

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
5821	1.0	17.3	286233	1.1	20.1	397556	1.1	20.7	346372	1.2	20.5	450872	1.3	19.7	107834	1.3	19.3
173728	1.0	19.9	44654	1.1	19.2	176620	1.1	20.6	430828	1.2	21.5	464463	1.3	20.4	74282	1.3	19.0
308893	1.0	18.6	124414	1.1	18.9	422339	1.1	20.6	144745	1.2	20.4	407842	1.3	20.6	108094	1.3	18.9
489939	1.0	22.0	424786	1.1	19.9	474710	1.1	20.7	336048	1.2	20.5	279674	1.3	20.4	464455	1.3	20.1
330817	1.0	20.6	95912	1.1	19.3	274843	1.1	19.7	25108	1.2	17.2	515156	1.3	21.4	329720	1.3	19.7
21643	1.0	17.6	404594	1.1	19.8	163075	1.1	18.8	219295	1.2	18.1	223029	1.3	19.6	355357	1.3	19.1
380	1.0	13.3	442304	1.1	21.1	115841	1.1	19.0	116676	1.2	18.7	330737	1.3	21.2	197349	1.3	18.5
323508	1.0	20.2	85752	1.1	17.7	42273	1.1	17.4	419479	1.2	19.8	346362	1.3	20.2	25034	1.3	18.9
305153	1.0	20.2	175682	1.1	20.2	108292	1.1	19.3	395897	1.2	19.9	495473	1.3	20.2	361686	1.3	19.2
143702	1.0	19.2	354643	1.1	20.9	31829	1.1	17.6	33474	1.2	16.7	12483	1.3	18.7	167945	1.3	19.1
455375	1.0	21.0	67300	1.1	18.5	429792	1.1	21.0	317387	1.2	20.7	424847	1.3	21.3	231418	1.3	19.8
237963	1.0	19.3	350579	1.1	20.6	397643	1.1	19.1	506113	1.2	21.0	234844	1.3	19.9	464290	1.3	20.6
82186	1.0	20.0	283135	1.1	19.9	176123	1.1	20.6	487317	1.2	20.6	239268	1.3	18.9	455483	1.3	19.6
448942	1.0	20.5	55073	1.1	16.3	334499	1.1	20.8	231381	1.2	20.2	480244	1.3	20.9	111547	1.3	18.6
256755	1.0	20.8	320052	1.1	21.3	491535	1.1	21.5	201620	1.2	20.2	332571	1.3	20.8	366647	1.3	19.6
373040	1.0	20.7	405433	1.1	22.1	399129	1.1	20.3	423590	1.2	20.4	161699	1.3	20.4	18761	1.3	18.6
339915	1.0	21.1	229013	1.1	19.4	86752	1.1	20.0	324798	1.2	20.3	275493	1.3	20.7	352983	1.3	18.7
78330	1.0	19.5	333313	1.1	20.7	270977	1.1	20.3	478652	1.2	20.4	276606	1.3	21.6	262742	1.3	20.3
408580	1.0	20.9	484490	1.1	21.4	127516	1.1	19.6	459771	1.2	21.3	59104	1.3	18.9	96100	1.3	18.0
60722	1.0	19.1	198715	1.1	19.6	130107	1.1	19.8	85880	1.2	19.1	425313	1.3	20.3	180001	1.3	18.8
227330	1.0	17.4	205009	1.1	20.4	504945	1.1	20.5	311079	1.2	20.0	369394	1.3	19.9	60534	1.3	18.7
457493	1.0	20.8	171848	1.1	19.5	892	1.1	14.2	541150	1.2	20.7	22072	1.3	17.3	97648	1.3	18.9
89640	1.0	19.9	162376	1.1	18.1	119256	1.1	19.1	240153	1.2	19.6	39487	1.3	18.9	193133	1.3	20.9
61608	1.0	19.3	132592	1.1	18.7	115993	1.1	20.2	225093	1.2	21.4	104782	1.3	19.2	518600	1.3	21.1
272427	1.0	19.8	480435	1.1	21.3	103397	1.1	18.4	332242	1.2	20.0	330750	1.3	20.5	100318	1.3	20.1
465583	1.0	20.3	45050	1.1	17.6	89076	1.1	19.2	516600	1.2	22.2	4961	1.3	16.4	105827	1.4	18.8
82431	1.0	18.9	161676	1.1	20.3	126875	1.1	18.9	333524	1.2	20.8	28435	1.3	18.6	353724	1.4	20.9
6691	1.0	16.0	461107	1.1	20.5	479546	1.1	19.8	477471	1.2	19.5	270245	1.3	19.4	107566	1.4	18.7
407043	1.0	21.0	70057	1.1	19.3	270173	1.1	20.8	373916	1.2	19.4	52427	1.3	18.7	160279	1.4	19.9
189402	1.0	19.6	68414	1.1	18.5	88188	1.2	16.9	15124	1.2	17.2	483866	1.3	19.9	268640	1.4	20.7
195898	1.0	21.1	79814	1.1	18.5	184583	1.2	20.2	473725	1.2	20.2	272166	1.3	21.4	154109	1.4	19.8
68858	1.0	18.7	487034	1.1	20.8	21376	1.2	17.8	504708	1.2	21.0	331316	1.3	19.9	513384	1.4	22.2
423294	1.0	20.1	86930	1.1	20.2	341902	1.2	21.3	223570	1.2	19.1	114797	1.3	18.3	317413	1.4	20.2
130273	1.0	19.1	185572	1.1	19.8	266832	1.2	20.6	353771	1.2	19.6	61378	1.3	19.2	494779	1.4	20.9
337532	1.0	21.1	511830	1.1	20.6	266509	1.2	20.0	356969	1.2	19.6	68996	1.3	18.8	458142	1.4	20.6
336089	1.0	21.0	34049	1.1	17.9	391156	1.2	20.5	400903	1.2	20.2	358814	1.3	20.6	227748	1.4	19.0
18752	1.0	18.3	90642	1.1	18.5	162853	1.2	17.9	400166	1.2	21.2	143418	1.3	19.4	444845	1.4	19.7
74300	1.0	19.5	323245	1.1	20.4	144171	1.2	19.0	269293	1.2	20.2	373913	1.3	20.1	170485	1.4	19.5
520849	1.0	20.7	151510	1.1	19.5	162946	1.2	20.2	191553	1.2	19.5	454777	1.3	19.7	286715	1.4	20.5
26194	1.0	19.5	328408	1.1	20.8	66950	1.2	18.3	504729	1.2	20.4	267917	1.3	20.5	215601	1.4	19.3
246395	1.0	20.3	298147	1.1	19.1	348315	1.2	20.0	44741	1.2	17.7	159210	1.3	19.8	285392	1.4	20.6
420226	1.0	20.6	517733	1.1	21.1	265064	1.2	19.5	89318	1.2	18.2	83561	1.3	19.3	442853	1.4	19.5
249341	1.0	20.4	495168	1.1	23.9	276195	1.2	20.8	484358	1.2	20.0	460940	1.3	20.6	225145	1.4	19.6
276220	1.0	21.2	457440	1.1	21.1	212851	1.2	19.3	346397	1.2	20.5	354628	1.3	19.2	271707	1.4	17.7
505348	1.0	18.7	311678	1.1	21.2	356029	1.2	20.7	154386	1.2	18.7	208839	1.3	20.0	457382	1.4	21.7
283186	1.0	20.8	386000	1.1	20.1	71060	1.2	18.2	226868	1.2	20.2	418805	1.3	20.4	128069	1.4	19.1
225105	1.0	20.5	354402	1.1	20.4	116016	1.2	18.8	439131	1.2	19.5	362341	1.3	20.7	51069	1.4	18.4
30910	1.0	19.6	243238	1.1	19.7	121951	1.2	19.5	174086	1.2	19.9	364322	1.3	20.4	61699	1.4	20.5
512368	1.0	21.6	101401	1.1	18.3	139647	1.2	20.7	178367	1.2	19.6	139947	1.3	19.3	16016	1.4	17.0
331305	1.0	19.8	197113	1.1	18.7	402243	1.2	22.4	282405	1.2	19.2	389348	1.3	19.7	435466	1.4	20.1
19765	1.0	18.3	116899	1.1	19.3	88897	1.2	19.3	419363	1.2	20.0	419358	1.3	21.0	188505	1.4	20.5
134811	1.0	19.7	411957	1.1	20.6	477376	1.2	19.3	292506	1.2	19.9	19920	1.3	18.3	518352	1.4	20.8
490233	1.0	21.1	239128	1.1	21.1	132850	1.2	20.1	448369	1.2	20.4	342161	1.3	21.6	65296	1.4	19.7
166214	1.0	20.5	383089	1.1	19.5	43069	1.2	19.6	330273	1.2	20.5	124150	1.3	19.0	183248	1.4	19.7
358180	1.0	20.6	280373	1.1	20.5	21626	1.2	18.3	15052	1.2	17.7	385188	1.3	20.4	326402	1.4	22.6
280528	1.0	20.6	454484	1.1	20.6	212054	1.2	19.5	89641	1.2	19.7	83033	1.3	18.4	167335	1.4	19.3
489539	1.0	22.1	475793	1.1	20.1	457996	1.2	20.7	335285	1.2	21.1	275852	1.3	19.6	485522	1.4	20.5
394610	1.0	20.2	289835	1.1	20.7	203727	1.2	20.9	276756	1.2	19.6	155717	1.3	20.9	12371	1.4	17.4
287133	1.0	20.5	437975	1.1	21.7	500527	1.2	20.3	460333	1.2	20.6	398027	1.3	20.1	97165	1.4	18.9
239039	1.0	20.2	427150	1.1	20.7	82326	1.2	18.5	150098	1.2	19.3	205410	1.3	18.5	121487	1.4	19.0
1574	1.0	14.9	382860	1.1	20.4	191865	1.2	18.7	447009	1.2	19.1	336461	1.3	20.4	196769	1.4	20.4
332831	1.0	20.2	174163	1.1	18.4	441136	1.2	20.8	102957	1.2	18.3	268192	1.3	19.2	279049	1.4	20.3
477278	1.1	21.4	424955	1.1	20.5	292521	1.2	21.0	220305	1.2	19.4	182278	1.3	20.3	445729	1.4	19.3
520590	1.1	20.9	251139	1.1	20.4	486457	1.2	20.7	218279	1.2	19.9	355043	1.3	20.1	413348	1.4	19.1
329123	1.1	20.8	249962	1.1	19.6	62650	1.2	19.2	516561	1.2	21.0	371816	1.3	20.5	447527	1.4	20.9
361382	1.1	20.3	169413	1.1	19.0	391174	1.2	20.5	248213	1.2	20.1	441271	1.3	20.1	8845	1.4	17.0
135901	1.1	18.8	6658	1.1	16.3	494562	1.2	19.6	118753	1.2	20.6	102310	1.3	19.5	33633	1.4	18.9
245825	1.1	20.6	47495	1.1	16.8	370896	1.2	20.6	246513	1.2	20.3	149585	1.3	19.4	124154	1.4	20.3
483009	1.1	20.1	392687	1.1	20.7	278194	1.2	20.3	159371	1.2	19.3	395030	1.3	21.1	452786	1.4	20.3
302689	1.1	19.9	346449	1.1	19.9	114555	1.2	19.6	205376	1.3	19.1	520870	1.3	21.4	96937	1.4	18.7
383480	1.1	20.2	137356	1.1	18.8	417385	1.2	20.6	16126	1.3	15.9	485502	1.3	20.5	112230	1.4	19.2

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
1481	1.4	14.8	141740	1.5	19.5	468334	1.5	19.9	145876	1.6	18.4	287013	1.7	20.9	238497	1.7	19.9
467461	1.4	20.0	370575	1.5	20.2	108985	1.5	19.7	361197	1.6	19.9	515137	1.7	21.5	190694	1.7	19.1
101172	1.4	19.9	97777	1.5	20.0	273612	1.5	20.9	407996	1.6	19.5	70910	1.7	18.5	247621	1.7	19.9
292989	1.4	20.5	164825	1.5	18.4	339909	1.5	19.5	20936	1.6	16.3	25435	1.7	16.8	275104	1.7	19.0
491493	1.4	21.1	265468	1.5	19.4	110175	1.5	19.7	336795	1.6	19.6	68958	1.7	18.6	368364	1.7	20.3
358340	1.4	21.1	419362	1.5	20.3	233635	1.5	19.9	344616	1.6	19.7	298516	1.7	19.5	491141	1.7	21.2
163626	1.4	18.9	368291	1.5	21.3	312672	1.5	20.7	70083	1.6	19.5	416367	1.7	20.7	510733	1.7	19.9
326498	1.4	20.8	40033	1.5	18.8	106489	1.5	17.6	52325	1.6	17.2	132323	1.7	20.0	25699	1.8	17.3
453607	1.4	21.5	278040	1.5	20.4	454879	1.5	20.3	226624	1.6	20.7	164954	1.7	17.9	152267	1.8	19.9
187080	1.4	20.0	307872	1.5	19.5	229071	1.5	19.8	450932	1.6	20.7	197695	1.7	21.1	473312	1.8	20.1
65444	1.4	19.1	447808	1.5	20.7	7272	1.5	16.9	299210	1.6	20.1	327745	1.7	21.2	275407	1.8	19.4
348718	1.4	20.6	385172	1.5	20.1	469173	1.5	20.6	51419	1.6	20.1	197417	1.7	19.1	4618	1.8	15.8
351757	1.4	20.4	170585	1.5	20.6	176872	1.5	19.3	291123	1.6	20.4	119978	1.7	19.2	301932	1.8	17.4
408244	1.4	21.5	484861	1.5	20.0	451987	1.5	21.2	273558	1.6	21.2	446274	1.7	21.0	232315	1.8	20.0
132866	1.4	19.9	417378	1.5	19.8	294725	1.5	19.0	478422	1.6	22.1	154377	1.7	19.1	26425	1.8	17.8
223537	1.4	19.4	259057	1.5	21.7	421075	1.5	20.7	328409	1.6	21.3	335393	1.7	20.8	409649	1.8	20.5
421711	1.4	20.9	73373	1.5	19.8	413786	1.5	19.9	333787	1.6	21.0	108482	1.7	19.3	89438	1.8	19.0
104630	1.4	20.3	379139	1.5	21.4	409244	1.5	20.8	299609	1.6	21.9	200137	1.7	19.8	486184	1.8	20.3
311721	1.4	20.2	130334	1.5	20.1	446614	1.5	21.1	541328	1.6	20.9	143336	1.7	19.1	23386	1.8	18.4
172297	1.4	18.6	183013	1.5	20.4	269257	1.5	20.7	441259	1.6	20.5	463893	1.7	20.6	390734	1.8	21.3
267846	1.4	20.1	372828	1.5	19.7	150769	1.5	19.8	421488	1.6	21.4	263788	1.7	19.4	361426	1.8	20.9
220167	1.4	19.6	298584	1.5	19.2	382318	1.5	20.0	92326	1.6	18.3	424418	1.7	21.0	346925	1.8	20.2
493285	1.4	21.2	138355	1.5	18.9	179246	1.5	20.0	26069	1.6	18.8	247958	1.7	19.4	195374	1.8	18.9
5147	1.4	16.9	460700	1.5	20.5	92151	1.5	18.2	152938	1.6	20.0	18053	1.7	16.6	45386	1.8	18.4
15747	1.4	17.3	195775	1.5	19.8	213618	1.5	20.6	153895	1.6	19.6	358292	1.7	20.7	119562	1.8	18.4
377923	1.4	21.6	268624	1.5	20.3	134503	1.5	17.3	111936	1.6	19.1	376009	1.7	20.1	119860	1.8	19.4
387100	1.4	20.9	98752	1.5	18.9	46113	1.6	18.9	136436	1.6	18.8	376282	1.7	21.4	136840	1.8	19.0
230613	1.4	19.8	394478	1.5	21.2	384393	1.6	19.4	213322	1.6	19.4	80506	1.7	17.8	363025	1.8	20.4
434285	1.4	19.2	182556	1.5	19.7	86483	1.6	18.0	275188	1.6	20.4	230428	1.7	19.3	316649	1.8	19.5
244520	1.4	20.5	317129	1.5	20.9	505261	1.6	19.7	397686	1.6	19.2	369244	1.7	20.1	462754	1.8	20.0
377154	1.4	20.0	459388	1.5	20.6	460634	1.6	20.9	250642	1.6	21.8	414677	1.7	20.8	485465	1.8	20.3
218118	1.4	20.1	115064	1.5	18.6	254689	1.6	20.1	247065	1.6	20.3	149485	1.7	19.1	76061	1.8	19.0
426071	1.4	21.0	26614	1.5	18.2	290446	1.6	20.5	70710	1.6	18.2	335362	1.7	20.1	68964	1.8	19.0
449487	1.4	20.7	341009	1.5	20.3	274441	1.6	20.0	189732	1.6	20.2	414961	1.7	19.8	481037	1.8	20.9
288403	1.4	19.6	480578	1.5	20.1	441197	1.6	20.8	23090	1.6	16.2	187191	1.7	20.5	402346	1.8	21.5
436949	1.4	21.1	212573	1.5	21.5	273103	1.6	20.9	90261	1.6	19.3	334208	1.7	20.1	456751	1.8	20.9
364924	1.4	20.6	467002	1.5	20.1	197687	1.6	20.4	247923	1.6	19.0	441047	1.7	21.1	79157	1.8	19.3
284563	1.4	20.4	487139	1.5	21.5	15162	1.6	16.9	317147	1.6	20.0	162942	1.7	19.9	386069	1.8	20.4
41354	1.4	18.0	507519	1.5	19.9	159971	1.6	19.6	209703	1.6	20.3	55427	1.7	18.2	149805	1.8	19.5
276355	1.4	19.6	287151	1.5	20.7	200030	1.6	20.6	418542	1.6	19.7	306892	1.7	19.7	84899	1.8	17.9
136365	1.4	17.2	408168	1.5	21.5	112749	1.6	21.1	281119	1.6	21.1	189637	1.7	19.4	53697	1.8	18.2
291707	1.4	20.7	308770	1.5	19.0	389627	1.6	21.1	129092	1.6	19.0	13029	1.7	17.6	138175	1.8	19.0
51993	1.4	17.6	485761	1.5	20.4	418763	1.6	20.1	197038	1.6	20.1	411057	1.7	20.5	143017	1.8	19.4
445988	1.4	20.1	88749	1.5	19.6	112563	1.6	18.8	191452	1.6	19.0	42897	1.7	18.4	88683	1.8	19.5
418512	1.4	20.2	223946	1.5	19.0	451276	1.6	20.9	416073	1.6	20.9	30233	1.7	18.4	438698	1.8	21.6
234591	1.4	19.5	451811	1.5	20.9	23692	1.6	17.0	362367	1.6	20.3	245182	1.7	21.0	291954	1.8	20.9
286372	1.5	19.7	431231	1.5	19.9	6205	1.6	16.9	184512	1.6	20.1	451964	1.7	20.8	180246	1.8	19.7
305874	1.5	19.9	181333	1.5	19.1	341908	1.6	21.0	76202	1.6	19.5	485178	1.7	21.1	542913	1.8	20.4
54270	1.5	19.0	345803	1.5	20.2	447831	1.6	21.5	522045	1.6	21.3	282359	1.7	21.0	190979	1.8	19.8
943	1.5	13.0	352201	1.5	21.4	264233	1.6	19.7	393937	1.6	19.1	356	1.7	10.8	136311	1.8	19.4
464556	1.5	20.2	276793	1.5	20.8	315835	1.6	20.8	216366	1.6	19.9	331293	1.7	20.5	137344	1.8	19.6
254505	1.5	19.3	388179	1.5	20.8	357030	1.6	20.0	457343	1.6	20.5	240927	1.7	20.3	212376	1.8	20.5
148099	1.5	20.7	80660	1.5	18.2	403597	1.6	21.4	108351	1.6	19.6	266472	1.7	19.6	424870	1.8	20.2
308254	1.5	21.1	20146	1.5	18.7	5002	1.6	17.6	318442	1.6	20.4	187501	1.7	19.0	177820	1.8	20.3
169789	1.5	20.9	159713	1.5	19.4	386626	1.6	20.3	255336	1.6	20.6	486436	1.7	21.6	401417	1.8	21.2
420230	1.5	20.3	21162	1.5	19.4	453659	1.6	21.2	153550	1.6	19.5	370060	1.7	19.0	327070	1.8	19.8
141617	1.5	19.5	14077	1.5	18.6	159744	1.6	20.1	310835	1.6	20.3	130339	1.7	19.6	92305	1.8	19.5
139753	1.5	18.9	166817	1.5	19.4	405457	1.6	20.6	519462	1.6	20.4	397395	1.7	21.8	488583	1.8	22.2
50694	1.5	18.1	425312	1.5	20.2	45529	1.6	18.1	1015	1.6	13.5	31982	1.7	20.2	132784	1.8	20.7
141751	1.5	18.3	367625	1.5	20.6	382676	1.6	19.8	308034	1.7	19.7	246931	1.7	20.2	226643	1.8	20.1
288222	1.5	19.3	65327	1.5	19.4	391479	1.6	20.8	287275	1.7	20.1	35914	1.7	19.1	308246	1.8	20.7
422653	1.5	21.9	333502	1.5	19.8	3574	1.6	16.4	355364	1.7	20.4	410681	1.7	19.7	201412	1.8	19.5
152790	1.5	19.9	486052	1.5	20.0	196447	1.6	19.5	493103	1.7	20.6	235574	1.7	20.7	70475	1.8	18.2
276804	1.5	21.4	495547	1.5	19.9	22057	1.6	18.1	195849	1.7	19.5	232071	1.7	18.6	270874	1.8	19.8
10436	1.5	18.4	250624	1.5	21.0	362474	1.6	20.6	366676	1.7	19.7	143684	1.7	20.5	36963	1.8	17.8
412296	1.5	21.0	158029	1.5	20.8	414296	1.6	20.4	346508	1.7	20.0	153476	1.7	20.4	40493	1.8	19.1
279550	1.5	19.4	355130	1.5	20.3	178885	1.6	19.0	24428	1.7	17.9	331070	1.7	20.2	138321	1.8	19.3
228812	1.5	18.9	470249	1.5	20.5	6923	1.6	18.3	223000	1.7	20.7	109102	1.7	19.6	306763	1.8	17.3
279613	1.5	20.4	289457	1.5	20.4	14520	1.6	18.4	334616	1.7	22.0	542050	1.7	21.3	274497	1.8	20.5
103037	1.5	18.3	322287	1.5	20.7	394511	1.6	20.7	361225	1.7	20.4	43994	1.7	20.4	240714	1.8	19.8
252707	1.5	20.4	403	1.5	12.4	101862	1.6	19.0	273290	1.7	20.0	44910	1.7	17.0	294988	1.8	21.3

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
322010	1.8	20.6	215492	1.9	19.4	115499	1.9	20.2	298120	2.0	19.7	246609	2.1	20.0	440180	2.2	19.8
116190	1.8	18.7	270911	1.9	19.9	351306	1.9	20.5	128340	2.0	20.3	474927	2.1	19.7	225663	2.2	19.8
412374	1.8	21.0	186478	1.9	19.8	10431	1.9	17.1	76072	2.0	19.0	541235	2.1	21.2	249027	2.2	19.9
315602	1.8	19.9	393840	1.9	19.1	24425	1.9	18.6	183714	2.0	19.1	408289	2.1	21.0	457422	2.2	20.4
474094	1.8	19.5	158662	1.9	19.7	180714	1.9	20.1	331731	2.0	20.4	31466	2.1	17.9	37069	2.2	18.4
403931	1.8	20.9	85213	1.9	18.8	61648	1.9	19.4	336585	2.0	19.6	367970	2.1	21.0	82777	2.2	19.3
477241	1.8	20.7	493097	1.9	20.1	91318	1.9	17.5	72988	2.0	20.0	50264	2.1	18.5	396766	2.2	19.9
104932	1.8	19.8	335304	1.9	20.8	481900	1.9	19.4	33060	2.0	18.1	544772	2.1	20.4	118772	2.2	19.8
336101	1.8	21.3	169968	1.9	19.2	489524	1.9	20.8	9066	2.0	16.8	133161	2.1	20.1	189092	2.2	20.2
325749	1.8	20.5	429997	1.9	20.3	307527	1.9	18.7	71100	2.0	18.4	300460	2.1	20.8	139630	2.2	21.1
163573	1.8	18.6	278140	1.9	19.5	484383	1.9	21.0	457796	2.0	20.7	173144	2.1	20.3	160273	2.2	18.8
316334	1.8	20.5	48909	1.9	18.7	276162	1.9	20.0	262505	2.0	21.0	217304	2.1	21.1	360082	2.2	19.4
132952	1.8	19.1	488432	1.9	19.7	373111	1.9	20.1	26001	2.0	17.3	130245	2.1	19.4	415210	2.2	21.1
139537	1.8	20.2	198287	1.9	21.4	405574	1.9	21.7	79723	2.0	19.9	160846	2.1	18.8	314247	2.2	20.4
42612	1.8	18.3	270181	1.9	20.8	179354	1.9	19.5	90249	2.0	19.4	29308	2.1	17.4	58049	2.2	18.4
517794	1.8	20.5	86280	1.9	17.3	146745	1.9	20.2	194164	2.0	19.4	100237	2.1	20.2	274693	2.2	20.1
519783	1.8	23.0	124272	1.9	20.2	280502	1.9	20.4	414344	2.0	20.1	529939	2.1	22.9	274704	2.2	20.1
489040	1.8	20.3	541138	1.9	21.0	262172	1.9	20.8	373899	2.0	19.7	12673	2.1	17.5	184133	2.2	20.0
42721	1.8	19.0	475320	1.9	19.2	148064	1.9	19.5	47698	2.0	18.0	118155	2.1	18.8	262179	2.2	20.4
364307	1.8	20.6	64023	1.9	18.1	275471	1.9	20.2	286100	2.0	19.8	450912	2.1	20.5	413291	2.2	19.5
487309	1.8	21.5	24743	1.9	17.2	469446	1.9	21.2	521675	2.0	21.3	333968	2.1	20.9	335748	2.2	19.4
160887	1.8	19.9	457968	1.9	20.4	286159	1.9	20.7	474484	2.0	20.5	302782	2.1	19.5	118574	2.2	19.5
178078	1.8	19.9	78251	1.9	18.2	467102	1.9	20.6	332059	2.0	20.5	278815	2.1	20.8	405384	2.2	21.0
203936	1.8	20.4	227061	1.9	18.7	468739	1.9	21.8	144735	2.0	20.4	56210	2.1	19.6	119195	2.2	19.8
138197	1.8	20.0	470070	1.9	21.0	321399	1.9	20.7	260969	2.0	20.9	445559	2.1	21.7	277171	2.2	20.5
443938	1.8	20.1	268218	1.9	20.2	323632	1.9	20.3	244602	2.0	18.5	104645	2.1	19.8	409334	2.2	20.7
495275	1.8	20.5	294167	1.9	21.1	3404	1.9	15.8	185416	2.0	20.5	265256	2.1	19.8	346421	2.2	19.7
59918	1.8	17.1	327560	1.9	19.7	308309	1.9	20.5	39232	2.0	18.1	305166	2.1	19.3	212245	2.2	20.4
17656	1.8	18.7	380431	1.9	21.6	175969	1.9	20.5	333518	2.0	20.7	481772	2.1	20.6	266423	2.2	20.8
99883	1.8	18.6	417425	1.9	21.0	146722	1.9	19.3	388531	2.0	21.5	118102	2.1	18.7	524603	2.2	22.8
221875	1.8	20.1	285177	1.9	20.2	337812	1.9	21.4	288227	2.0	20.2	289893	2.1	19.9	451576	2.2	20.5
390015	1.8	19.6	520432	1.9	20.5	77246	1.9	20.2	299633	2.0	22.0	435404	2.1	18.5	251497	2.2	19.8
230658	1.8	19.3	238125	1.9	19.8	401610	1.9	20.9	164551	2.0	19.9	89049	2.1	17.9	253073	2.2	19.9
196288	1.8	19.9	376061	1.9	19.8	402257	1.9	21.1	484523	2.0	21.6	399107	2.1	20.2	388108	2.2	20.0
335260	1.8	20.8	248272	1.9	20.7	348672	1.9	21.1	345320	2.0	20.0	50817	2.1	18.0	317135	2.2	19.4
12570	1.8	17.5	247983	1.9	20.1	3537	1.9	16.6	10665	2.0	17.9	230286	2.1	19.4	161148	2.2	19.2
319981	1.8	20.6	346998	1.9	20.2	442487	1.9	20.1	265471	2.0	19.6	492505	2.1	20.4	377529	2.2	20.3
84587	1.8	18.1	379806	1.9	20.9	194904	1.9	19.5	27450	2.0	18.8	322018	2.1	20.1	460792	2.2	21.0
242151	1.8	19.2	327988	1.9	21.3	317419	1.9	20.9	9564	2.0	18.5	196009	2.1	20.3	404399	2.2	21.2
492890	1.8	20.7	354320	1.9	20.4	17724	1.9	16.8	297435	2.0	20.4	335287	2.1	19.8	115620	2.2	18.9
460864	1.8	20.3	363995	1.9	20.7	256400	1.9	20.2	434555	2.0	21.5	267938	2.1	20.5	437983	2.2	20.5
82114	1.8	19.8	40393	1.9	18.5	149336	1.9	19.3	270689	2.0	21.0	269527	2.1	20.0	219963	2.2	20.9
310827	1.8	20.3	275460	1.9	19.8	266459	1.9	20.4	484863	2.0	21.5	176195	2.1	19.2	101588	2.2	19.4
283351	1.8	20.0	314238	1.9	20.3	472059	1.9	19.0	166861	2.0	19.8	167025	2.1	20.3	92790	2.2	19.6
332933	1.9	19.8	397593	1.9	20.2	243962	1.9	20.5	345832	2.0	20.4	421725	2.1	21.5	158026	2.2	18.4
315654	1.9	20.6	142345	1.9	20.6	19209	1.9	17.6	321312	2.0	20.6	23748	2.1	18.2	230209	2.2	19.6
140480	1.9	19.8	171254	1.9	18.7	208163	1.9	21.0	332089	2.0	20.0	303444	2.1	20.6	94761	2.2	18.2
474883	1.9	21.7	77369	1.9	19.6	170664	1.9	18.4	123347	2.0	19.1	96829	2.1	18.6	234383	2.2	17.3
364922	1.9	21.3	33833	1.9	18.1	420150	1.9	20.3	174992	2.0	19.3	233803	2.1	20.5	377999	2.2	19.9
201169	1.9	21.3	459328	1.9	20.7	487875	1.9	20.1	107971	2.0	19.1	262420	2.1	20.0	435159	2.2	21.5
329529	1.9	20.3	408608	1.9	20.9	65464	1.9	19.9	226449	2.0	19.2	523190	2.1	20.5	449619	2.2	21.1
284483	1.9	20.5	14695	1.9	16.1	207581	1.9	20.0	191379	2.0	21.2	114043	2.1	20.0	446889	2.2	22.0
327539	1.9	20.9	276802	1.9	21.3	105812	1.9	20.3	245394	2.0	20.5	144268	2.1	19.3	441198	2.2	21.0
110708	1.9	19.6	156233	1.9	19.9	107762	1.9	19.9	216239	2.1	20.1	80369	2.1	18.1	403296	2.2	20.7
155373	1.9	18.8	37048	1.9	19.2	19462	1.9	17.2	12538	2.1	16.5	516669	2.1	20.6	191987	2.2	19.0
493977	1.9	21.1	3621	1.9	17.1	230794	1.9	20.0	25677	2.1	18.1	400184	2.1	21.0	221442	2.2	20.9
415387	1.9	20.2	110693	1.9	19.4	46359	1.9	18.6	420911	2.1	20.6	140192	2.1	19.2	92630	2.2	19.7
320920	1.9	20.5	412693	1.9	21.1	226141	1.9	19.1	158652	2.1	20.1	308811	2.1	18.5	432651	2.2	20.1
481865	1.9	20.2	278035	1.9	20.4	339975	1.9	21.4	252395	2.1	19.6	71783	2.1	19.4	76020	2.2	19.7
50982	1.9	18.8	92802	1.9	19.8	406974	1.9	20.8	54519	2.1	19.4	435574	2.1	22.1	132595	2.2	20.2
480832	1.9	18.8	464467	1.9	20.7	65121	1.9	16.9	234649	2.1	20.0	1174	2.1	15.9	407899	2.2	20.6
292094	1.9	21.2	158817	1.9	20.1	139909	1.9	19.7	302583	2.1	20.2	45763	2.1	19.0	287218	2.2	20.4
87190	1.9	19.5	164918	1.9	18.3	409493	1.9	21.6	335418	2.1	19.9	416212	2.1	20.8	316635	2.2	20.1
459740	1.9	21.5	319498	1.9	20.3	103793	1.9	20.4	81002	2.1	18.7	182580	2.1	20.1	290698	2.2	20.2
256871	1.9	21.0	60241	1.9	19.2	133261	1.9	18.4	368036	2.1	19.9	295258	2.1	19.8	312927	2.2	20.6
375470	1.9	19.5	204647	1.9	20.7	328718	1.9	19.9	418595	2.1	20.1	388140	2.1	20.1	442347	2.2	21.4
409138	1.9	20.1	241504	1.9	20.0	484474	1.9	21.1	414316	2.1	20.7	21715	2.1	17.3	227333	2.2	18.3
348679	1.9	20.3	377971	1.9	21.9	104998	1.9	19.4	158286	2.1	19.1	151672	2.1	18.9	460520	2.2	20.5
83568	1.9	19.2	154116	1.9	19.9	259740	1.9	19.6	4651	2.1	16.8	434503	2.1	22.0	333515	2.2	21.1
47324	1.9	18.4	331840	1.9	20.7	268678	1.9	20.3	317370	2.1	20.2	482835	2.1	20.9	520524	2.2	20.6
209230	1.9	19.0	432627	1.9	20.1	277062	1.9	19.9	368640	2.1	19.7	420242	2.1	20.3	386714	2.2	20.

