.9	498714	8.3	19.9	247515	8.4	19.8	304657	8.5	19.8
526672	8.1	21.5	224571	8.2	20.1	243739	8.3	18.4	428070	8.3	21.2	398814	8.4	20.6	522217	8.5	21.7
257341	8.1	20.1	70503	8.2	18.1	382810	8.3	19.6	209823	8.3	19.9	304039	8.4	20.6	204044	8.5	18.8
61850	8.1	18.4	343839	8.2	19.7	285338	8.3	20.8	470866	8.3	20.6	529443	8.4	20.0	191809	8.5	19.8
312404	8.1	21.5	154827	8.2	18.5	205822	8.3	20.1	9247	8.3	16.5	303341	8.4	20.8	312914	8.5	19.8
456152	8.1	21.6	201582	8.2	18.8	293673	8.3	19.1	504567	8.3	20.9	39160	8.4	19.3	193754	8.5	18.9
125978	8.1	17.9	34045	8.2	17.8	111856	8.3	19.7	4474	8.3	16.7	405116	8.4	21.1	127737	8.5	19.5
320670	8.1	21.0	86069	8.2	17.9	305524	8.3	20.3	35993	8.3	17.9	376307	8.4	19.9	381666	8.5	19.3
288968	8.1	19.3	425822	8.2	21.4	425160	8.3	20.1	24325	8.3	18.0	172815	8.4	19.6	268118	8.5	19.8
516881	8.1	20.4	79710	8.2	18.0	23403	8.3	19.4	156072	8.3	19.8	352076	8.4	20.9	383308	8.5	20.6
339238	8.1	18.9	129833	8.2	18.0	110198	8.3	19.1	309611	8.3	20.0	287517	8.4	19.8	94052	8.5	18.9
238645	8.1	21.0	94712	8.2	18.6	58859	8.3	17.4	115668	8.3	18.7	320276	8.4	21.1	10353	8.5	16.8
168855	8.1	19.4	504564	8.2	19.9	480473	8.3	19.9	272752	8.3	20.7	384091	8.4	20.2	357937	8.5	20.9
304014	8.1	19.0	101219	8.2	18.3	145452	8.3	19.8	352646	8.3	19.5	34495	8.4	18.3	537914	8.5	21.3
166200	8.1	20.4	136170	8.2	19.5	359879	8.3	19.9	236812	8.3	20.0	303703	8.4	19.5	68608	8.5	17.4
290749	8.1	19.1	227481	8.2	20.5	535590	8.3	20.2	340416	8.4	20.1	165338	8.4	18.1	1652615	8.5	20.5
475077	8.1	20.2	241669	8.2	18.3	334689	8.3	20.6	518991	8.4	20.7	23586	8.4	18.7	371030	8.5	20.8
420888	8.1	19.5	321762	8.2	20.3	156418	8.3	20.3	222601	8.4	19.7	292242	8.4	20.1	478249	8.5	21.4
196203	8.1	20.2	35330	8.2	20.0	118356	8.3	19.7	123587	8.4	17.9	20913	8.4	18.8	458844	8.5	18.8
413357	8.1	20.6	314601	8.2	20.9	475542	8.3	20.5	492423	8.4	19.1	511424	8.4	21.6	504783	8.5	21.8
272643	8.1	20.0	463199	8.2	20.5	276547	8.3	19.1	180753	8.4	19.7	393918	8.4	20.2	488594	8.5	19.5
538033	8.1	21.1	533810	8.2	20.7	313655	8.3	20.1	178598	8.4	20.1	376921	8.4	20.1	354160	8.5	20.0
417871	8.1	23.7	252945	8.2	19.2	371837	8.3	20.5	358008	8.4	20.3	231475	8.4	18.4	411696	8.5	21.2
530784	8.1	20.7	250541	8.2	19.7	533286	8.3	21.3	401190	8.4	18.8	257067	8.4	20.9	99771	8.5	19.1
245805	8.1	20.6	172461	8.2	20.2	261084	8.3	19.5	246181	8.4	20.2	463415	8.4	20.0	510597	8.5	20.6
359914	8.1	19.5	139167	8.2	19.2	486835	8.3	20.6	307114	8.4	19.9	5200	8.4	16.9	406853	8.5	21.2
242712	8.1	20.9	477670	8.2	21.3	512805	8.3	21.0	203233	8.4	19.6	286075	8.4	19.6	358386	8.5	21.4
209336	8.1	20.1	462681	8.2	20.7	135441	8.3	19.9	104966	8.4	17.4	395637	8.4	20.2	327449	8.5	19.5
90078	8.1	19.0	191830	8.2	18.0	35202	8.3	18.4	181515	8.4	20.0	395096	8.4	19.7	254482	8.5	19.8
319570	8.1	19.7	494430	8.2	20.5	34223	8.3	18.4	234977	8.4	19.9	470057	8.4	20.8	349436	8.5	21.3
20658	8.1	17.6	478315	8.2	20.9	439478	8.3	21.4	311533	8.4	20.4	64129	8.4	19.3	539634	8.5	20.8
534944	8.1	20.3	536160	8.2	22.0	149099	8.3	20.1	375662	8.4	19.7	58914	8.4	18.9	289351	8.5	21.2
110264	8.1	19.2	434789	8.2	20.1	537577	8.3	20.8	243329	8.4	20.5	263712	8.4	19.8	15925	8.5	16.8
188957	8.1	19.4	299471	8.2	19.4	530588	8.3	21.0	75371	8.4	19.0	408423	8.4	19.2	224580	8.5	19.0
238088	8.1	19.5	523171	8.2	20.6	277632	8.3	20.6	438968	8.4	18.6	355176	8.4	19.8	396602	8.5	19.1
179541	8.1	19.1	176048	8.2	19.2	114834	8.3	17.9	98022	8.4	18.3	530892	8.4	20.5	245598	8.5	19.7
276089	8.1	21.1	522936	8.2	21.1	358412	8.3	19.7	100269	8.4	18.7	157840	8.4	19.2	353157	8.5	19.4
382122	8.1	20.3	290879	8.2	20.3	149902	8.3	19.5	99992	8.4	18.8	99629	8.4	20.0	98159	8.5	17.7
356723	8.1	20.7	36744	8.2	17.3	253919	8.3	19.7	56416	8.4	18.1	538200	8.4	21.5	71343	8.5	18.8
95916	8.1	18.7	235174	8.2	19.1	540693	8.3	19.8	508188	8.4	21.0	39879	8.4	17.3	146934	8.5	20.5
297784	8.1	19.3	308114	8.2	19.9	528549	8.3	22.3	233394	8.4	20.3	506520	8.4	18.5	190971	8.5	18.0
246111	8.1	20.9	167705	8.2	19.0	304069	8.3	20.8	232098	8.4	19.6	425468	8.4	19.6	101071	8.5	17.7
535055	8.1	20.6	180107	8.2	19.8	311361	8.3	19.4	482149	8.4	21.2	181155	8.4	20.3	398828	8.5	20.0
64933	8.1	18.7	20678	8.2	17.8	464940	8.3	20.4	361467	8.4	21.3	123468	8.5	19.1	46474	8.5	18.3
391065	8.1	19.6	441340	8.2	20.5	133706	8.3	17.9	276159	8.4	20.1	320630	8.5	21.3	76916	8.5	17.9
92168	8.1	18.5	374467	8.2	19.2	268158	8.3	18.1	272447	8.4	19.7	443424	8.5	19.4	501075	8.5	21.0
303866	8.1	20.1	121618	8.2	18.9	103117	8.3	19.5	58025	8.4	18.7	318519	8.5	19.8	14048	8.5	17.7
317982	8.1	19.9	309702	8.2	21.0	427253	8.3	21.3	70356	8.4	18.9	43334	8.5	17.1	21412	8.5	17.0
34404	8.1	18.4	519993	8.2	20.5	380103	8.3	19.8	185926	8.4	19.5	312018	8.5	19.5	275166	8.5	19.9
292642	8.1	20.4	266380	8.2	20.9	510449	8.3	21.3	162668	8.4	18.8	458984	8.5	21.2	390983	8.5	19.5
128675	8.1	19.1	431923	8.2	20.2	182215	8.3	18.9	380175	8.4	18.9	242687	8.5	19.7	529811	8.5	19.8
529485	8.1	19.3	306643	8.2	19.4	388902	8.3	19.9	140584	8.4	19.1	281886	8.5	19.0	203580	8.5	19.5
527798	8.1	20.3	382932	8.2	19.1	171458	8.3	18.4	213552	8.4	19.9	76686	8.5	18.6	74871	8.5	17.8
313937	8.2	19.2	234167	8.2	17.9	304475	8.3	19.6	535997	8.4	21.8	23733	8.5	17.3	430293	8.5	21.3
82526	8.2	18.1	12842	8.2	17.3	312754	8.3	20.7	384734	8.4	20.5	270594	8.5	18.9	532040	8.5	21.0
50108	8.2	18.4	505950	8.2	20.6	202709	8.3	18.8	392434	8.4	19.8	505852	8.5	20.9	299835	8.5	20.8
469802	8.2	20.1	309676	8.2	20.4	173253	8.3	18.0	30617	8.4	18.3	359115	8.5	20.1			

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
449935	8.5	20.4	98091	8.6	18.6	126770	8.7	20.1	162381	8.8	19.4	7566	8.8	16.6	152839	8.9	19.5
396388	8.5	20.1	425789	8.6	20.7	526065	8.7	21.7	121389	8.8	18.3	15610	8.8	17.5	123255	8.9	18.3
292788	8.5	19.6	452557	8.6	21.3	492698	8.7	19.8	504093	8.8	21.6	252920	8.8	18.6	527863	8.9	20.5
446656	8.5	19.6	396384	8.6	19.8	326957	8.7	20.3	205727	8.8	19.0	353688	8.8	20.7	336172	8.9	20.2
20602	8.5	16.4	241342	8.6	19.3	246876	8.7	19.2	19583	8.8	17.0	186289	8.8	19.9	522467	8.9	20.6
81119	8.5	18.6	288198	8.6	19.4	309727	8.7	21.1	345967	8.8	20.0	255287	8.8	19.3	95458	8.9	19.3
534113	8.5	20.9	185132	8.6	20.8	31606	8.7	19.4	102588	8.8	18.8	73453	8.8	19.2	192663	8.9	18.3
157511	8.5	19.8	415604	8.6	20.6	507079	8.7	21.4	242751	8.8	19.2	259276	8.8	19.6	148410	8.9	19.9
71005	8.6	18.9	342451	8.6	20.0	455983	8.7	19.8	310674	8.8	20.7	376804	8.8	18.8	227382	8.9	19.7
18162	8.6	18.3	263621	8.6	21.3	31392	8.7	17.5	430221	8.8	19.5	75624	8.8	19.4	438645	8.9	20.6
345883	8.6	20.5	176602	8.6	20.0	107465	8.7	18.9	115772	8.8	20.3	442964	8.8	21.0	159789	8.9	19.1
196458	8.6	20.1	56380	8.6	17.9	156471	8.7	19.8	135313	8.8	19.7	357118	8.8	19.8	309416	8.9	20.6
41671	8.6	18.0	196424	8.6	19.5	474979	8.7	19.7	201442	8.8	19.7	216639	8.8	18.0	384043	8.9	20.2
75445	8.6	19.2	41657	8.6	19.2	138846	8.7	21.0	64839	8.8	16.9	401390	8.8	21.4	101979	8.9	18.2
214845	8.6	19.7	336296	8.6	20.6	29762	8.7	16.7	217229	8.8	18.6	432589	8.8	20.8	114134	8.9	19.4
281004	8.6	19.4	478804	8.6	20.1	43841	8.7	18.4	502794	8.8	20.9	478372	8.9	21.8	173176	8.9	20.3
271044	8.6	20.1	533174	8.6	21.0	430754	8.7	19.0	459957	8.8	19.7	172554	8.9	19.8	350065	8.9	18.7
222654	8.6	20.1	133692	8.6	19.3	481268	8.7	20.8	34166	8.8	17.0	201731	8.9	19.6	41064	8.9	17.7
224454	8.6	19.3	21528	8.6	17.2	278934	8.7	19.3	277582	8.8	21.1	475059	8.9	19.9	91927	8.9	19.1
64249	8.6	19.0	446600	8.6	20.7	127205	8.7	19.6	530813	8.8	20.0	510438	8.9	20.4	86188	8.9	18.6
131675	8.6	17.2	104805	8.6	19.4	128040	8.7	19.2	320259	8.8	19.1	422647	8.9	20.6	526277	8.9	21.8
29316	8.6	18.5	18706	8.6	18.1	141015	8.7	19.9	478200	8.8	20.6	38508	8.9	18.7	468072	8.9	20.8
479283	8.6	21.7	70860	8.6	18.8	532743	8.7	21.3	373337	8.8	19.5	194528	8.9	19.3	474876	8.9	20.1
506223	8.6	20.5	209031	8.6	19.3	325089	8.7	20.6	356963	8.8	20.9	473890	8.9	21.3	370845	8.9	20.6
294834	8.6	19.5	327334	8.6	19.6	380594	8.7	19.5	37220	8.8	18.4	43612	8.9	19.3	7658	8.9	17.3
404956	8.6	20.3	385019	8.6	20.9	107764	8.7	20.0	393856	8.8	20.2	1762	8.9	14.8	3219	8.9	16.4
353871	8.6	21.2	361493	8.6	19.4	191225	8.7	19.5	5389	8.8	15.5	165259	8.9	18.2	317471	8.9	19.5
144788	8.6	19.6	1415	8.6	14.9	469273	8.7	19.4	381843	8.8	20.0	286520	8.9	20.1	193474	8.9	19.1
233820	8.6	19.8	368796	8.6	19.1	205471	8.7	18.9	254152	8.8	18.3	456636	8.9	19.7	479081	8.9	20.5
19706	8.6	16.2	83443	8.7	18.4	71423	8.7	18.5	463160	8.8	20.1	381172	8.9	21.1	455766	8.9	19.6
497603	8.6	20.0	91068	8.7	18.2	43380	8.7	18.8	215457	8.8	17.9	85463	8.9	18.7	182829	8.9	20.3
237455	8.6	19.4	58696	8.7	18.2	131099	8.7	19.4	542387	8.8	21.4	149449	8.9	17.4	101551	8.9	18.7
499097	8.6	21.8	477099	8.7	20.4	254151	8.7	18.8	315451	8.8	20.9	168409	8.9	19.4	322712	8.9	20.8
113464	8.6	17.1	431936	8.7	19.7	62697	8.7	20.1	313951	8.8	19.8	449	8.9	13.9	401170	8.9	20.4
256466	8.6	21.1	439388	8.7	20.1	489463	8.7	21.1	34933	8.8	18.3	55656	8.9	18.4	305468	8.9	20.3
20402	8.6	17.9	247724	8.7	19.4	405111	8.7	20.5	87099	8.8	18.5	169254	8.9	19.4	106341	8.9	17.9
242173	8.6	21.2	508561	8.7	20.5	75099	8.7	20.7	112388	8.8	18.9	536991	8.9	20.7	206869	8.9	20.2
398776	8.6	21.2	512598	8.7	21.0	248515	8.7	18.9	499841	8.8	21.2	133564	8.9	18.8	407698	8.9	19.7
386514	8.6	20.1	37632	8.7	17.5	479523	8.7	21.0	127030	8.8	19.6	37491	8.9	18.3	465890	8.9	20.7
122162	8.6	18.0	342649	8.7	20.7	445816	8.7	21.5	528460	8.8	21.1	346819	8.9	20.5	136210	8.9	20.0
204349	8.6	20.4	499373	8.7	20.9	122253	8.7	18.3	173335	8.8	20.2	499323	8.9	19.2	261213	8.9	19.6
394046	8.6	19.6	118995	8.7	19.9	482156	8.7	20.7	312777	8.8	20.1	530965	8.9	21.0	544582	8.9	19.6
112918	8.6	19.6	520487	8.7	20.9	24980	8.7	16.3	385006	8.8	19.7	307562	8.9	18.7	64467	8.9	19.1
304611	8.6	20.8	192863	8.7	20.1	37280	8.7	17.9	2132	8.8	15.2	39167	8.9	19.7	381530	8.9	20.9
338830	8.6	19.2	400494	8.7	21.0	499706	8.7	20.4	534030	8.8	20.8	203595	8.9	20.4	475136	8.9	21.0
503972	8.6	19.6	365126	8.7	20.3	269008	8.7	20.8	190164	8.8	17.8	342838	8.9	19.7	457485	8.9	19.6
375833	8.6	19.7	317391	8.7	19.8	94991	8.7	18.8	229769	8.8	18.0	255315	8.9	19.6	300142	8.9	20.0
188	8.6	12.5	40227	8.7	17.1	355553	8.8	21.2	305622	8.8	19.1	246487	8.9	19.6	197510	8.9	20.1
540533	8.6	19.7	129766	8.7	19.6	536716	8.8	19.8	248470	8.8	18.9	396052	8.9	20.5	122581	8.9	20.8
332145	8.6	18.4	363254	8.7	21.2	58299	8.8	17.8	338103	8.8	20.3	71385	8.9	17.3	505866	8.9	20.7
21550	8.6	17.1	145484	8.7	19.8	462557	8.8	19.9	296109	8.8	21.1	273798	8.9	21.3	250700	8.9	19.9
490681	8.6	20.2	393947	8.7	20.8	53885	8.8	19.2	238072	8.8	17.6	442102	8.9	20.8	531932	8.9	20.5
211942	8.6	19.7	314126	8.7	21.6	179683	8.8	20.1	34274	8.8	18.4	149012	8.9	19.8	181749	8.9	19.1
199642	8.6	19.3	229889	8.7	18.0	456896	8.8	21.3	538562	8.8	21.1	19146	8.9	18.5	409345	8.9	20.6
283914	8.6	19.8	167579	8.7	19.1	164768	8.8	21.1	3809	8.8	16.1	478144	8.9	20.7	15081	8.9	17.0
211534	8.6	19.4	262309	8.7	20.0	164720	8.8	19.4	293144	8.8	20.6	121765	8.9	18.7	327721	8.9	20.7
540477	8.6	19.6	99	8.7	13.3	501197	8.8	20.2	193621	8.8	20.1	201450	8.9	20.0	180487	8.9	21.0
65095	8.6	18.2	94775	8.7	18.9	531940	8.8	22.2	115220	8.8	18.7	52960	8.9	18.8	361921	8.9	19.5
348403	8.6	20.8	127006	8.7	20.3	235846	8.8	19.8	123272	8.8	19.0	418161	8.9	21.4	199	8.9	12.8
269580	8.6	19.7	347360	8.7	19.1	179567	8.8	19.9	507508	8.8	20.1	154676	8.9	20.6	203451	8.9	20.8
333744	8.6	20.4	497281	8.7	20.4	526883	8.8	22.8	524214	8.8	19.2	152262	8.9	19.2	540025	8.9	20.3
526016	8.6	22.0	136706	8.7	21.3	306397	8.8	20.3	85112	8.8	18.8	354135	8.9	19.8	467292	8.9	20.5
124301	8.6	19.4	207366	8.7	21.2	344528	8.8	20.2	352601	8.8	21.3	494248	8.9	20.4	145382	8.9	18.8
381504	8.6	20.7	177058	8.7	18.6	65773	8.8	19.1	116051	8.8	18.8	412520	8.9	19.6	504817	8.9	20.8
256622	8.6	19.0	503170	8.7	20.6	122567	8.8	18.1	391738	8.8	21.2	176401	8.9	20.6	508366	8.9	20.0
256816	8.6	19.2	433093	8.7	19.8	333920	8.8	19.0	324647	8.8	19.3	526092	8.9	21.5	137898	8.9	19.7
191055	8.6	19.4	225849	8.7	20.4	540677	8.8	20.1	388410	8.8	20.0	292965	8.9	20.4	531801	8.9	21.7
58097	8.6	16.9	499574	8.7	20.1	368900	8.8	19.8	375948	8.8	20.7	472326	8.9	21.1	305541	8.9	21.4
382472	8.6	19.1	528551	8.7	21.6	142013	8.8	19.9	237874	8.8	18.5	227346	8.9	20.6	440939	8.9	20.7
148406	8.6	19.3	450414	8.7	20.5	34369	8.8	17.0	399435	8.8	18.8	100551	8.9	18.7	191087	8.9	19.5
122690	8.6	19.1	480655	8.7	20.2	85028	8.8	18.2	162084	8.8	19.7	513665	8.9	21.1	456091		

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
305509	8.9	20.4	29216	9.1	17.2	424183	9.1	20.3	45478	9.2	18.6	69543	9.3	19.1	250856	9.4	18.9
381622	8.9	22.1	131602	9.1	20.2	240311	9.1	20.0	125212	9.2	19.2	282755	9.3	21.1	9916	9.4	16.7
174447	8.9	19.1	203734	9.1	19.6	164077	9.1	19.7	72090	9.2	16.9	360703	9.3	20.8	110268	9.4	19.6
90453	8.9	18.7	206172	9.1	19.7	28702	9.1	16.2	70731	9.2	18.9	540939	9.3	22.7	525540	9.4	21.0
540617	8.9	20.9	449463	9.1	20.1	214985	9.1	19.7	246532	9.2	19.7	357861	9.3	20.2	536087	9.4	20.7
332531	8.9	20.4	377707	9.1	20.5	462567	9.1	20.2	406916	9.2	20.1	365979	9.3	20.8	141266	9.4	18.9
355657	8.9	20.4	345910	9.1	20.4	505362	9.1	21.9	232854	9.2	20.0	160727	9.3	18.2	212063	9.4	19.8
157594	8.9	21.0	288168	9.1	20.2	317815	9.1	19.5	121136	9.2	18.7	320544	9.3	21.4	183689	9.4	19.0
533965	8.9	20.6	194891	9.1	19.4	305440	9.1	20.2	305518	9.2	20.1	258858	9.3	19.2	501281	9.4	19.5
310497	8.9	18.6	464836	9.1	22.2	474431	9.1	20.6	231337	9.2	20.0	19206	9.3	16.2	420339	9.4	21.4
428002	8.9	21.1	507034	9.1	20.4	317386	9.1	20.3	351884	9.2	20.5	395266	9.3	20.3	77834	9.4	18.5
527718	8.9	21.9	217054	9.1	19.0	32644	9.1	18.8	181631	9.2	20.9	419618	9.3	20.3	127999	9.4	19.0
438972	8.9	19.8	497908	9.1	20.1	131194	9.1	19.8	367766	9.2	19.9	19713	9.3	17.8	459998	9.4	17.9
497967	8.9	21.0	480205	9.1	19.8	230914	9.1	19.2	248095	9.2	19.0	417653	9.3	19.0	464218	9.4	20.6
436840	8.9	20.4	29353	9.1	17.9	532919	9.1	21.5	374288	9.2	20.5	355729	9.3	19.6	491010	9.4	20.2
15907	9.0	17.9	453795	9.1	20.1	268345	9.1	20.7	352787	9.2	19.4	539205	9.3	20.2	537680	9.4	20.6
196223	9.0	20.6	374344	9.1	19.8	6369	9.2	16.2	536602	9.2	20.8	495002	9.3	20.6	288714	9.4	18.8
336130	9.0	20.1	78983	9.1	18.5	33053	9.2	20.0	86310	9.2	19.1	350989	9.3	20.2	190293	9.4	20.0
125082	9.0	19.3	21040	9.1	17.2	433967	9.2	20.7	65001	9.2	20.3	242744	9.3	20.5	222620	9.4	19.5
69975	9.0	17.9	7084	9.1	17.4	205603	9.2	17.8	439623	9.2	20.4	237263	9.3	19.8	381580	9.4	19.9
507726	9.0	20.5	291071	9.1	20.3	251945	9.2	19.5	313753	9.2	20.3	13873	9.3	18.0	249303	9.4	21.0
140818	9.0	17.5	218886	9.1	20.1	318233	9.2	20.0	362364	9.2	20.2	268134	9.3	18.5	438248	9.4	20.4
482099	9.0	19.2	44726	9.1	18.3	424628	9.2	19.9	214582	9.2	18.4	441351	9.3	20.4	436175	9.4	20.6
389922	9.0	21.3	33794	9.1	17.0	153660	9.2	19.5	210135	9.2	20.4	178742	9.3	19.2	20767	9.4	16.4
302806	9.0	19.9	105681	9.1	18.7	224298	9.2	19.8	281002	9.2	20.6	68023	9.3	18.3	31736	9.4	17.7
182480	9.0	19.4	96803	9.1	18.8	372491	9.2	19.7	185952	9.2	19.4	455662	9.3	21.0	31463	9.4	18.0
325030	9.0	19.9	528206	9.1	21.7	466133	9.2	20.3	182859	9.2	19.9	382827	9.3	20.4	122230	9.4	17.6
186956	9.0	19.0	477686	9.1	20.3	536338	9.2	21.0	506536	9.2	19.4	428325	9.3	21.6	533229	9.4	20.1
156178	9.0	20.0	294661	9.1	19.7	79091	9.2	18.5	106065	9.2	19.9	504616	9.3	21.1	369980	9.4	19.7
110017	9.0	18.6	270336	9.1	20.7	103023	9.2	19.7	496147	9.2	20.7	528012	9.3	21.5	471231	9.4	20.3
525324	9.0	22.1	539784	9.1	19.5	312159	9.2	19.1	474535	9.2	20.4	540818	9.3	20.6	362941	9.4	20.8
202341	9.0	19.5	323498	9.1	19.0	74718	9.2	17.9	43480	9.3	19.4	279935	9.3	18.8	414109	9.4	18.8
475162	9.0	20.5	66011	9.1	17.2	111802	9.2	19.4	159894	9.3	19.6	145355	9.3	19.3	181659	9.4	19.7
35500	9.0	17.9	285725	9.1	19.5	414428	9.2	20.3	352518	9.3	20.5	166952	9.3	19.6	536770	9.4	20.3
23900	9.0	17.5	488329	9.1	19.8	349321	9.2	20.4	412262	9.3	19.9	195620	9.3	19.7	499103	9.4	21.5
224336	9.0	20.3	245229	9.1	19.8	113205	9.2	18.1	432800	9.3	19.5	323854	9.3	19.9	48395	9.4	18.3
87580	9.0	18.5	173305	9.1	20.5	58123	9.2	19.3	344536	9.3	21.0	492097	9.3	19.9	19078	9.4	18.2
91080	9.0	19.1	505805	9.1	20.7	237043	9.2	20.3	408311	9.3	20.7	263523	9.3	19.6	411679	9.4	20.8
151366	9.0	19.1	174042	9.1	19.4	175331	9.2	20.1	61734	9.3	17.5	39143	9.3	19.5	246781	9.4	19.9
189591	9.0	18.3	293311	9.1	20.7	399875	9.2	20.2	431991	9.3	20.1	503544	9.3	19.1	116819	9.4	17.6
233365	9.0	20.3	308543	9.1	19.8	305489	9.2	20.1	286582	9.3	19.8	491128	9.3	21.5	540708	9.4	20.5
174783	9.0	19.7	272783	9.1	20.3	224453	9.2	19.1	411699	9.3	21.1	37133	9.3	18.3	474951	9.4	19.0
238481	9.0	18.6	336843	9.1	19.5	257321	9.2	19.9	502762	9.3	20.9	319779	9.3	19.9	436486	9.4	21.8
101215	9.0	19.6	68584	9.1	18.6	131756	9.2	18.9	91937	9.3	18.1	460300	9.3	20.4	183	9.4	12.1
31768	9.0	19.1	230368	9.1	19.9	303931	9.2	21.6	545121	9.3	20.5	391512	9.3	20.5	540778	9.4	19.9
395560	9.0	21.2	513071	9.1	19.5	528072	9.2	21.2	149748	9.3	18.7	493563	9.3	20.8	121108	9.4	18.9
299980	9.0	19.3	19654	9.1	16.7	428276	9.2	20.6	23611	9.3	18.5	535036	9.3	20.2	79991	9.4	18.4
214193	9.0	20.5	309810	9.1	20.0	254196	9.2	19.3	347913	9.3	20.3	132254	9.3	19.5	23092	9.4	17.0
528563	9.0	20.9	425574	9.1	21.2	128532	9.2	18.9	217535	9.3	18.4	270335	9.3	20.6	88903	9.4	19.4
530875	9.0	21.0	272741	9.1	20.5	173094	9.2	20.1	401100	9.3	20.4	96170	9.4	19.2	242704	9.4	20.2
240811	9.0	19.6	396093	9.1	20.4	144716	9.2	19.5	24154	9.3	18.1	457833	9.4	19.6	17482	9.4	16.3
500778	9.0	19.9	18591	9.1	17.6	114977	9.2	17.6	336227	9.3	20.3	166420	9.4	18.8	144366	9.4	19.6
97454	9.0	19.1	157960	9.1	19.4	213900	9.2	20.3	124766	9.3	18.6	92072	9.4	19.4	540464	9.4	20.9
142039	9.0	19.4	378350	9.1	20.8	126232	9.2	19.5	385596	9.3	20.9	111976	9.4	18.1	16173	9.4	16.3
222522	9.0	19.4	45171	9.1	19.1	510129	9.2	20.3	540792	9.3	20.5	474168	9.4	20.8	98243	9.4	18.7
356684	9.0	19.8	27714	9.1	17.5	358054	9.2	19.0	466066	9.3	21.7	129419	9.4	19.9	272593	9.4	20.7
522954	9.0	21.1	243549	9.1	20.7	211184	9.2	20.6	325721	9.3	21.1	269945	9.4	19.8	275850	9.4	19.6
488896	9.0	21.0	422829	9.1	21.2	195229	9.2	20.1	255275	9.3	20.3	304048	9.4	20.2	302337	9.4	20.2
428705	9.0	19.6	539078	9.1	20.3	443597	9.2	21.1	356868	9.3	21.3	286421	9.4	20.1	266283	9.4	20.1
1569	9.0	15.1	346452	9.1	20.7	90222	9.2	19.9	251505	9.3	19.3	288808	9.4	19.4	504986	9.4	19.9
128851	9.0	19.8	265043	9.1	19.8	397778	9.2	21.2	294449	9.3	20.6	182604	9.4	20.3	416254	9.4	21.4
437000	9.0	20.1	82787	9.1	18.3	381165	9.2	19.4	248250	9.3	19.3	133633	9.4	18.3	82677	9.4	18.8
10626	9.0	18.8	308434	9.1	20.2	52621	9.2	17.9	172417	9.3	21.6	444652	9.4	21.3	37165	9.4	17.7
375758	9.0	19.7	272505	9.1	19.8	249735	9.2	19.6	275248	9.3	20.2	271698	9.4	20.1	488651	9.4	20.1
250053	9.0	19.5	126394	9.1	16.7	36399	9.2	16.7	9574	9.3	17.2	408034	9.4	20.0	290757	9.4	19.5
338	9.0	12.6	215116	9.1	19.5	343034	9.2	19.9	242520	9.3	20.7	107769	9.4	19.5	387300	9.4	20.8
379347	9.0	19.7	118370	9.1	19.6	179496	9.2	19.5	499311	9.3	21.4	2	9.4	8.7	206016	9.4	18.6
37859	9.0	18.4	475765	9.1	21.2	382474	9.2	18.1	31730	9.3	17.9	355605	9.4	21.1	393966	9.4	19.8
270438	9.1	20.9	295606	9.1	19.7	56043	9.2	17.0	300246	9.3	20.7	134299	9.4	19.5	333599	9.4	20.0
229106	9.1	20.5	87628	9.1	17.2	359716	9.2	20.7	131262	9.3	19.0	365964	9.4	20.7	423759	9.4	20.4
360929	9.1	19.6	166019	9.1	20.4	145585	9.2	19.3	479125	9.3	21.3	318466	9.4	20.2	1787		

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

N _o	09	V	N _o	09	V	N _o	09	V	N _o	09	V	N _o	09	V	N _o	09	V
16822	9.5	17.4	139648	9.5	19.1	475518	9.6	21.1	504662	9.7	21.2	113734	9.8	19.1	276133	9.8	20.6
506994	9.5	20.1	359636	9.5	20.5	88383	9.6	18.6	183557	9.7	20.3	175875	9.8	18.9	36158	9.8	19.0
211957	9.5	20.6	53239	9.5	18.1	431447	9.6	19.5	271655	9.7	20.0	106941	9.8	20.1	105732	9.8	19.0
375841	9.5	20.6	398227	9.5	20.1	475274	9.6	21.6	428046	9.7	19.9	21266	9.8	17.6	497144	9.9	19.6
430160	9.5	21.0	239555	9.5	19.7	523888	9.6	21.0	145517	9.7	19.5	225861	9.8	20.0	414795	9.9	19.9
480851	9.5	20.0	309708	9.5	21.1	349868	9.6	20.9	215840	9.7	20.6	171359	9.8	19.7	263180	9.9	20.4
333975	9.5	20.2	42944	9.5	16.5	238872	9.6	19.8	51462	9.7	18.1	136592	9.8	19.7	236765	9.9	18.8
251605	9.5	19.3	362395	9.5	20.8	425586	9.6	20.1	174582	9.7	18.5	32950	9.8	18.3	255685	9.9	18.7
42874	9.5	17.6	200090	9.5	19.4	12641	9.6	17.4	163177	9.7	19.3	116989	9.8	18.7	113564	9.9	18.2
359883	9.5	21.2	431407	9.5	20.2	479183	9.6	20.5	52137	9.7	17.8	54479	9.8	17.7	270308	9.9	19.7
528706	9.5	21.2	206124	9.5	19.9	286861	9.6	20.0	504076	9.7	21.5	103197	9.8	20.5	301854	9.9	20.4
506280	9.5	20.6	473859	9.5	20.8	505281	9.6	20.7	302405	9.7	20.7	384836	9.8	19.5	510845	9.9	20.9
52484	9.5	19.3	460047	9.5	19.2	178349	9.6	19.2	41927	9.7	18.3	242519	9.8	21.2	9467	9.9	16.2
197029	9.5	19.2	13436	9.5	17.6	5171	9.6	15.6	91125	9.7	19.2	33702	9.8	18.5	354666	9.9	19.9
201553	9.5	19.7	350809	9.5	19.8	492456	9.6	20.0	253878	9.7	21.5	449981	9.8	20.6	160291	9.9	20.8
123279	9.5	20.0	530581	9.5	21.1	351946	9.6	19.6	530355	9.7	21.4	199343	9.8	20.2	87601	9.9	16.3
37834	9.5	17.3	125274	9.5	19.3	369987	9.6	20.0	107152	9.7	19.1	311000	9.8	20.1	122894	9.9	18.6
179667	9.5	19.3	539144	9.5	20.5	405869	9.6	21.0	192812	9.7	19.7	290943	9.8	19.4	429702	9.9	21.0
526862	9.5	20.9	500114	9.5	21.3	366816	9.6	19.8	4386	9.7	18.3	237233	9.8	19.7	111714	9.9	19.4
109593	9.5	19.0	151013	9.5	19.9	273863	9.6	20.6	427529	9.7	19.4	253029	9.8	20.1	293327	9.9	20.8
208400	9.5	19.7	508091	9.5	19.3	33703	9.6	18.3	171199	9.7	19.6	110944	9.8	17.7	374350	9.9	19.1
177094	9.5	18.9	319076	9.6	20.1	531961	9.6	21.0	414259	9.7	21.6	255690	9.8	19.4	307139	9.9	21.9
467667	9.5	18.7	482163	9.6	21.0	267492	9.6	21.0	133380	9.7	18.9	391729	9.8	20.6	261925	9.9	19.7
467933	9.5	22.0	116757	9.6	18.3	465162	9.6	20.4	193482	9.7	19.2	185785	9.8	20.0	239332	9.9	20.0
265864	9.5	18.9	401323	9.6	19.0	531911	9.6	21.3	231316	9.7	19.7	454083	9.8	21.1	414146	9.9	21.2
208012	9.5	17.9	516220	9.6	20.1	484209	9.6	20.5	65927	9.7	18.6	534347	9.8	21.6	10696	9.9	16.6
251016	9.5	18.6	537545	9.6	21.1	215153	9.6	18.4	192824	9.7	19.2	133594	9.8	19.5	245822	9.9	20.4
532022	9.5	21.2	505537	9.6	20.6	489125	9.6	20.6	285974	9.7	19.7	196633	9.8	19.6	18014	9.9	17.8
56986	9.5	18.5	524455	9.6	21.6	91300	9.6	17.8	505525	9.7	20.5	105893	9.8	18.8	540207	9.9	20.6
440555	9.5	20.5	68684	9.6	17.9	381593	9.6	19.1	167831	9.7	20.4	193940	9.8	19.3	313786	9.9	20.6
145413	9.5	19.8	249625	9.6	20.0	256945	9.6	18.4	38518	9.7	17.2	394329	9.8	20.9	421289	9.9	19.8
539298	9.5	20.8	59158	9.6	19.8	160214	9.6	19.2	362046	9.7	19.9	45505	9.8	18.0	334731	9.9	19.2
312866	9.5	20.5	32610	9.6	18.4	50811	9.6	18.3	336238	9.7	20.4	386960	9.8	19.9	63118	9.9	18.6
238675	9.5	20.3	377128	9.6	19.1	168551	9.6	18.6	305597	9.7	19.2	162531	9.8	17.7	511655	9.9	20.9
244925	9.5	20.1	393875	9.6	19.8	478387	9.6	20.8	528034	9.7	21.4	246719	9.8	19.5	352608	9.9	20.6
149740	9.5	19.1	88611	9.6	22.4	423607	9.6	21.5	152312	9.7	20.8	19609	9.8	17.4	398083	9.9	20.5
510523	9.5	21.4	69366	9.6	19.8	433545	9.6	20.1	479271	9.7	21.2	229120	9.8	20.1	140164	9.9	18.6
172513	9.5	20.7	528759	9.6	21.3	162510	9.6	18.2	207083	9.7	18.9	437640	9.8	20.2	359845	9.9	21.3
62345	9.5	19.3	423573	9.6	20.6	251556	9.6	20.6	278221	9.7	20.0	478881	9.8	19.8	204278	9.9	19.8
224362	9.5	20.4	507754	9.6	21.1	502363	9.6	20.2	361485	9.7	21.0	430766	9.8	19.7	541790	9.9	19.6
175235	9.5	20.7	96872	9.6	17.2	64198	9.6	18.9	155107	9.7	18.5	497325	9.8	20.6	416214	9.9	19.9
541628	9.5	20.8	541661	9.6	21.0	292555	9.6	19.7	94358	9.7	18.9	482402	9.8	20.9	362402	9.9	20.6
475125	9.5	19.9	403267	9.6	19.6	54433	9.6	18.4	441976	9.7	20.1	456070	9.8	21.7	184775	9.9	19.2
530299	9.5	21.0	155738	9.6	19.0	50106	9.7	18.7	91190	9.7	18.9	156192	9.8	20.8	533457	9.9	21.5
161685	9.5	19.3	21353	9.6	17.8	457757	9.7	21.5	304651	9.8	20.8	214978	9.8	20.2	252858	9.9	20.1
48247	9.5	17.9	45441	9.6	18.4	271087	9.7	18.7	387374	9.8	20.2	47344	9.8	18.4	292144	9.9	20.8
68186	9.5	18.9	426558	9.6	19.0	59071	9.7	18.1	160299	9.8	17.4	474811	9.8	20.2	493596	9.9	20.9
543010	9.5	19.4	24691	9.6	16.3	233724	9.7	19.3	528952	9.8	21.8	512852	9.8	20.8	75005	9.9	19.1
107316	9.5	19.0	297697	9.6	18.9	211840	9.7	19.9	58321	9.8	17.7	349419	9.8	21.2	106752	9.9	17.6
199397	9.5	20.0	478069	9.6	20.3	340498	9.7	20.0	115560	9.8	18.2	74511	9.8	17.6	398586	9.9	20.5
352424	9.5	20.3	91156	9.6	19.1	533734	9.7	20.8	190631	9.8	19.5	424587	9.8	20.5	18238	9.9	18.3
353667	9.5	18.5	32945	9.6	19.2	45000	9.7	18.5	128960	9.8	18.0	317670	9.8	20.5	121566	9.9	18.1
321663	9.5	19.9	138061	9.6	19.1	280062	9.7	20.7	275942	9.8	20.1	48613	9.8	17.7	478192	9.9	20.3
297687	9.5	18.9	54605	9.6	18.2	293087	9.7	19.9	102058	9.8	17.9	437624	9.8	20.5	521295	9.9	21.2
46142	9.5	19.3	121516	9.6	18.5	352033	9.7	21.3	32150	9.8	16.5	151180	9.8	20.5	360364	9.9	21.3
485169	9.5	20.2	441980	9.6	20.1	352105	9.7	21.0	256918	9.8	20.7	100019	9.8	17.7	280316	9.9	20.3
380902	9.5	20.0	109597	9.6	18.6	132142	9.7	19.4	59356	9.8	17.8	403332	9.8	19.6	254513	9.9	19.8
479286	9.5	20.3	464197	9.6	19.1	119897	9.7	19.4	34185	9.8	18.3	137900	9.8	19.0	120154	9.9	19.0
505168	9.5	20.6	281265	9.6	18.8	531956	9.7	20.4	257159	9.8	20.8	518837	9.8	20.5	530253	9.9	21.3
55343	9.5	19.8	56446	9.6	18.4	87877	9.7	18.6	281151	9.8	20.4	352420	9.8	20.5	278892	9.9	20.6
71133	9.5	19.3	142604	9.6	18.9	122626	9.7	17.9	418950	9.8	21.0	271688	9.8	19.3	393844	9.9	20.6
398287	9.5	20.3	436326	9.6	21.5	276594	9.7	20.0	507069	9.8	20.8	144658	9.8	19.1	268492	9.9	20.5
391666	9.5	21.2	357533	9.6	19.5	392312	9.7	19.9	520276	9.8	20.1	410736	9.8	21.4	294150	9.9	19.8
153203	9.5	19.5	27426	9.6	18.8	300004	9.7	19.6	469678	9.8	18.3	280577	9.8	19.4	173927	9.9	19.2
35651	9.5	17.8	289528	9.6	20.4	533368	9.7	21.6	183036	9.8	18.5	133663	9.8	18.9	43427	9.9	18.9
169514	9.5	19.6	242715	9.6	19.2	174965	9.7	19.8	54522	9.8	18.3	38576	9.8	19.4	250408	9.9	19.9
466338	9.5	20.1	279325	9.6	19.6	257773	9.7	21.1	397423	9.8	21.0	78070	9.8	17.0	205606	9.9	20.3
10534	9.5	16.8	539365	9.6	20.6	338860	9.7	19.4	308423	9.8	19.2	108049	9.8	19.4	370976	9.9	19.6
64657	9.5	17.6	361464	9.6	21.1	446883	9.7	21.3	409219	9.8	19.7	293211	9.8	20.3	358065	9.9	20.4
18949	9.5	18.1	125245	9.6	18.5	290375	9.7	19.8	329779	9.8	18.9	216698	9.8	19.6	512500	9.9	19.8
394675	9.5	20.7	528369	9.6	20.6	149569	9.7	19.8	471802	9.8							

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
178475	9.9	18.3	57761	10.0	19.4	412998	10.1	19.9	4744	10.2	16.7	437045	10.2	19.4	502711	10.3	20.6
35224	9.9	18.8	365525	10.0	19.5	438046	10.1	19.2	219692	10.2	20.0	479265	10.2	19.9	248371	10.3	19.4
186876	9.9	19.1	309105	10.0	21.6	60043	10.1	17.3	145760	10.2	19.7	22021	10.2	18.7	274105	10.3	20.6
433908	9.9	20.2	192699	10.0	20.0	64837	10.1	18.8	415067	10.2	21.1	443337	10.2	20.2	437600	10.3	21.1
536517	9.9	21.8	119993	10.0	19.2	499218	10.1	21.0	59025	10.2	18.8	520045	10.2	20.4	459015	10.3	21.3
542245	9.9	20.4	155438	10.0	19.6	282463	10.1	20.3	51916	10.2	18.9	360961	10.2	21.2	417831	10.3	20.3
301351	9.9	20.3	394304	10.0	21.1	173250	10.1	18.5	127622	10.2	19.5	369952	10.2	20.0	502666	10.3	20.3
304406	9.9	20.8	127178	10.0	19.3	69645	10.1	19.0	68266	10.2	19.2	93923	10.2	18.6	314120	10.3	21.2
314051	9.9	19.8	237842	10.0	19.7	237681	10.1	19.1	478538	10.2	19.4	428271	10.3	19.8	331607	10.3	19.3
39038	9.9	17.2	184813	10.0	20.7	268528	10.1	19.0	51646	10.2	17.9	254200	10.3	19.2	320536	10.3	20.4
526354	9.9	20.9	288734	10.0	19.1	106010	10.1	18.8	242709	10.2	19.3	261328	10.3	20.2	376453	10.3	19.4
501163	9.9	20.6	323073	10.0	19.9	280413	10.1	20.0	145441	10.2	19.2	417509	10.3	19.9	311185	10.3	19.4
258969	9.9	19.1	61151	10.0	18.5	355152	10.1	21.6	288599	10.2	20.1	529512	10.3	21.8	56931	10.3	18.9
438725	9.9	21.1	180467	10.0	20.7	264339	10.1	19.4	510104	10.2	20.1	521081	10.3	20.5	295063	10.3	21.7
200548	9.9	19.7	478091	10.0	20.5	226070	10.1	19.7	518918	10.2	20.8	237413	10.3	19.1	532019	10.3	20.4
225970	9.9	19.7	422204	10.0	20.7	509919	10.1	20.5	215873	10.2	21.1	205819	10.3	20.1	38398	10.3	17.5
177775	9.9	19.9	18403	10.0	19.2	482103	10.1	19.7	319077	10.2	20.6	452789	10.3	20.7	91775	10.3	18.9
316223	9.9	19.2	348421	10.0	20.1	38507	10.1	17.4	538161	10.2	20.8	179746	10.3	18.4	286612	10.3	21.3
438211	9.9	19.8	244654	10.0	19.2	71419	10.1	17.4	285283	10.2	19.0	259377	10.3	19.7	1841	10.3	16.3
286234	9.9	20.3	495239	10.0	20.4	245642	10.1	19.9	409032	10.2	20.2	384123	10.3	19.8	506004	10.3	21.0
539033	9.9	20.8	506282	10.0	20.2	411180	10.1	20.6	17084	10.2	17.4	526848	10.3	21.3	162414	10.3	19.9
115093	9.9	18.4	15862	10.0	17.9	492638	10.1	19.3	338092	10.2	20.0	173329	10.3	18.2	318206	10.3	19.5
540821	9.9	20.7	366998	10.0	18.3	16648	10.1	17.5	259386	10.2	20.7	299409	10.3	20.6	215218	10.3	18.7
207000	9.9	18.7	355243	10.0	20.9	540344	10.1	21.2	526539	10.2	19.7	499238	10.3	21.4	40113	10.3	16.9
497889	9.9	20.7	66725	10.0	18.6	385925	10.1	20.5	225845	10.2	20.0	238198	10.3	20.5	204728	10.3	20.3
309251	9.9	19.8	397095	10.0	20.6	132559	10.1	19.4	528425	10.2	20.9	399457	10.3	24.3	540832	10.3	20.6
479117	9.9	20.8	457477	10.0	21.2	274365	10.1	19.9	363295	10.2	20.2	542174	10.3	19.0	397411	10.3	20.6
289461	9.9	20.7	346142	10.0	20.7	418349	10.1	20.1	227348	10.2	19.6	6132	10.3	16.5	195419	10.3	20.0
492041	9.9	21.3	275123	10.0	20.2	125852	10.1	18.8	257955	10.2	20.2	527879	10.3	21.1	459485	10.3	20.9
478288	9.9	20.7	134024	10.0	18.5	459658	10.1	20.9	254298	10.2	19.7	36572	10.3	16.9	215082	10.3	19.8
292002	9.9	18.8	290887	10.0	20.4	42694	10.1	18.4	420217	10.2	22.1	93813	10.3	17.6	150812	10.3	19.0
395847	9.9	19.1	532950	10.0	21.9	405885	10.1	20.8	170009	10.2	20.0	195948	10.3	18.5	379558	10.3	19.4
505530	9.9	19.0	394318	10.0	21.5	150985	10.1	19.6	449891	10.2	19.5	243346	10.3	20.7	131567	10.3	20.3
269260	9.9	19.4	483386	10.0	20.3	400235	10.1	20.3	22953	10.2	18.9	398259	10.3	20.2	238685	10.3	19.9
539416	9.9	20.8	537913	10.0	21.4	258870	10.1	19.7	299422	10.2	20.3	305455	10.3	20.3	539622	10.3	19.7
343716	9.9	19.8	536851	10.0	22.0	3659	10.1	17.3	393092	10.2	20.1	533421	10.3	20.7	339595	10.3	19.9
250369	9.9	17.9	11502	10.0	17.0	19876	10.1	17.3	141087	10.2	19.8	88429	10.3	17.7	539949	10.3	20.0
383392	9.9	20.1	294623	10.0	20.8	259374	10.1	20.4	270493	10.2	19.4	159623	10.3	19.8	486801	10.3	19.5
79750	9.9	18.2	149516	10.0	20.1	143833	10.1	19.1	236437	10.2	19.2	149080	10.3	19.7	138724	10.3	19.5
359461	9.9	20.2	205675	10.0	20.5	127614	10.1	19.5	138077	10.2	19.6	538880	10.3	21.0	344934	10.4	20.2
472781	9.9	21.7	34138	10.1	16.9	229543	10.1	20.6	291737	10.2	20.9	441332	10.3	20.8	253338	10.4	20.5
338667	9.9	19.8	106450	10.1	17.1	366994	10.1	20.0	365313	10.2	20.2	302391	10.3	21.1	442009	10.4	19.8
403225	9.9	20.9	272429	10.1	18.8	41554	10.1	17.9	145068	10.2	18.5	368267	10.3	19.0	519179	10.4	20.0
5021	9.9	16.8	496695	10.1	21.0	493706	10.1	21.1	245079	10.2	18.8	253355	10.3	19.9	439658	10.4	21.1
216090	9.9	18.5	471637	10.1	20.4	44385	10.1	17.9	475055	10.2	21.1	37096	10.3	18.1	381977	10.4	22.0
85905	9.9	19.8	272822	10.1	20.0	159240	10.1	20.5	500207	10.2	21.5	157657	10.3	20.0	431894	10.4	20.5
384572	9.9	21.2	503457	10.1	21.8	75118	10.1	17.8	118019	10.2	19.2	531045	10.3	20.6	275055	10.4	20.7
539507	9.9	20.6	501293	10.1	21.1	367486	10.1	20.9	65944	10.2	17.1	89813	10.3	18.5	11860	10.4	16.6
47183	9.9	18.3	365913	10.1	20.2	300140	10.1	20.1	187277	10.2	19.7	308444	10.3	20.0	353329	10.4	19.5
531867	9.9	20.3	2416	10.1	15.4	58840	10.1	18.6	14531	10.2	17.8	471727	10.3	20.2	209043	10.4	18.8
45353	9.9	17.9	499435	10.1	20.2	90295	10.1	19.7	508695	10.2	20.0	538412	10.3	22.1	398810	10.4	19.5
94241	9.9	19.4	376658	10.1	21.1	73073	10.1	18.2	256988	10.2	19.7	253048	10.3	19.0	75317	10.4	17.7
360015	9.9	20.1	44394	10.1	17.6	280283	10.1	20.4	476431	10.2	20.8	148321	10.3	18.9	200525	10.4	19.9
58522	9.9	19.7	295320	10.1	20.5	144624	10.1	19.3	103072	10.2	20.0	182921	10.3	19.1	19277	10.4	18.4
336710	9.9	20.2	507006	10.1	21.4	471828	10.1	20.3	166168	10.2	19.7	196608	10.3	18.5	514469	10.4	19.9
537583	9.9	21.2	383709	10.1	21.0	94895	10.1	18.2	183633	10.2	20.5	240405	10.3	19.0	397730	10.4	21.6
530973	9.9	21.4	288600	10.1	19.1	316019	10.1	20.6	341574	10.2	20.0	536042	10.3	21.4	100864	10.4	21.1
305910	9.9	19.6	377338	10.1	19.3	334040	10.1	20.4	115358	10.2	19.1	214249	10.3	19.7	230058	10.4	18.9
409802	9.9	21.6	141242	10.1	19.5	156391	10.1	18.6	542064	10.2	20.1	285958	10.3	19.9	390703	10.4	21.5
205887	9.9	19.7	151323	10.1	18.7	316935	10.1	20.1	462831	10.2	21.1	365563	10.3	21.4	482309	10.4	21.2
525186	9.9	20.8	179406	10.1	19.4	230053	10.1	19.2	92034	10.2	18.7	518731	10.3	21.0	10741	10.4	17.4
277750	9.9	19.5	210549	10.1	19.1	504047	10.1	20.5	314439	10.2	20.7	367322	10.3	20.8	200575	10.4	18.1
111603	9.9	18.9	249627	10.1	19.7	190061	10.1	19.5	31235	10.2	17.6	287605	10.3	19.4	253253	10.4	20.1
289206	9.9	19.8	384497	10.1	19.9	504532	10.2	19.5	251889	10.2	20.4	253881	10.3	19.1	35329	10.4	19.4
200899	9.9	20.1	270340	10.1	19.6	532728	10.2	21.6	401028	10.2	19.6	46475	10.3	17.3	309060	10.4	19.5
102808	9.9	19.1	179636	10.1	19.3	299698	10.2	20.0	533176	10.2	21.2	66931	10.3	18.0	386434	10.4	20.0
538417	9.9	21.3	44100	10.1	17.6	154368	10.2	18.6	538203	10.2	21.5	467851	10.3	21.0	304445	10.4	19.0
524165	9.9	20.3	135014	10.1	19.5	261305	10.2	21.2	414412	10.2	20.6	40335	10.3	17.9	174870	10.4	20.5
362671	9.9	20.2	106528	10.1	18.0	152459	10.2	19.9	408253	10.2	21.0	398276	10.3</				

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
314185	10.4	21.0	322504	10.5	19.5	308153	10.5	21.0	260508	10.6	20.9	475049	10.7	20.7	128159	10.8	19.0
252198	10.4	20.5	478396	10.5	20.8	158470	10.5	20.5	201656	10.6	19.3	429734	10.7	20.4	68661	10.8	19.2
455677	10.4	21.3	412087	10.5	19.9	388015	10.5	19.3	5019	10.6	16.7	168121	10.7	18.8	36245	10.8	18.3
286959	10.4	20.5	542185	10.5	20.7	151128	10.5	19.0	394700	10.6	20.9	59215	10.7	17.5	302226	10.8	20.7
149184	10.4	19.5	341141	10.5	18.9	102239	10.5	18.9	83785	10.6	18.8	389150	10.7	20.8	27075	10.8	17.0
501658	10.4	20.1	535082	10.5	21.1	211137	10.5	19.8	279268	10.6	20.8	266246	10.7	20.1	207485	10.8	19.2
312664	10.4	19.2	102502	10.5	17.9	174580	10.5	18.3	190648	10.6	18.9	163251	10.7	18.3	491243	10.8	19.5
433618	10.4	20.6	105846	10.5	18.6	377346	10.5	19.1	242531	10.6	20.2	535838	10.7	21.3	94081	10.8	19.3
537555	10.4	20.2	258042	10.5	19.9	201142	10.5	19.2	525642	10.6	19.9	37080	10.7	19.0	205592	10.8	19.7
17695	10.4	17.7	338770	10.5	19.6	238277	10.5	20.0	225997	10.6	20.7	376211	10.7	20.7	168954	10.8	18.5
107599	10.4	19.1	354352	10.5	20.8	537572	10.5	20.0	219213	10.6	19.6	371667	10.7	20.4	118462	10.8	18.2
243886	10.4	20.5	54058	10.5	17.7	492270	10.5	20.8	329938	10.6	19.2	153788	10.7	18.8	312988	10.8	20.4
539375	10.4	20.4	452654	10.5	19.8	42490	10.5	16.7	278875	10.6	18.8	35598	10.7	17.9	477737	10.8	21.1
506019	10.4	21.6	140398	10.5	19.0	416178	10.6	20.1	198559	10.6	20.0	149994	10.7	19.1	191691	10.8	19.4
5039	10.4	16.7	534024	10.5	20.5	540573	10.6	21.1	301858	10.6	20.8	64827	10.7	18.3	465372	10.8	21.0
386810	10.4	20.8	311355	10.5	20.1	499368	10.6	21.6	342829	10.6	20.3	326928	10.7	20.5	262077	10.8	19.5
501246	10.4	19.6	91568	10.5	18.5	1179	10.6	16.3	11181	10.6	16.9	511283	10.7	20.2	120873	10.8	17.8
499318	10.4	19.3	270690	10.5	20.1	211119	10.6	20.0	137818	10.6	18.6	245110	10.7	19.7	472961	10.8	20.6
214150	10.4	21.0	11644	10.5	18.2	158508	10.6	19.9	7240	10.6	16.3	88822	10.7	18.5	48270	10.8	19.0
287972	10.4	19.5	311881	10.5	19.9	524686	10.6	20.6	309314	10.6	20.0	257492	10.7	19.6	6815	10.8	16.7
471594	10.4	19.7	3531	10.5	17.1	430529	10.6	22.1	85312	10.6	17.8	302281	10.7	20.4	117265	10.8	18.7
356182	10.4	20.4	518455	10.5	20.2	93147	10.6	19.5	488429	10.6	20.5	322459	10.7	19.8	307211	10.8	21.1
438183	10.4	19.2	454109	10.5	19.7	303219	10.6	19.9	134294	10.6	19.4	499333	10.7	20.0	30647	10.8	16.9
3165	10.4	14.3	285791	10.5	20.8	228217	10.6	20.1	207475	10.6	20.5	522294	10.7	21.1	115510	10.8	18.7
297702	10.4	20.1	541716	10.5	20.1	168992	10.6	20.1	256771	10.6	19.9	22937	10.7	17.9	38710	10.8	17.9
166596	10.4	19.7	381930	10.5	21.7	419755	10.6	20.4	126885	10.6	19.6	263764	10.7	19.8	295748	10.8	20.2
10698	10.4	19.0	106475	10.5	19.7	335155	10.6	19.3	58827	10.6	18.4	277454	10.7	20.9	216287	10.8	19.6
169581	10.4	19.4	238984	10.5	20.3	456687	10.6	20.8	320642	10.7	20.5	312731	10.7	20.4	455666	10.8	21.4
140245	10.4	18.7	413293	10.5	19.0	210269	10.6	19.8	106884	10.7	19.3	116827	10.7	18.9	443629	10.8	21.5
406507	10.4	19.4	511133	10.5	20.1	479872	10.6	20.6	304011	10.7	20.2	104320	10.7	17.6	294582	10.8	20.4
344172	10.4	19.5	398488	10.5	19.9	427917	10.6	21.9	304058	10.7	20.6	29840	10.7	18.7	368934	10.8	20.4
8792	10.4	17.3	34888	10.5	17.7	121111	10.6	19.2	268477	10.7	19.3	21555	10.7	17.6	357802	10.8	19.5
179579	10.4	19.3	386126	10.5	20.2	289348	10.6	20.1	429640	10.7	20.3	128974	10.7	19.8	110149	10.8	19.3
201654	10.4	19.3	442099	10.5	19.9	182900	10.6	20.8	277630	10.7	20.5	69375	10.7	18.2	21928	10.8	18.5
191773	10.4	20.2	530915	10.5	22.1	78845	10.6	17.2	343571	10.7	20.5	113110	10.7	18.5	347113	10.8	21.7
178747	10.4	19.0	131779	10.5	19.4	80028	10.6	18.8	35776	10.7	17.6	239156	10.7	21.0	180096	10.8	20.1
32439	10.4	18.9	179367	10.5	19.9	93733	10.6	18.5	74896	10.7	18.2	131207	10.7	18.9	216316	10.8	20.1
355103	10.4	20.8	59239	10.5	16.9	459052	10.6	21.5	27015	10.7	18.2	60004	10.7	17.4	469695	10.8	20.8
404885	10.4	20.3	512786	10.5	20.7	527719	10.6	21.4	89713	10.7	19.0	87500	10.7	18.7	55259	10.8	18.9
131515	10.4	19.3	337248	10.5	19.1	22426	10.6	19.0	32297	10.7	18.2	93555	10.7	18.7	246819	10.8	19.5
390762	10.4	20.1	178638	10.5	19.3	244640	10.6	20.7	36106	10.7	18.1	369251	10.7	20.0	539199	10.8	21.4
144290	10.4	19.7	530465	10.5	20.1	149164	10.6	20.1	536057	10.7	20.0	41914	10.7	17.4	127192	10.8	19.3
343393	10.4	21.2	329316	10.5	18.6	507028	10.6	19.9	184217	10.7	19.1	495000	10.7	20.7	169679	10.8	19.7
482723	10.4	20.9	533376	10.5	22.0	489023	10.6	22.2	72557	10.7	18.5	197166	10.7	20.2	380568	10.8	19.7
96163	10.4	19.2	21373	10.5	17.2	302246	10.6	20.0	387925	10.7	20.7	533622	10.7	21.3	64941	10.8	18.7
60172	10.4	18.1	359467	10.5	20.6	288639	10.6	18.9	497078	10.7	20.9	543226	10.7	21.4	94866	10.8	17.6
492351	10.4	21.6	250916	10.5	20.4	69389	10.6	18.8	522440	10.7	20.3	428329	10.8	21.7	56069	10.8	18.8
303909	10.4	20.3	302173	10.5	18.8	366223	10.6	19.7	311248	10.7	20.9	533267	10.8	21.2	164041	10.8	19.1
93625	10.4	19.3	430307	10.5	21.1	112358	10.6	19.7	442963	10.7	21.2	119511	10.8	18.8	381495	10.8	20.0
318850	10.4	19.6	443082	10.5	20.6	6529	10.6	17.2	437706	10.7	20.4	293556	10.8	20.0	528387	10.8	20.7
328270	10.4	19.5	259814	10.5	20.7	225889	10.6	20.5	411683	10.7	21.0	538536	10.8	21.4	24969	10.8	16.9
214377	10.4	20.1	277611	10.5	18.7	130073	10.6	17.9	503301	10.7	21.7	476386	10.8	20.7	195590	10.8	18.9
479197	10.4	21.7	26104	10.5	16.2	270510	10.6	20.3	527697	10.7	20.1	474041	10.8	19.8	439578	10.8	20.1
120689	10.4	20.3	324047	10.5	19.4	280598	10.6	21.0	168056	10.7	19.6	258585	10.8	20.7	170307	10.8	18.9
499803	10.4	20.7	437244	10.5	20.7	69916	10.6	19.4	321241	10.7	19.3	35125	10.8	18.4	303347	10.8	19.9
543499	10.4	20.7	362963	10.5	20.3	12398	10.6	18.2	102143	10.7	18.4	98573	10.8	19.3	192537	10.8	19.2
440602	10.4	20.5	449089	10.5	22.2	234799	10.6	19.9	211096	10.7	19.6	106399	10.8	19.4	7034	10.8	17.0
530750	10.4	20.0	11524	10.5	17.5	318183	10.6	20.0	123529	10.7	17.4	205051	10.8	19.6	534088	10.8	21.0
48657	10.4	18.2	385363	10.5	23.0	528279	10.6	21.1	365201	10.7	20.1	103284	10.8	17.2	106613	10.8	19.2
394035	10.5	19.4	193638	10.5	18.2	406339	10.6	21.4	124796	10.7	17.9	59581	10.8	18.4	88061	10.8	18.0
10317	10.5	16.3	54662	10.5	19.0	161408	10.6	19.1	430555	10.7	20.3	442411	10.8	20.4	69667	10.8	19.9
80805	10.5	18.8	491075	10.5	20.9	205722	10.6	20.1	59943	10.7	18.6	158495	10.8	19.4	18196	10.8	17.3
67717	10.5	19.0	191820	10.5	19.0	279500	10.6	20.2	129527	10.7	18.9	482379	10.8	19.8	335535	10.8	19.6
62025	10.5	18.1	501306	10.5	19.9	255700	10.6	19.9	119543	10.7	19.5	538925	10.8	21.7	299550	10.9	19.9
290498	10.5	19.8	106685	10.5	18.7	100031	10.6	20.2	242618	10.7	20.1	77922	10.8	17.9	215749	10.9	20.4
467181	10.5	21.5	421906	10.5	20.7	324381	10.6	19.3	120388	10.7	19.1	46778	10.8	17.7	279558	10.9	20.0
240424	10.5	20.8	48848	10.5	18.9	174709	10.6	19.3	105677	10.7	19.4	287325	10.8	19.6	398199	10.9	20.8
6422	10.5	15.6	9987	10.5	17.8	275926	10.6	19.6	505208	10.7	20.2	478347	10.8	21.3	286502	10.9	19.8
190291	10.5	20.1	65345	10.5	17.9	69359	10.6	19.1	290								