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
298453	2.2	19.0	40446	2.3	17.1	46773	2.4	19.0	332906	2.4	20.1	426681	2.5	21.2	171042	2.6	20.4
79353	2.2	18.9	177523	2.3	19.2	447514	2.4	20.0	27670	2.4	20.0	280417	2.5	19.0	108195	2.6	19.9
329476	2.2	20.1	457386	2.3	21.6	376775	2.4	22.6	541940	2.4	22.2	413290	2.5	21.5	384631	2.6	19.9
287729	2.2	21.0	235123	2.3	19.0	396426	2.4	20.8	362381	2.4	20.4	462430	2.5	20.4	380325	2.6	21.1
115174	2.2	17.2	226172	2.3	19.9	108958	2.4	19.0	403949	2.4	20.7	486931	2.5	20.7	413345	2.6	19.1
112434	2.2	19.7	458143	2.3	20.5	58981	2.4	18.1	457832	2.4	20.3	6017	2.5	17.2	373045	2.6	20.3
311837	2.2	19.4	131338	2.3	19.2	256653	2.4	20.8	146195	2.4	19.9	146794	2.5	19.7	45929	2.6	18.2
283246	2.2	19.8	30810	2.3	17.9	362736	2.4	20.7	413432	2.4	19.2	269246	2.5	20.7	308907	2.6	20.6
515821	2.2	21.4	130	2.3	11.5	296430	2.4	20.8	321738	2.4	20.7	26748	2.5	18.1	63129	2.6	19.0
418786	2.2	21.7	148146	2.3	18.7	519159	2.4	22.1	3105	2.4	16.0	59704	2.5	18.4	363951	2.6	19.7
156058	2.2	18.7	432647	2.3	20.7	368347	2.4	21.7	140386	2.4	18.0	439019	2.5	21.3	159146	2.6	19.8
400181	2.2	22.1	232693	2.3	19.1	232475	2.4	20.1	185678	2.4	19.4	389128	2.5	21.2	154165	2.6	19.5
376519	2.2	21.1	141530	2.3	19.4	273100	2.4	19.8	323039	2.4	21.2	288147	2.5	20.5	220928	2.6	20.3
300837	2.2	19.5	324019	2.3	20.6	301755	2.4	21.2	1730	2.4	15.2	350915	2.5	20.1	490034	2.6	21.5
54	2.2	12.4	439638	2.3	19.8	11386	2.4	16.5	45326	2.4	18.7	119214	2.5	19.5	188387	2.6	18.4
130333	2.2	19.8	87109	2.3	19.6	484497	2.4	20.1	331311	2.4	20.6	146011	2.5	18.1	368173	2.6	20.3
3530	2.2	17.6	75594	2.3	18.4	65049	2.4	19.4	259209	2.4	18.5	210618	2.5	19.5	438277	2.6	20.1
291344	2.2	19.8	17076	2.3	17.6	416136	2.4	20.9	493386	2.4	21.2	486286	2.5	20.0	223927	2.6	18.9
490779	2.2	20.8	94745	2.3	18.5	484824	2.4	21.7	306280	2.4	19.9	47173	2.5	18.9	249321	2.6	19.3
29219	2.2	16.9	327660	2.3	20.6	23547	2.4	18.0	339107	2.4	19.1	421980	2.5	19.1	49173	2.6	17.9
81741	2.2	19.4	515113	2.3	20.5	118156	2.4	18.8	356869	2.4	20.7	388116	2.5	20.1	41228	2.6	19.2
303001	2.2	20.0	386630	2.3	19.4	311853	2.4	19.7	300350	2.4	20.0	168713	2.5	20.7	440026	2.6	21.2
88648	2.2	18.6	102611	2.3	17.7	324103	2.4	20.2	154750	2.4	20.3	377534	2.5	19.7	165739	2.6	19.6
388110	2.2	19.9	202970	2.3	19.6	314960	2.4	20.5	372038	2.4	21.4	519532	2.5	21.1	275113	2.6	20.2
478542	2.2	20.5	48307	2.3	18.3	484448	2.4	20.9	221816	2.4	19.6	295179	2.5	20.2	153517	2.6	19.3
215221	2.2	19.6	84256	2.3	18.7	457105	2.4	20.1	359873	2.4	21.2	444340	2.5	20.6	541350	2.6	21.4
57715	2.2	18.6	21204	2.3	17.8	302723	2.4	18.5	492446	2.4	20.4	391422	2.5	21.0	28678	2.6	17.4
273152	2.2	20.4	42198	2.3	19.1	85082	2.4	20.3	56102	2.4	18.2	441709	2.5	20.9	44084	2.6	18.4
5657	2.2	16.5	475591	2.3	21.3	352477	2.4	19.3	249115	2.4	20.2	30566	2.5	18.0	27355	2.6	17.6
397631	2.2	20.9	408702	2.3	21.4	327752	2.4	20.0	14508	2.4	18.5	358342	2.5	21.0	41272	2.6	17.6
23778	2.2	18.0	254709	2.3	20.8	216512	2.4	19.1	267809	2.5	20.2	326382	2.5	21.5	445768	2.6	20.2
59100	2.2	18.2	90902	2.3	20.0	458620	2.4	19.9	385631	2.5	20.3	20062	2.5	16.4	452686	2.6	20.2
321192	2.2	20.4	197674	2.3	20.4	190509	2.4	20.3	171330	2.5	21.4	166414	2.5	20.1	443185	2.6	20.9
119307	2.2	18.5	127157	2.3	19.1	196843	2.4	20.5	305208	2.5	21.1	267507	2.5	21.1	32515	2.6	17.4
263979	2.2	20.1	74394	2.3	17.6	369131	2.4	20.8	286059	2.5	19.8	178714	2.5	21.0	189516	2.6	20.5
472119	2.2	20.2	484862	2.3	21.6	34024	2.4	18.1	458066	2.5	20.3	252524	2.5	20.3	270732	2.6	19.8
395788	2.2	20.6	254068	2.3	20.6	284188	2.4	20.7	324821	2.5	20.7	268666	2.5	20.4	121567	2.6	18.9
206566	2.2	19.7	256483	2.3	21.1	363072	2.4	20.4	418613	2.5	20.1	484859	2.5	21.1	113575	2.6	19.1
226662	2.3	20.0	383563	2.3	20.2	431751	2.4	22.0	268652	2.5	19.9	296767	2.5	20.5	314205	2.6	20.4
484401	2.3	19.3	370424	2.3	20.1	329440	2.4	21.4	23517	2.5	19.3	234531	2.5	19.0	460884	2.6	20.0
44789	2.3	18.2	235466	2.3	20.6	415541	2.4	20.8	474722	2.5	21.3	77551	2.5	18.7	76489	2.6	18.6
28693	2.3	18.1	305006	2.3	19.8	226268	2.4	18.7	156042	2.5	19.5	408028	2.5	20.8	486566	2.6	20.2
71590	2.3	18.4	281586	2.3	21.5	153336	2.4	20.6	145094	2.5	19.7	146345	2.5	19.4	365977	2.6	20.5
351113	2.3	20.4	411027	2.3	19.6	410521	2.4	21.5	356784	2.5	20.5	28663	2.5	19.3	293778	2.6	20.0
8904	2.3	16.7	12795	2.3	17.5	523495	2.4	20.7	103789	2.5	19.3	272099	2.5	20.0	128313	2.6	19.7
487463	2.3	20.6	267556	2.3	20.4	223089	2.4	20.7	433556	2.5	19.7	239656	2.5	20.1	26786	2.6	18.6
177667	2.3	19.8	47795	2.3	18.5	487198	2.4	21.6	234724	2.5	20.9	154096	2.5	20.4	231347	2.6	20.5
249174	2.3	19.6	10218	2.3	18.0	66137	2.4	18.2	415634	2.5	21.4	299636	2.5	20.3	474375	2.6	21.5
405388	2.3	20.3	407983	2.3	20.6	493360	2.4	20.9	254851	2.5	20.5	87160	2.5	20.0	47509	2.6	17.5
114438	2.3	19.5	330173	2.3	19.3	395120	2.4	20.6	208742	2.5	20.1	439018	2.5	21.1	226953	2.6	21.1
394204	2.3	22.7	359792	2.3	20.4	486263	2.4	19.8	8250	2.5	17.5	15748	2.5	17.9	8709	2.6	22.2
400649	2.3	21.0	493767	2.3	21.5	485108	2.4	20.3	10207	2.5	17.0	233060	2.5	18.9	389662	2.6	21.0
310253	2.3	20.9	76529	2.3	19.0	541733	2.4	20.7	240362	2.5	19.5	178238	2.5	20.0	329532	2.6	20.2
493134	2.3	20.9	26534	2.3	17.0	159481	2.4	20.4	344604	2.5	20.8	513522	2.5	21.3	319034	2.6	19.7
313587	2.3	20.1	451940	2.3	21.9	532233	2.4	23.2	138324	2.5	18.5	274021	2.5	20.5	318745	2.6	20.8
102651	2.3	19.4	439028	2.3	20.8	420177	2.4	20.2	270967	2.5	18.6	162460	2.5	19.8	473405	2.6	20.3
287101	2.3	19.7	69293	2.3	19.2	458699	2.4	21.0	376047	2.5	20.9	285528	2.5	19.8	517767	2.6	20.7
475294	2.3	20.5	268044	2.3	19.3	57200	2.4	18.1	335666	2.5	20.1	3119	2.5	16.0	15078	2.6	16.4
133722	2.3	19.7	459764	2.3	20.5	406119	2.4	20.9	383577	2.5	19.9	460526	2.5	20.2	318875	2.6	20.2
20258	2.3	17.9	137672	2.3	18.1	369459	2.4	20.0	245378	2.5	19.7	402091	2.5	19.9	361253	2.6	20.3
90325	2.3	19.8	53514	2.3	17.8	298682	2.4	19.2	403386	2.5	20.4	274368	2.5	20.6	90462	2.6	18.8
237387	2.3	20.5	272018	2.3	19.6	443917	2.4	20.6	151420	2.5	19.4	257858	2.5	20.5	229848	2.6	19.2
197861	2.3	20.1	125012	2.3	18.7	319087	2.4	20.9	322302	2.5	21.3	48498	2.5	16.8	156713	2.6	19.8
243710	2.3	20.0	291633	2.3	21.5	398126	2.4	22.0	124783	2.5	19.1	202458	2.5	20.3	162349	2.6	18.6
76248	2.3	19.1	457271	2.3	21.1	9108	2.4	17.4	367369	2.5	19.9	69828	2.5	18.6	216545	2.6	20.6
271581	2.3	20.6	171542	2.3	20.0	62756	2.4	18.7	199763	2.5	21.0	466817	2.5	20.8	311821	2.6	19.9
54799	2.3	17.3	490905	2.3	21.1	371312	2.4	20.7	326748	2.5	20.3	385704	2.5	20.9	287162	2.6	21.6
19073	2.3	17.7	438706	2.3	20.9	518370	2.4	20.5	435529	2.5	21.7	267247	2.5	20.4	472881	2.6	19.4
489185	2.3	22.2	315568	2.3	20.4	170455	2.4	20.9	340996	2.5	21.1	290349	2.5	20.4	71707	2.6	18.4
231215	2.3	19.7	159710	2.3	18.9	242003	2.4	20.2	267552	2.5	20.0	114159	2.5	19.7	236261	2.6	19.3
224807	2.3	20.1	427310	2.3	19.6	287726	2.4	19.2	400929	2.5	21.3	383543	2.5	20.1	481818	2.6	20.6
482243</																	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
232520	2.6	20.2	372110	2.7	21.2	89517	2.7	18.6	486538	2.8	19.9	369204	2.9	20.7	161172	2.9	20.2
446593	2.6	21.8	461535	2.7	20.5	424833	2.7	20.6	331075	2.8	20.3	134034	2.9	20.3	482081	2.9	21.3
93261	2.6	19.2	231055	2.7	20.4	408454	2.7	20.9	390648	2.8	20.6	26965	2.9	18.3	82523	2.9	18.8
291468	2.6	21.3	310063	2.7	20.9	221612	2.7	19.0	382863	2.8	20.2	118296	2.9	19.1	68953	2.9	18.2
71569	2.6	19.2	150909	2.7	19.3	437355	2.8	20.1	97620	2.8	18.5	21201	2.9	18.3	244481	2.9	19.4
487997	2.6	21.0	287274	2.7	20.3	424803	2.8	21.2	160274	2.8	20.3	453085	2.9	21.0	464845	2.9	21.2
199971	2.6	20.2	37874	2.7	18.4	267268	2.8	20.6	276322	2.8	20.6	6546	2.9	16.4	455668	2.9	20.1
89143	2.6	19.4	184426	2.7	20.3	490030	2.8	21.8	139769	2.8	19.2	202385	2.9	19.4	379524	2.9	20.5
88613	2.6	19.6	198829	2.7	18.8	19332	2.8	16.1	299607	2.8	21.6	332006	2.9	20.1	460915	2.9	20.4
262882	2.6	19.3	542360	2.7	20.6	464622	2.8	20.9	434468	2.8	21.4	110421	2.9	18.1	293078	2.9	20.5
327078	2.6	19.5	180574	2.7	19.5	309499	2.8	20.6	284703	2.8	20.0	194758	2.9	19.5	947	2.9	13.0
245288	2.6	20.3	443675	2.7	21.4	280545	2.8	21.5	21170	2.8	18.1	420558	2.9	20.7	214294	2.9	20.3
72617	2.6	18.4	184710	2.7	20.7	31587	2.8	17.7	453686	2.8	20.9	1319	2.9	15.0	261875	2.9	20.9
268234	2.6	20.7	157228	2.7	19.5	391257	2.8	21.7	84094	2.8	18.3	481063	2.9	21.6	226176	2.9	21.0
187332	2.6	20.0	447899	2.7	19.9	293905	2.8	19.6	66355	2.8	19.5	446331	2.9	21.1	342620	2.9	20.8
277068	2.6	19.6	89975	2.7	17.8	107695	2.8	18.5	220878	2.8	18.5	21826	2.9	18.7	25242	2.9	18.0
25039	2.6	19.9	522321	2.7	20.1	136301	2.8	19.3	257943	2.8	19.0	484454	2.9	20.1	347959	2.9	21.0
177001	2.6	19.3	189019	2.7	18.3	212829	2.8	19.4	495688	2.8	21.0	372079	2.9	19.9	49838	2.9	16.9
441051	2.6	21.7	461009	2.7	20.8	192118	2.8	20.0	42872	2.8	18.6	408123	2.9	18.3	397549	2.9	21.2
434015	2.6	20.5	450685	2.7	21.1	133832	2.8	18.9	484472	2.8	20.8	426380	2.9	20.5	247344	2.9	19.9
84764	2.6	19.1	410837	2.7	21.8	437992	2.8	20.2	127246	2.8	18.5	289584	2.9	19.6	51020	2.9	17.0
274306	2.6	20.9	424280	2.7	20.6	189996	2.8	20.1	459407	2.8	21.5	481567	2.9	21.0	44934	2.9	18.8
56422	2.6	18.6	219226	2.7	20.6	12881	2.8	18.4	457465	2.8	20.5	80580	2.9	19.1	81146	2.9	19.5
494099	2.6	21.0	108778	2.7	19.6	310569	2.8	20.3	335415	2.8	19.7	424451	2.9	19.8	493995	2.9	21.1
3784	2.6	16.7	519339	2.7	22.1	212270	2.8	19.8	394556	2.8	21.9	164365	2.9	20.0	29046	2.9	19.5
242552	2.7	20.2	344540	2.7	20.5	60069	2.8	20.0	6252	2.8	17.7	303039	2.9	20.7	106572	2.9	18.8
449112	2.7	20.1	51086	2.7	18.6	143858	2.8	18.5	213033	2.8	21.5	104626	2.9	19.8	41913	2.9	17.7
362343	2.7	20.1	180060	2.7	18.7	15775	2.8	18.4	388605	2.8	21.7	83432	2.9	19.4	26253	2.9	19.3
455532	2.7	20.3	325560	2.7	20.2	49227	2.8	18.4	543465	2.8	21.3	305660	2.9	21.2	293403	2.9	20.1
399629	2.7	21.9	50201	2.7	18.1	43306	2.8	17.2	7270	2.8	17.9	446681	2.9	21.6	185538	2.9	19.3
324734	2.7	20.4	110162	2.7	19.3	328572	2.8	20.9	69956	2.8	18.2	411596	2.9	19.5	543978	2.9	20.5
239019	2.7	20.8	267845	2.7	20.0	220034	2.8	20.1	126266	2.8	19.2	45621	2.9	18.4	410644	2.9	21.0
188395	2.7	19.7	290267	2.7	20.5	400379	2.8	20.2	237822	2.8	19.7	152954	2.9	20.0	399012	2.9	20.9
479384	2.7	20.7	134173	2.7	19.3	229289	2.8	19.4	484072	2.8	22.3	326816	2.9	20.7	514780	2.9	21.0
63601	2.7	18.6	264793	2.7	20.8	339064	2.8	19.4	397648	2.8	20.4	480237	2.9	20.2	419451	2.9	19.8
104667	2.7	19.8	470047	2.7	21.6	457936	2.8	20.1	449578	2.8	21.6	325741	2.9	19.9	236424	2.9	20.6
99296	2.7	19.6	205426	2.7	20.7	50194	2.8	18.0	209712	2.8	19.8	187971	2.9	20.4	189904	2.9	20.5
311625	2.7	20.8	332048	2.7	20.6	254053	2.8	21.4	464393	2.8	20.1	162957	2.9	19.7	266631	2.9	20.6
7226	2.7	16.8	475300	2.7	20.4	485976	2.8	21.0	33895	2.8	18.3	130091	2.9	18.7	239709	2.9	19.7
102233	2.7	18.7	352160	2.7	20.2	254706	2.8	20.8	215641	2.8	20.5	487700	2.9	19.0	320801	2.9	20.9
407933	2.7	20.8	25802	2.7	17.6	485605	2.8	20.3	258720	2.8	20.4	444842	2.9	20.8	133138	2.9	19.1
181301	2.7	19.9	245666	2.7	20.4	61393	2.8	19.5	441623	2.8	21.5	516388	2.9	20.7	267705	2.9	18.9
276533	2.7	19.6	22351	2.7	17.7	505638	2.8	20.6	295791	2.8	19.7	271630	2.9	20.8	369228	2.9	21.4
348532	2.7	19.5	152613	2.7	20.9	322188	2.8	20.8	22001	2.8	18.2	195687	2.9	20.1	76119	2.9	19.4
222394	2.7	20.2	59009	2.7	18.6	248876	2.8	20.0	243022	2.8	20.8	267925	2.9	20.1	369403	2.9	19.6
53170	2.7	17.9	516877	2.7	21.4	349574	2.8	21.0	175558	2.8	19.5	76273	2.9	18.7	294756	2.9	20.1
492159	2.7	21.2	199662	2.7	19.5	47066	2.8	17.3	362244	2.8	20.0	224788	2.9	21.1	305800	2.9	20.5
189198	2.7	18.7	328428	2.7	20.6	513598	2.8	21.0	85821	2.8	17.2	416499	2.9	20.6	315711	2.9	20.7
518470	2.7	21.9	79916	2.7	18.3	271422	2.8	19.9	447629	2.8	20.8	16238	2.9	18.5	143559	2.9	19.0
279368	2.7	19.9	106478	2.7	19.0	205100	2.8	19.8	132938	2.8	20.4	117716	2.9	19.9	397553	2.9	19.6
516728	2.7	21.9	463386	2.7	20.4	389015	2.8	20.7	357673	2.8	19.6	254927	2.9	20.7	108485	2.9	20.0
87149	2.7	17.7	130364	2.7	19.6	40104	2.8	17.7	136126	2.8	19.1	254733	2.9	20.1	458629	2.9	20.2
228427	2.7	18.2	156789	2.7	18.6	113894	2.8	19.6	516805	2.9	22.3	384582	2.9	20.5	45644	2.9	17.7
337346	2.7	20.5	114993	2.7	19.7	367412	2.8	20.3	21910	2.9	17.3	493197	2.9	20.5	359561	2.9	21.4
47943	2.7	17.9	157385	2.7	21.0	409625	2.8	20.7	455011	2.9	20.2	446622	2.9	20.7	494074	2.9	21.2
82877	2.7	20.3	444903	2.7	20.1	316390	2.8	20.5	363612	2.9	19.4	282904	2.9	21.0	33081	2.9	18.2
361828	2.7	20.6	312823	2.7	19.1	53665	2.8	18.8	27950	2.9	18.5	416083	2.9	20.8	215930	2.9	20.2
183293	2.7	20.2	45018	2.7	17.3	518279	2.8	19.4	147980	2.9	19.1	322153	2.9	20.4	411204	2.9	20.8
164930	2.7	19.4	316418	2.7	20.7	462402	2.8	20.7	15072	2.9	18.6	158822	2.9	19.8	202610	2.9	20.8
303065	2.7	19.0	400432	2.7	20.7	154739	2.8	20.3	268266	2.9	20.8	478558	2.9	20.0	489633	2.9	21.0
343934	2.7	20.8	454261	2.7	20.3	374257	2.8	20.8	51236	2.9	18.9	414706	2.9	20.8	279561	2.9	20.4
8848	2.7	17.3	126773	2.7	19.4	270165	2.8	20.2	272066	2.9	20.1	76093	2.9	19.2	328771	2.9	20.5
74545	2.7	19.4	421877	2.7	20.4	193772	2.8	18.4	215727	2.9	20.1	490570	2.9	20.2	156810	2.9	19.4
77453	2.7	19.5	78945	2.7	18.5	541684	2.8	20.4	373925	2.9	20.0	252075	2.9	19.4	291057	2.9	20.8
73167	2.7	19.6	197378	2.7	20.0	483325	2.8	20.3	28728	2.9	17.5	9508	2.9	17.1	100057	2.9	19.3
92845	2.7	17.2	45475	2.7	19.2	341005	2.8	20.8	290144	2.9	20.7	516276	2.9	21.0	21413	2.9	17.9
392815	2.7	20.6	441165	2.7	21.4	462730	2.8	20.7	418647	2.9	21.8	303524	2.9	20.7	520386	2.9	22.0
477379	2.7	20.7	517443	2.7	22.0	369429	2.8	20.9	211348	2.9	20.6	282979	2.9	19.4	327707	2.9	20.0
101102	2.7	20.7	274739	2.7	20.9	228218	2.8	20.0	284486	2.9	21.4	189079	2.9	19.1	261992	2.9	20.1
50959	2.7	18.9	61553	2.7	18.9	277356	2.8	20.8	425427	2.9	19.7	125723	2.9	17.5	280677	2.9	20.1
516537	2.7	21.6	483794	2.7	20.5	493452	2.8	20.4	105348	2.9	18.8	223024	2.9	18.6	291184	2.9	19.9
5167																	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
29753	2.9	17.0	370613	3.1	19.1	287925	3.1	20.8	287844	3.2	20.2	214274	3.3	20.7	81829	3.3	18.9
248774	2.9	21.2	406925	3.1	21.1	163697	3.1	22.7	437901	3.2	19.8	328415	3.3	20.8	458608	3.3	21.3
481017	2.9	21.3	233969	3.1	19.3	202581	3.1	21.2	492977	3.2	20.0	315741	3.3	20.6	491491	3.3	21.6
130291	2.9	18.6	243647	3.1	20.1	181139	3.1	20.0	401392	3.2	19.7	198181	3.3	20.1	299206	3.3	19.8
524076	2.9	20.2	220707	3.1	20.5	421716	3.1	20.4	306871	3.2	19.5	173814	3.3	20.2	70050	3.3	17.4
103280	2.9	18.8	276583	3.1	20.3	274867	3.1	20.9	458700	3.2	20.5	518560	3.3	21.6	304195	3.3	20.0
190908	2.9	19.4	113238	3.1	20.1	145852	3.1	18.6	192580	3.2	19.6	76609	3.3	18.0	323228	3.3	20.3
44824	2.9	18.7	439024	3.1	21.5	333749	3.1	19.6	458081	3.2	20.6	5573	3.3	18.8	515279	3.3	21.9
273622	3.0	19.7	391600	3.1	21.5	329509	3.1	19.2	383035	3.2	20.2	124970	3.3	18.8	434593	3.3	21.1
395598	3.0	21.9	285246	3.1	20.2	148055	3.1	19.9	332573	3.2	19.7	484344	3.3	21.1	493248	3.3	20.5
431674	3.0	20.0	330192	3.1	20.6	92550	3.1	19.7	115456	3.2	19.2	42211	3.3	18.7	223305	3.3	20.2
183201	3.0	20.5	50215	3.1	18.2	103722	3.1	18.2	33988	3.2	19.5	210949	3.3	20.5	490836	3.3	21.4
342004	3.0	21.3	69383	3.1	18.5	132971	3.1	19.2	265958	3.2	19.4	272016	3.3	20.8	481808	3.3	20.6
180742	3.0	20.0	129237	3.1	19.0	395631	3.1	20.2	405405	3.2	21.5	160282	3.3	18.9	227299	3.3	19.0
283360	3.0	18.2	487912	3.1	20.8	251765	3.1	20.7	22787	3.2	17.3	326621	3.3	20.9	450600	3.3	20.1
274409	3.0	20.0	374628	3.1	21.0	308761	3.1	20.7	73855	3.2	17.4	203669	3.3	20.1	242320	3.3	19.9
495772	3.0	20.9	138151	3.1	19.1	277953	3.1	20.1	21111	3.2	16.5	169415	3.3	19.6	130818	3.3	18.3
277420	3.0	19.8	205089	3.1	20.7	220071	3.1	19.5	8859	3.2	16.9	329439	3.3	20.3	267649	3.3	20.2
391878	3.0	20.2	155019	3.1	19.6	215249	3.1	19.8	167843	3.2	20.1	63507	3.3	19.0	97182	3.3	18.4
150460	3.0	19.1	124767	3.1	18.1	65734	3.1	19.4	254822	3.2	19.4	81369	3.3	19.4	195656	3.3	20.9
524474	3.0	23.8	118284	3.1	19.5	491602	3.1	21.1	292310	3.2	21.1	461465	3.3	21.1	390619	3.4	19.5
398181	3.0	21.0	371800	3.1	20.5	91600	3.1	19.1	345738	3.2	21.2	410996	3.3	21.0	484108	3.4	20.8
404596	3.0	20.4	147342	3.1	19.6	321099	3.1	19.9	161562	3.2	18.8	476548	3.3	21.9	66343	3.4	18.6
408415	3.0	21.3	270923	3.1	20.2	464566	3.1	20.6	437351	3.2	20.1	521890	3.3	21.1	274556	3.4	20.0
277118	3.0	20.0	23029	3.1	18.3	35696	3.1	19.2	478501	3.2	21.0	198736	3.3	20.0	241995	3.4	20.9
386907	3.0	20.5	452618	3.1	21.1	121926	3.1	19.4	30194	3.2	18.1	149194	3.3	19.6	14035	3.4	18.4
480505	3.0	21.0	413295	3.1	21.5	327781	3.1	21.0	236404	3.2	20.4	461066	3.3	19.8	541136	3.4	19.3
518355	3.0	21.0	210051	3.1	19.9	178540	3.1	20.1	407457	3.2	20.5	284497	3.3	20.6	45769	3.4	18.4
243028	3.0	20.4	399322	3.1	19.3	340187	3.1	20.2	460748	3.2	20.6	423022	3.3	21.2	157029	3.4	19.0
314248	3.0	20.2	434440	3.1	21.2	446842	3.1	21.1	229705	3.2	19.9	160598	3.3	19.7	492230	3.4	20.4
325726	3.0	20.2	407422	3.1	20.6	366313	3.1	20.3	302580	3.2	20.2	207424	3.3	20.9	314283	3.4	20.7
503379	3.0	20.1	70771	3.1	17.1	167311	3.1	19.8	403939	3.2	18.6	662	3.3	14.7	318757	3.4	20.8
195015	3.0	19.5	515856	3.1	21.8	464620	3.1	20.1	461021	3.2	20.4	492161	3.3	21.8	193086	3.4	20.5
64585	3.0	19.1	274746	3.1	20.9	201245	3.1	19.9	494990	3.2	20.4	78266	3.3	19.5	231331	3.4	20.1
14778	3.0	19.0	170621	3.1	19.0	7236	3.2	24.3	76299	3.2	19.6	114265	3.3	19.6	271555	3.4	20.6
120639	3.0	21.2	418584	3.1	20.5	541423	3.2	20.7	284904	3.2	19.5	405112	3.3	20.3	107775	3.4	19.0
419389	3.0	19.3	267128	3.1	19.9	109035	3.2	19.1	372106	3.2	21.4	179117	3.3	19.5	237870	3.4	20.8
494538	3.0	18.7	447580	3.1	20.1	35964	3.2	19.3	15478	3.2	17.2	15438	3.3	17.8	75055	3.4	17.0
477351	3.0	20.3	193451	3.1	17.3	137218	3.2	19.7	160694	3.2	19.6	97744	3.3	20.2	415750	3.4	20.6
239146	3.0	21.3	11769	3.1	18.4	174396	3.2	19.5	111458	3.2	18.9	103	3.3	11.6	162265	3.4	17.6
139826	3.0	18.7	173374	3.1	18.2	259923	3.2	19.8	101904	3.2	18.4	302569	3.3	19.8	462458	3.4	20.8
127741	3.0	19.4	454171	3.1	21.8	296596	3.2	20.0	354615	3.2	20.5	3512	3.3	15.2	360893	3.4	21.6
53564	3.0	18.1	300707	3.1	18.5	448996	3.2	20.5	520550	3.2	21.9	57990	3.3	19.4	189877	3.4	19.4
513350	3.0	20.5	265952	3.1	20.4	418634	3.2	20.5	220817	3.2	20.3	410614	3.3	21.3	270192	3.4	20.4
220004	3.0	19.8	368382	3.1	20.2	454507	3.2	21.0	217645	3.2	20.1	515903	3.3	21.3	147004	3.4	19.3
2588	3.0	16.9	404198	3.1	21.1	110011	3.2	20.3	191192	3.2	19.5	126301	3.3	18.8	376287	3.4	20.7
108546	3.0	19.4	482553	3.1	21.6	292584	3.2	19.7	73534	3.2	19.9	84016	3.3	19.1	479351	3.4	20.2
11523	3.0	17.0	458056	3.1	20.3	167919	3.2	20.0	10572	3.2	16.6	399340	3.3	23.1	412118	3.4	21.0
118069	3.0	20.5	397228	3.1	21.5	383456	3.2	19.3	154741	3.2	20.7	209836	3.3	20.2	271866	3.4	20.1
136309	3.0	18.6	27201	3.1	16.5	196324	3.2	19.8	421888	3.2	21.8	176917	3.3	18.7	417438	3.4	20.7
444816	3.0	21.5	44849	3.1	18.5	523142	3.2	20.5	269180	3.2	20.1	419392	3.3	19.6	229384	3.4	19.1
112674	3.0	20.1	150161	3.1	19.4	114275	3.2	19.3	274111	3.2	20.8	181280	3.3	20.0	485508	3.4	19.3
512669	3.0	20.8	180223	3.1	19.3	212197	3.2	20.4	542016	3.2	20.9	303094	3.3	19.8	312030	3.4	20.4
46527	3.0	19.5	228898	3.1	19.5	229231	3.2	20.7	243254	3.2	21.0	52376	3.3	18.8	303494	3.4	20.5
110474	3.0	18.9	192016	3.1	20.3	541448	3.2	20.6	56425	3.2	18.4	295759	3.3	21.2	326552	3.4	20.1
289923	3.0	20.6	228850	3.1	20.1	243292	3.2	20.2	78767	3.2	19.0	311850	3.3	20.3	256614	3.4	20.9
332302	3.0	20.3	162350	3.1	18.9	419853	3.2	20.9	407159	3.2	21.4	407268	3.3	20.0	325959	3.4	20.4
31676	3.0	17.9	198775	3.1	20.0	143487	3.2	23.5	310570	3.2	21.1	438587	3.3	20.6	450597	3.4	21.0
399001	3.0	20.6	162151	3.1	20.2	284949	3.2	19.9	416492	3.2	21.5	518335	3.3	20.2	414541	3.4	21.3
160364	3.0	19.1	199760	3.1	19.9	141488	3.2	18.9	409509	3.2	21.3	294706	3.3	19.9	314791	3.4	20.6
45342	3.0	18.9	169712	3.1	20.2	97352	3.2	18.4	136410	3.2	19.1	80432	3.3	18.0	277123	3.4	21.2
337417	3.0	20.7	46190	3.1	18.4	411071	3.2	20.8	493164	3.2	20.2	486340	3.3	21.3	448897	3.4	20.4
9336	3.0	18.1	384736	3.1	20.6	286623	3.2	20.3	26783	3.2	17.9	254321	3.3	18.8	58868	3.4	18.3
353784	3.0	20.8	316235	3.1	19.9	452088	3.2	20.5	97909	3.2	19.0	376478	3.3	21.2	25527	3.4	17.2
521859	3.0	21.0	464428	3.1	20.2	443946	3.2	20.0	288342	3.2	19.5	341968	3.3	20.8	175132	3.4	19.7
122017	3.0	19.8	290300	3.1	20.8	471977	3.2	21.1	82873	3.2	18.7	403155	3.3	20.6	287020	3.4	21.0
160052	3.0	18.6	459723	3.1	20.2	178450	3.2	20.6	282969	3.3	20.6	133530	3.3	19.7	438565	3.4	21.4
495073	3.1	21.0	454569	3.1	20.2	492885	3.2	20.9	388085	3.3	19.4	223336	3.3	21.2	149568	3.4	19.6
111320	3.1	20.3	92047	3.1	18.5	440146	3.2	21.6	267973	3.3	20.9	249339	3.3	19.1	117816	3.4	19.2
231020	3.1	19.2	397521	3.1	21.5	195672	3.2	19.4	460592	3.3	20.3	66973	3.3	19.4	63509	3.4	18.0
139207	3.1	19.1	265042	3.1	20.0	436096	3.2	21.6	493335	3.3	20.6	223128	3.3	19.4	339048	3.4</	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
324739	3.4	20.5	462423	3.5	20.6	449601	3.5	21.3	248054	3.6	20.0	418829	3.7	20.2	113454	3.7	19.1
185639	3.4	20.1	133082	3.5	20.3	295682	3.5	19.4	288333	3.6	19.0	129580	3.7	17.6	9850	3.7	17.7
80129	3.4	18.2	330726	3.5	21.5	63796	3.5	18.6	434018	3.6	21.1	427856	3.7	20.9	516535	3.7	22.5
326671	3.4	20.8	372265	3.5	20.2	86823	3.5	20.2	180124	3.6	19.5	460717	3.7	20.9	489011	3.7	20.2
393496	3.4	21.6	299100	3.5	19.9	369411	3.5	19.4	436799	3.6	21.6	293883	3.7	20.2	268391	3.7	20.5
398124	3.4	20.2	125069	3.5	18.3	212532	3.5	20.9	493379	3.6	19.8	326893	3.7	20.3	158388	3.7	20.3
97592	3.4	19.3	237209	3.5	20.2	235339	3.5	20.6	493142	3.6	20.4	103056	3.7	17.4	62673	3.7	19.7
351904	3.4	19.7	150469	3.5	18.9	411376	3.5	21.3	459371	3.6	20.9	337222	3.7	20.9	361565	3.7	19.2
446098	3.4	21.3	135874	3.5	19.7	299638	3.5	20.9	75942	3.6	19.0	217266	3.7	20.6	90440	3.7	18.2
180699	3.4	20.8	457330	3.5	20.2	66296	3.5	18.6	460770	3.6	19.9	407466	3.7	20.9	451739	3.8	20.9
400433	3.4	20.3	282898	3.5	20.4	192595	3.5	17.8	328376	3.6	20.4	102716	3.7	19.9	324275	3.8	20.3
275628	3.4	19.2	220000	3.5	21.1	463998	3.5	19.6	449284	3.6	20.7	370254	3.7	21.5	383432	3.8	20.4
369642	3.4	20.4	326848	3.5	20.0	24788	3.5	18.0	43872	3.6	20.0	67972	3.7	19.3	544277	3.8	21.0
515900	3.4	21.1	119164	3.5	20.3	460557	3.5	20.5	215347	3.6	20.1	542380	3.7	20.6	477342	3.8	20.4
115775	3.4	18.5	114435	3.5	18.8	278981	3.5	20.6	21678	3.6	17.7	112476	3.7	19.6	358128	3.8	20.7
487685	3.4	19.6	161171	3.5	19.1	141517	3.5	20.1	289313	3.6	19.3	197032	3.7	19.2	73642	3.8	20.1
50558	3.4	17.9	8596	3.5	16.8	319443	3.5	20.7	199455	3.6	19.4	140422	3.7	20.0	162344	3.8	17.8
202238	3.4	19.0	45491	3.5	18.1	450564	3.5	20.1	523505	3.6	21.5	456225	3.7	20.9	492246	3.8	21.9
80487	3.4	18.7	208780	3.5	20.8	72743	3.5	19.2	339748	3.6	20.7	335458	3.7	19.8	482018	3.8	21.4
42532	3.4	18.6	52614	3.5	18.7	135767	3.5	20.2	447599	3.6	19.9	463120	3.7	20.3	496286	3.8	19.7
361363	3.4	20.0	473512	3.5	21.1	17002	3.5	18.5	261637	3.6	19.8	52064	3.7	18.7	211553	3.8	18.7
13878	3.4	18.5	175273	3.5	20.0	441876	3.5	20.4	145147	3.6	19.3	404924	3.7	21.0	279706	3.8	19.5
400142	3.4	21.4	212502	3.5	19.7	268730	3.5	20.0	74442	3.6	18.2	348631	3.7	18.8	395476	3.8	20.6
393605	3.4	20.4	416711	3.5	20.6	269463	3.5	20.5	285336	3.6	19.8	426592	3.7	21.3	361782	3.8	20.6
306962	3.4	19.4	173420	3.5	18.8	410455	3.5	20.4	460063	3.6	20.9	494113	3.7	20.6	102407	3.8	18.6
478417	3.4	21.5	83990	3.5	18.4	267551	3.6	19.1	412631	3.6	21.2	53178	3.7	17.6	175162	3.8	20.5
273477	3.4	19.4	45220	3.5	17.2	56367	3.6	19.4	231512	3.6	19.1	128579	3.7	18.2	52627	3.8	17.7
61530	3.4	19.6	68472	3.5	19.2	144065	3.6	19.0	377197	3.6	20.6	503282	3.7	21.1	257582	3.8	20.8
494607	3.4	20.6	199359	3.5	19.9	112311	3.6	19.0	325714	3.6	20.5	451308	3.7	21.7	30190	3.8	17.7
304953	3.4	20.4	215699	3.5	20.1	104611	3.6	20.5	486381	3.6	21.1	41375	3.7	18.2	197217	3.8	19.6
1952	3.4	14.3	211705	3.5	19.2	50696	3.6	19.0	518924	3.6	20.8	46789	3.7	19.0	438500	3.8	20.7
462973	3.4	20.6	409057	3.5	20.7	360630	3.6	20.3	455183	3.6	20.3	462990	3.7	21.4	175975	3.8	19.7
453086	3.4	20.7	195669	3.5	19.8	97612	3.6	18.5	388249	3.6	21.6	340318	3.7	20.0	340877	3.8	21.5
201024	3.4	20.0	89299	3.5	19.1	70657	3.6	19.0	26364	3.6	18.1	427168	3.7	20.9	355135	3.8	21.0
496791	3.4	20.9	456172	3.5	21.0	517263	3.6	21.6	518921	3.6	19.8	72862	3.7	18.4	463005	3.8	20.9
76778	3.4	18.7	189129	3.5	18.7	179841	3.6	19.5	430031	3.6	20.7	271511	3.7	20.3	137304	3.8	20.1
380059	3.4	20.3	541402	3.5	21.0	312919	3.6	19.9	489420	3.6	20.5	330226	3.7	20.9	242497	3.8	19.3
477414	3.4	21.2	397288	3.5	21.1	120584	3.6	19.5	276409	3.6	18.3	492198	3.7	21.6	132303	3.8	19.4
400636	3.4	19.9	309382	3.5	21.0	359826	3.6	20.2	466646	3.6	20.6	239827	3.7	19.8	445943	3.8	20.1
185444	3.4	19.7	134108	3.5	19.5	196862	3.6	19.1	448491	3.6	20.4	71637	3.7	17.7	239395	3.8	20.7
341953	3.4	21.9	460013	3.5	21.6	314965	3.6	19.2	413328	3.6	19.2	519732	3.7	21.1	201341	3.8	20.3
421177	3.4	21.3	445621	3.5	20.5	96583	3.6	19.9	84530	3.6	18.6	179024	3.7	20.1	193062	3.8	18.7
46810	3.4	18.8	519649	3.5	21.1	230892	3.6	20.1	59935	3.6	19.1	180556	3.7	19.6	451264	3.8	21.7
411580	3.4	20.1	72046	3.5	17.5	307653	3.6	20.9	130474	3.6	20.2	376074	3.7	20.0	411129	3.8	21.3
479448	3.4	19.6	119232	3.5	18.5	269480	3.6	19.8	332660	3.6	21.0	410904	3.7	20.0	70344	3.8	18.8
331298	3.4	20.0	506166	3.5	20.3	88491	3.6	19.4	347796	3.6	20.4	142798	3.7	19.8	139928	3.8	20.1
337653	3.4	20.4	27788	3.5	17.3	227684	3.6	19.5	419251	3.6	20.5	362440	3.7	21.1	73825	3.8	17.3
141889	3.4	18.9	318166	3.5	20.6	372164	3.6	21.0	264784	3.6	20.1	2938	3.7	15.5	74448	3.8	18.6
368409	3.4	20.2	482502	3.5	21.4	120948	3.6	19.4	490089	3.6	21.4	191666	3.7	19.6	257105	3.8	19.8
433306	3.4	20.9	141738	3.5	19.9	270032	3.6	20.1	12324	3.6	18.5	51481	3.7	18.9	3871	3.8	16.3
269351	3.4	20.1	79357	3.5	18.7	182568	3.6	19.7	517258	3.6	20.9	475030	3.7	20.8	132597	3.8	19.6
465563	3.4	20.3	391224	3.5	20.0	130404	3.6	18.8	257342	3.6	20.5	375451	3.7	20.4	145979	3.8	18.8
69289	3.4	19.9	417377	3.5	20.3	108706	3.6	20.0	191519	3.6	18.8	340070	3.7	20.2	256075	3.8	19.9
265532	3.4	21.4	113408	3.5	18.7	76783	3.6	19.6	474854	3.6	20.2	457357	3.7	20.5	110942	3.8	19.3
2763	3.4	15.7	389364	3.5	19.3	439469	3.6	19.9	230789	3.6	19.4	308107	3.7	19.2	82281	3.8	19.0
217310	3.4	20.6	336057	3.5	21.6	59204	3.6	17.5	277029	3.6	20.0	200121	3.7	20.8	169702	3.8	20.8
197774	3.4	20.4	411991	3.5	20.6	229273	3.6	18.8	13460	3.6	16.9	439242	3.7	21.2	65556	3.8	20.0
43788	3.4	18.6	235856	3.5	19.5	484481	3.6	20.4	166623	3.6	19.5	246264	3.7	20.3	50101	3.8	18.1
29812	3.4	17.8	2997	3.5	16.4	486235	3.6	21.0	104258	3.6	19.2	542537	3.7	19.8	410893	3.8	20.4
78991	3.4	18.6	518073	3.5	20.7	440018	3.6	21.9	494609	3.6	20.0	360852	3.7	21.4	134807	3.8	18.9
372717	3.4	19.6	154745	3.5	20.1	134364	3.6	19.3	274596	3.7	20.3	100405	3.7	19.7	159266	3.8	20.5
332598	3.4	20.5	56283	3.5	15.3	257048	3.6	21.0	266075	3.7	21.0	510983	3.7	20.1	458579	3.8	20.7
445767	3.4	19.7	279966	3.5	19.3	247551	3.6	19.4	216358	3.7	20.4	274057	3.7	20.9	464277	3.8	18.9
112699	3.4	19.2	457949	3.5	19.7	180062	3.6	19.5	300570	3.7	21.1	393658	3.7	19.6	449685	3.8	21.0
426210	3.4	19.9	450627	3.5	20.6	460968	3.6	20.2	289340	3.7	20.1	111229	3.7	20.4	316756	3.8	20.0
522434	3.4	20.8	320975	3.5	20.3	83234	3.6	19.2	61291	3.7	19.1	210842	3.7	20.8	383405	3.8	21.2
26649	3.4	16.9	258679	3.5	19.8	311842	3.6	20.1	411068	3.7	20.5	292610	3.7	20.6	339750	3.8	19.7
244913	3.4	19.0	541287	3.5	21.1	251403	3.6	19.9	415447	3.7	20.4	179163	3.7	19.3	185046	3.8	20.6
245416	3.4	20.4	108252	3.5	18.8	107913	3.6	19.8	157423	3.7	20.3	368052	3.7	19.9	441006	3.8	21.5
42673	3.4	19.3	30058	3.5	18.9	141064	3.6	17.2	276698	3.7	20.0	278421	3.7	21.0	289878	3.8	21.2
447593	3.4	20.1	441476	3.5	20.5	251162	3.6	20.5	53581	3.7	18.3	517858	3.7	22.0	190471	3.8	18.

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
262360	3.8	20.7	112297	3.9	20.3	409699	3.9	20.1	489459	3.9	19.9	69157	4.1	19.4	312557	4.1	20.1
460547	3.8	20.7	13950	3.9	17.5	514128	3.9	21.1	487491	3.9	20.6	72702	4.1	18.8	162205	4.1	19.3
354617	3.8	20.8	460991	3.9	20.8	274806	3.9	20.2	18032	3.9	18.0	249981	4.1	19.6	191627	4.1	20.4
514221	3.8	21.2	359299	3.9	20.3	145919	3.9	18.8	456414	3.9	20.7	214563	4.1	20.0	232359	4.1	18.7
516589	3.8	22.1	144404	3.9	20.4	191873	3.9	19.3	493407	3.9	20.5	116860	4.1	19.4	477266	4.1	20.7
215924	3.8	19.7	342014	3.9	20.2	542990	3.9	21.3	275443	4.0	20.8	264816	4.1	21.0	290677	4.1	19.9
187680	3.8	19.6	211770	3.9	20.1	63735	3.9	19.4	487989	4.0	20.3	265956	4.1	20.3	400996	4.1	20.4
69694	3.8	19.6	156061	3.9	19.1	409321	3.9	19.4	254024	4.0	20.7	307858	4.1	18.8	89877	4.1	19.4
445610	3.8	21.7	187425	3.9	19.3	493463	3.9	20.8	347584	4.0	18.2	114447	4.1	19.4	26639	4.1	17.4
265038	3.8	20.0	130049	3.9	19.7	71869	3.9	18.4	111332	4.0	19.7	27393	4.1	18.1	484860	4.1	20.3
184281	3.8	19.3	99604	3.9	19.1	418600	3.9	20.0	419340	4.0	20.6	256887	4.1	20.8	308299	4.1	20.3
151859	3.8	20.7	61508	3.9	19.1	340979	3.9	20.6	450641	4.0	21.4	445707	4.1	20.9	240696	4.1	20.2
542015	3.8	20.4	231364	3.9	20.5	265811	3.9	19.9	542040	4.0	20.9	228276	4.1	19.3	515834	4.1	21.5
408102	3.8	20.9	405716	3.9	20.9	407423	3.9	21.1	14567	4.0	17.8	443965	4.1	21.4	182970	4.1	20.5
376328	3.8	20.8	242115	3.9	20.2	61748	3.9	18.0	380091	4.0	20.8	47736	4.1	19.2	11806	4.1	18.5
68856	3.8	19.3	331716	3.9	21.2	26520	3.9	15.4	122008	4.0	20.6	418515	4.1	21.5	71701	4.1	18.8
238157	3.8	21.1	6438	3.9	17.4	207567	3.9	20.6	12859	4.0	17.6	6436	4.1	17.2	217528	4.1	19.6
388042	3.8	19.1	197448	3.9	19.3	449997	3.9	21.6	60169	4.0	18.2	194948	4.1	18.7	160104	4.1	20.1
271545	3.8	20.5	346373	3.9	21.4	295419	3.9	21.1	294802	4.0	20.2	97324	4.1	19.2	409774	4.1	20.7
48445	3.8	18.4	408469	3.9	21.5	142214	3.9	18.0	458071	4.0	20.2	226999	4.1	19.3	275610	4.2	20.6
217434	3.8	20.1	272334	3.9	20.8	221341	3.9	20.4	362606	4.0	20.5	45696	4.1	17.8	368148	4.2	19.9
225442	3.8	19.2	181116	3.9	20.1	490972	3.9	21.0	182623	4.0	19.8	330512	4.1	20.9	41603	4.2	18.3
9271	3.8	17.4	158580	3.9	20.0	391287	3.9	21.7	135096	4.0	20.3	486470	4.1	21.0	81835	4.2	19.4
453195	3.8	21.3	184469	3.9	20.5	127423	3.9	19.9	29417	4.0	17.0	447672	4.1	19.2	453701	4.2	19.3
358735	3.8	21.1	278588	3.9	20.6	104760	3.9	19.7	189835	4.0	19.1	241807	4.1	20.4	101897	4.2	17.9
295120	3.8	20.5	228074	3.9	19.0	477281	3.9	21.7	480816	4.0	21.3	29248	4.1	18.9	342075	4.2	20.8
228168	3.8	20.8	291840	3.9	20.2	447490	3.9	20.8	199364	4.0	19.9	354287	4.1	20.9	362363	4.2	20.5
230616	3.8	19.7	148039	3.9	19.4	318900	3.9	20.7	442459	4.0	19.7	447797	4.1	21.1	336622	4.2	20.5
251198	3.8	21.1	364949	3.9	21.8	44825	3.9	17.8	332041	4.0	20.8	355415	4.1	19.6	129007	4.2	19.5
317229	3.8	19.9	317869	3.9	19.9	240334	3.9	20.3	319144	4.0	20.6	229057	4.1	20.6	274651	4.2	22.0
226419	3.8	21.6	28538	3.9	18.7	166671	3.9	19.2	118189	4.0	21.0	24643	4.1	18.2	484325	4.2	20.2
435136	3.8	21.6	278881	3.9	20.3	150525	3.9	18.9	408659	4.0	20.1	11281	4.1	17.4	351396	4.2	20.5
279234	3.8	20.5	494078	3.9	21.5	102041	3.9	19.7	345281	4.0	20.6	93347	4.1	18.1	42281	4.2	18.9
161919	3.8	19.8	18577	3.9	17.5	173670	3.9	20.2	197182	4.0	19.9	512144	4.1	21.1	451843	4.2	20.2
513537	3.8	20.7	486426	3.9	21.8	328742	3.9	20.0	381048	4.0	19.9	516596	4.1	21.4	78987	4.2	18.3
311096	3.8	19.7	517331	3.9	22.2	522284	3.9	22.6	171676	4.0	19.8	143507	4.1	20.2	71670	4.2	17.0
25061	3.8	19.2	443191	3.9	20.7	422557	3.9	19.7	229008	4.0	18.6	520425	4.1	20.9	243718	4.2	19.5
55707	3.8	18.7	267011	3.9	20.8	216644	3.9	20.8	492964	4.0	21.4	542005	4.1	21.8	295036	4.2	20.3
384690	3.8	20.4	249332	3.9	19.4	490356	3.9	20.7	197206	4.0	18.6	455088	4.1	20.3	287526	4.2	19.9
249328	3.8	20.5	482496	3.9	21.6	389408	3.9	20.4	455660	4.0	19.8	353962	4.1	20.0	38530	4.2	18.7
454186	3.8	20.9	22314	3.9	18.3	247260	3.9	20.0	46328	4.0	19.2	47748	4.1	18.6	95382	4.2	18.0
327997	3.8	20.7	315703	3.9	20.8	249999	3.9	20.3	176297	4.0	20.9	127884	4.1	19.5	64437	4.2	18.5
256880	3.8	20.5	208111	3.9	19.5	154849	3.9	20.1	30394	4.0	18.8	120614	4.1	19.9	262245	4.2	19.7
223099	3.8	19.2	187939	3.9	19.1	542763	3.9	20.6	223506	4.0	20.0	189338	4.1	19.8	484441	4.2	20.5
412930	3.8	20.5	515752	3.9	20.6	462377	3.9	20.4	277087	4.0	21.0	35568	4.1	18.1	229274	4.2	19.8
418750	3.8	21.3	137984	3.9	19.5	56180	3.9	18.7	344144	4.0	20.8	273526	4.1	19.7	376789	4.2	20.9
137358	3.8	18.6	71487	3.9	19.4	343215	3.9	20.1	126081	4.0	19.6	181508	4.1	20.8	189419	4.2	20.9
253890	3.8	19.3	467169	3.9	19.7	193164	3.9	19.3	197959	4.0	20.0	98282	4.1	17.6	542231	4.2	19.9
69111	3.8	18.6	71061	3.9	17.8	292974	3.9	20.6	473842	4.0	20.7	434608	4.1	21.6	226530	4.2	18.9
482605	3.8	19.8	251457	3.9	20.0	135862	3.9	20.1	321168	4.0	20.5	204876	4.1	21.0	46798	4.2	17.6
93690	3.8	19.3	292196	3.9	20.7	53221	3.9	17.7	342024	4.0	21.1	491110	4.1	20.4	270084	4.2	19.8
451825	3.8	21.0	377965	3.9	21.3	137765	3.9	18.2	31845	4.0	19.9	51691	4.1	19.7	434047	4.2	20.9
322973	3.8	20.8	60954	3.9	18.8	51889	3.9	18.4	267025	4.0	20.1	29697	4.1	18.0	339071	4.2	20.5
97442	3.8	18.5	25999	3.9	18.6	414307	3.9	20.6	3058	4.0	15.9	434461	4.1	20.9	394897	4.2	20.3
480988	3.8	20.4	294048	3.9	20.1	413185	3.9	20.9	127310	4.0	20.6	342154	4.1	20.7	463963	4.2	20.4
344159	3.8	18.1	206148	3.9	20.0	219265	3.9	18.5	203160	4.0	19.6	59686	4.1	19.1	463080	4.2	20.0
208941	3.8	20.6	365796	3.9	20.7	516360	3.9	20.7	272023	4.0	20.7	318324	4.1	20.2	311654	4.2	20.2
394124	3.8	21.0	327693	3.9	21.0	523364	3.9	20.5	232000	4.0	18.6	485917	4.1	21.1	331828	4.2	21.2
54979	3.8	18.0	188216	3.9	19.6	393061	3.9	19.6	228510	4.0	19.4	105122	4.1	18.2	42763	4.2	20.5
67025	3.9	17.8	155496	3.9	19.4	329539	3.9	20.8	484554	4.0	21.2	292943	4.1	20.2	356332	4.2	21.1
259969	3.9	19.7	407082	3.9	20.6	473563	3.9	20.4	150126	4.0	19.9	252378	4.1	20.9	28428	4.2	18.7
233843	3.9	19.7	115815	3.9	18.8	315756	3.9	20.8	175512	4.0	19.7	271140	4.1	19.8	331097	4.2	20.3
161151	3.9	19.7	460877	3.9	21.1	163509	3.9	19.5	412412	4.0	20.2	402644	4.1	20.9	206591	4.2	20.1
405517	3.9	20.2	522008	3.9	21.3	312856	3.9	20.5	444989	4.0	19.9	341944	4.1	20.6	52776	4.2	19.3
71854	3.9	18.5	28907	3.9	18.5	495476	3.9	20.1	87077	4.1	19.9	476852	4.1	19.6	196943	4.2	20.3
216679	3.9	19.4	354233	3.9	21.4	456127	3.9	22.1	213336	4.1	19.6	181258	4.1	20.3	44507	4.2	16.9
42210	3.9	18.7	164816	3.9	20.5	231049	3.9	19.7	418571	4.1	20.2	319458	4.1	21.9	141695	4.2	21.0
372940	3.9	20.7	383442	3.9	20.0	326263	3.9	19.3	292170	4.1	19.8	15488	4.1	17.3	95388	4.2	19.8
18640	3.9	15.1	153470	3.9	20.7	220020	3.9	20.0	456442	4.1	20.2	181260	4.1	20.0	45035	4.2	17.9
41183	3.9	18.8	361678	3.9	18.1	477866	3.9	20.4	191619	4.1	21.0	358197	4.1	21.3	305105	4.2	19.8
259016	3.9	21.4	478471	3.9	20.7	455052	3.9	20.7	284036	4.1	20.0	144987	4.1	20.4	2425	4.2	16.1

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
291428	4.2	20.2	71565	4.2	18.7	59107	4.3	19.3	373121	4.4	20.1	302969	4.5	19.9	53242	4.5	18.6
7890	4.2	17.9	135880	4.2	19.3	410881	4.3	19.9	492808	4.4	20.7	270928	4.5	19.4	148057	4.5	20.1
173744	4.2	21.0	97142	4.2	19.3	102089	4.3	19.3	418549	4.4	20.6	162978	4.5	20.1	306342	4.6	20.6
173817	4.2	20.0	456162	4.2	21.2	36501	4.3	17.8	116056	4.4	18.2	249961	4.5	19.1	251610	4.6	20.1
441221	4.2	19.8	206369	4.2	20.6	217693	4.3	21.2	310036	4.4	22.0	129224	4.5	19.2	78706	4.6	19.6
331296	4.2	20.1	74083	4.2	19.4	68844	4.3	19.0	302556	4.4	20.4	344892	4.5	20.4	97033	4.6	18.8
84594	4.2	19.9	408312	4.2	20.4	198642	4.3	20.2	261277	4.4	20.3	251618	4.5	20.2	377977	4.6	21.2
49755	4.2	18.2	120186	4.2	19.6	114194	4.3	19.2	375465	4.4	22.0	477798	4.5	20.4	445199	4.6	20.7
46486	4.2	18.2	484293	4.2	21.0	76304	4.3	18.4	286237	4.4	20.4	451279	4.5	21.3	8794	4.6	17.6
231570	4.2	19.7	412373	4.2	20.0	255005	4.3	20.8	218108	4.4	20.8	125135	4.5	18.8	124944	4.6	21.0
454519	4.2	20.8	301144	4.3	20.3	127929	4.3	18.5	232700	4.4	19.3	437920	4.5	20.7	108555	4.6	20.0
461160	4.2	20.1	336845	4.3	20.1	21532	4.3	18.5	439009	4.4	20.2	196469	4.5	20.3	85835	4.6	18.7
215350	4.2	20.7	482586	4.3	20.4	328022	4.3	20.6	45990	4.4	17.7	418709	4.5	21.6	251084	4.6	20.7
7412	4.2	18.2	375576	4.3	21.2	450583	4.3	22.5	177374	4.4	18.9	232357	4.5	20.0	123443	4.6	18.7
164524	4.2	20.4	60676	4.3	19.6	518050	4.3	21.9	43494	4.4	19.0	415622	4.5	20.7	54163	4.6	18.4
62796	4.2	19.8	241982	4.3	20.9	221716	4.3	20.7	252059	4.4	19.0	100261	4.5	20.0	363008	4.6	20.5
231139	4.2	19.5	361674	4.3	20.4	196800	4.3	18.8	412636	4.4	22.0	287333	4.5	20.1	484551	4.6	20.9
440057	4.2	19.0	523480	4.3	21.6	279501	4.3	19.9	220094	4.4	19.6	74073	4.5	19.7	327484	4.6	20.9
213668	4.2	20.2	307400	4.3	21.1	244086	4.3	19.5	446104	4.4	20.6	394437	4.5	20.6	175314	4.6	19.9
68185	4.2	18.3	494921	4.3	20.9	255501	4.3	21.8	46742	4.4	19.2	72604	4.5	19.5	120014	4.6	18.9
63285	4.2	19.2	78701	4.3	17.7	364291	4.3	20.1	140419	4.4	20.2	397341	4.5	21.4	166363	4.6	20.2
264855	4.2	20.0	441158	4.3	20.0	337594	4.3	20.4	187315	4.4	20.4	438888	4.5	20.4	484123	4.6	20.8
156028	4.2	19.6	380471	4.3	21.8	133575	4.3	19.6	441883	4.4	20.8	124334	4.5	20.7	274138	4.6	18.9
512097	4.2	21.7	396606	4.3	21.8	517223	4.3	20.5	510607	4.4	21.7	129520	4.5	19.5	142933	4.6	19.7
26155	4.2	17.8	486507	4.3	21.3	127531	4.3	20.0	84361	4.4	18.7	11153	4.5	16.4	267597	4.6	20.3
334176	4.2	20.7	91444	4.3	20.5	69199	4.3	18.6	64818	4.4	19.4	21300	4.5	16.5	544225	4.6	20.6
268361	4.2	20.5	10858	4.3	17.3	47941	4.3	19.0	130144	4.4	18.2	249914	4.5	19.9	90103	4.6	19.1
51771	4.2	18.5	134735	4.3	17.6	73501	4.3	20.3	63605	4.4	18.4	107299	4.5	18.1	504209	4.6	21.2
379091	4.2	20.7	318679	4.3	19.8	350865	4.3	20.7	516216	4.4	20.0	270145	4.5	21.2	541582	4.6	20.7
458556	4.2	20.7	152986	4.3	19.5	152963	4.3	20.8	154670	4.4	19.4	278633	4.5	19.2	418712	4.6	20.5
202357	4.2	20.1	113231	4.3	18.2	246681	4.3	19.6	27728	4.4	18.5	47668	4.5	19.3	220137	4.6	20.1
370447	4.2	20.4	135473	4.3	19.8	382664	4.3	20.3	542918	4.4	21.5	1468	4.5	16.0	520376	4.6	21.8
246713	4.2	19.3	490103	4.3	20.6	41295	4.3	18.9	492981	4.4	19.6	38504	4.5	18.0	125957	4.6	20.2
461016	4.2	20.2	544344	4.3	21.0	459747	4.3	21.3	418612	4.4	20.5	418692	4.5	21.6	48305	4.6	19.2
188674	4.2	20.2	115967	4.3	19.2	220162	4.3	20.2	238461	4.4	19.6	118075	4.5	19.5	5718	4.6	18.6