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
280396	10.9	20.2	162592	10.9	17.9	503304	11.0	21.6	95189	11.1	18.5	87815	11.2	17.9	115238	11.3	18.7
250774	10.9	20.0	528764	10.9	22.6	285721	11.0	18.8	523927	11.1	20.6	150698	11.2	18.1	250601	11.3	19.1
298731	10.9	20.3	46870	10.9	17.2	64217	11.0	17.9	545093	11.1	20.5	404652	11.2	19.7	135256	11.3	18.6
497523	10.9	20.4	501959	10.9	21.1	232832	11.0	19.2	308690	11.1	19.8	419611	11.2	20.6	72390	11.3	19.6
384546	10.9	20.9	186985	10.9	19.6	395071	11.0	21.5	315309	11.1	19.7	291777	11.2	20.8	176437	11.3	19.7
342244	10.9	20.3	504758	10.9	19.7	316445	11.0	19.1	528642	11.1	20.1	89436	11.2	19.1	528011	11.3	21.6
192249	10.9	20.4	324961	10.9	20.1	142638	11.0	19.0	438173	11.1	19.4	444287	11.2	21.3	133156	11.3	18.6
477643	10.9	20.8	166468	10.9	20.0	43449	11.0	18.9	355720	11.1	20.8	26135	11.2	17.8	139109	11.3	19.8
389250	10.9	19.5	68053	10.9	18.0	281006	11.0	20.0	518621	11.1	21.4	67720	11.2	18.0	303685	11.3	19.8
86608	10.9	18.2	530309	10.9	20.6	265871	11.0	20.3	513063	11.1	19.8	531754	11.2	21.5	16936	11.3	16.4
114379	10.9	18.0	241918	10.9	19.6	530534	11.0	21.3	123293	11.1	19.7	519188	11.2	20.2	18905	11.3	17.4
122530	10.9	19.0	537383	10.9	20.3	234881	11.0	20.1	62916	11.1	18.5	234287	11.2	19.8	162618	11.3	18.7
219557	10.9	18.9	12183	10.9	18.5	66479	11.0	18.2	135672	11.1	17.6	24856	11.2	19.2	39433	11.3	18.2
202534	10.9	19.8	526448	10.9	21.4	379707	11.0	19.6	89055	11.1	19.1	528105	11.2	21.6	451225	11.3	21.3
151757	10.9	19.9	141344	10.9	19.9	469514	11.0	22.0	75270	11.1	18.4	195435	11.2	20.3	253372	11.3	19.8
516380	10.9	19.2	155188	10.9	17.7	149945	11.0	18.8	408531	11.1	20.5	197970	11.2	18.7	90349	11.3	18.9
363249	10.9	20.3	191711	10.9	19.7	35720	11.0	17.5	206718	11.1	19.7	381482	11.2	21.1	225934	11.3	19.6
423768	10.9	20.3	502642	10.9	20.1	391021	11.0	19.7	530862	11.1	20.5	32675	11.2	18.8	531617	11.3	20.9
58442	10.9	19.5	84552	10.9	19.1	58114	11.0	19.2	286497	11.1	20.0	152506	11.2	20.6	323335	11.3	19.9
242805	10.9	20.0	115531	10.9	18.6	241110	11.0	19.5	162395	11.1	19.4	507075	11.2	21.4	67090	11.3	17.7
482173	10.9	20.7	391768	10.9	20.7	168938	11.0	20.0	307075	11.1	18.6	376467	11.2	20.4	242795	11.3	20.5
14177	10.9	17.1	325114	10.9	22.0	397078	11.0	19.2	32653	11.1	17.9	65253	11.2	19.1	247863	11.3	19.7
178224	10.9	20.2	94002	10.9	19.2	144827	11.0	20.0	409154	11.1	20.1	387805	11.2	20.0	508966	11.3	18.6
396031	10.9	20.7	428340	10.9	20.8	123469	11.0	19.6	103456	11.1	17.7	150663	11.2	19.2	365480	11.3	20.6
313491	10.9	19.8	410354	10.9	19.1	192705	11.0	20.3	23953	11.1	16.7	111618	11.2	18.7	161866	11.3	19.4
118800	10.9	19.4	452573	10.9	21.1	278918	11.0	19.2	479094	11.1	20.8	405834	11.2	21.2	49879	11.3	17.5
191100	10.9	18.8	184808	10.9	20.2	364734	11.0	19.2	524731	11.1	20.4	9293	11.2	17.6	373604	11.3	19.6
285261	10.9	19.4	341491	10.9	20.1	431865	11.1	20.9	46039	11.1	18.3	67316	11.2	18.9	316240	11.3	19.8
415526	10.9	19.7	222637	10.9	19.9	254645	11.1	19.3	75240	11.1	18.5	149428	11.2	20.0	505522	11.3	20.6
475072	10.9	20.6	289534	10.9	20.8	77544	11.1	19.8	35729	11.1	17.7	83384	11.2	18.9	482798	11.3	20.6
477654	10.9	20.2	221281	10.9	19.1	301147	11.1	20.1	533744	11.1	18.5	389217	11.2	21.0	169977	11.3	19.4
155262	10.9	19.9	192684	10.9	18.2	161500	11.1	19.7	534628	11.1	21.5	264301	11.2	21.9	94136	11.3	19.0
272692	10.9	20.6	231684	10.9	19.6	94315	11.1	18.0	49707	11.1	16.6	39567	11.2	17.2	204912	11.3	18.7
74696	10.9	17.8	526232	10.9	21.0	113502	11.1	18.3	452788	11.1	21.5	161401	11.2	19.1	381177	11.3	20.8
125395	10.9	17.8	119776	10.9	19.9	32392	11.1	18.0	332787	11.1	18.6	47333	11.2	18.2	123978	11.3	20.2
34416	10.9	18.3	39432	10.9	17.7	359469	11.1	19.7	185744	11.1	19.7	503694	11.2	19.8	536204	11.3	20.2
358097	10.9	20.2	449588	10.9	20.5	107598	11.1	20.5	460425	11.1	20.0	398255	11.2	20.5	102940	11.3	18.7
350754	10.9	21.1	155581	10.9	19.3	477633	11.1	20.8	78864	11.1	18.4	95809	11.2	19.4	475119	11.3	20.4
216384	10.9	20.3	142014	10.9	19.8	196273	11.1	19.5	361461	11.1	20.5	162561	11.2	18.7	476283	11.3	20.8
269047	10.9	19.9	121425	10.9	18.4	213011	11.1	20.0	311004	11.1	20.4	435235	11.2	20.4	114660	11.3	20.5
207880	10.9	20.2	255697	10.9	19.3	60021	11.1	19.9	533165	11.1	21.6	364455	11.2	21.5	31172	11.3	18.7
509215	10.9	20.6	479981	10.9	20.2	275931	11.1	18.8	333423	11.1	19.1	352480	11.2	20.9	381796	11.3	21.3
184653	10.9	20.3	362662	10.9	21.3	186958	11.1	19.2	467300	11.1	21.6	357168	11.2	21.5	326609	11.3	18.8
353586	10.9	20.9	317872	10.9	19.1	237636	11.1	18.6	230861	11.1	19.6	158369	11.2	20.3	10838	11.3	16.1
469912	10.9	20.4	170699	10.9	20.7	244661	11.1	19.8	168366	11.1	18.1	291343	11.2	20.5	355654	11.3	20.3
366827	10.9	20.5	343408	10.9	20.2	381572	11.1	20.3	474880	11.1	20.2	338742	11.2	20.2	165268	11.3	19.3
532084	10.9	21.0	181180	10.9	19.9	358927	11.1	21.8	491335	11.1	19.5	299288	11.2	20.3	501842	11.3	21.4
358000	10.9	21.3	356834	10.9	20.1	379382	11.1	20.8	476381	11.2	21.5	208471	11.2	19.5	353789	11.3	19.0
373581	10.9	21.0	308100	10.9	21.3	347482	11.1	20.7	508122	11.2	20.4	501892	11.2	19.5	500781	11.3	22.3
315594	10.9	19.6	130840	10.9	17.8	156275	11.1	19.1	120165	11.2	19.5	267436	11.2	21.3	36579	11.3	18.7
380087	10.9	20.2	242166	10.9	20.7	286544	11.1	20.6	256413	11.2	21.0	64986	11.2	18.6	503842	11.3	19.0
183054	10.9	20.6	526449	11.0	21.2	211875	11.1	18.5	242396	11.2	20.2	230888	11.2	19.1	499657	11.3	21.2
14396	10.9	17.3	168111	11.0	20.3	91642	11.1	18.8	440581	11.2	20.1	261904	11.2	20.7	90276	11.3	19.3
120184	10.9	19.3	387694	11.0	20.5	311214	11.1	21.2	316098	11.2	20.2	152871	11.2	19.5	375805	11.3	20.9
288515	10.9	19.8	98542	11.0	19.4	360130	11.1	20.3	431449	11.2	20.3	358096	11.2	20.8	360459	11.3	20.2
322324	10.9	20.1	66007	11.0	17.0	383870	11.1	20.1	384053	11.2	21.1	397719	11.2	21.2	503824	11.3	21.2
240415	10.9	20.3	510407	11.0	21.2	66255	11.1	18.7	479244	11.2	20.9	431105	11.2	20.8	194349	11.3	19.4
188861	10.9	19.7	133209	11.0	18.6	7066	11.1	24.4	202417	11.2	18.5	326301	11.2	19.6	243632	11.3	19.0
153058	10.9	18.8	251798	11.0	18.9	457636	11.1	21.0	349602	11.2	20.8	303284	11.2	20.7	280342	11.3	19.6
398066	10.9	21.6	43666	11.0	19.2	295784	11.1	21.1	224553	11.2	18.2	156321	11.2	20.3	95695	11.3	18.9
243546	10.9	19.9	72940	11.0	18.3	428254	11.1	19.8	309133	11.2	19.9	476398	11.2	20.4	234020	11.3	20.4
372967	10.9	20.8	314998	11.0	19.7	333944	11.1	19.6	259158	11.2	20.5	39273	11.2	19.1	305976	11.3	21.2
271386	10.9	21.2	474780	11.0	18.9	536040	11.1	21.6	497725	11.2	20.2	36674	11.3	17.4	110367	11.3	18.9
281549	10.9	20.1	51671	11.0	19.6	383877	11.1	19.4	293391	11.2	20.7	525401	11.3	19.1	313825	11.3	19.0
134860	10.9	22.4	249642	11.0	20.1	337097	11.1	19.5	170259	11.2	18.0	354724	11.3	20.7	227568	11.3	19.7
255756	10.9	19.6	398829	11.0	20.5	21625	11.1	17.8	2542	11.2	16.3	497456	11.3	19.6	216403	11.3	19.5
508745	10.9	20.6	248974	11.0	19.9	64433	11.1	18.2	334411	11.2	20.4	392435	11.3	20.4	235150	11.3	18.6
278044	10.9	18.3	195482	11.0	19.4	393179	11.1	19.9	203903	11.2	19.8	397807	11.3	18.9	290277	11.3	19.9
475276	10.9	21.3	198149	11.0	19.8	64522											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
157262	11.4	19.9	183601	11.5	20.3	198147	11.5	19.6	471311	11.6	20.0	13660	11.7	19.2	244223	11.8	20.3
62800	11.4	19.6	356758	11.5	20.3	390247	11.5	20.4	393917	11.6	19.6	536435	11.7	22.1	107742	11.8	20.0
373545	11.4	20.2	395884	11.5	21.1	125701	11.5	18.0	259629	11.6	20.4	435147	11.7	20.9	260996	11.8	20.1
305794	11.4	20.1	533526	11.5	21.7	152512	11.5	20.2	290202	11.6	19.7	3161	11.7	15.9	439692	11.8	20.1
422904	11.4	19.3	528949	11.5	19.9	503364	11.5	21.7	32276	11.6	18.2	503724	11.7	20.4	62740	11.8	19.5
358048	11.4	20.3	338089	11.5	20.4	398718	11.5	19.8	338834	11.6	21.3	504516	11.7	20.7	217619	11.8	19.3
360949	11.4	20.1	148458	11.5	19.5	31385	11.5	17.1	1480	11.6	16.1	401496	11.7	20.8	426645	11.8	21.1
166250	11.4	20.0	480086	11.5	21.1	229686	11.5	19.7	360288	11.6	21.3	354848	11.7	21.2	355254	11.8	21.0
366806	11.4	20.8	437058	11.5	20.6	504056	11.5	20.6	181917	11.6	20.6	535321	11.7	20.8	432882	11.8	21.0
145465	11.4	18.7	139920	11.5	19.4	357936	11.5	21.2	249191	11.6	19.4	504644	11.7	20.1	157447	11.8	18.1
499823	11.4	20.7	325012	11.5	20.9	110119	11.5	19.5	225539	11.6	19.2	391118	11.7	19.8	285830	11.8	20.1
506240	11.4	21.1	510844	11.5	21.7	74219	11.5	17.3	126890	11.6	19.4	278091	11.7	21.1	441361	11.8	20.4
429568	11.4	21.3	148449	11.5	19.4	154693	11.5	18.6	490626	11.6	22.0	98646	11.7	19.0	383305	11.8	21.3
162440	11.4	19.5	231327	11.5	20.1	416565	11.5	20.5	280130	11.6	20.4	332172	11.7	19.7	352607	11.8	20.0
107146	11.4	19.9	68525	11.5	19.3	356542	11.5	18.2	236580	11.6	20.9	47348	11.7	19.4	358456	11.8	21.4
352508	11.4	20.9	342636	11.5	20.8	258891	11.5	20.1	225103	11.6	19.6	153682	11.7	19.3	267383	11.8	18.0
276066	11.4	20.0	528079	11.5	20.7	385009	11.5	20.2	395091	11.6	20.3	430886	11.7	19.5	172633	11.8	20.1
384861	11.4	20.6	539643	11.5	21.1	134310	11.5	19.4	489813	11.6	21.1	166207	11.7	19.6	21633	11.8	17.8
141411	11.4	19.9	219585	11.5	19.5	289562	11.5	20.6	129233	11.6	18.3	190645	11.7	18.9	473005	11.8	20.5
287655	11.4	19.5	86817	11.5	18.4	361457	11.5	20.4	176359	11.6	19.8	253730	11.7	19.8	479241	11.8	20.7
353168	11.4	20.3	119991	11.5	18.2	510349	11.5	20.8	526837	11.6	22.5	322410	11.7	20.1	504740	11.8	21.2
497985	11.4	21.7	311542	11.5	21.3	474966	11.5	20.4	240290	11.6	20.4	381892	11.7	20.9	287409	11.8	19.3
431380	11.4	20.6	499367	11.5	20.8	254271	11.5	19.1	65269	11.6	19.0	52714	11.7	19.8	49430	11.8	17.5
58921	11.4	18.4	422424	11.5	19.7	175752	11.5	18.7	312585	11.6	20.5	506532	11.7	20.5	128855	11.8	19.5
87575	11.4	18.8	208674	11.5	20.2	125880	11.5	19.6	146740	11.6	18.6	421156	11.7	19.3	7263	11.8	16.7
324496	11.4	20.7	94328	11.5	19.9	398919	11.5	20.2	376210	11.6	19.6	276473	11.7	20.3	310294	11.8	20.6
207791	11.4	19.4	479186	11.5	20.9	298306	11.5	19.9	540866	11.6	20.5	68151	11.7	19.4	248677	11.8	19.4
153861	11.4	19.1	163934	11.5	20.1	528570	11.6	20.9	40445	11.6	18.6	9097	11.7	18.0	91407	11.8	18.3
479245	11.4	20.6	387299	11.5	20.7	190300	11.6	18.3	522994	11.6	21.5	473913	11.7	20.1	365460	11.8	20.2
95505	11.4	19.1	251545	11.5	20.1	177829	11.6	19.3	479259	11.6	21.5	376783	11.7	18.4	366824	11.8	21.2
35996	11.4	19.1	503346	11.5	21.7	400449	11.6	21.6	500814	11.6	21.1	371215	11.7	19.7	314296	11.8	19.7
236189	11.4	20.1	258542	11.5	20.1	475756	11.6	20.7	525233	11.6	20.0	412314	11.7	19.9	140273	11.8	19.6
94376	11.4	18.1	215333	11.5	20.3	190031	11.6	19.6	119271	11.6	18.6	528420	11.7	19.9	474317	11.8	21.0
256036	11.4	19.8	395633	11.5	21.0	509048	11.6	21.2	2554	11.6	15.3	429730	11.7	20.8	213805	11.8	18.4
414216	11.4	20.2	363086	11.5	19.4	462194	11.6	21.2	148308	11.6	19.6	538288	11.7	20.5	340566	11.8	19.9
68165	11.4	18.8	10893	11.5	18.3	121822	11.6	19.3	538089	11.6	21.6	488918	11.7	19.7	516207	11.8	19.6
125229	11.4	19.4	182855	11.5	20.4	241209	11.6	20.4	377653	11.6	20.1	301682	11.7	19.4	308464	11.8	20.9
80110	11.4	19.0	311188	11.5	19.1	525872	11.6	20.7	215071	11.6	20.1	24562	11.7	17.7	13821	11.8	16.8
303629	11.4	19.6	315344	11.5	20.0	475636	11.6	20.3	215581	11.6	19.4	272605	11.7	20.5	297632	11.8	19.5
365197	11.4	20.8	96851	11.5	18.3	502055	11.6	20.0	198614	11.6	19.8	262169	11.7	18.6	397691	11.8	21.5
287697	11.4	18.7	86346	11.5	18.0	408543	11.6	20.3	295796	11.6	19.5	305965	11.7	20.8	359797	11.8	20.3
404189	11.4	22.2	48688	11.5	19.2	471774	11.6	20.5	533974	11.6	20.1	299662	11.7	20.5	86100	11.8	18.7
424163	11.4	19.4	171731	11.5	19.2	209042	11.6	18.7	462556	11.6	20.8	229426	11.7	20.1	120841	11.8	19.6
133536	11.4	19.2	475296	11.5	20.3	426896	11.6	19.7	425986	11.6	21.0	538345	11.7	21.6	294676	11.8	19.8
142104	11.4	19.6	533277	11.5	21.4	443527	11.6	20.9	254673	11.6	20.8	140377	11.7	19.0	505097	11.8	21.1
234814	11.4	19.9	270361	11.5	20.6	342206	11.6	20.6	340547	11.6	20.5	379275	11.7	20.2	203533	11.8	20.2
36358	11.4	17.0	495803	11.5	20.9	25083	11.6	18.0	290953	11.6	20.4	256115	11.7	20.8	263198	11.8	20.6
267042	11.4	20.8	278750	11.5	19.9	211230	11.6	19.0	415994	11.6	21.1	479910	11.7	20.4	141518	11.8	19.3
154910	11.4	19.4	495888	11.5	19.3	34362	11.6	17.5	475519	11.6	21.0	384079	11.7	20.9	406397	11.8	21.1
425901	11.4	20.1	352064	11.5	21.4	56669	11.6	16.2	309102	11.6	20.1	82276	11.7	19.4	464803	11.8	19.1
536561	11.4	21.6	413273	11.5	18.1	22439	11.6	18.9	238837	11.6	19.3	381127	11.7	18.7	92388	11.8	19.2
205817	11.4	20.3	513777	11.5	18.0	87859	11.6	18.9	97303	11.7	18.4	112459	11.7	18.2	21873	11.8	16.5
160749	11.4	18.5	131098	11.5	19.7	269956	11.6	19.6	152545	11.7	19.5	41341	11.7	17.5	177100	11.8	19.8
114747	11.4	19.1	533088	11.5	20.7	204135	11.6	21.0	294257	11.7	20.3	251780	11.7	18.9	45070	11.8	18.1
318938	11.4	20.4	189070	11.5	20.3	311992	11.6	21.1	364753	11.7	18.8	383924	11.7	19.3	118996	11.8	19.1
166053	11.4	19.5	250540	11.5	18.9	538262	11.6	21.5	528975	11.7	21.0	533825	11.7	20.3	512266	11.8	19.8
99694	11.4	19.3	361167	11.5	21.2	467954	11.6	22.1	9394	11.7	17.3	129291	11.7	18.2	314596	11.8	20.8
63751	11.4	18.9	294577	11.5	21.0	265012	11.6	21.0	455864	11.7	20.5	167378	11.7	19.3	377352	11.8	19.3
281667	11.4	19.3	63109	11.5	18.0	475233	11.6	20.6	260174	11.7	19.3	419649	11.7	21.0	152478	11.8	19.7
95567	11.4	19.4	443338	11.5	19.5	347057	11.6	20.7	342639	11.7	20.5	52665	11.7	19.2	255931	11.8	21.2
392584	11.4	19.8	287645	11.5	20.2	182935	11.6	20.1	443608	11.7	20.8	160414	11.7	17.7	342898	11.8	19.8
365870	11.4	21.4	412085	11.5	21.1	175338	11.6	19.4	395556	11.7	20.7	179287	11.7	19.1	43156	11.8	17.5
272674	11.4	19.7	475947	11.5	21.5	193980	11.6	19.6	30539	11.7	17.1	203480	11.7	20.6	110994	11.8	17.0
202470	11.4	19.1	208700	11.5	20.2	262189	11.6	21.3	479235	11.7	20.4	308438	11.7	20.8	250048	11.8	19.3
438930	11.4	21.3	253328	11.5	19.7	425917	11.6	20.6	63949	11.7	19.0	434857	11.7	19.9	475637	11.8	20.5
192923	11.4	20.3	395922	11.5	21.1	405264	11.6	19.6	509399	11.7	20.8	410283	11.7	19.2	172596	11.8	18.5
371097	11.4	20.0	23815	11.5	16.8	213585	11.6	19.6	152694	11.7	18.5	145471	11.7	19.7	397444	11.8	20.9
73172	11.4	18.9	482121	11.5	20.4	354875	11.6	20.5	449034	11.7	20.3	536282	11.7	19.4	506005	11.8	21.0
263556	11.4	20.2	347010	11.5	20.4</												

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
9088	11.8	16.0	235810	11.9	20.0	102286	11.9	19.7	396795	12.1	18.0	39867	12.1	18.7	346090	12.2	21.2
495968	11.8	20.7	543576	11.9	20.3	381860	11.9	20.4	44290	12.1	18.2	104485	12.1	19.4	211966	12.2	20.4
496898	11.8	21.3	260095	11.9	19.3	416366	11.9	20.7	127946	12.1	19.5	4694	12.1	15.5	182027	12.2	20.4
37847	11.8	18.7	254140	11.9	19.4	39390	11.9	18.0	338753	12.1	19.6	302835	12.1	19.9	198961	12.2	20.6
180979	11.8	19.8	92005	11.9	19.2	62092	11.9	17.6	279242	12.1	20.8	316647	12.1	20.5	398823	12.2	21.2
519524	11.8	21.6	519583	11.9	20.9	294395	11.9	20.0	394325	12.1	21.2	45637	12.1	18.4	91392	12.2	17.5
326429	11.8	20.0	428700	11.9	19.2	244265	11.9	19.3	246992	12.1	19.6	362461	12.1	21.2	245441	12.2	20.2
33162	11.8	17.9	202856	11.9	19.3	479144	11.9	20.1	438159	12.1	20.9	523186	12.1	21.1	263615	12.2	20.2
26414	11.8	18.6	476513	11.9	20.7	452749	11.9	22.1	137719	12.1	19.6	361486	12.1	19.7	117591	12.2	20.0
370133	11.8	20.6	338104	11.9	20.3	529685	11.9	21.1	315349	12.1	18.6	308474	12.1	19.5	410390	12.2	19.9
267476	11.8	20.2	505989	11.9	20.6	141166	11.9	20.3	21131	12.1	18.7	336330	12.1	20.2	499817	12.2	22.3
360413	11.8	19.1	311582	11.9	19.0	242756	11.9	20.7	59593	12.1	18.2	24194	12.1	18.0	522953	12.2	20.5
505906	11.8	20.9	504078	11.9	21.0	501669	11.9	21.0	294226	12.1	20.2	462336	12.1	20.3	68026	12.2	19.1
147410	11.8	19.5	174863	11.9	20.0	107667	11.9	19.1	192674	12.1	18.1	530362	12.1	22.0	384050	12.2	19.9
203024	11.8	20.0	89631	11.9	18.7	171777	11.9	19.6	478263	12.1	20.3	248970	12.1	20.2	7386	12.2	16.9
167004	11.8	19.1	443735	11.9	19.1	75716	11.9	19.0	461513	12.1	19.6	333953	12.1	19.9	351590	12.2	19.8
89473	11.8	19.4	155822	11.9	19.4	398233	11.9	20.7	107027	12.1	19.6	199587	12.1	19.9	84732	12.2	18.6
356612	11.8	19.7	88797	11.9	19.2	187616	11.9	20.9	53823	12.1	18.7	251	12.1	14.3	365185	12.2	20.6
40290	11.8	17.8	428063	11.9	20.8	246110	11.9	19.8	324444	12.1	20.3	314123	12.1	20.7	296504	12.2	20.2
279245	11.8	20.7	106589	11.9	20.8	115181	11.9	19.6	297300	12.1	19.6	118446	12.1	19.9	247461	12.2	20.1
157194	11.8	19.9	363468	11.9	18.9	149436	11.9	19.4	525426	12.1	21.2	268368	12.1	21.2	200265	12.2	20.1
373603	11.8	21.0	387297	11.9	19.5	56762	11.9	17.0	139458	12.1	17.2	491684	12.1	20.7	14326	12.2	17.5
475262	11.8	20.6	336931	11.9	19.6	236569	11.9	21.0	533762	12.1	21.3	419025	12.1	20.6	15573	12.2	18.0
310681	11.8	21.1	377679	11.9	21.4	184576	11.9	18.5	452678	12.1	20.6	127285	12.1	18.2	506327	12.2	20.6
87178	11.8	17.2	258616	11.9	20.1	79319	11.9	18.9	522945	12.1	20.8	443572	12.1	21.0	25601	12.2	18.6
21726	11.8	18.0	526081	11.9	21.1	155403	11.9	19.4	40610	12.1	16.8	109928	12.1	18.6	282823	12.2	19.8
231269	11.8	19.5	199858	11.9	18.7	519335	11.9	20.5	227362	12.1	19.9	243530	12.1	20.7	277674	12.2	20.4
59061	11.8	18.7	146593	11.9	19.5	179635	11.9	18.8	335805	12.1	19.2	399064	12.1	20.8	100274	12.2	20.1
180331	11.8	19.5	198271	11.9	19.6	296839	11.9	18.9	277799	12.1	20.1	56901	12.1	18.6	521490	12.2	20.8
353458	11.8	20.1	33375	11.9	19.2	354341	11.9	20.4	385801	12.1	21.0	526857	12.1	21.9	16310	12.2	17.9
154583	11.8	20.0	144953	11.9	19.5	493002	11.9	20.6	287924	12.1	19.6	401319	12.1	20.9	540850	12.2	21.5
211237	11.8	19.4	120232	11.9	18.2	208547	12.0	20.3	373060	12.1	20.1	367140	12.1	20.2	508681	12.2	20.3
146858	11.8	19.2	422610	11.9	19.3	428289	12.0	21.3	225956	12.1	19.8	464267	12.2	20.0	157622	12.2	19.8
276827	11.8	18.3	83608	11.9	19.5	384982	12.0	20.5	271902	12.1	20.3	290595	12.2	20.2	536887	12.2	21.5
477735	11.8	21.2	538082	11.9	22.0	86763	12.0	19.3	254209	12.1	19.5	389954	12.2	20.5	44732	12.2	19.4
452639	11.9	24.0	237456	11.9	19.9	230070	12.0	19.6	535353	12.1	21.4	106279	12.2	18.7	435662	12.2	20.9
422805	11.9	20.5	501138	11.9	20.7	87787	12.0	18.3	442943	12.1	20.8	442575	12.2	20.5	312839	12.2	20.5
441755	11.9	20.0	130221	11.9	19.9	127464	12.0	19.0	384972	12.1	20.6	205216	12.2	20.6	403541	12.2	21.0
83576	11.9	19.4	389744	11.9	20.4	95691	12.0	20.3	287603	12.1	19.9	200079	12.2	18.8	230308	12.2	18.9
30803	11.9	17.1	276682	11.9	19.9	411553	12.0	20.8	252764	12.1	20.4	531953	12.2	21.6	377333	12.2	18.6
302845	11.9	20.2	513828	11.9	21.8	514665	12.0	21.5	365121	12.1	21.0	395440	12.2	20.4	176694	12.2	19.7
437909	11.9	20.2	434268	11.9	20.9	124072	12.0	20.2	142297	12.1	19.3	529549	12.2	21.8	251332	12.2	20.1
163876	11.9	19.8	164446	11.9	19.4	395650	12.0	20.5	391405	12.1	20.0	376715	12.2	20.7	103731	12.2	20.3
128045	11.9	19.3	294842	11.9	20.6	35027	12.0	19.6	286799	12.1	20.5	445258	12.2	20.9	132451	12.2	18.1
477672	11.9	20.1	474996	11.9	20.2	523004	12.0	20.6	455240	12.1	19.4	479830	12.2	20.8	439634	12.2	20.5
174062	11.9	20.7	5672	11.9	16.4	413453	12.0	20.5	203311	12.1	18.9	19357	12.2	18.0	242231	12.2	19.7
280172	11.9	19.4	406337	11.9	19.9	368669	12.0	19.2	26650	12.1	17.5	459866	12.2	21.0	507846	12.2	20.1
175290	11.9	20.9	63008	11.9	19.3	62267	12.0	17.5	96720	12.1	18.2	56429	12.2	19.5	141159	12.2	19.5
207550	11.9	20.0	143331	11.9	17.4	492862	12.0	20.1	498026	12.1	20.0	56895	12.2	18.2	529870	12.2	20.5
250622	11.9	21.1	533493	11.9	21.1	41459	12.0	17.5	169535	12.1	20.5	357535	12.2	19.4	85095	12.2	18.5
38298	11.9	17.4	207951	11.9	20.6	512523	12.0	20.1	427502	12.1	20.7	417568	12.2	19.7	283911	12.2	19.9
370090	11.9	20.1	103188	11.9	17.8	288789	12.0	19.6	477722	12.1	21.1	456881	12.2	20.9	19992	12.2	18.3
416055	11.9	21.6	119531	11.9	19.7	86277	12.0	17.7	428035	12.1	20.9	523591	12.2	22.6	531795	12.2	21.1
377674	11.9	20.7	157614	11.9	19.6	295803	12.0	20.0	540072	12.1	20.1	469562	12.2	20.9	90787	12.2	18.3
123719	11.9	19.5	75306	11.9	17.6	33530	12.0	19.3	63156	12.1	18.4	352066	12.2	20.9	263274	12.2	20.7
214692	11.9	20.8	270494	11.9	20.5	131714	12.0	20.7	37150	12.1	17.0	265347	12.2	18.9	291909	12.2	19.6
225915	11.9	20.3	121621	11.9	18.9	295990	12.0	21.1	214576	12.1	19.1	92119	12.2	18.3	33172	12.2	18.1
526454	11.9	19.4	449309	11.9	21.7	497321	12.0	20.7	268992	12.1	19.7	208643	12.2	19.6	321133	12.2	20.2
272834	11.9	19.4	69158	11.9	19.9	319096	12.0	19.5	394712	12.1	20.2	413343	12.2	17.7	421173	12.2	19.8
539176	11.9	20.0	98489	11.9	19.1	214583	12.0	19.1	216397	12.1	20.2	72215	12.2	18.4	540865	12.2	20.9
396175	11.9	19.6	334455	11.9	20.1	161649	12.0	19.5	480438	12.1	19.6	402415	12.2	20.0	333417	12.2	21.8
56475	11.9	19.1	539749	11.9	21.6	19306	12.0	18.3	354544	12.1	19.7	412073	12.2	20.4	102922	12.2	18.9
36241	11.9	18.5	15314	11.9	18.3	512828	12.0	17.7	295303	12.1	20.1	153739	12.2	20.3	123204	12.2	19.9
143745	11.9	20.1	91710	11.9	18.7	259768	12.0	20.6	191312	12.1	19.5	543692	12.2	21.1	214918	12.2	19.1
501310	11.9	21.0	383639	11.9	20.5	222571	12.0	18.9	109998	12.1	18.3	394015	12.2	18.9	408188	12.2	20.2
371610	11.9	20.3	114932	11.9	19.3	205735	12.0	19.7	265356	12.1	19.7	202690	12.2	19.8	351494	12.2	19.2
384270	11.9	20.3	356676	11.9	20.8	313470	12.0	19.5	151769	12.1	20.2	287912	12.2	20.2	333669	12.2	19.0
235809	11.9	20.7	370462	11.9	20.1	518786	12.0	21.0	83091	12.1	18.8	23985	12.2	17.5	381797	12.2	19.8
452628	11.9	20.0	433846	11.9	21.0	380171											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
100887	12.3	18.9	29790	12.4	17.4	434098	12.4	21.4	123273	12.5	18.7	525931	12.6	20.9	314479	12.7	20.7
320503	12.3	21.7	432828	12.4	21.3	358382	12.4	21.0	455690	12.5	21.1	505490	12.6	20.2	413281	12.7	19.7
440654	12.3	20.5	519122	12.4	21.4	529894	12.4	20.7	106405	12.5	18.7	128038	12.6	19.8	263960	12.7	20.1
175888	12.3	20.3	131684	12.4	19.6	427021	12.4	18.8	49614	12.5	18.3	509418	12.6	21.8	106333	12.7	19.2
57834	12.3	18.5	361432	12.4	19.9	148095	12.4	19.5	401941	12.5	19.2	82754	12.6	18.4	358039	12.7	19.3
472041	12.3	21.0	65832	12.4	18.0	428768	12.4	18.2	207380	12.5	18.9	91689	12.6	18.7	133290	12.7	19.7
93095	12.3	19.1	255106	12.4	20.0	29614	12.4	18.8	239932	12.5	19.8	102357	12.6	19.0	380815	12.7	19.5
60195	12.3	18.4	108279	12.4	18.7	175880	12.4	19.8	62989	12.5	17.8	253844	12.6	20.4	291641	12.7	20.0
327871	12.3	20.0	62611	12.4	18.4	174103	12.4	18.7	384081	12.5	21.0	526194	12.6	20.7	126400	12.7	19.6
509111	12.3	21.9	261286	12.4	20.2	362719	12.4	20.0	258171	12.5	19.5	361941	12.6	20.7	8555	12.7	17.7
380163	12.3	17.6	186341	12.4	19.6	507795	12.4	21.4	160095	12.5	17.7	40136	12.6	18.4	172429	12.7	18.3
107186	12.3	19.8	181264	12.4	20.0	294107	12.4	20.4	279454	12.5	19.9	20580	12.6	16.8	281501	12.7	19.8
93068	12.3	18.5	89889	12.4	19.1	540479	12.4	20.3	394394	12.5	18.7	192749	12.6	19.2	380292	12.7	21.1
37769	12.3	18.3	314139	12.4	20.9	120745	12.4	19.0	437116	12.5	20.1	451878	12.6	19.9	158380	12.7	19.3
148132	12.3	18.6	507483	12.4	21.0	186333	12.4	20.7	5136	12.5	16.0	140904	12.6	19.2	311480	12.7	19.0
418192	12.3	20.8	233570	12.4	19.1	141416	12.4	20.3	388404	12.5	20.5	107883	12.6	19.9	53364	12.7	17.3
102767	12.3	19.8	70269	12.4	18.4	195209	12.4	20.3	420000	12.5	20.9	465857	12.6	19.3	291792	12.7	20.8
206478	12.3	19.6	268217	12.4	20.1	256849	12.4	19.2	399208	12.5	21.2	10884	12.6	16.4	468321	12.7	21.8
267390	12.3	20.6	525390	12.4	20.6	249155	12.4	19.6	73151	12.5	18.7	459517	12.6	20.6	261877	12.7	20.1
494365	12.3	20.6	429123	12.4	19.1	120672	12.4	20.8	100420	12.5	19.8	92454	12.6	18.3	288995	12.7	21.1
6763	12.3	16.0	489085	12.4	21.3	477741	12.4	20.9	124175	12.5	18.7	108239	12.6	19.4	470380	12.7	19.8
159591	12.3	18.5	177384	12.4	19.7	37198	12.4	18.4	212339	12.5	20.4	15382	12.6	18.1	435684	12.7	20.7
282512	12.3	19.4	40917	12.4	19.1	474296	12.4	21.5	403262	12.5	20.9	474786	12.6	18.8	471752	12.7	20.4
292592	12.3	20.1	370092	12.4	19.8	512929	12.4	20.3	360692	12.5	21.0	280942	12.6	20.7	231289	12.7	20.8
286270	12.3	20.2	151046	12.4	19.4	268493	12.4	20.5	349202	12.5	19.3	499198	12.6	19.2	452579	12.7	21.4
251950	12.3	19.8	255860	12.4	19.9	356754	12.4	21.5	528777	12.5	21.9	420761	12.6	20.1	501737	12.7	20.0
533151	12.3	20.2	172107	12.4	19.2	361424	12.5	20.8	475172	12.5	20.0	266372	12.6	21.1	356385	12.7	20.6
286015	12.3	20.0	324453	12.4	21.3	475151	12.5	20.3	505508	12.5	19.7	471112	12.6	21.0	468419	12.7	18.6
305424	12.3	20.4	181518	12.4	21.0	457750	12.5	21.0	341317	12.5	19.4	228874	12.6	19.5	280286	12.7	20.6
8573	12.3	17.3	190047	12.4	19.4	240258	12.5	18.7	195580	12.5	19.0	408133	12.6	21.0	131914	12.7	19.0
115460	12.3	19.4	384996	12.4	20.1	283314	12.5	19.7	212750	12.5	19.5	431081	12.6	20.4	375785	12.7	20.5
343300	12.3	21.1	165204	12.4	18.7	66317	12.5	18.5	114862	12.6	19.3	357049	12.6	19.0	382095	12.7	18.9
340074	12.3	20.4	207492	12.4	20.5	389117	12.5	20.8	214507	12.6	19.2	170311	12.6	18.3	248088	12.7	19.0
120087	12.3	19.0	539706	12.4	20.3	166806	12.5	19.4	471201	12.6	20.4	376413	12.6	20.3	352445	12.7	21.8
294977	12.3	19.5	435576	12.4	20.6	235955	12.5	20.6	501856	12.6	21.4	28214	12.6	17.8	539879	12.7	19.6
427932	12.3	20.6	69772	12.4	18.3	303943	12.5	20.6	161280	12.6	18.5	88953	12.6	17.5	126895	12.7	18.6
208580	12.3	20.0	311401	12.4	20.1	225615	12.5	20.3	125458	12.6	16.5	117658	12.6	20.3	254959	12.7	20.1
377434	12.3	19.0	86142	12.4	18.0	512735	12.5	20.4	234242	12.6	17.2	417013	12.6	20.5	187340	12.7	20.1
384110	12.3	20.9	169220	12.4	20.2	83579	12.5	19.0	520557	12.6	21.6	342822	12.6	20.0	294695	12.7	20.2
506541	12.3	21.5	171500	12.4	20.3	248631	12.5	20.3	30970	12.6	17.9	533500	12.6	21.4	67318	12.7	19.1
477673	12.3	20.7	113725	12.4	18.0	31954	12.5	16.9	125228	12.6	19.5	398862	12.6	20.0	29934	12.7	17.9
424073	12.3	21.1	264352	12.4	19.6	152137	12.5	19.4	26898	12.6	18.5	286518	12.6	19.9	256104	12.7	20.3
150973	12.3	19.6	344401	12.4	20.1	447680	12.5	21.4	228316	12.6	18.2	31410	12.6	17.5	403228	12.7	20.5
39737	12.3	18.6	211090	12.4	20.5	204853	12.5	20.0	96938	12.6	18.4	127109	12.6	19.8	53289	12.7	18.5
243441	12.3	20.6	276955	12.4	19.9	531934	12.5	22.6	220750	12.6	19.6	336182	12.6	19.9	400458	12.7	21.8
27935	12.3	17.8	29968	12.4	18.0	277757	12.5	19.9	460364	12.6	19.3	439620	12.6	21.5	179437	12.7	20.0
499098	12.3	21.1	145840	12.4	19.1	472261	12.5	20.6	22631	12.6	17.6	123550	12.6	17.8	144867	12.7	19.2
539460	12.3	20.6	474069	12.4	19.7	362028	12.5	20.8	115388	12.6	18.7	251786	12.6	18.7	313116	12.7	21.1
520408	12.3	20.9	383927	12.4	20.0	358409	12.5	20.5	521266	12.6	21.7	478255	12.6	20.3	121501	12.7	18.5
126075	12.3	19.1	159011	12.4	19.5	263220	12.5	20.7	426844	12.6	21.5	374439	12.6	21.0	282950	12.7	18.7
320948	12.3	20.4	250746	12.4	18.6	182815	12.5	19.6	44267	12.6	17.4	321116	12.6	19.6	2922	12.7	17.5
91985	12.3	18.5	10333	12.4	16.7	232896	12.5	21.4	207308	12.6	20.8	337093	12.6	19.8	511618	12.7	20.3
302370	12.3	20.9	154527	12.4	20.3	519210	12.5	21.2	309167	12.6	20.3	419526	12.6	17.9	402173	12.7	19.3
479203	12.3	21.5	508333	12.4	19.6	199996	12.5	20.1	490738	12.6	20.5	128697	12.6	19.2	292358	12.7	20.6
299715	12.3	19.2	522400	12.4	20.6	412483	12.5	21.4	503101	12.6	21.3	434604	12.6	20.1	392647	12.7	20.4
31136	12.3	17.4	512948	12.4	20.4	430802	12.5	23.6	47114	12.6	18.0	155702	12.6	19.5	296315	12.7	20.2
113378	12.3	19.3	297605	12.4	19.9	138073	12.5	20.2	204252	12.6	19.8	423947	12.6	20.1	505589	12.7	22.3
19365	12.3	17.1	14135	12.4	17.0	36363	12.5	17.1	49690	12.6	18.3	504749	12.6	20.9	361695	12.7	20.2
114975	12.3	17.9	461435	12.4	21.1	101059	12.5	18.5	177102	12.6	19.4	435808	12.6	20.8	53403	12.7	18.2
180368	12.3	19.2	172111	12.4	18.9	533648	12.5	21.2	137510	12.6	18.6	309677	12.6	20.6	495595	12.7	21.9
245612	12.3	19.6	251859	12.4	20.2	85654	12.5	18.3	35118	12.6	17.9	249104	12.6	19.6	19069	12.7	17.8
361023	12.3	21.0	175516	12.4	19.5	346002	12.5	20.4	399228	12.6	21.5	254258	12.6	19.8	417445	12.7	19.6
119915	12.3	19.4	478058	12.4	21.0	82266	12.5	17.7	94167	12.6	19.3	355260	12.6	18.9	153766	12.7	18.3
534139	12.3	18.6	482430	12.4	20.7	340445	12.5	20.4	524695	12.6	20.2	131249	12.6	20.0	250447	12.7	19.3
133490	12.3	19.3	17319	12.4	17.5	189334	12.5	19.8	186282	12.6	20.2	192638	12.6	18.8	70697	12.7	17.8
533466	12.3	21.9	58673	12.4	18.2	320598	12.5	19.7	431074	12.6	20.7	437559	12.6	21.0	508844	12.7	21.6
164235	12.3	18.2	299799	12.4	20.2	376896	12.5	20.5	492622	12.6	20.8	319489	12.6	19.3	146487	12.7	18.4
265612	12.3	20.8	512409	12.4	20.3	475006	12.5	20.6	57517	12.6	17.6	161250	12.6	18.7	123575	12.7	18.5
90246	12.3	19.9	312176	12.4	19.2	5299											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
353914	12.7	20.1	501981	12.8	21.1	332358	12.9	19.4	534061	12.9	20.7	504603	13.1	20.2	342554	13.2	20.3
62882	12.7	19.5	131165	12.8	18.6	177019	12.9	20.3	296541	12.9	19.9	127341	13.1	19.0	39417	13.2	18.8
304601	12.7	20.1	540374	12.8	20.3	512732	12.9	20.1	79073	12.9	18.6	407952	13.1	20.5	275721	13.2	19.6
152416	12.7	19.2	57307	12.8	18.2	468800	12.9	21.6	61206	12.9	18.3	214568	13.1	18.9	533250	13.2	21.4
342603	12.7	19.8	39746	12.8	18.3	350573	12.9	20.4	42283	12.9	16.3	358034	13.1	21.1	421977	13.2	17.8
529257	12.7	21.2	263488	12.8	19.9	482389	12.9	19.9	78982	12.9	18.0	94697	13.1	17.2	412676	13.2	18.9
439137	12.7	20.3	295801	12.8	20.7	525348	12.9	20.8	359435	12.9	20.1	534002	13.1	20.3	423540	13.2	21.8
271061	12.7	20.3	380182	12.8	19.3	40639	12.9	17.6	255729	12.9	18.8	267756	13.1	19.1	52750	13.2	16.5
21012	12.8	17.6	432398	12.8	21.3	235873	12.9	21.2	257880	12.9	19.5	269990	13.1	19.2	480634	13.2	20.6
354691	12.8	18.9	140659	12.8	20.2	129314	12.9	19.3	64251	13.0	19.0	479835	13.1	20.3	338526	13.2	20.0
438965	12.8	20.0	208885	12.8	19.4	107233	12.9	20.1	28707	13.0	19.0	54272	13.1	18.8	108048	13.2	19.0
37824	12.8	17.4	475845	12.8	20.6	497409	12.9	21.8	91024	13.0	18.8	384900	13.1	19.6	430676	13.2	19.8
325825	12.8	20.2	158327	12.8	19.8	410403	12.9	19.9	509097	13.0	21.0	204404	13.1	19.3	122454	13.2	17.8
530052	12.8	20.7	429682	12.8	20.6	148448	12.9	19.9	225978	13.0	20.9	92657	13.1	17.0	526836	13.2	21.4
106055	12.8	18.6	177013	12.8	19.8	503397	12.9	21.0	325073	13.0	20.6	256484	13.1	20.5	479080	13.2	20.5
302429	12.8	20.5	248221	12.8	20.2	201526	12.9	18.4	362006	13.0	20.0	132033	13.1	19.6	498660	13.2	20.3
355817	12.8	20.8	241405	12.8	20.4	34994	12.9	19.4	250564	13.0	19.7	33661	13.1	18.0	190788	13.2	19.4
425459	12.8	21.1	309145	12.8	20.4	268930	12.9	20.2	329772	13.0	20.8	466615	13.1	21.4	94649	13.2	17.5
229539	12.8	21.1	124422	12.8	18.6	119040	12.9	18.3	281631	13.0	19.4	286739	13.1	20.2	536988	13.2	20.5
533362	12.8	21.0	216128	12.8	19.6	204981	12.9	20.6	439145	13.0	20.6	303888	13.1	20.2	174830	13.2	18.2
395083	12.8	20.1	282497	12.8	19.4	281244	12.9	20.4	270598	13.0	18.5	96563	13.1	19.0	256069	13.2	20.6
397451	12.8	20.0	50596	12.9	17.0	424119	12.9	22.3	120962	13.0	18.3	229505	13.1	19.1	395642	13.2	20.8
311410	12.8	20.4	475916	12.9	20.4	510875	12.9	22.2	19169	13.0	17.9	354878	13.1	20.7	425745	13.2	21.2
358753	12.8	20.9	289575	12.9	20.3	95461	12.9	22.1	49677	13.0	18.7	96524	13.1	18.1	393334	13.2	19.6
168799	12.8	19.5	295648	12.9	19.7	122966	12.9	17.7	504091	13.0	20.8	290038	13.1	19.3	83938	13.2	16.6
290444	12.8	20.6	171771	12.9	20.3	401500	12.9	20.5	420263	13.0	20.8	417460	13.1	19.1	357216	13.2	21.2
542354	12.8	21.5	540587	12.9	20.3	338624	12.9	19.2	433330	13.0	19.9	256688	13.1	19.4	467346	13.2	19.8
211203	12.8	19.1	22446	12.9	17.0	56487	12.9	17.5	346031	13.0	20.4	35257	13.1	16.6	270310	13.2	19.5
242702	12.8	19.2	61505	12.9	17.7	86190	12.9	17.7	518403	13.0	20.8	303908	13.1	21.1	536916	13.2	20.2
16183	12.8	17.0	181263	12.9	19.5	105289	12.9	19.0	409792	13.0	20.2	502056	13.1	20.3	360069	13.2	20.0
127315	12.8	19.8	65278	12.9	18.9	76206	12.9	18.5	525469	13.0	21.2	248154	13.1	19.1	519144	13.2	20.3
148662	12.8	19.4	140545	12.9	20.0	120148	12.9	19.6	128517	13.0	19.2	138590	13.1	18.3	233787	13.2	20.1
503302	12.8	21.5	234865	12.9	19.9	182397	12.9	22.9	328776	13.0	18.9	309884	13.1	19.5	431371	13.2	20.1
383316	12.8	20.4	247720	12.9	20.5	359372	12.9	18.5	213628	13.0	18.8	183466	13.1	17.9	103282	13.2	19.1
317763	12.8	19.1	250393	12.9	20.3	283232	12.9	19.9	387727	13.0	20.5	393872	13.1	19.4	512617	13.2	20.9
532906	12.8	22.0	31087	12.9	17.8	37044	12.9	17.8	538677	13.0	20.7	144665	13.1	19.1	482152	13.2	21.3
222623	12.8	18.9	181878	12.9	19.0	92094	12.9	18.7	425892	13.0	20.7	391712	13.1	20.8	321100	13.2	19.1
191962	12.8	19.6	69229	12.9	18.0	499880	12.9	20.8	153209	13.0	19.8	253194	13.1	18.6	461970	13.2	20.3
250723	12.8	20.4	398615	12.9	20.3	215133	12.9	18.5	303298	13.0	18.6	73658	13.1	18.5	61485	13.2	17.7
413331	12.8	19.6	379366	12.9	19.5	421185	12.9	20.6	477745	13.0	20.7	254399	13.1	19.5	505905	13.2	19.9
69760	12.8	18.1	95544	12.9	19.9	94268	12.9	19.2	512296	13.0	20.0	519909	13.1	19.6	528569	13.2	19.0
129582	12.8	18.1	106471	12.9	18.3	371889	12.9	20.1	32864	13.0	17.8	106330	13.1	17.7	249651	13.2	18.9
305845	12.8	21.1	480664	12.9	20.9	225822	12.9	18.9	388010	13.0	19.3	338815	13.1	19.9	513672	13.2	20.8
539690	12.8	20.1	159186	12.9	20.4	141027	12.9	19.8	151766	13.0	19.9	86788	13.1	16.7	299555	13.2	19.4
16439	12.8	16.9	212646	12.9	20.7	309802	12.9	19.1	40511	13.0	18.3	150819	13.1	18.5	503999	13.2	20.9
418147	12.8	21.8	307505	12.9	20.7	6925	12.9	16.0	104980	13.0	18.5	188658	13.1	20.1	54315	13.2	18.3
131917	12.8	18.7	507303	12.9	20.7	95125	12.9	17.8	188811	13.0	19.8	371899	13.1	21.1	502088	13.2	21.2
216859	12.8	20.5	485385	12.9	19.9	70317	12.9	18.4	427060	13.0	21.4	86933	13.1	17.9	540124	13.2	20.7
208541	12.8	19.9	471770	12.9	19.1	374398	12.9	21.4	383856	13.0	17.5	95427	13.1	18.8	176364	13.2	18.9
370942	12.8	19.5	308715	12.9	20.9	143361	12.9	19.7	304422	13.0	20.3	338716	13.1	19.4	143424	13.2	19.1
329805	12.8	18.8	359766	12.9	20.2	319695	12.9	20.6	64688	13.0	18.8	6940	13.1	17.0	286113	13.2	19.6
428346	12.8	20.9	432382	12.9	21.7	222726	12.9	20.2	457698	13.0	21.5	17642	13.1	18.1	296333	13.2	20.0
508264	12.8	20.9	331230	12.9	19.7	201725	12.9	19.9	91386	13.0	19.0	534106	13.1	20.4	125394	13.2	18.2
338628	12.8	19.5	396098	12.9	21.2	509023	12.9	21.1	404773	13.1	20.2	86130	13.1	17.8	319115	13.2	19.6
251985	12.8	21.1	541971	12.9	20.7	205621	12.9	20.2	485394	13.1	20.6	73901	13.1	19.5	488328	13.2	19.6
261137	12.8	19.5	285539	12.9	21.2	489959	12.9	20.0	89458	13.1	19.4	482108	13.1	19.5	392030	13.2	20.9
87529	12.8	18.1	321989	12.9	20.5	232505	12.9	19.0	446152	13.1	20.9	524989	13.1	19.6	261509	13.2	20.4
93568	12.8	17.8	369477	12.9	21.1	505485	12.9	20.7	290429	13.1	20.0	377721	13.1	19.5	479896	13.2	20.0
39571	12.8	17.4	289405	12.9	20.1	305448	12.9	20.8	493641	13.1	20.6	397779	13.1	20.5	187563	13.2	21.0
1046	12.8	14.8	429567	12.9	20.5	282928	12.9	18.7	381999	13.1	22.0	178108	13.1	19.9	179941	13.2	19.0
471466	12.8	20.4	442058	12.9	20.4	304536	12.9	20.9	290753	13.1	19.4	139306	13.1	19.3	120338	13.2	18.9
132196	12.8	19.6	188030	12.9	18.9	35743	12.9	18.9	205790	13.1	19.2	70586	13.1	18.8	427134	13.2	20.4
458985	12.8	19.2	514109	12.9	19.3	482345	12.9	20.5	188090	13.1	20.6	87218	13.1	17.9	87156	13.2	17.7
55779	12.8	19.2	470860	12.9	21.0	539499	12.9	20.5	277594	13.1	20.9	518399	13.1	20.5	303252	13.2	19.6
54448	12.8	18.5	503908	12.9	21.0	48125	12.9	17.4	40993	13.1	17.3	221013	13.1	19.3	34790	13.2	17.5
257419	12.8	20.6	415114	12.9	21.0	498043	13.1	21.2	505808	13.1	21.0	187319	13.1	19.7	478125	13.2	21.7
439443	12.8	21.3	258586	12.9	20.1	466108	12.9	22.4	141851	13.1	20.4	254259	13.1	19.8	375297	13.2	20.2
227349	12.8	19.8	9815	12.9	17.6	18778	12.9	16.5	31507	13.1	18.1	324980	13.1	20.6	520325	13.2	21.1
132032	12.8	19.5	296954	12.9	21.4	21918	12.9										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
103324	13.2	17.9	167955	13.3	20.1	243990	13.4	19.1	378677	13.4	18.9	317809	13.5	19.5	357747	13.6	20.5
245295	13.2	19.3	497371	13.3	20.3	37121	13.4	19.1	303192	13.4	20.8	355219	13.5	20.5	539399	13.6	20.4
483704	13.2	20.4	95823	13.3	18.4	85688	13.4	17.3	303275	13.4	19.4	350952	13.5	20.5	507353	13.6	21.3
425991	13.2	20.3	508367	13.3	19.8	174469	13.4	20.1	126363	13.5	18.4	182962	13.5	20.2	228480	13.6	19.0
370089	13.2	18.9	500933	13.3	19.5	468076	13.4	20.2	45925	13.5	19.1	269648	13.5	18.1	149130	13.6	19.8
513202	13.2	20.9	245817	13.3	20.3	387163	13.4	19.8	335594	13.5	20.2	398738	13.5	20.5	475007	13.6	20.2
305505	13.2	20.5	394674	13.3	21.9	50348	13.4	17.3	479222	13.5	21.6	419757	13.5	20.3	401091	13.6	20.8
361027	13.2	20.1	150954	13.3	20.2	475951	13.4	21.4	63347	13.5	18.8	192548	13.5	19.2	100500	13.6	20.2
353341	13.2	20.0	140664	13.3	19.7	507105	13.4	21.2	372492	13.5	19.0	42017	13.5	18.7	530895	13.6	22.0
186873	13.2	18.8	507470	13.3	20.9	505177	13.4	20.9	262796	13.5	20.7	498022	13.5	20.6	34207	13.6	18.3
186373	13.2	19.9	526255	13.3	22.1	533669	13.4	19.2	235323	13.5	19.9	510785	13.5	22.0	166282	13.6	19.9
230366	13.2	20.6	149182	13.3	20.7	44583	13.4	18.5	420158	13.5	21.1	499410	13.5	18.6	291045	13.6	20.7
308503	13.2	20.1	58817	13.3	19.3	481129	13.4	20.3	392627	13.5	19.9	527446	13.5	21.5	311384	13.6	20.5
217522	13.2	20.4	470932	13.3	20.2	420155	13.4	20.2	511975	13.5	20.5	156155	13.5	19.3	309922	13.6	20.3
430909	13.2	20.4	192809	13.3	18.7	524685	13.4	20.7	523806	13.5	24.4	153772	13.5	19.5	193582	13.6	20.0
150301	13.2	19.2	47146	13.3	18.2	538945	13.4	19.6	131281	13.5	18.6	365598	13.5	20.7	501393	13.6	21.0
105555	13.2	18.6	75330	13.3	19.4	405203	13.4	21.2	459221	13.5	21.3	305703	13.5	20.5	16155	13.6	17.4
401443	13.2	20.4	95165	13.3	19.0	106990	13.4	18.4	157185	13.5	17.0	536074	13.5	20.9	76508	13.6	19.0
540370	13.2	19.9	520927	13.3	20.9	436623	13.4	20.4	159503	13.5	18.9	438077	13.5	19.4	249808	13.6	20.4
152283	13.2	19.2	192505	13.3	19.8	416880	13.4	19.9	531878	13.5	21.2	296391	13.5	20.0	466426	13.6	19.0
202936	13.2	19.9	85935	13.3	19.3	74040	13.4	17.7	56032	13.5	18.5	370468	13.5	18.4	47536	13.6	18.8
14259	13.2	17.3	198152	13.3	19.4	118452	13.4	17.4	176581	13.5	19.9	139725	13.6	18.0	252929	13.6	19.6
645	13.2	14.3	481787	13.3	19.6	502346	13.4	20.2	529375	13.5	20.9	258917	13.6	18.8	286354	13.6	19.8
145533	13.2	19.7	130418	13.3	18.4	539177	13.4	20.2	399811	13.5	21.0	412963	13.6	20.0	363753	13.6	19.4
480608	13.2	20.1	507445	13.3	20.6	528361	13.4	20.5	100530	13.5	19.4	316673	13.6	20.6	288611	13.6	19.1
465923	13.2	20.3	490758	13.3	19.8	314142	13.4	19.7	6626	13.5	16.3	499882	13.6	21.4	253970	13.6	20.2
236798	13.2	18.9	338813	13.3	19.8	389614	13.4	20.0	382479	13.5	18.7	295231	13.6	19.7	140995	13.6	18.9
284967	13.2	19.1	65508	13.3	18.5	541040	13.4	20.3	210931	13.5	18.6	383278	13.6	20.5	270502	13.6	20.3
2494	13.2	15.1	117043	13.3	19.4	255868	13.4	19.2	529907	13.5	20.1	498913	13.6	21.5	336766	13.6	20.7
266985	13.2	19.6	7979	13.3	17.0	96473	13.4	18.8	380203	13.5	20.5	294224	13.6	18.6	194386	13.6	22.3
357777	13.2	20.8	55942	13.3	18.6	342299	13.4	19.7	168816	13.5	19.2	308743	13.6	20.7	446018	13.6	20.9
77216	13.2	19.4	35480	13.3	18.5	538374	13.4	21.5	509357	13.5	21.9	311966	13.6	20.7	494984	13.6	20.8
469951	13.2	20.4	538174	13.3	21.6	55573	13.4	17.7	391381	13.5	19.9	273973	13.6	20.4	469005	13.6	19.8
111686	13.2	19.1	121607	13.3	19.0	193516	13.4	18.3	32727	13.5	19.4	119654	13.6	19.4	303716	13.6	19.0
78181	13.2	18.7	175811	13.3	17.9	399852	13.4	20.6	382473	13.5	19.2	178209	13.6	19.2	70844	13.6	18.9
391121	13.2	19.6	162709	13.3	18.7	253379	13.4	20.1	125414	13.5	18.9	512782	13.6	20.9	74427	13.6	18.3
174522	13.2	20.1	206498	13.3	19.0	65978	13.4	18.7	100802	13.5	18.4	200208	13.6	17.4	527960	13.6	22.3
154625	13.2	18.5	525984	13.3	20.0	29516	13.4	18.2	319021	13.5	19.6	215917	13.6	20.6	261238	13.6	20.0
95563	13.2	18.4	128394	13.3	17.9	100877	13.4	19.4	428013	13.5	21.2	65199	13.6	19.6	7548	13.6	17.2
142143	13.2	18.6	539299	13.3	20.6	267214	13.4	18.3	64957	13.5	18.9	18675	13.6	16.6	241493	13.6	19.5
466652	13.2	20.4	524375	13.3	20.8	333901	13.4	17.6	362531	13.5	20.6	175589	13.6	19.7	496957	13.6	20.9
480702	13.2	20.3	283016	13.3	19.1	456704	13.4	20.2	359059	13.5	19.4	115331	13.6	20.2	157404	13.6	20.3
150669	13.2	20.6	355709	13.3	20.9	131202	13.4	19.5	287680	13.5	18.7	249637	13.6	18.1	66225	13.6	18.9
126031	13.2	18.9	251519	13.3	20.4	341237	13.4	20.3	382467	13.5	18.6	381171	13.6	19.4	229137	13.6	20.1
145695	13.3	19.9	325007	13.3	21.4	162638	13.4	18.4	221143	13.5	20.7	499971	13.6	20.9	539672	13.6	19.8
435848	13.3	20.8	505590	13.3	20.0	198130	13.4	18.9	359880	13.5	20.3	107767	13.6	19.4	373212	13.6	20.8
525441	13.3	21.1	380193	13.3	20.6	89415	13.4	18.6	90262	13.5	19.1	63836	13.6	18.4	509348	13.6	20.1
498496	13.3	20.7	338853	13.3	19.3	301087	13.4	20.5	182795	13.5	20.8	107040	13.6	19.7	505867	13.6	20.6
502874	13.3	21.1	141300	13.3	19.7	125043	13.4	20.0	32256	13.5	17.1	522878	13.6	20.7	73303	13.7	19.1
305416	13.3	20.5	522305	13.3	21.2	470393	13.4	20.8	115634	13.5	18.9	442589	13.6	20.4	292988	13.7	19.7
504559	13.3	20.3	477197	13.3	20.9	299269	13.4	19.8	22932	13.5	19.2	211564	13.6	18.1	380653	13.7	19.8
291682	13.3	20.4	422407	13.3	20.7	542385	13.4	20.0	536060	13.5	21.5	183137	13.6	18.9	463225	13.7	21.5
490668	13.3	20.3	418220	13.3	21.3	110332	13.4	17.7	525198	13.5	20.6	450419	13.6	19.5	120310	13.7	18.8
466093	13.3	21.5	509262	13.3	20.9	293769	13.4	19.7	167739	13.5	19.5	44854	13.6	18.3	395685	13.7	20.4
186962	13.3	19.8	156987	13.3	19.1	426941	13.4	20.2	181077	13.5	20.4	401477	13.6	21.5	312656	13.7	19.4
12628	13.3	18.2	144172	13.3	19.5	272716	13.4	19.8	409207	13.5	18.9	236566	13.6	20.6	133618	13.7	18.9
506725	13.3	19.6	235310	13.3	19.8	293954	13.4	19.7	247878	13.5	19.6	418139	13.6	21.4	278374	13.7	19.4
502662	13.3	21.5	235368	13.3	19.3	216110	13.4	19.2	534822	13.5	19.7	180122	13.6	20.4	306696	13.7	20.6
485379	13.3	21.0	234096	13.3	19.4	125524	13.4	19.0	243107	13.5	18.9	276158	13.6	19.9	11484	13.7	17.2
115120	13.3	18.9	358965	13.3	20.9	494400	13.4	20.6	510892	13.5	20.6	351987	13.6	20.5	192757	13.7	18.6
1639	13.3	14.1	188975	13.3	19.0	394681	13.4	20.7	287978	13.5	19.7	178599	13.6	19.6	386436	13.7	21.4
296177	13.3	20.0	102879	13.3	20.2	540420	13.4	20.8	353603	13.5	19.4	313946	13.6	19.2	398073	13.7	20.6
356972	13.3	20.2	306842	13.3	19.2	483127	13.4	20.3	359443	13.5	20.8	90755	13.6	17.6	193216	13.7	18.4
9335	13.3	16.5	60903	13.3	17.6	404450	13.4	20.5	305978	13.5	20.0	412419	13.6	20.4	88719	13.7	19.2
21453	13.3	18.1	37123	13.3	18.8	440310	13.4	19.7	304672	13.5	21.4	147688	13.6	19.0	530364	13.7	20.9
80727	13.3	19.7	380207	13.3	20.0	201775	13.4	19.6	512109	13.5	20.0	119464	13.6	19.9	338276	13.7	19.9
130100	13.3	19.6	99242	13.3	19.5	475897	13.4	20.3	303878	13.5	20.2	324221	13.6	20.3	359884	13.7	20.2
533422	13.3	21.3	374544	13.3	19.7	24028	13.4	18.7	480299	13.5	21.5	44739	13.6	17.0	527869	13.7	21.1
415321	13.3	19.6	204776	13.3	20.1												