76049	4.2	19.4	464507	4.3	21.2	421121	4.4	20.4	265180	4.4	20.5	180715	4.5	20.7	372167	4.6	20.5
241986	4.2	21.0	303168	4.3	19.4	155219	4.4	20.2	355378	4.4	20.5	201347	4.5	19.4	164215	4.6	23.8
165113	4.2	19.2	248220	4.3	21.2	452303	4.4	20.7	344154	4.4	20.8	412220	4.5	21.2	68970	4.6	18.6
146006	4.2	19.0	430562	4.3	21.2	42992	4.4	19.7	257964	4.4	19.6	91819	4.5	18.6	284592	4.6	20.1
146950	4.2	19.1	274710	4.3	20.6	333633	4.4	20.7	101353	4.4	18.8	245765	4.5	20.5	146774	4.6	20.0
408673	4.2	20.3	158984	4.3	20.4	273253	4.4	21.0	108563	4.4	19.0	300575	4.5	20.2	541392	4.6	20.3
110300	4.2	19.8	149193	4.3	18.5	56190	4.4	17.6	499717	4.4	20.3	418578	4.5	21.1	74114	4.6	18.6
136177	4.2	19.3	132696	4.3	20.5	187949	4.4	20.6	489256	4.4	19.8	368056	4.5	19.9	434424	4.6	21.6
360626	4.2	20.1	270029	4.3	21.1	214625	4.4	20.8	516377	4.4	19.9	523292	4.5	20.8	337658	4.6	20.6
292884	4.2	21.0	375062	4.3	19.8	480879	4.4	20.3	24274	4.4	18.5	517883	4.5	21.2	458637	4.6	21.3
358199	4.2	18.7	8203	4.3	18.0	258055	4.4	19.5	14087	4.4	18.9	78151	4.5	19.3	54636	4.6	19.3
76839	4.2	18.3	446460	4.3	21.0	47918	4.4	17.9	270213	4.4	20.9	286827	4.5	20.8	91483	4.6	19.7
506111	4.2	20.3	259446	4.3	19.9	196039	4.4	19.3	39758	4.5	19.3	493388	4.5	21.3	355457	4.6	19.7
11409	4.2	17.3	322621	4.3	20.4	218786	4.4	20.1	275036	4.5	20.7	9848	4.5	17.2	33294	4.6	19.0
330481	4.2	20.7	382305	4.3	20.6	108520	4.4	19.7	245794	4.5	21.2	493342	4.5	20.7	455495	4.6	20.4
215714	4.2	19.5	221564	4.3	20.9	40521	4.4	18.6	450388	4.5	21.3	498540	4.5	20.7	285465	4.6	19.4
95746	4.2	19.8	132500	4.3	18.3	237903	4.4	19.8	13194	4.5	17.9	412151	4.5	21.0	226618	4.6	20.0
81108	4.2	18.3	455560	4.3	20.4	464051	4.4	21.4	311780	4.5	20.3	454455	4.5	21.5	215305	4.6	20.1
152505	4.2	20.4	501565	4.3	20.1	348262	4.4	21.4	495070	4.5	22.1	137210	4.5	19.6	356563	4.6	18.6
269500	4.2	20.9	373267	4.3	20.5	490556	4.4	20.4	516432	4.5	20.0	85220	4.5	20.1	452246	4.6	20.5
298392	4.2	18.8	90533	4.3	19.5	122433	4.4	19.2	294502	4.5	19.7	129732	4.5	18.1	84481	4.6	18.5
134982	4.2	20.5	426742	4.3	21.3	212920	4.4	19.6	48714	4.5	19.1	361327	4.5	20.4	220120	4.6	18.9
79562	4.2	18.9	218381	4.3	19.9	43899	4.4	17.8	327524	4.5	21.0	414655	4.5	19.8	489018	4.6	20.7
74445	4.2	18.5	100227	4.3	19.2	296318	4.4	22.7	234596	4.5	19.3	175167	4.5	20.0	246432	4.6	19.7
151666	4.2	18.6	181928	4.3	20.3	272003	4.4	20.8	151341	4.5	19.7	181299	4.5	19.5	471217	4.6	21.8
403444	4.2	19.7	434595	4.3	21.9	153139	4.4	20.0	360480	4.5	20.2	45465	4.5	16.9	343830	4.6	20.8
361312	4.2	20.7	85793	4.3	18.6	321552	4.4	20.5	233259	4.5	19.5	511769	4.5	21.0	69536	4.6	17.7
350200	4.2	19.4	39428	4.3	17.8	7231	4.4	17.1	313589	4.5	19.9	395845	4.5	19.4	448473	4.6	22.0
179216	4.2	20.0	298037	4.3	20.1	376089	4.4	21.2	193765	4.5	20.0	398541	4.5	19.3	128541	4.6	19.2
40427	4.2	18.6	98304	4.3	19.2	7134	4.4	17.1	137190	4.5	18.3	48982	4.5	18.6	23120	4.6	15.8
1329	4.2	15.2	230467	4.3	19.8	296837	4.4	20.2	276651	4.5	20.0	249205	4.5	20.0	439789	4.6	20.5
181703	4.2	19.9	77840	4.3	19.6	470191	4.4	20.6	1785	4.5	15.1	377901	4.5	22.1	329718	4.6	20.6
152093	4.2	19.7	4263	4.3	16.0	147135	4.4	19.5	91846	4.5	20.7	471974	4.5	20.3	353646	4.6	21.0
275857	4.2	20.1	83368	4.3	18.2	174157	4.4	20.0	98137	4.5	19.1	375522	4.5	21.0	297122	4.6	19.7
345818	4.2	20.4	193750	4.3	20.3	513716	4.4	21.5	201186	4.5	20.8	357463	4.5	20.1	139100	4.6	21.0
55160	4.2	18.4	485578	4.3	20.6	37466	4.4	18.8	326590	4.5	21.8	257949	4.5	19.1	459808	4.6	20.6
346525	4.																

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
380975	4.6	21.1	145210	4.7	19.3	450386	4.8	20.8	73068	4.8	18.5	84006	4.9	18.8	355028	4.9	21.1
333149	4.6	20.3	10388	4.7	17.1	238978	4.8	20.1	329424	4.8	21.0	489483	4.9	21.7	88952	4.9	19.7
35632	4.6	19.9	411124	4.7	21.0	237341	4.8	19.3	263543	4.8	20.1	26730	4.9	18.5	513602	4.9	21.4
164642	4.6	20.9	123968	4.7	19.1	195970	4.8	19.6	370290	4.8	21.9	293636	4.9	20.7	307450	4.9	20.3
291592	4.6	19.6	75600	4.7	18.4	247641	4.8	19.8	214653	4.8	20.1	335344	4.9	20.2	305293	4.9	19.6
71521	4.6	18.2	479324	4.7	21.3	221224	4.8	21.0	270763	4.8	20.1	500328	4.9	20.8	329904	4.9	22.1
246259	4.6	21.3	245	4.7	11.7	391498	4.8	20.8	45015	4.8	17.9	291595	4.9	19.8	73439	4.9	19.1
485629	4.6	21.2	518959	4.7	20.3	444519	4.8	20.8	441039	4.8	21.1	33031	4.9	18.1	542989	4.9	21.4
85094	4.6	19.1	47115	4.7	17.8	450612	4.8	20.6	409160	4.8	20.2	13376	4.9	17.5	54199	4.9	17.9
76496	4.6	19.0	290298	4.7	19.3	421046	4.8	21.1	156079	4.8	20.4	210178	4.9	20.4	246441	4.9	21.0
64582	4.6	19.2	92525	4.7	20.2	15959	4.8	17.9	267115	4.8	19.0	309742	4.9	19.9	75982	4.9	18.6
96749	4.6	19.7	201306	4.7	20.2	80560	4.8	18.4	218921	4.8	19.6	19905	4.9	19.5	70903	4.9	17.4
395792	4.6	20.4	387170	4.7	20.3	514927	4.8	21.1	36838	4.8	18.8	266547	4.9	21.2	127459	4.9	20.7
65321	4.6	19.5	459202	4.7	20.5	196133	4.8	20.2	520605	4.8	22.0	453132	4.9	20.1	418627	4.9	20.2
260059	4.6	19.9	179301	4.7	19.8	271094	4.8	19.4	440140	4.8	19.6	172622	4.9	19.6	396236	4.9	20.1
200008	4.6	20.2	159319	4.7	19.5	99960	4.8	19.3	122213	4.8	20.5	416758	4.9	20.2	337010	4.9	19.8
305645	4.6	20.4	234731	4.7	20.1	412308	4.8	21.5	124101	4.8	19.3	20226	4.9	17.5	434505	4.9	21.3
2836	4.6	16.3	351013	4.7	20.4	307891	4.8	19.7	13586	4.8	18.1	108281	4.9	19.6	248441	4.9	20.4
31981	4.6	19.0	334543	4.7	20.9	76979	4.8	18.8	517348	4.8	21.5	311856	4.9	20.5	54955	4.9	19.0
68324	4.6	19.1	263948	4.7	20.7	317151	4.8	19.9	463856	4.8	20.1	133435	4.9	19.0	132914	4.9	19.5
123991	4.6	19.6	510538	4.7	21.5	227882	4.8	18.9	444484	4.8	21.3	342080	4.9	20.1	324393	4.9	20.9
521723	4.6	20.8	157634	4.7	19.4	278019	4.8	20.5	270704	4.8	21.2	153366	4.9	20.1	278680	4.9	21.3
168488	4.6	18.0	544870	4.7	20.8	305284	4.8	20.5	449878	4.8	21.1	99846	4.9	19.1	310861	4.9	20.1
52199	4.6	18.0	436861	4.7	20.8	427331	4.8	20.7	184120	4.8	19.4	116325	4.9	18.2	211250	4.9	20.6
187199	4.6	20.7	229484	4.7	19.3	189392	4.8	20.0	60985	4.8	19.1	353037	4.9	20.1	421617	4.9	21.1
22381	4.6	18.5	367795	4.7	20.7	336674	4.8	19.9	195753	4.8	20.6	301477	4.9	18.8	66000	4.9	19.5
380675	4.6	20.4	250572	4.7	20.8	446160	4.8	20.2	523476	4.8	21.9	450589	4.9	21.6	309943	5.0	20.0
22032	4.6	17.4	356114	4.7	20.3	372084	4.8	20.6	149325	4.8	19.6	60273	4.9	18.1	63407	5.0	20.0
85514	4.6	19.6	282987	4.7	20.8	49837	4.8	17.8	148153	4.8	18.0	312532	4.9	21.0	171243	5.0	18.2
91730	4.6	18.2	61048	4.7	19.0	211315	4.8	20.0	196113	4.8	19.0	169976	4.9	19.0	284672	5.0	20.0
416696	4.6	19.8	178586	4.7	18.9	494899	4.8	20.8	273472	4.9	20.5	541268	4.9	20.9	138276	5.0	19.6
275098	4.6	20.0	496777	4.7	20.4	193310	4.8	19.5	393528	4.9	21.2	262234	4.9	19.6	110991	5.0	19.7
188801	4.6	20.3	516639	4.7	21.1	285066	4.8	21.1	80883	4.9	19.2	25818	4.9	18.4	38191	5.0	18.5
250280	4.7	20.6	48951	4.7	18.2	204551	4.8	21.3	390751	4.9	21.5	413360	4.9	19.2	197497	5.0	18.4
510541	4.7	21.5	161177	4.7	20.7	279342	4.8	19.8	138994	4.9	19.2	197251	4.9	18.7	41287	5.0	18.7
179762	4.7	18.5	207891	4.7	20.9	216678	4.8	20.1	329074	4.9	19.9	451261	4.9	21.3	41310	5.0	17.7
90244	4.7	19.7	380982	4.7	20.4	167447	4.8	18.6	401324	4.9	19.0	458717	4.9	20.2	90036	5.0	18.7
235700	4.7	23.1	316632	4.7	19.3	329846	4.8	20.3	7728	4.9	17.6	144248	4.9	19.4	256911	5.0	20.1
158551	4.7	20.1	486279	4.7	20.7	479347	4.8	20.4	525227	4.9	21.1	275052	4.9	20.0	235863	5.0	19.8
51192	4.7	18.9	506109	4.7	20.6	211386	4.8	20.2	270931	4.9	20.3	75589	4.9	18.5	401543	5.0	20.2
365290	4.7	21.1	447478	4.7	21.7	248246	4.8	20.7	3302	4.9	16.3	77744	4.9	17.8	302899	5.0	21.3
170466	4.7	19.4	433690	4.7	20.2	44083	4.8	18.5	360853	4.9	21.4	156788	4.9	18.9	454381	5.0	20.5
517416	4.7	22.1	363607	4.7	20.1	440263	4.8	21.5	74557	4.9	19.3	377980	4.9	21.1	408222	5.0	20.9
247921	4.7	19.2	5557	4.7	16.8	190312	4.8	19.3	91336	4.9	18.8	72815	4.9	17.6	523444	5.0	21.9
163563	4.7	18.9	147063	4.7	18.6	126256	4.8	19.0	375466	4.9	20.5	170814	4.9	20.0	29804	5.0	18.1
516870	4.7	22.0	249329	4.7	20.8	52835	4.8	18.8	11501	4.9	17.0	15938	4.9	17.1	424892	5.0	20.4
88318	4.7	19.9	384652	4.7	20.8	47634	4.8	19.0	475167	4.9	20.5	194885	4.9	19.9	267898	5.0	20.1
3584	4.7	16.3	310264	4.7	20.0	366611	4.8	20.6	217701	4.9	20.8	228963	4.9	19.4	250968	5.0	19.8
84619	4.7	19.9	391212	4.7	20.9	134144	4.8	19.3	475360	4.9	19.9	377964	4.9	20.6	94703	5.0	18.8
169481	4.7	19.6	406895	4.7	21.1	486404	4.8	20.7	455505	4.9	20.8	339051	4.9	20.2	133570	5.0	19.2
481771	4.7	21.7	225488	4.7	20.1	377994	4.8	20.6	354640	4.9	20.9	493288	4.9	20.5	484832	5.0	20.6
453199	4.7	20.6	345193	4.7	21.2	78175	4.8	18.3	308931	4.9	20.4	415261	4.9	21.2	239089	5.0	21.4
356157	4.7	20.2	236313	4.7	19.3	409898	4.8	20.3	351375	4.9	18.9	196169	4.9	19.5	112912	5.0	19.3
486106	4.7	20.9	444732	4.7	21.7	323540	4.8	21.5	399747	4.9	21.7	281725	4.9	21.2	41090	5.0	19.0
231841	4.7	19.6	334223	4.7	19.6	275837	4.8	21.3	517330	4.9	22.2	450059	4.9	21.1	424877	5.0	21.0
373930	4.7	20.2	330245	4.7	20.7	503855	4.8	20.8	218836	4.9	20.0	448881	4.9	22.1	462115	5.0	21.2
453941	4.7	20.5	159983	4.7	20.6	79088	4.8	17.9	18912	4.9	17.4	79896	4.9	18.3	40810	5.0	19.4
88131	4.7	18.4	205158	4.7	18.6	104250	4.8	20.5	469881	4.9	20.2	471998	4.9	21.5	104768	5.0	20.5
192192	4.7	20.8	290433	4.7	20.8	517343	4.8	21.4	74725	4.9	18.0	326834	4.9	20.4	270803	5.0	21.6
231113	4.7	19.9	415024	4.7	19.6	39078	4.8	19.6	211252	4.9	20.4	5528	4.9	15.9	224073	5.0	20.5
134354	4.7	18.8	416738	4.7	19.9	411051	4.8	20.5	366954	4.9	21.0	290942	4.9	20.1	517828	5.0	21.8
195807	4.7	20.3	474766	4.7	21.6	340137	4.8	20.7	420993	4.9	20.2	509679	4.9	21.2	144496	5.0	19.9
229755	4.7	20.2	223167	4.7	19.1	369440	4.8	20.5	75969	4.9	19.2	269868	4.9	19.6	266723	5.0	20.9
212224	4.7	20.4	121212	4.7	19.8	200498	4.8	18.7	440016	4.9	20.7	492793	4.9	21.2	506144	5.0	20.7
493678	4.7	19.7	71240	4.7	17.9	41740	4.8	17.1	516431	4.9	20.0	25706	4.9	18.1	225362	5.0	19.2
35692	4.7	17.5	197339	4.7	20.0	214664	4.8	19.7	289636	4.9	20.9	213676	4.9	19.8	88419	5.0	19.8
21667	4.7	17.7	428482	4.7	20.3	213295	4.8	20.4	282355	4.9	20.1	339834	4.9	20.5	194685	5.0	19.5
192117	4.7	20.9	234573	4.7	19.4	365030	4.8	21.1	422624	4.9	21.1	90393	4.9	18.3	446597	5.0	20.1
171034	4.7	18.5	403012	4.7	20.1	408571	4.8	20.9	78170	4.9	20.2	131596	4.9	16.6	410852	5.0	21.2
485650	4.7	21.2	369119	4.7	20.4	321382	4.8	20.9	163241	4.9	20.7	399896	4.9	19.8	53123	5.0	18.6
202807	4.7	19.4	341963	4.7	21.2	283801	4.8	20.1	312260	4.9	18.8	420710	4.9	20.8	462104	5.0	21.0
10112</																	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
56570	5.0	18.0	381378	5.1	20.2	1658	5.2	15.7	257120	5.3	20.7	453978	5.3	20.5	353780	5.4	21.7
263525	5.0	20.6	330748	5.1	21.0	208913	5.2	20.9	361361	5.3	20.8	291417	5.3	19.9	448318	5.4	21.1
99184	5.0	19.4	323646	5.1	20.4	72463	5.2	18.5	155216	5.3	19.4	440800	5.3	19.3	50083	5.4	18.8
530429	5.0	20.2	47062	5.1	17.7	212249	5.2	20.4	400893	5.3	20.5	212746	5.3	20.9	488141	5.4	20.6
34400	5.0	18.6	353597	5.1	20.1	348227	5.2	21.5	191400	5.3	20.1	197049	5.3	20.2	386025	5.4	20.5
300686	5.0	20.1	450610	5.1	20.5	486346	5.2	20.8	361675	5.3	19.1	473801	5.3	20.5	226520	5.4	19.0
101259	5.0	19.4	336916	5.1	19.6	214709	5.2	20.9	87574	5.3	20.1	348751	5.3	21.0	400661	5.4	21.8
461895	5.0	21.4	157767	5.1	19.4	416774	5.2	20.0	329423	5.3	20.5	196024	5.3	19.6	100813	5.4	18.2
74505	5.0	18.7	418607	5.1	20.7	272337	5.2	19.7	346478	5.3	18.8	254061	5.3	20.1	126007	5.4	19.4
114155	5.0	20.0	262657	5.1	21.0	348068	5.2	20.5	287224	5.3	20.1	87688	5.3	19.4	434152	5.4	19.6
112739	5.0	18.9	353165	5.1	20.1	376516	5.2	22.2	25454	5.3	16.6	90134	5.3	19.3	369618	5.4	20.6
209110	5.0	20.4	272226	5.1	19.0	229271	5.2	18.4	112320	5.3	19.3	266639	5.3	20.7	419398	5.4	20.2
267953	5.1	20.2	363185	5.1	19.5	334469	5.2	21.7	70389	5.3	18.3	446093	5.3	20.3	153711	5.4	20.5
487323	5.1	21.1	226431	5.1	20.3	112077	5.2	19.6	230828	5.3	20.5	435050	5.3	20.3	383822	5.4	20.6
230438	5.1	20.2	404362	5.1	21.4	410103	5.2	21.1	539950	5.3	21.8	200602	5.3	19.6	253932	5.4	20.7
120882	5.1	19.0	92142	5.1	18.8	144097	5.2	18.9	515816	5.3	21.8	72734	5.3	18.7	15405	5.4	18.5
386306	5.1	21.8	115730	5.1	19.4	405465	5.2	20.9	440102	5.3	20.7	164978	5.3	18.0	260762	5.4	20.5
278865	5.1	21.0	366137	5.1	20.0	316221	5.2	20.6	89890	5.3	19.1	74455	5.3	18.5	513364	5.4	21.5
523414	5.1	20.6	125761	5.1	19.1	176292	5.2	20.0	331441	5.3	20.2	13983	5.3	18.7	256410	5.4	19.3
360629	5.1	19.5	101476	5.1	18.2	196301	5.2	19.9	187094	5.3	20.8	379691	5.3	21.4	82357	5.4	19.5
216333	5.1	20.0	361852	5.1	20.2	220099	5.2	19.6	517793	5.3	21.2	22364	5.3	18.1	352352	5.4	21.7
339994	5.1	21.9	507899	5.1	20.6	148038	5.2	19.8	140487	5.3	19.7	21541	5.3	18.6	18618	5.4	16.5
444630	5.1	21.2	262481	5.1	20.9	440056	5.2	19.2	262228	5.3	20.0	87519	5.3	19.4	420973	5.4	20.5
215184	5.1	20.7	69422	5.1	17.6	302554	5.2	19.5	274974	5.3	20.5	440090	5.3	19.7	29627	5.4	17.7
295605	5.1	21.4	79931	5.1	17.8	24880	5.2	19.6	28247	5.3	18.3	454286	5.3	21.0	416207	5.4	21.0
505653	5.1	19.8	374258	5.1	19.9	104128	5.2	19.3	368407	5.3	20.4	358588	5.3	19.7	353232	5.4	20.0
514572	5.1	20.4	416692	5.1	19.8	432270	5.2	21.0	335860	5.3	21.2	252036	5.3	21.0	116544	5.4	19.2
460765	5.1	21.2	394170	5.1	20.6	159102	5.2	19.5	279452	5.3	20.8	300795	5.3	20.6	326240	5.4	19.8
209840	5.1	20.6	305150	5.1	19.7	36635	5.2	18.4	121840	5.3	19.9	442918	5.3	20.2	342320	5.4	21.1
488916	5.1	21.2	348252	5.1	21.1	198654	5.2	19.5	442229	5.3	20.5	66448	5.3	17.8	393410	5.4	22.3
414703	5.1	20.6	482248	5.1	20.7	510254	5.2	20.4	482511	5.3	21.4	490144	5.3	21.1	516522	5.4	22.5
485902	5.1	21.9	409145	5.1	20.1	170948	5.2	20.0	267100	5.3	19.9	489849	5.3	20.7	87933	5.4	19.8
277152	5.1	21.4	281155	5.1	19.6	233854	5.2	19.6	249913	5.3	21.1	278065	5.3	20.7	52019	5.4	18.6
133615	5.1	19.6	519934	5.1	22.4	45034	5.2	17.5	51687	5.3	17.7	27877	5.3	18.4	82744	5.4	18.6
391095	5.1	20.2	260659	5.1	19.0	140080	5.2	19.0	228785	5.3	18.0	414294	5.3	21.7	313250	5.4	20.2
479535	5.1	19.8	323962	5.1	20.0	278527	5.2	20.0	51580	5.3	19.6	402174	5.3	20.7	352997	5.4	21.0
483115	5.1	20.2	279918	5.1	20.1	455856	5.2	21.2	396674	5.3	21.0	99925	5.3	19.1	293531	5.4	20.4
166949	5.1	20.6	300371	5.2	21.6	404356	5.2	20.9	475549	5.3	19.9	291483	5.4	21.4	210520	5.4	19.8
83106	5.1	19.3	105111	5.2	19.8	288281	5.2	19.7	251580	5.3	19.8	86803	5.4	19.3	124378	5.4	19.4
49013	5.1	19.6	184318	5.2	20.0	271599	5.2	21.1	201683	5.3	19.7	104920	5.4	19.8	266645	5.4	21.1
120144	5.1	19.5	238279	5.2	19.0	74859	5.2	18.3	26693	5.3	20.5	167200	5.4	19.6	223177	5.4	18.9
182393	5.1	20.5	293086	5.2	19.6	172928	5.2	20.4	487019	5.3	21.4	417303	5.4	20.8	237769	5.4	19.8
223004	5.1	20.6	473349	5.2	20.7	487295	5.2	21.2	309204	5.3	19.7	90549	5.4	19.7	102818	5.4	19.4
17646	5.1	18.9	292926	5.2	20.1	146974	5.2	20.1	46647	5.3	18.0	413691	5.4	21.1	8493	5.4	16.3
153614	5.1	19.2	408197	5.2	19.8	100707	5.2	19.0	408142	5.3	21.6	262537	5.4	21.3	492627	5.4	19.5
292713	5.1	20.9	67360	5.2	19.1	249276	5.2	19.9	268380	5.3	20.9	116424	5.4	19.4	474992	5.4	20.4
482639	5.1	19.9	356278	5.2	21.1	247024	5.2	19.1	155668	5.3	20.8	20406	5.4	18.4	122726	5.4	16.8
321515	5.1	20.2	210154	5.2	21.2	470239	5.2	20.4	304928	5.3	21.7	191435	5.4	20.5	288034	5.4	20.5
447973	5.1	20.5	384803	5.2	20.9	460569	5.2	20.3	501556	5.3	20.8	56229	5.4	19.9	44959	5.4	19.9
14441	5.1	18.2	37723	5.2	17.9	473737	5.2	20.3	71716	5.3	18.0	260535	5.4	21.5	31141	5.4	17.8
401646	5.1	20.6	99272	5.2	19.4	215944	5.2	21.0	511723	5.3	21.0	191012	5.4	18.2	513580	5.4	20.6
201394	5.1	20.1	309964	5.2	20.1	364468	5.2	20.7	460147	5.3	21.7	132798	5.4	20.3	23833	5.4	18.8
269429	5.1	20.8	44724	5.2	18.7	158034	5.2	20.1	416329	5.3	21.2	285162	5.4	20.1	187775	5.4	20.1
368524	5.1	20.6	446484	5.2	20.6	273236	5.2	20.8	252361	5.3	20.4	272336	5.4	19.7	240790	5.4	19.5
369146	5.1	20.3	232535	5.2	20.0	11568	5.2	17.1	439049	5.3	21.4	485218	5.4	21.0	421297	5.4	20.4
174850	5.1	18.8	363053	5.2	20.4	158527	5.2	19.8	461877	5.3	22.1	26059	5.4	17.9	108550	5.4	19.6
263127	5.1	20.3	494069	5.2	20.2	169660	5.2	19.9	395863	5.3	19.7	542998	5.4	21.0	27461	5.4	19.3
165566	5.1	18.5	460881	5.2	21.1	370320	5.2	20.8	118167	5.3	19.4	144550	5.4	19.8	8946	5.4	16.9
78108	5.1	19.4	192088	5.2	20.0	316517	5.2	21.0	271559	5.3	20.5	485809	5.4	20.6	124525	5.4	19.2
44803	5.1	19.8	354056	5.2	19.5	414635	5.2	20.7	206502	5.3	21.0	30584	5.4	17.7	144973	5.4	19.8
285739	5.1	20.7	300662	5.2	19.3	184915	5.2	20.2	2281	5.3	16.7	384301	5.4	19.9	72985	5.4	19.4
49788	5.1	18.4	329728	5.2	20.0	493117	5.2	20.3	208832	5.3	20.1	492217	5.4	21.4	400344	5.4	20.3
22677	5.1	18.5	418457	5.2	20.3	168710	5.2	19.7	286389	5.3	19.6	542468	5.4	20.8	354629	5.4	20.6
468455	5.1	20.9	305050	5.2	21.0	10584	5.2	19.9	486195	5.3	20.2	49362	5.4	16.4	22060	5.4	17.6
444882	5.1	20.4	186617	5.2	20.4	470472	5.2	20.5	73931	5.3	19.7	8698	5.4	16.7	174583	5.4	19.6
321753	5.1	20.8	2715	5.2	15.6	544644	5.2	21.5	42802	5.3	18.0	372671	5.4	20.0	489021	5.4	20.0
115805	5.1	19.4	485959	5.2	21.8	345430	5.2	20.6	211485	5.3	19.4	119102	5.4	18.9	260129	5.5	20.1
427287	5.1	20.1	142506	5.2	19.1	449565	5.2	21.4	301203	5.3	20.4	168605	5.4	19.1	236212	5.5	19.2
375365	5.1	21.2	178521	5.2	20.1	353392	5.2	20.4	361220	5.3	20.8	373290	5.4	22.0	215739	5.5	20.4
287814	5.1	19.6	157712	5.2	18.8	503520	5.2	21.0	372741	5.3	20.4	503929	5.4	20.3	183005	5.5	19.5
405550	5.1	21.1	232777	5.2	19.7	309954	5.2	20.6	9931	5.3	17.4	78011	5.4	19.5	179827	5.5	19.5

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
215642	5.5	20.2	99193	5.5	20.2	221877	5.6	20.2	340909	5.7	21.2	218049	5.7	20.3	59428	5.8	19.1
343771	5.5	21.1	118723	5.5	19.2	486623	5.6	20.9	489215	5.7	20.4	481041	5.7	20.9	223888	5.8	19.7
95971	5.5	19.2	59229	5.5	17.8	259155	5.6	20.5	460092	5.7	20.3	77201	5.7	18.8	426997	5.8	21.2
410667	5.5	19.8	178264	5.5	19.4	164074	5.6	18.5	277898	5.7	20.2	424497	5.7	21.1	147370	5.8	19.4
302702	5.5	20.1	420190	5.5	20.5	332490	5.6	21.2	117572	5.7	19.7	207236	5.7	19.7	77117	5.8	19.3
116630	5.5	19.2	331287	5.5	22.2	36790	5.6	17.7	471951	5.7	20.9	57356	5.8	16.9	382047	5.8	19.8
56601	5.5	19.4	344947	5.5	19.7	7823	5.6	17.1	254743	5.7	20.5	159818	5.8	20.6	51120	5.8	18.5
406961	5.5	21.1	1675	5.5	13.8	260072	5.6	20.7	453645	5.7	21.7	391237	5.8	21.9	102056	5.8	19.5
339760	5.5	21.2	336366	5.5	20.9	382662	5.6	20.8	191599	5.7	20.8	88872	5.8	19.1	173402	5.8	20.3
159114	5.5	19.9	401566	5.5	20.5	541133	5.6	20.5	20979	5.7	18.4	171204	5.8	19.9	196915	5.8	19.8
119175	5.5	20.4	346446	5.5	21.8	251398	5.6	19.5	464569	5.7	20.8	53620	5.8	18.6	334997	5.8	19.8
516146	5.5	22.3	57526	5.5	17.7	391173	5.6	18.9	190912	5.7	20.8	119365	5.8	19.0	260024	5.8	19.9
14053	5.5	19.3	267633	5.5	20.9	272354	5.6	19.9	463575	5.7	21.0	366504	5.8	20.3	24829	5.8	19.1
50330	5.5	17.8	275254	5.5	20.3	196010	5.6	20.3	66842	5.7	17.7	51466	5.8	19.6	2746	5.8	15.6
23620	5.5	18.4	314251	5.5	20.1	30561	5.6	17.0	443246	5.7	20.7	84802	5.8	18.1	176086	5.8	18.5
409754	5.5	20.5	488233	5.5	20.7	383829	5.6	20.5	405466	5.7	19.8	211343	5.8	20.8	50414	5.8	18.9
88818	5.5	19.5	230187	5.5	20.0	517164	5.6	21.2	449416	5.7	20.7	458522	5.8	20.2	212124	5.8	20.3