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
400509	13.7	20.6	396065	13.8	20.5	258905	13.8	19.9	138890	13.9	19.0	228544	14.0	20.5	272331	14.1	20.3
250923	13.7	19.7	244643	13.8	20.1	470336	13.8	20.5	212104	13.9	20.2	349826	14.0	20.5	517661	14.1	20.9
342610	13.7	19.9	509706	13.8	19.8	55383	13.8	18.3	224232	13.9	20.6	288356	14.0	19.7	170184	14.1	18.0
205755	13.7	19.6	37092	13.8	17.5	115270	13.9	18.6	356881	13.9	19.7	469454	14.0	20.0	60524	14.1	18.3
328333	13.7	19.4	39902	13.8	16.5	526329	13.9	21.7	439418	13.9	19.9	4626	14.0	16.3	489753	14.1	21.3
424084	13.7	19.7	508186	13.8	20.1	387756	13.9	18.5	336187	13.9	20.3	227310	14.0	19.6	194133	14.1	20.0
49833	13.7	18.1	107821	13.8	20.1	334163	13.9	20.0	139161	13.9	19.4	45143	14.0	18.2	481242	14.1	21.5
36959	13.7	18.0	178351	13.8	20.1	210803	13.9	18.9	94765	13.9	17.6	48380	14.0	19.0	351925	14.1	20.5
525472	13.7	20.5	69659	13.8	18.8	489144	13.9	20.8	297708	13.9	20.1	212430	14.0	18.5	206093	14.1	19.5
285029	13.7	21.4	125708	13.8	19.1	374333	13.9	20.7	435825	13.9	20.6	182576	14.0	19.5	512800	14.1	20.7
452674	13.7	20.2	279110	13.8	19.5	140878	13.9	19.9	538156	13.9	20.5	299777	14.0	20.6	362644	14.1	20.1
146884	13.7	19.8	215960	13.8	20.1	363772	13.9	19.7	38719	13.9	17.0	405401	14.0	20.2	55317	14.1	17.9
225966	13.7	20.2	149759	13.8	19.3	245562	13.9	18.7	211545	13.9	18.1	87486	14.0	18.9	158270	14.1	18.4
41634	13.7	17.9	406413	13.8	19.6	354734	13.9	20.5	533240	13.9	20.2	155250	14.0	17.9	420518	14.1	21.6
479726	13.7	20.8	437046	13.8	20.4	532482	13.9	21.3	406327	13.9	20.1	11362	14.0	16.8	251572	14.1	19.4
112845	13.7	18.9	141275	13.8	19.2	46977	13.9	17.1	347524	13.9	18.6	105312	14.0	19.3	512699	14.1	19.9
498006	13.7	20.8	339486	13.8	20.8	394282	13.9	21.1	489931	13.9	19.4	196788	14.0	19.2	352513	14.1	20.2
478266	13.7	20.0	176782	13.8	19.5	74389	13.9	18.6	5809	13.9	16.6	521494	14.0	20.4	526410	14.1	20.7
335568	13.7	19.6	257041	13.8	20.4	494433	13.9	21.0	387991	13.9	20.1	18676	14.0	18.1	392976	14.1	20.5
71146	13.7	18.8	18127	13.8	16.6	90587	13.9	18.6	522741	13.9	20.0	289650	14.0	20.1	507388	14.1	19.8
250891	13.7	19.4	441374	13.8	20.8	343473	13.9	20.2	428282	13.9	21.8	40976	14.0	18.9	513690	14.1	21.5
66246	13.7	18.9	477671	13.8	20.1	51302	13.9	17.8	79029	13.9	19.0	106552	14.0	19.3	200603	14.1	19.0
537541	13.7	20.7	530942	13.8	20.4	231157	13.9	20.8	317521	13.9	19.4	535351	14.0	20.5	237452	14.1	19.4
380582	13.7	19.6	493111	13.8	18.7	239703	13.9	19.7	259049	13.9	20.7	191076	14.0	19.5	380584	14.1	19.0
262913	13.7	19.7	502277	13.8	20.4	531889	13.9	21.3	176466	13.9	19.8	116350	14.0	19.2	120772	14.1	19.9
503399	13.7	21.6	274581	13.8	19.6	534176	13.9	20.4	488446	13.9	20.2	395546	14.0	20.5	412647	14.1	19.4
513032	13.7	19.1	85726	13.8	18.2	203718	13.9	19.3	366536	13.9	19.5	238183	14.1	19.4	193916	14.1	18.9
412070	13.7	19.5	444291	13.8	20.1	317980	13.9	19.4	417291	13.9	20.7	59486	14.1	18.9	351559	14.1	20.1
283904	13.7	19.9	226037	13.8	20.1	440903	13.9	20.6	377691	13.9	18.9	130852	14.1	18.7	211925	14.1	19.9
347703	13.7	20.6	344081	13.8	20.4	37251	13.9	19.1	189609	13.9	17.7	475204	14.1	20.9	310452	14.1	18.1
26201	13.7	19.2	354828	13.8	19.3	104639	13.9	18.7	534275	13.9	20.2	389432	14.1	20.6	517214	14.1	20.4
140744	13.7	19.9	230094	13.8	17.7	485785	13.9	19.6	123495	13.9	19.1	7132	14.1	17.2	471337	14.1	20.0
462591	13.7	21.4	483388	13.8	20.9	216282	13.9	20.0	44345	13.9	18.1	384963	14.1	20.6	450998	14.1	19.4
468942	13.7	20.3	383960	13.8	20.4	477181	13.9	21.1	309695	13.9	20.7	397387	14.1	20.3	407790	14.1	20.9
312551	13.7	20.2	391110	13.8	20.3	64	13.9	11.5	392414	13.9	18.1	103156	14.1	19.2	86215	14.1	18.4
298816	13.7	18.8	81956	13.8	18.3	285143	13.9	19.7	263406	13.9	20.5	77383	14.1	19.5	380069	14.1	19.8
338140	13.7	20.3	539569	13.8	20.3	4412	13.9	16.1	422970	13.9	21.2	461142	14.1	20.5	513064	14.1	20.6
500931	13.7	20.8	263293	13.8	19.4	371723	13.9	20.6	173749	13.9	19.4	298772	14.1	18.8	177852	14.1	19.0
143993	13.7	19.3	121204	13.8	17.8	337059	13.9	21.1	305590	13.9	19.1	14896	14.1	18.9	159192	14.1	19.4
22770	13.7	17.7	308342	13.8	19.5	31289	13.9	17.7	406608	13.9	20.3	231569	14.1	19.4	462191	14.1	20.2
172848	13.7	20.2	510654	13.8	21.5	20793	13.9	17.7	305430	13.9	20.0	523710	14.1	21.8	153264	14.1	21.2
408061	13.7	20.4	538078	13.8	20.4	45977	13.9	18.5	487662	13.9	20.0	316801	14.1	18.7	18759	14.1	15.9
211347	13.7	19.9	433483	13.8	20.5	3201	13.9	16.6	7238	13.9	15.6	253677	14.1	19.6	291687	14.1	20.4
380898	13.7	20.4	429550	13.8	21.1	476299	13.9	20.9	255738	13.9	19.4	93725	14.1	18.9	537888	14.1	20.8
138863	13.7	20.4	75501	13.8	19.1	301072	13.9	20.6	293134	13.9	20.3	323733	14.1	21.1	296880	14.1	20.1
338059	13.7	19.5	405871	13.8	20.4	415103	13.9	21.0	82126	13.9	18.8	20100	14.1	17.9	307804	14.1	19.9
360577	13.7	18.5	229575	13.8	20.1	47407	13.9	18.4	129680	13.9	18.8	15892	14.1	17.2	403298	14.1	21.4
150143	13.7	19.2	183962	13.8	18.8	56058	13.9	18.1	478314	13.9	20.8	105523	14.1	18.2	80512	14.1	19.8
396050	13.7	20.8	159379	13.8	20.4	205679	13.9	18.2	315406	13.9	19.1	416448	14.1	19.2	123691	14.1	19.0
281599	13.7	19.4	156286	13.8	18.3	469568	13.9	19.9	525089	13.9	20.8	262486	14.1	19.6	536948	14.1	20.7
18104	13.7	16.7	538450	13.8	21.8	211247	13.9	20.2	499737	13.9	19.2	254380	14.1	19.6	317974	14.1	20.8
353660	13.7	19.7	482165	13.8	20.6	245743	13.9	19.6	434567	13.9	19.9	188922	14.1	20.4	184005	14.1	20.5
436884	13.7	20.6	316059	13.8	20.4	502457	13.9	20.5	387080	13.9	20.5	164451	14.1	17.0	360025	14.1	19.9
83880	13.7	17.9	255481	13.8	18.7	179042	13.9	18.1	162498	13.9	18.3	436171	14.1	21.0	476993	14.1	21.2
277220	13.7	18.9	120582	13.8	19.1	358417	13.9	21.1	153239	13.9	19.2	204626	14.1	19.2	474095	14.1	20.3
406917	13.7	20.2	439647	13.8	21.2	89110	13.9	19.2	138827	13.9	19.1	540859	14.1	20.9	12752	14.1	18.4
409322	13.7	19.5	530443	13.8	20.6	519118	13.9	20.3	289414	13.9	20.9	41482	14.1	18.4	540647	14.1	20.1
387431	13.7	19.3	297202	13.8	20.0	32417	13.9	18.4	477710	13.9	18.8	311538	14.1	20.8	467380	14.1	19.3
127894	13.7	19.7	470296	13.8	20.5	358405	13.9	20.4	109788	13.9	18.8	422347	14.1	20.8	125363	14.1	18.1
31739	13.7	17.9	153067	13.8	18.6	103641	13.9	18.9	58272	13.9	19.0	290462	14.1	20.5	457717	14.2	21.7
312445	13.7	20.9	234334	13.8	21.2	533234	13.9	20.9	158963	13.9	19.8	270363	14.1	20.9	23348	14.2	16.9
161942	13.7	19.0	125343	13.8	19.3	208242	13.9	18.9	234349	13.9	20.0	165105	14.1	19.9	19788	14.2	17.6
64576	13.7	17.3	182929	13.8	19.9	475522	13.9	20.7	46365	13.9	18.9	375225	14.1	19.1	215237	14.2	19.1
22511	13.7	18.4	404649	13.8	19.8	297559	13.9	19.3	437780	13.9	19.8	245477	14.1	19.5	243053	14.2	19.1
394256	13.7	20.6	182898	13.8	20.9	466130	13.9	23.9	264173	13.9	19.8	476813	14.1	21.6	330456	14.2	20.5
472234	13.7	21.1	289247	13.8	19.7	10416	13.9	19.0	519534	13.9	20.1	413829	14.1	20.5	533841	14.2	20.8
346772	13.7	20.2	12452	13.8	17.6	59390	13.9	17.8	379583	13.9	20.2	213919	14.1	18.1	41607	14.2	18.3
499087	13.8	21.4	392680	13.8	20.9	512681	13.9	20.1	297245	13.9	20.1	302427	14.1	21.0	91049	14.2	17.9
205539	13.8	19.3	367105	13.8	18.5	121771											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
310410	14.2	20.5	142363	14.2	19.3	395949	14.3	20.6	478856	14.4	20.6	527999	14.5	20.4	145421	14.6	18.7
160228	14.2	21.6	493594	14.2	20.4	234769	14.3	19.4	41672	14.4	17.4	444937	14.5	21.9	295198	14.6	20.7
248548	14.2	19.6	344479	14.2	19.7	8497	14.3	17.2	498480	14.4	20.8	250882	14.5	19.9	294380	14.6	20.8
364052	14.2	20.3	480525	14.2	20.1	437507	14.3	20.2	370129	14.4	20.2	276900	14.5	20.1	474580	14.6	21.3
504588	14.2	20.8	184061	14.2	21.0	429380	14.3	19.8	18055	14.4	18.2	153834	14.5	19.1	290274	14.6	20.7
467630	14.2	21.1	478578	14.3	20.0	328910	14.3	20.0	518306	14.4	20.3	94236	14.5	17.5	490001	14.6	21.5
211162	14.2	20.2	45873	14.3	18.4	23610	14.3	18.4	488884	14.4	21.4	200866	14.5	20.4	183669	14.6	18.6
37808	14.2	18.0	139617	14.3	18.3	528881	14.3	21.3	155874	14.4	19.3	457729	14.5	20.6	128473	14.6	19.2
23452	14.2	16.5	63087	14.3	17.8	506398	14.3	19.7	521216	14.4	21.3	3159	14.5	15.6	510560	14.6	19.4
106974	14.2	19.4	21772	14.3	16.3	504103	14.3	20.5	99237	14.4	19.6	503554	14.5	20.8	527041	14.6	21.3
39250	14.2	18.4	10834	14.3	16.9	34082	14.3	17.6	212838	14.4	19.9	535905	14.5	20.6	52182	14.6	18.2
395680	14.2	20.2	391709	14.3	20.2	124960	14.3	19.5	115102	14.4	18.5	341124	14.5	19.5	380649	14.6	20.1
207497	14.2	19.7	506337	14.3	20.2	502160	14.3	19.9	379796	14.4	21.1	513078	14.5	20.0	410322	14.6	20.5
152546	14.2	18.7	502142	14.3	21.1	212121	14.3	19.5	540509	14.4	20.6	363034	14.5	18.7	57743	14.6	16.9
429708	14.2	21.0	520957	14.3	20.3	427991	14.3	20.6	261408	14.4	19.8	468221	14.5	19.7	215164	14.6	20.5
316562	14.2	19.1	192764	14.3	18.9	378367	14.3	20.5	329828	14.4	20.6	469969	14.5	21.3	499174	14.6	21.6
353953	14.2	19.3	350097	14.3	20.0	536726	14.3	20.2	272750	14.4	19.6	71035	14.5	18.0	510411	14.6	20.7
417482	14.2	20.8	501982	14.3	20.3	427513	14.3	20.4	250565	14.4	18.5	112142	14.5	17.9	475803	14.6	21.1
293295	14.2	20.9	475122	14.3	20.4	421347	14.3	20.7	276811	14.4	19.9	421703	14.5	19.6	45234	14.6	17.7
145417	14.2	17.9	376960	14.3	21.1	88925	14.3	17.8	151303	14.4	19.8	367289	14.5	20.2	56004	14.6	18.5
358784	14.2	20.0	455282	14.3	20.9	432460	14.3	21.1	318585	14.4	20.0	536149	14.5	21.0	111573	14.6	18.6
91097	14.2	19.8	122448	14.3	18.2	45852	14.3	19.0	156003	14.4	18.2	293017	14.5	20.0	499624	14.6	21.2
183286	14.2	19.7	504752	14.3	20.3	227412	14.3	20.2	476417	14.4	20.6	336925	14.5	20.1	317900	14.6	19.9
52066	14.2	19.5	436788	14.3	20.4	438956	14.3	20.4	21801	14.4	17.2	20706	14.5	16.4	8675	14.6	17.2
45891	14.2	18.5	352553	14.3	21.3	309878	14.3	18.8	517666	14.4	20.6	477698	14.5	19.9	14579	14.6	17.1
445365	14.2	19.8	183522	14.3	19.8	472954	14.3	21.3	413226	14.4	18.4	27502	14.5	18.5	501323	14.6	20.6
365072	14.2	20.7	240018	14.3	19.5	205986	14.3	19.8	490656	14.4	21.5	148090	14.5	19.7	228643	14.6	19.9
315242	14.2	20.8	120076	14.3	19.7	927	14.3	14.3	230102	14.4	20.6	396153	14.5	20.0	181206	14.6	20.5
370142	14.2	19.8	396505	14.3	20.9	499155	14.3	19.5	156988	14.4	17.8	18850	14.5	17.9	533463	14.6	20.6
255911	14.2	20.9	324995	14.3	20.6	482958	14.3	20.9	533770	14.4	20.8	252998	14.5	20.3	25187	14.6	17.2
457195	14.2	19.7	89925	14.3	17.8	480757	14.4	20.5	397430	14.4	20.1	227370	14.5	19.5	259184	14.6	19.7
167019	14.2	18.7	30912	14.3	18.8	225921	14.4	19.3	245974	14.4	19.0	100700	14.5	19.2	181491	14.6	19.7
62592	14.2	17.9	513735	14.3	21.1	398629	14.4	19.5	410234	14.4	19.1	43446	14.5	18.3	212715	14.6	19.3
306831	14.2	18.9	519811	14.3	20.8	19915	14.4	15.7	512560	14.4	19.6	438246	14.5	20.1	443781	14.6	20.7
123918	14.2	19.4	37186	14.3	16.5	452807	14.4	21.0	291702	14.4	20.4	148455	14.5	20.1	68509	14.6	18.5
531697	14.2	20.5	182943	14.3	19.1	111606	14.4	19.8	351601	14.4	20.3	357538	14.5	20.3	300735	14.6	20.2
150871	14.2	19.6	33403	14.3	19.1	53062	14.4	17.4	245708	14.4	19.2	540977	14.5	20.9	54445	14.6	16.3
316701	14.2	21.2	129773	14.3	19.1	130838	14.4	17.3	49141	14.4	17.9	180170	14.5	19.2	285751	14.6	18.9
103076	14.2	18.6	118178	14.3	16.9	192539	14.4	18.7	444435	14.4	19.6	351962	14.5	21.0	543119	14.6	20.0
129402	14.2	18.9	3074	14.3	16.9	535858	14.4	21.2	18461	14.4	17.3	471687	14.5	20.2	471685	14.6	20.7
72732	14.2	18.7	98742	14.3	18.8	384132	14.4	20.5	297140	14.4	19.9	336708	14.5	20.0	331240	14.6	19.8
458741	14.2	20.2	164485	14.3	19.3	232261	14.4	19.8	248989	14.4	19.7	71947	14.5	18.2	70309	14.6	17.3
360269	14.2	18.7	379639	14.3	19.2	341231	14.4	20.0	185828	14.4	18.9	240576	14.5	19.4	311447	14.6	19.7
357138	14.2	21.4	373623	14.3	20.2	479242	14.4	21.0	198550	14.4	19.3	110997	14.5	20.0	257708	14.6	20.1
269022	14.2	20.1	25086	14.3	18.0	354344	14.4	18.9	99824	14.4	19.5	534286	14.5	19.8	56154	14.6	17.1
438815	14.2	20.7	56362	14.3	18.2	148775	14.4	19.1	303959	14.4	20.3	479871	14.5	21.3	540873	14.6	20.4
147386	14.2	19.5	315308	14.3	20.3	433640	14.4	20.4	301589	14.4	20.7	336357	14.5	18.3	296338	14.6	19.4
455926	14.2	19.7	111797	14.3	19.3	29135	14.4	16.6	472652	14.4	21.4	255421	14.5	18.8	497708	14.6	20.6
264649	14.2	19.0	455941	14.3	21.3	500202	14.4	21.7	286153	14.4	19.6	314156	14.5	19.9	402882	14.6	20.9
440352	14.2	19.4	318126	14.3	18.8	325097	14.4	20.6	254199	14.4	18.5	85433	14.5	19.7	56450	14.6	17.5
519268	14.2	21.0	22030	14.3	17.4	374330	14.4	20.4	439601	14.5	20.0	475272	14.5	20.5	529735	14.6	19.2
352567	14.2	20.7	251330	14.3	19.9	527414	14.4	20.6	490201	14.5	19.9	8607	14.5	16.9	125174	14.6	19.0
221997	14.2	18.1	23278	14.3	17.5	391645	14.4	21.4	190136	14.5	18.9	488987	14.5	20.6	238757	14.6	19.4
163363	14.2	20.4	490048	14.3	19.3	471668	14.4	20.5	246086	14.5	19.9	350044	14.5	20.4	177382	14.6	20.0
185855	14.2	19.3	186705	14.3	20.8	32906	14.4	16.4	295526	14.5	20.5	94623	14.5	20.2	245879	14.6	19.2
14242	14.2	17.5	439665	14.3	19.9	440951	14.4	21.9	334376	14.5	21.2	148454	14.5	18.0	478384	14.6	20.3
161672	14.2	18.2	244794	14.3	18.6	272392	14.4	20.9	362164	14.5	20.7	536826	14.5	20.2	104399	14.6	19.1
440967	14.2	19.7	507292	14.3	21.1	294929	14.4	19.2	466112	14.5	21.8	235380	14.5	19.3	185409	14.6	19.8
540346	14.2	21.6	501493	14.3	21.0	425831	14.4	20.8	249821	14.5	20.4	475926	14.5	21.0	503727	14.6	20.5
290660	14.2	20.0	237215	14.3	20.9	483818	14.4	22.3	204964	14.5	20.7	496926	14.5	19.6	436269	14.6	20.6
166169	14.2	20.3	349334	14.3	20.2	345737	14.4	20.8	56419	14.5	18.4	204496	14.5	19.4	340847	14.6	21.9
154798	14.2	18.8	535832	14.3	21.4	40608	14.4	18.2	417418	14.5	18.6	172132	14.5	18.3	226700	14.6	18.9
333487	14.2	19.5	213380	14.3	19.8	315135	14.4	20.8	36228	14.5	18.0	388312	14.5	21.2	214858	14.6	19.1
443264	14.2	20.7	472066	14.3	20.1	477662	14.4	20.0	431123	14.5	20.9	108511	14.5	17.2	174864	14.6	20.5
94238	14.2	20.2	198790	14.3	19.5	91532	14.4	17.7	32859	14.5	20.0	199261	14.5	19.0	287502	14.6	21.0
342821	14.2	20.8	311244	14.3	20.6	231259	14.4	19.7	133428	14.5	19.2	146790	14.5	19.4	272702	14.6	18.4
313110	14.2	19.4	435745	14.3	20.4	440605	14.4	20.6	297671	14.5	20.3	242809	14.5	19.9	255674	14.6	19.1
81518	14.2	17.6	418098	14.3	20.7	42991	14.4	18.1	173336	14.5	18.6	34653	14.5	18.2	355795	14.6	20.4
55803	14.2	17.8	510464	14.3	21.8	145834	1										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
497230	14.6	21.9	12778	14.7	17.1	72135	14.8	19.5	479255	14.9	20.8	267191	14.9	18.5	177022	15.0	20.0
537163	14.6	21.6	89850	14.7	19.2	460715	14.8	20.7	460840	14.9	19.9	111269	14.9	19.4	396121	15.0	20.3
252203	14.6	20.0	394781	14.7	20.4	503526	14.8	19.7	507068	14.9	20.7	106541	14.9	18.0	56473	15.0	17.5
199135	14.6	20.6	410792	14.7	21.0	420842	14.8	20.2	231410	14.9	19.1	330339	14.9	21.3	242550	15.0	20.6
324973	14.6	20.3	518667	14.7	20.0	61737	14.8	18.6	371007	14.9	20.0	9208	14.9	16.5	493599	15.0	20.9
419561	14.6	19.5	391046	14.7	20.3	119765	14.8	19.3	348499	14.9	19.2	46500	14.9	19.0	319232	15.0	21.0
454132	14.6	21.7	108998	14.7	18.1	202192	14.8	18.8	303709	14.9	19.6	475000	14.9	20.4	207692	15.0	18.8
113397	14.6	18.7	492526	14.7	20.8	474216	14.8	18.6	21482	14.9	17.5	223212	14.9	19.4	50003	15.0	17.3
29966	14.6	18.2	530840	14.7	21.6	262690	14.8	20.3	533899	14.9	20.0	279139	14.9	20.5	533599	15.0	20.9
113529	14.6	18.5	504600	14.7	21.2	441641	14.8	22.8	520196	14.9	21.0	537463	14.9	21.3	125538	15.0	18.3
126954	14.6	19.4	524449	14.7	20.0	430281	14.8	19.8	480514	14.9	20.2	193640	14.9	19.3	435700	15.0	20.6
121673	14.6	19.3	360141	14.7	20.3	266490	14.8	19.4	126817	14.9	19.4	361458	14.9	21.6	255260	15.0	20.2
44420	14.6	18.4	529428	14.7	21.3	453264	14.8	19.6	521518	14.9	21.1	513280	14.9	20.8	442845	15.0	21.0
494423	14.6	20.6	436904	14.7	20.0	4570	14.8	16.1	180139	14.9	19.1	417468	14.9	18.9	34878	15.0	18.3
274366	14.6	19.7	467064	14.7	20.7	8973	14.8	17.7	5133	14.9	14.7	412869	14.9	19.8	314590	15.0	19.9
132264	14.6	17.8	30812	14.7	17.4	213507	14.8	20.0	87228	14.9	17.7	222671	14.9	19.8	94719	15.0	18.4
129852	14.6	18.1	469819	14.7	20.0	217680	14.8	19.0	477589	14.9	20.0	382934	14.9	18.8	257470	15.0	19.4
521023	14.6	20.2	455549	14.7	20.7	522762	14.8	21.0	232019	14.9	19.2	234558	14.9	18.9	12380	15.0	17.5
120385	14.6	19.1	278775	14.7	19.2	473734	14.8	20.4	92938	14.9	18.6	5788	14.9	17.0	431474	15.0	19.9
525612	14.6	20.1	123231	14.7	18.6	169442	14.8	19.8	430907	14.9	20.1	112762	14.9	17.7	508143	15.0	20.2
85883	14.6	18.5	256564	14.7	19.9	229578	14.8	19.8	406838	14.9	20.1	410814	14.9	20.1	471120	15.0	21.2
457694	14.6	20.0	86200	14.7	19.1	370152	14.8	20.6	24410	14.9	16.4	363027	14.9	18.7	399833	15.0	20.0
202973	14.6	18.6	59149	14.7	18.8	542461	14.8	20.3	249823	14.9	20.1	372475	14.9	20.2	339496	15.1	20.8
258938	14.6	18.9	224256	14.7	19.3	95223	14.8	18.8	127968	14.9	19.2	143327	14.9	18.6	356375	15.1	19.0
379665	14.6	20.3	246872	14.7	20.2	429687	14.8	21.7	347661	14.9	19.2	326045	14.9	19.6	248957	15.1	19.4
367956	14.6	20.7	42205	14.7	17.9	301602	14.8	21.0	78608	14.9	17.5	510829	14.9	20.3	228623	15.1	20.3
233710	14.6	20.0	503469	14.7	21.2	254525	14.8	20.4	12434	14.9	18.6	76862	14.9	16.5	203741	15.1	19.7
359733	14.6	19.8	459619	14.7	20.5	250711	14.8	19.1	105398	14.9	18.3	285859	14.9	20.3	506788	15.1	20.9
88280	14.7	17.4	212057	14.7	19.6	294984	14.8	20.3	475835	14.9	19.6	436188	14.9	20.9	375904	15.1	18.5
316021	14.7	20.2	358426	14.7	20.2	278595	14.8	18.0	475218	14.9	19.9	312109	14.9	18.9	412155	15.1	20.7
103254	14.7	18.8	442537	14.7	20.0	254294	14.8	19.9	297575	14.9	18.8	432272	14.9	17.7	70244	15.1	19.0
443514	14.7	20.9	62706	14.7	17.3	358792	14.8	19.8	70856	14.9	18.4	207808	14.9	19.7	101483	15.1	18.3
395477	14.7	19.3	44999	14.7	18.5	77175	14.8	19.6	61462	14.9	17.9	313979	14.9	19.2	193668	15.1	20.1
237321	14.7	19.3	472238	14.7	20.5	239172	14.8	20.1	208576	14.9	19.3	277380	14.9	20.2	205778	15.1	19.7
355949	14.7	19.7	133365	14.7	18.8	247109	14.8	19.2	499773	14.9	21.5	172840	14.9	20.2	102841	15.1	19.0
161833	14.7	19.4	116322	14.7	19.6	355631	14.8	20.3	174060	14.9	18.8	474056	14.9	19.3	435805	15.1	20.1
115994	14.7	19.6	41764	14.7	18.5	177948	14.8	19.3	261914	14.9	20.9	396850	14.9	21.1	481314	15.1	21.0
154948	14.7	19.5	470803	14.7	19.1	230100	14.8	19.6	32701	14.9	18.0	522371	14.9	20.5	507486	15.1	20.8
504307	14.7	20.4	120596	14.7	18.6	530957	14.8	21.7	298770	14.9	18.5	358428	14.9	19.6	532938	15.1	21.2
460363	14.7	19.4	230876	14.7	19.4	62328	14.8	18.2	70318	14.9	18.3	102229	14.9	18.5	127723	15.1	19.2
522569	14.7	20.8	422813	14.7	21.6	231781	14.8	20.6	313982	14.9	19.9	144150	14.9	17.9	75541	15.1	17.8
55525	14.7	19.0	68681	14.7	18.7	378354	14.8	20.4	110238	14.9	19.9	296411	14.9	19.3	78681	15.1	18.2
433984	14.7	20.0	283907	14.7	21.3	393831	14.8	20.4	215772	14.9	19.9	120714	14.9	17.9	313692	15.1	19.7
258782	14.7	20.1	209107	14.7	19.4	88691	14.8	18.9	364848	14.9	19.3	527945	14.9	20.9	139957	15.1	18.8
373570	14.7	20.4	182788	14.7	20.4	153097	14.8	18.6	263575	14.9	20.5	146870	14.9	18.3	262874	15.1	20.1
370049	14.7	19.9	429145	14.7	21.2	97134	14.8	19.0	354843	14.9	20.7	524463	14.9	21.2	507837	15.1	21.0
45921	14.7	17.1	515244	14.7	20.3	277513	14.8	19.9	168050	14.9	18.6	403817	14.9	19.2	105011	15.1	17.3
186072	14.7	19.6	505594	14.7	21.6	467614	14.8	21.5	244701	14.9	18.0	304443	14.9	20.9	25194	15.1	17.9
244951	14.7	19.9	332382	14.7	20.2	101926	14.8	16.6	400219	14.9	21.2	290961	14.9	19.1	441368	15.1	21.1
540753	14.7	20.6	330710	14.7	19.4	81425	14.8	18.8	177086	14.9	19.2	85552	14.9	17.7	62997	15.1	19.1
503959	14.7	18.3	200275	14.7	19.4	19748	14.8	16.9	539580	14.9	20.4	5101	14.9	16.1	38397	15.1	17.3
510953	14.7	21.5	434240	14.7	21.1	435260	14.8	19.8	327709	14.9	19.9	295695	14.9	19.5	536274	15.1	22.3
356377	14.7	19.3	221350	14.7	19.4	57982	14.8	18.0	194977	14.9	19.4	19893	14.9	19.0	159085	15.1	20.2
313645	14.7	18.2	100942	14.7	19.2	498578	14.8	20.0	115444	14.9	18.7	341111	14.9	18.7	235353	15.1	19.6
114589	14.7	19.4	283879	14.7	20.5	423844	14.8	19.0	393987	14.9	20.3	483149	14.9	20.6	476421	15.1	21.5
131768	14.7	19.4	538486	14.7	20.7	223273	14.8	20.6	217324	14.9	19.3	140548	14.9	18.5	68983	15.1	17.9
237011	14.7	20.1	65621	14.7	18.7	234485	14.8	19.2	523168	14.9	20.5	525933	14.9	22.4	411909	15.1	20.7
373556	14.7	19.9	304428	14.7	19.8	274329	14.8	20.3	355133	14.9	19.7	407264	14.9	19.3	362805	15.1	20.6
126103	14.7	19.1	4653	14.7	16.3	259751	14.8	20.1	180384	14.9	19.9	56012	14.9	17.7	139199	15.1	20.0
101820	14.7	18.8	112024	14.7	17.7	94547	14.8	18.9	343458	14.9	20.1	280051	14.9	20.3	356807	15.1	19.9
59705	14.7	18.8	449970	14.7	20.1	519967	14.8	20.5	78479	14.9	18.2	275936	14.9	19.4	501090	15.1	19.3
160725	14.7	18.0	38832	14.8	17.2	45532	14.8	17.4	281473	14.9	20.7	214191	14.9	19.6	164080	15.1	19.3
300943	14.7	20.0	510815	14.8	20.6	149760	14.8	19.8	205945	14.9	20.0	259023	14.9	19.8	539769	15.1	19.9
256517	14.7	20.0	227402	14.8	19.3	390927	14.8	18.9	330693	14.9	20.2	505858	14.9	20.4	10891	15.1	17.6
146749	14.7	20.3	5739	14.8	17.1	303722	14.8	19.8	50797	14.9	18.4	263315	14.9	20.5	182858	15.1	19.5
439419	14.7	20.2	113014	14.8	18.9	422871	14.8	19.5	239655	14.9	21.0	231494	15.0	19.4	219969	15.1	20.2
476810	14.7	20.9	532680	14.8	21.3	489521	14.8	20.5	364345	14.9	19.1	251711	15.0	20.9	528395	15.1	21.4
57580	14.7	18.6	91237	14.8	18.2	106181	14.8	18.5	296174	14.9	20.9	168072	15.0	19.4	437327	15.1	19.3
542375	14.7	19.9	118114	14.8	19.2	27663	1										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
357877	15.1	20.7	341547	15.2	19.9	146958	15.3	19.4	400241	15.3	20.3	59794	15.4	18.4	420386	15.5	21.0
55530	15.1	17.6	195390	15.2	19.3	283100	15.3	19.7	27999	15.3	17.5	123484	15.4	19.6	154529	15.5	20.1
174873	15.1	19.9	216260	15.2	20.9	297238	15.3	20.6	392412	15.3	18.9	268875	15.4	20.4	146923	15.5	19.5
451884	15.1	20.5	196581	15.2	19.3	59640	15.3	18.1	68867	15.3	18.5	223608	15.4	17.6	387947	15.5	21.1
416740	15.1	19.9	119732	15.2	20.1	459032	15.3	20.0	40962	15.3	17.8	530857	15.4	20.3	443344	15.5	21.3
168873	15.1	20.1	377344	15.2	19.3	403892	15.3	19.9	428054	15.3	20.3	453879	15.4	20.1	421238	15.5	18.6
44423	15.1	17.6	140741	15.2	19.7	178214	15.3	20.0	104227	15.3	19.0	398475	15.4	19.9	336173	15.5	20.0
16960	15.1	16.7	305808	15.2	21.0	398565	15.3	20.7	494243	15.4	20.7	35961	15.4	17.5	475669	15.5	20.3
216308	15.1	20.7	107052	15.2	19.8	150520	15.3	19.8	442126	15.4	20.4	533252	15.4	21.1	413918	15.5	20.3
505576	15.1	21.6	51657	15.2	17.1	496507	15.3	20.2	292961	15.4	20.1	373456	15.4	19.2	507103	15.5	22.2
150590	15.1	20.2	335102	15.2	19.8	249620	15.3	18.8	353173	15.4	20.1	525353	15.4	21.3	39750	15.5	18.4
182818	15.1	21.2	205871	15.2	20.1	246393	15.3	19.7	474174	15.4	20.6	303842	15.4	20.2	198303	15.5	19.4
275590	15.1	18.0	540695	15.2	20.5	136421	15.3	19.7	245446	15.4	20.1	313125	15.4	18.8	510982	15.5	21.5
501717	15.1	20.9	129214	15.2	19.8	458126	15.3	21.8	534369	15.4	19.4	117	15.4	12.0	282683	15.5	19.1
377813	15.1	19.2	129394	15.2	18.6	531862	15.3	21.0	506530	15.4	20.7	180120	15.4	20.2	472073	15.5	20.7
212957	15.1	20.4	454633	15.2	19.6	266137	15.3	19.9	506985	15.4	20.2	414790	15.4	20.5	338053	15.5	19.5
227433	15.1	20.5	151006	15.2	19.3	162160	15.3	19.6	53609	15.4	18.0	466189	15.4	19.7	2027	15.5	15.5
155504	15.1	18.9	540556	15.2	20.0	373364	15.3	20.6	395902	15.4	20.7	303944	15.4	21.5	410264	15.5	19.3
419136	15.1	19.2	159269	15.2	19.5	321670	15.3	19.4	279762	15.4	21.1	178336	15.4	20.0	213579	15.5	18.6
395504	15.1	19.9	4739	15.2	16.6	342401	15.3	19.6	50594	15.4	18.1	437485	15.4	21.7	92989	15.5	18.3
177197	15.1	20.0	13028	15.2	15.8	425850	15.3	20.2	204675	15.4	20.2	425860	15.4	20.5	246061	15.5	19.9
522961	15.1	20.7	257244	15.2	20.5	11161	15.3	17.0	257170	15.4	19.7	93924	15.4	18.5	248479	15.5	19.1
165458	15.1	17.4	171802	15.2	19.6	142911	15.3	18.8	427263	15.4	19.4	119333	15.4	19.4	391684	15.5	20.9
374943	15.1	20.3	36389	15.2	17.4	320486	15.3	18.9	508935	15.4	19.4	200117	15.4	19.7	242678	15.5	19.5
414144	15.1	20.1	416216	15.2	20.0	469499	15.3	21.3	99207	15.4	19.5	47999	15.4	18.8	202991	15.5	20.1
365406	15.1	20.1	474874	15.2	19.3	473228	15.3	18.9	161610	15.4	20.9	517202	15.4	19.8	91106	15.5	18.8
16404	15.1	17.3	129086	15.2	18.8	259889	15.3	21.4	79045	15.4	18.2	417840	15.4	21.9	284571	15.5	20.0
302265	15.1	20.8	382896	15.2	19.1	278240	15.3	21.0	212440	15.4	19.6	175340	15.4	19.9	175258	15.5	20.7
396381	15.1	19.8	464091	15.2	19.7	188553	15.3	18.8	170747	15.4	19.8	406473	15.4	19.6	126540	15.5	19.8
162342	15.1	19.0	141129	15.2	20.3	440668	15.3	19.9	423500	15.4	20.3	374575	15.4	19.5	198188	15.5	19.0
441347	15.1	21.4	392710	15.2	19.1	315213	15.3	19.6	123462	15.4	19.2	408272	15.4	20.2	294565	15.5	20.6
47305	15.1	18.8	504813	15.2	20.3	377347	15.3	19.7	124881	15.4	18.7	256966	15.4	19.8	506224	15.5	20.6
89340	15.1	18.6	129664	15.2	17.5	436283	15.3	20.3	34222	15.4	18.6	311133	15.4	19.6	522268	15.5	21.0
86877	15.1	18.7	356890	15.2	20.4	476261	15.3	20.6	334845	15.4	19.7	412226	15.4	20.6	130920	15.5	19.7
321233	15.1	19.6	362047	15.2	21.3	66661	15.3	19.3	465742	15.4	19.7	54380	15.4	17.7	223277	15.5	19.9
472140	15.1	20.9	438176	15.2	20.1	403326	15.3	20.2	525312	15.4	21.0	72932	15.4	18.1	499417	15.5	20.6
507076	15.1	21.2	22843	15.2	18.2	430213	15.3	18.6	198813	15.4	19.9	64706	15.4	19.4	403236	15.5	21.0
346050	15.1	20.4	229345	15.2	19.3	398429	15.3	20.4	267037	15.4	19.8	67970	15.4	18.6	70943	15.5	19.0
161375	15.1	18.1	506493	15.2	18.8	512494	15.3	20.4	15283	15.4	16.7	105299	15.5	17.7	336434	15.5	20.2
439094	15.1	20.9	352112	15.2	20.6	334886	15.3	19.9	452619	15.4	20.1	17800	15.5	16.0	248061	15.5	19.5
55418	15.1	17.7	32022	15.2	18.6	175858	15.3	18.5	87349	15.4	17.5	526795	15.5	23.0	403444	15.5	19.5
29669	15.1	17.5	43907	15.2	17.3	71732	15.3	18.3	472315	15.4	20.5	526440	15.5	21.5	534951	15.5	21.0
121731	15.1	18.7	75346	15.2	19.3	398271	15.3	20.1	463454	15.4	21.3	512591	15.5	19.4	287548	15.5	20.6
157401	15.1	19.7	512859	15.2	20.6	60003	15.3	17.3	484724	15.4	20.8	15714	15.5	16.9	17588	15.5	19.0
520513	15.1	21.2	31746	15.2	17.5	429609	15.3	19.6	444618	15.4	20.1	510124	15.5	20.5	367129	15.5	20.0
177909	15.1	19.7	164812	15.2	20.0	188467	15.3	18.1	176349	15.4	19.4	320550	15.5	19.2	17140	15.5	18.2
115700	15.1	18.4	339563	15.2	20.7	432887	15.3	19.9	380863	15.4	20.3	294586	15.5	20.5	140353	15.6	19.0
70479	15.1	19.3	525930	15.2	19.9	240300	15.3	19.8	376732	15.4	20.1	462548	15.5	21.1	9690	15.6	16.4
488934	15.1	20.0	482380	15.2	20.9	95758	15.3	19.6	531973	15.4	22.3	377687	15.5	21.0	228320	15.6	17.3
510081	15.1	19.6	31464	15.2	16.0	506852	15.3	20.0	20069	15.4	18.0	200260	15.5	20.0	242674	15.6	19.2
111030	15.1	19.3	281825	15.2	19.8	45273	15.3	18.5	216812	15.4	20.8	536238	15.5	20.1	436881	15.6	20.4
228326	15.1	19.6	481105	15.2	20.3	377640	15.3	20.3	233730	15.4	20.3	208631	15.5	18.8	263342	15.6	19.9
4071	15.1	16.1	144026	15.2	18.2	56203	15.3	17.6	68948	15.4	19.4	376440	15.5	19.8	291678	15.6	20.2
384874	15.1	20.6	473765	15.2	20.7	204938	15.3	19.9	238819	15.4	18.8	444682	15.5	20.3	248637	15.6	20.9
350672	15.1	19.9	13720	15.2	17.6	80907	15.3	19.8	317937	15.4	20.1	491270	15.5	20.8	98560	15.6	19.3
238986	15.2	20.4	396374	15.2	20.9	510870	15.3	21.1	108445	15.4	18.3	75831	15.5	19.4	100265	15.6	18.8
346756	15.2	20.8	16401	15.2	16.8	153941	15.3	20.1	415066	15.4	20.7	475060	15.5	20.2	11727	15.6	16.6
20263	15.2	16.8	35838	15.2	17.4	21491	15.3	18.9	407923	15.4	19.2	379623	15.5	21.1	83376	15.6	19.1
429231	15.2	20.8	20593	15.2	17.7	197573	15.3	19.9	326192	15.4	20.6	17682	15.5	17.3	424142	15.6	20.7
189565	15.2	19.0	437463	15.2	21.1	260952	15.3	19.7	482102	15.4	19.1	395613	15.5	20.5	427273	15.6	21.3
8310	15.2	17.0	36315	15.2	17.6	261283	15.3	19.4	335179	15.4	19.2	128760	15.5	19.7	46859	15.6	17.6
439867	15.2	20.4	308373	15.2	19.6	121272	15.3	16.6	162574	15.4	18.0	143564	15.5	20.0	62517	15.6	19.2
294659	15.2	20.8	160020	15.2	20.4	387157	15.3	20.3	537872	15.4	21.0	504596	15.5	19.7	182870	15.6	20.5
8927	15.2	16.4	413262	15.2	19.3	472728	15.3	21.1	17856	15.4	17.7	56795	15.5	19.9	369476	15.6	20.7
335534	15.2	20.3	348889	15.2	19.5	48491	15.3	18.0	211580	15.4	19.1	48794	15.5	19.0	246410	15.6	20.0
356634	15.2	20.6	109904	15.2	18.6	62314	15.3	18.5	15171	15.4	16.9	97987	15.5	19.4	60724	15.6	19.8
78071	15.2	18.4	40741	15.2	18.0	4929	15.3	16.4	457523	15.4	19.0	261462	15.5	19.7	227571	15.6	20.2
532262	15.2	20.9	504602	15.2	20.5	427960	15.3	20.8	199854	15.4	19.2	107288	15.5	19.8	502475	15.6	20.3
507424	15.2	20.4	468967	15.2	19.2	519031	15.3	20.5									

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
8464	15.6	16.0	147794	15.7	19.3	145665	15.7	19.0	347923	15.8	20.6	171014	15.9	20.0	299794	15.9	19.7
391050	15.6	20.6	398914	15.7	20.6	406393	15.7	18.9	416282	15.8	19.4	284836	15.9	20.4	5170	15.9	16.6
19973	15.6	18.1	364179	15.7	21.3	391362	15.7	20.4	469044	15.8	19.9	79014	15.9	18.6	240475	15.9	20.4
314149	15.6	19.3	276540	15.7	19.1	18310	15.7	18.2	273811	15.8	20.3	540731	15.9	19.7	203236	15.9	19.9
204406	15.6	19.3	116404	15.7	18.5	6879	15.7	16.5	146309	15.8	18.7	87588	15.9	17.4	446408	15.9	20.9
281107	15.6	20.5	12743	15.7	17.4	507430	15.7	20.0	507366	15.8	23.9	504104	15.9	21.3	514209	15.9	20.4
263341	15.6	19.8	212613	15.7	20.1	362259	15.7	20.1	23288	15.8	17.3	526737	15.9	20.8	76295	15.9	18.5
351914	15.6	20.2	167184	15.7	18.9	533403	15.7	21.2	485817	15.8	20.8	527883	15.9	21.6	413463	15.9	21.1
384562	15.6	21.2	313068	15.7	19.9	497377	15.7	19.7	128215	15.8	18.6	59959	15.9	18.6	514488	15.9	20.0
531577	15.6	20.0	3397	15.7	17.4	275869	15.7	19.6	507964	15.8	20.0	349491	15.9	21.4	29484	15.9	17.5
263185	15.6	19.7	354712	15.7	20.7	246937	15.7	18.8	434745	15.8	20.8	419472	15.9	19.8	266414	15.9	19.9
280308	15.6	19.3	167401	15.7	19.1	477946	15.7	21.4	506522	15.8	20.2	313434	15.9	20.1	505484	15.9	19.6
519781	15.6	21.7	425933	15.7	20.5	244599	15.7	19.6	17619	15.8	17.0	424149	15.9	20.9	20145	15.9	18.0
526772	15.6	20.7	431025	15.7	21.3	70870	15.8	18.4	115505	15.8	19.7	206803	15.9	19.7	292677	15.9	20.1
123726	15.6	17.9	309700	15.7	20.4	490734	15.8	20.0	520219	15.8	20.5	308143	15.9	19.8	474432	15.9	21.1
106357	15.6	18.7	519502	15.7	19.8	215870	15.8	20.4	235108	15.8	18.4	161382	15.9	18.7	39643	15.9	17.9
531839	15.6	21.0	113324	15.7	19.0	400454	15.8	20.5	510786	15.8	19.9	11051	15.9	17.2	393057	15.9	20.2
267447	15.6	20.3	289551	15.7	20.2	132094	15.8	19.3	376409	15.8	20.5	199341	15.9	19.6	272711	15.9	20.0
249678	15.6	20.5	431872	15.7	20.5	477200	15.8	20.0	173101	15.8	19.5	269652	15.9	18.8	236418	15.9	20.3
214990	15.6	20.2	298298	15.7	19.3	192272	15.8	18.8	512734	15.8	19.6	279308	15.9	19.7	235335	15.9	19.7
538832	15.6	21.2	107543	15.7	19.2	390438	15.8	19.4	269031	15.8	21.2	271732	15.9	20.1	463116	15.9	21.3
94313	15.6	17.7	360386	15.7	20.5	368944	15.8	19.7	389887	15.8	19.5	225837	15.9	20.4	431098	15.9	21.2
307155	15.6	20.1	87872	15.7	18.6	85975	15.8	18.7	450285	15.8	19.9	151393	15.9	20.0	505705	15.9	20.9
482967	15.6	20.9	1519	15.7	14.5	105621	15.8	18.0	21043	15.8	16.1	350699	15.9	19.7	328911	15.9	20.1
294697	15.6	20.4	391685	15.7	21.2	257520	15.8	19.1	510108	15.8	20.0	342356	15.9	19.3	106812	15.9	18.9
35378	15.6	17.8	195169	15.7	19.9	152319	15.8	18.7	401183	15.8	20.3	111817	15.9	19.0	60282	15.9	18.7
305346	15.6	20.5	396971	15.7	19.3	238747	15.8	20.1	102569	15.8	19.8	303376	15.9	19.7	233324	15.9	20.0
442529	15.6	20.7	379681	15.7	19.8	469056	15.8	20.4	106932	15.8	17.4	263397	15.9	19.8	473560	15.9	20.2
463216	15.6	23.0	506422	15.7	20.0	288381	15.8	21.0	494315	15.8	18.7	440881	15.9	20.4	337017	15.9	20.3
91261	15.6	19.2	429488	15.7	19.7	418146	15.8	20.5	437281	15.8	19.6	41175	15.9	19.0	429626	15.9	21.1
164453	15.6	19.2	46572	15.7	17.8	47154	15.8	18.1	526229	15.8	21.0	447030	15.9	18.1	186263	15.9	17.2
393850	15.6	20.3	475841	15.7	21.0	89657	15.8	18.8	492476	15.8	20.1	525213	15.9	20.7	251775	15.9	18.3
466761	15.6	20.1	255274	15.7	19.7	274465	15.8	19.9	387016	15.8	18.9	177644	15.9	18.9	467949	15.9	21.4
11596	15.6	16.5	162545	15.7	18.4	50586	15.8	19.3	250429	15.8	18.2	182101	15.9	19.5	433322	15.9	19.7
499102	15.6	21.3	291706	15.7	20.3	212806	15.8	20.2	380607	15.8	19.2	57125	15.9	17.6	213093	15.9	20.2
473137	15.6	20.4	489910	15.7	20.2	178310	15.8	19.3	480682	15.8	20.4	404202	15.9	20.4	275100	15.9	21.1
301391	15.6	20.3	412111	15.7	19.5	379703	15.8	20.7	15301	15.8	17.5	399877	15.9	19.8	506933	15.9	20.8
145374	15.6	19.0	477938	15.7	19.8	521037	15.8	20.0	507022	15.8	19.7	189185	15.9	20.1	278237	15.9	20.0
510824	15.6	21.8	212839	15.7	19.9	321069	15.8	19.6	250091	15.8	19.7	338692	15.9	19.0	497925	15.9	20.6
344467	15.6	18.8	132577	15.7	19.4	326020	15.8	20.2	537471	15.8	20.7	512961	15.9	20.2	5988	15.9	16.2
264977	15.6	20.3	58783	15.7	17.5	406430	15.8	20.4	189391	15.8	20.4	161683	15.9	19.7	386115	15.9	20.5
523521	15.6	20.0	31332	15.7	19.0	161351	15.8	19.1	468702	15.8	19.2	151402	15.9	19.6	272594	15.9	19.3
67770	15.6	18.0	214434	15.7	18.6	386291	15.8	20.4	359839	15.8	20.0	100605	15.9	18.1	164491	15.9	19.7
383882	15.6	19.8	10780	15.7	18.4	246473	15.8	20.0	255467	15.8	20.8	100404	15.9	18.4	256790	15.9	19.4
165247	15.6	18.6	408468	15.7	20.3	216869	15.8	19.4	396063	15.8	21.0	518223	15.9	20.4	224309	15.9	19.6
119761	15.6	16.9	149969	15.7	18.7	438200	15.8	19.2	66799	15.8	19.0	199275	15.9	18.8	180140	15.9	19.7
23647	15.6	17.4	398596	15.7	20.0	476542	15.8	20.8	248059	15.8	20.3	198061	15.9	18.9	142339	15.9	19.0
529823	15.6	22.5	437626	15.7	21.4	258981	15.8	18.6	466524	15.8	19.8	356710	15.9	19.8	434694	15.9	20.8
37578	15.6	17.0	4155	15.7	14.6	324485	15.8	20.6	155218	15.8	17.5	413483	15.9	21.4	225900	15.9	21.8
17576	15.6	18.1	426314	15.7	20.3	216342	15.8	19.6	427964	15.8	20.7	338855	15.9	20.1	434615	15.9	18.9
385337	15.6	20.4	510391	15.7	20.6	302460	15.8	20.5	427758	15.8	19.4	465316	15.9	21.2	231696	16.0	20.1
205882	15.6	19.9	94421	15.7	18.9	373528	15.8	20.2	34175	15.8	17.8	44325	15.9	18.4	168947	16.0	18.1
408951	15.6	21.3	412130	15.7	18.8	153098	15.8	18.7	495005	15.8	19.6	415122	15.9	21.3	522236	16.0	20.4
519161	15.6	20.5	462156	15.7	19.1	149152	15.8	19.8	303965	15.8	20.4	416447	15.9	18.4	107448	16.0	19.4
420384	15.6	21.3	155559	15.7	20.4	503720	15.8	20.2	479295	15.8	20.5	162126	15.9	18.6	268942	16.0	19.1
308429	15.6	19.9	298924	15.7	20.2	240660	15.8	20.7	206656	15.8	20.1	308059	15.9	20.0	28755	16.0	18.2
233784	15.6	19.2	269807	15.7	18.2	147676	15.8	19.4	543895	15.8	20.3	351544	15.9	20.8	42517	16.0	17.1
423788	15.6	20.3	397751	15.7	20.6	476296	15.8	20.7	269058	15.8	19.4	530340	15.9	22.1	277439	16.0	20.3
533096	15.6	21.2	172154	15.7	18.5	248322	15.8	19.1	216065	15.8	19.8	16507	15.9	16.6	524139	16.0	21.0
191123	15.6	19.8	502991	15.7	21.4	68213	15.8	19.0	526661	15.8	21.0	98618	15.9	17.9	335604	16.0	19.9
156525	15.6	19.2	431838	15.7	19.9	527990	15.8	22.1	290798	15.8	20.0	262453	15.9	20.7	47775	16.0	17.5
144657	15.6	20.7	428004	15.7	19.9	96184	15.8	16.4	401210	15.8	20.1	15014	15.9	18.0	284677	16.0	19.3
18846	15.6	16.8	512120	15.7	21.0	155736	15.8	18.9	398291	15.8	19.8	34476	15.9	16.8	409384	16.0	20.8
225887	15.6	19.0	113670	15.7	18.7	505919	15.8	21.5	254648	15.8	19.5	137586	15.9	20.2	221117	16.0	20.4
103494	15.6	19.7	463298	15.7	19.9	203337	15.8	19.4	376	15.8	12.2	504762	15.9	21.0	191129	16.0	20.0
512978	15.6	19.7	315338	15.7	20.1	530947	15.8	21.9	10305	15.8	16.1	507713	15.9	20.3	432355	16.0	20.1
304368	15.6	20.5	117225	15.7	19.0	33783	15.8	17.6	287909	15.8	19.0	219668	15.9	18.3	229	16.0	13.2
15857	15.6	17.3	391938	15.7	18.8	500120	15.8	21.2	408960	15.9	20.9	342844	15.9	20.2	87011	16.0	18.1
198221	15.6	18.8	153302	15.7	19.4	91697</											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
398270	16.0	20.0	161922	16.1	19.8	56757	16.2	17.6	519221	16.3	20.6	319324	16.3	19.9	480671	16.4	20.7
291188	16.0	19.1	223649	16.1	18.6	504990	16.2	21.4	57781	16.3	18.7	540940	16.3	20.6	115132	16.4	19.1
503312	16.0	21.3	257336	16.1	19.6	383331	16.2	20.6	240469	16.3	19.4	257611	16.3	20.6	503264	16.4	21.1
213779	16.0	20.1	236928	16.1	20.3	106698	16.2	19.9	399185	16.3	20.6	524425	16.3	19.4	472213	16.4	20.7
497932	16.0	19.9	389258	16.1	20.2	394841	16.2	20.0	524133	16.3	19.4	62275	16.3	19.0	251853	16.4	19.8
328140	16.0	21.7	525851	16.1	20.8	293707	16.2	19.2	250451	16.3	19.7	103241	16.3	16.8	376748	16.4	19.1
118193	16.0	19.0	329939	16.1	19.7	308984	16.2	21.2	466677	16.3	20.2	433515	16.3	19.5	427209	16.4	20.1
352584	16.0	20.8	424503	16.1	21.7	204691	16.2	19.5	89468	16.3	19.0	525024	16.3	19.9	528080	16.4	21.4
356718	16.0	20.4	199851	16.1	19.0	304502	16.2	20.2	47328	16.3	18.7	39967	16.3	19.6	425712	16.4	20.4
195063	16.0	20.8	41356	16.1	17.3	422831	16.2	20.9	350292	16.3	20.2	519209	16.3	21.0	178232	16.4	19.2
195463	16.0	19.2	377739	16.1	19.7	372562	16.2	19.6	283692	16.3	19.3	511145	16.3	22.5	233610	16.4	19.8
114692	16.0	17.9	363309	16.1	19.7	241435	16.2	19.9	262975	16.3	20.8	159260	16.3	20.0	537026	16.4	20.5
504980	16.0	20.7	371118	16.1	18.6	536767	16.2	20.2	92662	16.3	18.6	501080	16.3	19.6	127225	16.4	19.5
319569	16.0	20.9	181643	16.1	20.0	290926	16.2	20.6	146744	16.3	19.5	533081	16.3	21.5	21519	16.4	16.8
360510	16.0	18.9	222481	16.1	18.0	260159	16.2	19.9	143400	16.3	20.4	365497	16.3	19.4	178710	16.4	19.1
359709	16.0	20.8	21240	16.1	17.6	273937	16.2	19.6	180090	16.3	19.3	94374	16.3	19.1	480569	16.4	19.7
305432	16.0	20.5	173629	16.1	19.6	216476	16.2	19.0	69806	16.3	18.5	526818	16.3	20.3	63128	16.4	19.0
206362	16.0	17.5	49700	16.1	17.6	382973	16.2	20.4	293279	16.3	21.3	200318	16.4	17.9	500772	16.4	20.4
394011	16.0	19.9	75326	16.1	19.3	193686	16.2	19.5	216336	16.3	19.8	307066	16.4	20.3	15343	16.4	17.1
5616	16.0	17.7	338280	16.1	20.9	300159	16.2	20.2	69810	16.3	18.2	373617	16.4	20.8	269020	16.4	20.7
67801	16.0	18.6	235218	16.1	19.1	273838	16.2	20.4	172553	16.3	19.7	100702	16.4	17.4	356633	16.4	20.0
345035	16.0	20.2	238450	16.1	18.4	241904	16.2	19.4	321456	16.3	19.8	180010	16.4	19.4	197589	16.4	19.5
437011	16.0	20.4	99819	16.1	20.2	131660	16.2	19.1	530398	16.3	21.3	60870	16.4	19.2	377730	16.4	19.3
392688	16.0	20.1	213656	16.1	19.6	424006	16.2	20.4	65104	16.3	18.1	357960	16.4	20.2	324476	16.4	20.0
406343	16.0	19.5	435248	16.1	18.8	14492	16.2	16.1	523121	16.3	20.5	180552	16.4	19.3	419572	16.4	20.0
56905	16.0	19.0	488381	16.1	20.9	479100	16.2	20.9	367143	16.3	20.8	311467	16.4	20.0	281635	16.4	19.9
310891	16.1	19.6	398232	16.1	20.3	140750	16.2	19.8	112790	16.3	19.8	330883	16.4	19.9	206476	16.4	18.8
25443	16.1	18.8	534397	16.1	20.4	511964	16.2	20.3	19421	16.3	17.6	149417	16.4	19.7	37102	16.4	17.5
533377	16.1	21.1	380914	16.1	20.9	224769	16.2	20.1	442803	16.3	21.5	107751	16.4	19.5	439636	16.4	19.7
134295	16.1	19.6	145491	16.1	19.3	237090	16.2	19.9	381434	16.3	20.5	464	16.4	12.5	38347	16.4	17.8
183310	16.1	19.9	130118	16.1	18.9	41231	16.2	17.5	141832	16.3	18.6	330367	16.4	20.6	316796	16.4	18.8
537046	16.1	21.1	125939	16.1	18.9	67198	16.2	18.5	179660	16.3	18.6	444693	16.4	20.9	120092	16.4	20.2
372386	16.1	19.8	513235	16.1	22.1	477668	16.2	19.6	380741	16.3	19.6	57449	16.4	18.2	112291	16.4	19.1
20941	16.1	18.4	312455	16.1	21.3	303997	16.2	18.5	377631	16.3	20.0	502078	16.4	19.7	475838	16.4	21.5
267732	16.1	20.1	467515	16.1	20.2	431922	16.2	21.0	214200	16.3	19.7	73431	16.4	18.3	171504	16.4	19.9
352628	16.1	21.3	208619	16.1	19.5	406364	16.2	19.4	116003	16.3	18.6	376458	16.4	20.3	358322	16.4	20.3
305499	16.1	19.9	499291	16.1	21.0	39204	16.2	17.0	499354	16.3	20.8	206766	16.4	20.6	457513	16.4	19.7
370212	16.1	21.5	203412	16.1	19.8	21896	16.2	17.8	531995	16.3	21.1	355648	16.4	20.9	187990	16.4	19.2
54312	16.1	18.7	422677	16.2	19.3	188950	16.2	20.1	199471	16.3	19.5	307355	16.4	19.2	245595	16.4	19.4
62528	16.1	18.2	196720	16.2	19.1	51251	16.2	17.7	361031	16.3	20.8	242941	16.4	19.2	201537	16.4	19.2
187182	16.1	19.2	432276	16.2	21.1	106729	16.2	18.8	508546	16.3	21.1	102033	16.4	18.6	15994	16.4	17.0
502239	16.1	20.8	52611	16.2	16.8	43087	16.2	18.2	475679	16.3	21.0	303245	16.4	18.7	401370	16.5	19.1
360432	16.1	19.7	209443	16.2	19.2	530026	16.2	20.6	28360	16.3	17.3	330834	16.4	19.6	431802	16.5	20.3
36638	16.1	18.6	507065	16.2	20.4	16092	16.2	18.2	508670	16.3	19.7	489474	16.4	20.9	368677	16.5	19.0
394328	16.1	20.6	286341	16.2	20.5	430510	16.2	20.8	257155	16.3	21.1	288165	16.4	19.5	508298	16.5	20.5
163863	16.1	18.9	422505	16.2	20.0	95866	16.2	19.0	475791	16.3	20.5	7016	16.4	17.4	275030	16.5	19.3
107216	16.1	19.5	441023	16.2	21.0	86702	16.2	18.5	126469	16.3	19.5	191097	16.4	19.2	286303	16.5	20.4
212863	16.1	19.4	176421	16.2	19.7	289568	16.2	19.5	194304	16.3	19.7	228376	16.4	19.4	299480	16.5	20.4
305539	16.1	21.3	23507	16.2	17.8	82151	16.2	17.5	347107	16.3	20.7	533621	16.4	21.2	242296	16.5	20.3
125501	16.1	18.6	346663	16.2	20.8	477748	16.2	20.2	435758	16.3	18.9	512845	16.4	20.4	135742	16.5	23.2
95477	16.1	19.2	437002	16.2	20.9	327887	16.2	20.1	39663	16.3	18.5	203380	16.4	18.9	524306	16.5	21.2
466089	16.1	20.0	417239	16.2	21.1	36209	16.2	18.6	133312	16.3	18.2	119377	16.4	19.4	31477	16.5	18.0
404796	16.1	20.3	304389	16.2	20.6	178344	16.2	20.9	144200	16.3	19.3	306787	16.4	20.6	53980	16.5	17.3
365096	16.1	19.6	211141	16.2	20.1	293420	16.2	20.3	140465	16.3	19.2	128362	16.4	17.8	304728	16.5	20.9
260118	16.1	20.0	329974	16.2	20.2	175695	16.2	18.7	11861	16.3	15.3	436364	16.4	20.8	167691	16.5	18.2
184356	16.1	19.5	475896	16.2	21.4	266376	16.2	20.1	188567	16.3	19.0	442923	16.4	20.7	261540	16.5	19.9
95634	16.1	18.6	306119	16.2	20.0	505557	16.2	20.5	111574	16.3	19.1	248089	16.4	18.7	179047	16.5	19.2
353658	16.1	20.4	527964	16.2	21.5	365040	16.2	19.3	291488	16.3	20.0	384936	16.4	20.4	201624	16.5	19.7
472465	16.1	20.4	492699	16.2	19.9	475609	16.2	21.1	71773	16.3	18.4	375271	16.4	19.8	354779	16.5	19.8
501870	16.1	19.8	352617	16.2	20.9	440558	16.2	20.5	531395	16.3	20.0	436966	16.4	20.5	238332	16.5	20.0
482794	16.1	19.8	216469	16.2	20.5	432409	16.2	20.6	349741	16.3	20.6	455302	16.4	22.1	536609	16.5	20.5
423914	16.1	20.5	139069	16.2	19.6	503983	16.2	20.8	153671	16.3	20.2	531320	16.4	19.8	11794	16.5	17.2
382914	16.1	17.6	354803	16.2	20.1	81756	16.2	18.3	540737	16.3	20.6	505772	16.4	20.0	178335	16.5	20.7
98158	16.1	17.7	529833	16.2	20.1	205710	16.2	19.8	355856	16.3	20.9	494335	16.4	20.7	395501	16.5	20.8
442001	16.1	19.9	252181	16.2	20.2	168455	16.3	19.2	166243	16.3	19.5	143496	16.4	20.2	489383	16.5	21.3
278507	16.1	20.0	499913	16.2	20.7	272737	16.3	19.6	544249	16.3	20.2	294328	16.4	19.8	146905	16.5	19.7
524679	16.1	20.1	209287	16.2	19.4	176582	16.3	19.6	417587	16.3	20.8	85269	16.4	18.3	513012	16.5	20.4
384683	16.1	21.0	289428	16.2	20.2	512057	16.3	20.3	271747	16.3	19.8	145620	16.4	19.3	44835	16.5	19.1
126724	16.1	19.2	351924	16.2	20.2												

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
251795	16.5	18.9	85754	16.6	18.4	38987	16.6	18.4	277480	16.7	19.9	328139	16.8	20.5	474919	16.9	20.3
272816	16.5	19.8	195306	16.6	18.9	359479	16.6	20.2	262908	16.7	19.8	295841	16.8	20.8	538025	16.9	20.9
506995	16.5	20.5	126571	16.6	19.8	169745	16.6	18.6	499782	16.7	22.1	140992	16.8	20.3	342373	16.9	20.5
533690	16.5	21.2	302447	16.6	20.3	211276	16.6	19.0	261010	16.7	19.1	162608	16.8	18.1	408486	16.9	21.1
120114	16.5	19.3	540380	16.6	19.9	29262	16.6	16.8	537386	16.7	20.8	536694	16.8	21.9	519894	16.9	21.0
398434	16.5	21.0	250278	16.6	21.0	361555	16.6	19.0	214456	16.7	20.2	396647	16.8	21.1	266678	16.9	18.5
311974	16.5	20.0	59810	16.6	18.9	359654	16.6	19.7	344578	16.7	20.5	54939	16.8	17.1	528100	16.9	21.7
20866	16.5	17.2	17899	16.6	17.1	333646	16.6	19.4	505548	16.7	20.7	248443	16.8	19.6	440559	16.9	20.6
506051	16.5	21.8	468812	16.6	19.3	73814	16.6	19.2	296996	16.7	20.9	45878	16.8	16.7	363278	16.9	21.3
477641	16.5	19.5	19189	16.6	16.3	142597	16.6	19.2	23848	16.7	17.3	161410	16.8	18.8	534783	16.9	21.0
475556	16.5	20.3	204504	16.6	21.3	523545	16.7	20.8	140544	16.7	18.9	100785	16.8	18.1	413157	16.9	20.3
221999	16.5	19.7	17991	16.6	18.0	274811	16.7	20.0	235950	16.7	19.7	235270	16.8	21.2	475295	16.9	19.9
414769	16.5	19.9	427581	16.6	23.7	40873	16.7	18.2	85383	16.7	16.5	294812	16.8	20.7	381155	16.9	20.2
205903	16.5	20.4	256700	16.6	20.7	256698	16.7	20.5	336313	16.7	19.5	476247	16.8	20.9	364077	16.9	20.3
351268	16.5	19.5	185803	16.6	20.8	192346	16.7	19.3	408615	16.7	20.1	57831	16.8	16.0	475354	16.9	22.6
423948	16.5	19.6	442956	16.6	21.0	118173	16.7	20.1	529384	16.7	21.3	385266	16.8	22.8	526300	16.9	22.1
202176	16.5	18.9	112799	16.6	19.1	102797	16.7	19.3	319847	16.7	20.3	477624	16.8	19.8	307800	16.9	18.9
95642	16.5	19.4	22094	16.6	17.2	85934	16.7	18.7	464841	16.7	21.2	275954	16.8	19.4	106757	16.9	18.8
540184	16.5	19.4	385462	16.6	20.9	25968	16.7	16.7	256569	16.7	20.0	151942	16.8	19.3	6259	16.9	17.1
232645	16.5	20.7	182817	16.6	19.1	415649	16.7	19.9	213104	16.7	17.8	485853	16.8	20.4	423569	16.9	20.5
20647	16.5	17.7	296434	16.6	19.7	143753	16.7	18.5	393635	16.7	20.0	169545	16.8	19.7	508633	16.9	20.2
105466	16.5	18.5	48024	16.6	18.4	389142	16.7	20.0	80786	16.7	18.7	475116	16.8	20.3	297586	16.9	19.3
123079	16.5	18.3	320627	16.6	19.8	308135	16.7	19.8	457556	16.7	20.4	306358	16.8	19.4	177018	16.9	19.1
325359	16.5	19.4	493614	16.6	20.4	150979	16.7	19.1	187321	16.7	18.9	528378	16.8	19.6	63907	16.9	18.2
38013	16.5	18.7	159759	16.6	18.2	69426	16.7	19.1	495911	16.7	20.1	161378	16.8	19.4	392	16.9	13.2
419689	16.5	20.2	168513	16.6	19.3	463240	16.7	19.9	99945	16.7	16.6	334807	16.8	19.6	280042	16.9	21.6
365082	16.5	21.1	24623	16.6	18.3	385132	16.7	18.4	505562	16.7	21.6	297732	16.8	20.2	519170	16.9	20.4
104012	16.5	19.5	474311	16.6	20.8	304482	16.7	21.3	423809	16.7	20.7	106472	16.8	18.4	91849	16.9	17.2
186363	16.5	19.4	99099	16.6	19.2	323061	16.7	19.1	268043	16.7	19.2	336210	16.9	20.0	289075	16.9	19.5
26282	16.5	16.6	119865	16.6	19.0	483192	16.7	20.6	284696	16.7	18.8	505939	16.9	20.2	191770	16.9	19.6
201641	16.5	20.7	306325	16.6	18.9	170926	16.7	20.7	193911	16.7	18.8	347538	16.9	21.3	308518	16.9	20.3
169800	16.5	19.2	540575	16.6	19.4	94505	16.7	20.0	273086	16.7	19.9	23199	16.9	18.6	435194	16.9	19.1
23098	16.5	17.8	536519	16.6	21.6	106389	16.7	19.2	7682	16.7	17.5	255720	16.9	19.2	239126	16.9	19.9
208336	16.5	19.3	421509	16.6	19.7	276156	16.7	19.7	419579	16.8	19.5	272941	16.9	18.9	432336	16.9	20.8
338816	16.5	19.7	21751	16.6	18.9	360078	16.7	19.3	422153	16.8	19.3	225556	16.9	18.0	56209	16.9	18.5
471034	16.5	21.0	533813	16.6	20.1	45439	16.7	18.6	62546	16.8	18.7	502894	16.9	21.6	254264	16.9	19.5
540816	16.5	20.8	155575	16.6	19.9	374968	16.7	20.7	183618	16.8	18.5	44238	16.9	16.8	326178	16.9	21.0
253935	16.5	20.1	537971	16.6	20.8	92713	16.7	18.6	104546	16.8	19.6	11489	16.9	16.1	335780	16.9	20.5
7678	16.5	17.6	129441	16.6	19.4	1031	16.7	14.3	110137	16.8	19.7	16906	16.9	19.0	177916	16.9	19.0
314150	16.5	20.7	71417	16.6	17.2	169409	16.7	19.9	463764	16.8	21.4	399066	16.9	19.8	361796	16.9	19.4
356739	16.5	20.7	17053	16.6	17.3	60026	16.7	18.8	86149	16.8	18.7	21333	16.9	18.3	187517	16.9	21.8
238273	16.5	18.3	2282	16.6	15.8	427476	16.7	20.9	267754	16.8	19.9	78397	16.9	19.1	298338	16.9	21.1
209071	16.5	18.5	479268	16.6	21.6	42072	16.7	17.1	86337	16.8	17.5	510778	16.9	20.0	479706	16.9	20.0
461002	16.5	20.4	275900	16.6	21.3	275215	16.7	20.4	415346	16.8	19.9	87335	16.9	18.6	273933	16.9	21.2
107091	16.5	18.2	131893	16.6	20.3	176543	16.7	19.7	393970	16.8	18.6	539861	16.9	19.6	307175	16.9	21.0
159039	16.5	20.7	519315	16.6	21.0	435844	16.7	20.2	286469	16.8	20.4	395635	16.9	21.0	210958	16.9	20.0
58095	16.5	18.6	254170	16.6	19.2	174867	16.7	20.4	492574	16.8	20.6	67260	16.9	17.9	198620	16.9	19.8
70515	16.5	17.9	269084	16.6	19.9	494458	16.7	20.2	391739	16.8	20.3	146914	16.9	19.2	501782	16.9	20.9
404126	16.5	21.1	118876	16.6	19.1	289649	16.7	20.1	230335	16.8	19.0	368914	16.9	20.0	158605	16.9	19.5
72306	16.5	19.2	467762	16.6	20.2	428765	16.7	19.5	191220	16.8	19.5	531625	16.9	21.2	465891	16.9	19.9
249687	16.5	19.7	149738	16.6	18.7	171318	16.7	19.1	434431	16.8	15.7	492276	16.9	21.5	276946	16.9	19.5
295910	16.5	20.2	323448	16.6	20.1	136069	16.7	19.2	126184	16.8	19.0	307561	16.9	20.1	355209	16.9	22.0
335813	16.5	20.1	406843	16.6	21.0	505723	16.7	20.7	11529	16.8	17.3	520090	16.9	20.8	291110	16.9	20.5
458012	16.5	22.1	524464	16.6	20.0	174506	16.7	19.9	147820	16.8	18.8	92070	16.9	19.5	206799	16.9	19.3
116597	16.5	18.9	506227	16.6	21.0	501219	16.7	19.2	78636	16.8	19.4	82111	16.9	18.4	22355	16.9	17.2
510648	16.5	19.6	482462	16.6	20.4	201632	16.7	19.7	20101	16.8	17.1	245184	16.9	19.7	536007	16.9	22.2
259569	16.5	19.8	246229	16.6	19.7	527520	16.7	20.5	377641	16.8	20.3	205796	16.9	19.1	420482	16.9	21.3
404624	16.5	19.9	427979	16.6	20.3	45027	16.7	18.7	16635	16.8	16.1	248613	16.9	21.0	265682	16.9	20.2
294734	16.5	20.2	533748	16.6	20.1	111710	16.7	19.3	394262	16.8	19.8	144975	16.9	17.9	94690	16.9	17.5
375535	16.5	19.9	466536	16.6	20.6	233415	16.7	20.1	90699	16.8	16.5	56124	16.9	18.9	313067	16.9	19.8
311368	16.5	20.4	474063	16.6	20.1	330131	16.7	20.5	94165	16.8	18.6	244434	16.9	20.2	95914	16.9	19.7
180771	16.5	20.3	10709	16.6	16.5	468801	16.7	19.0	276120	16.8	20.4	419706	16.9	19.6	154996	16.9	19.2
121340	16.5	17.9	343017	16.6	20.6	503344	16.7	21.1	467875	16.8	20.8	280326	16.9	19.6	384954	16.9	20.5
150145	16.5	20.7	281183	16.6	20.0	86013	16.7	18.3	518684	16.8	20.2	144871	16.9	18.9	25240	16.9	17.4
39982	16.5	17.5	383934	16.6	21.5	354332	16.7	21.7	139208	16.8	19.5	349358	16.9	20.0	384042	16.9	21.3
148695	16.5	19.2	502901	16.6	20.7	38899	16.7	18.8	114547	16.8	19.2	107690	16.9	19.5	324512	16.9	19.6
436235	16.5	20.4	106130	16.6	18.7	393086	16.7	20.3	480511	16.8	19.0	162522	16.9	17.7	363413	16.9	18.6
357220	16.5	20.2	337979	16.6	21.0	91984	16.7	18.4	311585	16.8	20.1	407718	16.9	20.7	471754	16.9	20.9
153737	16.5	20.2	530370	16.6	22.0	41076	16.7										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
348453	16.9	18.3	150898	17.1	20.4	347101	17.1	21.3	207158	17.2	20.4	432836	17.3	20.8	280068	17.3	20.8
70724	16.9	18.0	125921	17.1	19.6	470054	17.1	20.4	385828	17.2	20.0	57813	17.3	18.9	466999	17.3	20.6
327016	16.9	20.5	31204	17.1	17.9	225935	17.1	20.7	186863	17.2	18.1	512469	17.3	20.2	311463	17.3	19.8
250414	16.9	18.2	396974	17.1	20.5	1523	17.1	15.3	413447	17.2	20.0	65268	17.3	19.7	495388	17.3	20.1
532980	16.9	21.4	182096	17.1	20.1	63302	17.1	16.7	65908	17.2	17.9	387689	17.3	20.4	535863	17.3	18.4
521154	16.9	21.0	143616	17.1	20.2	434722	17.1	20.4	396344	17.2	20.5	137109	17.3	19.6	146765	17.3	19.7
31095	16.9	18.0	326918	17.1	20.1	534060	17.1	19.8	9641	17.2	17.3	34786	17.3	17.9	442987	17.3	21.6
94177	16.9	19.0	358395	17.1	20.9	10035	17.1	18.0	389762	17.2	20.4	347390	17.3	20.1	43486	17.3	18.9
272703	16.9	20.7	126640	17.1	19.6	196821	17.1	19.2	245309	17.2	20.6	428066	17.3	19.7	442470	17.4	20.8
386442	16.9	20.5	474774	17.1	19.9	250046	17.1	19.8	213626	17.2	19.9	537035	17.3	21.3	82731	17.4	18.0
399210	16.9	19.9	92079	17.1	18.7	534091	17.1	20.9	71894	17.2	18.3	509775	17.3	20.3	537210	17.4	22.0
258974	16.9	19.2	70581	17.1	17.1	453240	17.1	20.7	333830	17.2	20.1	309711	17.3	20.5	342317	17.4	21.2
304655	16.9	20.0	121635	17.1	17.9	341397	17.1	19.9	151787	17.2	20.0	408215	17.3	19.9	433994	17.4	18.5
8149	16.9	16.3	153371	17.1	18.8	382225	17.1	19.7	410338	17.2	20.6	146915	17.3	19.7	464489	17.4	20.9
297580	16.9	19.4	21949	17.1	18.0	14795	17.1	16.7	504991	17.2	19.6	461293	17.3	20.3	185282	17.4	21.0
508469	16.9	21.1	499961	17.1	22.0	357529	17.1	20.4	477718	17.2	20.7	445351	17.3	20.8	55191	17.4	16.4
77570	16.9	19.8	492733	17.1	20.9	150297	17.1	19.8	368957	17.2	20.5	308600	17.3	20.5	314676	17.4	19.5
236628	16.9	19.7	324493	17.1	20.9	232248	17.1	20.1	190029	17.2	18.6	126352	17.3	18.7	178380	17.4	20.2
512829	16.9	21.1	263896	17.1	20.7	361095	17.1	20.6	506245	17.2	20.7	69172	17.3	18.9	140102	17.4	19.6
183555	16.9	19.6	39538	17.1	19.0	503447	17.1	21.5	217569	17.2	19.1	68741	17.3	18.5	146919	17.4	19.5
161082	16.9	18.6	532289	17.1	20.9	358355	17.1	20.7	346649	17.2	20.4	473260	17.3	21.4	92196	17.4	19.1
343259	16.9	20.0	435669	17.1	20.9	305411	17.1	20.2	354777	17.2	19.8	505465	17.3	20.2	200492	17.4	19.6
258889	16.9	19.2	359501	17.1	19.7	392445	17.1	20.3	305516	17.2	20.4	145594	17.3	19.1	379377	17.4	19.7
475572	16.9	20.2	539770	17.1	21.4	910	17.1	14.5	268571	17.2	20.3	333488	17.3	19.4	201737	17.4	18.8
526343	16.9	21.5	21028	17.1	15.6	47023	17.1	18.9	332928	17.2	21.1	355628	17.3	21.8	60457	17.4	18.6
524994	16.9	19.4	539999	17.1	20.7	106242	17.2	18.8	332128	17.2	20.5	263514	17.3	20.1	83695	17.4	18.9
354833	17.0	20.0	355234	17.1	20.1	314000	17.2	19.5	308428	17.2	20.2	191325	17.3	19.5	156380	17.4	18.2
116653	17.0	19.1	239775	17.1	19.8	89772	17.2	18.6	253838	17.2	20.3	188068	17.3	18.7	250824	17.4	19.3
463956	17.0	18.8	38548	17.1	17.1	500875	17.2	21.5	91750	17.2	18.2	338246	17.3	19.0	127829	17.4	19.5
407671	17.0	20.4	33741	17.1	18.3	228385	17.2	20.0	462805	17.2	19.1	443537	17.3	20.8	262040	17.4	19.0
20288	17.0	17.7	208389	17.1	19.3	226644	17.2	18.2	205868	17.2	19.4	262981	17.3	20.5	147216	17.4	19.0
231778	17.0	20.5	522887	17.1	20.7	60364	17.2	19.0	368880	17.2	20.6	60667	17.3	19.7	17549	17.4	17.1
442063	17.0	21.0	188032	17.1	18.6	380887	17.2	19.9	293316	17.2	21.5	237016	17.3	18.6	489477	17.4	20.6
508606	17.0	18.6	359849	17.1	19.7	311573	17.2	18.7	423776	17.2	20.9	42123	17.3	19.6	94955	17.4	19.1
284066	17.0	20.2	387093	17.1	20.6	126478	17.2	19.5	505731	17.2	20.9	21540	17.3	17.7	540812	17.4	20.9
442951	17.0	20.4	531733	17.1	21.7	31869	17.2	16.2	499873	17.2	21.6	343443	17.3	19.8	457692	17.4	20.6
218898	17.0	19.4	222493	17.1	19.5	525269	17.2	19.3	349948	17.2	21.0	51629	17.3	18.7	120791	17.4	19.8
192864	17.0	18.6	446615	17.1	20.2	321228	17.2	19.6	355575	17.2	21.3	19296	17.3	18.5	436954	17.4	20.5
296973	17.0	20.0	130819	17.1	19.1	417527	17.2	19.5	304599	17.2	19.6	28782	17.3	18.5	375863	17.4	20.4
133899	17.0	17.8	440507	17.1	20.4	469946	17.2	22.6	203196	17.2	19.7	467784	17.3	18.7	193506	17.4	19.8
73970	17.0	17.6	126199	17.1	18.8	140055	17.2	19.3	240315	17.2	19.7	299437	17.3	21.0	248129	17.4	19.3
336679	17.0	20.1	302821	17.1	19.8	382439	17.2	20.8	3769	17.2	16.1	86693	17.3	19.2	247401	17.4	20.5
440527	17.0	20.5	499727	17.1	20.5	384446	17.2	20.0	255240	17.2	19.8	472217	17.3	20.7	107901	17.4	18.7
102390	17.0	17.6	223249	17.1	20.4	74854	17.2	19.3	213657	17.2	20.3	111567	17.3	19.1	408384	17.4	20.9
211039	17.0	20.1	59714	17.1	18.5	400245	17.2	18.5	251870	17.2	19.3	36995	17.3	19.2	155207	17.4	19.0
245230	17.0	18.1	539956	17.1	20.1	32152	17.2	18.1	245551	17.3	18.1	174664	17.3	19.1	280321	17.4	19.3
183414	17.0	19.7	193833	17.1	18.6	255292	17.2	20.8	151026	17.3	19.0	193734	17.3	20.0	425608	17.4	19.7
32917	17.0	19.0	533482	17.1	21.7	297674	17.2	19.4	51050	17.3	18.7	62687	17.3	18.9	317964	17.4	20.3
389566	17.0	20.0	131965	17.1	19.5	276092	17.2	20.9	474837	17.3	20.3	352459	17.3	20.0	149807	17.4	18.8
346366	17.0	19.1	533104	17.1	21.4	311224	17.2	21.1	367081	17.3	18.6	367884	17.3	19.4	501078	17.4	20.3
65988	17.0	18.9	464611	17.1	21.1	231901	17.2	19.8	167858	17.3	20.2	145297	17.3	19.5	157892	17.4	19.5
457639	17.0	21.3	512743	17.1	20.3	261011	17.2	19.7	320566	17.3	20.7	134244	17.3	20.1	26229	17.4	18.1
151472	17.0	19.9	183554	17.1	20.0	170243	17.2	18.4	273964	17.3	20.8	180426	17.3	19.6	318635	17.4	18.2
534204	17.0	20.8	474557	17.1	20.5	161616	17.2	20.1	472993	17.3	20.3	143471	17.3	19.1	478285	17.4	20.9
214814	17.0	19.9	316439	17.1	19.8	527486	17.2	19.6	293532	17.3	20.3	53218	17.3	18.7	419664	17.4	20.9
535809	17.0	22.0	183500	17.1	19.2	212413	17.2	20.2	414450	17.3	21.1	39707	17.3	18.6	124990	17.4	19.6
290126	17.0	19.2	510798	17.1	20.6	360398	17.2	20.4	508746	17.3	18.9	199621	17.3	18.9	532018	17.4	20.0
527337	17.0	20.9	152853	17.1	20.0	118031	17.2	18.5	486725	17.3	22.0	72148	17.3	17.9	295783	17.4	20.6
468745	17.0	20.6	211042	17.1	17.5	251501	17.2	20.2	362172	17.3	20.5	124403	17.3	18.4	253817	17.4	19.7
99804	17.0	19.3	125506	17.1	18.5	534546	17.2	19.9	281029	17.3	19.5	390943	17.3	21.2	296934	17.4	21.4
306730	17.0	18.9	248130	17.1	19.3	94576	17.2	17.6	117646	17.3	19.1	313715	17.3	19.6	536024	17.4	21.4
137831	17.0	19.9	331205	17.1	19.6	142128	17.2	19.1	520994	17.3	21.3	79043	17.3	18.0	392491	17.4	19.9
160954	17.0	18.7	311977	17.1	20.3	497579	17.2	21.7	443345	17.3	21.3	392927	17.3	19.3	39405	17.4	17.7
209452	17.0	20.1	286294	17.1	19.7	510787	17.2	20.1	273239	17.3	19.8	263038	17.3	20.8	21895	17.4	17.1
253728	17.0	19.1	103696	17.1	19.5	95419	17.2	19.5	526310	17.3	20.8	111327	17.3	19.0	319345	17.4	19.6
359551	17.0	20.3	464834	17.1	21.2	94629	17.2	18.9	423200	17.3	19.7	279448	17.3	18.9	384399	17.4	19.7
449224	17.0	20.5	108721	17.1	18.0	46046	17.2	18.5	471659	17.3	20.5	362456	17.3	20.3	454301	17.4	20.1
245188	17.0	19.9	285051	17.1	20.7	170366	17.2	17.8	16767	17.3	15.9	520029	17.3	20.5	424421	17.4	21.6
359437	17.0	19.9	162863	17.1	19.2	301402											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
507799	17.4	18.9	309699	17.5	20.9	186964	17.6	19.6	31046	17.6	17.1	253030	17.7	18.9	327228	17.8	20.2
193818	17.4	18.2	67565	17.5	18.7	34671	17.6	17.9	203570	17.6	20.2	447412	17.7	18.7	314514	17.8	20.3
384974	17.4	20.2	393033	17.5	19.7	311143	17.6	19.1	351613	17.6	20.9	316395	17.7	20.5	250952	17.8	19.7
125829	17.4	19.9	70514	17.5	18.1	174777	17.6	20.5	638	17.6	14.0	102449	17.7	19.4	249423	17.8	18.9
508256	17.4	20.6	40898	17.5	18.3	530841	17.6	21.0	425908	17.6	21.4	479915	17.7	20.1	423483	17.8	20.7
13223	17.4	16.4	269712	17.5	20.3	307252	17.6	20.8	222660	17.6	19.3	115437	17.7	17.8	513051	17.8	20.4
101731	17.4	19.7	5380	17.5	17.1	387044	17.6	19.9	480210	17.7	18.9	519200	17.7	20.2	303759	17.8	20.0
253679	17.4	19.6	387441	17.5	21.1	435897	17.6	21.8	175645	17.7	19.5	403250	17.7	20.2	79563	17.8	17.4
513664	17.4	20.4	228499	17.5	19.7	204758	17.6	20.0	423609	17.7	20.0	495128	17.7	20.1	156367	17.8	20.4
80113	17.4	18.9	188033	17.5	18.6	224419	17.6	19.9	304684	17.7	20.1	532726	17.7	21.1	72339	17.8	18.3
214539	17.4	18.8	318288	17.5	19.7	149905	17.6	19.7	470747	17.7	21.1	222676	17.7	20.7	338812	17.8	20.5
325032	17.4	20.8	43282	17.5	18.1	475520	17.6	20.9	439669	17.7	20.3	29478	17.7	17.6	440323	17.8	19.6
385018	17.4	21.0	225909	17.5	21.1	20955	17.6	17.5	357929	17.7	20.1	208664	17.7	18.6	429586	17.8	20.1
133578	17.4	19.9	264104	17.5	20.7	520190	17.6	19.7	481284	17.7	20.6	282209	17.7	21.7	90498	17.8	17.2
463597	17.4	19.4	428201	17.5	20.2	164520	17.6	19.8	416269	17.7	21.5	25772	17.7	18.2	537032	17.8	22.3
509293	17.4	20.4	222596	17.5	18.5	340564	17.6	20.4	436927	17.7	20.4	129083	17.7	19.5	509566	17.8	21.5
479842	17.4	20.8	302152	17.5	20.5	179015	17.6	18.2	254347	17.7	19.6	419570	17.7	20.1	323069	17.8	20.0
211990	17.4	19.7	216920	17.5	20.9	278958	17.6	19.9	531686	17.7	21.4	508911	17.7	19.3	288989	17.8	20.0
513309	17.4	21.1	24783	17.5	18.6	508524	17.6	19.8	87067	17.7	19.4	305922	17.7	19.9	64707	17.8	17.9
200256	17.4	18.4	525955	17.5	20.7	368091	17.6	20.3	100946	17.7	18.8	216791	17.7	19.2	384811	17.8	19.4
440210	17.4	19.3	69151	17.5	18.1	440999	17.6	21.0	537191	17.7	20.1	199829	17.7	20.3	20485	17.8	17.0
413298	17.4	20.0	253065	17.5	19.2	321930	17.6	21.1	1698	17.7	16.2	485240	17.7	20.3	267427	17.8	19.4
491918	17.4	20.4	115134	17.5	19.1	64087	17.6	19.1	454289	17.7	19.6	480509	17.7	19.1	360384	17.8	21.1
438995	17.4	19.4	203389	17.5	20.5	216837	17.6	19.7	107192	17.7	20.1	424411	17.7	19.6	255847	17.8	19.2
496969	17.4	19.7	463726	17.5	19.8	381878	17.6	20.6	33976	17.7	18.0	140625	17.7	19.3	153280	17.8	20.0
36923	17.4	18.3	477732	17.5	20.0	56685	17.6	16.8	410370	17.7	19.6	98147	17.7	18.4	216285	17.8	19.4
533097	17.4	20.8	272973	17.5	19.7	483214	17.6	19.9	204032	17.7	19.3	339542	17.7	20.4	62437	17.8	19.3
45145	17.4	16.7	357900	17.5	21.0	302402	17.6	20.0	178503	17.7	18.3	169628	17.7	19.5	320428	17.8	20.4
401865	17.4	19.2	258313	17.5	19.5	230955	17.6	19.8	46961	17.7	17.4	387995	17.7	19.7	270161	17.8	19.7
85755	17.4	18.6	543651	17.5	20.7	357063	17.6	17.8	94144	17.7	18.9	446100	17.7	20.8	387288	17.8	20.4
21447	17.4	16.5	509078	17.5	21.3	253930	17.6	21.2	80496	17.7	17.9	65068	17.7	17.3	279855	17.8	20.0
70133	17.4	18.3	11377	17.5	18.1	35487	17.6	17.7	68872	17.7	18.9	512638	17.7	20.7	468667	17.8	19.2
89372	17.4	19.2	243891	17.5	20.4	473172	17.6	20.9	536704	17.7	21.3	24318	17.7	16.5	245212	17.8	18.8
394711	17.4	21.2	181437	17.5	20.4	303251	17.6	19.7	292363	17.7	19.5	315067	17.7	20.2	399180	17.8	20.6
294800	17.4	21.1	396489	17.5	20.1	278079	17.6	19.7	84821	17.7	18.3	304718	17.7	20.8	192657	17.8	18.9
180119	17.4	19.0	98267	17.5	18.3	480164	17.6	19.8	280127	17.7	20.5	126589	17.8	19.5	37639	17.8	17.1
282426	17.4	20.3	255621	17.5	18.6	2755	17.6	15.7	263664	17.7	20.4	355480	17.8	20.2	251947	17.8	18.8
66621	17.4	17.9	399122	17.5	19.8	140279	17.6	18.1	333083	17.7	20.3	170675	17.8	19.5	335755	17.8	20.8
136295	17.4	18.0	319156	17.5	20.8	191764	17.6	19.9	44262	17.7	16.9	126313	17.8	19.4	117551	17.8	19.0
106453	17.4	19.2	422508	17.5	20.8	248114	17.6	18.0	9347	17.7	17.0	251809	17.8	20.7	64832	17.8	19.0
102456	17.5	18.1	404187	17.5	20.1	502049	17.6	20.9	316417	17.7	20.9	304067	17.8	20.3	164477	17.8	20.5
187438	17.5	19.7	408303	17.5	20.8	309947	17.6	20.0	501719	17.7	21.0	227861	17.8	19.7	387363	17.8	19.9
518408	17.5	21.3	388586	17.5	20.4	105749	17.6	18.7	57756	17.7	18.5	344470	17.8	20.0	390343	17.8	20.6
441341	17.5	20.3	212461	17.5	18.7	95001	17.6	18.9	216426	17.7	19.6	499153	17.8	19.9	323862	17.8	19.9
11959	17.5	18.0	69777	17.5	18.0	247931	17.6	19.8	359525	17.7	20.3	148424	17.8	19.7	260229	17.8	19.7
392441	17.5	20.5	533687	17.5	22.3	159228	17.6	18.7	375965	17.7	20.7	525506	17.8	21.1	326732	17.8	15.8
280360	17.5	20.5	105600	17.5	18.4	10851	17.6	17.3	440438	17.7	20.4	198553	17.8	19.6	173600	17.8	18.4
286411	17.5	18.8	263486	17.5	19.9	399944	17.6	19.5	548	17.7	13.5	374418	17.8	20.4	249652	17.8	19.7
25199	17.5	17.3	305540	17.5	20.4	366481	17.6	20.0	408625	17.7	21.1	248578	17.8	19.8	88927	17.9	17.8
316434	17.5	20.5	440560	17.5	21.2	190574	17.6	18.1	423643	17.7	21.0	200348	17.8	19.6	255258	17.9	19.7
319939	17.5	18.2	85030	17.5	18.9	130733	17.6	19.1	184784	17.7	19.2	340393	17.8	20.9	443032	17.9	21.1
457617	17.5	21.7	480582	17.5	20.2	96048	17.6	19.2	463190	17.7	21.0	466656	17.8	20.5	522650	17.9	20.1
440718	17.5	20.5	155583	17.5	19.6	221210	17.6	19.1	468085	17.7	19.9	182831	17.8	20.1	341201	17.9	19.2
512744	17.5	21.2	499282	17.5	18.2	358951	17.6	20.5	34002	17.7	17.9	311987	17.8	19.9	18654	17.9	16.4
247483	17.5	17.8	358032	17.5	20.5	301500	17.6	20.0	354513	17.7	18.7	158484	17.8	19.7	478141	17.9	20.8
67998	17.5	17.9	505709	17.5	20.5	472057	17.6	20.8	495339	17.7	20.0	466168	17.8	20.5	473735	17.9	21.1
525719	17.5	20.7	58919	17.5	18.1	360998	17.6	20.8	526220	17.7	22.2	511396	17.8	20.0	505474	17.9	19.4
231365	17.5	19.8	267044	17.5	20.3	114745	17.6	18.3	478338	17.7	21.0	29125	17.8	17.4	150891	17.9	19.5
275564	17.5	18.2	442147	17.5	20.9	136425	17.6	19.8	19420	17.7	17.6	98585	17.8	19.2	71056	17.9	18.0
17596	17.5	17.6	279648	17.5	20.3	203300	17.6	18.2	457623	17.7	21.6	93836	17.8	19.1	339432	17.9	21.1
394680	17.5	21.4	294407	17.5	20.7	29360	17.6	16.6	173656	17.7	20.1	10940	17.8	14.8	361679	17.9	19.1
465378	17.5	21.7	233559	17.5	19.4	91372	17.6	20.0	140982	17.7	19.8	175371	17.8	19.7	65081	17.9	18.8
43895	17.5	17.4	365521	17.6	19.8	75211	17.6	18.9	346727	17.7	21.0	22424	17.8	16.9	154461	17.9	19.2
304723	17.5	21.1	46240	17.6	18.5	146260	17.6	19.8	505185	17.7	20.2	69005	17.8	19.3	476426	17.9	21.0
362786	17.5	20.6	331733	17.6	19.5	114556	17.6	17.9	107009	17.7	19.1	396827	17.8	19.7	495894	17.9	20.8
241617	17.5	18.9	519435	17.6	21.6	285660	17.6	18.9	45452	17.7	16.6	540896	17.8	20.9	184848	17.9	19.4
312840	17.5	20.8	60123	17.6	17.9	186870	17.6	19.1	531845	17.7	20.6	501053	17.8	20.2	255316	17.9	19.4
122614	17.5	18.1	175013	17.6	19.2	39446	17.6	17.9	409357	17.7	20.7	210403	17.8	20.0	174674	17.9	18.3
307071	17.5	20.5	145437	17.6	18.7	228228	17.6	2									

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
324964	17.9	20.5	380869	17.9	20.9	435752	18.0	21.0	185461	18.1	20.0	541677	18.2	19.8	6492	18.3	16.5
308488	17.9	19.7	377622	17.9	21.0	192261	18.0	20.8	216447	18.1	20.4	47833	18.2	18.1	497420	18.3	21.1
325053	17.9	21.3	543438	17.9	19.0	127029	18.0	19.1	190670	18.1	18.7	376480	18.2	21.1	502570	18.3	21.2
139936	17.9	19.0	160353	17.9	18.1	391091	18.0	19.1	363289	18.1	20.4	442871	18.2	21.1	344044	18.3	19.6
482109	17.9	18.9	374464	17.9	19.8	45420	18.0	18.7	203735	18.1	20.3	125420	18.2	17.9	507014	18.3	21.0
380840	17.9	19.3	356411	17.9	20.7	515750	18.0	20.7	342843	18.1	20.2	182852	18.2	20.2	475769	18.3	20.0
373582	17.9	20.3	293623	17.9	19.4	20826	18.1	19.5	34231	18.1	18.6	301675	18.2	20.7	390492	18.3	19.6
504300	17.9	20.6	374408	17.9	18.7	293400	18.1	19.6	160707	18.1	17.0	66682	18.2	18.0	214466	18.3	19.1
90283	17.9	19.0	369069	17.9	19.9	24290	18.1	17.9	30862	18.1	16.2	232502	18.2	19.0	128071	18.3	19.2
299819	17.9	20.2	102254	17.9	18.3	492443	18.1	20.8	420352	18.1	20.6	359453	18.2	19.6	538481	18.3	21.7
530311	17.9	19.6	167326	17.9	18.0	438289	18.1	20.1	347178	18.1	20.1	392155	18.2	21.0	261115	18.3	19.6
239440	17.9	19.4	315393	17.9	20.2	231853	18.1	18.6	155619	18.1	17.2	350358	18.2	20.9	69224	18.3	18.0
312164	17.9	20.9	275244	17.9	20.9	438224	18.1	19.9	31264	18.1	18.5	426778	18.2	19.3	260145	18.3	19.4
531561	17.9	21.0	471958	17.9	20.2	67902	18.1	17.8	152021	18.1	18.6	475546	18.2	21.0	178687	18.3	19.2
179461	17.9	20.3	423354	17.9	21.0	443491	18.1	20.3	25340	18.1	17.6	251299	18.2	20.2	237720	18.3	19.9
210505	17.9	20.0	478356	17.9	20.5	376778	18.1	23.2	413223	18.1	20.1	383176	18.2	20.6	196480	18.3	19.7
186882	17.9	19.3	41174	17.9	18.1	259242	18.1	20.6	477659	18.1	20.6	39043	18.2	16.8	5478	18.3	16.6
305555	17.9	19.7	235369	17.9	19.7	473059	18.1	20.7	275956	18.2	19.5	238276	18.2	19.5	306411	18.3	20.0
396139	17.9	21.1	211296	17.9	19.7	262524	18.1	20.2	188625	18.2	18.9	476478	18.2	20.8	444673	18.3	20.8
174467	17.9	19.0	141901	17.9	18.7	401595	18.1	20.0	505884	18.2	21.0	109029	18.2	18.5	22532	18.3	18.0
107700	17.9	20.4	272510	17.9	20.1	463287	18.1	20.1	140296	18.2	19.7	168956	18.2	20.5	507762	18.3	20.3
409181	17.9	20.3	64534	17.9	18.7	2897	18.1	16.4	86308	18.2	17.9	401200	18.2	19.9	418299	18.3	18.7
329305	17.9	18.9	94438	17.9	19.0	485419	18.1	20.0	174728	18.2	19.2	406462	18.2	18.6	475586	18.3	20.6
193636	17.9	20.1	298776	17.9	18.3	509639	18.1	20.6	530203	18.2	21.1	397847	18.2	20.9	222591	18.3	19.8
539760	17.9	21.4	293727	17.9	19.2	12482	18.1	18.0	86229	18.2	18.3	76564	18.2	17.6	499313	18.3	21.0
301990	17.9	20.4	233560	17.9	19.5	441397	18.1	20.7	189848	18.2	19.8	203280	18.2	18.9	287914	18.3	20.3
415726	17.9	19.4	200259	17.9	19.9	45501	18.1	18.2	191811	18.2	19.4	118507	18.2	17.5	529900	18.3	21.3
497573	17.9	20.5	64560	17.9	18.5	539582	18.1	21.1	528636	18.2	21.0	382442	18.2	19.8	404596	18.3	20.1
429156	17.9	19.9	525265	17.9	19.8	329254	18.1	19.7	387954	18.2	21.1	418172	18.2	20.3	183079	18.3	18.5
357796	17.9	20.5	472837	17.9	20.3	93419	18.1	17.9	503466	18.2	21.4	254354	18.2	19.4	69846	18.3	18.9
120347	17.9	20.7	21647	17.9	17.6	437731	18.1	20.3	529605	18.2	20.8	470379	18.2	20.1	509069	18.3	21.5
130918	17.9	19.5	465355	17.9	21.8	115493	18.1	20.2	503417	18.2	20.7	513004	18.2	18.1	48400	18.3	18.5
24206	17.9	18.6	411183	17.9	21.1	420330	18.1	21.2	404812	18.2	20.7	497997	18.3	21.7	99218	18.3	19.2
205182	17.9	19.4	16992	17.9	18.2	528797	18.1	20.7	255019	18.2	20.4	19809	18.3	18.0	81979	18.3	19.0
502897	17.9	20.6	150841	17.9	19.0	275094	18.1	20.5	506525	18.2	19.1	410298	18.3	19.7	469040	18.3	20.5
520426	17.9	20.4	407683	17.9	20.1	184068	18.1	19.9	89671	18.2	19.3	286619	18.3	20.9	37775	18.3	19.3
349049	17.9	21.3	508463	17.9	20.9	389381	18.1	19.9	439803	18.2	20.6	195502	18.3	19.0	499272	18.3	21.3
93542	17.9	18.4	59876	17.9	17.8	67266	18.1	18.6	379288	18.2	19.9	536592	18.3	21.6	206113	18.3	19.9
54197	17.9	18.1	284134	17.9	19.4	406899	18.1	19.9	327117	18.2	20.9	129806	18.3	19.0	129827	18.3	18.2
419724	17.9	20.7	125553	17.9	18.2	243281	18.1	19.7	539650	18.2	21.1	8788	18.3	18.3	254167	18.3	19.6
83653	17.9	19.4	497250	17.9	20.3	335577	18.1	20.8	239177	18.2	20.3	158039	18.3	18.2	381920	18.3	20.7
95219	17.9	19.8	475261	17.9	19.8	510651	18.1	20.4	519150	18.2	19.8	398883	18.3	20.5	92131	18.3	18.4
466762	17.9	20.2	126116	17.9	19.0	248063	18.1	19.3	251337	18.2	19.3	156140	18.3	19.2	125746	18.3	20.0
63085	17.9	18.8	537409	18.0	20.1	338068	18.1	19.4	227783	18.2	20.2	64703	18.3	18.7	425613	18.3	19.8
148797	17.9	19.6	40582	18.0	17.9	38506	18.1	18.7	317542	18.2	19.1	355074	18.3	20.0	208900	18.3	20.2
480521	17.9	20.2	32309	18.0	16.3	403275	18.1	20.8	17788	18.2	17.3	9314	18.3	16.4	210043	18.3	19.9
116633	17.9	19.1	304789	18.0	19.4	127346	18.1	19.4	383326	18.2	20.2	240946	18.3	20.5	246659	18.3	21.0
265630	17.9	19.2	277406	18.0	20.7	466636	18.1	20.9	442651	18.2	20.5	331647	18.3	19.7	369031	18.3	21.2
48863	17.9	17.6	304700	18.0	19.5	5337	18.1	16.5	20821	18.2	17.2	382137	18.3	20.8	424146	18.3	19.4
479997	17.9	21.1	417588	18.0	19.8	524550	18.1	21.9	268998	18.2	19.6	322308	18.3	21.1	290461	18.3	19.8
533449	17.9	20.1	211176	18.0	20.0	162557	18.1	17.9	41315	18.2	18.0	390327	18.3	19.8	365445	18.3	20.2
171494	17.9	19.5	289355	18.0	21.0	197582	18.1	19.3	48288	18.2	18.4	468695	18.3	19.4	133630	18.3	19.6
388331	17.9	20.8	123199	18.0	19.4	17805	18.1	18.3	114695	18.2	17.1	16499	18.3	17.5	265610	18.3	20.0
442055	17.9	20.2	262949	18.0	20.2	509329	18.1	21.7	201736	18.2	19.7	499911	18.3	20.8	18614	18.3	17.0
40051	17.9	18.6	295355	18.0	20.3	111060	18.1	18.7	87592	18.2	18.6	182080	18.3	19.4	285543	18.3	19.9
544953	17.9	21.2	49360	18.0	18.1	391101	18.1	20.4	107656	18.2	19.0	38545	18.3	18.0	525819	18.3	21.0
513785	17.9	21.3	527530	18.0	18.4	179549	18.1	20.3	263236	18.2	20.3	395677	18.3	20.2	353699	18.3	19.4
295870	17.9	18.9	53369	18.0	18.4	353619	18.1	19.5	416752	18.2	21.4	391018	18.3	19.9	166235	18.4	18.9
162515	17.9	18.0	385131	18.0	21.0	478313	18.1	20.0	170393	18.2	19.2	268093	18.3	19.2	470782	18.4	20.6
338844	17.9	20.2	61067	18.0	17.9	538728	18.1	21.2	333672	18.2	19.8	233845	18.3	20.0	311191	18.4	19.1
527895	17.9	21.0	277551	18.0	21.1	170178	18.1	18.0	480625	18.2	20.2	423009	18.3	19.3	531035	18.4	21.4
528062	17.9	22.1	5947	18.0	16.2	106210	18.1	19.2	393232	18.2	20.9	505940	18.3	20.4	255845	18.4	20.2
225541	17.9	18.7	536931	18.0	21.7	379574	18.1	20.1	250888	18.2	18.9	314039	18.3	19.2	353524	18.4	21.0
71262	17.9	18.6	190364	18.0	19.7	480530	18.1	20.3	82214	18.2	16.8	377761	18.3	21.6	112802	18.4	19.8
441806	17.9	21.0	214	18.0	12.8	498566	18.1	20.4	16958	18.2	18.3	432504	18.3	20.5	153539	18.4	18.6
374351	17.9	19.5	154692	18.0	19.8	128374	18.1	19.7	37985	18.2	18.5	527761	18.3	22.0	483096	18.4	21.0
202739	17.9	20.0	121581	18.0	19.9	270344	18.1	19.6	127789	18.2	18.6	147412	18.3	19.4	424054	18.4	20.9
187261	17.9	20.4	41035	18.0	18.1	176549	18.1	19.9	537532	18.2	20.5	443038	18.3	21.2	334403	18.4	20.7
238291	17.9	19.7	212489	18.0	18.6	504098	1										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
295878	18.4	21.2	297805	18.4	19.2	541057	18.5	19.6	251900	18.6	19.9	436984	18.7	20.9	392112	18.8	21.2
1307	18.4	14.9	403757	18.4	19.9	227877	18.5	19.6	427266	18.6	20.1	34038	18.7	18.3	214186	18.8	19.9
219558	18.4	18.2	440005	18.4	21.1	429121	18.5	20.4	375284	18.6	21.0	501672	18.7	20.3	72817	18.8	19.4
531879	18.4	20.1	191888	18.4	18.4	525325	18.5	20.3	310337	18.6	19.5	160929	18.7	20.3	116986	18.8	19.0
426518	18.4	20.4	507458	18.4	19.3	29029	18.5	17.3	465101	18.6	20.0	278392	18.7	19.6	508226	18.8	20.2
146825	18.4	19.1	7053	18.4	16.9	304086	18.5	19.7	85658	18.6	18.6	208545	18.7	20.2	234152	18.8	19.5
382980	18.4	20.7	239795	18.5	18.2	354810	18.5	19.9	373607	18.6	20.7	293043	18.7	19.2	480591	18.8	21.3
141063	18.4	19.3	540921	18.5	20.5	388627	18.5	20.1	517693	18.6	20.7	115222	18.7	19.1	63499	18.8	17.6
209118	18.4	19.5	74786	18.5	18.8	208379	18.5	19.7	344790	18.6	20.2	1771	18.7	14.3	478414	18.8	21.2
77506	18.4	19.2	102637	18.5	17.6	143586	18.5	20.1	72183	18.6	18.7	412574	18.7	18.8	482210	18.8	20.8
508054	18.4	20.9	236446	18.5	20.4	187466	18.5	16.7	278551	18.6	20.0	491165	18.7	20.2	201168	18.8	19.2
304572	18.4	19.9	70097	18.5	18.5	328998	18.5	21.0	69148	18.6	19.0	478614	18.7	21.2	490746	18.8	20.7
49872	18.4	17.3	50744	18.5	17.5	270533	18.5	19.7	88568	18.6	18.1	99636	18.7	18.2	99776	18.8	18.3
172352	18.4	18.6	22947	18.5	18.7	428692	18.5	20.3	150639	18.6	20.0	324600	18.7	18.7	204962	18.8	19.1
5106	18.4	15.9	518241	18.5	20.4	43078	18.5	17.6	268370	18.6	20.7	263673	18.7	20.8	30306	18.8	17.9
326965	18.4	19.9	213071	18.5	18.5	272770	18.5	19.8	94088	18.6	19.0	336705	18.7	19.9	133073	18.8	18.8
275099	18.4	19.5	13749	18.5	16.8	317707	18.5	18.3	98506	18.6	18.5	95790	18.7	18.1	446733	18.8	19.8
255798	18.4	18.9	62732	18.5	18.1	12591	18.5	16.3	119814	18.6	19.6	400466	18.7	21.8	66012	18.8	17.7
1101	18.4	15.1	193546	18.5	18.6	35588	18.5	18.3	12534	18.6	16.8	383284	18.7	20.0	343874	18.8	19.6
250776	18.4	19.9	397740	18.5	20.2	73243	18.5	18.7	103310	18.6	19.4	254379	18.7	20.3	479043	18.8	21.6
278286	18.4	21.2	482138	18.5	20.5	357172	18.5	20.3	443012	18.6	20.6	394691	18.7	21.2	125306	18.8	18.7
403529	18.4	20.8	42633	18.5	17.6	110356	18.5	18.5	514502	18.6	21.3	330649	18.7	20.9	316819	18.8	19.4
8950	18.4	17.1	246826	18.5	19.6	296427	18.5	19.9	530700	18.6	21.6	142286	18.7	18.7	254163	18.8	19.1
440271	18.4	20.1	168402	18.5	20.2	380120	18.5	18.0	252803	18.6	20.0	420491	18.7	21.0	184932	18.8	19.3
387681	18.4	18.3	179544	18.5	20.4	255468	18.6	20.4	124501	18.6	19.2	525856	18.7	20.9	394745	18.8	21.2
160222	18.4	18.5	350508	18.5	19.7	50176	18.6	18.6	156737	18.6	19.0	295516	18.7	19.6	530808	18.8	21.1
468588	18.4	19.3	504728	18.5	20.7	355154	18.6	20.8	268977	18.6	21.1	479634	18.7	21.0	221162	18.8	20.4
195542	18.4	20.0	64342	18.5	18.9	428026	18.6	21.2	44467	18.6	17.8	233968	18.7	19.2	154591	18.8	18.5
335157	18.4	19.3	249624	18.5	20.4	472128	18.6	20.5	196556	18.6	19.1	108312	18.7	19.2	479174	18.8	21.2
540944	18.4	21.4	198618	18.5	19.1	297281	18.6	20.6	531856	18.6	21.4	119463	18.7	19.1	265244	18.8	20.7
395925	18.4	20.5	304465	18.5	21.0	438177	18.6	20.5	138860	18.6	19.6	253840	18.7	19.8	422680	18.8	20.4
469008	18.4	19.4	512880	18.5	21.1	304735	18.6	20.6	94132	18.6	18.5	140825	18.7	18.1	383291	18.8	20.8
157793	18.4	20.0	223258	18.5	20.0	58553	18.6	19.4	235864	18.6	20.3	86103	18.7	18.6	66664	18.8	17.9
195295	18.4	18.9	118004	18.5	18.9	401444	18.6	20.1	444665	18.6	21.8	368920	18.7	20.4	94427	18.8	17.4
161373	18.4	19.4	491173	18.5	20.5	152886	18.6	19.2	314177	18.6	20.9	202233	18.7	19.6	171195	18.8	18.4
29940	18.4	18.2	199875	18.5	19.1	408498	18.6	19.3	389786	18.6	19.4	255030	18.7	19.6	216370	18.8	20.4
239073	18.4	20.1	10341	18.5	17.0	86158	18.6	19.1	85824	18.6	19.3	289052	18.7	20.3	512825	18.8	19.9
43342	18.4	17.6	297696	18.5	19.9	19244	18.6	17.2	95694	18.6	19.1	467141	18.7	20.8	439709	18.8	20.3
350479	18.4	19.1	154061	18.5	19.5	154579	18.6	20.9	355649	18.6	19.7	507765	18.7	20.4	74003	18.8	18.9
251606	18.4	19.5	156428	18.5	19.3	456884	18.6	21.6	294083	18.6	20.0	124455	18.7	18.4	543413	18.8	20.0
192318	18.4	18.7	335777	18.5	20.2	143900	18.6	19.0	500810	18.6	21.4	482562	18.7	22.7	99460	18.8	19.0
395981	18.4	20.5	232548	18.5	19.3	48656	18.6	19.2	510436	18.6	20.4	171407	18.7	19.4	42271	18.8	16.7
29643	18.4	17.9	379605	18.5	20.5	326978	18.6	18.6	260457	18.6	20.1	209919	18.7	19.1	59611	18.8	18.0
188449	18.4	20.0	427500	18.5	21.4	26607	18.6	17.9	415490	18.6	20.5	331593	18.7	20.2	519544	18.8	19.7
363693	18.4	18.8	295728	18.5	19.8	227991	18.6	19.1	380317	18.6	20.8	333736	18.7	19.6	343940	18.8	20.6
164786	18.4	19.8	436221	18.5	21.3	100159	18.6	18.9	443445	18.6	20.9	538686	18.7	21.7	74658	18.8	18.1
192881	18.4	19.6	200758	18.5	19.4	397455	18.6	20.1	467965	18.6	21.2	413451	18.7	20.5	477656	18.8	20.4
254518	18.4	19.6	501587	18.5	20.4	115799	18.6	19.4	334413	18.6	21.0	238584	18.7	20.7	56273	18.8	18.7
358082	18.4	20.6	304063	18.5	20.5	73024	18.6	18.5	535271	18.6	20.9	435814	18.7	20.7	22481	18.8	18.5
187335	18.4	18.6	542624	18.5	21.2	438640	18.6	21.6	219817	18.6	18.8	338724	18.7	19.8	99319	18.8	18.4
16726	18.4	17.2	205688	18.5	19.9	174715	18.6	18.1	314580	18.6	20.1	127731	18.7	19.2	528239	18.8	20.3
163722	18.4	19.7	326463	18.5	19.0	396508	18.6	20.4	523117	18.6	21.2	270584	18.7	20.1	168576	18.8	19.1
324413	18.4	21.0	221189	18.5	18.4	465391	18.6	19.8	526028	18.6	20.8	148091	18.7	19.0	21705	18.8	17.7
355007	18.4	19.6	82002	18.5	18.8	286817	18.6	19.2	477919	18.6	20.8	2230	18.7	15.7	450238	18.8	22.0
183256	18.4	18.8	346058	18.5	20.2	316182	18.6	19.1	338665	18.6	18.0	332328	18.7	20.6	357005	18.8	22.1
115583	18.4	18.9	440299	18.5	20.3	263354	18.6	19.5	347333	18.7	19.7	279394	18.7	17.8	497341	18.8	20.0
292681	18.4	21.1	174646	18.5	19.0	16117	18.6	17.5	231545	18.7	19.5	442118	18.7	19.4	161538	18.8	18.2
312989	18.4	20.0	441424	18.5	21.2	166159	18.6	19.2	86462	18.7	17.4	144759	18.7	20.1	478410	18.8	21.4
80628	18.4	19.0	427201	18.5	20.2	209342	18.6	20.7	231878	18.7	19.2	134650	18.7	17.6	534116	18.8	20.4
265761	18.4	20.7	131248	18.5	19.5	133355	18.6	18.7	533923	18.7	20.7	504512	18.7	19.7	83664	18.8	17.2
238721	18.4	20.1	523148	18.5	21.3	305670	18.6	19.4	410363	18.7	21.0	374327	18.7	20.4	537439	18.8	20.4
127951	18.4	18.9	336343	18.5	19.9	23102	18.6	17.6	377725	18.7	19.3	329812	18.7	19.5	525684	18.8	19.8
476467	18.4	21.1	182028	18.5	20.7	329781	18.6	20.2	44332	18.7	18.6	94307	18.7	19.5	91129	18.8	19.2
441979	18.4	19.1	66444	18.5	17.9	376923	18.6	21.0	43920	18.7	17.9	442082	18.7	20.5	174133	18.8	19.1
209383	18.4	19.1	309678	18.5	20.0	256750	18.6	20.2	257981	18.7	20.0	511784	18.7	20.0	441986	18.8	19.9
502235	18.4	20.8	526633	18.5	21.4	444644	18.6	20.6	93024	18.7	18.6	422835	18.7	19.6	440949	18.8	20.3
464870	18.4	21.6	301981	18.5	20.5	477704	18.6	20.8	83565	18.7	19.2	320405	18.7	20.2	206950	18.8	18.5
253331	18.4	20.5	34724	18.5	18.5	177822	18.6	19.5	245616	18.7	19.9	190716	18.7	17.1	474725	18.8	19.9
526265	18.4	22.1	87116	18.5	17.3	156947	18.6										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
151770	18.8	20.2	25031	18.9	16.8	136827	18.9	20.1	16704	19.1	17.3	77091	19.1	18.9	429655	19.2	20.1
85218	18.8	18.2	360407	18.9	20.5	30382	18.9	17.0	48034	19.1	18.9	151063	19.1	18.3	313159	19.2	20.2
74636	18.8	17.4	477003	18.9	21.1	287659	18.9	19.0	511342	19.1	22.3	347154	19.1	20.8	359380	19.2	19.7
415112	18.8	21.3	266621	18.9	20.2	431934	18.9	19.5	446613	19.1	19.9	5541	19.1	16.2	210799	19.2	18.9
38323	18.8	17.3	12320	18.9	17.7	164069	19.0	19.3	457629	19.1	21.9	379890	19.1	19.8	316944	19.2	20.2
91076	18.8	19.8	393935	18.9	20.8	332588	19.0	19.3	440004	19.1	20.6	475385	19.1	21.4	335771	19.2	19.3
535455	18.8	21.4	536541	18.9	20.6	381592	19.0	19.6	478001	19.1	21.0	397151	19.1	19.9	540833	19.2	21.0
141223	18.8	19.7	473111	18.9	20.8	528311	19.0	20.9	429504	19.1	20.5	509092	19.1	20.7	516421	19.2	20.9
200833	18.8	18.3	41679	18.9	17.9	105564	19.0	17.6	99728	19.1	18.9	206030	19.1	19.2	353152	19.2	20.1
496438	18.8	19.4	123337	18.9	20.2	395425	19.0	20.4	367682	19.1	19.6	505983	19.1	20.9	169507	19.2	18.9
25066	18.8	16.9	124948	18.9	19.4	187430	19.0	18.0	57413	19.1	17.1	475189	19.1	21.5	106237	19.2	19.8
127970	18.8	18.7	163165	18.9	18.3	27197	19.0	18.2	77927	19.1	18.7	497295	19.1	19.5	184579	19.2	19.3
368684	18.8	19.1	135637	18.9	19.0	380926	19.0	20.0	504576	19.1	20.8	93501	19.1	18.6	149985	19.2	20.1
96223	18.8	18.3	153854	18.9	19.1	160945	19.0	19.6	517035	19.1	21.2	546	19.1	13.7	452378	19.2	21.7
111885	18.8	17.9	258575	18.9	20.5	384503	19.0	20.9	335469	19.1	20.4	390722	19.1	21.6	263425	19.2	20.3
93514	18.8	19.0	28853	18.9	18.4	294751	19.0	20.8	520886	19.1	20.9	509885	19.2	21.2	128041	19.2	19.7
336294	18.8	19.8	364598	18.9	20.3	184298	19.0	20.6	301880	19.1	21.0	217014	19.2	20.1	320514	19.2	20.9
323372	18.8	20.6	147353	18.9	20.2	80940	19.0	19.3	49174	19.1	17.9	503015	19.2	21.2	121152	19.2	18.0
58635	18.8	19.7	308116	18.9	19.3	171437	19.0	19.6	211415	19.1	20.2	290598	19.2	20.6	256743	19.2	20.6
497695	18.8	20.1	531607	18.9	21.5	398903	19.0	21.0	355294	19.1	19.4	535775	19.2	21.7	505213	19.2	20.8
463281	18.8	19.3	127882	18.9	19.2	436323	19.0	21.1	185947	19.1	20.1	441385	19.2	19.7	478359	19.2	21.0
305300	18.8	20.0	266099	18.9	20.3	242696	19.0	19.1	95884	19.1	18.9	460225	19.2	19.9	297148	19.2	19.4
45109	18.8	18.8	495393	18.9	20.0	34638	19.0	16.7	313306	19.1	19.8	509382	19.2	22.0	119901	19.2	19.2
149957	18.8	18.9	470335	18.9	20.4	58715	19.0	18.4	43517	19.1	18.2	160678	19.2	18.6	294904	19.2	19.5
252152	18.8	20.2	100517	18.9	19.5	160011	19.0	18.8	336338	19.1	20.5	411728	19.2	19.7	167720	19.2	19.5
146829	18.8	20.3	278843	18.9	19.6	87751	19.0	18.4	1477	19.1	15.4	422841	19.2	22.1	504597	19.2	20.7
42011	18.8	17.8	428314	18.9	21.3	519434	19.0	20.6	522318	19.1	21.7	93969	19.2	17.8	385089	19.2	19.6
414441	18.8	20.9	138859	18.9	21.4	336156	19.0	20.3	243612	19.1	20.2	55986	19.2	17.5	304562	19.2	20.2
418255	18.8	20.3	105347	18.9	17.0	418228	19.0	21.2	202278	19.1	19.7	59569	19.2	17.3	480814	19.2	19.9
342936	18.8	21.0	480368	18.9	21.0	497294	19.0	19.6	462547	19.1	21.5	217246	19.2	19.6	214988	19.2	19.6
133016	18.9	18.8	278342	18.9	19.3	207824	19.0	20.0	263888	19.1	19.5	262914	19.2	20.2	375942	19.2	20.3
250995	18.9	19.9	122576	18.9	18.3	323332	19.0	19.8	100843	19.1	20.1	472427	19.2	20.3	350003	19.2	20.0
374391	18.9	19.9	539489	18.9	20.1	84955	19.0	18.2	353668	19.1	20.3	409771	19.2	21.1	484719	19.2	20.4
529586	18.9	22.1	310371	18.9	20.2	141143	19.0	18.9	51992	19.1	16.3	432321	19.2	19.7	305219	19.2	19.9
94458	18.9	18.3	32988	18.9	17.9	284874	19.0	20.2	127009	19.1	18.6	165388	19.2	18.8	310636	19.2	20.0
340507	18.9	20.2	496225	18.9	21.2	140734	19.0	19.3	365912	19.1	21.3	318669	19.2	19.6	530923	19.2	22.0
238462	18.9	18.2	268018	18.9	19.4	143526	19.0	20.0	156154	19.1	19.7	150648	19.2	20.3	467749	19.2	19.4
12488	18.9	17.6	416159	18.9	19.4	476474	19.0	21.0	162145	19.1	18.0	2644	19.2	15.1	66392	19.2	19.6
528915	18.9	21.8	262982	18.9	20.1	416857	19.0	19.9	256703	19.1	20.7	334719	19.2	20.7	415659	19.2	19.7
424158	18.9	21.0	431395	18.9	19.8	508646	19.0	19.5	250843	19.1	19.0	288347	19.2	21.1	431073	19.2	21.5
214148	18.9	20.9	382594	18.9	20.3	535826	19.0	21.3	416917	19.1	20.4	321184	19.2	20.3	476363	19.2	21.7
196210	18.9	19.8	236975	18.9	17.7	22020	19.0	18.6	120576	19.1	17.4	341248	19.2	19.7	538160	19.2	20.4
391089	18.9	19.6	114848	18.9	18.3	354339	19.0	21.4	409726	19.1	21.1	309850	19.2	20.3	137294	19.2	22.9
329197	18.9	19.6	272648	18.9	21.3	409069	19.0	18.8	387426	19.1	18.9	71512	19.2	18.8	325247	19.2	19.2
231313	18.9	20.3	345055	18.9	20.9	156528	19.0	19.2	215388	19.1	19.7	349317	19.2	20.3	429595	19.2	20.3
210877	18.9	19.1	82162	18.9	19.8	255553	19.0	20.3	115171	19.1	18.1	328218	19.2	21.4	44404	19.2	18.3
513317	18.9	20.4	302347	18.9	21.0	472768	19.0	21.7	384969	19.1	20.2	428782	19.2	20.2	67751	19.3	18.1
87686	18.9	19.0	21484	18.9	17.9	522159	19.0	20.7	57903	19.1	17.7	436883	19.2	20.2	443645	19.3	20.3
245606	18.9	19.2	308359	18.9	20.0	393372	19.0	20.4	202419	19.1	19.5	504648	19.2	20.3	189027	19.3	19.6
150247	18.9	20.2	174857	18.9	19.8	59424	19.0	18.1	388712	19.1	21.2	161992	19.2	19.8	88968	19.3	18.6
376209	18.9	19.5	209013	18.9	20.9	412180	19.0	19.4	19966	19.1	16.7	368095	19.2	21.0	397080	19.3	19.9
217553	18.9	19.8	402903	18.9	19.6	332564	19.0	19.7	17882	19.1	17.5	139307	19.2	19.7	355206	19.3	20.3
58394	18.9	19.6	478113	18.9	20.0	431087	19.0	21.6	228613	19.1	20.4	173654	19.2	19.3	46045	19.3	18.9
405916	18.9	21.0	253295	18.9	21.2	249646	19.0	19.8	251408	19.1	19.4	137623	19.2	18.8	153374	19.3	18.4
168924	18.9	19.4	427252	18.9	20.6	365429	19.0	19.9	520217	19.1	20.7	427735	19.2	19.0	178353	19.3	19.1
542294	18.9	21.4	170998	18.9	19.5	301874	19.0	20.7	250110	19.1	20.6	523901	19.2	21.0	25152	19.3	17.7
57818	18.9	18.1	134947	18.9	19.8	162872	19.0	19.4	431117	19.1	20.1	185169	19.2	20.3	412061	19.3	20.2
364159	18.9	21.1	93758	18.9	18.9	120122	19.0	19.5	357011	19.1	20.0	228329	19.2	18.3	301242	19.3	20.7
110517	18.9	18.4	64514	18.9	18.8	443525	19.0	21.1	16116	19.1	16.1	213893	19.2	20.2	371008	19.3	20.6
504550	18.9	20.3	525051	18.9	20.7	59457	19.0	17.6	158347	19.1	19.4	395865	19.2	21.3	181846	19.3	17.8
243712	18.9	20.2	320321	18.9	20.8	507495	19.0	20.7	115086	19.1	18.7	361134	19.2	19.7	499251	19.3	20.5
393623	18.9	19.2	418158	18.9	21.2	312715	19.0	19.8	398035	19.1	20.1	118408	19.2	19.1	254343	19.3	19.8
353933	18.9	20.5	62667	18.9	17.0	304050	19.0	20.7	446692	19.1	20.1	517160	19.2	20.4	357940	19.3	20.7
303865	18.9	19.5	457738	18.9	21.8	387344	19.0	20.6	166043	19.1	19.7	4507	19.2	16.0	356358	19.3	19.9
296921	18.9	20.8	41843	18.9	17.5	367496	19.0	20.5	109081	19.1	18.5	25368	19.2	18.0	59696	19.3	19.4
442947	18.9	21.1	268463	18.9	20.5	289387	19.1	20.2	5737	19.1	16.0	280500	19.2	18.8	510266	19.3	19.6
174784	18.9	20.3	208562	18.9	18.9	308416	19.1	20.0	245249	19.1	18.6	479278	19.2	20.3	2707	19.3	15.9
476060	18.9	20.9	288787	18.9	19.4	201591	19.1	19.7	391058	19.1	19.1	173071	19.2	18.7	65151	19.3	19.4
263502	18.9	20.7	174529	18.9	19.7	182185											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
526076	19.3	21.1	258573	19.3	20.1	413230	19.4	19.4	398735	19.5	20.5	338655	19.6	20.3	327340	19.7	19.1
243437	19.3	18.8	53333	19.3	18.3	477161	19.4	20.7	536841	19.5	21.5	177857	19.6	19.5	132602	19.7	19.7
434084	19.3	22.1	502163	19.3	20.5	311599	19.4	19.9	145422	19.5	18.1	440708	19.6	20.1	510623	19.7	20.4
353237	19.3	20.6	43628	19.3	19.1	312526	19.4	20.1	22029	19.5	18.1	390259	19.6	20.5	514421	19.7	19.9
482150	19.3	20.1	12866	19.3	17.4	210499	19.4	19.9	540328	19.5	20.9	154648	19.6	17.5	321883	19.7	20.7
507757	19.3	20.9	390671	19.3	20.5	151595	19.4	17.6	331914	19.5	18.9	61831	19.6	18.4	9168	19.7	16.0
30790	19.3	18.0	95371	19.3	18.9	106271	19.4	18.7	375781	19.5	20.1	168512	19.6	18.5	266608	19.7	20.4
71052	19.3	18.1	538947	19.4	20.9	510980	19.4	21.4	519723	19.5	20.1	468570	19.6	21.3	512115	19.7	20.7
236105	19.3	19.7	241720	19.4	19.5	508537	19.4	20.4	206763	19.5	20.2	189854	19.6	20.5	467419	19.7	20.8
357382	19.3	19.0	406355	19.4	19.7	424141	19.4	21.2	318060	19.5	19.2	521733	19.6	21.1	501357	19.7	20.4
482209	19.3	20.3	185761	19.4	20.0	437139	19.4	20.8	469397	19.5	18.1	496379	19.6	19.1	479533	19.7	20.5
470809	19.3	21.3	457367	19.4	19.1	74218	19.4	18.2	499214	19.5	20.1	397770	19.6	20.9	532247	19.7	20.9
217487	19.3	19.6	37765	19.4	19.1	404259	19.4	20.5	531922	19.5	20.7	95037	19.6	19.2	207536	19.7	19.8
18113	19.3	16.8	317789	19.4	18.2	151760	19.4	19.6	39929	19.5	17.7	314280	19.6	20.7	49733	19.7	19.2
25388	19.3	18.3	507043	19.4	20.4	120606	19.4	18.7	96969	19.5	17.8	112916	19.6	19.1	231524	19.7	19.7
72109	19.3	18.9	510813	19.4	20.5	521545	19.4	21.3	263601	19.5	21.1	121571	19.6	19.3	62451	19.7	19.3
466109	19.3	22.3	497292	19.4	20.1	376321	19.4	20.4	213580	19.5	20.7	139322	19.6	19.4	435505	19.7	20.8
537000	19.3	19.8	301616	19.4	20.4	504727	19.4	20.7	132608	19.5	19.3	395937	19.6	20.8	473866	19.7	20.2
512671	19.3	20.2	241508	19.4	19.6	464704	19.4	18.9	95783	19.5	17.4	6967	19.6	16.3	375768	19.7	20.1
261533	19.3	20.4	402182	19.4	20.1	482178	19.4	21.2	534194	19.5	21.7	268161	19.6	19.9	426376	19.7	20.3
5766	19.3	16.3	139701	19.4	19.3	1851	19.4	15.9	540569	19.5	20.2	201544	19.6	19.4	503974	19.7	19.7
503706	19.3	20.8	234099	19.4	19.7	127569	19.4	19.3	72618	19.5	19.1	47375	19.6	17.9	349749	19.7	20.7
392182	19.3	20.7	258002	19.4	20.0	338570	19.4	19.8	144772	19.5	19.6	267742	19.6	20.0	91191	19.7	17.7
304553	19.3	20.3	357015	19.4	20.3	200292	19.4	19.8	277696	19.5	20.6	489496	19.6	19.2	492668	19.7	20.8
233386	19.3	20.3	38595	19.4	18.4	73748	19.4	18.8	132039	19.5	19.8	59236	19.6	16.1	43022	19.7	18.1
509678	19.3	22.3	48091	19.4	18.6	1712	19.4	15.0	133128	19.5	17.7	170022	19.6	20.2	396113	19.7	19.8
390272	19.3	20.8	408159	19.4	21.0	432756	19.4	20.9	201592	19.5	18.7	126272	19.6	19.0	432017	19.7	21.2
347790	19.3	20.6	360223	19.4	20.2	280165	19.4	19.0	61321	19.5	17.7	64835	19.6	18.6	169783	19.7	18.6
308507	19.3	19.9	535605	19.4	20.4	320560	19.4	20.9	37095	19.5	18.8	480366	19.6	21.2	303371	19.7	19.3
486653	19.3	20.1	467109	19.4	21.5	402965	19.4	19.8	109379	19.5	18.8	216158	19.6	19.3	412572	19.7	18.6
64712	19.3	17.2	294763	19.4	20.5	250531	19.4	19.1	440944	19.5	20.7	79146	19.6	18.9	134575	19.7	18.7
238709	19.3	19.9	201598	19.4	19.0	111001	19.4	20.1	56878	19.5	18.5	365106	19.6	20.8	154939	19.7	18.5
474088	19.3	19.9	169663	19.4	19.7	141449	19.4	19.5	361140	19.5	20.8	10938	19.6	16.1	195658	19.7	19.1
457445	19.3	19.2	44950	19.4	18.6	188405	19.4	20.5	377681	19.5	20.6	478637	19.6	20.9	5883	19.7	16.2
211540	19.3	18.9	424645	19.4	19.6	316459	19.4	21.0	61673	19.5	17.9	116167	19.6	19.7	391757	19.7	21.0
115702	19.3	19.3	211852	19.4	20.7	89623	19.4	19.2	318801	19.5	21.0	203442	19.6	20.0	162723	19.7	21.2
356716	19.3	20.4	530734	19.4	19.9	150562	19.4	19.0	436327	19.5	21.1	201017	19.6	20.0	503970	19.7	19.3
384022	19.3	18.7	465612	19.4	21.7	537256	19.4	21.4	45110	19.5	18.9	171194	19.6	19.9	126484	19.7	20.2
504944	19.3	20.8	390729	19.4	20.9	105836	19.5	19.1	282679	19.5	19.9	238612	19.6	21.0	333765	19.7	20.1
350193	19.3	20.3	468888	19.4	18.3	357813	19.5	19.6	67009	19.5	17.4	272007	19.6	20.3	121758	19.7	17.2
307140	19.3	21.3	1412	19.4	14.8	15519	19.5	17.0	74835	19.5	18.9	532404	19.6	20.3	478080	19.7	19.3
463394	19.3	21.2	514742	19.4	21.0	388779	19.5	20.1	457354	19.5	20.5	130867	19.6	19.9	386477	19.7	20.2
535485	19.3	19.0	443779	19.4	20.7	501203	19.5	19.4	319168	19.5	20.9	262618	19.6	21.6	173659	19.7	20.1
395249	19.3	19.4	31088	19.4	18.4	358398	19.5	20.5	14781	19.5	16.7	164657	19.6	18.8	24197	19.7	18.4
256734	19.3	19.1	73014	19.4	19.1	384571	19.5	20.1	25853	19.5	16.4	420615	19.6	21.2	175639	19.7	18.8
259224	19.3	20.0	180764	19.4	18.8	476450	19.5	21.4	420513	19.5	21.0	207989	19.6	18.6	123108	19.7	18.6
172051	19.3	20.5	199936	19.4	18.8	427516	19.5	19.7	479063	19.5	20.7	285198	19.6	20.5	59030	19.7	18.4
24973	19.3	18.5	287961	19.4	20.0	166481	19.5	18.9	381664	19.5	20.6	58485	19.6	17.8	374402	19.7	20.3
456822	19.3	19.6	426831	19.4	19.2	362970	19.5	20.7	170355	19.5	19.5	332774	19.6	19.7	211516	19.7	18.4
98851	19.3	19.4	205900	19.4	19.9	499847	19.5	21.2	503465	19.5	21.7	81688	19.6	18.9	106146	19.7	17.5
165063	19.3	20.5	177010	19.4	20.2	189332	19.5	20.0	426582	19.5	20.9	437717	19.6	20.6	31554	19.7	16.6
295477	19.3	19.7	17904	19.4	17.4	154852	19.5	19.0	526284	19.5	21.6	345408	19.6	20.0	248601	19.7	19.9
191749	19.3	19.8	108113	19.4	17.8	494244	19.5	20.3	54933	19.5	17.4	412598	19.6	19.6	483324	19.7	19.6
476272	19.3	20.7	499491	19.4	20.5	249179	19.5	19.6	66652	19.5	22.2	365423	19.6	19.9	538294	19.7	20.6
332727	19.3	20.4	434076	19.4	20.9	536484	19.5	20.9	193095	19.5	19.3	277036	19.6	21.4	329222	19.7	20.9
406816	19.3	21.3	87960	19.4	18.4	359997	19.5	19.9	64822	19.5	19.7	159780	19.6	16.5	204008	19.7	19.4
286942	19.3	19.9	177976	19.4	18.4	208645	19.5	19.7	180456	19.5	20.4	249292	19.6	20.3	79626	19.7	18.0
497395	19.3	20.7	114602	19.4	19.3	536686	19.5	21.9	364226	19.5	18.4	538421	19.6	21.7	5480	19.7	15.5
8972	19.3	16.5	89370	19.4	18.9	475670	19.5	20.0	117448	19.5	20.0	289605	19.6	20.5	314198	19.7	21.1
481472	19.3	21.2	67323	19.4	19.5	533546	19.5	22.1	149767	19.5	19.0	242366	19.6	20.3	536586	19.7	20.7
246416	19.3	19.4	363284	19.4	20.5	118852	19.5	19.6	207521	19.5	19.7	319017	19.6	20.4	127274	19.7	19.5
380824	19.3	20.8	106404	19.4	17.8	53977	19.5	18.4	259127	19.6	17.9	260843	19.6	20.5	181567	19.7	20.4
507040	19.3	20.0	343638	19.4	20.9	437836	19.5	21.2	175217	19.6	20.4	165337	19.6	18.4	232560	19.7	19.6
18535	19.3	16.9	68734	19.4	18.2	463126	19.5	20.7	511613	19.6	21.0	520283	19.6	20.8	435569	19.7	18.3
46453	19.3	17.0	504589	19.4	20.7	1489	19.5	16.8	340488	19.6	20.5	469117	19.6	20.1	221310	19.7	19.1
233548	19.3	20.2	100539	19.4	19.0	295073	19.5	20.5	13434	19.6	17.4	469447	19.6	20.7	503918	19.7	20.1
384439	19.3	20.7	263432	19.4	21.1	186877	19.5	19.6	259044	19.6	19.0	478386	19.6	21.9	358042	19.7	21.5
420804	19.3	20.2	133459	19.4	19.2	530945	19.5	20.9	193634	19.6	19.3	533519	19.6	21.2	290958	19.7	19.0
68070	19.3	18.9	528455	19.4	20.6	239981	19.5										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
34193	19.7	18.9	480677	19.8	20.4	74684	19.9	18.1	253904	19.9	19.9	480594	20.1	20.6	127772	20.1	20.4
43712	19.7	17.9	205548	19.8	19.3	430549	19.9	20.9	105814	19.9	18.2	161971	20.1	19.8	480025	20.1	20.0
107920	19.7	19.5	246505	19.8	20.0	475017	19.9	20.6	517660	19.9	19.3	352514	20.1	21.0	338843	20.1	20.1
64021	19.7	18.8	40687	19.8	18.3	360752	19.9	20.2	107062	19.9	19.5	150025	20.1	19.8	285779	20.1	19.1
302433	19.8	21.1	22440	19.8	18.6	389155	19.9	20.8	278402	19.9	19.1	141923	20.1	17.6	53579	20.1	17.8
292290	19.8	17.5	537648	19.8	20.8	213596	19.9	20.0	151462	19.9	19.1	533184	20.1	21.1	20926	20.1	18.7
247121	19.8	19.2	34647	19.8	16.0	518416	19.9	20.6	429406	19.9	21.6	342484	20.1	19.8	89412	20.1	19.5
290820	19.8	19.3	468420	19.8	19.1	195449	19.9	19.4	336800	19.9	21.3	260795	20.1	20.3	432418	20.1	21.4
355711	19.8	21.8	302461	19.8	21.6	545052	19.9	20.8	419958	19.9	21.0	224964	20.1	19.8	65503	20.1	18.1
172712	19.8	20.6	420711	19.8	19.9	423753	19.9	21.3	509730	19.9	20.3	281575	20.1	19.8	543888	20.2	20.2
30606	19.8	16.7	534370	19.8	21.0	184226	19.9	18.0	321260	20.0	20.3	158409	20.1	19.7	103393	20.2	19.7
156500	19.8	19.5	246732	19.8	19.1	148422	19.9	19.2	107785	20.0	19.0	267394	20.1	19.7	102087	20.2	18.0
75023	19.8	17.9	357959	19.8	21.9	482423	19.9	21.5	444649	20.0	20.9	376902	20.1	20.1	287414	20.2	19.8
263086	19.8	19.4	423238	19.8	19.7	179340	19.9	19.4	539563	20.0	20.4	97563	20.1	18.9	537512	20.2	20.9
514525	19.8	20.3	207381	19.8	19.7	205773	19.9	20.0	261	20.0	12.7	333180	20.1	19.6	95170	20.2	17.4
342762	19.8	20.2	483748	19.8	20.2	381883	19.9	20.2	205996	20.0	18.6	253848	20.1	20.6	192850	20.2	19.7
165296	19.8	19.2	515440	19.8	20.2	127587	19.9	18.7	508361	20.0	19.2	319343	20.1	19.5	526071	20.2	21.0
75344	19.8	19.3	432586	19.8	20.2	97992	19.9	17.2	237523	20.0	19.2	340295	20.1	19.5	508265	20.2	21.2
129899	19.8	19.3	177065	19.8	20.3	355230	19.9	20.2	188791	20.0	18.4	214890	20.1	20.5	107590	20.2	18.8
251616	19.8	20.1	112328	19.8	20.0	248085	19.9	18.7	354793	20.0	19.6	330070	20.1	19.6	345464	20.2	19.4
128857	19.8	18.9	442028	19.8	19.8	312439	19.9	20.4	112752	20.0	18.5	231750	20.1	18.9	30361	20.2	18.2
250224	19.8	19.2	75511	19.8	19.5	70793	19.9	17.9	176217	20.0	17.6	69128	20.1	19.7	154884	20.2	18.8
433651	19.8	19.5	330336	19.8	21.4	190443	19.9	20.7	481304	20.0	20.5	248526	20.1	19.7	7173	20.2	16.6
509457	19.8	20.1	344757	19.9	19.6	121834	19.9	19.6	281435	20.0	20.3	533571	20.1	21.0	237117	20.2	20.6
250413	19.8	19.7	343608	19.9	20.5	492435	19.9	21.0	3907	20.0	15.3	142070	20.1	18.1	313102	20.2	20.0
253592	19.8	19.3	246611	19.9	20.6	393288	19.9	20.2	330564	20.0	20.1	540717	20.1	20.6	394351	20.2	19.9
416554	19.8	20.3	202659	19.9	20.2	149416	19.9	19.0	312556	20.0	20.9	463228	20.1	20.9	424813	20.2	20.1
281594	19.8	20.0	509918	19.9	19.1	508947	19.9	19.5	93958	20.0	18.6	163021	20.1	19.3	159427	20.2	19.1
168904	19.8	19.0	457655	19.9	20.9	439412	19.9	20.0	439866	20.0	20.3	225954	20.1	19.5	216723	20.2	20.1
524429	19.8	20.0	434780	19.9	21.4	358431	19.9	20.0	290208	20.0	18.5	516976	20.1	20.9	158382	20.2	19.7
29933	19.8	17.8	478136	19.9	20.0	540773	19.9	20.6	443060	20.0	20.5	309815	20.1	20.7	75842	20.2	19.6
393879	19.8	19.9	72146	19.9	19.4	142428	19.9	18.2	438979	20.0	18.6	29942	20.1	17.2	69236	20.2	18.6
127254	19.8	20.1	393902	19.9	19.9	285672	19.9	18.7	530846	20.0	20.9	33629	20.1	18.8	470027	20.2	21.6
275361	19.8	20.5	476556	19.9	21.3	386098	19.9	20.7	357914	20.0	21.5	531418	20.1	20.8	472352	20.2	19.9
140198	19.8	19.2	125214	19.9	19.7	16782	19.9	17.6	268440	20.0	21.7	28942	20.1	19.0	106759	20.2	17.8
156111	19.8	18.4	199205	19.9	20.3	477692	19.9	20.1	469567	20.0	19.3	309663	20.1	20.7	335181	20.2	18.7
214572	19.8	19.5	332818	19.9	19.7	32070	19.9	17.4	311354	20.0	18.9	206649	20.1	19.2	12358	20.2	18.1
63530	19.8	18.8	225827	19.9	18.0	188743	19.9	20.9	411791	20.0	20.6	178282	20.1	19.5	145830	20.2	18.4
212900	19.8	20.3	480009	19.9	21.0	263199	19.9	20.4	132767	20.0	18.3	304104	20.1	20.3	389666	20.2	20.1
466116	19.8	21.5	475859	19.9	20.8	115221	19.9	18.6	391348	20.0	20.8	519014	20.1	21.8	392089	20.2	20.6
29563	19.8	18.1	365887	19.9	18.8	243171	19.9	20.4	466182	20.0	20.2	166260	20.1	18.8	482972	20.2	21.2
341108	19.8	20.8	499380	19.9	19.3	122311	19.9	17.8	180173	20.0	19.5	260197	20.1	19.5	503867	20.2	20.7
102729	19.8	18.1	142097	19.9	19.6	233347	19.9	20.6	255024	20.0	20.6	392625	20.1	19.3	497202	20.2	21.3
464437	19.8	21.0	290683	19.9	19.9	143719	19.9	19.5	236400	20.0	20.3	420360	20.1	21.5	424602	20.2	21.6
199749	19.8	20.3	118362	19.9	17.2	356790	19.9	20.9	94651	20.0	19.3	533714	20.1	20.8	174813	20.2	19.2
426224	19.8	20.1	95894	19.9	18.5	506023	19.9	21.1	176398	20.0	19.9	343688	20.1	20.6	540868	20.2	21.1
538150	19.8	21.1	436263	19.9	21.0	513176	19.9	20.1	46707	20.0	19.2	377743	20.1	19.8	280214	20.2	18.5
428206	19.8	19.8	107066	19.9	19.6	263316	19.9	21.4	163417	20.0	18.4	386382	20.1	21.0	308539	20.2	19.6
438455	19.8	20.4	32017	19.9	17.6	42606	19.9	18.9	505471	20.0	20.1	43813	20.1	17.9	533490	20.2	21.4
531885	19.8	20.5	298286	19.9	20.0	158356	19.9	17.0	88157	20.0	19.3	111644	20.1	20.1	443310	20.2	19.9
540943	19.8	20.6	164640	19.9	19.7	515232	19.9	21.9	93324	20.0	19.4	311485	20.1	19.8	427576	20.2	20.0
72746	19.8	18.7	135612	19.9	18.6	45979	19.9	19.3	357878	20.0	21.4	248517	20.1	18.9	158467	20.2	20.4
533494	19.8	20.4	173662	19.9	20.1	239815	19.9	20.1	394276	20.0	21.1	312149	20.1	19.2	489745	20.2	20.2
529795	19.8	19.5	36599	19.9	17.8	110643	19.9	19.2	443084	20.0	20.9	440686	20.1	20.1	23216	20.2	17.7
374393	19.8	20.7	263986	19.9	19.4	229722	19.9	19.8	102595	20.0	19.1	302212	20.1	19.8	354228	20.2	21.0
303863	19.8	19.9	247479	19.9	19.7	65954	19.9	17.8	271353	20.0	20.6	53392	20.1	18.6	72944	20.2	17.8
105279	19.8	18.3	211626	19.9	18.2	380211	19.9	21.0	160683	20.0	18.7	469991	20.1	21.1	22888	20.2	16.8
505228	19.8	21.0	380857	19.9	20.2	72019	19.9	18.5	354829	20.0	21.0	188738	20.1	20.6	320281	20.2	19.7
397763	19.8	21.1	40255	19.9	19.0	514020	19.9	20.7	375859	20.0	20.3	483131	20.1	20.3	173151	20.2	19.3
318629	19.8	20.7	272645	19.9	20.2	139234	19.9	19.4	533515	20.0	20.4	501031	20.1	19.9	260602	20.2	20.5
472606	19.8	18.4	98556	19.9	19.0	89838	19.9	18.9	497299	20.0	20.3	374990	20.1	20.0	311481	20.2	19.8
168387	19.8	20.1	189237	19.9	18.1	308213	19.9	21.0	141968	20.0	19.2	308567	20.1	21.4	438962	20.2	19.5
393881	19.8	20.7	42768	19.9	16.8	148079	19.9	19.6	116010	20.0	19.3	281805	20.1	20.6	498432	20.2	20.2
302036	19.8	19.0	442137	19.9	19.9	496955	19.9	20.9	87820	20.0	17.8	530481	20.1	22.3	114720	20.2	19.3
271766	19.8	20.4	199131	19.9	19.6	355518	19.9	20.6	211973	20.0	20.4	280993	20.1	19.6	417703	20.2	20.4
243040	19.8	19.6	105781	19.9	18.3	78538	19.9	18.9	296472	20.0	19.9	264210	20.1	20.6	18851	20.2	18.3
86202	19.8	17.1	429839	19.9	20.2	395500	19.9	20.9	507721	20.1	19.3	236795	20.1	19.8	473027	20.2	20.5
539420	19.8	21.1	388984	19.9	20.5	40869	19.9	18.3	250044	20.1	20.4	524807	20.1	21.6	376916	20.2	21.2
421310	19.8	19.7	161781	19.9	19.8												