25984	5.5	18.0	287121	5.5	20.3	487340	5.6	22.2	461234	5.7	20.3	270872	5.8	20.5	544704	5.8	21.2
541298	5.5	22.2	188099	5.6	19.6	6558	5.6	17.2	144049	5.7	19.6	448811	5.8	20.4	26125	5.8	17.0
411030	5.5	19.6	406677	5.6	21.4	406618	5.6	21.0	20214	5.7	18.0	223549	5.8	20.2	330812	5.8	20.3
292281	5.5	20.9	405978	5.6	20.1	33721	5.6	16.9	389931	5.7	20.7	15114	5.8	17.5	83141	5.8	21.0
406849	5.5	21.4	384689	5.6	21.1	199877	5.6	20.4	133860	5.7	19.6	103379	5.8	19.5	259796	5.8	18.7
8900	5.5	17.3	395437	5.6	21.3	516508	5.6	20.1	515468	5.7	21.3	389747	5.8	20.9	406953	5.8	21.8
482707	5.5	21.1	449257	5.6	21.2	75058	5.6	19.5	304127	5.7	21.1	178025	5.8	20.0	232460	5.8	20.4
156738	5.5	18.9	51556	5.6	19.3	459995	5.6	20.7	44906	5.7	18.2	418802	5.8	20.8	74322	5.8	18.3
491418	5.5	21.5	145077	5.6	20.0	230513	5.6	20.1	43217	5.7	17.9	105660	5.8	19.6	145943	5.8	18.5
128257	5.5	19.2	45313	5.6	17.7	343886	5.6	21.1	113243	5.7	18.5	284469	5.8	20.7	177481	5.8	20.0
334992	5.5	19.3	278023	5.6	20.4	152009	5.6	19.3	202337	5.7	19.4	164214	5.8	22.6	81576	5.8	18.6
25472	5.5	17.2	273783	5.6	20.6	133212	5.6	20.3	294271	5.7	21.5	504450	5.8	20.2	453161	5.8	21.3
249963	5.5	20.0	433405	5.6	21.3	339133	5.6	19.2	274450	5.7	21.1	401866	5.8	19.7	175653	5.8	19.8
2553	5.5	15.8	293592	5.6	19.4	352337	5.6	19.6	175205	5.7	19.9	40047	5.8	20.0	455676	5.8	20.4
326604	5.5	21.2	15931	5.6	16.6	315656	5.6	20.6	105462	5.7	19.5	189281	5.8	19.9	437880	5.8	20.9
391132	5.5	20.1	86441	5.6	18.7	393478	5.6	20.9	459651	5.7	21.5	37461	5.8	20.2	132825	5.8	19.6
269748	5.5	19.7	407317	5.6	21.1	515876	5.6	21.6	347797	5.7	19.9	461031	5.8	19.8	270969	5.8	19.9
46723	5.5	19.4	480177	5.6	20.5	18284	5.6	18.3	337614	5.7	20.6	80324	5.8	18.6	453646	5.8	21.2
348328	5.5	20.5	487010	5.6	21.5	444424	5.6	21.4	43749	5.7	19.6	13634	5.8	17.2	284024	5.8	20.9
447165	5.5	21.0	110444	5.6	19.5	47403	5.6	19.2	438012	5.7	19.5	104675	5.8	19.4	187145	5.8	20.1
493492	5.5	19.9	78632	5.6	18.4	227176	5.6	21.0	382363	5.7	21.6	413317	5.8	19.7	140160	5.8	19.6
320779	5.5	20.2	117812	5.6	19.5	292082	5.6	20.7	521507	5.7	20.8	336706	5.8	20.1	376268	5.8	20.6
392285	5.5	19.3	223886	5.6	18.1	159703	5.6	18.0	282376	5.7	21.5	453628	5.8	20.4	460450	5.8	20.6
49604	5.5	18.2	334760	5.6	21.2	320955	5.6	20.1	104899	5.7	20.4	90126	5.8	17.7	144564	5.8	19.3
517287	5.5	21.7	96525	5.6	18.0	454640	5.6	21.9	473452	5.7	20.8	129070	5.8	19.2	307264	5.8	22.0
272033	5.5	20.7	308280	5.6	20.0	412536	5.6	20.8	516823	5.7	22.2	202736	5.8	21.2	371737	5.8	22.2
197748	5.5	20.8	349928	5.6	21.8	184330	5.6	19.7	451282	5.7	19.8	168581	5.8	19.9	310090	5.9	20.0
367838	5.5	20.4	239178	5.6	19.9	270111	5.6	20.8	281869	5.7	19.8	250471	5.8	20.1	73495	5.9	18.9
461558	5.5	19.8	517887	5.6	21.5	19860	5.6	18.8	270883	5.7	20.4	442533	5.8	20.7	449929	5.9	21.6
162316	5.5	19.0	366609	5.6	20.1	26340	5.6	16.1	239066	5.7	20.5	46253	5.8	18.6	434529	5.9	21.0
22985	5.5	18.6	122035	5.6	20.2	294963	5.6	20.4	339103	5.7	20.2	408536	5.8	20.6	124208	5.9	19.2
443249	5.5	20.2	90122	5.6	19.0	66234	5.6	18.6	398760	5.7	20.4	94847	5.8	18.8	254694	5.9	21.1
374621	5.5	20.8	451828	5.6	21.3	422294	5.6	21.0	165674	5.7	20.7	44426	5.8	18.4	41997	5.9	18.8
231355	5.5	20.0	226676	5.6	19.7	89098	5.6	18.8	212414	5.7	21.1	357479	5.8	20.9	202699	5.9	21.3
420095	5.5	20.6	65513	5.6	18.4	101076	5.6	20.4	141386	5.7	19.2	333520	5.8	20.8	405619	5.9	21.9
457919	5.5	20.2	261107	5.6	20.9	231132	5.6	18.8	78169	5.7	19.8	430092	5.8	20.8	348654	5.9	20.9
43175	5.5	18.2	272209	5.6	21.0	62312	5.6	19.5	373069	5.7	20.3	129927	5.8	19.1	230756	5.9	19.8
496640	5.5	19.6	344236	5.6	22.4	87489	5.6	18.9	108923	5.7	19.2	344149	5.8	19.0	376474	5.9	21.7
147709	5.5	18.4	64204	5.6	18.8	259474	5.6	19.9	19961	5.7	17.4	491191	5.8	21.5	360956	5.9	20.9
112402	5.5	18.8	41767	5.6	16.5	542424	5.6	19.4	385521	5.7	21.0	73740	5.8	19.0	270059	5.9	21.6
458082	5.5	20.3	390115	5.6	20.4	91897	5.6	17.5	458707	5.7	20.7	544469	5.8	21.3	187991	5.9	20.6
402328	5.5	20.5	144618	5.6	19.3	274504	5.6	20.6	159394	5.7	20.3	361364	5.8	21.0	273209	5.9	20.5
174639	5.5	19.7	350889	5.6	20.6	66348	5.6	18.3	216626	5.7	19.6	143239	5.8	18.5	369207	5.9	20.4
383425	5.5	20.0	193121	5.6	19.9	349924	5.6	18.5	493275	5.7	20.6	523026	5.8	20.9	80590	5.9	18.0
486332	5.5	21.7	276753	5.6	20.6	164862	5.6	20.1	48941	5.7	19.1	372048	5.8	21.7	523493	5.9	21.2
104086	5.5	19.4	91225	5.6	18.9	116087	5.6	17.9	398228	5.7	21.9	233278	5.8	20.7	112155	5.9	20.0
66451	5.5	18.3	216611	5.6	19.2	234767	5.7	20.8	64690	5.7	19.6	376853	5.8	20.2	544796	5.9	21.6
102771	5.5	20.1	49972	5.6	19.7	127851	5.7	20.4	296966	5.7	20.6	243026	5.8	21.0	246882	5.9	20.3
416522	5.5	18.8	132879	5.6	18.8	341075	5.7	19.7	455286	5.7	20.5	518564	5.8	21.0	405334	5.9	20.8
437379	5.5	19.9	136788	5.6	19.4	451287	5.7	21.8	384306	5.7	20.2	376169	5.8	20.2	189752	5.9	19.4
543846	5.5	22.0	101030	5.6	19.4	371347	5.7	20.6	485544	5.7	20.8	187148	5.8	19.9	234181	5.9	20.8
369174	5.5	21.3	438005	5.6	20.6	369175	5.7	21.3	386653	5.7	20.1	272150	5.8	19.4	167163	5.9	20.8
38464	5.5	19.3	38202	5.6	18.5	88713	5.7	18.3	521686	5.7	21.2	285093	5.8	21.7	180024	5.9	18.7
23651	5.5	19.2	286795	5.6	20.6	10592	5.7	17.8	269612	5.7	19.7	208937	5.8	20.6	197089	5.9	21.0
2																	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
398728	5.9	20.5	261658	5.9	20.5	353596	6.0	20.1	109433	6.1	18.8	3770	6.2	16.9	400772	6.2	19.5
320258	5.9	20.3	359205	5.9	20.5	450380	6.0	20.6	160111	6.1	17.9	399424	6.2	20.6	396769	6.2	19.2
262713	5.9	18.4	77332	5.9	19.0	230621	6.0	20.0	258626	6.1	20.4	247845	6.2	21.3	138954	6.2	18.2
73436	5.9	19.1	375388	5.9	20.5	489925	6.0	21.5	249566	6.1	19.9	150692	6.2	19.4	46265	6.2	19.5
204864	5.9	20.1	146489	5.9	19.6	422605	6.0	19.9	217124	6.1	19.9	113756	6.2	18.2	202672	6.2	20.1
431651	5.9	21.1	462978	5.9	20.9	25348	6.0	17.4	128981	6.1	19.4	105304	6.2	19.4	339050	6.2	20.3
124785	5.9	18.8	443009	5.9	20.6	219171	6.0	20.2	325554	6.1	21.0	52630	6.2	17.7	79405	6.2	19.7
360847	5.9	20.8	223744	5.9	19.5	336098	6.0	20.9	202027	6.1	20.9	77639	6.2	18.2	344954	6.2	20.0
465495	5.9	21.1	302539	5.9	20.5	60599	6.0	18.5	216692	6.1	20.2	475100	6.2	19.7	151995	6.2	19.6
223471	5.9	19.5	49282	5.9	17.4	109446	6.0	19.4	163293	6.1	20.1	542042	6.2	20.3	139466	6.2	19.7
62397	5.9	17.7	174924	5.9	20.0	139438	6.0	19.2	403947	6.1	19.5	266623	6.2	21.4	65691	6.2	18.3
199441	5.9	20.7	409151	5.9	19.1	346539	6.0	20.7	244464	6.1	20.2	494882	6.2	20.6	434949	6.2	21.2
283848	5.9	19.8	417397	5.9	20.1	216941	6.0	19.9	450372	6.1	20.9	255566	6.2	19.3	124252	6.2	20.2
329025	5.9	21.3	334357	5.9	19.7	333527	6.0	20.3	58795	6.1	16.8	400427	6.2	20.5	149732	6.2	19.7
514791	5.9	22.0	453169	5.9	21.2	29286	6.0	19.4	268686	6.1	20.0	426004	6.2	20.5	82598	6.2	19.3
18303	5.9	18.2	208288	5.9	19.7	45786	6.0	19.2	237785	6.1	19.3	345812	6.2	20.6	161213	6.2	19.2
90512	5.9	19.4	215303	5.9	20.3	202526	6.0	20.6	467146	6.1	20.3	334200	6.2	19.8	7095	6.2	18.6
461329	5.9	21.1	403349	5.9	21.1	400355	6.0	20.5	445604	6.1	20.4	366723	6.2	20.2	63400	6.2	19.9
215024	5.9	19.1	182463	5.9	20.4	117669	6.0	19.7	275924	6.1	19.5	28850	6.2	18.1	11441	6.2	15.2
372857	5.9	20.9	127988	5.9	19.3	167398	6.0	19.8	112956	6.1	19.4	518239	6.2	19.7	22258	6.2	18.3
4883	5.9	18.7	13640	5.9	16.9	77969	6.0	19.8	128508	6.1	19.2	141690	6.2	21.0	254852	6.2	20.2
54611	5.9	18.9	487018	5.9	21.4	461487	6.0	21.1	259606	6.1	19.5	104851	6.2	18.6	124292	6.2	19.7
504174	5.9	20.9	411769	5.9	19.9	26735	6.0	18.3	217636	6.1	19.0	277382	6.2	19.9	150884	6.2	20.7
417434	5.9	20.1	482284	5.9	21.2	422563	6.0	19.2	249065	6.1	20.0	74421	6.2	18.6	482633	6.2	20.0
455221	5.9	21.4	517610	5.9	21.0	220189	6.0	20.0	305211	6.1	19.6	268360	6.2	20.5	448821	6.2	20.0
435458	5.9	21.2	271042	5.9	19.4	447974	6.0	19.6	276523	6.1	20.2	297522	6.2	19.0	451824	6.2	21.2
514112	5.9	21.5	50553	5.9	18.9	31697	6.0	18.6	289988	6.1	20.0	3838	6.2	19.5	245823	6.2	21.1
65438	5.9	19.3	541762	5.9	20.7	312366	6.0	19.5	278096	6.1	19.5	303702	6.2	20.0	410995	6.2	20.5
287708	5.9	21.2	61762	5.9	19.2	109876	6.0	19.8	244663	6.1	19.9	320661	6.2	20.2	326088	6.2	21.5
263158	5.9	20.2	480471	5.9	21.3	372708	6.0	20.2	339063	6.1	21.3	77417	6.2	19.0	43816	6.2	17.8
291796	5.9	20.8	367409	5.9	21.7	330231	6.0	21.4	326361	6.1	19.7	201358	6.2	19.5	354411	6.2	19.1
515751	5.9	20.7	407927	5.9	20.6	195888	6.0	19.8	337933	6.1	19.6	58966	6.2	18.5	233553	6.2	20.5
64860	5.9	18.7	488088	5.9	20.9	247055	6.0	19.5	481098	6.1	21.7	110973	6.2	17.5	371786	6.2	20.6
73506	5.9	16.9	16663	5.9	17.7	228368	6.0	21.5	314912	6.1	19.1	195785	6.2	19.0	114235	6.2	19.4
356171	5.9	20.9	442642	5.9	20.5	485486	6.1	20.5	198224	6.1	21.6	390052	6.2	20.7	74341	6.2	18.0
397244	5.9	20.3	477296	5.9	19.6	150398	6.1	20.2	41425	6.1	18.2	112384	6.2	19.2	361358	6.2	20.0
420059	5.9	20.4	324030	5.9	20.9	196105	6.1	19.7	446538	6.1	20.3	522202	6.2	21.7	418480	6.2	20.9
56512	5.9	18.3	470745	5.9	20.6	114742	6.1	19.0	488558	6.1	22.2	182638	6.2	19.4	369310	6.2	20.2
146792	5.9	19.8	111956	5.9	19.9	351373	6.1	19.8	345411	6.1	19.8	183653	6.2	18.9	199853	6.2	20.6
84980	5.9	18.9	43648	5.9	19.0	85136	6.1	19.2	372318	6.1	19.6	408508	6.2	21.2	526861	6.2	20.7
122120	5.9	19.6	176099	5.9	19.2	201223	6.1	20.7	242064	6.1	19.6	240739	6.2	20.7	13089	6.2	17.6
315821	5.9	19.9	98263	5.9	19.7	471987	6.1	21.5	47168	6.1	17.3	96695	6.2	18.5	408943	6.2	20.2
513365	5.9	21.0	139696	5.9	19.9	125954	6.1	18.5	115565	6.1	19.6	517186	6.2	21.0	379933	6.2	20.7
259694	5.9	19.4	418551	5.9	21.6	321759	6.1	20.0	18894	6.1	17.6	7150	6.2	17.7	326917	6.3	19.0
417365	5.9	20.5	421131	5.9	21.7	382244	6.1	21.1	360617	6.1	19.7	386651	6.2	19.8	397287	6.3	21.8
159775	5.9	21.1	479454	5.9	20.3	248969	6.1	19.7	185101	6.1	19.9	249288	6.2	19.4	107736	6.3	19.0
493009	5.9	20.9	155038	5.9	19.1	360807	6.1	20.0	348210	6.1	21.3	34769	6.2	17.3	262691	6.3	18.8
442231	5.9	20.8	264303	5.9	20.0	399241	6.1	20.5	103064	6.1	19.7	306391	6.2	20.7	88794	6.3	19.5
284858	5.9	19.2	372234	5.9	20.9	230978	6.1	19.5	218091	6.1	20.4	292840	6.2	19.7	357647	6.3	20.7
446003	5.9	20.6	477269	5.9	21.2	397232	6.1	21.1	385681	6.1	19.9	254862	6.2	19.8	311614	6.3	20.2
514159	5.9	21.2	373303	5.9	20.4	31139	6.1	17.8	130137	6.1	19.3	463951	6.2	19.2	440080	6.3	19.6
115550	5.9	18.8	8867	5.9	17.6	367434	6.1	21.3	405428	6.1	19.9	31850	6.2	18.0	113934	6.3	18.8
368182	5.9	20.7	326538	5.9	20.3	144334	6.1	19.6	115506	6.1	19.0	101643	6.2	18.3	399374	6.3	20.7
509005	5.9	21.6	396928	6.0	21.1	215183	6.1	19.9	230788	6.1	19.6	33339	6.2	17.7	493738	6.3	21.2
115633	5.9	19.7	283267	6.0	19.9	274199	6.1	20.1	416119	6.1	20.2	404414	6.2	20.8	45176	6.3	19.6
370834	5.9	19.4	192149	6.0	19.1	326755	6.1	20.8	451254	6.1	21.3	491242	6.2	20.0	229727	6.3	19.5
276632	5.9	20.0	491515	6.0	21.9	54318	6.1	18.2	438091	6.1	21.3	52309	6.2	17.8	84931	6.3	18.6
190948	5.9	20.2	455333	6.0	20.1	541340	6.1	20.3	25532	6.1	15.9	236062	6.2	20.1	85621	6.3	19.3
484132	5.9	21.3	269314	6.0	20.4	30046	6.1	19.1	17167	6.1	16.7	146952	6.2	19.0	269894	6.3	19.8
109687	5.9	20.3	231051	6.0	19.9	50084	6.1	17.6	456200	6.1	20.3	136002	6.2	18.9	142846	6.3	19.4
267252	5.9	21.2	276784	6.0	20.3	98929	6.1	19.1	521719	6.1	20.8	369162	6.2	21.1	126444	6.3	18.6
245919	5.9	20.4	329135	6.0	20.2	150300	6.1	19.8	138249	6.1	18.8	445371	6.2	21.0	277184	6.3	20.1
477404	5.9	21.3	3052	6.0	15.6	495931	6.1	21.3	67240	6.1	18.4	201307	6.2	19.7	198754	6.3	18.8
317486	5.9	20.6	51182	6.0	16.7	20732	6.1	17.7	269168	6.2	20.3	301851	6.2	20.4	492606	6.3	20.8
217207	5.9	19.9	269841	6.0	19.3	128167	6.1	19.4	449895	6.2	22.2	365382	6.2	20.9	150209	6.3	18.7
446866	5.9	20.3	392244	6.0	19.7	418611	6.1	20.5	217279	6.2	19.8	197843	6.2	18.4	206494	6.3	20.4
491339	5.9	19.9	229659	6.0	19.1	50136	6.1	18.4	132616	6.2	19.6	396385	6.2	20.6	439217	6.3	21.5
196040	5.9	19.4	332959	6.0	20.8	183914	6.1	19.3	69752	6.2	18.6	356525	6.2	20.6	445616	6.3	21.7
104393	5.9	19.4	82680	6.0	18.1	114886	6.1	19.6	516873	6.2	21.5	254761	6.2	20.4	271311	6.3	20.1
33662	5.9	18.4	15073	6.0	17.3	210904	6.1	21.4	251151	6.2	21.0	300768	6.2	19.3	247682	6.3	18.2
110808	5.9	19.5	167280	6.0	19.7	488362	6.1	20.1	354414	6.2	19.8	473759	6.2	20.8	347371	6.3	21

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
184478	6.3	20.7	386359	6.3	21.2	459661	6.4	20.5	7589	6.5	16.0	277490	6.6	19.7	196916	6.6	20.0
518236	6.3	20.1	197696	6.4	20.4	116020	6.4	18.6	112864	6.5	19.9	286853	6.6	20.9	145108	6.6	20.2
539840	6.3	20.3	434784	6.4	21.5	259859	6.4	19.8	120247	6.5	20.0	495559	6.6	20.5	111016	6.6	20.0
157163	6.3	20.3	247993	6.4	20.2	165125	6.4	19.8	301388	6.5	18.9	300553	6.6	20.3	258185	6.6	21.0
12038	6.3	17.3	117394	6.4	17.9	69711	6.4	19.6	485587	6.5	20.7	506114	6.6	20.7	339940	6.6	19.5
323599	6.3	20.6	95073	6.4	18.4	453540	6.4	20.7	302635	6.5	20.5	435110	6.6	21.8	29102	6.6	18.5
458600	6.3	19.8	298501	6.4	20.0	14001	6.4	16.2	516609	6.5	20.2	217000	6.6	20.1	280805	6.6	19.9
461291	6.3	20.6	425269	6.4	20.6	464458	6.4	19.9	204709	6.5	19.4	355439	6.6	20.4	283210	6.6	20.1
288354	6.3	19.2	72525	6.4	18.7	251759	6.4	20.4	240748	6.5	19.4	115428	6.6	19.2	330914	6.6	20.2
449850	6.3	19.1	150060	6.4	19.6	362240	6.4	20.6	475930	6.5	20.3	459835	6.6	21.6	517615	6.6	20.8
399506	6.3	20.2	141481	6.4	20.0	247503	6.4	19.4	294168	6.5	19.3	227181	6.6	20.9	510200	6.6	20.0
332691	6.3	21.6	390757	6.4	22.0	198784	6.4	19.5	435609	6.5	20.9	134738	6.6	19.2	366633	6.6	21.4
115350	6.3	18.9	458076	6.4	19.5	451977	6.4	20.8	161430	6.5	19.1	39445	6.6	19.0	247193	6.6	20.5
477244	6.3	21.8	458712	6.4	21.0	93142	6.4	18.8	72712	6.5	20.0	51775	6.6	17.0	53709	6.6	19.0
544197	6.3	21.6	361725	6.4	20.2	53793	6.4	18.5	234234	6.5	19.5	333211	6.6	20.2	358745	6.6	20.2
399773	6.3	22.3	412309	6.4	21.5	86579	6.4	19.7	120220	6.5	19.0	220174	6.6	20.4	447825	6.6	20.8
461303	6.3	21.1	81803	6.4	19.2	330347	6.4	21.0	75316	6.5	17.7	212273	6.6	19.4	211406	6.6	19.5
449662	6.3	21.0	431141	6.4	20.6	95611	6.4	18.2	487258	6.5	21.1	376081	6.6	20.2	131365	6.6	19.6
114091	6.3	18.8	447471	6.4	20.7	118159	6.4	19.9	330323	6.5	20.6	383916	6.6	20.9	35831	6.6	17.3
332580	6.3	20.2	178652	6.4	19.2	370892	6.4	20.7	244471	6.5	20.2	69000	6.6	18.7	172720	6.6	18.5
456164	6.3	20.0	213272	6.4	20.7	42174	6.4	17.5	110260	6.5	20.0	215736	6.6	20.2	116078	6.6	19.5
520350	6.3	22.0	230217	6.4	20.1	9369	6.4	16.2	26764	6.5	19.1	409969	6.6	20.2	278092	6.6	18.8
411289	6.3	20.7	222014	6.4	19.2	252035	6.4	20.0	514509	6.5	20.4	322653	6.6	20.4	520758	6.6	20.7
280550	6.3	20.8	184127	6.4	19.7	191421	6.4	19.4	292672	6.5	20.6	145963	6.6	18.9	252652	6.6	20.0
306022	6.3	20.5	40875	6.4	18.6	449247	6.4	21.1	33360	6.5	18.3	237247	6.6	20.2	268784	6.6	19.0
120179	6.3	18.3	336977	6.4	20.1	259679	6.4	18.9	44491	6.5	17.7	482032	6.6	19.0	261894	6.6	20.1
101269	6.3	19.9	444468	6.4	21.3	321305	6.4	20.5	121691	6.5	18.1	331459	6.6	20.1	373319	6.6	20.9
473578	6.3	21.5	484839	6.4	22.0	113605	6.4	19.3	185143	6.5	19.1	395679	6.6	20.7	249350	6.6	20.3
222956	6.3	21.1	14962	6.4	17.2	273761	6.4	21.5	412749	6.5	20.3	316248	6.6	19.8	335317	6.6	19.4
388132	6.3	19.6	29054	6.4	17.1	161221	6.4	19.6	78743	6.5	18.9	264948	6.6	20.0	170442	6.7	19.7
303209	6.3	18.4	134587	6.4	19.5	269354	6.4	20.5	518263	6.5	20.4	205391	6.6	19.5	396470	6.7	21.2
423375	6.3	20.6	176250	6.4	19.0	47457	6.4	17.9	516806	6.5	21.7	99235	6.6	18.7	31798	6.7	17.7
229244	6.3	19.2	352994	6.4	19.7	429414	6.4	20.2	46480	6.5	17.8	493420	6.6	21.0	461216	6.7	20.6
373110	6.3	20.0	462485	6.4	20.9	409065	6.4	19.9	442305	6.5	20.9	358710	6.6	19.7	296456	6.7	19.5
452380	6.3	19.2	446001	6.4	19.8	371784	6.4	20.6	40329	6.5	21.4	23491	6.6	17.4	5034	6.7	17.0
222932	6.3	20.6	127886	6.4	19.3	238739	6.4	19.4	32510	6.5	18.2	388099	6.6	20.7	366112	6.7	20.1
305126	6.3	19.2	27821	6.4	19.0	185126	6.4	19.4	21662	6.5	18.0	110636	6.6	19.1	213921	6.7	19.1
420214	6.3	20.5	517440	6.4	21.3	171511	6.4	20.3	75220	6.5	19.1	215594	6.6	19.7	456456	6.7	18.6
140292	6.3	19.9	465999	6.4	21.8	175637	6.4	19.8	112963	6.5	20.5	306146	6.6	21.2	520711	6.7	21.0
36360	6.3	15.8	269166	6.4	19.4	457991	6.4	20.7	195224	6.5	19.3	421356	6.6	19.9	326594	6.7	21.6
515270	6.3	20.9	431821	6.4	21.9	161387	6.4	19.5	208050	6.5	19.9	308301	6.6	20.5	948	6.7	15.3
412604	6.3	20.6	269922	6.4	20.3	8339	6.4	17.5	186659	6.5	17.8	84671	6.6	19.1	105830	6.7	19.0
442241	6.3	20.8	409821	6.4	20.4	382724	6.5	18.7	484833	6.5	21.1	397364	6.6	20.8	102924	6.7	18.8
333870	6.3	19.8	369182	6.4	21.0	377517	6.5	19.4	159749	6.5	20.2	14651	6.6	18.0	291341	6.7	19.0
57421	6.3	17.8	246507	6.4	20.5	231093	6.5	20.3	26080	6.5	17.2	371356	6.6	20.4	494053	6.7	20.3
240462	6.3	19.3	380973	6.4	19.5	196553	6.5	19.7	307893	6.5	19.9	419437	6.6	19.5	418833	6.7	21.0
142487	6.3	19.5	487192	6.4	21.2	226583	6.5	19.3	415348	6.5	20.8	367623	6.6	20.4	120537	6.7	19.4
199215	6.3	18.6	196881	6.4	19.5	372803	6.5	19.3	488626	6.5	21.7	23194	6.6	18.0	458528	6.7	22.0
285412	6.3	20.5	188436	6.4	20.3	291827	6.5	20.1	522168	6.5	20.1	124045	6.6	20.1	537991	6.7	20.9
217590	6.3	20.3	20704	6.4	16.9	443418	6.5	21.3	399121	6.5	20.0	109942	6.6	19.1	484467	6.7	20.0
101559	6.3	18.1	542916	6.4	19.9	167624	6.5	19.5	322937	6.5	20.7	506089	6.6	19.8	401886	6.7	21.4
441466	6.3	20.5	389598	6.4	20.7	46891	6.5	18.6	413349	6.5	19.4	1133	6.6	14.6	488580	6.7	23.7
275225	6.3	18.9	340274	6.4	19.6	173025	6.5	20.1	220083	6.5	19.9	50467	6.6	18.9	43082	6.7	18.3
426749	6.3	20.1	127867	6.4	20.3	488392	6.5	19.1	86073	6.5	20.6	29981	6.6	23.8	247533	6.7	20.1
517822	6.3	20.0	365044	6.4	20.5	315556	6.5	18.6	165543	6.5	19.3	28237	6.6	18.7	96882	6.7	19.5
213410	6.3	20.9	281857	6.4	19.8	129926	6.5	19.4	442344	6.5	21.1	311307	6.6	20.6	195893	6.7	19.6
209821	6.3	20.2	205080	6.4	19.1	396948	6.5	23.4	10121	6.5	18.5	271331	6.6	20.0	24653	6.7	17.8
420186	6.3	20.5	66941	6.4	17.0	156144	6.5	18.2	322277	6.5	20.4	273826	6.6	20.9	516575	6.7	20.8
197444	6.3	18.2	80740	6.4	18.9	493432	6.5	20.5	199191	6.5	19.2	191420	6.6	19.7	464028	6.7	20.8
17225	6.3	17.4	516274	6.4	20.1	104516	6.5	18.1	387407	6.5	19.5	51211	6.6	18.1	13468	6.7	16.7
30672	6.3	17.5	67355	6.4	19.7	294170	6.5	20.5	380710	6.5	20.3	116117	6.6	18.4	359280	6.7	20.3
128460	6.3	19.1	271202	6.4	21.1	483197	6.5	20.7	301613	6.5	21.4	515111	6.6	20.0	454738	6.7	19.8
240111	6.3	19.0	488255	6.4	20.8	76446	6.5	18.8	222510	6.5	19.7	270114	6.6	20.6	246901	6.7	19.6
263820	6.3	19.3	215327	6.4	20.3	322984	6.5	20.2	73876	6.5	19.1	7292	6.6	17.3	453144	6.7	19.8
414626	6.3	20.3	418710	6.4	20.2	429474	6.5	21.0	111151	6.5	20.2	447625	6.6	21.6	109920	6.7	19.2
445683	6.3	21.3	399602	6.4	19.5	294701	6.5	20.0	110919	6.5	19.5	209116	6.6	18.6	93053	6.7	17.7
432813	6.3	19.6	81197	6.4	18.9	484808	6.5	20.8	404542	6.5	20.5	232046	6.6	18.8	486334	6.7	21.0
229422	6.3	20.9	212228	6.4	19.7	149075	6.5	19.4	409324	6.5	20.0	187945	6.6	19.9	517419	6.7	21.3
483549	6.3	20.3	45692	6.4	17.3	517843	6.5	21.5	54250	6.5	17.6	48069	6.6	19.4	16026	6.7	17.0
142547	6.3	19.2	387491	6.4	19.9	41699	6.5	17.5	334330	6.5	19.0	364929	6.6	20.6	234658	6.7	20.4
124671	6.3	19.2	480224	6.4	20.4	271967	6.5	19.7	9899	6.5	16.7	267569	6.6	20.1	105008	6.7	19.

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
266830	6.7	19.4	520318	6.8	20.2	4407	6.8	16.3	260918	6.9	21.0	7819	6.9	18.1	152553	7.1	19.2
520735	6.7	20.4	328707	6.8	19.4	248890	6.8	20.8	14866	6.9	18.6	512184	6.9	21.2	404283	7.1	20.9
213406	6.7	20.5	336063	6.8	21.5	197942	6.8	18.9	161638	6.9	20.7	110516	6.9	19.0	117850	7.1	19.9
396698	6.7	20.1	512323	6.8	19.8	424855	6.8	20.5	185306	6.9	20.0	295580	6.9	19.9	246360	7.1	20.6
28246	6.7	17.4	139905	6.8	19.9	331686	6.8	20.0	435463	6.9	20.4	440148	6.9	19.9	288454	7.1	20.2
452011	6.7	20.6	145180	6.8	19.9	159555	6.8	21.3	119110	6.9	19.6	119401	6.9	20.4	111035	7.1	19.7
486281	6.7	19.7	207165	6.8	19.1	379850	6.8	20.6	424825	6.9	20.2	272224	6.9	19.8	134204	7.1	19.8
192979	6.7	19.3	458550	6.8	21.1	193679	6.8	18.0	201317	6.9	20.3	293404	6.9	20.7	452346	7.1	20.3
368386	6.7	21.0	543538	6.8	22.0	21355	6.8	18.6	234930	6.9	20.2	244188	6.9	19.8	391171	7.1	20.0
132698	6.7	19.3	223914	6.8	18.0	74252	6.8	18.5	310325	6.9	20.8	188136	6.9	19.5	432327	7.1	20.7
421674	6.7	20.4	149181	6.8	20.0	361265	6.8	20.6	232021	6.9	19.3	35804	6.9	18.3	14142	7.1	16.5
249542	6.7	20.7	14380	6.8	18.6	422526	6.8	20.3	104540	6.9	19.0	166328	6.9	19.9	202796	7.1	20.0
364247	6.7	20.2	285485	6.8	18.4	405453	6.8	20.3	392365	6.9	20.1	296099	6.9	20.9	431653	7.1	19.8
281158	6.7	21.2	312390	6.8	20.1	445582	6.8	21.8	359286	6.9	20.7	204581	6.9	17.8	428102	7.1	21.3
488062	6.7	20.8	358349	6.8	20.1	268717	6.8	20.5	225172	6.9	19.4	397550	6.9	21.4	15395	7.1	18.0
146619	6.7	18.7	388154	6.8	19.7	179622	6.8	20.8	230961	6.9	19.6	193130	6.9	20.7	201738	7.1	18.8
495433	6.7	20.0	92893	6.8	19.9	135720	6.8	19.9	333731	6.9	20.4	305675	6.9	20.1	406582	7.1	20.4
157380	6.7	19.8	8268	6.8	16.8	136299	6.8	19.1	460398	6.9	20.4	542968	6.9	20.3	179693	7.1	20.0
212265	6.7	19.6	437904	6.8	20.3	28104	6.8	18.2	453639	6.9	21.2	344897	6.9	20.6	484822	7.1	21.2
462735	6.7	19.6	68690	6.8	19.2	92041	6.8	19.0	487891	6.9	20.4	222990	6.9	18.8	210202	7.1	18.7
289047	6.7	19.5	522061	6.8	20.8	450622	6.8	20.8	435471	6.9	21.1	469516	6.9	21.7	438525	7.1	21.8
110551	6.7	18.5	447492	6.8	19.8	284913	6.9	19.2	254748	6.9	19.9	133320	6.9	18.7	297083	7.1	20.8
440783	6.7	21.1	461049	6.8	20.4	465236	6.9	22.0	249140	6.9	20.2	32685	6.9	19.6	124764	7.1	19.7
515873	6.7	21.4	323261	6.8	19.9	64393	6.9	19.0	309983	6.9	20.2	76169	7.0	18.9	173461	7.1	19.9
97792	6.7	18.7	274251	6.8	20.7	249012	6.9	19.7	541442	6.9	20.2	518479	7.0	20.3	425848	7.1	21.5
195797	6.7	19.7	462383	6.8	20.7	26322	6.9	17.8	132855	6.9	19.1	107974	7.0	18.8	486323	7.1	20.8
45520	6.7	18.6	284495	6.8	19.9	510189	6.9	21.5	75188	6.9	18.2	129193	7.0	19.4	279494	7.1	20.8
167198	6.7	18.8	467040	6.8	20.1	59400	6.9	18.4	38285	6.9	18.7	36667	7.0	19.1	135943	7.1	20.5
209737	6.7	21.1	255568	6.8	20.3	153583	6.9	20.4	493301	6.9	20.8	330496	7.0	20.3	71568	7.1	18.8
450228	6.7	21.3	518043	6.8	21.9	328385	6.9	21.6	9919	6.9	17.5	108325	7.0	19.3	544986	7.1	20.9
32521	6.7	17.0	60732	6.8	17.6	386712	6.9	20.6	416783	6.9	20.1	83336	7.0	18.5	477345	7.1	20.2
343255	6.7	19.4	62548	6.8	20.6	150936	6.9	20.0	190927	6.9	19.7	314980	7.0	19.9	273220	7.1	20.5
274711	6.7	20.5	23110	6.8	17.2	14632	6.9	16.8	118492	6.9	19.7	228955	7.0	18.8	223062	7.1	19.4
415402	6.7	20.9	198782	6.8	19.3	401397	6.9	20.1	195800	6.9	20.4	124510	7.0	18.8	65481	7.1	19.8
365307	6.7	21.5	361952	6.8	20.4	30116	6.9	17.5	230792	6.9	19.1	267608	7.0	19.2	121012	7.1	19.1
484809	6.7	20.5	127314	6.8	20.0	223932	6.9	19.2	217270	6.9	19.2	408455	7.0	20.5	30479	7.1	19.1
491301	6.7	20.9	16884	6.8	17.3	306521	6.9	19.7	51421	6.9	18.4	566	7.0	12.7	169717	7.1	19.9
108130	6.7	19.7	148670	6.8	20.2	162991	6.9	19.5	54102	6.9	19.3	280973	7.0	20.2	214791	7.1	19.6
247922	6.7	19.5	160384	6.8	19.4	222207	6.9	19.3	390737	6.9	20.8	42078	7.0	17.7	455136	7.1	20.2
359463	6.7	20.6	251984	6.8	20.5	326890	6.9	19.6	103031	6.9	18.7	63527	7.0	18.9	138128	7.1	19.5
445419	6.7	20.7	424193	6.8	20.9	43147	6.9	17.5	178968	6.9	19.8	147070	7.0	19.3	63741	7.1	18.4
230747	6.7	19.4	486460	6.8	21.6	418506	6.9	20.8	390256	6.9	19.9	229447	7.0	19.9	298654	7.1	19.5
207339	6.7	19.7	392333	6.8	21.1	122111	6.9	19.1	474348	6.9	21.7	321997	7.0	20.7	119203	7.1	18.7
304120	6.7	21.3	203952	6.8	18.5	306537	6.9	20.3	118793	6.9	20.5	436423	7.0	19.9	375329	7.1	20.7
315802	6.7	19.6	396726	6.8	20.7	276179	6.9	20.8	449933	6.9	21.1	484431	7.0	20.6	520560	7.1	21.0
440166	6.7	20.8	486556	6.8	19.9	414718	6.9	19.9	117528	6.9	19.3	388180	7.0	20.7	329692	7.1	20.1
173691	6.7	20.0	494013	6.8	20.2	12965	6.9	17.1	456620	6.9	21.5	182590	7.0	20.2	345203	7.1	19.1
464333	6.7	20.4	112934	6.8	19.4	408375	6.9	20.7	99701	6.9	20.0	176197	7.0	20.0	26020	7.1	18.7
44095	6.7	18.3	163653	6.8	19.4	452931	6.9	20.9	490027	6.9	20.7	280530	7.0	21.0	515173	7.1	20.6
156765	6.7	18.8	438476	6.8	20.9	156822	6.9	19.1	31611	6.9	16.8	270100	7.0	20.1	355490	7.1	20.2
263285	6.7	20.6	175648	6.8	21.2	403359	6.9	20.9	196354	6.9	19.5	197587	7.0	21.2	267301	7.1	20.7
486569	6.7	20.9	333535	6.8	19.8	102901	6.9	18.0	302603	6.9	19.8	494427	7.0	21.5	124393	7.1	19.9
296971	6.7	19.1	295103	6.8	20.6	127311	6.9	19.6	320031	6.9	20.9	193160	7.0	20.6	485726	7.1	20.2
412247	6.7	21.0	146547	6.8	19.3	418700	6.9	20.1	15290	6.9	17.2	88305	7.0	18.3	78055	7.1	18.4
290206	6.7	20.9	477294	6.8	20.2	328085	6.9	19.7	75920	6.9	18.8	53192	7.0	17.7	199171	7.1	19.9
159214	6.7	19.8	341868	6.8	20.9	542662	6.9	20.2	484442	6.9	20.1	194712	7.0	18.2	88363	7.1	19.2
320427	6.7	20.0	526436	6.8	21.8	211391	6.9	20.0	248912	6.9	19.7	122700	7.0	18.5	45981	7.1	18.5
332219	6.7	20.6	54094	6.8	17.9	163634	6.9	19.5	451872	6.9	21.6	390200	7.0	21.4	268891	7.1	19.5
421841	6.7	21.0	438506	6.8	21.3	463045	6.9	20.7	370391	6.9	20.2	273250	7.0	19.9	187160	7.1	20.6
364945	6.8	20.2	273187	6.8	19.8	337499	6.9	21.2	208090	6.9	18.1	526878	7.0	22.1	411083	7.1	20.3
152815	6.8	19.5	270016	6.8	19.5	273162	6.9	20.4	541362	6.9	20.7	461879	7.0	21.5	447582	7.1	20.6
71302	6.8	18.3	516277	6.8	20.9	489935	6.9	20.8	113842	6.9	18.4	181458	7.0	19.5	369172	7.1	20.9
375200	6.8	19.2	388091	6.8	19.5	90066	6.9	19.2	30010	6.9	18.0	413219	7.0	21.7	292921	7.1	19.7
414982	6.8	20.2	89616	6.8	19.6	196759	6.9	19.8	331662	6.9	20.0	346352	7.0	20.6	160884	7.1	18.7
282612	6.8	20.2	255601	6.8	19.8	260680	6.9	20.3	455519	6.9	21.2	268682	7.0	20.2	484368	7.1	19.9
322909	6.8	19.9	369222	6.8	20.3	162075	6.9	21.1	475211	6.9	20.3	152212	7.0	19.5	411605	7.1	20.2
410778	6.8	24.8	102334	6.8	19.4	422040	6.9	19.6	127976	6.9	20.1	74570	7.0	18.6	5750	7.1	16.0
31872	6.8	18.7	20649	6.8	18.8	427370	6.9	19.7	251313	6.9	19.8	411920	7.0	20.2	317747	7.1	20.3
152209	6.8	20.1	193594	6.8	18.8	5092	6.9	16.6	460771	6.9	19.8	100493	7.0	20.9	243715	7.1	19.1
341952	6.8	20.9	15368	6.8	18.2	178662	6.9	20.3	139164	6.9	18.5	454548	7.0	20.9	108767	7.1	19.1
196849	6.8	19.3	436048	6.8	20.8	130028	6.9	20.6	521334	6.9	20.3	133792	7.0	18.8	183517	7	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
193321	7.1	19.9	47779	7.2	18.8	15180	7.3	18.3	223044	7.3	19.3	373912	7.4	20.2	355405	7.4	19.7
367906	7.1	20.3	263904	7.2	21.0	399500	7.3	20.2	139328	7.3	20.2	272988	7.4	21.0	50752	7.4	18.2
457442	7.1	20.5	520632	7.2	21.7	416131	7.3	20.3	48947	7.3	18.6	104622	7.4	18.0	134868	7.4	19.5
158693	7.1	20.2	300806	7.2	19.8	55890	7.3	19.1	70369	7.3	17.6	461658	7.4	20.3	125090	7.4	18.6
362847	7.1	20.6	484377	7.2	20.5	259791	7.3	19.4	438702	7.3	21.4	43046	7.4	18.2	18405	7.4	17.3
289865	7.1	19.5	456305	7.2	20.6	376685	7.3	20.8	14428	7.3	18.0	484759	7.4	20.7	515465	7.4	19.8
521921	7.1	20.8	418618	7.2	20.2	347172	7.3	21.5	479354	7.3	17.4	232638	7.4	19.8	481537	7.4	20.2
139136	7.1	19.6	387975	7.2	20.1	292923	7.3	19.6	112817	7.3	19.0	39187	7.4	18.8	12777	7.4	16.4
415220	7.1	20.3	421981	7.2	21.1	377142	7.3	19.5	316372	7.3	20.2	18178	7.4	17.9	441268	7.5	19.7
367665	7.1	19.3	399112	7.2	20.4	212175	7.3	20.8	489195	7.3	21.6	443672	7.4	20.6	415012	7.5	20.1
463933	7.1	19.5	189133	7.2	18.7	192591	7.3	18.5	17364	7.3	17.6	75335	7.4	18.7	300511	7.5	20.4
99767	7.1	19.2	73841	7.2	19.5	364270	7.3	19.9	287216	7.3	20.8	242201	7.4	19.0	273556	7.5	19.3
168602	7.1	18.3	372846	7.2	20.0	341966	7.3	20.0	335378	7.3	19.1	252446	7.4	20.1	518734	7.5	21.8
332083	7.1	19.9	145280	7.2	19.7	144912	7.3	19.3	115387	7.3	19.4	446985	7.4	19.8	225352	7.5	19.3
372266	7.1	20.0	366078	7.2	20.5	365272	7.3	20.7	140172	7.3	19.6	375188	7.4	19.6	182456	7.5	19.4
218757	7.1	19.8	238702	7.2	18.9	231445	7.3	20.4	410980	7.3	20.6	7664	7.4	17.4	191195	7.5	19.7
270127	7.1	20.8	178936	7.2	19.1	97704	7.3	19.4	307437	7.3	20.9	387007	7.4	20.5	217598	7.5	20.1
321593	7.1	20.7	160257	7.2	18.8	161112	7.3	20.3	271339	7.3	19.7	331987	7.4	20.8	393583	7.5	20.7
45742	7.1	18.7	134504	7.2	19.8	14312	7.3	17.0	450179	7.3	20.9	179719	7.4	20.1	258063	7.5	20.1
331099	7.2	20.0	88979	7.2	19.5	270939	7.3	20.1	445730	7.3	22.0	110213	7.4	19.4	460850	7.5	20.8
310009	7.2	19.5	16333	7.2	16.9	388982	7.3	20.3	289943	7.3	20.9	343199	7.4	20.5	332518	7.5	20.7
324801	7.2	20.8	474797	7.2	20.1	349143	7.3	21.0	290272	7.4	20.9	64491	7.4	18.8	225480	7.5	18.7
213281	7.2	20.1	310914	7.2	20.5	516307	7.3	20.4	495576	7.4	19.5	106061	7.4	19.2	444819	7.5	21.8
95793	7.2	19.5	388947	7.2	20.0	272175	7.3	20.9	65283	7.4	18.8	140038	7.4	19.4	199294	7.5	20.3
335263	7.2	21.7	295255	7.2	20.1	301217	7.3	19.9	231990	7.4	18.8	424864	7.4	20.1	409501	7.5	21.3
177014	7.2	18.9	129452	7.2	19.4	311815	7.3	19.4	83052	7.4	19.1	282869	7.4	20.5	273505	7.5	19.8
460042	7.2	20.7	394508	7.2	20.6	276390	7.3	19.8	178591	7.4	18.8	60761	7.4	19.3	60630	7.5	18.8
354683	7.2	21.4	418794	7.2	20.4	452838	7.3	21.0	452351	7.4	20.2	495080	7.4	20.4	409240	7.5	19.7
105829	7.2	19.4	516597	7.2	21.3	476391	7.3	21.0	92850	7.4	18.4	456515	7.4	20.2	278434	7.5	20.1
462520	7.2	20.9	19295	7.2	18.1	301714	7.3	21.4	135667	7.4	19.4	49440	7.4	18.8	5347	7.5	16.8
21103	7.2	18.2	123564	7.2	18.8	485595	7.3	20.8	448005	7.4	20.4	301903	7.4	19.8	21749	7.5	16.3
383021	7.2	20.2	10434	7.2	17.1	127698	7.3	18.9	70977	7.4	17.9	91674	7.4	18.3	78188	7.5	18.1
249956	7.2	20.2	370413	7.2	20.6	43186	7.3	19.0	196096	7.4	18.8	59018	7.4	17.8	404347	7.5	21.7
369495	7.2	20.4	418453	7.2	21.7	51299	7.3	18.4	335461	7.4	20.6	80160	7.4	18.7	361764	7.5	19.0
228216	7.2	19.5	514619	7.2	19.9	335480	7.3	20.3	71537	7.4	18.6	326569	7.4	20.1	417386	7.5	20.3
184957	7.2	20.5	82874	7.2	19.5	346894	7.3	21.6	63282	7.4	18.6	104888	7.4	18.8	27203	7.5	18.3
158559	7.2	20.0	46336	7.2	18.2	380525	7.3	19.4	174264	7.4	19.1	520949	7.4	20.4	400171	7.5	19.6
303099	7.2	18.5	196879	7.2	20.6	153009	7.3	20.0	45237	7.4	18.2	485696	7.4	20.1	332601	7.5	21.1
220084	7.2	19.6	301721	7.2	20.8	197137	7.3	19.4	418591	7.4	21.0	524771	7.4	21.4	194963	7.5	19.8
319495	7.2	21.1	51576	7.2	18.6	17223	7.3	16.8	514627	7.4	21.4	408345	7.4	20.8	110573	7.5	19.0
282993	7.2	19.9	493877	7.2	21.4	167320	7.3	19.5	190925	7.4	19.3	225696	7.4	17.7	334078	7.5	20.7
361309	7.2	20.4	519895	7.2	21.4	314935	7.3	18.9	255137	7.4	19.7	492910	7.4	21.1	444869	7.5	20.9
113674	7.2	19.5	124910	7.2	18.3	153513	7.3	18.9	398438	7.4	21.1	65197	7.4	18.5	139495	7.5	19.9
116072	7.2	18.4	411116	7.2	20.7	11098	7.3	17.0	201256	7.4	19.9	52125	7.4	18.3	468709	7.5	19.5
67759	7.2	19.1	468336	7.2	20.1	214979	7.3	20.3	249879	7.4	20.9	102462	7.4	19.0	159426	7.5	19.2
418796	7.2	21.3	145176	7.2	19.6	227860	7.3	19.6	380992	7.4	20.5	517423	7.4	22.2	191198	7.5	19.3
388538	7.2	20.3	101638	7.2	18.5	112237	7.3	19.2	495694	7.4	21.4	401486	7.4	20.3	273139	7.5	20.9
189018	7.2	19.5	420676	7.2	20.2	248571	7.3	20.5	275860	7.4	20.3	427261	7.4	20.7	435608	7.5	22.1
515852	7.2	20.5	77218	7.2	19.4	176874	7.3	18.9	79230	7.4	19.2	492020	7.4	21.3	302688	7.5	20.9
269066	7.2	20.4	180798	7.3	19.9	415587	7.3	19.6	84887	7.4	19.8	291947	7.4	20.5	142479	7.5	19.1
128829	7.2	19.8	411103	7.3	19.9	132864	7.3	20.7	268723	7.4	19.1	458576	7.4	20.4	195987	7.5	20.3
170511	7.2	19.1	419450	7.3	19.9	339988	7.3	21.5	274354	7.4	21.3	402350	7.4	20.7	197897	7.5	19.0
542843	7.2	21.2	275542	7.3	19.6	93602	7.3	18.1	400645	7.4	21.0	335288	7.4	21.7	158233	7.5	20.4
337358	7.2	21.2	495512	7.3	20.8	283757	7.3	20.2	10928	7.4	16.7	219014	7.4	20.0	177223	7.5	19.5
148758	7.2	19.9	272520	7.3	20.1	147936	7.3	19.4	146773	7.4	19.5	376624	7.4	19.6	14856	7.5	17.2
480873	7.2	21.8	252528	7.3	20.0	509458	7.3	20.6	491135	7.4	20.8	450615	7.4	21.6	137666	7.5	17.7
420644	7.2	21.1	74906	7.3	19.1	319287	7.3	20.6	195762	7.4	20.0	490762	7.4	20.0	283759	7.5	19.9
95923	7.2	20.5	230990	7.3	19.4	197452	7.3	19.4	262464	7.4	19.5	397260	7.4	20.4	194587	7.5	19.4
109237	7.2	19.1	153339	7.3	19.9	240201	7.3	20.5	188769	7.4	19.8	240340	7.4	20.8	332886	7.5	20.8
348845	7.2	20.6	437798	7.3	19.6	397249	7.3	21.8	346425	7.4	19.9	517724	7.4	20.3	341896	7.5	21.0
490163	7.2	21.0	209766	7.3	18.9	195136	7.3	19.5	394074	7.4	20.1	84450	7.4	19.5	274618	7.5	20.3
495269	7.2	21.7	149246	7.3	20.5	365025	7.3	21.4	154126	7.4	19.5	282358	7.4	20.7	411448	7.5	20.3
227649	7.2	20.3	384280	7.3	19.6	288915	7.3	20.5	320150	7.4	20.4	175011	7.4	19.2	194238	7.5	18.4
305982	7.2	19.2	223071	7.3	18.9	355967	7.3	20.3	48769	7.4	18.5	163110	7.4	18.4	317573	7.5	20.1
191504	7.2	19.6	212087	7.3	19.2	237825	7.3	20.0	491999	7.4	20.6	77271	7.4	18.2	219979	7.5	20.3
120349	7.2	19.4	84742	7.3	18.9	400343	7.3	19.0	320803	7.4	21.0	307445	7.4	20.1	453629	7.5	21.2
133263	7.2	19.0	300455	7.3	20.7	328038	7.3	20.9	107600	7.4	19.1	197776	7.4	20.3	64950	7.5	18.9
448844	7.2	21.7	522059	7.3	20.8	63752	7.3	18.9	416127	7.4	20.9	470043	7.4	20.9	441077	7.5	21.6
470140	7.2	21.5	375442	7.3	20.5	5831	7.3	17.1	225334	7.4	20.3	131856	7.4	18.8	360639	7.5	21.4
328761	7.2	20.7	254788	7.3	19.6	90869	7.3	18.5	287321	7.4	20.1	254072	7.4	19.9	398534	7.5	20.6
386046	7.2	20.7	162996	7.3	19.7	270196	7.3	20.5	452817	7.4	21.3	385684	7.4	20.5	414651		

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
400392	7.5	20.1	45250	7.6	16.5	200169	7.6	20.1	523489	7.7	20.6	172593	7.8	19.3	69095	7.8	18.1
460799	7.5	20.0	120008	7.6	19.0	376476	7.6	21.5	307386	7.7	20.4	70537	7.8	18.3	183860	7.8	18.8
204186	7.5	19.4	384847	7.6	20.9	281215	7.6	20.0	29131	7.7	18.0	156201	7.8	19.4	92633	7.8	20.2
408221	7.5	21.0	143611	7.6	18.3	325538	7.6	21.0	31348	7.7	18.1	487068	7.8	21.4	393066	7.8	20.6
222441	7.5	20.1	132800	7.6	17.2	332202	7.6	21.3	196779	7.7	21.7	480825	7.8	20.6	103104	7.9	17.7
479519	7.5	19.9	213291	7.6	19.8	197237	7.6	19.4	317483	7.7	20.1	52167	7.8	17.8	78570	7.9	18.8
82024	7.5	19.0	26408	7.6	16.4	544652	7.6	21.3	119229	7.7	18.0	116120	7.8	18.9	31499	7.9	16.5
492557	7.5	20.8	336616	7.6	20.4	194752	7.6	19.6	486499	7.7	21.0	375599	7.8	20.0	197350	7.9	19.3
205476	7.5	20.4	292723	7.6	21.0	78352	7.6	20.1	151526	7.7	18.6	88622	7.8	18.8	515893	7.9	20.7
106566	7.5	17.9	130145	7.6	19.3	194534	7.6	19.2	470010	7.7	21.5	316326	7.8	20.5	11340	7.9	18.2
297143	7.5	19.4	121997	7.6	19.3	144536	7.6	18.8	453163	7.7	20.8	443921	7.8	21.3	452021	7.9	20.2
407806	7.5	20.1	276260	7.6	20.1	55599	7.6	18.5	330588	7.7	20.3	519345	7.8	21.5	331455	7.9	19.9
398610	7.5	20.6	335251	7.6	21.5	427391	7.7	20.1	459074	7.7	20.5	446772	7.8	20.5	27454	7.9	19.0
149265	7.5	18.7	491421	7.6	20.9	139071	7.7	18.9	340178	7.7	18.8	199585	7.8	19.9	484354	7.9	21.3
326091	7.5	19.8	544458	7.6	20.2	296314	7.7	21.5	49168	7.7	17.6	56638	7.8	18.8	300607	7.9	20.7
97477	7.5	18.4	387701	7.6	19.9	291929	7.7	20.4	221407	7.7	20.0	333766	7.8	20.9	78343	7.9	19.5
464029	7.5	20.2	212190	7.6	20.2	269892	7.7	20.2	261002	7.7	21.0	537891	7.8	20.2	219230	7.9	20.4
232331	7.5	19.7	508770	7.6	23.6	272185	7.7	21.1	52107	7.7	18.3	511513	7.8	20.2	184801	7.9	20.2
163162	7.5	20.2	541615	7.6	22.0	33146	7.7	19.1	21858	7.7	17.8	292941	7.8	20.1	422334	7.9	20.6
228523	7.5	19.6	104506	7.6	19.3	67474	7.7	18.9	335361	7.7	20.1	109733	7.8	19.3	451248	7.9	21.7
379509	7.5	19.8	435550	7.6	21.7	49378	7.7	17.7	279181	7.7	20.0	129258	7.8	19.9	244440	7.9	20.9
51140	7.5	18.5	537718	7.6	20.5	484351	7.7	20.1	186916	7.7	20.0	302528	7.8	20.1	85153	7.9	18.4
304132	7.5	21.6	232476	7.6	19.8	7076	7.7	17.6	514121	7.7	20.5	483661	7.8	20.7	323290	7.9	19.7
15886	7.5	18.3	489380	7.6	21.0	302661	7.7	20.3	157174	7.7	20.2	389728	7.8	20.2	330242	7.9	20.3
143657	7.5	20.1	388103	7.6	19.4	236002	7.7	19.6	163455	7.7	19.6	15682	7.8	18.9	542533	7.9	20.7
373054	7.5	20.7	261556	7.6	20.2	541616	7.7	21.9	224024	7.7	21.2	394973	7.8	20.5	160606	7.9	19.3
318537	7.5	18.4	263996	7.6	20.8	360907	7.7	21.6	13497	7.7	15.9	184946	7.8	20.4	460416	7.9	20.3
266094	7.5	20.5	252402	7.6	20.2	188614	7.7	20.5	477399	7.7	19.5	117085	7.8	19.2	63775	7.9	17.6
327710	7.5	20.6	212543	7.6	19.9	277923	7.7	19.1	95319	7.7	18.1	124313	7.8	19.7	183887	7.9	19.1
505647	7.5	20.0	490983	7.6	20.7	19348	7.7	18.5	201901	7.7	19.3	452429	7.8	19.7	346367	7.9	20.0
213324	7.5	20.5	294365	7.6	21.4	411105	7.7	19.7	327700	7.7	20.3	481770	7.8	21.3	198795	7.9	20.7
180106	7.5	19.6	442402	7.6	20.6	457788	7.7	21.2	93023	7.7	18.6	487330	7.8	20.9	270042	7.9	20.2
279540	7.5	19.7	274028	7.6	21.3	63552	7.7	18.8	401822	7.7	19.0	291137	7.8	19.0	71533	7.9	17.9
107326	7.5	18.7	68849	7.6	18.9	294920	7.7	20.8	541276	7.7	21.4	188924	7.8	20.6	124760	7.9	19.3