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
388375	20.2	21.1	471745	20.3	20.1	155422	20.4	19.7	314386	20.5	20.5	253760	20.5	19.4	199635	20.6	19.2
173602	20.2	19.8	388340	20.3	20.4	405899	20.4	20.7	293621	20.5	18.8	185762	20.5	19.4	120473	20.6	20.0
190042	20.2	19.1	505818	20.3	20.8	400262	20.4	19.8	504779	20.5	20.2	49313	20.5	17.3	109975	20.6	18.8
361438	20.2	20.4	125018	20.3	20.3	236220	20.4	20.6	33138	20.5	18.5	470439	20.5	20.8	476274	20.6	20.5
37355	20.2	17.8	280401	20.3	20.4	118997	20.4	20.1	374442	20.5	21.0	492417	20.5	20.7	476371	20.6	21.4
65851	20.2	19.0	503126	20.3	19.4	320381	20.4	19.4	206176	20.5	19.7	503988	20.5	20.3	91957	20.6	19.6
94521	20.2	19.1	402852	20.3	19.5	100711	20.4	19.5	508120	20.5	19.9	200280	20.5	19.0	469924	20.6	21.4
293378	20.2	21.2	388384	20.3	20.9	330585	20.4	19.6	134206	20.5	19.1	526789	20.5	21.5	123731	20.6	19.7
227494	20.2	20.1	137878	20.3	19.5	248984	20.4	19.6	530940	20.5	23.0	157623	20.5	19.8	106273	20.6	18.9
90929	20.2	18.1	79251	20.3	19.4	380936	20.4	20.5	283894	20.5	20.1	148186	20.5	20.1	239261	20.6	20.2
499754	20.2	21.3	11191	20.3	16.8	195582	20.4	20.4	496763	20.5	20.0	508142	20.5	21.6	345306	20.6	20.4
71132	20.2	18.0	343310	20.3	20.0	357951	20.4	21.7	528065	20.5	22.1	239741	20.5	19.8	408328	20.6	20.9
325783	20.2	19.4	3851	20.3	15.6	206147	20.4	19.8	207043	20.5	19.5	442566	20.5	20.6	482298	20.6	19.7
247789	20.2	19.2	194367	20.3	19.3	315113	20.4	18.8	156359	20.5	19.3	151803	20.6	20.9	83692	20.6	18.9
165430	20.2	19.7	193053	20.3	19.4	114579	20.4	19.0	171055	20.5	20.8	501868	20.6	20.3	65118	20.6	18.7
175521	20.2	19.6	74741	20.3	18.2	529379	20.4	20.8	147131	20.5	18.3	77873	20.6	18.3	127005	20.6	18.8
437645	20.2	20.6	286042	20.3	20.1	424002	20.4	20.2	43149	20.5	18.2	99038	20.6	19.6	522608	20.6	21.2
501112	20.2	20.1	144263	20.3	19.7	392389	20.4	21.4	397001	20.5	21.0	233872	20.6	20.0	236828	20.6	19.5
511349	20.2	22.1	270352	20.3	20.5	39819	20.4	18.0	388802	20.5	19.5	384487	20.6	19.9	161870	20.6	19.9
404588	20.2	19.7	208655	20.3	19.9	463234	20.4	21.6	360950	20.5	19.9	311439	20.6	20.8	338766	20.6	19.3
343873	20.2	19.6	365164	20.3	20.9	467353	20.4	20.0	980	20.5	11.0	335115	20.6	19.5	328285	20.6	20.1
347854	20.2	20.0	263981	20.3	18.6	384881	20.4	20.5	237352	20.5	19.5	56562	20.6	17.3	240161	20.6	20.2
525193	20.2	19.6	462609	20.3	21.6	287527	20.4	20.5	497335	20.5	21.5	180447	20.6	20.2	448573	20.6	20.0
184006	20.2	20.2	225908	20.3	20.6	244755	20.4	18.8	37094	20.5	18.5	212942	20.6	20.6	446150	20.6	20.7
421899	20.2	20.8	121829	20.3	18.8	499126	20.4	21.3	233313	20.5	20.1	539514	20.6	20.6	259867	20.6	20.2
429683	20.3	19.7	2276	20.3	15.7	406828	20.4	20.0	83387	20.5	19.3	177388	20.6	19.7	69134	20.6	19.0
533698	20.3	21.5	387825	20.3	20.2	253673	20.4	20.3	511463	20.5	21.1	361470	20.6	20.3	204567	20.6	19.6
110902	20.3	19.0	192969	20.3	19.1	205322	20.4	19.5	477111	20.5	21.1	458805	20.6	20.1	207392	20.6	20.0
173658	20.3	19.9	74726	20.3	18.2	395054	20.4	21.1	263147	20.5	20.1	235139	20.6	17.4	35021	20.6	19.5
471080	20.3	20.3	483196	20.3	19.8	371614	20.4	19.8	60131	20.5	19.2	174214	20.6	20.4	479948	20.6	20.9
472586	20.3	20.3	237028	20.3	20.0	167462	20.4	19.4	230395	20.5	19.7	478355	20.6	19.6	254625	20.6	21.0
120094	20.3	19.4	355603	20.3	19.7	504638	20.4	21.7	338536	20.5	19.2	119667	20.6	19.8	403199	20.6	20.1
213582	20.3	19.4	537838	20.3	21.4	496165	20.4	20.6	516860	20.5	19.3	457359	20.6	19.6	413474	20.6	20.8
129182	20.3	19.3	11555	20.3	17.6	310700	20.4	21.2	122087	20.5	19.4	539730	20.6	20.3	75345	20.6	18.5
27587	20.3	17.2	351213	20.3	19.7	192762	20.4	19.4	540413	20.5	20.7	537820	20.6	20.6	1304	20.6	14.2
470454	20.3	20.0	214854	20.3	20.3	71098	20.4	17.8	413030	20.5	20.0	148592	20.6	18.8	540710	20.6	20.7
105934	20.3	19.1	446630	20.3	20.6	376725	20.4	19.7	513276	20.5	20.0	278813	20.6	19.6	57907	20.6	17.4
525280	20.3	19.4	524385	20.3	21.2	297730	20.4	19.1	478251	20.5	20.6	314119	20.6	20.2	448623	20.6	20.1
245346	20.3	20.4	236586	20.3	19.9	45652	20.4	18.9	533598	20.5	20.5	389934	20.6	20.6	421873	20.6	19.9
297111	20.3	19.5	31815	20.3	17.8	261412	20.4	19.9	127240	20.5	19.2	357301	20.6	20.8	347934	20.6	20.7
71173	20.3	19.7	246873	20.3	19.1	373610	20.4	20.4	21319	20.5	18.0	387364	20.6	20.2	530381	20.6	21.0
343417	20.3	20.2	438187	20.3	20.7	469989	20.4	20.6	512653	20.5	19.6	288857	20.6	19.4	499164	20.6	20.9
295575	20.3	20.4	303299	20.3	18.4	249623	20.4	19.7	475559	20.5	20.7	21344	20.6	18.0	303279	20.6	18.6
360167	20.3	21.7	195557	20.3	19.0	522336	20.4	21.0	87945	20.5	17.7	93371	20.6	18.4	10937	20.6	17.0
404716	20.3	20.2	336179	20.3	19.8	155866	20.4	21.1	115974	20.5	19.2	215656	20.6	18.3	497860	20.6	21.4
280095	20.3	21.3	397079	20.3	20.0	205738	20.4	19.6	233442	20.5	19.9	377688	20.6	20.6	395689	20.7	20.1
432320	20.3	21.2	294479	20.4	20.1	514183	20.4	20.1	362103	20.5	20.9	477121	20.6	20.6	107666	20.7	19.9
314423	20.3	20.8	480493	20.4	20.7	289305	20.4	20.6	354783	20.5	20.3	384448	20.6	20.8	281275	20.7	18.7
403218	20.3	21.2	357336	20.4	19.0	271049	20.4	20.4	422898	20.5	19.2	479024	20.6	20.2	423660	20.7	20.8
166439	20.3	18.9	128898	20.4	18.9	120621	20.4	18.9	490045	20.5	19.3	227476	20.6	19.9	475444	20.7	19.8
121336	20.3	18.5	507630	20.4	20.8	199728	20.4	20.1	38124	20.5	18.9	189845	20.6	20.4	524034	20.7	20.4
382787	20.3	20.6	76125	20.4	19.8	46015	20.4	18.5	438971	20.5	20.0	316295	20.6	18.9	316042	20.7	21.4
302325	20.3	20.5	524433	20.4	22.3	437527	20.4	20.0	360063	20.5	20.8	208966	20.6	19.5	231546	20.7	19.4
17862	20.3	17.2	504807	20.4	21.8	442578	20.4	21.0	250901	20.5	19.1	314001	20.6	19.4	125520	20.7	18.6
243321	20.3	20.3	87498	20.4	18.4	75583	20.4	19.6	256776	20.5	20.5	348438	20.6	20.4	536779	20.7	21.7
482986	20.3	20.7	61946	20.4	18.9	295264	20.4	20.3	432807	20.5	19.5	370926	20.6	19.6	536301	20.7	21.3
178590	20.3	20.4	429136	20.4	20.4	377769	20.4	21.0	471118	20.5	20.5	289633	20.6	21.0	36467	20.7	18.6
463155	20.3	20.6	494356	20.4	20.5	142166	20.4	18.4	51390	20.5	17.2	439177	20.6	20.5	361026	20.7	20.9
295800	20.3	20.4	528855	20.4	21.1	205746	20.4	19.4	419621	20.5	19.8	374405	20.6	18.4	83554	20.7	18.8
381540	20.3	19.9	62415	20.4	18.2	250881	20.4	19.8	264642	20.5	19.3	18450	20.6	19.0	226544	20.7	19.6
83714	20.3	19.0	254303	20.4	19.1	475878	20.4	20.8	101678	20.5	18.7	313118	20.6	19.9	317768	20.7	19.2
355724	20.3	20.5	270521	20.4	19.9	155098	20.4	19.0	311928	20.5	20.4	64893	20.6	17.6	321139	20.7	20.0
237925	20.3	20.1	110781	20.4	19.1	319206	20.4	19.6	166129	20.5	19.5	417738	20.6	21.6	117163	20.7	17.0
427524	20.3	21.5	286515	20.4	20.1	482733	20.4	20.5	89207	20.5	18.6	321106	20.6	19.7	393204	20.7	20.2
531033	20.3	22.3	43044	20.4	18.2	103597	20.4	20.3	115326	20.5	18.1	360161	20.6	20.4	34923	20.7	18.5
122612	20.3	17.5	19835	20.4	18.1	369990	20.5	21.1	155143	20.5	18.9	423506	20.6	21.6	18146	20.7	17.2
398597	20.3	20.8	8353	20.4	17.7	377726	20.5	20.4	70688	20.5	18.4	508709	20.6	20.4	410387	20.7	19.8
509258	20.3	19.9	438273	20.4	21.6	258146	20.5	19.4	184887	20.5	19.4	145173	20.6	19.0	513207	20.7	21.2
16122	20.3	19.4	474346	20.4	19.4	4											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
487236	20.7	21.0	460683	20.8	20.1	517215	20.8	20.3	217381	20.9	20.0	106176	20.9	18.8	76361	21.1	19.2
522391	20.7	20.8	359928	20.8	20.5	3729	20.8	14.3	228317	20.9	18.7	202847	20.9	19.9	445799	21.1	21.0
290511	20.7	19.9	111126	20.8	18.6	122696	20.8	19.1	371926	20.9	20.9	297142	20.9	19.5	308998	21.1	19.5
101727	20.7	18.2	468458	20.8	19.0	95298	20.8	19.4	225806	20.9	19.2	384491	20.9	19.8	174493	21.1	19.9
302862	20.7	20.5	67052	20.8	17.4	188681	20.8	18.6	433847	20.9	21.1	79280	20.9	17.6	345932	21.1	19.3
366805	20.7	20.7	129563	20.8	19.5	542415	20.8	20.3	512755	20.9	20.5	86999	20.9	19.5	109774	21.1	18.2
428071	20.7	20.7	328556	20.8	20.7	58201	20.8	19.3	410760	20.9	19.7	1747	20.9	16.0	259149	21.1	19.1
2073	20.7	16.4	267322	20.8	19.8	474127	20.8	20.6	373330	20.9	19.8	44967	20.9	18.8	347403	21.1	20.5
533550	20.7	21.7	46195	20.8	18.5	311373	20.8	20.4	488724	20.9	19.8	503851	20.9	21.1	442526	21.1	20.8
431067	20.7	21.1	163103	20.8	18.4	318049	20.8	20.0	165363	20.9	18.6	52820	20.9	17.6	354841	21.1	21.2
42963	20.7	17.9	283079	20.8	20.6	390017	20.8	21.5	462258	20.9	20.1	249630	20.9	20.5	255795	21.1	18.1
42344	20.7	18.4	84101	20.8	18.0	376918	20.8	19.1	358999	20.9	20.6	440979	20.9	20.4	528396	21.1	21.0
237005	20.7	20.1	350789	20.8	21.2	32961	20.8	18.2	183809	20.9	21.2	487591	20.9	19.0	59538	21.1	19.2
28362	20.7	17.0	31231	20.8	18.6	475932	20.8	20.0	144956	20.9	18.6	412441	20.9	21.6	222604	21.1	20.8
315796	20.7	20.9	195464	20.8	18.9	493606	20.8	19.2	240801	20.9	20.9	62344	20.9	18.8	415345	21.1	21.0
179239	20.7	19.5	184237	20.8	19.4	386481	20.8	20.4	443034	20.9	20.7	86306	20.9	18.4	153673	21.1	18.9
310510	20.7	20.7	525466	20.8	21.6	64149	20.8	16.5	478838	20.9	21.0	375733	20.9	20.1	36223	21.1	18.7
480683	20.7	20.1	508225	20.8	20.4	234019	20.8	19.6	306632	20.9	18.7	44931	20.9	18.8	328186	21.1	21.2
522589	20.7	21.6	506488	20.8	20.8	335508	20.8	20.0	537407	20.9	20.0	237042	20.9	20.5	534218	21.1	20.4
505553	20.7	21.1	70256	20.8	18.1	123133	20.8	19.2	43024	20.9	17.0	430208	20.9	20.4	35594	21.1	18.7
212428	20.7	18.5	481725	20.8	20.6	504877	20.8	19.1	235325	20.9	19.7	434753	20.9	21.1	477716	21.1	20.4
206759	20.7	20.0	377788	20.8	19.6	430966	20.8	21.1	246838	20.9	20.4	55541	20.9	18.5	322774	21.1	21.1
504784	20.7	21.6	129431	20.8	18.3	25121	20.8	18.6	64395	20.9	19.0	89869	20.9	18.7	45211	21.1	18.8
99627	20.7	18.3	325002	20.8	21.4	315959	20.8	19.7	126300	20.9	18.5	377760	21.0	19.8	243200	21.1	20.0
338117	20.7	19.9	86654	20.8	18.1	44991	20.8	17.5	525368	20.9	20.4	116160	21.0	18.4	390463	21.1	21.1
323378	20.7	19.9	95577	20.8	17.4	271854	20.9	19.3	480657	20.9	20.5	513182	21.0	23.2	533489	21.1	20.8
467099	20.7	20.3	125427	20.8	19.5	304904	20.9	20.1	97111	20.9	19.1	526258	21.0	22.0	277598	21.1	20.1
8643	20.7	16.1	129778	20.8	19.3	87918	20.9	18.5	387552	20.9	20.0	398193	21.0	19.1	247459	21.1	19.7
305924	20.7	20.7	105736	20.8	18.5	464905	20.9	20.8	103520	20.9	18.8	445023	21.0	21.0	84724	21.1	19.3
382483	20.7	20.1	132483	20.8	19.2	202483	20.9	19.9	428731	20.9	21.1	389984	21.0	20.6	216720	21.1	20.6
518276	20.7	20.2	540978	20.8	20.5	509527	20.9	20.4	398897	20.9	21.6	92623	21.0	18.3	393302	21.1	19.3
498291	20.7	21.6	99822	20.8	18.9	362988	20.9	21.5	478211	20.9	20.6	293857	21.0	18.8	65994	21.1	18.1
387054	20.7	20.5	37717	20.8	17.8	288847	20.9	20.3	17354	20.9	18.1	406384	21.0	19.2	313088	21.1	18.3
517583	20.7	20.8	434020	20.8	18.8	45016	20.9	18.3	440953	20.9	21.2	541003	21.0	19.3	94634	21.1	19.0
456965	20.7	20.9	3423	20.8	17.2	483147	20.9	19.8	412162	20.9	20.7	357215	21.0	20.0	80219	21.1	18.5
395567	20.7	19.8	186525	20.8	19.2	223248	20.9	20.2	50768	20.9	20.6	317453	21.0	20.1	91422	21.1	17.5
236603	20.7	20.2	365641	20.8	19.9	134216	20.9	20.0	207724	20.9	19.4	330318	21.0	19.4	32850	21.1	18.0
7782	20.7	16.3	320525	20.8	20.8	433811	20.9	21.3	416794	20.9	20.9	433562	21.0	19.8	439192	21.1	19.8
358888	20.7	19.8	285942	20.8	19.2	21835	20.9	17.6	368139	20.9	19.6	372649	21.0	19.6	479217	21.1	20.6
517671	20.7	20.2	430358	20.8	20.1	23741	20.9	16.8	394357	20.9	19.4	6198	21.0	16.4	452313	21.1	23.9
159060	20.7	20.7	491593	20.8	20.6	245764	20.9	21.0	237577	20.9	20.6	360074	21.0	21.5	245331	21.1	18.4
257572	20.7	19.9	510478	20.8	22.0	215990	20.9	18.2	177392	20.9	20.4	138837	21.0	18.7	304358	21.1	20.9
246987	20.7	19.3	13282	20.8	17.9	363974	20.9	21.2	479233	20.9	20.9	321885	21.0	20.8	349126	21.1	21.2
201797	20.7	20.6	472845	20.8	19.8	431955	20.9	20.4	42893	20.9	18.6	510586	21.0	20.1	100166	21.1	18.9
236647	20.7	19.6	303712	20.8	22.2	65700	20.9	17.8	538220	20.9	21.9	45939	21.0	19.0	162658	21.1	18.7
22157	20.7	19.1	384090	20.8	19.8	35303	20.9	18.3	22000	20.9	18.5	255851	21.0	20.6	53852	21.1	17.6
535592	20.7	21.4	215468	20.8	19.1	254405	20.9	19.4	123321	20.9	19.7	72974	21.0	18.3	187392	21.1	19.6
217582	20.7	20.4	179537	20.8	20.5	34636	20.9	17.9	400434	20.9	21.4	520454	21.0	21.1	394225	21.1	21.2
3674	20.7	13.7	115776	20.8	19.2	472800	20.9	21.0	181953	20.9	19.1	30503	21.0	17.1	250800	21.1	20.4
329372	20.7	18.9	311225	20.8	20.2	154530	20.9	19.6	538216	20.9	21.6	229660	21.0	21.0	222638	21.1	20.1
133652	20.7	18.1	399101	20.8	20.9	387533	20.9	19.6	1279	20.9	14.8	507100	21.0	20.9	320656	21.1	21.4
32927	20.7	19.2	492341	20.8	21.1	285710	20.9	19.1	459026	20.9	20.2	69105	21.0	18.5	90363	21.1	18.8
238613	20.7	20.9	272622	20.8	19.8	14673	20.9	18.5	428739	20.9	20.8	46380	21.0	18.4	244314	21.1	20.0
540513	20.7	20.6	150042	20.8	19.3	442051	20.9	20.0	392176	20.9	20.3	387166	21.0	21.2	123179	21.1	20.0
149292	20.7	18.1	462588	20.8	20.8	178587	20.9	20.1	417959	20.9	20.2	273833	21.0	20.3	214231	21.1	19.2
537615	20.7	20.4	483328	20.8	20.3	173802	20.9	19.4	528175	20.9	21.2	421442	21.0	19.0	281420	21.1	20.1
208595	20.7	20.1	55464	20.8	18.5	441377	20.9	20.7	303955	20.9	21.4	308845	21.0	19.3	363255	21.1	21.8
441998	20.7	18.6	525035	20.8	20.8	130089	20.9	19.0	19125	20.9	17.3	531929	21.0	20.7	312700	21.1	20.4
357352	20.7	18.5	107244	20.8	19.1	316192	20.9	19.4	524714	20.9	21.0	214788	21.0	20.3	398859	21.1	21.4
250846	20.7	19.3	114614	20.8	19.0	351921	20.9	21.2	394771	20.9	20.8	507010	21.0	20.7	510853	21.1	21.5
19063	20.7	18.6	253692	20.8	18.4	37274	20.9	14.9	183861	20.9	19.6	358423	21.0	20.1	327299	21.1	20.3
49220	20.7	17.4	490728	20.8	20.7	54525	20.9	18.3	428792	20.9	19.9	292213	21.0	19.8	252897	21.1	19.0
519264	20.7	21.3	7735	20.8	16.2	433741	20.9	21.6	532826	20.9	20.9	234131	21.0	19.8	91657	21.1	19.0
338765	20.7	19.2	178374	20.8	19.9	539518	20.9	21.3	5414	20.9	16.3	344083	21.0	20.2	86690	21.1	19.1
121737	20.7	18.7	371043	20.8	20.4	205756	20.9	20.1	408524	20.9	20.8	497477	21.0	20.0	257764	21.1	20.3
110163	20.7	18.6	330998	20.8	19.7	28935	20.9	17.2	247773	20.9	19.1	505517	21.0	20.5	199954	21.1	20.0
61624	20.7	18.1	483060	20.8	20.0	242671	20.9	19.9	519975	20.9	21.1	174560	21.0	19.7	497233	21.1	21.0
193570	20.7	19.5	434842	20.8	19.4	440342	20.9	19.7	434685	20.9	21.5	241952	21.0	20.0	494387	21.1	20.9
18341	20.7	16.8	525014	20.8	20.6	505810	20.9	20.7	3								

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
381158	21.1	21.1	149548	21.2	19.2	479939	21.3	19.9	178114	21.4	19.3	469962	21.4	21.5	89387	21.6	18.1
508596	21.1	19.3	356837	21.2	19.5	378164	21.3	19.4	209894	21.4	20.2	307041	21.4	20.5	94809	21.6	17.9
184179	21.1	19.5	15689	21.2	17.4	191591	21.3	19.5	86962	21.4	17.3	79452	21.5	19.7	308648	21.6	19.8
391302	21.1	20.0	380803	21.2	20.0	415326	21.3	20.6	229921	21.4	20.1	95467	21.5	19.3	340177	21.6	21.0
40865	21.1	18.3	7708	21.2	17.4	442793	21.3	20.4	183908	21.4	20.1	533604	21.5	20.6	18969	21.6	18.6
501430	21.1	19.2	41187	21.2	17.2	13734	21.3	18.3	512143	21.4	21.2	437855	21.5	19.2	35365	21.6	18.9
7391	21.1	17.8	508377	21.2	20.1	12542	21.3	17.5	410284	21.4	21.3	73728	21.5	19.1	379743	21.6	20.6
159878	21.1	19.5	319791	21.2	20.7	260712	21.3	20.6	406902	21.4	21.3	456100	21.5	21.7	51378	21.6	18.7
436231	21.1	20.4	271658	21.2	19.5	44465	21.3	18.3	495422	21.4	19.9	522375	21.5	20.4	258010	21.6	20.6
431352	21.1	20.9	427517	21.2	19.7	194296	21.3	19.9	501661	21.4	21.1	396118	21.5	20.4	542225	21.6	20.1
55909	21.1	19.2	144159	21.2	19.9	193891	21.3	19.4	172136	21.4	20.4	106701	21.5	17.7	235887	21.6	19.9
27572	21.1	18.5	49060	21.2	18.9	406302	21.3	20.9	110422	21.4	17.6	299714	21.5	20.4	503360	21.6	21.1
467420	21.1	20.8	156993	21.2	19.6	538764	21.3	20.5	36003	21.4	17.6	398978	21.5	20.6	509546	21.6	21.4
256810	21.1	20.0	240792	21.2	21.0	277715	21.3	20.4	313163	21.4	20.7	63151	21.5	18.6	33607	21.6	18.3
349332	21.1	21.0	478247	21.2	20.9	231930	21.3	20.5	395505	21.4	20.3	457337	21.5	20.4	367718	21.6	20.6
209925	21.2	19.1	527360	21.2	21.2	422244	21.3	19.9	412025	21.4	21.2	257153	21.5	20.1	415485	21.6	19.9
435857	21.2	20.5	132004	21.2	19.5	67768	21.3	18.7	80755	21.4	19.3	277540	21.5	20.9	62638	21.6	18.5
80191	21.2	19.0	276441	21.2	21.1	29075	21.3	19.0	439614	21.4	19.9	33284	21.5	15.5	471666	21.6	19.8
245123	21.2	19.1	26251	21.2	17.9	303249	21.3	18.0	335835	21.4	20.5	382925	21.5	19.5	507030	21.6	20.9
24987	21.2	16.1	514017	21.2	21.3	14718	21.3	17.4	226343	21.4	20.3	140141	21.5	18.9	425826	21.6	20.7
401348	21.2	21.0	512571	21.2	20.6	35011	21.3	18.5	406330	21.4	19.3	472037	21.5	20.3	539325	21.6	20.8
265013	21.2	20.5	86177	21.2	22.5	336380	21.3	20.8	86361	21.4	17.3	238817	21.5	18.7	526296	21.6	21.7
232236	21.2	19.3	90220	21.2	18.9	508398	21.3	19.1	537097	21.4	20.5	537194	21.5	21.6	376420	21.6	19.4
204807	21.2	18.8	305920	21.2	20.6	72613	21.3	18.7	159017	21.4	19.4	298718	21.5	21.4	525334	21.6	20.0
412021	21.2	20.9	499383	21.3	20.6	509214	21.3	20.3	383269	21.4	20.4	247713	21.5	19.8	18936	21.6	17.5
69714	21.2	18.5	507831	21.3	21.2	147826	21.3	18.8	115998	21.4	19.0	310322	21.5	19.6	59535	21.6	18.0
377319	21.2	19.8	341300	21.3	19.3	373537	21.3	19.8	537582	21.4	20.9	127787	21.5	19.1	270447	21.6	20.2
214215	21.2	19.3	190828	21.3	18.5	386435	21.3	20.8	182082	21.4	19.6	29797	21.5	16.0	168472	21.6	18.7
36423	21.2	17.2	169486	21.3	20.2	415465	21.3	19.3	213538	21.4	20.5	436210	21.5	19.4	170855	21.6	20.3
45401	21.2	17.3	195023	21.3	20.0	482162	21.3	19.7	442590	21.4	21.0	323438	21.5	19.1	402897	21.6	19.2
398793	21.2	22.0	20688	21.3	16.0	522859	21.3	21.0	292273	21.4	20.8	483081	21.5	19.9	31575	21.6	18.6
326336	21.2	19.2	156213	21.3	18.4	354787	21.3	20.4	437563	21.4	20.8	242681	21.5	19.8	188620	21.6	19.2
196614	21.2	20.4	59968	21.3	18.0	540056	21.3	20.6	88807	21.4	19.7	10543	21.5	16.1	236559	21.6	20.1
513696	21.2	20.9	352377	21.3	20.2	508284	21.3	20.8	356734	21.4	20.5	366204	21.5	20.1	362858	21.6	19.6
395634	21.2	20.4	195465	21.3	19.7	474792	21.3	19.3	311387	21.4	20.1	56496	21.5	19.1	378735	21.6	20.8
322280	21.2	21.0	248370	21.3	19.1	147180	21.3	19.9	154933	21.4	21.0	358098	21.5	20.2	102876	21.6	18.8
110527	21.2	19.1	392420	21.3	19.9	103768	21.3	19.9	273720	21.4	19.3	478181	21.5	21.4	359068	21.6	19.9
505206	21.2	19.8	430230	21.3	18.5	89729	21.3	17.2	508423	21.4	19.9	393163	21.5	20.3	323402	21.6	20.5
351940	21.2	20.3	485656	21.3	20.0	521413	21.3	21.4	152698	21.4	18.8	534439	21.5	19.3	341492	21.6	20.6
403253	21.2	20.5	191816	21.3	18.7	368108	21.3	18.9	514416	21.4	20.4	410382	21.5	20.7	312422	21.6	19.6
66373	21.2	17.6	386446	21.3	20.2	73104	21.3	19.8	111407	21.4	19.2	79021	21.5	18.1	117293	21.6	18.6
220308	21.2	20.5	453301	21.3	19.7	227462	21.3	18.4	525873	21.4	20.2	44908	21.5	18.4	98719	21.6	18.8
228346	21.2	18.4	354571	21.3	20.0	442602	21.3	20.5	475533	21.4	20.9	494261	21.5	20.5	255098	21.6	19.8
501100	21.2	19.2	268417	21.3	20.2	440353	21.3	20.5	233112	21.4	19.8	218413	21.5	18.9	490674	21.6	20.8
338581	21.2	20.3	406443	21.3	20.5	512912	21.3	19.8	354925	21.4	20.0	271814	21.5	19.3	51376	21.6	18.6
25524	21.2	17.8	303669	21.3	19.6	74668	21.3	18.0	81273	21.4	18.2	207814	21.5	20.3	103178	21.6	18.4
111635	21.2	19.2	82319	21.3	18.2	144278	21.3	20.5	571	21.4	13.3	335757	21.5	21.1	230911	21.6	20.5
432747	21.2	20.8	160555	21.3	17.5	128566	21.3	18.4	222684	21.4	18.2	521258	21.5	21.1	361117	21.6	20.5
391093	21.2	20.2	32826	21.3	18.2	53346	21.3	18.8	421110	21.4	18.9	358915	21.5	20.9	315475	21.6	21.2
360387	21.2	21.0	101603	21.3	19.1	175374	21.3	20.2	472754	21.4	21.0	281492	21.5	20.2	428881	21.6	19.6
314125	21.2	21.1	307235	21.3	20.5	514481	21.3	19.4	6810	21.4	16.4	392985	21.5	21.2	478047	21.6	20.6
206945	21.2	18.5	375798	21.3	19.5	57859	21.3	19.3	403264	21.4	20.2	20918	21.5	17.5	140923	21.6	18.5
228629	21.2	20.6	143271	21.3	17.8	147451	21.4	19.2	430538	21.4	21.4	140839	21.5	19.0	309723	21.6	21.3
276069	21.2	20.0	14925	21.3	15.9	146983	21.4	18.6	359005	21.4	20.8	426601	21.5	20.5	41624	21.6	18.8
336384	21.2	19.6	129303	21.3	19.1	198893	21.4	19.7	15765	21.4	16.2	329403	21.5	20.0	529826	21.6	19.6
152762	21.2	19.0	181369	21.3	19.6	430650	21.4	19.2	95692	21.4	17.9	33283	21.5	18.8	170158	21.6	19.9
119997	21.2	18.7	510493	21.3	21.2	342229	21.4	20.7	431961	21.4	19.6	533429	21.5	21.1	268960	21.6	20.4
190148	21.2	18.8	292137	21.3	19.0	340447	21.4	21.1	153278	21.4	20.1	225852	21.5	20.2	20193	21.6	16.2
121297	21.2	18.9	342711	21.3	20.3	286427	21.4	19.7	196647	21.4	19.2	387478	21.5	20.4	412304	21.6	21.4
508386	21.2	20.0	379713	21.3	20.0	481197	21.4	19.1	392068	21.4	20.5	374374	21.5	20.9	79771	21.6	17.4
457347	21.2	19.8	195838	21.3	19.5	132293	21.4	19.8	349027	21.4	20.7	314015	21.5	19.9	505565	21.6	21.6
198393	21.2	20.2	444670	21.3	21.2	470855	21.4	20.9	126652	21.4	19.8	237300	21.5	20.0	143634	21.6	20.1
39030	21.2	18.2	123612	21.3	19.3	241545	21.4	20.3	466098	21.4	22.1	1687	21.5	14.5	402922	21.6	19.3
32210	21.2	18.1	530889	21.3	21.4	507467	21.4	20.0	162621	21.4	18.3	360001	21.5	20.6	199513	21.6	19.9
344516	21.2	20.2	69448	21.3	18.6	376793	21.4	18.9	395991	21.4	20.0	138434	21.5	19.6	174111	21.6	19.0
312171	21.2	20.1	49008	21.3	18.4	239184	21.4	20.4	333482	21.4	19.7	324070	21.5	20.1	352438	21.6	21.2
38569	21.2	18.1	61419	21.3	18.1	527110	21.4	21.4	222573	21.4	20.5	504069	21.5	20.7	387234	21.6	20.3
393933	21.2	20.3	97455	21.3	19.0	291174	21.4	20.5	468523	21.4	21.0	169291	21.5	19.7	200271	21.6	19.5
514415	21.2	21.1	434357	21.3	21.2	341140	21.4										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
92566	21.6	17.2	522607	21.7	20.0	438191	21.8	20.0	171474	21.9	19.0	501307	21.9	21.3	154941	22.0	19.2
270292	21.6	20.9	429618	21.7	21.7	528483	21.8	20.5	202196	21.9	20.0	202866	21.9	19.8	19565	22.0	16.5
22710	21.6	18.0	169648	21.7	19.5	496757	21.8	20.5	415488	21.9	20.2	409354	21.9	20.1	205236	22.0	19.4
246997	21.6	18.3	141918	21.7	18.3	170269	21.8	19.0	182816	21.9	19.7	360654	21.9	18.6	14334	22.0	18.3
57427	21.6	19.5	437370	21.7	19.0	316353	21.8	19.2	365167	21.9	21.1	17839	21.9	16.4	34798	22.0	17.9
136937	21.6	19.4	71975	21.7	18.6	277457	21.8	20.7	461453	21.9	20.0	193471	21.9	19.4	107853	22.0	18.9
367763	21.6	20.1	392164	21.7	20.6	237089	21.8	19.3	26032	21.9	17.0	20953	21.9	18.2	350957	22.0	20.3
44415	21.6	18.8	45231	21.7	18.3	387086	21.8	20.7	488380	21.9	20.2	385423	21.9	20.8	350578	22.0	20.2
279782	21.6	20.2	427518	21.7	19.2	536233	21.8	21.3	441359	21.9	20.7	266317	21.9	21.4	334470	22.0	20.0
75309	21.6	18.0	536164	21.7	21.7	358440	21.8	19.9	140144	21.9	19.7	191869	21.9	19.3	28110	22.0	18.7
201642	21.6	19.3	521458	21.7	20.3	387183	21.8	20.5	285542	21.9	20.3	277499	21.9	20.4	239318	22.0	19.5
503311	21.6	20.9	529793	21.7	20.1	343559	21.8	20.1	68542	21.9	19.9	277527	21.9	21.5	179566	22.0	19.4
61359	21.6	18.1	418369	21.7	20.4	54455	21.8	19.3	37713	21.9	18.8	120444	21.9	20.0	500157	22.0	21.5
11015	21.6	15.5	183793	21.7	20.6	95089	21.8	17.6	216263	21.9	19.8	290789	21.9	20.0	66473	22.0	17.6
216671	21.6	19.4	92028	21.7	17.5	241121	21.8	18.7	472395	21.9	19.8	69768	21.9	17.9	482100	22.0	19.2
333654	21.6	20.9	184167	21.7	18.1	127501	21.8	18.1	247754	21.9	19.1	114941	21.9	18.0	364199	22.0	19.0
411684	21.6	20.2	426771	21.7	20.0	295585	21.8	19.8	379204	21.9	20.6	361468	21.9	20.7	390720	22.0	20.3
27900	21.6	17.8	488371	21.7	20.1	228599	21.8	19.8	393655	21.9	19.5	191784	21.9	19.6	128847	22.0	19.1
25025	21.6	18.1	112279	21.7	18.3	417741	21.8	20.8	373105	21.9	20.5	100181	21.9	17.9	353159	22.0	20.7
52538	21.6	17.8	117008	21.7	19.6	84359	21.8	17.8	75237	21.9	18.7	43902	21.9	18.7	336397	22.1	20.5
151246	21.6	19.6	314168	21.7	20.8	423976	21.8	21.2	237867	21.9	19.7	6712	21.9	17.5	362954	22.1	20.8
236721	21.7	20.7	499259	21.7	21.3	93139	21.8	19.0	259071	21.9	20.9	373846	21.9	19.5	196460	22.1	18.9
361474	21.7	20.4	309157	21.7	19.4	422289	21.8	20.7	13708	21.9	16.8	195085	21.9	20.4	159991	22.1	18.8
372966	21.7	20.5	482110	21.7	19.6	7509	21.8	16.2	233935	21.9	19.4	521487	21.9	20.7	28378	22.1	17.2
99210	21.7	20.0	301079	21.7	20.2	12133	21.8	17.6	33135	21.9	16.4	181622	21.9	19.8	398063	22.1	21.0
119911	21.7	19.1	396443	21.7	20.6	351959	21.8	20.9	232743	21.9	19.0	231342	21.9	20.3	535610	22.1	20.6
165998	21.7	20.1	38029	21.7	18.0	239569	21.8	20.8	106926	21.9	20.4	196572	21.9	19.1	187433	22.1	19.4
347525	21.7	17.8	500115	21.7	21.7	311370	21.8	21.0	425807	21.9	20.6	432803	21.9	21.1	111629	22.1	19.4
41173	21.7	18.6	536161	21.7	21.3	304597	21.8	20.2	330146	21.9	19.0	230896	21.9	17.9	338535	22.1	19.2
230953	21.7	19.5	521139	21.7	20.0	492560	21.8	20.8	294246	21.9	19.3	476507	21.9	20.2	507730	22.1	20.8
286571	21.7	20.4	304087	21.7	21.2	471696	21.8	19.9	93638	21.9	17.7	216491	21.9	19.9	71825	22.1	18.4
446200	21.7	21.4	118249	21.7	20.0	108999	21.8	18.6	36022	21.9	18.2	458176	21.9	20.4	86157	22.1	18.3
371598	21.7	20.9	153233	21.7	19.7	523987	21.8	20.5	203044	21.9	20.2	326422	21.9	19.4	500926	22.1	20.8
333422	21.7	19.7	521438	21.7	20.8	440504	21.8	20.2	414418	21.9	21.0	211900	21.9	19.4	291574	22.1	19.8
508086	21.7	19.8	519008	21.7	20.4	305332	21.8	20.6	356772	21.9	20.9	531847	21.9	21.6	220292	22.1	18.8
521563	21.7	20.6	99485	21.7	18.3	78515	21.8	18.4	499850	21.9	21.9	71822	21.9	18.7	274731	22.1	19.9
211888	21.7	18.7	186714	21.7	20.0	146174	21.8	18.0	165328	21.9	18.7	258737	21.9	20.5	442038	22.1	20.4
413441	21.7	21.2	522352	21.7	21.3	157485	21.8	20.2	419695	21.9	20.5	393071	21.9	19.6	274525	22.1	19.0
520384	21.7	21.2	492313	21.7	21.9	103886	21.8	17.2	58524	21.9	18.6	494683	21.9	20.5	387795	22.1	19.1
463511	21.7	19.7	123670	21.7	19.1	239985	21.8	19.4	33970	21.9	17.9	497288	21.9	20.7	478264	22.1	21.6
404150	21.7	21.5	435839	21.7	19.9	259297	21.8	20.9	442062	21.9	20.7	84607	21.9	19.2	7049	22.1	17.0
311198	21.7	20.2	513360	21.7	21.7	210276	21.8	18.4	504583	21.9	21.4	39823	21.9	17.7	311973	22.1	20.9
312192	21.7	20.8	15249	21.7	17.2	354955	21.8	20.1	494835	21.9	20.0	310097	21.9	19.6	257473	22.1	20.9
330237	21.7	19.1	246103	21.7	19.5	92145	21.8	19.1	191105	21.9	19.9	502798	21.9	20.6	315022	22.1	20.5
501248	21.7	19.9	433399	21.8	20.6	179481	21.8	19.4	422384	21.9	20.9	235793	21.9	20.5	118477	22.1	19.2
336293	21.7	19.3	311908	21.8	20.2	349392	21.8	21.5	312538	21.9	20.9	330674	21.9	21.3	477717	22.1	20.5
161590	21.7	18.6	370086	21.8	19.5	181744	21.8	20.3	90925	21.9	18.9	506979	21.9	19.0	522891	22.1	20.1
316883	21.7	18.1	140069	21.8	17.8	8548	21.8	17.6	310691	21.9	20.6	474832	21.9	20.4	235874	22.1	20.4
207849	21.7	20.3	504992	21.8	21.7	345478	21.8	20.9	471695	21.9	20.3	248570	21.9	20.0	250342	22.1	18.9
312691	21.7	19.1	219580	21.8	20.1	114515	21.8	19.5	320647	21.9	20.2	10853	21.9	17.6	320495	22.1	20.6
526856	21.7	21.1	245603	21.8	20.4	488518	21.8	19.5	293789	21.9	20.3	238818	21.9	19.4	294503	22.1	19.3
450208	21.7	19.5	468757	21.8	20.4	319330	21.8	20.7	57887	21.9	17.8	31017	21.9	18.1	411842	22.1	20.8
174549	21.7	19.5	443602	21.8	20.5	65892	21.8	19.3	302373	21.9	20.3	195132	21.9	19.5	242735	22.1	20.4
177070	21.7	20.8	297756	21.8	19.8	259730	21.8	19.8	416279	21.9	21.2	437017	22.0	20.7	466638	22.1	20.5
385456	21.7	20.0	288555	21.8	20.5	253268	21.8	19.3	333931	21.9	17.7	143053	22.0	18.4	300019	22.1	20.9
372133	21.7	20.1	256116	21.8	20.7	33829	21.8	18.1	18413	21.9	17.8	343557	22.0	20.8	304585	22.1	20.5
147641	21.7	19.4	499364	21.8	19.9	57483	21.8	18.7	20951	21.9	18.3	525740	22.0	19.9	346972	22.1	20.2
329377	21.7	18.8	182743	21.8	19.5	400224	21.8	20.8	373242	21.9	19.8	284809	22.0	20.1	18012	22.1	17.4
54584	21.7	16.6	249786	21.8	19.3	510955	21.8	21.2	408680	21.9	20.2	102202	22.0	18.4	341244	22.1	19.7
514496	21.7	21.4	154681	21.8	19.7	434681	21.8	20.9	439036	21.9	20.7	70871	22.0	19.0	34657	22.1	18.2
362166	21.7	20.3	434683	21.8	21.4	338740	21.8	19.3	100863	21.9	20.0	89364	22.0	18.9	427548	22.1	19.3
235223	21.7	20.2	145715	21.8	19.8	400226	21.9	20.7	380275	21.9	21.1	37850	22.0	19.0	199042	22.1	18.4
342432	21.7	18.6	28844	21.8	16.7	33484	21.9	17.9	441988	21.9	20.0	532943	22.0	22.0	526714	22.1	21.3
512660	21.7	20.4	380610	21.8	20.2	357860	21.9	20.0	466167	21.9	20.6	420770	22.0	21.2	409378	22.1	20.7
25290	21.7	17.8	394757	21.8	20.4	58762	21.9	16.5	86111	21.9	18.6	308601	22.0	20.8	270880	22.1	18.8
247372	21.7	20.2	462570	21.8	21.0	410740	21.9	21.9	94432	21.9	17.0	216115	22.0	21.7	502680	22.1	20.6
35127	21.7	18.4	397083	21.8	20.2	510611	21.9	21.1	119457	21.9	19.2	170923	22.0	18.3	20696	22.1	19.2
335585	21.7	20.1	164732	21.8	18.6	69962	21.9	17.8	289226	21.9	20.3	150320	22.0	18.6	286713	22.1	20.2
499004	21.7	21.1	527646	21.8	20.4	376300	21.										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
334389	22.1	20.2	30342	22.2	18.3	96401	22.3	19.5	3518	22.3	15.2	218817	22.4	20.3	309776	22.5	19.6
423526	22.1	21.3	185259	22.2	20.8	163929	22.3	18.6	9330	22.3	17.8	443489	22.4	21.0	150280	22.5	18.7
235329	22.1	19.6	478278	22.2	21.7	357237	22.3	20.1	415353	22.3	21.5	466673	22.4	20.0	74057	22.5	19.2
314011	22.1	20.2	382129	22.2	20.3	465454	22.3	20.5	33609	22.3	18.7	515081	22.4	20.7	100820	22.5	19.4
407677	22.1	19.9	178581	22.2	18.0	529728	22.3	21.6	450217	22.3	19.9	233644	22.4	19.1	267437	22.5	19.9
255910	22.1	20.4	360517	22.2	19.9	422594	22.3	20.6	160984	22.3	17.8	288184	22.4	19.0	327699	22.5	19.2
309653	22.1	20.7	260168	22.2	19.5	31265	22.3	18.1	65198	22.3	19.1	42577	22.4	17.4	42819	22.5	16.5
375906	22.1	19.3	311233	22.2	19.4	128081	22.3	19.4	47966	22.4	18.5	245658	22.4	20.3	149166	22.5	18.7
20541	22.1	17.7	117525	22.2	20.3	92187	22.3	19.0	134176	22.4	19.8	311231	22.4	20.2	294382	22.5	20.4
200566	22.1	18.5	103673	22.2	19.3	534642	22.3	20.7	324346	22.4	19.8	49998	22.4	17.4	508177	22.5	21.2
255666	22.1	19.3	124700	22.2	19.5	120721	22.3	18.7	48678	22.4	19.1	33532	22.4	17.5	119518	22.5	17.3
529646	22.1	21.3	102694	22.2	17.4	169667	22.3	19.6	42855	22.4	17.1	117755	22.4	20.0	309829	22.5	21.0
427764	22.1	21.0	270469	22.2	20.0	434686	22.3	20.1	269541	22.4	20.7	522964	22.4	21.0	374041	22.5	19.1
302271	22.1	20.8	475787	22.2	20.8	391096	22.3	20.5	459144	22.4	20.3	346599	22.4	19.5	43613	22.5	18.1
472716	22.1	21.8	418159	22.2	21.6	270426	22.3	20.3	16011	22.4	17.6	198109	22.4	18.4	482116	22.5	19.1
335533	22.1	20.4	262059	22.2	19.2	43010	22.3	18.1	251801	22.4	19.7	357774	22.4	20.0	38361	22.5	18.7
150580	22.1	20.7	106968	22.2	19.9	529765	22.3	21.4	177855	22.4	20.1	507801	22.4	20.7	397587	22.5	18.7
535827	22.1	20.7	491293	22.2	20.6	47816	22.3	17.5	45709	22.4	18.5	248453	22.4	18.6	153237	22.5	20.3
208874	22.1	19.6	183631	22.2	19.7	285278	22.3	20.6	364744	22.4	19.2	31243	22.4	17.8	401369	22.5	20.4
421466	22.1	19.6	387179	22.2	21.2	246091	22.3	19.9	35024	22.4	19.7	43440	22.4	18.2	36479	22.5	18.1
345939	22.1	18.7	309122	22.2	20.2	379357	22.3	20.0	184824	22.4	19.2	427915	22.4	19.8	474923	22.5	20.9
352349	22.1	20.7	220314	22.2	20.9	66067	22.3	18.3	490709	22.4	20.5	301330	22.4	20.6	159546	22.5	19.7
494341	22.1	20.4	430668	22.2	19.3	380924	22.3	20.8	32836	22.4	18.9	162180	22.4	19.2	430161	22.5	20.8
315448	22.1	20.7	322466	22.2	19.5	215858	22.3	20.7	538738	22.4	20.8	92150	22.5	19.0	400208	22.5	20.2
257118	22.1	19.9	228591	22.2	20.5	41719	22.3	17.6	433165	22.4	20.1	500863	22.5	21.0	356755	22.5	21.2
36177	22.1	17.7	335503	22.2	20.8	540228	22.3	20.8	3482	22.4	15.1	13723	22.5	17.1	430082	22.5	19.0
36845	22.1	17.7	205924	22.2	18.6	16851	22.3	16.8	516238	22.4	21.0	62150	22.5	19.0	501729	22.5	21.1
17507	22.1	17.4	246861	22.2	20.0	445399	22.3	20.6	308451	22.4	19.4	17509	22.5	18.1	263551	22.5	20.0
255169	22.1	20.0	526138	22.2	19.9	279643	22.3	20.7	186287	22.4	20.5	187906	22.5	18.4	347242	22.5	19.6
262444	22.1	19.6	114615	22.2	19.6	246043	22.3	20.0	506993	22.4	21.3	192704	22.5	20.0	213912	22.5	18.9
433774	22.1	20.8	312978	22.2	21.7	203575	22.3	20.5	361702	22.4	20.6	241737	22.5	20.4	499682	22.5	20.9
371742	22.1	21.1	131784	22.2	19.6	307553	22.3	20.5	410278	22.4	19.2	260961	22.5	19.4	55212	22.5	18.4
27389	22.1	18.2	385033	22.2	20.1	141948	22.3	18.8	238219	22.4	20.8	459720	22.5	20.5	536515	22.5	21.7
423807	22.2	20.5	154470	22.2	20.3	133314	22.3	19.7	199827	22.4	21.2	160327	22.5	19.5	127209	22.5	19.1
500236	22.2	20.6	276952	22.2	19.2	186690	22.3	19.8	95465	22.4	19.0	530894	22.5	20.5	32680	22.5	17.7
229900	22.2	18.8	538377	22.2	21.5	305626	22.3	20.7	529909	22.4	21.1	116151	22.5	20.1	405474	22.5	20.1
256518	22.2	20.3	436222	22.2	21.0	509560	22.3	22.4	316218	22.4	20.3	472100	22.5	21.3	464882	22.5	21.7
125807	22.2	18.2	508275	22.2	21.2	397435	22.3	20.0	253849	22.4	20.4	404866	22.5	21.8	511485	22.5	20.0
395076	22.2	20.3	19282	22.2	17.7	167789	22.3	19.8	491429	22.4	21.2	170967	22.5	19.8	523923	22.5	20.9
203512	22.2	20.4	259787	22.2	21.1	526607	22.3	20.8	320384	22.4	20.4	489036	22.5	20.4	280128	22.5	20.5
344811	22.2	21.0	475741	22.2	20.8	68219	22.3	19.4	505826	22.4	20.4	181045	22.5	19.1	127278	22.5	19.5
196824	22.2	19.3	440270	22.2	20.7	281429	22.3	19.4	346783	22.4	20.5	161560	22.5	20.0	163024	22.5	18.9
441367	22.2	19.9	199798	22.2	19.0	74206	22.3	18.6	139147	22.4	19.8	301503	22.5	19.6	277609	22.5	19.4
9112	22.2	17.4	215106	22.2	18.8	192818	22.3	19.7	468196	22.4	19.4	99226	22.5	19.5	330389	22.5	20.3
326177	22.2	20.3	152404	22.2	19.8	101775	22.3	20.4	60095	22.4	18.9	390459	22.5	20.5	379909	22.5	20.2
39877	22.2	17.9	66641	22.2	19.0	257019	22.3	19.8	126497	22.4	19.1	534948	22.5	19.9	429857	22.5	20.1
20670	22.2	18.3	429715	22.2	22.1	288017	22.3	19.4	176551	22.4	19.2	501192	22.5	20.3	210667	22.5	17.8
77167	22.2	18.6	193587	22.2	19.0	211872	22.3	20.2	376914	22.4	20.7	90286	22.5	19.8	253868	22.5	20.4
320580	22.2	20.6	35428	22.2	18.0	9163	22.3	17.3	396091	22.4	20.5	301050	22.5	19.3	193418	22.5	18.5
512446	22.2	20.5	538205	22.2	21.9	12281	22.3	16.6	417518	22.4	20.3	93596	22.5	18.5	154150	22.5	20.4
412397	22.2	21.1	509852	22.2	19.1	387084	22.3	20.4	247018	22.4	19.6	397410	22.5	20.2	435665	22.5	20.7
291038	22.2	21.0	2710	22.2	17.1	91208	22.3	19.1	437802	22.4	21.0	339425	22.5	20.7	363397	22.5	20.1
242239	22.2	19.2	92983	22.2	18.4	533452	22.3	21.1	19980	22.4	18.1	494360	22.5	20.4	335523	22.5	20.9
341262	22.2	20.3	539707	22.2	20.4	381554	22.3	20.1	122549	22.4	19.3	499719	22.5	19.9	526927	22.5	22.0
391657	22.2	20.5	92927	22.2	18.6	12553	22.3	17.2	228652	22.4	19.7	338818	22.5	20.4	306634	22.5	19.6
134062	22.2	19.6	488660	22.2	19.7	158735	22.3	18.7	208904	22.4	18.5	526602	22.5	19.7	120169	22.5	18.8
494385	22.2	21.2	100898	22.2	19.6	346681	22.3	20.5	352414	22.4	20.8	270507	22.5	20.5	231497	22.5	19.4
254377	22.2	19.3	415799	22.2	21.3	150643	22.3	20.7	418256	22.4	21.3	165294	22.5	19.6	25151	22.6	16.8
516687	22.2	20.1	477648	22.2	20.4	412090	22.3	21.3	43166	22.4	17.4	131599	22.5	19.6	514382	22.6	19.8
410384	22.2	20.7	376913	22.2	21.5	284470	22.3	20.6	39789	22.4	17.8	368224	22.5	18.9	255658	22.6	18.9
302140	22.2	19.3	277516	22.2	20.0	68557	22.3	18.2	223620	22.4	18.1	356392	22.5	19.9	148711	22.6	18.8
468691	22.2	20.7	436891	22.2	19.6	461916	22.3	20.3	106779	22.4	17.9	307150	22.5	19.9	526823	22.6	21.7
25924	22.2	18.8	436278	22.2	20.5	355665	22.3	20.5	372834	22.4	20.3	75531	22.5	18.6	492399	22.6	21.0
346133	22.2	20.1	906	22.2	13.1	345961	22.3	21.0	258557	22.4	20.1	271636	22.5	19.3	441393	22.6	20.6
147830	22.2	18.9	492605	22.2	20.9	268383	22.3	19.7	69824	22.4	18.1	66834	22.5	17.4	504781	22.6	21.4
496681	22.2	20.0	124026	22.2	19.6	75145	22.3	19.4	370176	22.4	20.7	438509	22.5	20.5	87168	22.6	17.5
491958	22.2	21.7	127777	22.2	19.4	23794	22.3	18.7	349825	22.4	20.2	236103	22.5	19.8	432322	22.6	19.8
361437	22.2	21.1	470377	22.2	20.5	142204	22.3	19.4	266437	22.4	18.8	293674	22.5	20.0	508648	22.6	20.4
188789	22.2	19.8	118455	22.2	20.0	528501	22.3</										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
523129	22.6	21.0	185242	22.7	20.6	387139	22.7	20.4	59330	22.8	18.3	504770	22.9	21.3	312512	22.9	20.1
361863	22.6	20.0	273686	22.7	19.4	317868	22.7	20.6	285923	22.8	19.0	474892	22.9	21.4	134315	22.9	18.4
180787	22.6	18.4	231926	22.7	19.8	442006	22.7	20.1	121066	22.8	16.9	307077	22.9	21.0	344788	22.9	20.5
431508	22.6	19.9	322002	22.7	20.0	409778	22.7	21.1	524625	22.8	19.3	362020	22.9	20.5	382983	22.9	19.5
83780	22.6	18.5	83702	22.7	18.7	472680	22.7	20.5	180770	22.8	20.0	153936	22.9	19.6	239856	22.9	19.5
507298	22.6	20.3	540486	22.7	21.1	499235	22.7	20.5	495983	22.8	21.0	99366	22.9	18.7	66322	22.9	17.3
460059	22.6	19.9	308056	22.7	20.3	144742	22.7	20.2	58838	22.8	19.3	40872	22.9	19.0	357040	22.9	19.0
92392	22.6	18.6	530275	22.7	21.3	340535	22.7	20.6	294101	22.8	20.5	294769	22.9	19.1	513048	22.9	20.7
147739	22.6	19.2	261061	22.7	19.7	412263	22.7	19.6	195360	22.8	19.9	158507	22.9	19.9	195486	22.9	20.0
505929	22.6	19.3	250812	22.7	19.6	250542	22.7	19.4	59896	22.8	18.4	524917	22.9	21.6	311893	22.9	19.7
214984	22.6	20.0	440233	22.7	20.4	431977	22.7	20.9	303334	22.8	19.7	133034	22.9	19.0	425871	22.9	20.6
389955	22.6	20.7	91354	22.7	19.9	221309	22.7	18.3	301036	22.8	20.4	69370	22.9	18.8	39236	22.9	16.9
264651	22.6	19.8	332112	22.7	21.6	436372	22.7	19.3	121913	22.8	19.3	507048	22.9	19.5	119022	22.9	19.0
456771	22.6	21.2	284448	22.7	21.2	536535	22.7	21.2	438386	22.8	20.5	118859	22.9	18.4	84402	22.9	17.9
115983	22.6	19.1	215592	22.7	19.1	208618	22.7	19.6	127742	22.8	18.9	457667	22.9	20.8	314281	22.9	19.8
253025	22.6	19.6	536793	22.7	22.0	321763	22.7	19.4	89144	22.8	18.6	428302	22.9	21.5	375947	22.9	18.2
539236	22.6	20.1	9441	22.7	17.7	170974	22.7	19.3	29562	22.8	17.6	162623	22.9	18.1	162432	22.9	19.6
480710	22.6	20.5	203909	22.7	19.9	228641	22.7	19.8	10154	22.8	17.0	284105	22.9	20.7	85256	22.9	19.0
378356	22.6	21.1	469253	22.7	20.8	480629	22.7	20.1	382267	22.8	20.3	164570	22.9	19.9	265366	22.9	19.9
528156	22.6	20.1	15363	22.7	15.6	332543	22.7	19.3	350822	22.8	20.6	539746	22.9	21.1	185185	22.9	19.6
228356	22.6	19.3	301866	22.7	20.5	179355	22.7	20.1	409822	22.8	20.3	22870	22.9	15.3	115215	22.9	17.6
258369	22.6	19.7	491277	22.7	21.2	74804	22.7	19.5	491892	22.8	20.6	490121	22.9	20.7	410305	22.9	20.6
523174	22.6	20.5	432755	22.7	20.4	525733	22.7	21.1	93886	22.8	19.2	286569	22.9	19.4	212858	22.9	18.8
376787	22.6	17.8	22496	22.7	17.9	263529	22.8	20.1	13180	22.8	18.2	320505	22.9	20.8	262443	22.9	20.4
359753	22.6	20.7	370162	22.7	20.0	74518	22.8	18.7	179309	22.8	20.8	542488	22.9	21.2	832207	22.9	19.9
480638	22.6	20.4	311949	22.7	21.2	440538	22.8	21.0	64713	22.8	16.8	171580	22.9	20.2	250389	22.9	18.9
392661	22.6	19.7	62377	22.7	18.6	255099	22.8	19.4	345607	22.8	20.4	199633	22.9	19.8	397186	22.9	19.7
512716	22.6	20.7	507070	22.7	21.0	182915	22.8	20.6	497615	22.8	19.8	536534	22.9	21.2	344463	22.9	19.8
233792	22.6	20.0	236738	22.7	20.6	417264	22.8	23.3	178855	22.8	20.0	313064	22.9	19.0	322465	22.9	21.2
3895	22.6	15.9	237131	22.7	20.9	242172	22.8	20.2	106761	22.8	17.9	241409	22.9	20.2	526654	22.9	21.2
355669	22.6	19.3	33510	22.7	19.3	475132	22.8	20.5	43630	22.8	18.5	434708	22.9	20.4	218028	22.9	17.5
39045	22.6	18.3	461707	22.7	19.9	201584	22.8	19.5	473141	22.8	20.1	59516	22.9	18.1	166950	22.9	19.1
148634	22.6	19.3	468949	22.7	18.6	541024	22.8	19.6	318107	22.8	20.1	226739	22.9	19.6	94886	22.9	19.4
117326	22.6	18.2	11468	22.7	17.7	416896	22.8	19.8	189273	22.8	17.8	142356	22.9	18.8	536918	22.9	21.4
472827	22.6	21.0	160069	22.7	19.7	290070	22.8	17.2	392655	22.8	20.5	119759	22.9	19.6	269778	22.9	19.3
281042	22.6	19.8	532590	22.7	20.5	288663	22.8	19.1	432368	22.8	20.1	105879	22.9	18.9	146733	22.9	17.7
521595	22.6	20.6	308596	22.7	20.2	349339	22.8	20.8	308461	22.8	20.4	406492	22.9	18.9	530488	22.9	21.7
359926	22.6	20.9	325705	22.7	20.1	53683	22.8	17.9	311452	22.8	21.0	539493	22.9	21.7	326911	22.9	19.9
168562	22.6	18.6	342825	22.7	20.4	467211	22.8	21.5	480097	22.8	20.5	11303	22.9	17.2	380899	22.9	20.4
94320	22.6	19.2	168891	22.7	18.5	480835	22.8	19.3	170550	22.8	19.4	457476	22.9	19.6	17583	22.9	16.5
36184	22.6	19.7	250599	22.7	19.8	338197	22.8	20.2	299760	22.8	18.1	308611	22.9	19.6	523915	22.9	24.7
99729	22.6	19.8	46749	22.7	18.9	363534	22.8	18.8	224214	22.8	20.2	296690	22.9	20.0	459575	22.9	21.1
241101	22.6	20.8	68188	22.7	19.5	106413	22.8	18.9	512717	22.8	20.2	19868	22.9	17.8	133081	22.9	18.3
526005	22.6	20.3	270262	22.7	19.9	15146	22.8	17.6	439241	22.8	21.2	307226	22.9	20.8	22049	22.9	18.8
238592	22.6	20.7	290977	22.7	21.3	479069	22.8	20.8	510511	22.8	21.5	428297	22.9	21.7	335810	22.9	18.7
510930	22.6	21.0	204661	22.7	20.1	172159	22.8	19.7	494528	22.8	19.9	508873	22.9	22.5	522543	22.9	21.0
200205	22.6	18.4	222534	22.7	18.8	26412	22.8	17.6	291626	22.8	20.1	171795	22.9	19.1	397699	22.9	21.3
526696	22.6	20.9	357196	22.7	20.5	346068	22.8	20.4	254473	22.8	20.0	350227	22.9	20.0	155534	22.9	19.6
345782	22.6	19.9	30950	22.7	18.4	494359	22.8	19.7	475442	22.8	20.6	211850	22.9	20.4	39104	22.9	19.0
272388	22.6	20.6	17058	22.7	17.5	88030	22.8	18.0	325604	22.8	20.6	474524	22.9	20.7	517632	22.9	20.8
245843	22.6	20.1	308463	22.7	20.2	237800	22.8	19.4	400549	22.8	20.8	333863	22.9	19.9	215560	22.9	20.0
410728	22.6	21.7	217375	22.7	19.3	393070	22.8	20.0	256500	22.8	20.8	503376	22.9	20.7	530855	22.9	22.0
192695	22.6	19.0	258828	22.7	20.0	447696	22.8	20.8	64059	22.8	19.8	366259	22.9	20.8	309148	22.9	20.9
522905	22.6	20.4	401900	22.7	20.5	330105	22.8	19.0	430167	22.8	20.5	319128	22.9	19.3	482422	22.9	21.7
77230	22.6	19.2	523115	22.7	20.8	164625	22.8	19.2	48340	22.8	17.0	197649	22.9	19.8	373190	22.9	20.8
128846	22.6	18.9	256855	22.7	18.8	74271	22.8	18.8	254232	22.8	19.8	303741	22.9	19.4	155441	22.9	18.8
314136	22.6	20.7	112172	22.7	19.9	262105	22.8	19.8	470401	22.8	21.1	530320	22.9	21.2	431384	22.9	20.5
54639	22.6	19.0	375739	22.7	20.7	300086	22.8	20.0	31064	22.9	18.7	114168	22.9	19.1	59844	22.9	18.6
71813	22.6	17.8	38099	22.7	17.5	308040	22.8	19.5	476316	22.9	19.8	65231	22.9	19.3	191737	22.9	19.0
261242	22.6	19.1	153523	22.7	19.1	87931	22.8	17.9	238285	22.9	19.6	385	22.9	12.3	422822	23.0	21.1
22998	22.6	19.4	542442	22.7	20.9	206854	22.8	18.7	236609	22.9	20.0	373422	22.9	20.3	422412	23.0	19.6
338854	22.6	20.4	531901	22.7	21.9	464544	22.8	20.6	260516	22.9	20.8	17379	22.9	18.2	361109	23.0	20.1
313151	22.6	20.3	75717	22.7	18.6	230893	22.8	19.5	387209	22.9	20.0	462612	22.9	20.9	443048	23.0	20.3
380829	22.6	21.5	523924	22.7	22.4	377713	22.8	19.9	171078	22.9	20.2	315168	22.9	19.8	307042	23.0	21.0
508909	22.6	18.6	471693	22.7	20.5	520065	22.8	21.7	469979	22.9	21.6	411777	22.9	21.2	481303	23.0	21.3
245171	22.6	18.7	265387	22.7	19.7	477511	22.8	21.2	535001	22.9	21.3	353814	22.9	20.3	164599	23.0	19.2
533409	22.6	21.1	316940	22.7	21.2	326159	22.8	20.3	468891	22.9	20.0	471446	22.9	20.0	188082	23.0	17.9
157861	22.6	19.0	375278	22.7	20.7	263148	22.8	20.8	81205	22.9	18.5	19584	22.9	18.0	393852	23.0	20.0
192775	22.6	19.5	206749	22.7	19.9	5											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
500905	23.0	20.6	475207	23.1	20.1	474438	23.2	20.6	338722	23.3	18.9	180606	23.3	18.8	536636	23.4	21.0
76272	23.0	17.8	302119	23.1	19.0	395238	23.2	20.1	131590	23.3	18.3	25978	23.3	18.4	540412	23.4	20.8
489852	23.0	19.7	441383	23.1	20.9	435875	23.2	20.0	247848	23.3	19.7	177850	23.3	20.0	416454	23.4	19.5
209882	23.0	19.9	432786	23.1	21.8	939	23.2	13.3	285238	23.3	19.9	55545	23.3	18.4	136898	23.4	19.5
505563	23.0	21.0	308094	23.1	18.9	118973	23.2	19.4	20904	23.3	19.2	153318	23.3	18.6	304591	23.4	20.1
363275	23.0	20.1	179571	23.1	19.3	174821	23.2	19.8	442053	23.3	20.1	539550	23.3	19.5	148389	23.4	19.8
115263	23.0	18.5	249817	23.1	20.5	108206	23.2	19.8	3264	23.3	17.2	250520	23.3	18.2	69268	23.4	18.1
137978	23.0	19.3	469191	23.1	20.2	360940	23.2	21.4	427115	23.3	19.4	461367	23.3	18.4	120682	23.4	20.1
519171	23.0	20.5	26061	23.1	17.6	312874	23.2	19.3	389551	23.3	19.5	491984	23.3	19.8	267353	23.4	19.9
131870	23.0	18.9	355100	23.1	20.1	36711	23.2	17.6	21299	23.3	17.6	254344	23.3	19.3	511377	23.4	20.1
438908	23.0	23.9	494345	23.1	20.2	292643	23.2	20.6	9505	23.3	19.1	477675	23.3	21.3	461639	23.4	21.9
266581	23.0	20.0	380613	23.1	19.7	73727	23.2	19.6	503592	23.3	21.8	284999	23.3	19.7	170229	23.4	18.2
132765	23.0	18.0	502263	23.1	20.0	357186	23.2	20.0	92395	23.3	18.8	64195	23.3	19.1	437014	23.4	20.1
12443	23.0	16.0	37416	23.1	18.6	281035	23.2	19.0	259329	23.3	19.9	377912	23.3	20.7	159680	23.4	18.8
355846	23.0	19.8	476352	23.1	20.5	256483	23.2	20.2	479783	23.3	20.4	320679	23.3	20.5	381704	23.4	20.4
92152	23.0	19.0	298876	23.1	18.7	311207	23.2	18.9	125515	23.3	18.0	297314	23.3	19.8	400478	23.4	21.3
457689	23.0	21.0	457825	23.1	20.1	254213	23.2	19.6	195503	23.3	19.5	70215	23.3	18.0	166647	23.4	18.5
133059	23.0	19.9	127057	23.1	19.9	187121	23.2	18.1	125759	23.3	19.5	137197	23.3	19.3	284716	23.4	19.9
33207	23.0	18.0	163126	23.1	18.6	503294	23.2	21.3	393278	23.3	20.8	247880	23.3	18.9	263036	23.4	20.4
292958	23.0	19.9	43664	23.1	18.1	186316	23.2	20.4	9769	23.3	17.8	344015	23.3	21.0	294895	23.4	20.5
201733	23.0	19.6	410739	23.1	20.9	352622	23.2	20.8	128407	23.3	17.7	381543	23.3	19.6	336249	23.4	18.9
408655	23.0	18.3	91790	23.1	18.4	457740	23.2	20.9	472530	23.3	20.5	310072	23.3	20.4	42745	23.4	18.4
233496	23.0	20.4	267738	23.1	20.4	69333	23.2	18.4	86595	23.3	18.2	329081	23.3	20.3	311156	23.4	18.3
437134	23.1	20.1	24662	23.1	17.4	199896	23.2	19.9	361149	23.3	20.5	180138	23.3	19.8	94771	23.4	19.1
42989	23.1	17.9	155593	23.1	19.1	179536	23.2	18.7	162403	23.3	20.0	354118	23.3	21.7	156305	23.4	20.5
391733	23.1	20.7	147440	23.1	19.3	274137	23.2	19.3	110330	23.3	19.1	440980	23.3	21.5	24386	23.4	17.5
13741	23.1	17.2	254524	23.1	20.5	85157	23.2	17.3	317876	23.3	20.0	398366	23.3	19.9	103341	23.4	19.4
251908	23.1	20.3	411622	23.1	20.7	175335	23.2	18.7	529887	23.3	18.1	276086	23.3	20.7	285972	23.4	19.7
197560	23.1	18.3	262941	23.1	19.9	131981	23.2	20.5	406350	23.3	19.3	397064	23.3	20.6	77936	23.4	16.1
120130	23.1	19.6	519759	23.1	20.9	15130	23.2	18.3	249286	23.3	19.5	49217	23.4	17.8	336319	23.4	19.6
511458	23.1	21.4	53342	23.1	19.0	215097	23.2	18.7	510901	23.3	21.8	199029	23.4	19.7	344682	23.4	20.0
189372	23.1	19.8	471954	23.1	22.0	448580	23.2	19.8	472916	23.3	20.9	441364	23.4	20.8	65623	23.4	17.6
490235	23.1	20.7	501734	23.1	20.8	46988	23.2	17.9	224579	23.3	19.1	137869	23.4	20.1	327337	23.4	19.3
316923	23.1	19.7	428757	23.1	20.0	500034	23.2	19.5	184202	23.3	19.5	296979	23.4	20.0	187352	23.4	19.6
39329	23.1	19.9	44308	23.1	18.3	504051	23.2	19.6	32211	23.3	16.8	148752	23.4	19.8	155078	23.4	18.9
178756	23.1	19.3	357920	23.1	20.0	96784	23.2	18.1	472806	23.3	20.3	261698	23.4	20.0	290982	23.4	20.3
204248	23.1	19.2	167005	23.1	18.3	27435	23.2	18.5	264982	23.3	20.8	81745	23.4	16.8	477750	23.4	20.5
289766	23.1	20.3	25986	23.1	18.3	475029	23.2	20.3	184590	23.3	19.8	393650	23.4	18.8	505491	23.4	21.1
441787	23.1	22.3	488684	23.1	21.4	136182	23.2	20.2	331339	23.3	20.1	442384	23.4	21.2	446714	23.4	20.8
20159	23.1	17.8	118400	23.1	18.5	540839	23.2	20.8	160360	23.3	16.9	25927	23.4	17.1	205731	23.4	19.7
72358	23.1	18.9	299408	23.1	19.8	416247	23.2	20.2	132433	23.3	17.7	232005	23.4	18.9	459536	23.4	21.8
235834	23.1	19.8	328306	23.1	20.0	432865	23.2	20.5	216453	23.3	19.6	77446	23.4	18.8	230343	23.4	19.5
295015	23.1	20.7	117662	23.1	19.2	296470	23.2	20.2	179250	23.3	19.9	322577	23.4	20.3	24807	23.4	19.3
467618	23.1	20.9	134313	23.1	18.4	288380	23.2	20.3	471994	23.3	19.5	203058	23.4	19.8	490775	23.4	21.0
341128	23.1	20.2	205693	23.1	18.6	495845	23.2	18.5	204524	23.3	19.9	13208	23.4	16.0	394335	23.4	19.8
533032	23.1	21.0	415081	23.1	20.9	404	23.2	13.6	476254	23.3	20.7	106827	23.4	17.7	20072	23.4	18.8
283077	23.1	18.9	7755	23.1	17.0	291644	23.2	19.8	433559	23.3	19.9	125621	23.4	19.4	382126	23.4	21.5
134719	23.1	18.6	30352	23.1	17.8	38537	23.2	18.4	205288	23.3	18.8	357883	23.4	19.6	39178	23.4	17.6
459102	23.1	21.0	385446	23.1	22.9	30824	23.2	15.9	537535	23.3	21.6	250626	23.4	20.6	71167	23.4	19.6
397157	23.1	20.2	388683	23.1	21.3	76662	23.2	18.6	154563	23.3	20.6	198921	23.4	18.9	202883	23.4	18.3
383867	23.1	19.1	207462	23.1	19.6	313162	23.2	20.1	224426	23.3	19.9	339422	23.4	19.6	366256	23.5	20.1
516815	23.1	21.6	384047	23.2	20.3	360216	23.2	17.9	221324	23.3	19.3	212368	23.4	19.6	241605	23.5	18.2
272879	23.1	19.6	396107	23.2	20.2	187665	23.2	20.2	101080	23.3	17.7	341353	23.4	19.8	525858	23.5	20.8
474943	23.1	20.5	171235	23.2	19.9	502796	23.2	20.3	6121	23.3	14.6	4582	23.4	16.9	455267	23.5	19.5
318583	23.1	21.1	32472	23.2	18.2	254177	23.2	19.3	198388	23.3	19.0	332744	23.4	19.4	73210	23.5	19.1
31571	23.1	18.5	129565	23.2	19.7	336340	23.2	20.0	41311	23.3	18.3	136963	23.4	18.3	353312	23.5	20.6
256645	23.1	21.0	149149	23.2	19.8	66625	23.2	18.4	532617	23.3	19.8	259780	23.4	20.4	357934	23.5	21.5
482166	23.1	20.1	521070	23.2	20.8	149102	23.2	19.7	397775	23.3	21.0	56117	23.4	16.5	295278	23.5	20.5
505774	23.1	20.0	431397	23.2	20.7	505507	23.2	20.6	111622	23.3	19.1	249594	23.4	19.3	233727	23.5	18.8
442549	23.1	20.2	33455	23.2	17.5	307169	23.2	20.2	443536	23.3	21.8	255008	23.4	19.3	202181	23.5	19.7
25000	23.1	17.8	88189	23.2	18.8	467121	23.2	20.5	537485	23.3	22.0	504524	23.4	18.8	479839	23.5	21.0
122684	23.1	17.7	201672	23.2	20.3	344806	23.2	19.5	431404	23.3	20.2	301656	23.4	21.1	440540	23.5	20.3
149081	23.1	19.2	21891	23.2	17.3	57491	23.2	18.2	477796	23.3	22.6	99177	23.4	19.7	39247	23.5	18.9
68714	23.1	18.1	443136	23.2	20.6	167906	23.2	19.6	187402	23.3	19.5	42587	23.4	17.3	51199	23.5	18.9
374977	23.1	20.0	275581	23.2	19.5	390120	23.2	20.3	426368	23.3	21.3	320739	23.4	20.9	86049	23.5	17.9
530333	23.1	21.6	471456	23.2	19.5	3912	23.2	15.8	519019	23.3	21.2	469975	23.4	21.4	150645	23.5	18.5
105655	23.1	19.0	266290	23.2	19.8	175614	23.2	19.1	356673	23.3	20.4	463181	23.4	21.4	227456	23.5	18.8
205754	23.1	19.6	504072	23.2	19.6	44904	23.2	17.7	376153	23.3	20.8	8747	23.4	15.5	114611	23.5	19.1
529777	23.1	20.0	64051	23.2	18.6	33270	23.2	17.9</									