494131	7.5	20.3	103908	7.6	19.8	105596	7.7	18.1	349759	7.7	20.0	541205	7.8	21.7	206384	7.9	19.5
170501	7.5	19.3	70687	7.6	19.6	198542	7.7	18.9	127711	7.7	20.2	76375	7.8	19.0	310255	7.9	20.0
139814	7.5	19.4	484355	7.6	20.2	320846	7.7	20.9	271540	7.7	20.1	329677	7.8	20.6	117825	7.9	19.2
265554	7.5	20.9	131333	7.6	20.1	493211	7.7	20.2	134494	7.7	17.4	133780	7.8	18.1	470038	7.9	20.1
328043	7.5	21.0	66984	7.6	18.8	43300	7.7	17.6	53669	7.7	17.9	160328	7.8	18.8	281992	7.9	19.8
436456	7.5	19.3	198814	7.6	18.9	434127	7.7	20.9	158687	7.7	19.9	226971	7.8	19.2	458662	7.9	20.7
126061	7.5	18.9	256316	7.6	20.0	33529	7.7	18.1	9514	7.7	18.3	332637	7.8	20.9	499411	7.9	20.9
301837	7.5	19.9	1237	7.6	14.4	123943	7.7	19.3	234543	7.7	18.5	489297	7.8	21.0	373268	7.9	19.6
218829	7.5	20.2	190933	7.6	18.8	183705	7.7	19.2	475480	7.8	21.9	439149	7.8	21.7	344894	7.9	21.4
480127	7.5	21.1	347334	7.6	20.1	544624	7.7	20.1	302712	7.8	20.3	490451	7.8	20.7	413378	7.9	21.1
263474	7.5	20.4	370868	7.6	20.7	543205	7.7	21.0	152996	7.8	19.5	520395	7.8	20.4	320024	7.9	20.8
252339	7.5	20.5	67238	7.6	19.2	146282	7.7	19.1	130300	7.8	19.5	307326	7.8	21.3	50422	7.9	19.7
459842	7.5	20.1	196391	7.6	20.9	249033	7.7	20.3	61972	7.8	17.5	198761	7.8	19.3	382684	7.9	19.2
199280	7.5	20.0	419998	7.6	20.4	298513	7.7	20.2	145550	7.8	19.0	189106	7.8	19.9	167888	7.9	19.9
220919	7.5	20.0	441067	7.6	21.0	283839	7.7	20.1	49007	7.8	18.9	136332	7.8	19.0	199788	7.9	19.3
303663	7.5	19.7	125827	7.6	18.8	81284	7.7	18.7	189275	7.8	21.0	353084	7.8	19.3	398879	7.9	20.2
403084	7.5	20.8	287149	7.6	20.2	361694	7.7	19.0	297262	7.8	21.2	2382	7.8	17.3	27109	7.9	16.9
69902	7.5	18.7	97615	7.6	19.7	494134	7.7	21.0	543542	7.8	20.4	102207	7.8	19.7	311333	7.9	20.0
307709	7.5	20.2	456175	7.6	20.7	141637	7.7	19.9	370888	7.8	20.5	198392	7.8	20.2	354638	7.9	20.5
398175	7.5	20.7	385691	7.6	20.4	75218	7.7	18.0	426507	7.8	20.5	269399	7.8	20.0	193043	7.9	20.5
475090	7.5	21.5	336602	7.6	19.5	332590	7.7	20.4	8815	7.8	15.7	447547	7.8	20.6	26633	7.9	18.7
23960	7.5	18.3	407086	7.6	19.9	410116	7.7	20.4	44295	7.8	17.0	404679	7.8	20.7	286577	7.9	20.2
128396	7.5	19.5	158566	7.6	20.5	25784	7.7	18.8	102429	7.8	19.9	2277	7.8	14.9	317116	7.9	18.8
54554	7.5	17.9	522379	7.6	20.7	17444	7.7	17.3	47130	7.8	17.9	85370	7.8	20.4	28080	7.9	19.5
180002	7.6	18.2	415021	7.6	19.5	352247	7.7	19.8	385123	7.8	20.1	412615	7.8	19.5	448494	7.9	20.1
417374	7.6	20.5	286770	7.6	20.4	226085	7.7	20.5	310837	7.8	19.0	164189	7.8	18.4	99089	7.9	18.3
28427	7.6	19.0	87189	7.6	20.0	324705	7.7	20.5	245439	7.8	20.2	428156	7.8	21.3	263379	7.9	20.0
85009	7.6	19.2	140489	7.6	19.9	28977	7.7	18.1	26641	7.8	17.6	23556	7.8	18.6	451814	7.9	20.6
345373	7.6	20.4	456191	7.6	21.3	347279	7.7	20.3	290831	7.8	19.9	187237	7.8	20.3	361271	7.9	20.5
452627	7.6	21.3	145131	7.6	19.6	150228	7.7	19.5	206497	7.8	20.2	25481	7.8	17.4	36261	7.9	18.7
495777	7.6	20.4	270087	7.6	20.9	296680	7.7	20.4	34353	7.8	17.8	78716	7.8	19.1	104346	7.9	19.8
339832	7.6	19.3	420044	7.6	21.2	305002	7.7	19.8	447465	7.8	20.9	252615	7.8	18.6	215761	7.9	19.2
479418	7.6	20.2	405724	7.6	20.5	222528	7.7	19.6	291928	7.8	21.0	399403	7.8	20.8	27470	7.9	18.5
111215	7.6	19.0	366636	7.6	21.1	448808	7.7	19.9	14867	7.8	18.0	442346	7.8	21.1	367449	7.9	22.3
75050	7.6	19.4	103095	7.6	18.6	447671	7.7	19.6	363923	7.8	20.6	328387	7.8	21.4	233410	7.9	19.5
136581	7.6	20.0	520317	7.6	21.3	442710	7.7	21.2	280667	7.8	19.9	188610	7.8	20.3	420246	7.9	20.2
183920	7.6	19.2	369661	7.6	20.5	290408	7.7	20.7	340962	7.8	20.2	382146	7.8	20.8	25682	7.9	18.2

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
295636	7.9	19.9	4313	7.9	16.5	473708	8.0	20.0	74105	8.1	18.8	78886	8.2	19.8	142494	8.3	19.1
251258	7.9	19.6	102263	7.9	19.2	539750	8.1	19.8	327701	8.1	20.1	214339	8.2	19.7	215351	8.3	21.0
142410	7.9	20.3	424493	7.9	20.6	122779	8.1	19.5	461337	8.1	20.8	315707	8.2	20.0	279830	8.3	20.6
198128	7.9	18.9	522055	7.9	19.6	405712	8.1	21.1	22158	8.1	17.2	147059	8.2	18.6	513566	8.3	20.6
138350	7.9	19.8	443161	7.9	20.1	380152	8.1	18.6	488270	8.1	19.3	486311	8.2	20.5	116559	8.3	19.2
102024	7.9	19.3	212226	7.9	20.7	226893	8.1	19.5	420034	8.1	20.8	250625	8.2	20.9	269423	8.3	19.3
316419	7.9	20.7	121912	7.9	19.9	143068	8.1	19.2	277090	8.1	19.0	406634	8.2	19.6	468328	8.3	20.2
521493	7.9	21.4	114189	7.9	18.9	242399	8.1	19.1	300577	8.1	20.9	225331	8.2	20.9	329258	8.3	20.6
513165	7.9	23.6	505263	7.9	20.6	101249	8.1	20.3	403715	8.1	21.1	74221	8.2	18.8	219930	8.3	19.3
188637	7.9	20.8	256274	7.9	21.0	156370	8.1	19.7	311090	8.1	19.2	363854	8.2	20.5	119085	8.3	19.4
267518	7.9	20.3	372676	7.9	20.8	410966	8.1	20.7	317669	8.1	21.0	415850	8.2	20.1	257905	8.3	18.6
89568	7.9	18.4	491322	7.9	21.2	228682	8.1	19.7	108994	8.1	18.7	209255	8.2	19.4	369118	8.3	21.9
111193	7.9	19.5	436386	7.9	19.9	409282	8.1	19.9	87076	8.1	19.1	103428	8.2	18.4	515805	8.3	21.5
515768	7.9	21.5	103947	7.9	18.4	138176	8.1	18.3	16617	8.1	18.3	393882	8.2	19.7	113942	8.3	17.7
72466	7.9	18.9	361337	7.9	20.9	148002	8.1	19.5	380111	8.1	20.2	272301	8.2	20.1	408241	8.3	21.2
541224	7.9	20.5	265953	7.9	20.1	177875	8.1	20.2	219961	8.1	19.1	465325	8.2	20.5	203972	8.3	20.2
456125	7.9	21.2	125483	7.9	20.5	493428	8.1	20.6	1242	8.1	13.7	279179	8.2	20.2	447163	8.3	20.8
153515	7.9	19.4	421799	7.9	20.9	25865	8.1	17.9	147555	8.1	18.4	263997	8.2	21.1	233326	8.3	20.1
542014	7.9	22.1	369187	7.9	18.8	482852	8.1	20.1	90561	8.1	19.1	156697	8.2	19.6	257791	8.3	19.7
149874	7.9	19.7	393506	7.9	21.0	358578	8.1	20.4	214051	8.1	20.9	452853	8.2	22.3	82127	8.3	18.8
315724	7.9	20.6	254730	7.9	20.1	391923	8.1	20.7	40887	8.1	18.4	74572	8.2	19.5	247942	8.3	19.1
421135	7.9	20.8	137	7.9	13.7	139338	8.1	20.2	456184	8.1	20.8	541068	8.2	20.0	162331	8.3	19.4
403622	7.9	20.9	41252	7.9	18.5	386015	8.1	20.3	111560	8.2	17.8	25469	8.2	16.9	60836	8.3	19.2
369192	7.9	20.9	392398	7.9	19.8	99979	8.1	19.8	77939	8.2	19.4	215602	8.2	20.3	291415	8.3	19.8
460871	7.9	20.3	270679	7.9	20.3	356793	8.1	20.3	248840	8.2	19.7	418556	8.2	20.6	339628	8.3	21.1
406278	7.9	20.7	485174	7.9	21.3	386010	8.1	20.1	485432	8.2	19.4	270239	8.2	20.8	12474	8.3	16.7
143928	7.9	19.2	113690	8.0	18.7	367706	8.1	19.7	210665	8.2	20.1	303020	8.2	20.7	254954	8.3	20.6
271972	7.9	19.0	154221	8.0	20.1	155656	8.1	19.9	485693	8.2	19.4	306470	8.2	20.7	54134	8.3	17.3
1859	7.9	15.5	281643	8.0	20.0	161978	8.1	20.4	359765	8.2	20.7	70081	8.2	18.5	256054	8.3	20.3
394582	7.9	21.6	208141	8.0	20.0	290123	8.1	20.4	65548	8.2	17.4	110773	8.2	20.3	182598	8.3	19.4
74863	7.9	18.9	191545	8.0	20.2	116797	8.1	19.0	313257	8.2	20.7	79973	8.2	19.3	227233	8.3	19.0
445738	7.9	20.8	271148	8.0	19.7	375523	8.1	20.6	325441	8.2	20.5	189125	8.2	19.8	458563	8.3	20.6
256859	7.9	20.4	415381	8.0	21.8	279596	8.1	20.7	226626	8.2	20.1	163778	8.2	19.6	303410	8.3	19.9
332306	7.9	21.2	72875	8.0	18.1	284016	8.1	19.9	314334	8.2	20.5	458439	8.2	20.4	397315	8.3	20.9
277155	7.9	20.5	64663	8.0	18.7	331078	8.1	20.0	103097	8.2	18.1	59120	8.2	17.9	229089	8.3	19.4
351503	7.9	20.6	74033	8.0	18.7	273159	8.1	20.3	467922	8.2	20.5	386044	8.2	21.7	320263	8.3	20.8
15005	7.9	18.0	181016	8.0	19.9	458710	8.1	21.3	455481	8.2	20.9	493529	8.2	21.0	270343	8.3	19.5
124435	7.9	19.7	269543	8.0	20.1	349560	8.1	21.4	365989	8.2	20.6	265963	8.2	19.9	81982	8.3	20.1
307703	7.9	20.5	517590	8.0	21.2	459811	8.1	21.1	168413	8.2	19.6	209770	8.2	20.1	375193	8.3	19.6
401565	7.9	20.7	25220	8.0	16.9	522154	8.1	21.3	124496	8.2	18.6	366077	8.2	20.1	169943	8.3	19.7
365035	7.9	20.6	55499	8.0	18.5	116471	8.1	18.8	408325	8.2	20.5	452598	8.2	21.1	71998	8.3	17.9
209277	7.9	18.8	134199	8.0	19.3	207542	8.1	19.7	326233	8.2	19.7	262633	8.2	20.6	172517	8.3	20.4
247659	7.9	19.5	236284	8.0	19.7	219883	8.1	20.1	208884	8.2	20.7	177032	8.2	19.2	288394	8.3	19.0
390275	7.9	20.4	263941	8.0	20.3	247559	8.1	20.0	454367	8.2	22.4	75767	8.2	17.9	191493	8.3	20.2
245797	7.9	19.8	300492	8.0	19.9	53175	8.1	18.5	95653	8.2	19.0	48264	8.3	18.0	238216	8.3	19.8
345756	7.9	20.5	98961	8.0	16.6	414327	8.1	21.1	183108	8.2	20.4	248699	8.3	20.1	401664	8.3	20.0
459703	7.9	21.6	481277	8.0	20.4	359230	8.1	21.1	393519	8.2	21.6	483150	8.3	20.6	451844	8.3	20.5
179656	7.9	19.6	193001	8.0	20.4	420083	8.1	20.9	148467	8.2	18.3	489989	8.3	21.3	129586	8.3	19.7
332254	7.9	20.4	61730	8.0	19.4	469481	8.1	21.0	493021	8.2	20.1	1831	8.3	15.6	366365	8.3	21.0
371806	7.9	21.2	452058	8.0	21.0	59446	8.1	17.6	285230	8.2	20.1	365883	8.3	19.5	175665	8.3	20.5
464288	7.9	19.8	322926	8.0	20.4	8181	8.1	16.3	388114	8.2	20.3	542563	8.3	19.5	384364	8.3	19.8
158008	7.9	21.0	232340	8.0	19.3	427191	8.1	20.6	167504	8.2	19.6	11310	8.3	16.0	46876	8.3	18.1
38082	7.9	19.2	445187	8.0	20.2	145842	8.1	18.5	266889	8.2	19.5	418510	8.3	20.8	272508	8.3	20.5
63033	7.9	19.6	277877	8.0	20.3	262333	8.1	20.6	2543	8.2	16.5	161270	8.3	20.3	78481	8.3	19.6
482326	7.9	20.9	407362	8.0	21.1	486481	8.1	20.9	112633	8.2	19.3	372249	8.3	21.3	71180	8.3	18.4
276251	7.9	20.4	185729	8.0	20.0	221561	8.1	20.5	260839	8.2	20.6	249269	8.3	19.8	486669	8.3	21.5
348244	7.9	21.1	220741	8.0	20.3	274635	8.1	20.5	229283	8.2	20.0	484176	8.3	21.2	102620	8.3	17.8
354394	7.9	20.1	358216	8.0	20.0	417203	8.1	19.4	209273	8.2	19.0	408705	8.3	21.2	233759	8.3	19.4
487325	7.9	20.7	519028	8.0	21.0	267865	8.1	19.6	267622	8.2	20.4	472048	8.3	20.0	257068	8.3	20.4
413444	7.9	19.5	276250	8.0	21.2	45295	8.1	18.7	20851	8.2	17.9	485965	8.3	21.8	321432	8.3	20.6
515925	7.9	20.5	51985	8.0	18.1	195225	8.1	18.9	287063	8.2	20.9	106421	8.3	18.3	156908	8.3	18.7
394977	7.9	20.8	458028	8.0	20.6	300493	8.1	20.7	235619	8.2	19.2	130378	8.3	18.6	474737	8.3	20.9
353041	7.9	19.4	541685	8.0	20.8	421495	8.1	20.0	324784	8.2	20.2	544815	8.3	20.9	319672	8.3	20.2
341935	7.9	21.0	383493	8.0	20.1	101070	8.1	18.5	504753	8.2	20.7	252292	8.3	20.3	251598	8.3	21.5
191173	7.9	19.2	355464	8.0	20.6	464020	8.1	20.4	484171	8.2	21.1	520796	8.3	20.7	261009	8.3	19.8
193057	7.9	21.0	185527	8.0	19.9	517207	8.1	20.1	99256	8.2	19.1	489464	8.3	20.7	90525	8.3	19.2
130103	7.9	19.1	174403	8.0	19.9	384771	8.1	20.9	124431	8.2	19.5	187129	8.3	19.9	123863	8.3	18.8
224839	7.9	20.6	138345	8.0	19.4	221356	8.1	20.5	287884	8.2	19.0	271037	8.3	18.4	328975	8.3	19.3
329493	7.9	20.4	275477	8.0	20.5	302630	8.1	19.9	494535	8.2	19.9	69033	8.3	18.4	72914	8.3	19.3
391881	7.9	19.6	226140	8.0	19.7	230166	8.1	19.5	328847	8.2	20.5	21924	8.3	18.2	49632	8.3	17.3
44066	7.9	18.4	368118	8.0	21.6	108530	8.1	19.7	472769	8.2	21.1	329503	8.3	20.1	73447		

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
106767	8.4	16.5	408482	8.4	21.1	17973	8.5	17.3	294635	8.6	19.9	285882	8.6	20.6	104566	8.7	18.7
385661	8.4	21.4	72809	8.4	17.9	364838	8.5	20.5	32371	8.6	18.6	214000	8.6	19.7	113576	8.7	18.4
457340	8.4	20.2	19607	8.4	17.0	274240	8.5	21.0	89175	8.6	19.1	20501	8.6	17.4	195759	8.7	20.0
112522	8.4	18.9	52276	8.4	18.7	15579	8.5	17.5	220760	8.6	19.8	487889	8.6	19.8	489211	8.7	22.3
221535	8.4	20.6	135709	8.4	20.3	382695	8.5	20.3	486424	8.6	21.0	360133	8.6	19.8	479603	8.7	20.0
454702	8.4	21.1	84901	8.4	17.5	188348	8.5	19.5	128099	8.6	18.7	541327	8.6	21.4	281674	8.7	20.1
164931	8.4	18.6	324169	8.4	19.8	267589	8.5	18.3	54044	8.6	18.9	28326	8.6	17.1	81364	8.7	19.3
456103	8.4	20.5	315600	8.4	20.8	489080	8.5	20.6	415743	8.6	19.5	112852	8.6	16.9	153465	8.7	19.3
426674	8.4	20.7	394458	8.4	20.5	358118	8.5	20.4	112004	8.6	19.1	78423	8.6	19.8	343285	8.7	19.2
156024	8.4	18.9	197741	8.4	20.0	104996	8.5	19.4	76124	8.6	19.2	158182	8.6	19.2	439509	8.7	19.9
343674	8.4	20.8	487753	8.4	19.6	237360	8.5	20.9	121616	8.6	20.3	279003	8.6	20.2	295276	8.7	19.1
444490	8.4	21.1	208750	8.4	20.1	60926	8.5	18.5	4950	8.6	15.7	193184	8.6	20.5	477348	8.7	20.3
361252	8.4	19.8	199281	8.4	20.8	369928	8.5	19.6	189807	8.6	20.1	197159	8.6	20.3	90494	8.7	19.6
84442	8.4	17.8	54423	8.4	18.6	39531	8.5	18.6	408405	8.6	20.6	36997	8.6	16.9	28656	8.7	17.7
45885	8.4	16.6	41987	8.4	16.8	111997	8.5	19.5	8207	8.6	17.0	311730	8.6	20.0	3494	8.7	16.2
157190	8.4	19.4	260549	8.4	20.1	101600	8.5	18.7	52761	8.6	19.4	189709	8.6	19.9	22893	8.7	18.8
63981	8.4	17.8	112645	8.4	19.5	541447	8.5	20.5	459470	8.6	20.1	101352	8.6	19.0	103585	8.7	18.7
237941	8.4	21.7	397242	8.4	21.2	206013	8.5	20.1	162439	8.6	20.1	219997	8.6	20.7	145626	8.7	19.5
439587	8.4	20.6	516998	8.4	21.2	194794	8.5	18.3	291749	8.6	20.6	269287	8.6	20.2	53766	8.7	18.8
207196	8.4	19.4	7337	8.4	16.8	464479	8.5	20.4	462442	8.6	20.6	275439	8.6	19.7	256833	8.7	19.9
51609	8.4	18.5	181872	8.4	20.4	193305	8.5	18.7	265945	8.6	19.5	482563	8.6	20.0	414557	8.7	21.3
541903	8.4	20.9	357837	8.4	21.5	142623	8.5	20.3	128505	8.6	18.6	496448	8.6	20.1	452676	8.7	19.2
170362	8.4	19.0	85342	8.4	18.3	466043	8.5	20.4	326850	8.6	19.7	354242	8.6	20.6	243589	8.7	20.1
351029	8.4	20.1	97039	8.4	18.6	313240	8.5	20.8	81365	8.6	18.7	436872	8.6	21.6	202112	8.7	20.9
227792	8.4	19.8	122401	8.4	19.9	48864	8.5	19.5	350560	8.6	20.2	116189	8.6	19.1	67478	8.7	18.0
403875	8.4	20.7	112282	8.4	19.6	243197	8.5	19.9	93468	8.6	18.0	541557	8.6	22.5	516186	8.7	20.5
480148	8.4	21.3	487023	8.4	20.6	443037	8.5	20.3	236280	8.6	20.7	15198	8.6	18.0	233333	8.7	19.5
462366	8.4	20.5	355446	8.4	20.7	109779	8.5	19.5	269583	8.6	20.8	396990	8.6	21.9	60300	8.7	16.9
272288	8.4	20.4	271962	8.4	18.8	488536	8.5	21.0	516107	8.6	22.1	434416	8.6	21.2	388394	8.7	19.9
438492	8.4	20.9	24583	8.4	20.1	56912	8.5	18.9	69412	8.6	18.5	439138	8.6	20.7	88516	8.7	19.8
244934	8.4	18.9	110080	8.4	18.7	380996	8.5	20.6	460414	8.6	20.8	197077	8.6	19.6	421137	8.7	21.3
413232	8.4	20.7	223060	8.4	19.5	419409	8.5	19.7	219506	8.6	19.2	494910	8.6	20.9	447512	8.7	20.5
444526	8.4	20.2	486901	8.4	20.8	223517	8.5	19.5	213957	8.6	18.9	292934	8.6	19.3	128449	8.7	18.9
69288	8.4	17.6	434488	8.4	21.7	234642	8.5	20.6	318128	8.6	20.7	102572	8.6	19.7	521789	8.7	20.6
84486	8.4	18.5	267870	8.4	19.5	161181	8.5	20.7	361770	8.6	20.4	197008	8.6	19.6	218856	8.7	21.2
230791	8.4	19.1	410611	8.4	21.2	492734	8.5	21.3	514788	8.6	21.0	312380	8.6	19.6	130340	8.7	19.7
220829	8.4	19.8	413752	8.5	20.5	347428	8.5	19.5	7372	8.6	16.7	349556	8.6	21.5	179164	8.7	19.1
26896	8.4	18.1	51090	8.5	18.3	388182	8.5	20.9	112458	8.6	19.7	369410	8.6	20.8	110273	8.7	19.1
303068	8.4	19.4	386927	8.5	20.9	124954	8.5	18.9	70035	8.6	17.2	326821	8.6	20.5	8044	8.7	17.2
150363	8.4	19.2	67763	8.5	19.2	374633	8.5	20.7	235997	8.6	19.9	274426	8.6	21.6	326512	8.7	21.1
447476	8.4	21.1	223094	8.5	19.8	175279	8.5	19.6	520523	8.6	21.7	44497	8.6	17.6	142984	8.7	18.3
21232	8.4	18.7	225167	8.5	20.2	451122	8.5	21.5	60517	8.6	18.8	254803	8.6	19.6	137033	8.7	20.1
165703	8.4	20.1	31793	8.5	16.9	252623	8.5	19.2	62538	8.6	18.8	76925	8.6	18.6	339796	8.7	20.6
465699	8.4	20.6	111323	8.5	19.8	447162	8.5	20.7	193862	8.6	19.3	369933	8.6	20.5	332636	8.7	21.8
420193	8.4	20.4	448780	8.5	20.0	401464	8.5	20.2	426129	8.6	20.3	348710	8.6	20.9	317309	8.7	19.5
64098	8.4	18.9	352556	8.5	21.0	397955	8.5	20.1	67403	8.6	18.5	450869	8.7	20.8	30001	8.7	17.2
363939	8.4	21.2	233461	8.5	20.6	300821	8.5	20.0	173287	8.6	19.9	111087	8.7	19.6	228465	8.7	19.5
159267	8.4	20.4	486300	8.5	20.4	54045	8.5	19.3	3262	8.6	14.9	104633	8.7	20.5	135773	8.7	18.3
318813	8.4	20.7	454916	8.5	21.6	372289	8.5	19.5	467044	8.6	19.6	416310	8.7	20.1	263228	8.7	20.0
482508	8.4	19.7	95263	8.5	18.6	244801	8.5	20.2	201396	8.6	20.7	454414	8.7	20.5	60412	8.7	18.9
457352	8.4	20.9	439481	8.5	20.2	177679	8.5	20.2	32137	8.6	18.3	415002	8.7	19.9	116776	8.7	20.4
322088	8.4	20.6	79191	8.5	19.6	133833	8.5	19.5	227322	8.6	20.8	214924	8.7	19.5	510837	8.7	20.2
53765	8.4	19.3	144274	8.5	19.6	128845	8.5	19.7	470103	8.6	21.4	155481	8.7	18.6	402360	8.7	21.4
362914	8.4	19.7	542190	8.5	20.0	249937	8.5	20.5	116233	8.6	18.5	268790	8.7	19.4	250112	8.7	21.1
83211	8.4	19.4	248766	8.5	20.9	225618	8.5	18.4	260600	8.6	20.5	441680	8.7	19.9	153369	8.7	19.4
117824	8.4	19.8	319140	8.5	20.6	268673	8.5	19.5	76902	8.6	18.9	282522	8.7	20.8	493457	8.7	20.4
180154	8.4	20.9	459464	8.5	20.0	458641	8.5	20.9	264812	8.6	21.0	318700	8.7	20.6	241615	8.7	20.6
194810	8.4	19.3	88755	8.5	20.4	127497	8.5	19.0	407928	8.6	20.7	459980	8.7	20.6	262098	8.7	20.9
408255	8.4	20.4	145755	8.5	21.0	307332	8.5	19.8	224959	8.6	19.3	462399	8.7	20.1	274533	8.7	19.8
231551	8.4	19.7	184729	8.5	20.6	104202	8.5	18.2	298010	8.6	19.9	416180	8.7	21.2	335371	8.8	18.8
372143	8.4	20.8	396936	8.5	20.9	434560	8.5	21.3	111561	8.6	19.4	179885	8.7	19.2	298376	8.8	19.7
190982	8.4	19.9	277048	8.5	20.2	63361	8.5	18.3	9445	8.6	17.5	92637	8.7	17.9	400915	8.8	20.3
79942	8.4	17.9	326370	8.5	19.2	484172	8.5	20.7	7777	8.6	16.8	61314	8.7	18.9	213679	8.8	19.4
517211	8.4	19.9	370879	8.5	19.6	260027	8.5	20.4	453154	8.6	19.4	257901	8.7	19.8	50835	8.8	17.1
45154	8.4	17.7	73602	8.5	18.2	63443	8.5	19.3	139043	8.6	19.2	477479	8.7	19.7	402550	8.8	21.0
32989	8.4	18.3	452234	8.5	20.6	280697	8.5	19.7	515837	8.6	21.3	230593	8.7	19.5	289610	8.8	21.3
366626	8.4	20.9	350591	8.5	20.0	206444	8.5	19.9	59091	8.6	17.2	277214	8.7	19.7	10196	8.8	18.2
307444	8.4	18.0	382853	8.5	20.5	352195	8.5	19.6	116107	8.6	19.0	454242	8.7	20.9	469182	8.8	21.1