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
513300	23.5	20.7	477740	23.6	20.7	412989	23.6	20.7	150867	23.7	19.1	479542	23.8	21.0	509761	23.9	19.4
425852	23.5	21.2	98759	23.6	19.6	167491	23.6	18.5	98988	23.7	19.4	20844	23.8	17.7	403833	23.9	19.8
303237	23.5	19.4	323775	23.6	18.9	506977	23.6	20.1	425146	23.7	20.9	276670	23.8	17.7	212060	23.9	20.0
369926	23.5	19.8	237922	23.6	19.8	62338	23.6	17.9	525108	23.7	19.6	40732	23.8	17.3	295770	23.9	20.9
350363	23.5	19.9	394653	23.6	21.1	437477	23.6	21.0	121415	23.7	18.5	478647	23.8	20.7	405508	23.9	17.4
392829	23.5	19.4	343483	23.6	20.1	36147	23.6	18.5	195332	23.7	19.5	470280	23.8	20.8	427622	23.9	21.1
499618	23.5	20.1	411695	23.6	20.8	225910	23.6	20.4	384105	23.7	19.7	105407	23.8	17.9	16367	23.9	16.9
494376	23.5	20.0	36895	23.6	17.9	88212	23.6	18.7	54661	23.7	19.3	162137	23.8	18.5	341715	23.9	20.1
114081	23.5	19.6	163032	23.6	19.2	249608	23.6	18.6	533964	23.7	19.0	252773	23.8	20.0	242762	23.9	18.8
352693	23.5	18.8	463437	23.6	19.2	354815	23.6	20.3	85565	23.7	18.7	282302	23.8	19.7	479142	23.9	19.5
2739	23.5	15.8	22035	23.6	18.6	374432	23.6	19.3	100030	23.7	18.6	48549	23.8	18.3	279473	23.9	19.9
261225	23.5	19.5	476262	23.6	20.9	270571	23.6	19.8	503099	23.7	21.1	477760	23.8	21.3	60218	23.9	17.9
497139	23.5	19.3	193588	23.6	19.1	2745	23.6	16.2	311146	23.7	19.5	8644	23.8	15.4	235609	23.9	19.0
281642	23.5	19.7	440332	23.6	19.5	253195	23.6	19.2	121538	23.7	18.3	202867	23.8	20.1	341145	23.9	18.2
387773	23.5	19.9	480986	23.6	20.1	431828	23.6	20.1	182924	23.7	20.2	361703	23.8	19.7	49041	23.9	18.0
6652	23.5	16.3	29728	23.6	17.5	160067	23.6	18.2	19243	23.7	15.2	95150	23.8	18.7	166303	23.9	18.8
330455	23.5	19.5	354210	23.6	20.0	158565	23.6	20.8	527315	23.7	18.8	101725	23.8	19.7	325857	23.9	20.5
45241	23.5	17.2	224991	23.6	20.5	93498	23.7	18.6	190607	23.7	18.2	56405	23.8	18.7	479907	23.9	21.2
166476	23.5	19.2	390279	23.6	19.8	123576	23.7	19.4	51029	23.7	17.3	393270	23.8	19.2	351204	23.9	20.7
503467	23.5	22.0	8603	23.6	15.6	70249	23.7	16.9	502817	23.7	20.3	119446	23.8	19.0	75009	23.9	19.6
171788	23.5	18.3	525072	23.6	19.8	193036	23.7	19.2	171220	23.7	19.5	290525	23.8	19.7	149136	23.9	20.1
423268	23.5	19.9	538804	23.6	19.9	539733	23.7	19.8	230076	23.7	19.8	90412	23.8	18.5	278802	23.9	20.0
6530	23.5	16.3	321458	23.6	19.8	485865	23.7	19.4	205125	23.7	19.3	440231	23.8	20.6	473467	23.9	20.2
414148	23.5	21.7	288424	23.6	20.2	200299	23.7	19.7	196653	23.7	18.9	5435	23.8	16.9	412298	23.9	20.2
341168	23.5	20.3	96622	23.6	18.2	149965	23.7	18.5	202524	23.7	20.8	137045	23.8	17.1	512833	23.9	21.7
525141	23.5	19.2	375935	23.6	19.6	92482	23.7	18.4	33959	23.7	17.8	29003	23.8	18.0	330072	23.9	19.2
170719	23.5	19.6	241680	23.6	18.6	8369	23.7	15.1	224164	23.7	19.4	466849	23.8	20.0	269104	23.9	19.6
316355	23.5	20.5	180079	23.6	20.2	7232	23.7	16.3	325009	23.7	19.9	67224	23.8	18.9	146146	23.9	18.6
121970	23.5	19.5	31940	23.6	17.8	2502	23.7	16.7	465184	23.7	20.3	314118	23.8	19.9	389007	23.9	19.7
120678	23.5	19.1	499746	23.6	20.7	443452	23.7	20.3	154359	23.7	18.3	144868	23.8	19.6	140464	23.9	19.6
37848	23.5	18.2	176473	23.6	19.9	510098	23.7	20.7	353482	23.7	20.6	116039	23.8	18.8	519607	23.9	19.6
470603	23.5	19.0	164170	23.6	19.5	100272	23.7	16.4	524612	23.7	23.1	273898	23.8	19.9	468190	23.9	20.7
130590	23.5	18.2	167602	23.6	19.9	248960	23.7	19.8	151444	23.7	19.6	33141	23.8	18.3	274182	23.9	19.7
249141	23.5	19.6	412703	23.6	20.5	430153	23.7	20.5	360147	23.7	20.7	192744	23.8	18.6	243047	23.9	19.3
307204	23.5	21.3	429571	23.6	20.5	534599	23.7	20.2	324466	23.7	20.4	102425	23.8	18.0	399310	23.9	19.3
313144	23.5	20.2	478342	23.6	21.1	58247	23.7	16.9	360188	23.7	20.3	40307	23.8	18.1	443535	23.9	20.2
268727	23.5	19.9	154843	23.6	19.0	356503	23.7	20.2	99952	23.8	18.2	436256	23.8	20.4	403926	23.9	20.9
478404	23.5	21.3	497142	23.6	19.7	330703	23.7	20.3	196613	23.8	18.6	348645	23.8	21.2	61245	23.9	16.3
61320	23.5	16.2	457488	23.6	19.1	511178	23.7	20.0	25380	23.8	18.5	529540	23.8	20.7	464721	23.9	18.9
26384	23.5	17.6	173575	23.6	19.2	179501	23.7	19.4	235895	23.8	20.7	397707	23.8	20.7	292395	23.9	19.9
211179	23.5	18.6	99591	23.6	19.9	187729	23.7	19.2	89617	23.8	18.6	394752	23.8	20.4	63334	23.9	19.3
302403	23.5	20.5	118702	23.6	23.5	99940	23.7	18.6	523119	23.8	21.0	132104	23.8	19.8	148436	23.9	18.7
80281	23.5	19.0	338699	23.6	19.2	248963	23.7	19.5	432511	23.8	20.7	298335	23.8	20.3	475164	23.9	20.5
308333	23.5	19.9	497574	23.6	21.1	412531	23.7	19.8	417764	23.8	20.7	935865	23.8	19.3	256865	23.9	19.9
526884	23.5	21.8	186334	23.6	21.1	18131	23.7	17.6	7087	23.8	16.6	120581	23.8	19.9	263883	23.9	20.6
411862	23.5	21.1	531026	23.6	20.3	20127	23.7	19.3	339363	23.8	19.3	190646	23.8	18.9	410329	23.9	20.5
24284	23.5	18.6	529454	23.6	22.8	380878	23.7	20.7	539300	23.8	20.4	263101	23.8	19.6	344926	23.9	19.2
208543	23.5	19.2	86071	23.6	19.1	102347	23.7	17.8	191920	23.8	18.8	443600	23.8	20.2	393048	23.9	20.3
132053	23.5	19.4	175346	23.6	19.5	444672	23.7	20.9	242202	23.8	18.2	293284	23.8	20.0	472608	23.9	21.0
308839	23.5	20.4	424180	23.6	20.8	432686	23.7	21.5	188533	23.8	20.8	204020	23.8	19.5	536050	23.9	19.5
502362	23.5	20.3	66620	23.6	18.5	204668	23.7	19.1	120442	23.8	19.8	87425	23.8	18.2	93905	23.9	17.9
90288	23.5	19.5	516564	23.6	21.5	443062	23.7	20.2	94331	23.8	19.2	305207	23.8	20.3	408409	23.9	20.2
47958	23.5	17.3	354958	23.6	19.8	149062	23.7	20.3	38809	23.8	18.1	179542	23.9	20.1	501577	23.9	20.2
399931	23.5	20.4	33635	23.6	17.9	95258	23.7	19.4	160139	23.8	18.9	243089	23.9	19.4	488369	23.9	20.9
117688	23.5	19.7	513156	23.6	19.4	308364	23.7	19.8	259298	23.8	20.2	131209	23.9	19.3	528955	23.9	21.2
508680	23.5	19.9	54539	23.6	19.1	511287	23.7	20.7	129748	23.8	19.4	41001	23.9	18.7	69781	23.9	18.8
193717	23.5	20.2	414809	23.6	21.1	22703	23.7	18.3	34807	23.8	18.6	13870	23.9	17.7	199922	23.9	19.4
508113	23.5	20.8	383917	23.6	20.2	65478	23.7	19.4	123839	23.8	19.9	280383	23.9	19.0	358455	23.9	21.5
64966	23.5	18.9	126826	23.6	18.4	476539	23.7	20.7	485841	23.8	19.9	421948	23.9	18.9	335141	23.9	20.3
10765	23.5	15.6	461630	23.6	21.2	507437	23.7	19.7	204083	23.8	19.4	531382	23.9	21.0	82310	23.9	18.0
175603	23.5	19.3	60943	23.6	17.2	396115	23.7	19.7	67015	23.8	17.6	356876	23.9	19.6	210545	23.9	18.8
189075	23.5	19.9	102325	23.6	18.0	50578	23.7	18.5	34566	23.8	18.0	268994	23.9	20.3	7038	23.9	16.4
388299	23.5	20.0	30915	23.6	17.3	5577	23.7	16.5	167808	23.8	20.1	198215	23.9	19.7	388853	23.9	20.0
415069	23.5	20.4	76972	23.6	18.4	179570	23.7	19.3	158445	23.8	19.2	96129	23.9	19.0	457567	23.9	21.2
504610	23.5	20.6	269045	23.6	20.3	103831	23.7	18.7	302362	23.8	20.8	482406	23.9	20.2	91099	23.9	18.3
519465	23.5	21.0	31039	23.6	17.4	509868	23.7	20.4	382972	23.8	20.0	378326	23.9	21.6	419563	23.9	20.3
477679	23.5	20.0	20251	23.6	18.5	360755	23.7	18.9	520040	23.8	19.6	403997	23.9	19.7	121738	23.9	19.7
499093	23.5	21.1	11042	23.6	17.9	365452	23.7	19.5	520037	23.8	19.8	131276	23.9	18.2	313127	23.9	20.0
73021	23.6	18.5	3151	23.6	15.7	172391	23.7	19.9	161932								

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
449316	23.9	20.3	383313	24.0	20.3	296104	24.1	21.1	90976	24.2	17.8	90259	24.2	19.5	143649	24.3	13.7
542651	23.9	20.7	520063	24.0	21.3	75067	24.1	17.1	137042	24.2	19.6	521486	24.3	21.0	82859	24.3	18.0
343348	23.9	19.3	310536	24.0	19.6	286669	24.1	19.9	520980	24.2	20.7	129703	24.3	19.1	40802	24.3	16.6
502671	23.9	20.2	217608	24.0	19.1	308142	24.1	19.5	30671	24.2	18.0	394662	24.3	20.9	272812	24.3	21.0
90702	23.9	18.9	338644	24.0	18.9	361547	24.1	18.7	203724	24.2	19.7	169064	24.3	19.4	199176	24.3	20.2
5222	23.9	16.4	302303	24.0	20.6	192739	24.1	19.3	213249	24.2	19.6	467325	24.3	20.6	36723	24.3	18.0
240365	23.9	18.5	232090	24.0	19.6	123207	24.1	19.2	329767	24.2	21.3	439714	24.3	19.7	280112	24.3	20.1
456199	23.9	20.5	533058	24.0	20.4	498007	24.1	21.1	529849	24.2	19.4	254132	24.3	18.9	127609	24.3	18.5
471301	23.9	21.2	244290	24.0	20.1	92456	24.1	17.1	311437	24.2	20.7	464874	24.3	20.2	268408	24.3	20.1
472998	23.9	20.9	179487	24.0	19.7	125222	24.1	17.8	440277	24.2	20.4	510940	24.3	21.1	196889	24.3	20.5
382889	23.9	19.1	249098	24.0	19.9	361010	24.1	19.6	455261	24.2	19.3	508494	24.3	20.2	136942	24.3	17.8
322490	23.9	20.0	319126	24.0	19.6	496646	24.1	20.3	320368	24.2	19.3	470403	24.3	20.4	433155	24.3	20.1
60142	23.9	18.1	285281	24.0	18.3	77422	24.1	19.1	502973	24.2	21.0	235770	24.3	19.6	145833	24.3	18.8
318642	23.9	20.3	412489	24.0	20.2	476264	24.1	20.7	106514	24.2	19.3	537429	24.3	20.2	191931	24.3	18.3
73216	23.9	18.5	502246	24.0	20.5	508154	24.1	20.8	96476	24.2	19.1	457746	24.3	20.9	501841	24.3	19.9
259542	23.9	19.1	389081	24.0	21.3	110785	24.1	17.8	190566	24.2	19.0	120894	24.3	18.6	31649	24.3	17.4
184928	23.9	20.5	178244	24.0	19.7	307533	24.1	20.1	420486	24.2	21.3	206512	24.3	20.6	255498	24.3	20.5
466892	23.9	20.1	385597	24.0	19.4	446637	24.1	20.5	215872	24.2	19.9	425815	24.3	20.9	30220	24.3	16.2
141559	23.9	18.4	164154	24.0	18.0	179488	24.1	19.6	2923	24.2	17.3	365077	24.3	19.7	344485	24.3	20.1
310459	23.9	18.4	14009	24.0	16.5	66093	24.1	17.9	359588	24.2	19.4	393951	24.3	20.3	528906	24.3	20.4
315026	23.9	19.5	32995	24.0	18.6	534121	24.1	20.0	18708	24.2	18.4	410782	24.3	21.0	386335	24.3	20.1
328335	23.9	17.3	64927	24.0	16.9	217313	24.1	19.0	127572	24.2	19.5	354735	24.3	20.0	168901	24.4	17.4
416145	23.9	19.8	253914	24.0	20.8	418398	24.1	19.3	248055	24.2	19.0	471591	24.3	19.8	302268	24.4	19.1
510491	23.9	20.4	31233	24.0	18.3	178554	24.1	20.2	62954	24.2	18.4	506535	24.3	18.0	480557	24.4	20.3
424651	23.9	20.1	268015	24.0	17.9	432981	24.1	20.4	354755	24.2	20.0	442979	24.3	20.8	34533	24.4	18.4
386301	23.9	19.4	443640	24.0	20.3	477927	24.1	19.2	222576	24.2	19.2	121610	24.3	18.5	322234	24.4	21.3
11662	23.9	17.6	173070	24.0	19.6	396152	24.1	20.4	311187	24.2	18.8	248202	24.3	20.5	216279	24.4	20.6
106517	23.9	19.1	148463	24.0	20.6	250900	24.1	19.0	59584	24.2	18.0	436817	24.3	20.1	66174	24.4	17.9
445820	23.9	19.8	154751	24.0	19.1	473879	24.1	20.4	24236	24.2	17.5	424105	24.3	20.9	287928	24.4	20.4
117299	23.9	17.2	168793	24.0	19.2	21146	24.1	16.5	131699	24.2	19.8	416919	24.3	20.4	112135	24.4	19.2
341287	23.9	20.3	416030	24.0	20.7	396568	24.1	19.1	181748	24.2	18.3	127287	24.3	19.9	108297	24.4	17.4
528720	23.9	23.0	17759	24.0	17.7	177596	24.1	19.5	34345	24.2	17.2	180522	24.3	19.5	192541	24.4	18.0
361069	23.9	21.0	147347	24.0	19.9	511839	24.1	19.2	269397	24.2	17.7	355863	24.3	20.2	521272	24.4	21.0
243649	23.9	18.6	236137	24.1	19.6	400473	24.1	21.4	263576	24.2	20.5	292021	24.3	19.9	528096	24.4	21.8
527669	23.9	20.5	444073	24.1	20.6	417585	24.1	19.9	425582	24.2	20.8	221917	24.3	19.5	514215	24.4	20.3
123301	23.9	19.7	276978	24.1	19.1	540681	24.1	20.5	91747	24.2	19.1	449496	24.3	20.1	111937	24.4	19.3
335744	23.9	20.0	1253	24.1	15.3	441945	24.1	20.2	430292	24.2	19.6	62067	24.3	17.6	312183	24.4	20.2
434727	23.9	22.0	361120	24.1	18.2	19182	24.1	18.0	84465	24.2	18.9	361494	24.3	19.6	341458	24.4	19.6
327305	23.9	19.3	164285	24.1	19.7	176706	24.1	18.6	106857	24.2	18.5	94171	24.3	19.0	470780	24.4	20.3
440996	23.9	20.4	318639	24.1	20.4	393863	24.1	19.9	87400	24.2	18.2	118261	24.3	19.5	464856	24.4	21.6
249461	23.9	19.4	365102	24.1	21.1	16993	24.1	17.3	465875	24.2	21.0	126903	24.3	19.3	49963	24.4	17.6
336808	23.9	20.4	110395	24.1	17.4	237591	24.1	20.8	250431	24.2	20.1	11027	24.3	16.3	489470	24.4	20.5
55253	23.9	18.7	365192	24.1	20.1	508563	24.1	20.7	335583	24.2	20.3	499799	24.3	21.8	254396	24.4	19.1
301923	23.9	20.3	51738	24.1	18.6	252317	24.1	18.9	396880	24.2	19.8	17227	24.3	17.8	532609	24.4	20.9
2727	23.9	15.7	364640	24.1	19.8	533351	24.1	20.2	478371	24.2	20.3	130935	24.3	19.4	525918	24.4	20.2
238907	23.9	19.8	98495	24.1	16.9	137569	24.1	19.2	87252	24.2	16.1	185569	24.3	19.7	521481	24.4	20.4
134416	23.9	19.8	321289	24.1	21.1	44220	24.1	16.9	539780	24.2	20.0	322068	24.3	20.0	78030	24.4	19.2
354527	23.9	19.7	358155	24.1	20.1	241270	24.1	19.0	507775	24.2	20.9	198599	24.3	19.7	472555	24.4	21.1
126520	23.9	19.2	73816	24.1	18.6	426281	24.1	20.0	525782	24.2	21.0	194837	24.3	19.0	272489	24.4	20.5
505555	23.9	21.4	519942	24.1	19.5	506960	24.2	20.0	322861	24.2	19.9	33303	24.3	18.3	140559	24.4	19.3
155983	23.9	18.8	10759	24.1	16.2	166438	24.2	19.6	346566	24.2	20.1	295081	24.3	20.1	195268	24.4	20.1
536752	23.9	22.0	366462	24.1	19.3	399347	24.2	18.1	285302	24.2	18.6	503630	24.3	20.7	528583	24.4	20.1
387229	23.9	20.4	16479	24.1	17.5	3254	24.2	15.9	94187	24.2	19.3	352496	24.3	20.0	513675	24.4	21.8
80282	23.9	18.1	33281	24.1	17.3	109728	24.2	18.8	69829	24.2	17.6	248194	24.3	21.0	497800	24.4	19.5
475154	24.0	20.4	428018	24.1	21.0	17026	24.2	17.0	456779	24.2	19.0	526063	24.3	21.1	297905	24.4	20.2
82869	24.0	18.0	252153	24.1	20.5	336467	24.2	18.7	351543	24.2	18.5	360155	24.3	20.4	121685	24.4	19.6
472795	24.0	19.7	290456	24.1	19.7	300728	24.2	19.8	470682	24.2	20.7	146916	24.3	20.2	276510	24.4	17.9
316937	24.0	21.3	352577	24.1	21.4	148314	24.2	18.4	394301	24.2	20.3	359495	24.3	19.4	313165	24.4	21.3
43396	24.0	19.0	44970	24.1	18.9	413156	24.2	19.5	319278	24.2	20.2	396650	24.3	20.1	406348	24.4	19.5
319023	24.0	20.7	358859	24.1	20.9	481199	24.2	20.9	355516	24.2	21.2	257346	24.3	20.6	192740	24.4	19.2
511367	24.0	20.2	61626	24.1	17.7	276140	24.2	20.0	69635	24.2	18.6	313014	24.3	20.0	213790	24.4	19.1
392690	24.0	21.1	112615	24.1	19.9	42795	24.2	17.8	302881	24.2	20.0	479143	24.3	20.9	499273	24.4	19.9
101577	24.0	17.0	213414	24.1	19.9	527546	24.2	21.6	126599	24.2	18.7	134370	24.3	18.9	168045	24.4	17.8
411805	24.0	19.8	287132	24.1	19.8	535970	24.2	21.3	104029	24.2	19.3	329764	24.3	21.4	17088	24.4	18.3
425747	24.0	21.5	107147	24.1	18.9	355833	24.2	19.1	176579	24.2	19.0	207075	24.3	20.2	496307	24.4	21.0
159953	24.0	19.8	472653	24.1	19.9	177936	24.2	19.0	540382	24.2	19.4	357896	24.3	20.5	262974	24.4	19.9
466557	24.0	20.2	154462	24.1	20.3	338580	24.2	18.4	179441	24.2	19.8	149111	24.3	19.8	510856	24.4	21.1
145146	24.0	18.3	315269	24.1	19.9	343870	24.2	20.5	495504	24.2	19.1	284119	24.3	18.8	362993	24.4	20.6
362265	24.0	20.1	343430	24.1	19.5	26											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
521386	24.4	20.2	203479	24.5	19.7	359470	24.6	20.9	120435	24.6	19.4	91203	24.7	19.2	363272	24.8	20.9
63224	24.4	18.4	46645	24.5	18.9	300189	24.6	20.6	436970	24.6	20.2	542317	24.7	19.9	134210	24.8	23.0
441763	24.4	21.5	357038	24.5	18.7	44722	24.6	18.0	76833	24.7	19.3	387092	24.7	20.4	126637	24.8	19.6
471091	24.4	21.3	223247	24.5	20.3	382987	24.6	21.6	287550	24.7	20.9	308385	24.7	19.3	480440	24.8	19.9
308694	24.4	19.4	18692	24.5	17.7	293191	24.6	20.1	154981	24.7	19.4	171763	24.7	18.6	353745	24.8	19.5
425902	24.4	20.2	476982	24.5	20.8	518794	24.6	20.8	106668	24.7	19.4	292133	24.7	19.7	309946	24.8	20.2
316868	24.4	18.5	123224	24.5	18.4	107921	24.6	19.8	379318	24.7	19.9	289819	24.7	20.1	494384	24.8	20.2
245668	24.4	19.8	443549	24.5	19.9	442800	24.6	20.7	35679	24.7	17.5	216979	24.7	18.3	182928	24.8	20.3
279352	24.4	19.9	252813	24.5	19.7	80867	24.6	19.3	346413	24.7	19.4	312416	24.7	21.1	276248	24.8	19.4
428068	24.4	20.8	134312	24.5	18.5	171427	24.6	19.0	8248	24.7	16.2	533881	24.7	19.7	121430	24.8	18.8
208706	24.4	20.0	58692	24.5	18.1	336164	24.6	18.7	44663	24.7	17.5	254312	24.7	20.0	290599	24.8	20.3
293983	24.4	19.7	502651	24.5	19.3	508668	24.6	19.8	35451	24.7	16.9	79687	24.7	18.2	483157	24.8	20.2
198347	24.4	19.3	509660	24.5	21.4	537624	24.6	21.0	225933	24.7	19.3	186321	24.7	20.2	160038	24.8	19.9
378265	24.4	20.6	106581	24.5	18.3	35337	24.6	18.6	5269	24.7	15.8	128782	24.7	19.4	152408	24.8	19.3
3862	24.4	15.7	503480	24.5	21.0	224224	24.6	20.0	379878	24.7	20.3	525379	24.7	20.5	483103	24.8	20.2
370953	24.4	20.0	356415	24.5	20.7	458875	24.6	19.9	160060	24.7	19.0	84867	24.7	19.2	459590	24.8	20.8
343580	24.4	20.5	245674	24.5	20.6	397417	24.6	21.4	534982	24.7	21.1	543460	24.8	20.3	107646	24.8	19.8
268070	24.4	18.9	319794	24.5	18.9	309053	24.6	20.5	171818	24.7	20.1	70666	24.8	18.9	200716	24.8	19.9
253915	24.4	20.3	312906	24.5	20.3	346863	24.6	19.5	85648	24.7	18.7	112071	24.8	18.2	267350	24.8	20.5
472430	24.4	21.9	175161	24.5	19.4	504715	24.6	20.9	200506	24.7	20.5	224292	24.8	20.5	309080	24.8	19.9
65330	24.4	18.8	88726	24.5	18.2	526307	24.6	21.6	90724	24.7	18.6	106373	24.8	17.8	449986	24.8	20.5
151474	24.4	18.0	456749	24.5	20.0	152588	24.6	19.0	334706	24.7	20.6	356387	24.8	20.4	263295	24.8	21.4
282944	24.4	19.9	102300	24.5	18.6	129192	24.6	18.9	454252	24.7	21.0	123782	24.8	18.0	497392	24.8	21.6
93197	24.4	18.5	120851	24.5	19.1	505556	24.6	20.5	482920	24.7	20.1	260305	24.8	19.9	280109	24.9	20.6
153105	24.4	18.2	527743	24.5	20.4	494386	24.6	20.4	324778	24.7	20.0	354141	24.8	21.0	414816	24.9	19.8
148584	24.4	18.8	416278	24.5	20.5	328930	24.6	20.1	261388	24.7	21.0	481156	24.8	20.1	379310	24.9	18.8
294944	24.4	19.6	261062	24.5	20.0	259327	24.6	20.8	252900	24.7	20.5	139796	24.8	18.7	39389	24.9	18.5
271673	24.4	18.5	442125	24.5	20.1	136879	24.6	20.2	531036	24.7	22.0	4635	24.8	16.7	180174	24.9	20.1
138880	24.4	17.6	467160	24.5	21.3	468884	24.6	19.9	420839	24.7	20.2	214821	24.8	20.0	119838	24.9	20.4
489593	24.4	19.3	305511	24.5	19.9	44184	24.6	18.5	32245	24.7	17.3	469065	24.8	19.7	181838	24.9	19.1
472730	24.4	20.0	196260	24.5	19.4	69931	24.6	18.9	107106	24.7	19.1	166964	24.8	18.6	500113	24.9	21.5
103438	24.4	19.2	314127	24.5	20.9	312843	24.6	19.3	392124	24.7	20.5	101452	24.8	18.2	299431	24.9	20.8
498312	24.4	20.9	96822	24.5	16.7	393571	24.6	20.4	187620	24.7	19.8	24491	24.8	18.7	56810	24.9	18.8
314557	24.4	21.4	286478	24.5	19.9	414087	24.6	19.5	505811	24.7	18.5	254337	24.8	19.4	495940	24.9	19.8
239865	24.4	20.4	350098	24.5	19.8	524019	24.6	20.8	408945	24.7	20.7	415118	24.8	21.4	497137	24.9	19.1
254602	24.4	19.3	114688	24.5	18.6	394719	24.6	20.0	392024	24.7	20.6	89941	24.8	18.6	152491	24.9	20.2
339351	24.4	20.1	27849	24.5	16.0	370744	24.6	20.3	93505	24.7	19.3	120640	24.8	18.2	1360	24.9	15.5
132706	24.4	19.7	45146	24.5	17.2	295788	24.6	20.0	496449	24.7	20.1	89792	24.8	18.9	208586	24.9	19.3
463177	24.4	21.3	468585	24.5	20.3	431125	24.6	20.4	131829	24.7	19.9	358402	24.8	20.0	385595	24.9	20.6
123785	24.4	17.8	32116	24.5	17.1	254684	24.6	20.2	361415	24.7	19.5	409732	24.8	21.3	315359	24.9	21.1
412233	24.4	20.6	206608	24.5	18.7	286714	24.6	20.2	197597	24.7	18.5	126180	24.8	18.6	270450	24.9	18.7
512132	24.4	20.6	128522	24.5	19.1	75429	24.6	18.9	335517	24.7	20.1	75525	24.8	18.1	122816	24.9	19.0
47167	24.4	17.9	257445	24.5	19.2	166083	24.6	19.6	311175	24.7	17.9	173175	24.8	20.3	383935	24.9	20.2
16946	24.4	16.2	250329	24.5	18.7	86295	24.6	18.9	172597	24.7	20.0	83787	24.8	18.8	170985	24.9	20.9
382900	24.4	19.9	295160	24.5	20.7	204719	24.6	19.7	46940	24.7	18.4	411851	24.8	19.9	156411	24.9	19.4
133499	24.4	19.5	339413	24.5	20.5	513023	24.6	19.7	518415	24.7	21.0	436918	24.8	20.4	178588	24.9	19.8
438929	24.4	21.1	442097	24.5	20.1	408950	24.6	21.3	530500	24.7	21.9	11741	24.8	17.4	73106	24.9	19.3
439472	24.4	20.9	126761	24.5	18.9	291897	24.6	20.3	98038	24.7	17.2	207942	24.8	19.3	112351	24.9	19.7
50173	24.4	16.7	362956	24.5	19.8	123625	24.6	19.6	263240	24.7	20.1	92195	24.8	18.9	398445	24.9	20.9
236168	24.5	20.3	24250	24.5	16.8	25139	24.6	17.8	251963	24.7	19.5	412482	24.8	21.1	204334	24.9	19.4
221215	24.5	19.4	302336	24.5	20.3	90635	24.6	18.7	115769	24.7	18.8	301119	24.8	19.1	207476	24.9	20.1
277635	24.5	19.2	170667	24.5	19.4	56646	24.6	18.0	85190	24.7	18.0	6848	24.8	17.8	17882	24.9	18.0
44232	24.5	18.6	93122	24.5	19.1	303316	24.6	19.1	19645	24.7	16.4	213241	24.8	20.1	432874	24.9	20.9
172463	24.5	17.7	355106	24.5	20.0	404411	24.6	20.4	331416	24.7	21.2	158420	24.8	19.7	190046	24.9	18.6
93401	24.5	18.3	507038	24.5	20.0	18115	24.6	17.7	8500	24.7	16.4	43019	24.8	18.2	336446	24.9	20.0
146172	24.5	19.1	41053	24.5	19.4	41537	24.6	17.5	536183	24.7	20.6	249818	24.8	20.5	375813	24.9	19.8
254374	24.5	19.1	403929	24.5	19.9	512802	24.6	21.1	280331	24.7	18.9	261442	24.8	19.6	251927	24.9	19.5
468031	24.5	21.3	319451	24.5	18.7	491315	24.6	19.9	46826	24.7	17.6	537478	24.8	20.7	254338	24.9	19.3
505515	24.5	19.9	76928	24.5	16.6	25580	24.6	18.8	234801	24.7	19.5	260910	24.8	19.6	397087	24.9	20.6
520357	24.5	20.9	498947	24.5	21.4	109095	24.6	18.3	61640	24.7	18.0	444341	24.8	20.6	102718	24.9	19.1
304481	24.5	20.7	144595	24.5	20.7	176393	24.6	19.5	238289	24.7	20.0	53306	24.8	18.4	123031	24.9	19.5
193560	24.5	18.9	537604	24.5	21.1	159058	24.6	19.6	54590	24.7	18.6	127773	24.8	17.8	242769	24.9	19.3
417557	24.5	20.8	373534	24.5	18.7	216288	24.6	20.2	323339	24.7	20.1	310369	24.8	18.8	283083	24.9	20.2
542221	24.5	20.5	507154	24.5	20.2	247835	24.6	18.8	228638	24.7	19.9	501865	24.8	19.8	472193	24.9	20.7
332794	24.5	19.2	52322	24.5	17.5	283321	24.6	19.2	9730	24.7	17.3	421735	24.8	19.8	457745	24.9	20.3
116161	24.5	20.4	88372	24.5	18.6	80208	24.6	18.5	174461	24.7	19.4	526218	24.8	21.5	290209	24.9	20.3
38097	24.5	19.5	291258	24.6	20.0	473078	24.6	19.4	533123	24.7	20.9	392691	24.8	19.8	318963	24.9	19.7
475909	24.5	21.3	417551	24.6	20.0	151291	24.6	19.4	380276	24.7	19.7	291638	24.8	21.4	257192	24.9	20.4
379824	24.5	20.0	238758	24.6	19.5	474728	24.6										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
512759	24.9	20.3	23635	24.9	18.2	14354	25.0	16.6	271610	25.1	19.1	419603	25.2	20.6	507031	25.3	20.2
255327	24.9	20.5	466867	24.9	19.9	394017	25.1	20.0	132669	25.1	18.4	459946	25.2	19.9	441333	25.3	21.0
433447	24.9	20.4	370978	24.9	20.0	331520	25.1	18.0	5623	25.1	15.4	184968	25.2	19.4	72693	25.3	18.6
470320	24.9	19.4	434769	24.9	20.6	224588	25.1	18.7	195338	25.1	20.2	482306	25.2	20.0	213537	25.3	20.3
105949	24.9	17.6	11823	24.9	15.3	10705	25.1	15.7	477554	25.1	20.7	448816	25.2	20.5	508464	25.3	20.6
202440	24.9	20.0	421432	24.9	20.2	69766	25.1	18.1	214164	25.1	19.6	503980	25.2	20.6	457726	25.3	21.4
90765	24.9	18.1	207644	24.9	20.6	144676	25.1	19.5	410763	25.1	21.0	36905	25.2	17.6	495815	25.3	20.0
231682	24.9	20.6	467943	24.9	21.4	187395	25.1	20.3	393927	25.1	19.9	420719	25.2	20.4	335803	25.3	20.2
152095	24.9	19.2	118908	24.9	18.6	285074	25.1	19.7	248555	25.1	19.9	269638	25.2	19.7	507705	25.3	20.6
220449	24.9	20.0	501051	24.9	19.8	213910	25.1	18.9	469876	25.1	20.4	401861	25.2	18.6	241156	25.3	20.5
323454	24.9	18.7	318133	24.9	18.9	332789	25.1	19.0	325137	25.1	19.6	16858	25.2	17.1	19451	25.3	17.6
523172	24.9	20.4	441016	24.9	20.1	262739	25.1	19.8	164686	25.1	18.8	159567	25.2	17.6	320702	25.3	21.3
147017	24.9	18.3	429240	24.9	20.6	537197	25.1	21.3	282699	25.1	21.3	3417	25.2	17.7	344141	25.3	21.2
276507	24.9	19.3	333938	24.9	19.9	507734	25.1	19.8	469148	25.1	20.4	116418	25.2	19.1	179772	25.3	18.6
32673	24.9	18.2	306911	24.9	18.6	240089	25.1	19.9	178345	25.1	19.8	289390	25.2	20.1	535215	25.3	20.6
184734	24.9	19.5	56550	24.9	16.6	357743	25.1	20.0	409156	25.1	19.2	357157	25.2	21.3	37729	25.3	16.9
360549	24.9	19.6	353958	24.9	20.2	87509	25.1	17.8	309712	25.1	21.0	473159	25.2	20.8	241871	25.3	19.5
506212	24.9	20.5	360446	24.9	19.8	207021	25.1	18.4	459773	25.1	21.1	314054	25.2	21.3	269938	25.3	19.0
430585	24.9	20.9	503474	24.9	20.9	413471	25.1	21.3	160955	25.1	18.4	115152	25.2	18.0	283916	25.3	19.7
156298	24.9	19.6	45882	24.9	19.0	31922	25.1	17.2	119713	25.1	19.6	22724	25.2	18.0	257500	25.3	20.0
396006	24.9	20.8	532102	24.9	21.2	42315	25.1	18.5	439187	25.1	19.8	245460	25.2	19.6	44418	25.3	18.4
369696	24.9	20.9	145819	25.0	18.2	464482	25.1	21.8	137914	25.1	19.9	306698	25.2	19.2	308684	25.3	20.3
539567	24.9	20.4	471335	25.0	21.4	404911	25.1	20.0	218621	25.1	19.0	32801	25.2	16.1	387195	25.3	19.8
87262	24.9	18.0	513042	25.0	20.6	527484	25.1	20.8	147812	25.1	19.1	313726	25.2	21.1	59470	25.3	18.6
474768	24.9	18.7	20076	25.0	17.7	308626	25.1	19.3	379548	25.1	20.7	219705	25.2	20.2	474871	25.3	20.2
278279	24.9	20.7	530834	25.0	21.0	118906	25.1	19.2	109995	25.1	19.0	133938	25.2	19.2	81882	25.3	19.2
360390	24.9	19.6	280971	25.0	19.7	87670	25.1	18.7	22133	25.1	18.1	338579	25.2	17.9	345959	25.3	19.1
418199	24.9	21.4	416540	25.0	20.6	309766	25.1	19.3	69713	25.1	18.6	222606	25.2	19.9	29535	25.3	18.2
138537	24.9	22.0	64243	25.0	18.5	252792	25.1	20.1	257619	25.1	20.5	36607	25.2	18.0	171757	25.3	20.1
164797	24.9	19.9	71945	25.0	19.3	129444	25.1	20.1	441444	25.1	20.8	382582	25.2	19.1	261806	25.3	18.4
395682	24.9	20.0	401182	25.0	20.3	119223	25.1	17.9	403246	25.1	19.4	249692	25.2	19.3	242680	25.3	19.4
250397	24.9	18.8	475257	25.0	20.7	462155	25.1	21.1	68215	25.1	17.6	229034	25.2	20.0	542958	25.3	21.4
254225	24.9	18.9	202940	25.0	20.3	211920	25.1	18.8	36226	25.1	18.5	66756	25.2	18.9	358326	25.3	20.0
293202	24.9	20.7	258003	25.0	19.9	523835	25.1	19.8	163982	25.1	19.3	265575	25.2	20.2	403536	25.3	20.7
432804	24.9	21.3	1145	25.0	14.3	276892	25.1	19.4	446081	25.1	21.0	94420	25.2	18.7	326995	25.3	19.8
173001	24.9	19.0	289936	25.0	20.4	398446	25.1	20.5	297157	25.1	19.0	60378	25.2	18.1	531871	25.3	20.9
137745	24.9	19.7	540405	25.0	20.4	178656	25.1	19.0	167944	25.1	19.7	521623	25.2	21.0	408116	25.3	21.2
151583	24.9	18.5	35691	25.0	18.7	155927	25.1	18.2	42918	25.1	17.0	241946	25.2	19.9	15725	25.3	17.2
275431	24.9	20.6	432805	25.0	20.7	139264	25.1	19.6	157618	25.1	19.9	41059	25.2	17.5	222592	25.3	20.0
154646	24.9	18.8	40734	25.0	18.2	285623	25.1	18.7	131926	25.1	20.3	158317	25.2	18.2	440693	25.3	20.9
350997	24.9	20.8	88102	25.0	18.9	524819	25.1	22.0	59793	25.1	18.6	488307	25.2	20.4	91358	25.3	19.3
540066	24.9	19.8	194071	25.0	19.8	529776	25.1	21.6	289413	25.1	19.9	425279	25.2	21.3	175863	25.3	19.6
472126	24.9	20.6	24864	25.0	17.1	214837	25.1	19.1	155586	25.1	19.3	37097	25.2	17.6	398911	25.3	21.3
471095	24.9	21.1	530408	25.0	21.5	477730	25.1	20.9	324936	25.1	20.3	106100	25.2	19.0	504002	25.3	21.2
252177	24.9	20.5	168150	25.0	19.2	623	25.1	14.0	305946	25.2	20.6	315805	25.2	19.9	74397	25.3	18.6
89863	24.9	19.3	426229	25.0	20.5	301808	25.1	18.7	423943	25.2	19.2	229725	25.2	20.6	66663	25.3	18.3
323823	24.9	18.9	213018	25.0	19.3	378310	25.1	20.1	36125	25.2	17.7	140771	25.2	18.3	177122	25.3	20.1
219579	24.9	18.5	117251	25.0	18.7	400421	25.1	21.1	33468	25.2	16.3	61407	25.2	17.9	33240	25.3	18.7
91211	24.9	18.5	275091	25.0	19.2	172370	25.1	19.3	395407	25.2	20.0	144862	25.2	19.3	329988	25.3	20.2
309958	24.9	20.0	11894	25.0	17.8	284516	25.1	20.1	146247	25.2	19.4	285962	25.2	19.2	144944	25.3	19.8
200084	24.9	20.5	442525	25.0	19.7	9339	25.1	18.4	43055	25.2	18.3	65022	25.2	19.6	422001	25.3	20.6
471275	24.9	22.0	530164	25.0	20.4	107037	25.1	18.4	75164	25.2	17.5	236401	25.2	20.0	279737	25.3	20.0
532898	24.9	21.3	387027	25.0	19.6	265017	25.1	19.2	230418	25.2	18.9	262428	25.2	19.7	29631	25.3	18.1
28611	24.9	18.1	44454	25.0	18.0	7900	25.1	16.6	368069	25.2	19.3	140114	25.2	19.0	131007	25.3	18.3
510894	24.9	21.5	530989	25.0	20.5	147487	25.1	20.6	296378	25.2	20.3	148764	25.2	19.8	127730	25.3	18.9
533520	24.9	21.4	266330	25.0	19.9	299787	25.1	20.2	84373	25.2	19.0	473961	25.2	20.3	357899	25.3	20.5
282751	24.9	20.1	412390	25.0	20.1	359934	25.1	20.3	105793	25.2	18.5	154538	25.2	20.1	244502	25.3	18.3
414074	24.9	19.2	186924	25.0	18.7	196533	25.1	17.0	8449	25.2	17.3	380202	25.2	21.2	250284	25.3	19.9
275226	24.9	20.3	166993	25.0	18.0	159659	25.1	20.0	254387	25.2	19.4	360408	25.2	20.5	497319	25.3	20.5
474125	24.9	20.6	5995	25.0	17.8	260379	25.1	19.9	255085	25.2	19.9	30654	25.2	17.6	432416	25.3	21.0
348716	24.9	20.7	132099	25.0	19.4	503649	25.1	20.0	208721	25.2	19.8	40611	25.2	17.2	13190	25.3	17.4
532719	24.9	20.4	519457	25.0	21.7	215851	25.1	20.8	167908	25.2	19.5	369746	25.2	20.4	515068	25.3	20.4
311153	24.9	20.4	260593	25.0	19.4	303779	25.1	20.3	35718	25.2	18.3	62026	25.2	17.4	209851	25.3	19.4
503204	24.9	21.1	170282	25.0	19.0	123164	25.1	19.0	255189	25.2	20.1	420983	25.2	20.1	478101	25.3	20.5
490003	24.9	19.8	72998	25.0	19.3	474856	25.1	20.4	254314	25.2	19.9	112678	25.2	19.0	224838	25.3	19.0
324972	24.9	20.5	315132	25.0	19.9	542423	25.1	20.7	65971	25.2	19.6	500790	25.2	21.7	432383	25.3	20.1
58214	24.9	17.5	159870	25.0	18.3	383319	25.1	20.4	92888	25.2	18.0	344834	25.2	20.1	153277	25.3	19.8
530821	24.9	20.9	204002	25.0	19.8	136899	25.1	19.7	459585	25.2	21.7	357525	25.2	20.2	342934	25.3	19.9
478668	24.9	20.6	462560	25.0	19.9	55350	25.1	1									

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
44392	25.3	17.5	249591	25.4	20.0	16815	25.5	16.3	347114	25.6	20.7	203652	25.7	19.7	44533	25.7	18.0
523961	25.3	20.8	382938	25.4	20.2	396541	25.5	20.5	503058	25.6	21.3	505809	25.7	19.3	254295	25.7	20.0
292595	25.3	20.9	394314	25.4	19.8	496152	25.5	20.1	265024	25.6	20.6	89405	25.7	17.8	168864	25.7	18.8
276885	25.3	18.3	311953	25.4	19.0	128356	25.5	18.5	241126	25.6	18.5	8920	25.7	18.0	515796	25.7	21.1
387031	25.3	20.2	535822	25.4	21.2	106823	25.5	19.0	352630	25.6	21.2	138964	25.7	18.9	128116	25.7	18.9
499280	25.3	20.2	526064	25.4	21.2	368982	25.5	20.1	210855	25.6	19.4	164571	25.7	19.6	158341	25.7	19.6
473844	25.3	21.0	7310	25.4	17.3	45887	25.5	16.8	326184	25.6	21.3	274115	25.7	19.9	188953	25.7	20.0
477506	25.3	19.7	3630	25.4	15.8	442070	25.5	20.2	325914	25.6	20.4	212777	25.7	19.9	177806	25.7	19.2
505472	25.3	19.8	510372	25.4	21.0	419733	25.5	20.8	153430	25.6	19.1	389746	25.7	20.3	304784	25.7	20.2
311448	25.3	20.5	171000	25.4	20.2	324435	25.5	20.8	524565	25.6	20.2	420512	25.7	21.8	417803	25.7	21.7
206688	25.3	19.7	329960	25.4	20.2	338757	25.5	19.7	508251	25.6	20.8	350177	25.7	20.0	297286	25.7	20.0
66147	25.3	18.0	214928	25.4	20.1	538101	25.5	21.3	331175	25.6	20.0	310494	25.7	18.8	499045	25.7	21.5
29745	25.3	16.9	441449	25.4	20.0	128390	25.5	18.1	126579	25.6	19.5	440265	25.7	19.4	507620	25.7	21.4
499604	25.3	20.2	107403	25.4	19.1	210664	25.5	18.3	166501	25.6	18.7	410415	25.7	20.9	433934	25.7	21.3
156425	25.3	19.5	173807	25.4	19.7	538338	25.5	20.8	36670	25.6	17.4	95997	25.7	18.6	537599	25.7	21.0
362430	25.3	20.0	436546	25.4	20.4	14268	25.5	17.3	398812	25.6	20.9	315532	25.7	20.5	152467	25.7	19.6
308616	25.3	20.8	521087	25.4	20.6	48389	25.5	18.4	69818	25.6	17.0	80018	25.7	18.9	412126	25.7	20.4
294583	25.3	20.2	90132	25.4	18.0	382228	25.5	19.9	204751	25.6	19.4	388316	25.7	20.5	160964	25.7	18.6
432013	25.3	20.2	248093	25.4	18.8	62915	25.5	17.7	357811	25.6	20.6	262321	25.7	19.1	87678	25.7	18.1
187312	25.3	20.3	507050	25.4	20.4	377728	25.5	20.2	195386	25.6	19.8	446909	25.7	19.5	221420	25.7	19.5
322900	25.3	20.1	531027	25.4	20.8	303225	25.5	19.7	85781	25.6	17.7	62858	25.7	18.8	314325	25.7	20.0
479947	25.3	20.1	511197	25.4	19.8	358104	25.5	20.6	212798	25.6	19.6	475929	25.7	20.8	391290	25.7	19.9
200840	25.4	22.7	368242	25.4	18.3	160091	25.5	23.3	446509	25.6	20.6	359889	25.7	19.9	311591	25.7	19.4
127991	25.4	18.7	205669	25.4	19.4	24677	25.5	18.0	262788	25.6	19.9	443017	25.7	20.8	321666	25.7	20.0
510415	25.4	20.7	310360	25.4	19.6	204068	25.5	20.2	380860	25.6	20.2	289350	25.7	21.2	500123	25.7	21.4
156310	25.4	19.1	5029	25.4	16.1	4813	25.5	16.1	442090	25.6	20.2	199178	25.7	19.6	426221	25.7	20.3
524583	25.4	22.4	49735	25.4	19.1	481288	25.5	20.7	84124	25.6	18.3	261898	25.7	20.8	166497	25.7	19.5
223262	25.4	17.5	130921	25.4	19.6	346540	25.5	19.7	144727	25.6	19.7	481520	25.7	21.1	332101	25.7	19.7
35407	25.4	18.0	513089	25.4	20.9	26970	25.5	18.6	443541	25.6	21.6	150922	25.7	18.8	492978	25.7	20.7
206316	25.4	18.6	118414	25.4	18.6	417757	25.5	21.4	42314	25.6	18.9	519702	25.7	21.6	234197	25.7	17.8
183930	25.4	19.6	219934	25.4	20.6	236149	25.5	20.6	328245	25.6	21.2	165401	25.7	18.7	123811	25.7	19.2
215031	25.4	19.2	263202	25.4	20.9	138544	25.5	18.1	512325	25.6	19.9	37689	25.7	18.4	431364	25.7	20.8
396274	25.4	20.3	161599	25.4	19.3	499141	25.5	20.3	76671	25.6	19.2	441407	25.7	20.7	507487	25.7	20.9
475521	25.4	20.6	175424	25.4	18.9	465404	25.5	20.3	55424	25.6	18.0	454333	25.7	20.3	59283	25.7	18.0
158725	25.4	18.9	526358	25.4	21.6	254570	25.5	20.0	475155	25.6	20.3	126904	25.7	19.2	136667	25.7	19.8
233927	25.4	19.2	355550	25.4	21.2	476472	25.5	20.2	471636	25.6	20.7	354337	25.7	21.3	344453	25.7	18.3
125591	25.4	19.7	182302	25.4	18.6	49177	25.5	17.8	121929	25.6	20.1	76922	25.7	19.4	66216	25.7	18.4
497842	25.4	20.2	209058	25.4	18.3	151845	25.5	20.1	145945	25.6	17.2	100961	25.7	17.8	304100	25.7	20.6
389097	25.4	19.7	311245	25.4	21.3	297576	25.5	19.5	391963	25.6	20.4	505523	25.7	20.9	386278	25.7	19.3
508151	25.4	20.9	274086	25.5	20.3	355361	25.5	19.8	539696	25.6	19.5	507427	25.7	19.6	471807	25.7	20.3
161873	25.4	21.1	301393	25.5	20.3	95742	25.5	18.8	445836	25.6	21.2	267411	25.7	20.5	189326	25.7	21.2
380874	25.4	21.2	159401	25.5	16.4	135633	25.5	19.3	294427	25.6	20.0	9411	25.7	17.1	288821	25.7	18.8
94276	25.4	18.9	435615	25.5	20.0	517681	25.5	19.5	80568	25.6	19.2	235204	25.7	19.3	442130	25.7	20.0
60916	25.4	16.6	184524	25.5	18.8	172425	25.5	16.8	64695	25.6	17.9	474175	25.7	20.3	524052	25.7	20.9
415040	25.4	19.9	270480	25.5	20.3	86083	25.5	18.7	20346	25.6	17.2	238455	25.7	20.0	410268	25.7	19.0
98813	25.4	19.1	199825	25.5	20.6	132481	25.5	17.6	23047	25.6	18.1	354672	25.7	20.4	515379	25.7	20.2
130445	25.4	17.3	536808	25.5	21.3	156726	25.5	19.6	88963	25.6	18.2	434601	25.7	21.5	494498	25.7	20.4
301368	25.4	20.4	124237	25.5	18.0	8057	25.5	17.1	296310	25.6	19.7	79830	25.7	17.8	265466	25.7	19.9
240145	25.4	18.3	354203	25.5	19.3	394300	25.5	20.3	24594	25.6	18.9	133923	25.7	18.9	507485	25.7	20.3
128610	25.4	19.2	107968	25.5	19.6	55735	25.5	16.2	86618	25.6	19.8	254181	25.7	19.4	272566	25.7	19.7
302003	25.4	19.2	510448	25.5	21.5	342697	25.5	20.0	475096	25.6	21.9	498543	25.7	21.2	250946	25.7	20.0
90174	25.4	18.4	214430	25.5	19.1	56719	25.5	18.6	414241	25.6	20.5	55378	25.7	17.6	396251	25.7	20.0
357758	25.4	19.5	435864	25.5	20.8	500259	25.5	20.2	1273	25.6	15.0	98645	25.7	18.9	292767	25.7	20.0
46603	25.4	18.1	253390	25.5	19.2	304631	25.5	19.7	12662	25.6	17.7	251503	25.7	19.9	112130	25.7	19.4
529404	25.4	21.8	114302	25.5	19.3	36852	25.5	18.8	539453	25.6	21.0	352484	25.7	21.5	146959	25.7	19.7
440655	25.4	20.1	510151	25.5	20.6	228226	25.5	20.8	78382	25.6	18.6	72496	25.7	18.0	470623	25.7	20.8
525112	25.4	20.0	502844	25.5	21.0	260700	25.5	19.7	163090	25.6	19.5	389553	25.7	20.0	108225	25.7	19.9
59050	25.4	17.5	321678	25.5	20.4	440230	25.5	20.9	287336	25.6	20.8	31640	25.7	19.0	174533	25.7	19.5
321909	25.4	19.5	358418	25.5	20.3	334371	25.5	19.5	497980	25.6	21.1	190034	25.7	19.3	274489	25.7	19.6
313785	25.4	19.8	172464	25.5	20.2	362486	25.5	20.3	536512	25.6	20.2	115345	25.7	19.9	175284	25.7	19.1
98174	25.4	19.2	496441	25.5	21.4	374336	25.5	19.8	534165	25.6	19.9	415307	25.7	19.5	6756	25.7	18.4
381803	25.4	20.9	25147	25.5	18.4	36203	25.5	18.0	260878	25.6	19.8	360397	25.7	21.1	292401	25.7	18.8
439642	25.4	20.3	57933	25.5	19.2	36967	25.5	17.7	151285	25.6	19.3	265863	25.7	19.8	342243	25.7	19.7
528292	25.4	20.0	476520	25.5	20.8	519163	25.5	20.5	232157	25.6	20.3	217549	25.7	19.3	166312	25.7	19.6
302465	25.4	21.3	110768	25.5	19.2	35960	25.5	18.0	119929	25.6	19.3	445389	25.7	20.1	381840	25.7	20.8
440226	25.4	20.0	265678	25.5	19.6	435770	25.5	20.8	416386	25.6	18.6	250559	25.7	19.3	422219	25.7	19.2
372389	25.4	19.8	275578	25.5	18.5	263590	25.5	20.4	105052	25.6	18.6	324087	25.7	20.5	504612	25.7	20.2
355536	25.4	20.4	240552	25.5	19.0	385007	25.5	20.0	228604	25.6	19.6	75439	25.7	18.8	431014	25.7	20.5
429970	25.4	21.0	131214	25.5	19.5	151425	25										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
107631	25.8	20.1	107394	25.9	18.0	211977	25.9	20.7	379702	26.0	20.6	97433	26.1	19.1	437050	26.2	20.5
521540	25.8	20.1	120177	25.9	19.4	123724	25.9	19.3	214143	26.0	20.7	288775	26.1	19.5	406911	26.2	20.3
138518	25.8	19.3	67994	25.9	18.4	338851	25.9	19.9	153887	26.0	17.2	308351	26.1	19.9	402549	26.2	19.2
498019	25.8	18.8	232798	25.9	19.0	41061	25.9	17.9	505566	26.0	20.1	425945	26.1	21.1	252759	26.2	20.2
417693	25.8	21.0	22516	25.9	18.4	438632	25.9	20.8	310005	26.0	19.2	17975	26.1	16.4	122849	26.2	18.6
222615	25.8	20.0	417860	25.9	20.0	250727	25.9	19.8	96491	26.0	19.3	342755	26.1	19.9	164065	26.2	19.1
222498	25.8	19.8	446581	25.9	20.7	91287	25.9	18.9	214454	26.0	19.8	249824	26.1	18.8	24310	26.2	16.9
38550	25.8	18.5	525973	25.9	20.4	117478	25.9	20.4	154532	26.0	20.2	502821	26.1	18.8	438219	26.2	20.5
56836	25.8	19.0	114733	25.9	18.6	68038	25.9	19.2	521367	26.0	20.5	294147	26.1	20.7	503201	26.2	20.6
294926	25.8	20.2	352528	25.9	20.2	269030	25.9	20.0	16215	26.0	18.5	440476	26.1	19.6	152394	26.2	19.6
135677	25.8	19.5	380263	25.9	19.4	38675	25.9	17.6	54556	26.0	17.0	272254	26.1	18.5	391668	26.2	20.3
24762	25.8	18.2	433596	25.9	19.3	254172	25.9	17.8	285264	26.0	19.7	75318	26.1	18.5	141034	26.2	19.8
38025	25.8	18.3	2163	25.9	15.0	296870	25.9	19.6	296799	26.0	20.5	72952	26.1	18.9	425685	26.2	17.8
384813	25.8	18.5	178347	25.9	19.5	25630	25.9	18.7	140436	26.0	18.8	42688	26.1	19.0	271793	26.2	18.3
496514	25.8	20.5	468851	25.9	19.7	229911	25.9	18.4	129674	26.0	18.6	259250	26.1	20.1	454084	26.2	20.3
72244	25.8	18.6	226373	25.9	20.4	183980	25.9	19.7	457507	26.0	19.4	416432	26.1	19.6	395245	26.2	20.2
376927	25.8	19.8	531525	25.9	20.1	129085	25.9	19.9	37001	26.0	18.7	480186	26.1	21.2	530686	26.2	20.6
251893	25.8	19.6	28644	25.9	17.4	41685	25.9	18.2	336167	26.0	19.5	310538	26.1	21.7	56830	26.2	17.6
365980	25.8	20.5	500112	25.9	20.9	251953	25.9	19.8	3905	26.0	15.3	134413	26.1	19.3	531084	26.2	20.5
503313	25.8	20.8	286220	25.9	18.9	381844	25.9	18.4	86348	26.0	18.0	437032	26.1	20.1	544922	26.2	20.4
184214	25.8	19.8	440269	25.9	20.7	373500	25.9	20.1	402855	26.0	19.5	426542	26.1	21.2	156474	26.2	19.3
423730	25.8	19.4	490066	25.9	18.8	542581	25.9	20.5	214194	26.0	19.9	159695	26.1	18.8	510359	26.2	20.5
429189	25.8	19.6	209504	25.9	19.4	421259	25.9	19.6	500096	26.0	21.6	98783	26.1	19.4	152115	26.2	19.5
21539	25.8	18.3	342499	25.9	19.3	142756	25.9	19.9	227465	26.0	20.1	539726	26.1	20.6	43305	26.2	16.2
16760	25.8	17.1	355715	25.9	21.1	507036	25.9	20.8	441373	26.1	20.8	355721	26.1	20.0	5725	26.2	17.2
130689	25.8	17.2	369401	25.9	19.5	539742	25.9	20.9	476462	26.1	20.6	219548	26.1	19.1	182792	26.2	18.9
510609	25.8	20.8	134414	25.9	19.5	368083	25.9	19.5	152521	26.1	20.1	294626	26.1	20.0	529848	26.2	20.4
350874	25.8	19.2	6583	25.9	16.2	134603	25.9	18.4	423881	26.1	19.9	5475	26.1	17.4	152524	26.2	18.8
122865	25.8	18.0	310651	25.9	20.4	18952	25.9	16.7	542432	26.1	20.3	406356	26.1	19.1	388238	26.2	20.9
66518	25.8	16.6	251557	25.9	20.9	361329	25.9	18.2	224466	26.1	19.3	537358	26.2	22.2	131066	26.2	19.0
480580	25.8	20.5	182821	25.9	19.6	315024	25.9	21.0	463173	26.1	20.4	93490	26.2	18.1	207014	26.2	18.5
165364	25.8	19.7	259257	25.9	20.2	312502	25.9	20.4	483216	26.1	20.5	339394	26.2	20.2	154581	26.2	18.6
288086	25.8	19.6	540907	25.9	20.6	392987	25.9	20.8	508060	26.1	21.0	502616	26.2	18.6	35324	26.2	17.3
192299	25.8	20.8	370107	25.9	19.6	524403	25.9	19.8	517539	26.1	19.2	464098	26.2	20.4	393833	26.2	19.9
393355	25.8	20.7	358875	25.9	20.6	336873	25.9	20.5	120846	26.1	19.7	33421	26.2	16.3	428303	26.2	20.0
502227	25.8	20.1	523111	25.9	20.7	283455	25.9	21.0	423587	26.1	20.2	352745	26.2	20.3	167689	26.2	19.4
163404	25.8	19.7	168105	25.9	18.0	217625	25.9	18.8	518398	26.1	20.5	443615	26.2	21.9	359446	26.2	20.3
440517	25.8	20.4	390033	25.9	20.1	389916	25.9	20.3	80514	26.1	17.4	412114	26.2	20.7	532582	26.2	21.3
92961	25.8	18.1	143446	25.9	19.7	526006	25.9	20.5	536349	26.1	20.2	365453	26.2	20.1	475057	26.2	20.2
79051	25.8	18.5	471956	25.9	21.4	98642	25.9	19.9	357719	26.1	20.2	57948	26.2	19.2	270570	26.2	19.6
134710	25.8	17.7	302856	25.9	20.0	412074	25.9	21.0	11143	26.1	17.9	319310	26.2	19.9	332149	26.2	19.9
55923	25.8	18.3	504988	25.9	21.0	85862	25.9	17.2	166917	26.1	19.8	343755	26.2	20.3	233142	26.2	19.2
67369	25.8	17.9	27506	25.9	18.4	263503	25.9	19.0	251318	26.1	20.0	537012	26.2	21.3	231690	26.2	20.1
474479	25.8	20.3	419907	25.9	20.5	239671	25.9	19.7	365666	26.1	20.9	204458	26.2	19.2	480744	26.2	19.8
40538	25.8	17.0	462834	25.9	19.9	240318	25.9	19.3	278552	26.1	19.7	6297	26.2	17.3	355599	26.2	21.0
77222	25.8	18.0	93556	25.9	19.5	483067	25.9	20.3	235172	26.1	18.8	314186	26.2	21.4	108090	26.2	19.3
408632	25.8	19.2	50375	25.9	18.5	170678	25.9	20.4	64080	26.1	18.2	408287	26.2	20.6	533251	26.2	21.5
499362	25.8	20.4	175591	25.9	20.3	76115	25.9	18.3	364615	26.1	20.1	63040	26.2	19.0	15909	26.2	17.1
264985	25.8	20.3	334727	25.9	20.4	247175	25.9	19.7	533329	26.1	21.9	22220	26.2	18.3	482117	26.2	20.1
416464	25.8	18.9	83730	25.9	17.3	418140	25.9	21.3	305507	26.1	21.0	114957	26.2	17.3	270413	26.2	20.3
445973	25.8	21.2	496858	25.9	20.0	320300	26.0	20.6	202971	26.1	18.3	161696	26.2	19.0	375000	26.2	20.7
199344	25.8	19.9	271097	25.9	19.2	376262	26.0	20.4	377045	26.1	19.3	280113	26.2	21.1	107162	26.2	19.5
364454	25.8	19.5	257397	25.9	19.9	356314	26.0	20.7	215796	26.1	19.8	116114	26.2	18.7	141174	26.2	19.0
91668	25.8	18.7	352645	25.9	22.4	536739	26.0	21.4	281817	26.1	20.2	510506	26.2	21.6	439182	26.2	20.2
499558	25.9	20.1	237977	25.9	19.9	191718	26.0	18.9	259883	26.1	21.2	250630	26.2	19.7	370098	26.2	19.0
133553	25.9	19.4	506801	25.9	21.2	21393	26.0	16.9	347096	26.1	20.1	69427	26.2	19.0	86138	26.3	18.0
317326	25.9	19.9	537158	25.9	21.1	442065	26.0	20.2	118433	26.1	18.5	333150	26.2	21.2	170969	26.3	20.1
270332	25.9	18.1	214509	25.9	19.5	36994	26.0	18.3	537166	26.1	21.4	22595	26.2	18.0	257157	26.3	20.0
94741	25.9	18.4	22740	25.9	17.4	520097	26.0	21.5	7424	26.1	16.4	107170	26.2	20.8	229885	26.3	19.5
13325	25.9	16.9	239034	25.9	19.1	538222	26.0	20.6	126606	26.1	19.7	281827	26.2	20.1	192649	26.3	18.1
468138	25.9	21.1	343474	25.9	20.5	347442	26.0	20.1	469551	26.1	19.5	512973	26.2	18.3	250861	26.3	20.2
373550	25.9	19.8	164653	25.9	19.6	295573	26.0	19.7	149461	26.1	19.4	332858	26.2	19.7	343952	26.3	20.4
177641	25.9	19.9	143738	25.9	20.1	44373	26.0	18.7	152307	26.1	18.5	219574	26.2	19.4	32249	26.3	16.9
509867	25.9	21.5	523132	25.9	20.7	78878	26.0	18.6	210785	26.1	19.9	155306	26.2	18.0	495470	26.3	19.5
199533	25.9	19.7	361455	25.9	21.0	538864	26.0	20.6	81809	26.1	19.1	492737	26.2	20.0	278506	26.3	20.6
80842	25.9	17.9	310632	25.9	19.6	530324	26.0	21.1	377734	26.1	19.6	320527	26.2	21.0	218913	26.3	19.3
153840	25.9	17.7	10747	25.9	16.5	387028	26.0	20.1	539776	26.1	20.8	245525	26.2	18.1	107222	26.3	18.0
529948	25.9	20.5	431963	25.9	20.0	231606	26.0	20.6	341178	26.1	20.1	255121	26.2	19.1	120998	26.3	19.5
9896	25.9	16.6	427496	25.9	21.4	150063	26.0										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
499862	26.3	20.5	519208	26.4	20.4	337154	26.4	20.7	346124	26.5	20.3	315712	26.6	20.7	100325	26.7	18.1
526413	26.3	21.4	260856	26.4	19.3	301784	26.4	20.3	527454	26.5	20.8	305899	26.6	20.5	152043	26.7	19.0
357799	26.3	20.2	79805	26.4	17.5	245600	26.4	19.6	387193	26.5	19.7	307230	26.6	20.9	358525	26.7	20.0
510898	26.3	20.2	222589	26.4	19.4	212000	26.4	20.6	543342	26.5	19.4	384528	26.6	19.9	56988	26.7	18.5
185541	26.3	19.7	442585	26.4	20.1	386521	26.4	20.3	248654	26.5	19.5	345048	26.6	21.0	308482	26.7	19.0
105532	26.3	18.9	448011	26.4	21.4	250012	26.4	20.8	485706	26.5	19.7	8221	26.6	16.9	425419	26.7	20.0
470851	26.3	20.8	430524	26.4	20.6	381166	26.5	19.8	408949	26.5	21.0	386310	26.6	19.8	111809	26.7	19.5
487620	26.3	20.0	431053	26.4	21.1	442806	26.5	21.1	481255	26.5	20.2	30254	26.6	18.8	399342	26.7	18.7
105783	26.3	18.8	324965	26.4	20.8	179577	26.5	18.5	508719	26.5	20.2	375651	26.6	21.0	260957	26.7	19.5
123871	26.3	18.8	498497	26.4	20.6	311950	26.5	20.7	440526	26.5	20.6	480180	26.6	21.0	4062	26.7	15.4
126227	26.3	19.4	12379	26.4	18.1	275876	26.5	19.7	321767	26.5	19.3	254407	26.6	20.1	444202	26.7	20.8
224352	26.3	19.1	483087	26.4	20.0	152002	26.5	19.3	438123	26.5	19.7	242167	26.6	20.5	505865	26.7	20.1
235602	26.3	18.9	17472	26.4	17.0	102573	26.5	19.3	176774	26.5	19.9	510827	26.6	20.8	255529	26.7	20.6
279946	26.3	20.0	107526	26.4	20.2	103041	26.5	17.4	521115	26.5	20.9	94296	26.6	19.1	54606	26.7	18.3
469988	26.3	20.8	39816	26.4	16.7	355214	26.5	19.3	94009	26.5	18.8	100747	26.6	19.4	208951	26.7	20.0
149137	26.3	19.8	2951	26.4	15.1	424140	26.5	21.1	411665	26.5	21.1	249206	26.6	20.1	226074	26.7	19.6
11878	26.3	17.9	499703	26.4	21.1	262683	26.5	20.4	312081	26.5	19.3	281916	26.6	20.9	321990	26.7	19.6
58292	26.3	18.0	193699	26.4	19.3	198132	26.5	20.0	218085	26.5	19.5	324958	26.6	20.6	2167	26.7	16.3
205643	26.3	19.2	512072	26.4	20.8	283731	26.5	19.4	14898	26.5	17.7	60795	26.6	19.7	540722	26.7	21.1
433329	26.3	18.8	10075	26.4	17.0	148416	26.5	20.1	388582	26.5	21.0	464811	26.6	19.1	248080	26.7	19.0
126585	26.3	20.2	504530	26.4	20.1	25483	26.5	18.5	171582	26.5	19.4	196564	26.6	18.6	394784	26.7	20.9
529021	26.3	21.9	63939	26.4	18.4	474434	26.5	20.2	93021	26.5	17.6	119857	26.6	19.7	510331	26.7	20.3
297598	26.3	19.6	119006	26.4	19.2	91184	26.5	18.9	374397	26.5	19.8	404893	26.6	20.9	506978	26.7	19.1
198386	26.3	19.1	267489	26.4	20.1	359805	26.5	20.3	424724	26.5	20.3	342543	26.6	20.2	304756	26.7	21.8
181340	26.3	19.8	424097	26.4	21.5	240189	26.5	20.2	309419	26.5	19.6	87347	26.6	18.1	528573	26.7	21.1
536516	26.3	21.4	381431	26.4	20.4	389318	26.5	20.2	260548	26.5	20.3	13827	26.6	16.6	314547	26.7	20.5
390518	26.3	20.4	210429	26.4	19.9	200786	26.5	19.9	199795	26.5	19.3	240529	26.6	20.7	134169	26.7	19.5
262938	26.3	20.4	99508	26.4	19.4	400919	26.5	20.6	169161	26.5	19.5	396049	26.6	20.0	237114	26.7	19.5
455218	26.3	18.3	434696	26.4	20.2	455735	26.5	20.9	352594	26.5	21.7	413394	26.6	18.9	361132	26.7	20.2
188245	26.3	19.5	424111	26.4	22.1	532036	26.5	20.5	263860	26.5	20.6	237937	26.6	20.1	35490	26.7	18.1
8022	26.3	16.5	501226	26.4	19.9	9475	26.5	17.6	454085	26.5	19.8	528750	26.6	21.6	126694	26.7	20.3
530407	26.3	22.4	301591	26.4	20.5	24301	26.5	17.7	398936	26.5	20.7	183563	26.6	20.1	538538	26.7	20.3
441412	26.3	20.6	92432	26.4	18.8	536279	26.5	21.3	193650	26.5	19.4	461637	26.6	21.5	171017	26.7	19.9
314778	26.3	20.2	65476	26.4	18.8	324342	26.5	18.7	439733	26.5	20.9	2349	26.6	14.8	503789	26.7	21.3
477206	26.3	20.0	456798	26.4	19.3	365514	26.5	20.1	15785	26.5	17.5	68037	26.6	18.1	54179	26.7	18.9
519406	26.3	21.5	537006	26.4	21.4	258015	26.5	20.6	509558	26.5	21.5	469298	26.6	21.9	251961	26.7	19.3
530696	26.3	21.0	478406	26.4	20.4	333831	26.5	19.1	457739	26.5	21.0	252996	26.6	20.4	533130	26.7	20.9
361508	26.3	21.4	513017	26.4	20.4	136729	26.5	19.2	8897	26.5	16.3	36325	26.6	17.1	59662	26.7	17.2
148085	26.3	20.5	66865	26.4	18.1	414107	26.5	19.5	532098	26.5	20.1	471626	26.6	20.6	337339	26.7	20.2
465238	26.3	20.1	410302	26.4	17.5	113323	26.5	19.1	107450	26.5	19.6	505762	26.6	21.4	415974	26.7	20.9
44186	26.3	18.1	438154	26.4	20.3	117905	26.5	18.0	39216	26.5	19.0	402888	26.6	19.6	367347	26.7	20.1
513958	26.3	20.5	422980	26.4	19.3	343478	26.5	20.4	97052	26.5	18.9	87176	26.6	16.3	535477	26.7	21.2
316476	26.3	19.8	118366	26.4	19.1	84971	26.5	18.8	36510	26.5	18.1	330650	26.6	21.3	367317	26.7	20.9
34562	26.3	16.9	287852	26.4	18.8	260476	26.5	19.9	1002	26.5	13.9	537897	26.6	21.3	483165	26.7	20.2
42965	26.3	18.0	488293	26.4	19.6	524557	26.5	22.0	293130	26.5	18.4	100241	26.6	18.3	536932	26.7	20.3
293701	26.3	19.6	184208	26.4	19.1	139897	26.5	19.1	64483	26.5	16.6	512077	26.6	20.7	104300	26.7	20.8
430287	26.3	20.1	414171	26.4	20.4	157348	26.5	19.3	106881	26.5	19.6	475290	26.6	20.9	356978	26.7	20.5
36260	26.3	17.7	343428	26.4	20.0	290366	26.5	19.7	218890	26.5	20.6	423208	26.6	19.1	307079	26.7	20.0
534481	26.3	19.1	64637	26.4	19.1	9944	26.5	17.1	303370	26.5	21.0	435860	26.6	20.7	442056	26.7	19.9
429167	26.3	21.1	61138	26.4	18.5	385222	26.5	20.6	401481	26.5	21.7	169558	26.6	19.9	506331	26.7	18.5
277559	26.3	21.1	293369	26.4	19.5	503821	26.5	19.5	396072	26.5	20.9	181609	26.6	20.7	224647	26.7	18.4
184184	26.3	19.2	41895	26.4	17.7	236643	26.5	20.5	170359	26.5	19.6	158983	26.6	19.4	107576	26.7	19.7
387392	26.3	21.2	316008	26.4	20.2	27180	26.5	18.1	62859	26.5	19.0	537357	26.6	20.9	200714	26.7	18.0
162572	26.3	17.6	219614	26.4	18.3	531312	26.5	19.8	322474	26.5	19.5	100099	26.6	19.5	60706	26.7	18.9
271701	26.3	18.4	477707	26.4	20.2	144423	26.5	19.1	247819	26.5	18.3	376961	26.6	21.1	378283	26.7	19.7
255444	26.3	20.2	203977	26.4	19.1	477996	26.5	20.4	509744	26.6	20.4	111033	26.6	18.9	366577	26.7	19.5
120455	26.3	19.6	476336	26.4	21.4	355471	26.5	20.5	387490	26.6	19.7	381829	26.6	19.7	144734	26.7	20.0
317556	26.3	20.1	128518	26.4	18.4	250109	26.5	20.4	235215	26.6	20.0	72700	26.6	19.3	88863	26.7	18.3
429506	26.3	19.8	145206	26.4	19.5	336618	26.5	20.9	472751	26.6	21.1	374315	26.6	20.7	463978	26.7	20.6
525203	26.3	20.5	130083	26.4	19.0	478085	26.5	20.9	438438	26.6	20.9	272468	26.6	19.9	280812	26.7	19.2
393883	26.3	20.0	423912	26.4	20.6	92024	26.5	19.2	477693	26.6	19.1	430373	26.6	20.7	505882	26.7	20.2
508374	26.3	20.2	219630	26.4	19.4	492392	26.5	21.0	134012	26.6	20.6	203047	26.7	20.0	490137	26.7	20.3
364176	26.3	20.3	430796	26.4	19.9	530963	26.5	21.6	94601	26.6	18.1	396008	26.7	20.1	536210	26.7	21.1
253821	26.3	20.2	175704	26.4	20.3	157552	26.5	19.0	503873	26.6	18.9	504999	26.7	20.2	124906	26.7	18.1
268963	26.3	21.3	353268	26.4	20.0	452987	26.5	21.1	362551	26.6	20.4	311429	26.7	21.5	91480	26.7	18.5
536001	26.3	20.6	507462	26.4	20.9	442562	26.5	20.5	363917	26.6	21.3	80759	26.7	19.3	295743	26.7	19.7
194869	26.3	20.2	459986	26.4	20.1	79442	26.5	17.3	17539	26.6	17.7	530036	26.7	21.0	175820	26.7	18.4
56409	26.3	19.6	390076	26.4	20.2	404973	26.5	20.9	160296	26.6	18.3	107469	26.7	20.1	474744	26.7	19.1
224452	26.4	18.7	65119	26.4	18.3	344477											

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
506785	26.7	20.7	46981	26.8	18.1	276838	26.9	19.7	99303	26.9	18.7	356297	27.1	20.0	330025	27.1	19.8
478402	26.7	20.4	376792	26.8	19.1	199313	26.9	18.7	272786	26.9	21.3	497632	27.1	20.3	92012	27.1	19.0
44362	26.7	17.8	340394	26.8	20.2	525841	26.9	20.6	149122	26.9	19.2	254246	27.1	18.7	4547	27.1	14.8
210061	26.7	19.3	21863	26.8	18.3	286446	26.9	20.1	319262	26.9	19.6	332892	27.1	20.1	246982	27.1	18.7
281005	26.7	19.6	8501	26.8	17.4	394685	26.9	20.9	148459	26.9	19.5	390755	27.1	19.7	397054	27.1	20.1
346010	26.7	19.4	228031	26.8	19.8	270501	26.9	20.0	141140	26.9	20.8	212460	27.1	18.8	129881	27.1	18.6
472205	26.7	20.3	174769	26.8	19.8	322448	26.9	19.5	513318	26.9	20.6	448442	27.1	19.8	48920	27.1	18.7
336230	26.7	19.5	103681	26.8	19.0	169638	26.9	20.0	153208	26.9	17.9	433004	27.1	20.2	40234	27.1	17.4
106695	26.7	19.2	456080	26.8	20.2	476446	26.9	21.4	511193	26.9	19.8	499701	27.1	20.8	343662	27.1	20.2
261472	26.7	19.9	350217	26.8	20.4	341205	26.9	19.6	184215	26.9	19.4	219000	27.1	19.6	163474	27.1	19.3
459972	26.7	20.1	377671	26.8	19.7	180435	26.9	20.2	127268	26.9	19.8	95060	27.1	19.3	279436	27.1	19.6
262729	26.7	18.8	499780	26.8	20.1	166904	26.9	19.8	161414	26.9	18.1	22742	27.1	16.8	125466	27.1	17.4
478098	26.7	20.6	215559	26.8	20.2	408304	26.9	20.6	350385	26.9	20.3	196369	27.1	19.8	167793	27.1	19.6
338741	26.7	20.3	99112	26.8	18.0	215234	26.9	20.6	394001	26.9	20.8	279460	27.1	20.3	316239	27.1	20.0
65669	26.7	18.9	297758	26.8	18.9	425741	26.9	20.8	309094	26.9	19.8	344017	27.1	20.2	439788	27.1	21.5
76536	26.7	19.4	148639	26.8	19.2	156386	26.9	19.6	21728	26.9	17.8	440900	27.1	20.2	301081	27.1	20.4
419741	26.7	20.2	98840	26.8	18.7	426843	26.9	19.5	19742	26.9	17.1	301124	27.1	19.7	335518	27.1	20.1
98978	26.8	17.9	105305	26.8	18.6	263107	26.9	19.3	501614	26.9	19.7	369729	27.1	20.7	58707	27.1	18.3
504062	26.8	19.6	525067	26.8	19.0	47000	26.9	18.2	318078	26.9	20.1	336284	27.1	19.9	297782	27.1	20.4
34582	26.8	18.7	251493	26.8	20.1	196674	26.9	19.4	540762	26.9	19.5	125284	27.1	19.9	370426	27.1	19.7
144516	26.8	19.1	539783	26.8	20.6	59728	26.9	18.7	193654	26.9	20.2	359491	27.1	19.8	248144	27.1	19.8
436209	26.8	20.2	177121	26.8	19.6	13086	26.9	17.1	468368	26.9	20.2	56290	27.1	19.0	228033	27.1	19.1
360060	26.8	21.3	254146	26.8	19.8	379727	26.9	20.6	179511	26.9	19.0	443479	27.1	20.8	95232	27.1	19.3
329178	26.8	20.7	538270	26.8	21.1	219422	26.9	19.2	356714	26.9	19.1	9203	27.1	17.1	303236	27.1	18.1
155908	26.8	19.4	249439	26.8	19.1	335580	26.9	20.3	539957	26.9	20.4	522472	27.1	20.9	185940	27.1	19.0
369035	26.8	21.4	472188	26.8	20.5	79867	26.9	17.8	56652	26.9	18.0	381567	27.1	19.7	467945	27.1	21.2
500147	26.8	20.5	355257	26.8	19.6	250561	26.9	19.9	162583	26.9	19.1	227463	27.1	19.2	396956	27.1	20.5
234177	26.8	17.3	205186	26.8	20.2	177366	26.9	19.9	150875	26.9	19.4	509291	27.1	20.2	258900	27.1	20.2
519743	26.8	21.3	80136	26.8	19.4	205208	26.9	19.6	8885	26.9	16.2	50239	27.1	17.0	70972	27.1	18.1
428242	26.8	20.5	309658	26.8	20.4	198252	26.9	18.5	299770	27.0	20.5	173652	27.1	19.6	524874	27.1	21.5
384569	26.8	20.4	443358	26.8	20.6	134037	26.9	19.4	146865	27.0	20.0	408489	27.1	21.0	133713	27.1	19.6
49049	26.8	18.0	6968	26.8	16.6	26729	26.9	16.4	241095	27.0	18.8	376946	27.1	20.7	446677	27.1	20.2
314506	26.8	19.7	289223	26.8	20.9	308588	26.9	19.7	464515	27.0	21.3	93475	27.1	19.0	250043	27.1	20.1
187643	26.8	19.9	27027	26.8	17.4	470333	26.9	19.1	257209	27.0	19.6	273940	27.1	20.9	66761	27.1	18.5
83892	26.8	18.4	68857	26.8	19.0	214131	26.9	20.6	512701	27.0	20.7	96041	27.1	17.5	19148	27.1	18.1
42632	26.8	18.4	17702	26.8	18.0	32294	26.9	17.6	333943	27.0	17.7	377798	27.1	21.4	440673	27.2	21.3
40208	26.8	18.3	92325	26.8	18.9	364365	26.9	20.4	475201	27.0	19.7	216604	27.1	18.9	107151	27.2	18.8
356860	26.8	20.7	91825	26.8	18.4	19753	26.9	16.6	386380	27.0	20.5	302285	27.1	21.1	204046	27.2	18.2
69371	26.8	16.8	244203	26.8	19.2	219607	26.9	18.9	252924	27.0	19.7	386562	27.1	19.9	231932	27.2	19.6
227923	26.8	20.4	541015	26.8	20.3	179346	26.9	19.8	183899	27.0	19.9	385608	27.1	20.6	534940	27.2	21.0
276147	26.8	19.9	282723	26.8	20.7	492383	26.9	20.7	362477	27.0	20.3	102920	27.1	17.4	240307	27.2	20.2
73197	26.8	18.4	255015	26.8	19.1	27314	26.9	17.8	326102	27.0	19.9	262078	27.1	18.9	222569	27.2	19.8
388373	26.8	20.1	70807	26.8	18.7	354931	26.9	19.2	148636	27.0	19.4	315430	27.1	19.8	134273	27.2	19.8
150622	26.8	19.9	153299	26.8	20.3	190198	26.9	19.5	127256	27.0	19.5	522920	27.1	21.4	354866	27.2	20.4
326592	26.8	19.6	194870	26.8	19.9	126663	26.9	19.2	346973	27.0	20.4	540694	27.1	20.7	425087	27.2	20.1
499901	26.8	21.0	144047	26.8	19.7	530114	26.9	21.0	131503	27.0	18.5	502442	27.1	20.2	1779	27.2	16.4
68084	26.8	18.6	428773	26.8	20.3	5966	26.9	16.3	457730	27.0	21.1	469263	27.1	19.2	395226	27.2	20.4
273984	26.8	20.2	482157	26.8	21.0	229551	26.9	19.2	182811	27.0	20.6	501121	27.1	20.5	250921	27.2	19.4
130149	26.8	18.7	214141	26.8	20.1	336672	26.9	20.1	34499	27.0	17.9	298794	27.1	19.6	91554	27.2	23.6
354692	26.8	19.5	19729	26.8	17.4	3980	26.9	17.1	374458	27.0	19.4	140232	27.1	19.0	506732	27.2	21.9
276666	26.8	19.1	478002	26.8	20.7	127537	26.9	18.5	506996	27.0	20.3	124860	27.1	19.1	153663	27.2	19.0
40791	26.8	18.3	438823	26.9	21.1	478345	26.9	20.8	19156	27.0	17.1	152429	27.1	19.3	168060	27.2	20.3
128695	26.8	19.1	528568	26.9	20.0	266306	26.9	20.8	497629	27.0	19.7	299999	27.1	20.2	379663	27.2	21.3
395923	26.8	20.4	540826	26.9	20.7	205798	26.9	19.6	132816	27.0	19.8	295052	27.1	20.4	497170	27.2	19.8
254134	26.8	19.0	253857	26.9	19.7	323072	26.9	19.4	489044	27.0	20.8	293008	27.1	19.9	350024	27.2	19.6
187203	26.8	19.8	318225	26.9	19.4	359913	26.9	21.3	91720	27.0	18.4	179568	27.1	20.6	384897	27.2	20.0
188735	26.8	19.3	365468	26.9	20.6	322603	26.9	20.6	134620	27.0	18.5	181557	27.1	20.3	388643	27.2	20.0
175713	26.8	19.3	510887	26.9	21.2	513058	26.9	20.4	6522	27.0	17.2	141607	27.1	19.1	403896	27.2	20.6
525844	26.8	19.2	393806	26.9	19.7	238524	26.9	20.0	50004	27.0	18.7	224257	27.1	20.4	474266	27.2	20.0
212528	26.8	20.0	519778	26.9	21.5	278412	26.9	19.5	11821	27.0	17.8	311160	27.1	19.8	384442	27.2	20.5
420523	26.8	20.3	254334	26.9	20.1	540526	26.9	20.5	339466	27.0	20.7	186298	27.1	18.8	69221	27.2	18.9
422859	26.8	20.3	357816	26.9	20.1	309672	26.9	19.8	306627	27.0	18.7	423675	27.1	21.0	362991	27.2	20.1
208690	26.8	20.0	456119	26.9	21.2	380593	26.9	19.0	431135	27.0	20.1	343442	27.1	19.8	326941	27.2	20.5
19172	26.8	18.5	432771	26.9	20.4	508551	26.9	20.3	72086	27.0	19.0	518913	27.1	21.1	496976	27.2	20.0
440941	26.8	20.6	7825	26.9	15.6	304605	26.9	19.6	153720	27.0	20.0	528214	27.1	21.3	192626	27.2	20.3
416425	26.8	19.8	156486	26.9	19.3	73349	26.9	19.3	248604	27.0	19.9	147873	27.1	18.0	157393	27.2	19.4
537170	26.8	21.6	439997	26.9	20.2	359595	26.9	19.3	499510	27.0	20.0	134938	27.1	19.4	434523	27.2	18.9
507476	26.8	20.6	174930	26.9	20.2	159179	26.9	19.7	1908	27.0	15.2	374283	27.1	19.8	17706	27.2	17.4
70739	26.8	19.9	45003	26.9	19.0	539411	26.9</										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
379881	27.2	18.1	75859	27.3	18.4	531938	27.3	21.8	473800	27.4	20.8	121321	27.5	17.0	169538	27.6	19.6
526753	27.2	21.2	434735	27.3	20.9	99461	27.3	18.1	4784	27.4	17.2	477694	27.5	19.9	198385	27.6	19.8
380884	27.2	21.4	245293	27.3	20.5	95343	27.4	19.0	255699	27.4	20.3	254188	27.5	19.7	206149	27.6	19.1
264284	27.2	20.3	260222	27.3	19.5	222501	27.4	17.9	316950	27.4	19.3	526751	27.5	20.5	70237	27.6	18.4
323393	27.2	20.4	281808	27.3	20.3	299710	27.4	19.4	164007	27.4	19.1	508213	27.5	21.4	58036	27.6	18.6
137646	27.2	20.1	172865	27.3	20.0	310549	27.4	21.2	333914	27.4	18.7	192404	27.5	19.4	315264	27.6	19.0
240887	27.2	20.2	503906	27.3	20.5	175685	27.4	18.9	145123	27.4	20.2	56539	27.5	17.7	95410	27.6	19.1
51368	27.2	17.0	311462	27.3	20.6	527017	27.4	20.6	126392	27.4	19.0	41687	27.5	18.3	215850	27.6	20.8
471725	27.2	20.8	164064	27.3	19.0	362520	27.4	19.6	216269	27.4	20.2	376922	27.5	20.3	215165	27.6	20.6
260585	27.2	20.7	532579	27.3	20.0	95113	27.4	19.4	525335	27.4	20.0	49911	27.5	17.7	430204	27.6	20.9
119561	27.2	16.8	504578	27.3	20.9	494549	27.4	20.0	312209	27.4	20.9	309704	27.5	19.7	260544	27.6	19.5
255886	27.2	20.2	253245	27.3	20.2	137624	27.4	17.6	496531	27.4	21.5	331610	27.5	20.0	262414	27.6	18.9
290077	27.2	19.9	87448	27.3	18.1	299982	27.4	19.6	47450	27.4	17.4	438283	27.5	19.1	430418	27.6	19.5
219069	27.2	19.7	85468	27.3	18.0	182098	27.4	19.2	118412	27.4	19.5	17051	27.5	16.0	343233	27.6	19.7
146224	27.2	19.6	10320	27.3	16.3	470653	27.4	20.5	130651	27.4	18.2	475009	27.5	20.3	144102	27.6	18.9
337076	27.2	19.0	156368	27.3	19.6	437378	27.4	19.9	348126	27.4	20.3	142411	27.5	19.2	77226	27.6	19.9
355635	27.2	20.0	402178	27.3	19.6	303356	27.4	20.1	103025	27.4	19.3	128276	27.5	18.9	120766	27.6	20.1
106794	27.2	18.8	508096	27.3	20.4	115803	27.4	19.1	86085	27.4	18.8	239917	27.5	19.5	210557	27.6	20.1
275432	27.2	20.7	245610	27.3	19.1	217510	27.4	19.4	311934	27.4	20.6	145267	27.5	18.9	151434	27.6	19.7
311580	27.2	19.6	405103	27.3	19.9	150146	27.4	20.9	363728	27.4	20.0	122443	27.5	17.7	418972	27.6	21.1
435326	27.2	19.4	529497	27.3	21.1	378360	27.4	20.9	456178	27.4	21.4	274495	27.5	19.3	215294	27.6	19.0
420456	27.2	21.2	79310	27.3	20.2	384970	27.4	20.1	195535	27.4	19.6	46421	27.5	18.5	304545	27.6	20.9
188159	27.2	20.1	509578	27.3	21.8	328262	27.4	21.6	32957	27.4	18.1	497235	27.5	21.7	202574	27.6	19.7
141212	27.2	19.3	93892	27.3	19.3	90299	27.4	18.5	19798	27.4	17.9	499243	27.5	20.5	397468	27.6	19.8
106736	27.2	17.9	467771	27.3	19.1	363057	27.4	21.3	499122	27.4	21.1	350831	27.5	20.0	237500	27.6	18.5
331955	27.2	18.9	268452	27.3	19.2	127841	27.4	19.1	24392	27.4	18.3	442965	27.5	21.0	90296	27.6	18.4
282403	27.2	20.3	538068	27.3	21.2	83713	27.4	19.4	284711	27.4	18.4	484590	27.5	19.0	519342	27.6	21.0
250910	27.2	18.8	254250	27.3	19.2	69835	27.4	18.1	121543	27.4	18.3	532776	27.5	20.0	440316	27.6	20.5
399663	27.2	19.7	128905	27.3	19.1	37805	27.4	17.3	130443	27.5	17.1	424852	27.5	20.6	540560	27.6	19.6
274448	27.2	19.9	9446	27.3	17.7	352570	27.4	20.5	364686	27.5	19.4	42573	27.5	18.4	302343	27.6	21.3
355641	27.2	20.7	201228	27.3	19.6	88287	27.4	18.9	191800	27.5	18.4	94243	27.5	19.0	459154	27.6	21.3
13319	27.2	17.5	63001	27.3	17.7	248067	27.4	19.0	25901	27.5	19.1	331385	27.5	20.8	21014	27.6	17.1
200276	27.2	19.1	103268	27.3	19.8	304622	27.4	21.0	532693	27.5	21.5	256507	27.5	19.6	174112	27.6	18.2
63328	27.2	19.2	128427	27.3	18.5	207806	27.4	19.6	258490	27.5	20.1	537127	27.5	21.4	323057	27.6	19.9
67094	27.2	18.6	313449	27.3	19.2	512274	27.4	20.9	96617	27.5	17.3	67209	27.5	19.3	499809	27.6	21.3
540469	27.2	20.2	245085	27.3	18.9	540497	27.4	20.6	440564	27.5	20.4	150243	27.5	19.8	89073	27.6	17.8
525636	27.2	20.3	252202	27.3	20.1	131841	27.4	19.4	158014	27.5	19.0	393286	27.5	18.9	365169	27.6	19.7
542482	27.2	20.9	311505	27.3	20.2	255780	27.4	20.4	33792	27.5	17.9	377872	27.5	21.0	133682	27.6	18.8
95850	27.2	18.2	155573	27.3	19.6	384475	27.4	20.6	476536	27.5	20.5	251902	27.5	20.8	166190	27.6	19.0
503603	27.2	21.3	199655	27.3	20.3	205470	27.4	18.0	522635	27.5	20.6	165210	27.5	18.4	525753	27.6	20.0
156360	27.2	20.0	6844	27.3	16.1	208624	27.4	20.3	342640	27.5	19.8	338783	27.5	20.3	384468	27.6	20.2
198257	27.2	20.1	231653	27.3	18.2	173849	27.4	18.7	195393	27.5	19.8	340234	27.6	20.3	509300	27.6	21.1
11895	27.2	16.8	41573	27.3	18.0	57019	27.4	18.4	471893	27.5	20.5	107196	27.6	18.7	136591	27.6	19.6
314188	27.2	21.4	11249	27.3	17.0	159649	27.4	19.8	34437	27.5	18.1	395273	27.6	19.0	117839	27.6	19.1
472987	27.2	20.4	429760	27.3	20.4	143467	27.4	19.7	48078	27.5	19.2	539140	27.6	20.8	380612	27.6	18.7
512988	27.2	19.1	311142	27.3	20.2	68540	27.4	18.7	321257	27.5	19.6	429625	27.6	20.5	165265	27.6	19.2
112788	27.2	19.9	37257	27.3	18.6	364029	27.4	20.3	106306	27.5	18.4	276789	27.6	18.5	192253	27.6	20.9
388656	27.2	20.1	304436	27.3	21.2	204461	27.4	19.5	382482	27.5	20.8	146119	27.6	18.4	412398	27.6	20.3
64668	27.2	16.9	302215	27.3	19.8	490763	27.4	21.3	287735	27.5	20.1	410286	27.6	19.3	68478	27.6	19.4
503768	27.2	19.5	436167	27.3	20.3	120839	27.4	19.7	181921	27.5	20.5	288850	27.6	19.7	95961	27.6	19.4
122215	27.2	17.8	310218	27.3	19.4	204771	27.4	20.4	64973	27.5	19.8	540911	27.6	20.8	292449	27.6	19.6
243409	27.2	19.1	240288	27.3	19.3	410392	27.4	20.8	59484	27.5	17.8	192365	27.6	19.4	524613	27.6	22.0
55723	27.2	19.4	499831	27.3	21.1	83784	27.4	18.8	439184	27.5	20.4	214682	27.6	19.1	233337	27.7	20.0
390299	27.2	19.5	474071	27.3	20.2	338638	27.4	19.3	524014	27.5	20.6	128689	27.6	19.8	401782	27.7	20.1
529171	27.2	20.5	65421	27.3	18.7	214536	27.4	19.1	170760	27.5	19.7	237944	27.6	19.7	247809	27.7	19.5
240772	27.2	19.5	85267	27.3	18.4	165382	27.4	18.8	236984	27.5	19.3	8445	27.6	16.0	425622	27.7	19.8
22224	27.2	18.2	499159	27.3	20.1	154292	27.4	18.6	112187	27.5	20.1	73392	27.6	18.6	504102	27.7	20.7
272384	27.2	20.1	107049	27.3	19.1	308119	27.4	20.1	155595	27.5	19.1	399672	27.6	19.5	399884	27.7	20.6
99163	27.2	19.3	93855	27.3	17.9	12904	27.4	18.1	169234	27.5	19.0	412863	27.6	19.1	308478	27.7	19.9
241733	27.3	19.2	87510	27.3	18.2	354178	27.4	20.6	66826	27.5	18.8	262995	27.6	20.7	311513	27.7	19.3
255439	27.3	19.2	35951	27.3	17.5	309135	27.4	19.9	373140	27.5	19.5	37587	27.6	19.7	531631	27.7	20.3
466199	27.3	19.7	235881	27.3	19.6	439175	27.4	20.0	468823	27.5	20.2	500104	27.6	21.1	220332	27.7	20.2
241801	27.3	19.4	62735	27.3	18.3	39910	27.4	16.2	383872	27.5	20.6	297593	27.6	20.0	355639	27.7	21.2
276097	27.3	21.0	41042	27.3	19.0	202140	27.4	19.0	492473	27.5	20.2	90763	27.6	18.8	521052	27.7	21.0
202669	27.3	19.9	402860	27.3	19.5	216000	27.4	19.5	119407	27.5	19.7	290788	27.6	20.2	522678	27.7	21.4
216763	27.3	20.1	522836	27.3	21.2	261484	27.4	20.4	42927	27.5	17.4	46490	27.6	18.4	79863	27.7	18.0
143543	27.3	20.2	180190	27.3	18.8	41723	27.4	18.1	311945	27.5	20.0	474076	27.6	21.0	395269	27.7	20.3
416489	27.3	19.2	65297	27.3	19.1	153234	27.4	20.4	245273	27.5	20.3	356396	27.6	20.3	437500	27.7	20.1
331777	27.3	20.7	141164	27.3	19.3	40184	27.4										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
48072	27.7	18.0	177379	27.8	19.4	326205	27.9	21.6	311460	27.9	19.9	208935	28.0	19.5	280630	28.1	19.9
222532	27.7	19.5	476279	27.8	20.5	306456	27.9	20.1	496308	27.9	21.4	463163	28.0	20.6	444712	28.1	21.1
57043	27.7	17.8	212842	27.8	19.6	25081	27.9	17.6	139833	27.9	18.8	94054	28.0	17.7	442936	28.1	20.8
478751	27.7	21.1	423797	27.8	21.7	268402	27.9	20.6	430748	27.9	21.2	284056	28.0	20.5	198626	28.1	19.8
449962	27.7	19.8	357495	27.8	18.7	185478	27.9	19.7	21869	27.9	18.0	228519	28.0	19.4	143457	28.1	19.3
146735	27.7	19.5	384461	27.8	21.1	399096	27.9	21.3	309137	27.9	20.3	495386	28.0	20.4	474011	28.1	20.1
311287	27.7	20.5	436655	27.8	21.5	471635	27.9	19.5	526381	27.9	21.5	88009	28.0	18.9	325177	28.1	20.9
434713	27.7	20.7	327265	27.8	20.3	4244	27.9	16.4	134656	27.9	18.2	92892	28.0	18.3	245134	28.1	19.4
12125	27.7	17.0	81921	27.8	18.2	430778	27.9	18.9	312547	27.9	21.0	397969	28.0	19.1	366807	28.1	21.2
18556	27.7	18.0	387910	27.8	20.5	177639	27.9	19.6	333988	27.9	18.9	370674	28.0	21.0	130792	28.1	20.0
456048	27.7	20.3	380596	27.8	19.1	283700	27.9	19.8	17461	27.9	17.2	45021	28.0	18.6	111287	28.1	18.9
302213	27.7	20.0	62196	27.8	19.0	140903	27.9	18.6	440280	27.9	19.6	265001	28.0	20.5	56391	28.1	18.2
479266	27.7	21.0	524902	27.8	20.7	259773	27.9	20.5	537089	27.9	21.9	33453	28.0	18.4	95621	28.1	17.9
508538	27.7	20.4	86713	27.8	18.0	129526	27.9	19.7	234644	27.9	19.8	322752	28.0	20.0	504777	28.1	20.6
509646	27.7	21.4	479280	27.8	21.8	303276	27.9	18.9	394342	27.9	20.2	441432	28.0	20.7	238856	28.1	20.1
162630	27.7	18.2	462543	27.8	21.0	272678	27.9	20.2	11995	27.9	17.9	312429	28.0	19.7	333494	28.1	18.6
177291	27.7	18.0	200694	27.8	19.6	310168	27.9	20.3	270367	27.9	19.0	505879	28.0	20.5	180773	28.1	19.6
399004	27.7	20.2	21180	27.8	17.8	506382	27.9	20.1	506968	27.9	19.4	192472	28.0	19.6	472080	28.1	21.3
139933	27.7	19.0	379585	27.8	20.5	508017	27.9	20.2	123240	27.9	17.6	106590	28.0	19.3	439705	28.1	20.0
441278	27.7	20.9	248133	27.8	18.6	203765	27.9	19.7	167295	27.9	19.7	33967	28.0	18.7	238987	28.1	19.8
536178	27.7	20.5	82730	27.8	18.8	132486	27.9	19.3	344492	27.9	20.0	85944	28.0	17.9	515212	28.1	21.0
522641	27.7	20.4	265215	27.8	20.3	37218	27.9	18.7	258037	27.9	20.6	121788	28.0	19.2	367683	28.1	20.1
250686	27.7	19.6	100603	27.8	18.1	431012	27.9	19.3	106447	27.9	18.6	44781	28.0	18.3	23018	28.1	16.9
67619	27.7	18.9	356417	27.8	20.8	32262	27.9	18.7	187612	27.9	20.3	250918	28.0	19.2	25252	28.1	15.7
409803	27.7	21.3	248466	27.8	19.5	313099	27.9	20.1	514749	27.9	20.5	224441	28.0	19.2	102650	28.1	19.0
189554	27.7	19.1	42727	27.8	17.8	468809	27.9	20.8	255171	27.9	20.8	530842	28.0	20.2	204539	28.1	20.1
431987	27.7	19.2	228439	27.8	19.1	304711	27.9	20.9	29544	27.9	17.7	371939	28.0	21.6	77996	28.1	19.1
69885	27.7	18.3	222529	27.8	19.5	117748	27.9	19.6	100409	27.9	19.8	377131	28.0	19.6	212432	28.1	19.4
370923	27.7	19.1	350192	27.8	20.4	203043	27.9	20.3	371623	27.9	20.5	459545	28.0	21.2	425920	28.1	20.4
250906	27.7	19.1	384579	27.8	19.9	450033	27.9	19.9	397496	27.9	20.4	511678	28.0	21.1	534098	28.1	20.8
14678	27.7	16.5	55318	27.8	18.5	127114	27.9	19.8	358420	27.9	20.0	27291	28.0	18.3	255145	28.1	19.1
112378	27.7	18.1	71459	27.8	19.4	15995	27.9	17.7	184909	27.9	19.2	521378	28.0	19.8	43064	28.1	17.4
485137	27.7	20.3	510433	27.8	21.2	204413	27.9	18.7	255110	27.9	19.9	12475	28.0	18.4	130342	28.1	19.2
505581	27.7	21.4	110513	27.8	17.9	507515	27.9	20.7	69805	27.9	18.1	454225	28.0	23.3	314605	28.1	21.1
513569	27.7	20.4	393473	27.8	20.5	181209	27.9	20.3	242707	27.9	19.8	370684	28.0	19.7	21439	28.1	17.9
48066	27.7	17.9	354179	27.8	20.1	243296	27.9	19.2	311529	27.9	20.0	514512	28.0	20.7	119859	28.1	19.3
20746	27.7	17.7	387787	27.8	20.2	193786	27.9	19.3	198865	27.9	18.5	119870	28.0	19.7	54517	28.1	19.0
183772	27.7	19.8	163074	27.8	19.5	152308	27.9	19.1	41773	27.9	18.3	248917	28.0	18.6	377869	28.1	21.2
432379	27.7	20.3	528809	27.8	20.4	377968	27.9	21.2	531872	27.9	21.0	92347	28.0	19.4	121954	28.1	18.7
117401	27.7	19.7	10991	27.8	15.8	379262	27.9	20.1	400502	27.9	19.8	476317	28.0	20.4	469146	28.1	20.3
113598	27.7	18.0	48860	27.8	17.9	205954	27.9	19.1	74667	27.9	17.0	302126	28.0	20.5	535429	28.1	21.3
293518	27.7	20.7	355710	27.8	20.3	62626	27.9	17.4	115467	27.9	18.6	79077	28.0	19.1	59199	28.1	17.7
40972	27.7	18.6	80572	27.8	18.8	506457	27.9	21.7	494445	27.9	20.9	447255	28.0	19.6	499757	28.1	19.3
154245	27.7	20.0	66806	27.8	18.8	338590	27.9	18.8	431351	27.9	19.0	255512	28.0	20.1	424729	28.1	20.9
16807	27.7	18.0	243666	27.8	19.0	374431	27.9	18.9	186995	27.9	18.9	507802	28.0	21.0	392079	28.1	20.1
380875	27.7	20.9	238703	27.8	20.3	425523	27.9	20.3	41984	27.9	16.1	509511	28.0	19.4	72059	28.1	18.0
502295	27.7	20.9	203456	27.8	18.6	530562	27.9	19.8	117802	27.9	20.6	255417	28.0	19.9	34264	28.1	18.8
479300	27.7	20.2	8080	27.8	15.3	284921	27.9	19.9	264202	27.9	18.7	144452	28.0	19.9	340454	28.1	20.2
437791	27.7	19.9	73387	27.8	18.1	69332	27.9	19.1	448688	27.9	20.0	395233	28.0	19.6	201531	28.1	16.8
214722	27.7	19.8	475486	27.8	20.4	423972	27.9	19.8	520361	27.9	21.2	507874	28.0	20.9	401159	28.1	20.1
61692	27.7	18.9	193328	27.8	19.0	513811	27.9	21.2	355197	27.9	20.5	401002	28.1	19.3	328283	28.1	21.5
153244	27.7	20.8	37546	27.8	19.3	16030	27.9	17.3	231683	27.9	20.5	92581	28.1	18.2	507790	28.1	21.0
311259	27.7	21.3	294108	27.8	20.1	254161	27.9	18.9	455691	27.9	21.1	256587	28.1	20.1	361001	28.1	19.5
443444	27.7	20.5	60384	27.8	18.4	96472	27.9	18.4	530242	27.9	21.1	360913	28.1	20.4	199694	28.1	19.8
91628	27.7	18.9	525110	27.8	19.0	355616	27.9	21.5	212670	27.9	19.9	86086	28.1	18.6	537269	28.1	21.7
156771	27.7	18.4	311221	27.8	20.8	82032	27.9	18.1	64740	27.9	20.0	499100	28.1	21.7	393871	28.1	20.3
318418	27.7	20.5	362429	27.8	19.5	438735	27.9	20.2	440551	27.9	21.0	525307	28.1	19.9	470323	28.1	20.3
186279	27.7	20.9	523139	27.8	20.6	336205	27.9	20.2	320528	27.9	20.9	191291	28.1	19.4	39423	28.1	18.9
276152	27.8	19.1	203068	27.8	18.7	168890	27.9	18.5	123259	27.9	19.5	525279	28.1	19.9	93715	28.1	18.4
59848	27.8	18.9	108277	27.8	18.9	539714	27.9	20.5	289049	27.9	19.2	355643	28.1	20.0	431925	28.1	20.1
249626	27.8	19.8	396123	27.8	19.2	21790	27.9	17.5	400469	27.9	21.1	412178	28.1	20.7	357158	28.1	19.8
111471	27.8	19.7	246625	27.8	19.9	162683	27.9	18.6	478394	27.9	21.4	399123	28.1	20.2	437528	28.1	21.2
536133	27.8	20.6	245647	27.8	20.8	434925	27.9	20.4	243288	27.9	19.4	89833	28.1	19.0	491739	28.1	20.2
322486	27.8	20.0	35536	27.8	18.4	324990	27.9	19.3	289431	27.9	20.6	288602	28.1	19.9	79610	28.1	18.2
376469	27.8	19.2	171267	27.8	19.7	504030	27.9	20.8	119774	27.9	18.7	207566	28.1	19.9	57297	28.1	18.0
16128	27.8	18.4	308758	27.8	20.6	35454	27.9	16.1	470982	27.9	21.0	325394	28.1	19.9	371012	28.1	19.1
401206	27.8	20.4	540473	27.8	20.7	447676	27.9	20.4	75509	27.9	19.4	434702	28.1	21.2	529520	28.2	20.7
212085	27.8	19.9	228612	27.8	20.2	356470	27.9	19.3	523059	27.9	20.1	205016	28.1	20.2	522383	28.2	20.4
301210	27.8	20.7	537608	27.8	20.5	127720	27.9</										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
7709	28.2	15.7	33617	28.2	17.2	89013	28.3	19.3	454300	28.4	20.4	293259	28.5	19.9	41834	28.6	19.7
59200	28.2	18.5	288180	28.2	20.1	278235	28.3	20.9	185404	28.4	19.7	235151	28.5	18.8	91138	28.6	19.2
51621	28.2	18.7	528235	28.2	19.2	251467	28.3	19.6	212700	28.4	18.5	175370	28.5	19.4	12660	28.6	17.3
483893	28.2	20.7	384639	28.2	20.5	167732	28.3	18.2	41600	28.4	18.0	426923	28.5	19.9	255356	28.6	20.9
491024	28.2	20.3	119204	28.2	18.9	239553	28.3	18.9	94639	28.4	18.6	2334	28.5	16.0	154582	28.6	18.7
25603	28.2	17.3	247480	28.2	19.3	35660	28.3	18.8	439189	28.4	19.4	438560	28.5	20.7	7644	28.6	16.4
276150	28.2	19.5	177986	28.2	18.3	382571	28.3	20.1	407820	28.4	19.8	65055	28.5	20.0	97901	28.6	18.2
169687	28.2	20.4	77597	28.2	19.5	341915	28.3	21.2	231920	28.4	19.9	303976	28.5	19.8	157608	28.6	20.6
505910	28.2	21.0	123296	28.2	17.8	381852	28.3	19.6	355742	28.4	21.3	255511	28.5	19.5	255694	28.6	19.1
365597	28.2	19.1	155535	28.2	17.5	157959	28.3	19.8	153787	28.4	18.4	33279	28.5	17.5	360264	28.6	19.0
145038	28.2	18.4	330813	28.2	19.9	143547	28.3	20.4	117829	28.4	19.1	52297	28.5	19.5	539691	28.6	20.0
336486	28.2	20.4	428274	28.2	21.0	37023	28.3	18.5	382350	28.4	20.3	537347	28.5	20.2	489167	28.6	20.1
519224	28.2	20.5	290842	28.2	19.8	207417	28.3	20.1	478207	28.4	21.0	39767	28.5	18.2	171070	28.6	19.4
161537	28.2	18.5	500867	28.2	21.2	142759	28.3	20.0	302815	28.4	20.0	504673	28.5	21.4	12648	28.6	17.2
292844	28.2	20.5	306998	28.2	19.1	440256	28.3	19.7	424660	28.4	19.7	178226	28.5	20.3	148800	28.6	19.3
407695	28.2	20.1	212020	28.2	19.4	159380	28.3	20.1	13947	28.4	16.3	387826	28.5	19.9	470595	28.6	21.3
442512	28.2	20.6	327756	28.2	20.4	231876	28.3	19.0	282539	28.4	19.7	277812	28.5	19.3	525137	28.6	19.9
361152	28.2	21.0	389165	28.2	20.1	74095	28.3	18.8	427893	28.4	21.0	506225	28.5	21.2	363533	28.6	19.6
193735	28.2	19.8	415095	28.2	20.2	457631	28.3	21.9	412881	28.4	20.8	360989	28.5	19.7	533242	28.6	20.6
465428	28.2	18.4	289614	28.2	20.8	87730	28.3	19.0	65287	28.4	18.3	151503	28.5	20.4	207467	28.6	19.2
532	28.2	10.6	119320	28.2	17.9	503635	28.3	20.8	251036	28.4	19.2	256782	28.5	20.6	163395	28.6	17.8
174700	28.2	19.4	106248	28.3	18.9	267348	28.3	19.2	203255	28.4	18.1	356941	28.5	19.7	390782	28.6	20.5
524461	28.2	21.3	144435	28.3	19.2	537590	28.3	21.5	132529	28.4	19.8	43119	28.5	18.6	289586	28.6	20.9
289426	28.2	20.6	167400	28.3	19.7	19572	28.4	18.7	121502	28.4	18.5	336494	28.5	19.6	214734	28.6	20.5
307216	28.2	20.7	495600	28.3	19.4	63453	28.4	18.9	481949	28.4	20.1	359028	28.5	19.9	366432	28.6	20.2
526178	28.2	20.0	145481	28.3	19.3	375895	28.4	19.7	273627	28.4	19.9	416076	28.5	20.4	361492	28.6	20.3
196840	28.2	19.3	508784	28.3	21.1	489611	28.4	19.6	146935	28.4	19.8	472585	28.5	20.1	311931	28.6	19.8
389559	28.2	21.0	161075	28.3	20.0	180478	28.4	19.6	62347	28.4	18.7	65897	28.5	16.6	23208	28.6	17.9
432721	28.2	21.3	257376	28.3	20.6	218083	28.4	18.7	418196	28.4	21.6	404633	28.5	21.0	417944	28.6	19.4
250944	28.2	19.3	19666	28.3	17.8	400233	28.4	20.3	344732	28.4	19.0	184045	28.5	21.1	317786	28.6	18.6
512758	28.2	20.4	127862	28.3	20.2	519700	28.4	21.4	461947	28.4	20.2	451902	28.5	20.6	237806	28.6	19.9
26226	28.2	16.8	419652	28.3	20.7	499206	28.4	20.5	85778	28.4	18.7	320694	28.5	20.7	273719	28.6	19.6
471087	28.2	21.4	348083	28.3	19.4	224554	28.4	18.8	300027	28.4	20.4	316453	28.5	20.3	497929	28.6	20.7
68169	28.2	18.8	157790	28.3	18.8	359439	28.4	19.7	500137	28.4	20.5	317349	28.5	18.8	274363	28.6	19.3
441953	28.2	20.0	294166	28.3	20.6	416735	28.4	20.6	400955	28.4	20.0	121337	28.5	18.7	135554	28.6	19.1
410319	28.2	20.5	360550	28.3	20.3	176674	28.4	18.8	509687	28.5	18.9	215447	28.5	19.9	118447	28.6	18.2
213302	28.2	19.2	376716	28.3	20.2	160027	28.4	18.7	222542	28.5	18.6	81715	28.5	18.0	44976	28.6	19.2
374188	28.2	22.5	344185	28.3	20.2	236712	28.4	19.4	418967	28.5	19.5	207795	28.5	19.9	63852	28.6	18.2
396066	28.2	20.3	482421	28.3	20.3	26453	28.4	16.8	192027	28.5	19.0	375273	28.5	20.5	31752	28.6	18.8
357775	28.2	20.0	482095	28.3	19.9	538496	28.4	22.1	62879	28.5	18.5	96837	28.5	18.3	317857	28.6	20.6
436879	28.2	19.9	210226	28.3	19.2	162590	28.4	18.2	310873	28.5	19.7	349315	28.5	21.0	39622	28.6	18.3
471598	28.2	20.4	385133	28.3	18.9	375888	28.4	18.6	446675	28.5	20.1	512697	28.5	20.7	512766	28.6	20.3
293972	28.2	19.0	115466	28.3	19.6	80482	28.4	19.1	521402	28.5	20.2	475156	28.5	20.4	38331	28.6	17.5
478328	28.2	21.3	181939	28.3	18.8	191031	28.4	20.6	320572	28.5	20.7	200077	28.5	19.0	533135	28.6	20.1
501134	28.2	20.2	234079	28.3	20.9	496140	28.4	19.5	27521	28.5	17.9	342919	28.5	19.2	88890	28.6	19.1
283696	28.2	20.2	21159	28.3	16.8	391517	28.4	20.2	437797	28.5	20.9	187834	28.5	19.4	396007	28.6	21.0
352068	28.2	20.2	99084	28.3	19.5	300730	28.4	20.3	141511	28.5	20.3	12931	28.5	17.5	40237	28.6	18.4
204752	28.2	20.2	514417	28.3	20.4	257324	28.4	20.2	202531	28.5	20.5	34272	28.6	18.1	162141	28.6	18.5
263955	28.2	20.1	412190	28.3	20.4	357557	28.4	21.1	344336	28.5	21.2	152596	28.6	18.4	4356	28.6	16.7
354710	28.2	20.4	26213	28.3	17.1	386485	28.4	21.0	264663	28.5	19.0	511103	28.6	19.6	237926	28.6	20.6
518546	28.2	20.8	200599	28.3	18.9	467934	28.4	21.9	193521	28.5	19.5	152565	28.6	19.1	38934	28.6	17.9
88023	28.2	18.8	21515	28.3	17.7	258427	28.4	20.2	432869	28.5	19.7	291443	28.6	18.5	492898	28.6	19.5
338873	28.2	20.6	505726	28.3	21.2	520118	28.4	21.2	147393	28.5	19.6	176881	28.6	18.8	509753	28.6	19.7
157103	28.2	19.6	367337	28.3	20.5	397757	28.4	20.0	338063	28.5	20.1	380861	28.6	21.2	176029	28.6	19.4
377722	28.2	19.7	369030	28.3	20.7	277590	28.4	20.1	147184	28.5	18.1	258487	28.6	20.4	138948	28.6	18.9
3352	28.2	17.8	338821	28.3	20.3	443776	28.4	20.1	519862	28.5	19.2	312779	28.6	19.7	225898	28.6	18.8
491120	28.2	20.7	232493	28.3	18.7	418247	28.4	21.6	107092	28.5	18.8	476273	28.6	20.8	256428	28.7	19.9
470431	28.2	20.2	3627	28.3	17.4	119354	28.4	19.4	242298	28.5	20.9	507018	28.6	19.9	273771	28.7	19.8
191003	28.2	20.6	4152	28.3	17.1	62884	28.4	18.8	26398	28.5	18.5	147720	28.6	18.5	230116	28.7	20.0
508863	28.2	20.3	474955	28.3	20.2	268075	28.4	20.0	127084	28.5	19.0	249478	28.6	19.6	494437	28.7	21.0
325003	28.2	20.6	215448	28.3	19.8	111975	28.4	17.3	252765	28.5	20.2	527946	28.6	21.3	528500	28.7	20.0
430801	28.2	20.7	290685	28.3	19.5	116913	28.4	19.4	35982	28.5	18.9	67655	28.6	17.7	124223	28.7	17.5
339450	28.2	20.4	362162	28.3	20.6	409765	28.4	20.9	531958	28.5	21.9	160559	28.6	18.3	170301	28.7	19.0
361054	28.2	20.6	89248	28.3	20.0	88211	28.4	18.9	115872	28.5	18.8	536927	28.6	21.4	96124	28.7	19.6
89811	28.2	19.0	36092	28.3	17.8	211980	28.4	19.1	480579	28.5	20.4	481476	28.6	19.5	114562	28.7	19.4
504297	28.2	20.4	425193	28.3	19.9	118595	28.4	17.7	480699	28.5	20.9	32301	28.6	17.4	197229	28.7	19.2
435390	28.2	19.6	98584	28.3	19.2	205676	28.4	19.3	497916	28.5	19.6	304441	28.6	19.8	8364	28.7	17.2
123710	28.2	18.9	401011	28.3	19.7	88204	28.4	18.7	127842	28.5	19.5	503308	28.6	21.4	422211	28.7	20.8
328298	28.2	19.4	231867	28.3	18.4	111795	28.4										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
211159	28.7	20.8	68106	28.7	16.6	268419	28.8	19.7	361046	28.9	20.7	104333	28.9	19.5	199824	29.1	20.1
1702	28.7	14.4	177107	28.8	19.9	112638	28.8	18.5	479829	28.9	19.8	64066	28.9	18.8	378301	29.1	20.9
410359	28.7	20.3	36671	28.8	17.1	67765	28.8	19.2	246089	28.9	20.2	417618	28.9	19.4	80406	29.1	18.3
358404	28.7	19.7	375261	28.8	19.0	325021	28.8	19.3	8720	28.9	17.7	196606	28.9	18.4	135282	29.1	18.9
344773	28.7	20.2	508781	28.8	22.1	177797	28.8	19.1	310352	28.9	20.2	442942	28.9	20.7	457648	29.1	21.2
203973	28.7	18.6	50697	28.8	19.1	228659	28.8	20.4	159860	28.9	19.1	511416	28.9	21.1	70073	29.1	18.2
279401	28.7	20.3	523530	28.8	20.0	288853	28.8	19.6	133669	28.9	18.9	312506	28.9	19.2	510988	29.1	21.6
100344	28.7	18.9	180930	28.8	19.8	348294	28.8	20.1	429616	28.9	20.8	349312	28.9	20.4	337191	29.1	20.1
510672	28.7	20.7	510990	28.8	21.4	166423	28.8	18.4	123752	28.9	19.3	494417	28.9	20.7	317941	29.1	20.0
415550	28.7	18.5	11982	28.8	16.8	267396	28.8	19.6	262084	28.9	20.9	209136	28.9	18.0	235336	29.1	18.8
4294	28.7	16.6	200335	28.8	19.9	20556	28.8	16.8	59965	28.9	18.2	347031	28.9	20.7	352571	29.1	21.0
357140	28.7	20.5	365455	28.8	18.2	175910	28.8	17.7	537587	28.9	20.4	304558	28.9	21.0	87965	29.1	16.7
281566	28.7	19.5	323625	28.8	19.5	512850	28.8	20.5	394687	28.9	21.2	131039	28.9	19.0	270345	29.1	21.6
429696	28.7	20.4	397760	28.8	20.6	120434	28.8	19.3	114652	28.9	19.1	475612	28.9	19.6	367882	29.1	19.5
105865	28.7	18.2	426979	28.8	19.4	109196	28.8	18.6	262896	28.9	20.6	173896	28.9	19.2	272210	29.1	19.3
59136	28.7	17.5	209842	28.8	19.2	513819	28.8	22.6	357723	28.9	20.4	536795	28.9	21.1	48518	29.1	18.2
108064	28.7	18.8	315044	28.8	20.4	437388	28.8	21.0	270400	28.9	20.9	162437	28.9	17.9	15949	29.1	17.0
192890	28.7	18.8	403191	28.8	20.4	170484	28.8	19.5	93386	28.9	17.7	539283	28.9	21.4	397112	29.1	20.1
437030	28.7	20.7	428895	28.8	20.0	176739	28.8	19.7	507055	28.9	20.5	201650	28.9	19.7	172953	29.1	20.0
479942	28.7	21.1	119817	28.8	19.2	214596	28.8	20.3	387217	28.9	20.4	298934	28.9	20.3	202292	29.1	20.0
468260	28.7	20.5	59720	28.8	19.2	146107	28.8	19.1	121046	28.9	19.6	183784	28.9	18.8	440997	29.1	20.9
199258	28.7	19.6	150513	28.8	18.8	496787	28.8	21.0	512872	28.9	20.8	234337	28.9	20.6	374221	29.1	21.1
214590	28.7	19.6	188140	28.8	20.6	316786	28.8	19.7	85358	28.9	19.6	95570	28.9	19.6	542358	29.1	21.2
427936	28.7	21.2	263992	28.8	18.6	397689	28.8	20.9	19503	28.9	18.2	119028	28.9	20.1	252794	29.1	20.4
514554	28.7	20.2	533054	28.8	20.7	384901	28.8	20.3	137200	28.9	19.5	12395	29.0	17.3	66470	29.1	17.5
193623	28.7	20.9	524045	28.8	21.7	132584	28.8	18.6	86924	28.9	19.1	172428	29.0	18.6	144016	29.1	19.6
409776	28.7	21.1	386816	28.8	21.4	245583	28.8	18.8	341118	28.9	20.1	56811	29.0	17.8	1250	29.1	16.9
510909	28.7	21.1	118238	28.8	20.0	350161	28.8	18.9	442906	28.9	21.1	9486	29.0	18.0	306978	29.1	19.3
247188	28.7	21.1	136620	28.8	22.0	135655	28.8	19.6	145076	28.9	19.9	344493	29.0	20.3	161697	29.1	19.5
523091	28.7	20.6	392677	28.8	20.2	379638	28.8	20.3	63648	28.9	17.4	286618	29.0	20.6	504064	29.1	20.3
498770	28.7	20.8	474045	28.8	19.6	159074	28.9	17.7	152575	28.9	21.5	191790	29.0	18.0	56216	29.1	18.2
268984	28.7	20.7	166477	28.8	18.5	177913	28.9	20.1	396200	28.9	18.6	471189	29.0	20.1	199895	29.1	21.3
482727	28.7	21.0	508109	28.8	19.9	137871	28.9	19.6	250911	28.9	19.1	60157	29.0	18.6	115914	29.1	18.5
170943	28.7	20.6	299500	28.8	19.7	87795	28.9	18.5	480070	28.9	19.8	260708	29.0	18.5	490785	29.1	21.1
507060	28.7	20.5	127833	28.8	19.4	227351	28.9	19.7	249462	28.9	19.3	479960	29.0	20.4	513321	29.1	21.7
69507	28.7	18.2	4906	28.8	16.1	513553	28.9	19.4	343390	28.9	20.0	80462	29.0	17.3	3587	29.1	16.2
30100	28.7	17.4	462253	28.8	20.8	295779	28.9	20.8	311976	28.9	20.2	43153	29.0	18.1	520266	29.1	20.4
528481	28.7	19.7	54615	28.8	18.7	392392	28.9	20.6	251324	28.9	19.7	131582	29.0	19.8	247437	29.1	19.5
316624	28.7	19.6	365462	28.8	19.8	57367	28.9	17.6	292753	28.9	19.9	314483	29.0	21.6	471093	29.1	20.9
318534	28.7	20.8	494280	28.8	21.1	205052	28.9	19.9	430672	28.9	20.8	107313	29.0	19.5	68641	29.1	18.4
96059	28.7	18.7	89112	28.8	17.2	500249	28.9	19.7	128754	28.9	19.2	3745	29.0	15.7	466176	29.1	20.4
240166	28.7	19.5	425942	28.8	21.2	268462	28.9	19.7	262041	28.9	20.3	69678	29.0	18.7	429238	29.1	20.9
374394	28.7	19.9	523802	28.8	20.3	346108	28.9	20.3	269115	28.9	20.3	392578	29.0	20.3	200579	29.1	19.1
479218	28.7	21.4	377807	28.8	18.9	511845	28.9	20.7	473010	28.9	20.6	537199	29.0	21.4	427512	29.1	21.8
366831	28.7	19.9	415581	28.8	20.0	100082	28.9	19.8	168196	28.9	19.2	311161	29.0	20.4	499826	29.1	20.2
32990	28.7	17.7	95483	28.8	19.9	330055	28.9	20.2	442944	28.9	21.1	442583	29.0	20.1	169899	29.1	19.2
161261	28.7	19.7	459041	28.8	20.5	52965	28.9	19.2	34602	28.9	18.0	504792	29.0	20.5	192367	29.1	19.7
355655	28.7	21.1	392423	28.8	19.4	203390	28.9	18.9	5234	28.9	15.8	389256	29.0	21.1	524547	29.1	20.9
47718	28.7	18.6	42746	28.8	19.8	413464	28.9	22.0	527795	28.9	20.5	459570	29.0	21.5	101946	29.1	18.8
404598	28.7	18.1	257097	28.8	20.4	524444	28.9	21.9	175848	28.9	18.7	472892	29.0	20.3	152493	29.1	20.5
9647	28.7	17.5	513228	28.8	21.6	248664	28.9	20.1	125732	28.9	17.3	103149	29.0	18.5	376668	29.1	20.8
352665	28.7	20.1	541132	28.8	24.4	1940	28.9	15.7	238587	28.9	21.1	214893	29.0	19.9	17034	29.1	16.1
72767	28.7	18.4	366568	28.8	20.1	138760	28.9	19.3	315369	28.9	20.4	432718	29.0	21.9	479602	29.1	20.8
4399	28.7	15.8	522804	28.8	20.8	73204	28.9	19.6	20295	28.9	15.7	180114	29.0	20.8	458910	29.1	19.5
146955	28.7	19.8	507929	28.8	20.5	495760	28.9	19.8	250848	28.9	19.7	250643	29.0	20.5	109793	29.1	18.3
251797	28.7	19.4	414449	28.8	20.9	295730	28.9	19.9	115287	28.9	18.8	443773	29.0	19.6	354207	29.1	20.8
476914	28.7	20.8	203302	28.8	19.2	375773	28.9	20.6	500165	28.9	20.6	279721	29.0	19.0	456341	29.1	19.3
195114	28.7	20.6	293330	28.8	20.3	209822	28.9	19.8	304105	28.9	19.9	300864	29.0	20.6	10594	29.1	15.6
345024	28.7	20.0	499653	28.8	20.5	437659	28.9	20.1	222072	28.9	20.1	491906	29.0	21.4	58893	29.1	19.4
71933	28.7	18.2	215028	28.8	20.1	2401	28.9	16.2	366492	28.9	21.0	67134	29.0	18.0	200598	29.1	18.8
156264	28.7	18.9	364215	28.8	18.6	203432	28.9	20.2	107819	28.9	19.9	378327	29.0	21.1	427949	29.1	20.9
89237	28.7	18.7	46103	28.8	18.1	83813	28.9	18.7	331792	28.9	20.7	361439	29.0	20.6	174694	29.1	18.5
384951	28.7	19.8	404132	28.8	20.8	141081	28.9	19.1	34184	28.9	18.6	67756	29.0	17.5	529686	29.1	20.7
124408	28.7	18.6	148399	28.8	20.5	429610	28.9	21.1	98648	28.9	19.1	495933	29.0	21.6	141822	29.1	18.9
93883	28.7	17.9	495355	28.8	20.5	287908	28.9	18.9	105754	28.9	18.4	504523	29.0	20.2	72176	29.1	18.3
210659	28.7	18.2	246098	28.8	19.0	440550	28.9	19.7	121427	28.9	18.0	214302	29.0	20.0	425536	29.1	20.3
134017	28.7	19.8	163059	28.8	19.6	433479	28.9	20.1	97044	28.9	17.3	345908	29.0	19.3	472978	29.1	20.1
309718	28.7	21.2	197381	28.8	19.3	363279	28.9	20.3	499903	28.9	19.0	106211	29.1	18.9	505575	29.1	21.7
432795	28.7	21.4	535267	28.8	21.0	357798	28.9</										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
385784	29.1	22.0	78916	29.2	18.7	384389	29.3	19.9	126288	29.4	19.7	116543	29.4	20.3	389859	29.5	20.2
184286	29.1	20.0	303282	29.2	19.3	143964	29.3	19.1	162533	29.4	18.6	99779	29.4	19.4	132330	29.5	17.3
502997	29.1	19.2	416075	29.2	19.9	219567	29.3	19.3	9340	29.4	17.8	338539	29.4	20.3	97114	29.5	19.1
479299	29.1	21.5	537819	29.2	19.8	233318	29.3	19.3	466711	29.4	19.4	9404	29.4	17.1	306780	29.5	20.9
18099	29.1	17.3	135915	29.2	18.3	183940	29.3	20.5	436937	29.4	20.1	250822	29.4	19.1	408726	29.5	20.5
356359	29.1	20.0	66678	29.2	18.4	202283	29.3	19.3	276231	29.4	19.4	200270	29.4	18.8	224253	29.5	19.1
368106	29.1	21.3	52269	29.2	18.0	377349	29.3	19.4	112346	29.4	19.1	275330	29.4	20.0	379295	29.5	19.9
70358	29.1	18.3	66414	29.2	17.6	109851	29.3	18.8	364475	29.4	20.7	72123	29.4	19.4	288877	29.5	20.6
461874	29.1	21.5	245121	29.2	19.1	338602	29.3	19.4	357553	29.4	19.3	418149	29.4	20.7	88195	29.5	18.8
13156	29.1	16.4	475614	29.2	21.0	59450	29.3	19.0	44044	29.4	19.6	373535	29.4	19.2	423617	29.5	20.6
334673	29.1	21.3	499386	29.2	20.1	367896	29.3	20.0	201807	29.4	19.8	276468	29.4	21.6	528746	29.5	21.7
136808	29.1	20.2	295289	29.2	20.0	342141	29.3	20.6	423674	29.4	21.5	232347	29.4	18.5	168486	29.5	18.5
420580	29.1	21.0	301912	29.2	20.8	389453	29.3	20.4	505883	29.4	19.5	529408	29.4	19.2	196225	29.5	19.2
240130	29.2	19.3	435585	29.2	20.1	250134	29.3	19.7	211995	29.4	20.7	377805	29.4	21.1	177093	29.5	19.4
108841	29.2	19.0	214089	29.2	19.1	192467	29.3	20.3	311236	29.4	20.8	243638	29.4	18.6	500089	29.5	21.0
177035	29.2	19.5	79511	29.2	18.2	17275	29.3	17.5	13155	29.4	16.7	124647	29.4	18.3	162655	29.5	19.2
74743	29.2	18.7	425576	29.2	19.9	143470	29.3	19.4	497349	29.4	19.8	534050	29.4	20.4	349063	29.5	22.3
368925	29.2	20.9	131586	29.2	19.8	259053	29.3	21.0	381414	29.4	20.3	216625	29.4	18.0	301859	29.5	19.0
482411	29.2	21.0	496494	29.2	19.3	506990	29.3	20.4	356373	29.4	19.8	477015	29.4	21.1	499121	29.5	21.7
507628	29.2	21.8	346789	29.2	20.8	283454	29.3	19.8	526895	29.4	19.9	312440	29.4	21.0	263275	29.5	20.7
229506	29.2	20.6	467073	29.2	20.8	19095	29.3	18.1	165341	29.4	18.7	222608	29.4	19.8	172527	29.5	20.0
230349	29.2	19.9	161423	29.2	18.0	173172	29.3	20.7	14776	29.4	16.9	219637	29.4	19.0	115985	29.5	19.4
39087	29.2	17.0	385760	29.2	17.7	512893	29.3	21.6	383903	29.4	19.0	13338	29.4	16.6	12864	29.5	16.7
17868	29.2	17.0	362829	29.2	20.0	388191	29.3	19.8	225823	29.4	19.8	155847	29.4	20.5	358429	29.5	20.6
280981	29.2	20.4	17687	29.2	18.0	259070	29.3	19.9	365487	29.4	19.3	56820	29.4	17.0	176049	29.5	19.0
195569	29.2	19.5	230384	29.2	18.9	420323	29.3	20.9	123680	29.4	19.8	319541	29.4	20.1	1858	29.5	15.5
362031	29.2	20.1	2909	29.2	14.9	92321	29.3	19.4	512666	29.4	20.0	200523	29.4	20.3	27308	29.5	17.7
459043	29.2	21.6	100014	29.2	17.7	255349	29.3	19.7	198969	29.4	20.7	513559	29.4	19.6	287857	29.5	19.1
379272	29.2	20.3	525623	29.2	20.4	126576	29.3	19.4	22449	29.4	15.2	91177	29.4	18.4	32260	29.5	17.8
387929	29.2	21.0	354763	29.2	19.2	43655	29.3	19.2	50473	29.4	18.7	208661	29.5	21.8	181699	29.5	19.1
310696	29.2	21.1	200116	29.2	20.0	35185	29.3	17.0	31012	29.4	18.6	53983	29.5	19.5	302296	29.5	20.9
51294	29.2	17.4	507876	29.2	20.1	89268	29.3	17.3	303210	29.4	21.0	533988	29.5	18.7	531986	29.5	20.3
139892	29.2	19.1	144726	29.2	19.8	62380	29.3	18.7	371086	29.4	20.3	35636	29.5	19.2	18500	29.5	17.8
168989	29.2	18.3	71846	29.2	18.8	522621	29.3	20.9	245546	29.4	19.1	395241	29.5	19.8	344481	29.5	19.7
326221	29.2	20.5	12006	29.2	18.0	168086	29.3	20.1	218258	29.4	18.7	413233	29.5	20.7	425806	29.5	22.0
75394	29.2	17.4	240370	29.2	19.2	130085	29.3	19.1	463233	29.4	21.0	439395	29.5	21.2	437459	29.5	21.5
390444	29.2	20.6	131848	29.2	19.0	387158	29.3	20.7	363319	29.4	21.1	36552	29.5	16.6	336658	29.5	19.8
275065	29.2	20.5	285284	29.2	18.8	481893	29.3	20.4	131708	29.4	20.1	463997	29.5	20.9	450505	29.5	21.1
366105	29.2	21.2	442548	29.2	20.4	55928	29.3	19.0	68914	29.4	19.8	470181	29.5	19.9	165992	29.5	18.0
529565	29.2	20.7	78814	29.3	17.7	26605	29.3	17.8	296792	29.4	19.0	66148	29.5	18.9	442011	29.5	20.3
43110	29.2	18.4	478316	29.3	21.0	215464	29.3	19.9	87326	29.4	19.1	218927	29.5	20.1	503818	29.5	20.4
179509	29.2	19.6	465220	29.3	21.0	314417	29.3	19.6	500180	29.4	21.2	494454	29.5	20.5	537461	29.5	21.3
284828	29.2	20.2	13271	29.3	16.8	473032	29.3	19.2	430372	29.4	19.8	478722	29.5	20.7	440614	29.5	20.1
509887	29.2	19.8	512882	29.3	21.0	527825	29.3	21.8	444663	29.4	20.6	400476	29.5	20.8	7341	29.5	17.2
413024	29.2	19.3	21001	29.3	17.9	448539	29.3	20.1	118820	29.4	18.5	375234	29.5	20.6	376159	29.5	21.1
377351	29.2	19.2	164476	29.3	19.8	306909	29.3	19.5	412092	29.4	20.5	15905	29.5	16.4	441947	29.5	20.8
442454	29.2	21.4	133195	29.3	17.9	50969	29.3	18.0	527933	29.4	21.7	424324	29.5	20.3	526227	29.5	21.3
475187	29.2	21.2	533847	29.3	19.5	18411	29.3	17.8	410300	29.4	20.5	71952	29.5	17.1	201602	29.5	19.6
289156	29.2	20.5	55771	29.3	17.6	32312	29.3	18.6	123942	29.4	18.9	34810	29.5	17.7	52724	29.5	17.7
296192	29.2	19.9	203042	29.3	19.9	509873	29.3	20.3	221657	29.4	20.0	62971	29.5	18.6	88934	29.5	19.3
477669	29.2	21.3	359530	29.3	19.6	476154	29.3	20.5	252737	29.4	20.0	474559	29.5	20.8	364200	29.5	19.6
494080	29.2	19.2	11652	29.3	17.4	13985	29.3	16.3	506613	29.4	21.7	36403	29.5	16.8	29048	29.5	18.1
381814	29.2	20.4	158175	29.3	19.1	239665	29.3	20.3	320673	29.4	20.5	507172	29.5	21.5	443369	29.5	20.5
42660	29.2	18.5	479298	29.3	21.7	336723	29.3	20.0	8871	29.4	17.5	134220	29.5	17.1	295659	29.5	19.8
39325	29.2	18.1	474499	29.3	20.9	311489	29.3	20.9	280115	29.4	21.0	190050	29.5	20.2	101351	29.5	20.3
178339	29.2	20.0	380858	29.3	20.9	75807	29.3	19.2	203611	29.4	19.8	100156	29.5	18.6	259172	29.5	20.1
536522	29.2	21.0	266411	29.3	20.4	200238	29.3	18.2	541054	29.4	21.0	137999	29.5	17.0	359489	29.5	20.1
304462	29.2	20.3	53405	29.3	18.3	395276	29.3	19.6	159863	29.4	17.8	475092	29.5	19.5	536663	29.5	21.7
415290	29.2	20.0	323340	29.3	20.1	166313	29.3	19.9	472969	29.4	20.2	147264	29.5	18.1	131359	29.5	19.0
232872	29.2	18.7	439686	29.3	20.2	92192	29.3	19.3	412642	29.4	20.3	125170	29.5	19.5	530389	29.5	21.6
6532	29.2	16.4	525972	29.3	20.5	507302	29.3	20.8	171543	29.4	18.5	352533	29.5	22.0	443050	29.5	20.4
275585	29.2	20.1	416389	29.3	20.2	540170	29.3	20.9	215566	29.4	20.2	127099	29.5	20.0	347338	29.5	17.9
193602	29.2	19.3	194035	29.3	19.4	97803	29.3	18.1	361621	29.4	19.1	237487	29.5	19.0	72243	29.5	18.9
192360	29.2	19.5	21542	29.3	17.3	238474	29.3	18.7	522856	29.4	20.1	512199	29.5	20.5	272494	29.5	20.9
253358	29.2	19.3	290524	29.3	20.3	156731	29.3	19.8	533495	29.4	21.2	211187	29.5	19.9	356864	29.5	20.9
155416	29.2	20.8	179535	29.3	20.5	422061	29.3	20.0	162091	29.4	18.0	152450	29.5	19.4	275915	29.5	19.4
100527	29.2	18.7	192029	29.3	19.3	72254	29.3	18.2	256681	29.4	20.3	545111	29.5	20.9	430965	29.5	21.7
503522	29.2	21.6	382907	29.3	18.5	12913	29.3	17.0	278674	29.4	20.9	31301	29.5	17.4	311457	29.6	19.3
13381	29.2	17.2	365094	29.3	20.9	46126	29.3	18.3									

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
359579	29.6	20.2	18184	29.6	17.7	480197	29.7	21.7	76599	29.8	19.1	252876	29.9	19.7	310340	29.9	19.9
275531	29.6	20.8	233115	29.6	20.2	338048	29.7	20.1	513547	29.8	20.8	504748	29.9	21.5	154679	29.9	20.3
470178	29.6	20.4	202976	29.6	18.7	357835	29.7	19.4	92720	29.8	17.2	277334	29.9	20.6	245210	29.9	19.1
254302	29.6	20.0	166125	29.6	19.5	192851	29.7	18.9	513827	29.8	20.3	61287	29.9	18.0	501871	29.9	20.4
11833	29.6	17.9	289320	29.6	19.9	113360	29.7	19.2	394288	29.8	21.0	276671	29.9	18.7	291040	29.9	20.7
497348	29.6	21.0	254138	29.6	19.6	242731	29.7	19.9	306646	29.8	18.9	384865	29.9	20.5	71127	29.9	16.4
149213	29.6	20.3	287145	29.6	19.3	433489	29.7	20.1	296369	29.8	19.2	439584	29.9	20.8	438829	29.9	19.9
117300	29.6	19.2	445477	29.6	20.0	4619	29.7	16.7	520095	29.8	20.9	74884	29.9	18.7	133676	29.9	18.7
42221	29.6	19.3	172718	29.6	21.2	121782	29.7	18.9	199074	29.8	20.3	499492	29.9	20.1	200576	29.9	17.6
535690	29.6	20.5	125469	29.7	18.5	303551	29.7	19.7	22973	29.8	17.6	465353	29.9	21.9	207728	29.9	19.6
119482	29.6	19.1	499104	29.7	21.2	180417	29.7	20.0	537295	29.8	21.6	102027	29.9	18.9	285117	29.9	20.2
214101	29.6	19.8	148413	29.7	19.7	497100	29.7	20.6	56720	29.8	17.4	18141	29.9	18.0	470384	29.9	20.2
132383	29.6	16.9	197803	29.7	19.5	529705	29.7	20.3	426234	29.8	19.8	254372	29.9	19.3	235317	29.9	19.4
442570	29.6	20.7	232220	29.7	20.8	152332	29.7	18.9	529518	29.8	21.8	479108	29.9	20.7	415740	29.9	19.6
63816	29.6	18.4	489710	29.7	20.8	466588	29.7	20.3	165290	29.8	18.5	387192	29.9	20.3	249639	29.9	19.3
257967	29.6	19.9	5819	29.7	16.3	57627	29.7	18.6	133775	29.8	19.0	384431	29.9	20.1	366015	29.9	21.1
503309	29.6	20.5	231294	29.7	20.7	410295	29.7	19.5	79184	29.8	17.0	494456	29.9	20.1	175444	29.9	18.8
428267	29.6	21.0	502007	29.7	19.9	402401	29.7	20.9	425739	29.8	20.7	283334	29.9	18.2	193814	29.9	19.3
121424	29.6	19.5	15036	29.7	17.4	252968	29.7	19.1	216608	29.8	17.7	270425	29.9	20.6	117093	29.9	19.9
384093	29.6	20.1	449993	29.7	20.2	199462	29.7	20.0	212064	29.8	20.2	399008	29.9	20.9	354361	29.9	20.0
187236	29.6	21.0	125906	29.7	20.0	326012	29.7	19.7	365571	29.8	20.2	474032	29.9	20.7	431115	29.9	20.6
91731	29.6	19.2	113219	29.7	19.5	442912	29.7	21.7	464815	29.8	18.2	428008	29.9	20.3	198519	29.9	20.2
398217	29.6	19.6	235898	29.7	19.9	231363	29.7	20.8	509723	29.8	21.0	309934	29.9	19.2	533857	29.9	19.2
434246	29.6	19.1	274976	29.7	20.1	399440	29.7	20.0	174526	29.8	20.0	183485	29.9	19.7	463413	29.9	21.3
154578	29.6	20.5	192652	29.7	18.9	316925	29.7	19.9	449906	29.8	20.6	307130	29.9	20.0	13188	29.9	18.1
110067	29.6	18.3	61990	29.7	17.9	506238	29.7	19.9	525885	29.8	20.4	498032	29.9	21.4	486811	29.9	20.6
346712	29.6	20.4	211114	29.7	20.2	466576	29.7	20.6	209780	29.8	19.1	404700	29.9	19.6	199930	29.9	20.1
414058	29.6	19.7	422524	29.7	20.3	90547	29.7	20.0	468012	29.8	21.3	377672	29.9	19.3	38493	29.9	18.6
210261	29.6	20.3	61907	29.7	18.6	506614	29.7	20.7	277942	29.8	19.8	467286	29.9	20.9	95159	29.9	19.1
427910	29.6	21.7	238800	29.7	20.1	99022	29.7	19.2	69255	29.8	19.7	356899	29.9	20.1	425935	29.9	20.4
427183	29.6	20.2	43195	29.7	18.5	112359	29.7	19.0	27985	29.8	17.6	246953	29.9	19.0	371577	29.9	20.5
393313	29.6	20.9	316335	29.7	19.6	40715	29.7	18.6	296395	29.8	20.1	141837	29.9	18.7	365618	29.9	19.0
446128	29.6	21.1	505462	29.7	20.8	75495	29.7	18.3	218516	29.8	19.3	381584	29.9	20.3	262943	29.9	19.6
448524	29.6	20.3	539782	29.7	20.5	444681	29.7	20.6	412039	29.8	21.2	73069	29.9	18.1	107310	29.9	20.3
212520	29.6	20.1	504068	29.7	21.4	481348	29.8	20.7	95523	29.8	20.1	234033	29.9	20.1	516239	29.9	21.1
105797	29.6	18.4	215355	29.7	20.1	492464	29.8	20.1	235839	29.8	20.5	249228	29.9	18.2	189065	29.9	18.9
306846	29.6	20.3	192774	29.7	18.5	433224	29.8	20.0	179341	29.8	19.7	125158	29.9	19.8	528009	29.9	21.7
373608	29.6	20.4	160923	29.7	20.5	233716	29.8	19.8	218051	29.8	20.0	119014	29.9	18.2	444380	29.9	21.2
172477	29.6	18.3	7438	29.7	18.1	508696	29.8	20.3	288771	29.8	19.4	512913	29.9	20.8	73902	29.9	19.7
46165	29.6	19.3	145815	29.7	18.5	314101	29.8	21.4	460685	29.8	20.2	33507	29.9	17.7	471241	29.9	20.7
519614	29.6	20.8	166538	29.7	18.4	356435	29.8	20.9	500490	29.8	21.7	530526	29.9	21.1	359442	29.9	20.0
508214	29.6	20.8	511419	29.7	20.3	441395	29.8	20.9	528394	29.8	19.6	359378	29.9	19.8	471239	29.9	21.3
158328	29.6	19.1	481018	29.7	20.6	224429	29.8	18.8	519760	29.8	21.1	93634	29.9	18.3	127218	29.9	20.5
235382	29.6	18.6	512915	29.7	20.4	529941	29.8	20.7	2678	29.8	15.1	61770	29.9	18.4	226773	29.9	20.0
66755	29.6	18.1	12167	29.7	16.0	488784	29.8	19.8	33216	29.8	19.4	379790	29.9	21.4	325001	29.9	21.1
176106	29.6	19.8	180762	29.7	19.3	253854	29.8	19.2	216565	29.8	20.1	418153	29.9	22.0	423710	29.9	20.0
219802	29.6	19.0	43952	29.7	19.1	390326	29.8	21.2	214933	29.8	20.9	422942	29.9	20.5	21530	29.9	17.3
469213	29.6	20.4	483211	29.7	19.2	449871	29.8	19.8	305553	29.8	20.9	144542	29.9	19.2	359941	29.9	19.2
381459	29.6	18.8	539697	29.7	19.6	287882	29.8	20.7	254376	29.8	19.7	417215	29.9	21.2	367502	29.9	19.5
248671	29.6	19.5	267737	29.7	19.5	221372	29.8	17.1	236399	29.8	20.0	290674	29.9	20.8	91108	29.9	17.9
171821	29.6	21.1	482377	29.7	20.8	160078	29.8	19.3	615	29.8	13.9	457394	29.9	20.6	334435	29.9	21.4
259283	29.6	20.9	101376	29.7	19.1	188419	29.8	20.4	62291	29.8	18.4	389186	29.9	21.0	144145	29.9	19.5
247860	29.6	18.7	433460	29.7	19.5	392439	29.8	20.7	228655	29.8	19.1	413311	29.9	20.9	433152	29.9	20.6
397432	29.6	20.5	172173	29.7	20.1	482774	29.8	21.2	211743	29.8	18.8	58686	29.9	17.1	82172	29.9	18.9
434746	29.6	21.0	526055	29.7	21.5	119001	29.8	19.7	358343	29.8	20.9	235197	29.9	18.6	252193	29.9	19.2
130226	29.6	18.7	155931	29.7	18.9	407670	29.8	19.7	260802	29.8	20.2	384988	29.9	20.2	357792	29.9	21.2
299414	29.6	20.7	539179	29.7	20.6	93979	29.8	19.2	267442	29.8	19.7	308986	29.9	20.1	410219	29.9	18.7
105612	29.6	18.3	357978	29.7	20.9	172766	29.8	19.8	396048	29.8	22.0	216164	29.9	19.9	399907	29.9	20.6
30891	29.6	16.4	65915	29.7	17.5	282967	29.8	19.6	393894	29.8	20.2	203544	29.9	18.9	134412	29.9	19.0
94173	29.6	18.7	389893	29.7	19.6	243700	29.8	20.1	468811	29.8	20.2	45047	29.9	18.1	3588	29.9	16.3
354501	29.6	19.7	115449	29.7	18.6	538827	29.8	20.8	140739	29.8	19.5	478196	29.9	19.9	150603	29.9	18.8
412561	29.6	20.0	437423	29.7	20.1	434378	29.8	20.1	236930	29.8	20.6	338647	29.9	19.8	250095	29.9	20.6
92161	29.6	19.1	384051	29.7	19.5	310088	29.8	20.5	496963	29.8	19.4	226376	29.9	20.7	457673	29.9	20.9
37090	29.6	17.5	492619	29.7	21.0	81007	29.8	18.6	235378	29.8	19.2	283735	29.9	19.8	114618	29.9	19.1
389701	29.6	20.4	181510	29.7	20.0	508845	29.8	22.2	482383	29.8	21.0	475587	29.9	20.7	8707	29.9	16.7
521217	29.6	21.5	537944	29.7	20.2	507980	29.8	20.2	526830	29.8	21.4	487946	29.9	19.5	250725	29.9	19.1
435207	29.6	20.6	475482	29.7	21.4	364050	29.8	21.5	394677	29.8	20.6	403638	29.9	19.0	125868	29.9	18.4
502962	29.6	20.6	413034	29.7	20.3	126206	29.8	19.3	187733	29.8	20.3	106832	29.9	18.9	343522	29.9	20.3
113517	29.6	19.0	127982	29.7	19.5												

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
226712	29.9	19.4	387160	30.1	20.8	201039	30.1	19.7	257586	30.2	20.6	53420	30.3	17.5	7119	30.4	16.5
251916	29.9	20.1	335829	30.1	19.5	343452	30.1	21.1	912	30.2	14.3	343432	30.3	19.6	245597	30.4	19.7
163116	29.9	19.9	446299	30.1	21.3	320708	30.1	20.5	59797	30.2	18.8	264201	30.3	19.5	320601	30.4	20.5
467285	29.9	21.0	8538	30.1	16.3	299785	30.1	20.5	201682	30.2	19.3	244281	30.3	20.2	316827	30.4	18.6
275192	29.9	18.5	397422	30.1	20.6	423258	30.1	19.3	147193	30.2	18.7	169658	30.3	20.0	148439	30.4	18.6
280111	29.9	20.3	514515	30.1	21.1	480553	30.1	19.9	443087	30.2	20.7	17012	30.3	17.1	301085	30.4	19.2
950	29.9	14.9	528293	30.1	20.0	61457	30.1	17.9	12455	30.2	18.1	24178	30.3	17.0	28765	30.4	16.8
442519	29.9	21.2	251431	30.1	20.8	528947	30.1	21.6	473744	30.2	21.2	200059	30.3	19.4	177023	30.4	19.7
191831	29.9	18.8	228355	30.1	19.5	471573	30.1	20.5	358364	30.2	22.4	487156	30.3	20.5	23434	30.4	16.2
127821	29.9	19.7	435924	30.1	20.5	38686	30.1	16.1	359593	30.2	20.3	2616	30.3	14.4	478391	30.4	20.8
184698	29.9	19.3	340435	30.1	20.0	343302	30.2	20.5	200950	30.2	19.2	295670	30.3	21.1	190618	30.4	18.7
58611	29.9	18.0	117037	30.1	19.2	53195	30.2	16.0	287858	30.2	19.7	491313	30.3	20.7	12315	30.4	16.5
361112	29.9	21.2	527924	30.1	21.2	366466	30.2	19.5	120290	30.2	19.0	80120	30.3	18.2	33148	30.4	18.9
41708	29.9	18.5	276017	30.1	18.8	107156	30.2	18.9	505520	30.2	20.9	214865	30.3	19.4	42032	30.4	17.7
17873	29.9	17.0	365394	30.1	20.1	17947	30.2	18.7	175111	30.2	20.6	443332	30.3	20.9	313656	30.4	19.8
525868	29.9	20.5	257193	30.1	20.4	383637	30.2	20.0	16969	30.2	18.0	309787	30.3	19.7	94303	30.4	19.1
73326	29.9	18.8	461584	30.1	19.2	475165	30.2	20.4	77353	30.2	18.3	73811	30.3	18.3	362851	30.4	20.8
207585	29.9	19.5	361129	30.1	20.5	155713	30.2	18.5	278659	30.2	19.9	503347	30.3	21.0	122586	30.4	18.9
123214	29.9	18.3	508616	30.1	20.2	484027	30.2	20.9	342285	30.2	20.1	199381	30.3	20.0	411721	30.4	20.3
70513	29.9	16.9	90238	30.1	19.5	20740	30.2	16.7	266270	30.2	19.3	179300	30.3	19.4	202804	30.4	20.0
376518	29.9	19.7	157507	30.1	19.9	249380	30.2	19.8	86726	30.2	18.2	468658	30.3	18.9	333871	30.4	19.9
395673	30.0	19.9	128130	30.1	18.4	112254	30.2	19.5	186329	30.2	20.8	179374	30.3	20.5	224513	30.4	19.3
474883	30.0	21.0	529464	30.1	21.5	461624	30.2	21.4	481738	30.2	21.0	170938	30.3	19.0	184148	30.4	19.4
145380	30.0	20.0	248378	30.1	18.7	161800	30.2	19.5	203521	30.2	19.8	484014	30.3	19.8	21143	30.4	17.2
140587	30.0	18.4	143769	30.1	19.7	429588	30.2	21.6	376941	30.2	21.4	383893	30.3	19.4	233993	30.4	20.2
83457	30.0	18.9	168658	30.1	20.4	507008	30.2	20.5	528433	30.2	20.4	150038	30.3	19.1	206104	30.4	19.9
390441	30.0	20.5	80332	30.1	17.2	534512	30.2	20.2	157580	30.2	20.3	388031	30.3	19.2	269080	30.4	19.7
84576	30.0	20.1	340485	30.1	19.7	514452	30.2	20.2	507155	30.2	20.6	136593	30.3	19.5	29016	30.4	16.8
133108	30.0	18.1	420418	30.1	20.1	345428	30.2	20.0	43814	30.2	17.2	259967	30.3	19.8	540324	30.4	20.8
49843	30.0	17.4	425660	30.1	19.7	498481	30.2	21.3	384848	30.2	20.2	305287	30.3	20.1	527889	30.4	22.7
297731	30.0	19.5	329366	30.1	19.3	299426	30.2	19.4	402172	30.2	20.1	364502	30.3	21.5	122152	30.4	19.8
9059	30.0	17.3	508315	30.1	21.4	514680	30.2	20.6	362899	30.2	20.0	443588	30.3	21.1	262409	30.4	20.6
257062	30.0	19.9	469133	30.1	20.1	533257	30.2	20.2	226032	30.2	20.1	536236	30.3	21.9	239866	30.4	20.5
38585	30.0	19.0	526037	30.1	19.4	430935	30.2	20.9	476182	30.2	20.6	100697	30.3	19.3	251867	30.4	20.6
16934	30.0	17.8	59900	30.1	17.9	505942	30.2	20.6	242155	30.2	20.6	149576	30.3	20.3	136637	30.4	20.4
306711	30.0	19.6	10175	30.1	16.4	294269	30.2	19.2	503082	30.2	20.9	382433	30.3	20.6	229708	30.4	20.0
463213	30.0	21.4	476538	30.1	20.7	479911	30.2	20.2	383192	30.2	20.0	214481	30.3	19.3	277414	30.4	21.7
60888	30.0	17.8	428258	30.1	21.1	338859	30.2	19.4	472479	30.2	19.7	344057	30.3	18.6	196066	30.4	19.5
418168	30.0	21.1	400507	30.1	20.5	536765	30.2	20.6	314104	30.2	21.0	158832	30.3	18.3	450308	30.4	20.1
357151	30.0	19.8	534290	30.1	19.9	394710	30.2	21.2	452546	30.3	20.3	291328	30.3	20.2	162879	30.4	20.1
184021	30.0	20.3	290241	30.1	19.3	33590	30.2	17.4	190093	30.3	20.3	475731	30.3	19.9	491409	30.4	21.4
488602	30.0	18.4	187697	30.1	20.0	217887	30.2	18.8	342447	30.3	19.7	205504	30.3	19.6	432889	30.4	20.1
539408	30.0	20.6	472412	30.1	21.4	308625	30.2	19.4	22498	30.3	17.6	102537	30.3	18.6	456279	30.4	21.0
649	30.0	14.2	377683	30.1	20.3	128109	30.2	19.7	355239	30.3	20.3	356252	30.3	20.4	53738	30.4	18.4
520093	30.0	21.2	106816	30.1	17.9	445762	30.2	20.9	199710	30.3	20.4	87447	30.3	17.2	34044	30.4	18.3
137817	30.0	19.1	471153	30.1	21.2	433999	30.2	19.3	260978	30.3	20.3	537584	30.3	21.0	256492	30.4	20.9
394322	30.0	20.0	113316	30.1	19.5	73503	30.2	17.4	446510	30.3	20.2	150485	30.3	19.2	526349	30.4	20.4
396856	30.0	19.1	442516	30.1	20.9	377826	30.2	20.9	350644	30.3	20.4	227406	30.3	20.7	358998	30.4	20.5
266736	30.0	20.8	475395	30.1	21.1	174090	30.2	19.9	151801	30.3	19.2	412455	30.4	20.7	321775	30.4	20.3
365148	30.0	20.3	43649	30.1	18.5	244146	30.2	20.4	168000	30.3	20.1	8611	30.4	15.5	360401	30.4	20.9
42312	30.0	17.7	438190	30.1	20.6	529729	30.2	20.8	56278	30.3	17.6	355163	30.4	19.7	509041	30.4	20.8
180349	30.0	20.2	160394	30.1	19.4	175099	30.2	20.2	409706	30.3	21.4	168066	30.4	18.4	183942	30.4	19.5
470848	30.0	21.3	19091	30.1	17.3	527983	30.2	21.1	506219	30.3	20.1	19711	30.4	18.3	249448	30.4	20.2
521096	30.0	21.6	183332	30.1	19.5	301658	30.2	20.6	67594	30.3	18.3	170257	30.4	18.8	126003	30.4	19.8
354753	30.0	20.6	478929	30.1	20.5	30896	30.2	19.3	34654	30.3	18.2	469909	30.4	21.4	241604	30.4	18.4
358751	30.0	21.0	183536	30.1	20.1	184838	30.2	20.3	435675	30.3	20.4	384529	30.4	20.3	483137	30.4	20.2
334434	30.0	20.1	523001	30.1	20.4	99566	30.2	19.5	145290	30.3	19.3	436376	30.4	18.4	359052	30.4	21.2
97198	30.0	19.7	471379	30.1	20.7	406378	30.2	19.4	230345	30.3	19.5	146841	30.4	20.3	123928	30.4	18.8
218810	30.0	20.0	56218	30.1	17.8	538482	30.2	21.4	518176	30.3	21.0	302846	30.4	20.5	537831	30.4	21.7
320553	30.0	20.8	31907	30.1	18.6	278247	30.2	19.6	168276	30.3	19.8	166665	30.4	19.1	486273	30.4	20.4
184866	30.0	19.7	269775	30.1	18.4	167	30.2	13.0	445994	30.3	21.3	481475	30.4	20.2	200048	30.4	20.1
429599	30.0	21.2	507039	30.1	20.8	144284	30.2	20.5	371583	30.3	20.8	358459	30.4	20.5	404632	30.4	20.7
302280	30.0	19.8	539929	30.1	20.1	437474	30.2	20.1	356631	30.3	20.8	53750	30.4	19.0	67331	30.4	19.2
502155	30.0	19.5	210502	30.1	20.6	236665	30.2	20.1	285475	30.3	20.2	157640	30.4	20.0	170758	30.5	19.6
126143	30.1	18.7	305414	30.1	20.0	505469	30.2	20.0	340457	30.3	19.9	345866	30.4	19.2	245269	30.5	19.9
512382	30.1	20.8	9234	30.1	16.8	382926	30.2	19.6	377660	30.3	20.5	305917	30.4	21.2	360965	30.5	20.5
2283	30.1	15.5	482376	30.1	20.1	128775	30.2	19.2	73831	30.3	18.6	233362	30.4	21.7	348147	30.5	19.2
191761	30.1	19.9	394333	30.1	21.3	382452	30.2	18.9	171065	30.3	20.4	49988	30.4	17.6	353983	30.5	21.0
46834	30.1	17.6	380908	30.1	19.8	297541	30.2										

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
304740	30.5	20.5	293339	30.5	20.4	150074	30.6	20.1	479558	30.7	21.0	284446	30.7	20.5	87039	30.8	18.4
419638	30.5	20.8	55061	30.5	17.8	410344	30.6	21.3	362725	30.7	20.5	7035	30.7	17.4	355659	30.8	20.8
532030	30.5	20.9	491853	30.5	21.4	117199	30.6	17.9	33876	30.7	16.3	102292	30.8	20.1	357213	30.8	20.9
260309	30.5	19.1	37746	30.5	18.1	161849	30.6	21.1	346726	30.7	20.1	265647	30.8	20.6	479096	30.8	20.4
178685	30.5	19.3	257794	30.5	21.4	253637	30.6	20.7	66406	30.7	17.9	280275	30.8	20.1	531779	30.8	21.1
113569	30.5	19.0	42434	30.5	18.7	315122	30.6	20.5	415043	30.7	20.5	355168	30.8	20.6	343413	30.8	21.0
44585	30.5	19.2	319492	30.5	19.6	318330	30.6	19.8	233437	30.7	19.3	71191	30.8	18.5	231425	30.8	20.0
200771	30.5	18.7	190546	30.5	18.8	180734	30.6	19.1	228621	30.7	20.4	210610	30.8	20.4	251579	30.8	19.2
387024	30.5	20.6	478154	30.5	20.0	271137	30.6	20.2	151149	30.7	17.9	515100	30.8	21.2	140211	30.8	18.7
12419	30.5	16.1	349384	30.5	21.0	172494	30.6	18.8	7328	30.7	15.6	185450	30.8	19.9	68223	30.8	18.5
107454	30.5	19.3	472587	30.5	20.7	282249	30.6	19.7	95542	30.7	18.4	31593	30.8	17.9	314160	30.8	21.2
526844	30.5	22.1	331903	30.5	18.6	403235	30.6	20.8	63990	30.7	17.9	507965	30.8	20.7	31402	30.8	16.8
70351	30.5	18.2	353189	30.5	19.7	362398	30.6	20.4	418114	30.7	20.7	359944	30.8	19.9	79061	30.8	19.0
400536	30.5	19.8	153226	30.5	19.6	325841	30.6	19.4	397780	30.7	20.6	536788	30.8	21.2	439740	30.8	20.8
364165	30.5	19.8	17965	30.5	17.9	64807	30.6	19.0	41706	30.7	17.3	349446	30.8	20.7	165270	30.8	18.8
89933	30.5	18.6	439190	30.5	19.9	428246	30.6	21.1	361170	30.7	20.2	481301	30.8	20.6	234858	30.8	19.8
333941	30.5	19.9	191667	30.5	18.8	183475	30.6	20.7	523057	30.7	20.4	93641	30.8	18.6	73084	30.8	19.0
27384	30.5	17.4	307587	30.6	20.8	244671	30.6	20.1	496472	30.7	21.4	477976	30.8	20.6	306915	30.8	19.3
443433	30.5	21.6	138041	30.6	18.5	507457	30.6	20.7	388294	30.7	20.4	316366	30.8	19.5	213630	30.8	19.5
338619	30.5	20.0	356700	30.6	20.2	5599	30.6	16.1	472828	30.7	20.4	498416	30.8	20.4	504751	30.8	20.5
8484	30.5	15.7	315128	30.6	20.1	3726	30.6	15.7	179543	30.7	19.6	390050	30.8	20.8	117174	30.8	18.0
365500	30.5	19.6	275161	30.6	20.1	315667	30.6	20.5	354699	30.7	19.4	341148	30.8	18.4	6830	30.8	17.6
474180	30.5	20.8	392171	30.6	19.7	441409	30.6	21.5	522697	30.7	21.3	499522	30.8	20.4	48251	30.8	18.8
90429	30.5	20.4	138631	30.6	20.1	203438	30.6	18.9	40870	30.7	17.9	253678	30.8	19.6	370987	30.8	20.2
436334	30.5	20.2	24407	30.6	17.1	504106	30.6	20.9	312414	30.7	20.6	96421	30.8	20.0	227383	30.8	20.9
533731	30.5	21.1	399824	30.6	21.3	311420	30.6	20.6	394060	30.7	19.6	539686	30.8	20.5	232510	30.8	18.9
205128	30.5	21.4	313135	30.6	20.2	36099	30.6	18.1	63446	30.7	19.0	366818	30.8	21.0	431131	30.8	21.8
310622	30.5	19.7	368430	30.6	21.0	443384	30.6	20.7	176617	30.7	18.5	536254	30.8	22.4	95139	30.8	19.3
434385	30.5	20.4	384068	30.6	20.1	117268	30.6	18.7	79278	30.7	19.2	459648	30.8	21.4	434757	30.9	21.4
428324	30.5	20.8	90228	30.6	19.6	478311	30.6	19.9	479380	30.7	21.5	4728	30.8	16.1	28807	30.9	17.9
426814	30.5	21.0	397009	30.6	18.8	215195	30.6	18.3	198361	30.7	18.5	479929	30.8	21.2	157833	30.9	20.0
288799	30.5	19.9	497266	30.6	20.1	442150	30.6	19.7	501254	30.7	20.1	434637	30.8	20.9	416236	30.9	20.8
12566	30.5	18.1	429852	30.6	19.6	393129	30.6	21.0	107911	30.7	19.6	119540	30.8	18.4	98225	30.9	18.6
46860	30.5	17.4	116001	30.6	19.3	274601	30.6	18.7	94034	30.7	19.0	215463	30.8	20.2	315386	30.9	20.0
34927	30.5	18.1	479225	30.6	21.6	534785	30.6	21.0	294110	30.7	19.9	75135	30.8	17.9	525809	30.9	19.6
332536	30.5	18.9	234430	30.6	20.4	261409	30.6	20.7	214168	30.7	20.8	479585	30.8	21.0	441808	30.9	21.4
467874	30.5	20.8	75407	30.6	18.9	483105	30.6	19.7	261420	30.7	19.5	45328	30.8	17.1	505551	30.9	19.7
25715	30.5	17.5	505979	30.6	21.0	343217	30.6	19.6	245596	30.7	20.2	508568	30.8	20.4	57005	30.9	18.6
384015	30.5	20.1	70684	30.6	18.1	530949	30.6	20.4	273946	30.7	19.8	106294	30.8	18.7	514552	30.9	20.1
511829	30.5	21.3	282670	30.6	20.4	121116	30.6	18.1	183739	30.7	19.1	9787	30.8	17.5	143613	30.9	19.8
391357	30.5	20.2	149975	30.6	20.0	76141	30.6	19.2	323214	30.7	18.9	6772	30.8	16.2	23789	30.9	18.2
463741	30.5	20.8	399605	30.6	20.6	514016	30.6	21.0	359955	30.7	20.8	529515	30.8	21.2	87200	30.9	16.8
97167	30.5	18.9	397383	30.6	19.7	429282	30.6	19.5	504299	30.7	20.8	36039	30.8	17.7	242050	30.9	19.6
89334	30.5	18.7	494233	30.6	20.2	425423	30.6	20.6	525247	30.7	21.5	359474	30.8	19.8	499200	30.9	19.7
72720	30.5	17.7	335471	30.6	20.9	358370	30.6	20.2	434736	30.7	22.2	503329	30.8	21.4	68485	30.9	19.1
284972	30.5	20.6	74761	30.6	18.4	236513	30.6	21.2	413177	30.7	20.4	96386	30.8	19.6	116896	30.9	20.1
262188	30.5	21.2	397735	30.6	20.8	436765	30.6	20.2	357976	30.7	20.6	173806	30.8	19.8	32817	30.9	17.8
433644	30.5	20.2	523828	30.6	21.7	288791	30.7	19.5	497940	30.7	21.6	510972	30.8	21.9	398099	30.9	20.8
32799	30.5	17.6	393874	30.6	20.2	360551	30.7	20.2	130438	30.7	18.8	208581	30.8	20.2	181277	30.9	19.6
115846	30.5	19.2	245580	30.6	19.4	475885	30.7	20.6	394782	30.7	20.6	240577	30.8	19.4	305342	30.9	19.8
277437	30.5	20.7	387700	30.6	20.0	472373	30.7	20.1	377754	30.7	19.0	431108	30.8	20.0	250525	30.9	18.9
384020	30.5	20.2	142596	30.6	19.0	430553	30.7	20.7	162135	30.7	18.5	436905	30.8	20.4	525207	30.9	20.4
107263	30.5	19.8	510858	30.6	20.7	214237	30.7	19.8	268451	30.7	21.0	390442	30.8	21.1	507421	30.9	18.3
206966	30.5	19.5	481020	30.6	19.4	519635	30.7	20.8	518752	30.7	20.6	422872	30.8	19.6	106733	30.9	19.7
208587	30.5	19.8	147479	30.6	19.1	277722	30.7	20.3	69376	30.7	18.1	115930	30.8	18.7	363265	30.9	20.9
298773	30.5	19.7	278580	30.6	20.4	277327	30.7	19.9	108047	30.7	19.7	310388	30.8	20.1	132153	30.9	18.0
4937	30.5	16.7	120155	30.6	20.0	293468	30.7	20.6	428284	30.7	21.5	246150	30.8	18.2	379888	30.9	19.7
420233	30.5	20.8	254284	30.6	19.5	409319	30.7	20.3	499707	30.7	21.0	24531	30.8	18.3	343745	30.9	20.1
243041	30.5	19.5	270485	30.6	19.8	214475	30.7	19.6	83158	30.7	18.7	340560	30.8	20.7	263887	30.9	20.7
403884	30.5	20.8	141375	30.6	17.0	111749	30.7	18.9	444674	30.7	20.4	136973	30.8	18.1	474959	30.9	20.5
253494	30.5	18.7	510555	30.6	20.6	245572	30.7	20.3	203323	30.7	18.0	436851	30.8	20.6	311512	30.9	19.9
51638	30.5	19.0	157141	30.6	19.7	126941	30.7	19.6	301061	30.7	20.3	341232	30.8	20.5	141813	30.9	19.1
413796	30.5	20.9	379328	30.6	20.6	361381	30.7	21.0	407796	30.7	21.1	444686	30.8	20.9	452692	30.9	20.9
536653	30.5	21.8	401792	30.6	20.5	95932	30.7	17.4	91611	30.7	18.6	512527	30.8	20.1	263239	30.9	20.4
267342	30.5	19.9	199805	30.6	18.7	157772	30.7	19.9	444677	30.7	20.8	529594	30.8	21.0	315525	30.9	21.2
208654	30.5	19.6	120324	30.6	20.2	349864	30.7	20.0	41954	30.7	18.0	381395	30.8	19.8	93181	30.9	18.6
68657	30.5	18.1	493600	30.6	20.3	508529	30.7	20.9	12309	30.7	18.0	412110	30.8	20.6	91282	30.9	19.5
276040	30.5	20.3	356147	30.6	20.4	24387	30.7	18.3	101723	30.7	19.9	214106	30.8	18.8	56371	30.9	16.6
497131	30.5	19.2	10643	30.6	17.1	370093	30.7	20.									

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

№	09	V	№	09	V	№	09	V	№	09	V	№	09	V	№	09	V
503374	30.9	21.2	454082	30.9	20.3	74948	30.9	18.5	150281	30.9	20.1	54440	30.9	17.8	42985	30.9	17.8
509599	30.9	21.7	155426	30.9	20.3	169412	30.9	18.9	258929	30.9	19.0	468136	30.9	21.2	233332	30.9	19.3
318167	30.9	18.7	357969	30.9	20.2	162481	30.9	19.0	102936	30.9	19.3	420421	30.9	20.9	338523	30.9	20.5
440541	30.9	20.2	445832	30.9	20.6	238861	30.9	20.1	91014	30.9	18.7	537494	30.9	20.6			
210228	30.9	20.0	156431	30.9	19.6	344794	30.9	20.3	441419	30.9	20.9	468144	30.9	20.0			
494188	30.9	20.9	65671	30.9	18.2	206525	30.9	19.6	421519	30.9	21.0	86191	30.9	18.9			
95944	30.9	19.8	391954	30.9	21.4	99518	30.9	18.8	377643	30.9	20.5	279004	30.9	19.0			
281560	30.9	19.8	386319	30.9	20.1	123478	30.9	19.9	185001	30.9	19.5	506201	30.9	19.8			
841	30.9	15.5	439454	30.9	21.5	255277	30.9	19.6	121	30.9	11.6	300254	30.9	20.3			
131280	30.9	20.1	31171	30.9	19.0	100225	30.9	18.6	73154	30.9	18.6	396111	30.9	20.3			
427904	30.9	20.2	70971	30.9	18.2	189493	30.9	19.1	475792	30.9	20.1	302383	30.9	20.5			
387003	30.9	19.1	446765	30.9	20.6	214578	30.9	18.7	257369	30.9	19.8	60265	30.9	16.9			
384888	30.9	19.5	91570	30.9	19.4	416453	30.9	19.9	103562	30.9	19.8	290504	30.9	20.0			
56553	30.9	18.7	487588	30.9	20.0	182213	30.9	18.1	269975	30.9	19.5	527902	30.9	21.9			
425990	30.9	21.2	55556	30.9	18.4	56325	30.9	17.2	192888	30.9	18.7	43038	30.9	17.3			
394047	30.9	20.3	362455	30.9	19.8	292551	30.9	19.9	476290	30.9	21.0	411650	30.9	20.5			
108098	30.9	18.8	19054	30.9	18.9	406841	30.9	20.4	121591	30.9	19.0	163920	30.9	19.6			
163725	30.9	19.1	412199	30.9	19.6	398489	30.9	20.3	86196	30.9	18.7	69655	30.9	18.9			
469982	30.9	21.4	315425	30.9	20.1	13130	30.9	17.1	70301	30.9	18.0	415126	30.9	20.0			
307552	30.9	19.9	507755	30.9	20.8	356289	30.9	20.1	538047	30.9	20.5	101165	30.9	18.8			