2315	8.4	14.7	426689	8.5	21.0	25676	8.5	17.7	217306	8.6	20.6	398389	8.7	21.1	264384	8.8	19.8
462129	8.4	21.3	351371	8.5	20.2	124321	8.5	19.7	272266	8.6	20.5	447608	8.7	21.2	13584	8.8	19.0
227876	8.4	18.8	441015	8.5	21.2	419198	8.5	20.9	458040	8.6	20.9	237811	8.7	20.2	314250	8.8	20.8
3																	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
274755	8.8	20.4	141653	8.8	19.5	407320	8.9	21.3	108995	8.9	19.8	202619	9.1	20.2	98035	9.1	19.4
270892	8.8	19.8	271957	8.8	19.0	74985	8.9	18.2	261796	8.9	20.4	445636	9.1	20.2	191348	9.1	19.5
484107	8.8	20.1	434150	8.8	21.3	283350	8.9	20.6	249900	8.9	21.0	316613	9.1	19.8	210826	9.1	20.2
450580	8.8	21.6	232521	8.8	20.3	236371	8.9	20.0	354611	8.9	20.0	299187	9.1	19.5	403663	9.1	20.9
412376	8.8	20.8	523345	8.8	21.1	413297	8.9	20.9	145197	8.9	19.5	326533	9.1	20.4	165592	9.1	19.2
149227	8.8	18.3	70862	8.8	19.0	461000	8.9	20.7	281743	8.9	20.8	318448	9.1	19.3	30097	9.1	18.5
183223	8.8	20.0	110024	8.8	18.4	3597	8.9	15.9	375129	8.9	21.3	438073	9.1	21.1	53482	9.1	18.0
16234	8.8	17.0	366546	8.8	20.8	168388	8.9	19.7	267537	8.9	20.1	67075	9.1	19.0	211956	9.1	20.0
486546	8.8	20.5	344940	8.8	18.8	460298	8.9	20.3	98210	8.9	19.3	91494	9.1	16.7	122052	9.1	18.5
9966	8.8	17.5	197308	8.8	18.3	161651	8.9	19.2	200925	8.9	19.0	374212	9.1	21.2	323357	9.1	21.3
439593	8.8	20.5	331641	8.8	20.1	46230	8.9	18.9	145048	8.9	18.9	518566	9.1	20.3	310007	9.1	19.7
185375	8.8	19.7	282560	8.8	19.1	51491	8.9	19.0	161700	8.9	20.5	11269	9.1	17.1	291022	9.1	19.9
272460	8.8	20.1	124935	8.8	18.1	329230	8.9	20.0	376573	8.9	20.4	265206	9.1	18.9	241793	9.1	20.5
156861	8.8	19.5	281539	8.8	20.5	317660	8.9	19.9	181312	8.9	19.8	72447	9.1	19.3	372781	9.1	20.1
160251	8.8	19.1	70390	8.8	18.3	440296	8.9	22.0	292397	9.0	21.4	287663	9.1	19.7	14101	9.1	18.0
370499	8.8	19.7	113233	8.8	18.7	317254	8.9	20.4	460743	9.0	20.2	148301	9.1	18.2	61563	9.1	18.3
483051	8.8	21.5	144892	8.9	20.3	483540	8.9	20.5	420444	9.0	20.6	228901	9.1	19.0	61179	9.1	19.2
332587	8.8	21.0	411024	8.9	19.7	275859	8.9	22.1	439875	9.0	20.3	322059	9.1	20.8	262344	9.1	19.5
346467	8.8	19.9	413302	8.9	20.2	209086	8.9	19.6	266003	9.0	20.3	295750	9.1	20.5	355988	9.1	20.2
60083	8.8	18.7	482494	8.9	20.8	258779	8.9	19.5	76744	9.0	19.0	56556	9.1	19.9	50255	9.1	18.3
220620	8.8	19.4	44361	8.9	18.5	265617	8.9	20.2	284908	9.0	19.5	351346	9.1	18.2	274096	9.1	20.6
508993	8.8	20.5	418416	8.9	20.8	8833	8.9	17.7	188382	9.0	19.7	375093	9.1	21.1	287989	9.1	20.0
493023	8.8	20.8	426476	8.9	21.2	74157	8.9	20.0	84908	9.0	17.7	13191	9.1	16.9	36422	9.1	19.5
129253	8.8	20.6	269645	8.9	20.6	443971	8.9	22.0	413288	9.0	19.6	113030	9.1	20.4	406096	9.1	20.5
229415	8.8	19.1	427244	8.9	19.4	332988	8.9	19.6	451818	9.0	21.4	482039	9.1	20.7	357289	9.1	20.8
198610	8.8	19.1	154617	8.9	20.7	10522	8.9	17.5	543920	9.0	20.6	358649	9.1	20.2	271606	9.1	21.4
293985	8.8	20.0	542404	8.9	20.7	145778	8.9	19.3	228938	9.0	19.6	385980	9.1	20.7	139381	9.2	20.3
513267	8.8	19.8	305181	8.9	20.6	372094	8.9	20.8	49270	9.0	18.5	8133	9.1	17.6	107489	9.2	18.4
45552	8.8	17.8	257908	8.9	19.8	496798	8.9	20.5	759	9.0	15.0	458045	9.1	20.9	28306	9.2	17.8
315721	8.8	21.3	457300	8.9	20.8	446473	8.9	20.8	187545	9.0	19.2	256393	9.1	20.2	522411	9.2	20.5
316184	8.8	20.7	172872	8.9	19.9	335356	8.9	20.0	109901	9.0	19.4	517759	9.1	21.5	89156	9.2	19.8
475721	8.8	20.8	58078	8.9	19.3	449947	8.9	20.8	122106	9.0	20.3	369218	9.1	19.9	308807	9.2	20.6
47024	8.8	18.1	200179	8.9	20.4	22920	8.9	17.8	212729	9.0	20.1	96208	9.1	18.7	376103	9.2	20.4
246815	8.8	20.0	59818	8.9	19.9	81674	8.9	19.5	257333	9.0	20.2	445942	9.1	19.8	249500	9.2	19.4
349624	8.8	19.9	329494	8.9	20.8	158787	8.9	20.6	512696	9.0	21.5	365707	9.1	20.8	150083	9.2	20.1
166432	8.8	20.4	410807	8.9	21.1	274512	8.9	19.7	257094	9.0	20.1	516574	9.1	21.4	329500	9.2	20.3
158585	8.8	19.2	101994	8.9	19.4	109958	8.9	19.7	278425	9.0	20.8	104904	9.1	20.1	456193	9.2	22.1
280690	8.8	19.1	71481	8.9	18.0	137292	8.9	19.9	481926	9.0	20.1	359400	9.1	20.5	150706	9.2	20.4
448912	8.8	21.2	336677	8.9	19.5	340133	8.9	21.1	279992	9.0	19.3	141565	9.1	20.2	391140	9.2	20.4
396752	8.8	20.7	454012	8.9	20.8	180698	8.9	21.1	182272	9.0	20.2	377184	9.1	19.6	35149	9.2	18.5
129274	8.8	18.8	403651	8.9	21.3	116245	8.9	18.3	418531	9.0	20.8	169708	9.1	20.9	99507	9.2	19.6
462419	8.8	20.7	404658	8.9	20.8	210852	8.9	20.2	543123	9.0	20.9	60270	9.1	19.2	353371	9.2	19.7
408974	8.8	19.6	321389	8.9	19.8	322929	8.9	21.1	515090	9.0	20.4	445607	9.1	21.8	347836	9.2	20.5
232470	8.8	20.8	162453	8.9	19.8	339905	8.9	21.4	159862	9.0	19.0	10972	9.1	17.1	353373	9.2	19.5
124669	8.8	19.6	384793	8.9	20.6	199832	8.9	21.4	214415	9.0	20.4	340057	9.1	21.5	130434	9.2	19.5
150561	8.8	19.7	274646	8.9	20.0	119095	8.9	19.7	541471	9.0	21.3	519816	9.1	21.7	107238	9.2	18.4
135793	8.8	20.6	442811	8.9	20.3	229914	8.9	19.2	268834	9.0	19.2	275202	9.1	20.1	84579	9.2	19.0
500525	8.8	20.9	199062	8.9	20.2	275275	8.9	19.3	517239	9.0	20.3	85519	9.1	19.3	351143	9.2	19.8
385986	8.8	20.9	51622	8.9	18.9	450686	8.9	20.5	132910	9.0	19.5	144603	9.1	19.4	389831	9.2	21.5
412144	8.8	20.6	92914	8.9	20.4	474354	8.9	21.3	326329	9.0	20.2	20380	9.1	17.1	314336	9.2	21.0
520679	8.8	20.4	388495	8.9	20.2	291700	8.9	20.9	230729	9.0	19.4	523384	9.1	20.8	183031	9.2	19.6
235365	8.8	20.4	78039	8.9	19.0	422282	8.9	20.3	491542	9.0	21.3	443760	9.1	21.2	132302	9.2	19.5
247204	8.8	19.2	471962	8.9	21.2	1388	8.9	15.7	95014	9.0	19.6	490284	9.1	20.4	517469	9.2	22.1
543013	8.8	22.2	411970	8.9	19.8	231030	8.9	19.2	74265	9.0	18.4	265182	9.1	18.8	117488	9.2	19.7
234771	8.8	18.7	176334	8.9	20.5	505358	8.9	20.3	278717	9.0	20.7	233682	9.1	20.1	202790	9.2	19.6
34304	8.8	19.3	441890	8.9	21.2	287881	8.9	20.3	231064	9.0	20.0	67112	9.1	17.9	119633	9.2	19.2
222879	8.8	19.1	440052	8.9	20.5	123275	8.9	19.5	185629	9.0	18.8	277525	9.1	20.6	484386	9.2	20.2
307096	8.8	19.6	67861	8.9	19.3	61837	8.9	19.3	484237	9.0	20.5	181999	9.1	20.4	147622	9.2	19.7
370702	8.8	21.9	54388	8.9	17.0	444814	8.9	20.8	361758	9.0	19.9	443477	9.1	21.3	108116	9.2	18.8
103763	8.8	20.1	61094	8.9	19.2	316415	8.9	20.7	200115	9.0	19.8	189671	9.1	20.9	337536	9.2	20.9
132742	8.8	19.6	364861	8.9	19.1	248342	8.9	19.9	449217	9.0	20.6	323249	9.1	20.4	288010	9.2	20.6
216255	8.8	19.0	54160	8.9	18.8	412083	8.9	20.7	168755	9.0	20.1	216654	9.1	20.4	490562	9.2	21.0
201246	8.8	20.1	185352	8.9	20.5	291463	8.9	19.9	411908	9.0	20.4	153393	9.1	19.4	132583	9.2	20.5
416203	8.8	20.2	314945	8.9	19.8	132716	8.9	19.5	4623	9.0	16.6	281733	9.1	20.0	433629	9.2	20.8
315852	8.8	20.6	412925	8.9	21.5	72636	8.9	18.9	114094	9.0	18.9	314332	9.1	21.3	166630	9.2	19.3
329732	8.8	20.0	219853	8.9	20.2	271566	8.9	20.6	230201	9.0	19.2	518563	9.1	20.8	453631	9.2	20.7
283108	8.8	19.7	516590	8.9	21.8	197715	8.9	20.2	417414	9.0	20.7	427172	9.1	20.2	100728	9.2	19.3
158036	8.8	20.2	328426	8.9	21.8	280884	8.9	21.1	13300	9.0	18.5	442671	9.1	20.2	442613	9.2	21.1
386009	8.8	20.3	374665	8.9	20.6	6847	8.9	16.1	22304	9.0	18.3	24931	9.1	19.8	331748	9.2	20.1
323974	8.8	20.4	170486	8.9	19.7	418727	8.9	19.7	204773	9.0	20.8	13276	9.1	16.0	440378	9.2	19.8
249253	8.8	20.4	492948	8.9	20.5	437661	8.9	20.4	514799	9.0	21.8	232663	9.1	18.6	140182	9.2	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
366669	9.2	20.1	100828	9.2	19.8	45149	9.3	18.3	76080	9.4	18.5	473797	9.5	20.3	1479	9.5	14.4
265903	9.2	19.2	257005	9.2	20.3	474353	9.3	21.7	520176	9.4	20.9	450846	9.5	20.2	207185	9.5	19.9
495665	9.2	20.4	480872	9.2	21.0	497598	9.3	20.5	490978	9.4	21.5	493917	9.5	21.1	503827	9.5	21.3
112083	9.2	19.9	486449	9.3	21.1	81248	9.3	19.9	439238	9.4	21.6	192447	9.5	20.5	200563	9.5	20.1
446374	9.2	20.2	412607	9.3	20.8	451309	9.3	20.9	447546	9.4	20.1	61869	9.5	18.7	473285	9.5	21.6
82416	9.2	19.6	409590	9.3	21.3	444787	9.3	22.4	196991	9.4	20.2	22952	9.5	19.0	242083	9.5	21.3
388105	9.2	19.0	448363	9.3	20.3	328048	9.3	22.9	202382	9.4	19.7	358546	9.5	20.5	203572	9.5	19.9
216764	9.2	20.8	541631	9.3	20.3	76961	9.3	17.8	460943	9.4	20.7	221213	9.5	20.3	175862	9.5	20.0
267806	9.2	19.5	223168	9.3	19.3	76967	9.3	18.9	135841	9.4	19.1	202649	9.5	20.5	514447	9.5	21.0
381355	9.2	20.2	325376	9.3	21.2	180839	9.3	20.1	474155	9.4	20.6	256813	9.5	19.7	421745	9.5	21.5
455124	9.2	21.8	457892	9.3	20.4	169693	9.3	21.0	482816	9.4	20.5	243659	9.5	19.0	106690	9.5	18.6
17546	9.2	17.3	173202	9.3	20.2	269152	9.3	21.0	450642	9.4	20.9	201291	9.5	20.5	477510	9.5	19.5
192266	9.2	19.3	12863	9.3	17.7	489528	9.3	21.2	491011	9.4	21.2	455433	9.5	20.6	447653	9.5	21.1
363466	9.2	20.1	368377	9.3	20.5	467011	9.3	20.3	13998	9.4	19.1	249003	9.5	19.2	528767	9.5	21.3
247356	9.2	19.7	259143	9.3	18.6	136082	9.3	18.3	22377	9.4	18.2	77925	9.5	18.8	165712	9.5	20.8
460985	9.2	20.3	344952	9.3	19.3	174829	9.3	18.8	5417	9.4	15.9	46420	9.5	20.1	406220	9.5	19.6
284838	9.2	19.1	259535	9.3	19.0	198232	9.3	21.3	369016	9.4	20.4	255299	9.5	19.1	223856	9.5	19.5
47043	9.2	17.5	474915	9.3	21.0	99962	9.3	19.9	427018	9.4	20.6	333531	9.5	20.1	272037	9.5	20.5
425874	9.2	21.6	111577	9.3	19.3	409079	9.3	19.9	147010	9.4	20.3	57136	9.5	16.8	154365	9.5	17.8
479607	9.2	19.6	372316	9.3	20.7	424831	9.3	21.3	384378	9.4	18.8	316402	9.5	20.3	422940	9.5	21.1
452293	9.2	20.9	172097	9.3	19.0	394435	9.3	20.8	523145	9.4	20.2	375254	9.5	19.5	267561	9.5	20.2
22887	9.2	18.1	245166	9.3	20.0	1293	9.3	16.8	305201	9.4	20.5	274822	9.5	20.9	40762	9.5	19.1
276254	9.2	21.4	160659	9.3	17.8	411519	9.3	20.8	491150	9.4	20.9	229015	9.5	17.9	322391	9.5	20.8
160967	9.2	19.8	440746	9.3	20.6	224705	9.3	19.6	146509	9.4	18.6	278655	9.5	21.2	40396	9.5	17.8
142664	9.2	19.8	160944	9.3	19.3	164287	9.3	19.9	459343	9.4	21.0	394145	9.5	21.3	77867	9.5	18.6
300652	9.2	19.1	228877	9.3	19.0	117464	9.3	19.4	479432	9.4	20.3	521949	9.5	20.2	324910	9.5	19.9
442443	9.2	21.8	331853	9.3	20.3	124009	9.3	19.6	100059	9.4	19.3	510942	9.5	21.1	320730	9.5	20.7
164881	9.2	19.0	250016	9.3	19.3	277165	9.3	19.9	484799	9.4	21.9	473638	9.5	21.4	110449	9.5	19.9
324686	9.2	20.6	231162	9.3	18.8	305053	9.3	21.7	487737	9.4	20.8	27729	9.5	18.6	259105	9.5	19.0
184349	9.2	19.8	331877	9.3	19.9	272091	9.3	20.7	40157	9.4	17.6	493289	9.5	21.4	401985	9.5	19.6
154987	9.2	19.6	163878	9.3	20.6	142652	9.3	20.1	321760	9.4	20.5	261085	9.5	20.8	45959	9.5	19.1
347286	9.2	20.8	397533	9.3	20.6	57630	9.3	17.7	77324	9.4	18.2	64227	9.5	19.2	123876	9.5	18.8
39855	9.2	16.3	121059	9.3	18.6	222010	9.3	19.0	331001	9.4	20.3	489422	9.5	20.2	109917	9.5	20.3
337394	9.2	20.2	1844	9.3	15.0	323818	9.3	20.3	486986	9.4	21.4	46675	9.5	19.0	377973	9.5	21.3
87832	9.2	18.4	172241	9.3	20.6	542058	9.3	20.0	87378	9.4	19.3	390310	9.5	19.8	80207	9.5	17.6
467032	9.2	19.8	132981	9.3	20.0	494918	9.3	21.0	441202	9.4	21.6	51219	9.5	17.6	415801	9.5	20.7
31894	9.2	18.4	223117	9.3	19.0	436995	9.3	21.5	94757	9.4	16.9	238936	9.5	19.5	354493	9.5	20.4
50178	9.2	18.2	486588	9.3	20.5	474131	9.3	20.6	414950	9.4	20.5	267248	9.5	20.6	215766	9.5	19.5
124029	9.2	19.8	517318	9.3	21.8	316252	9.3	20.3	215267	9.4	20.7	171846	9.5	19.2	102444	9.5	18.0
482289	9.2	20.6	168322	9.3	18.5	249567	9.3	20.3	305694	9.4	20.5	272905	9.5	21.0	278797	9.5	20.8
229483	9.2	19.4	159478	9.3	20.0	43270	9.3	19.7	115446	9.4	18.8	178356	9.5	19.9	294656	9.5	19.9
224079	9.2	19.3	265353	9.3	20.7	449905	9.3	21.1	405048	9.4	21.1	302570	9.5	20.4	438464	9.5	20.6
353774	9.2	20.5	267300	9.3	21.0	542892	9.3	20.9	109259	9.4	19.3	266627	9.5	20.7	328543	9.5	19.7
9332	9.2	16.7	484075	9.3	21.4	161795	9.3	20.5	281929	9.4	19.5	2533	9.5	15.4	382690	9.5	19.7
427339	9.2	20.4	457310	9.3	21.0	479135	9.3	20.6	148858	9.4	18.8	100146	9.5	19.8	197002	9.5	19.0
123118	9.2	19.1	5067	9.3	16.8	147694	9.3	19.7	270079	9.4	20.2	230691	9.5	20.6	11404	9.5	17.4
461333	9.2	21.3	195238	9.3	18.7	325752	9.3	20.0	225445	9.4	19.6	269165	9.5	20.2	204914	9.5	20.3
171590	9.2	18.5	453652	9.3	21.3	282548	9.3	21.3	6152	9.4	17.1	23626	9.5	17.6	466998	9.5	20.1
198619	9.2	18.9	113671	9.3	18.8	464493	9.3	20.8	330320	9.4	21.0	147009	9.5	19.4	521474	9.5	20.9
61280	9.2	17.0	404242	9.3	19.5	404854	9.3	21.4	233073	9.4	19.3	452127	9.5	21.7	257077	9.5	20.1
395388	9.2	20.1	311724	9.3	19.8	311309	9.3	21.1	34457	9.4	18.5	447609	9.5	20.7	126555	9.5	18.7
452601	9.2	21.0	489452	9.3	19.9	487650	9.3	20.4	421453	9.4	20.0	434492	9.5	21.1	288364	9.5	19.5
418566	9.2	20.6	523419	9.3	21.2	247622	9.3	21.7	75567	9.4	17.2	247218	9.5	20.0	396379	9.5	20.9
369648	9.2	19.8	50770	9.3	17.3	117595	9.3	19.6	296939	9.4	20.2	391187	9.5	20.5	493709	9.5	20.1
523443	9.2	20.8	288414	9.3	19.8	491506	9.3	21.5	397641	9.4	20.2	170561	9.5	19.4	435520	9.5	22.7
40145	9.2	19.3	316305	9.3	20.9	452492	9.3	21.4	278048	9.4	19.8	88935	9.5	19.8	337477	9.5	19.6
117547	9.2	19.9	373688	9.3	21.6	483362	9.3	21.0	108763	9.4	19.1	473716	9.5	20.1	294024	9.5	21.3
366157	9.2	20.4	143949	9.3	18.6	452887	9.3	20.8	202226	9.4	19.1	279589	9.5	19.4	489938	9.5	21.2
101299	9.2	18.7	154392	9.3	18.8	413172	9.3	20.1	296328	9.4	20.6	450664	9.5	20.8	47702	9.5	18.1
216787	9.2	19.9	302529	9.3	21.4	85170	9.3	19.4	44896	9.4	16.3	371342	9.5	19.5	91284	9.5	19.6
305749	9.2	19.8	249990	9.3	19.3	291773	9.3	20.6	542019	9.4	21.4	248579	9.5	19.8	449951	9.5	20.4
471057	9.2	20.2	281156	9.3	20.6	250647	9.3	20.4	38172	9.4	18.4	407088	9.5	20.1	88076	9.5	18.5
159067	9.2	21.0	15121	9.3	17.9	121171	9.3	19.2	192336	9.4	19.9	492620	9.5	21.3	402368	9.5	20.6
193069	9.2	20.5	169791	9.3	19.5	366052	9.3	19.9	317543	9.4	20.2	312587	9.5	20.5	209220	9.5	20.0
29630	9.2	17.1	321080	9.3	20.8	485720	9.3	20.5	111350	9.4	18.8	314809	9.5	19.7	181375	9.5	19.2
180591	9.2	20.2	180597	9.3	19.2	271916	9.3	19.9	409038	9.4	20.4	326786	9.5	19.7	9193	9.5	15.9
337660	9.2	20.7	452486	9.3	21.5	324357	9.3	20.9	452625	9.4	21.0	454625	9.5	20.8	229300	9.5	19.6
422622	9.2	20.5	482485	9.3	20.8	235406	9.3	19.0	85544	9.4	18.8	454342	9.5	21.2	543430	9.5	20.9
283085	9.2	21.0	482643	9.3	19.2	415499	9.3	20.9	413751	9.4	19.9	493802	9.5	20.7	100247	9.5	19.3
14387	9.2	18.3	278951	9.3	20.1	177231	9.3	18.8	130338	9.4	19.3	391513	9.5	21.1	107986	9.5	19.0
449036	9.2	20.1	513200	9.3	21.9	85298	9.3	19.6	356128	9.4	20.8	495563	9.5	20.3	393	9.5	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
184596	9.6	19.5	323276	9.6	20.6	83389	9.7	19.8	453588	9.8	22.2	51241	9.8	18.8	212603	9.9	20.3
210407	9.6	20.2	518888	9.6	20.6	50279	9.7	18.6	464524	9.8	20.5	165119	9.8	21.4	479340	9.9	21.1
24823	9.6	18.9	98977	9.6	18.0	234259	9.7	19.2	44199	9.8	19.5	423758	9.8	21.2	231723	9.9	21.2
108179	9.6	19.4	125308	9.6	18.6	197679	9.7	20.3	492951	9.8	20.9	356050	9.8	20.6	428607	9.9	20.5
257524	9.6	19.7	162168	9.6	23.3	10662	9.7	17.7	409644	9.8	20.0	422125	9.8	21.3	517253	9.9	20.4
92655	9.6	20.1	474891	9.6	21.0	176273	9.7	19.6	144042	9.8	19.5	511027	9.8	20.3	458092	9.9	19.9
143123	9.6	19.7	521829	9.6	20.5	26921	9.7	17.5	20991	9.8	17.6	421120	9.8	21.8	368332	9.9	20.5
280514	9.6	20.4	116111	9.7	19.0	130381	9.7	20.1	69903	9.8	18.8	458568	9.8	21.6	828	9.9	14.9
213431	9.6	19.1	43970	9.7	18.4	310809	9.7	20.2	412927	9.8	20.2	304952	9.8	20.1	399998	9.9	21.5
15543	9.6	18.3	516855	9.7	21.0	27898	9.7	18.5	189719	9.8	21.0	222111	9.8	20.2	519331	9.9	21.5
117926	9.6	19.9	420689	9.7	20.3	129954	9.7	19.4	181463	9.8	20.3	390056	9.8	20.3	54283	9.9	17.4
383472	9.6	20.2	452633	9.7	20.8	306219	9.7	20.0	89252	9.8	19.4	48061	9.9	18.7	129074	9.9	18.7
77331	9.6	19.1	192417	9.7	20.8	244548	9.7	20.2	56191	9.8	17.7	24231	9.9	18.4	467551	9.9	21.3
71549	9.6	17.7	118547	9.7	18.8	443320	9.7	20.6	355047	9.8	20.5	308055	9.9	19.9	156807	9.9	18.9
202141	9.6	20.4	57224	9.7	18.8	64871	9.7	18.7	446553	9.8	20.8	258210	9.9	19.9	45787	9.9	17.2
457366	9.6	21.2	484514	9.7	20.8	28708	9.7	18.3	409498	9.8	21.4	193958	9.9	20.7	261220	9.9	20.7
458308	9.6	20.0	335539	9.7	19.4	43039	9.7	18.5	163986	9.8	19.7	40152	9.9	18.0	231565	9.9	19.7
44755	9.6	19.1	145194	9.7	19.8	416429	9.7	21.0	184760	9.8	20.0	46396	9.9	18.5	376250	9.9	21.1
400069	9.6	21.1	9663	9.7	17.5	357477	9.7	20.8	57065	9.8	18.3	455656	9.9	20.1	73278	9.9	19.1
251150	9.6	20.4	228422	9.7	19.2	370848	9.7	19.8	411878	9.8	20.6	82695	9.9	19.0	298339	9.9	21.2
181167	9.6	20.2	346529	9.7	18.8	172250	9.7	19.3	19758	9.8	19.0	345770	9.9	20.5	150373	9.9	18.9
400837	9.6	20.6	479574	9.7	19.6	276576	9.7	19.5	463072	9.8	20.6	492219	9.9	20.1	461065	9.9	20.1
455696	9.6	21.0	85410	9.7	19.0	260601	9.7	20.2	163924	9.8	19.1	225651	9.9	19.5	403373	9.9	19.5
196642	9.6	19.7	489197	9.7	21.3	249950	9.7	19.2	362814	9.8	19.7	212539	9.9	19.9	475157	9.9	20.3
59465	9.6	19.0	418492	9.7	21.2	485568	9.7	20.0	418679	9.8	20.0	112364	9.9	19.8	30725	9.9	17.3
441880	9.6	20.2	54200	9.7	18.7	342146	9.7	20.3	173816	9.8	20.3	483686	9.9	21.7	210333	9.9	20.6
198706	9.6	19.6	316597	9.7	19.6	458537	9.7	20.6	364373	9.8	20.5	361283	9.9	20.4	331833	9.9	19.9
179237	9.6	20.2	541539	9.7	22.0	432931	9.7	21.0	97766	9.8	19.6	189970	9.9	19.6	14691	9.9	16.1
121990	9.6	19.5	116546	9.7	17.7	318734	9.7	20.0	401991	9.8	21.2	282651	9.9	20.0	265263	9.9	20.4
543553	9.6	20.9	76095	9.7	19.1	152189	9.7	19.0	229992	9.8	19.4	356105	9.9	20.5	95792	9.9	19.6
57860	9.6	18.6	293340	9.7	20.2	427298	9.7	20.3	154200	9.8	19.6	303565	9.9	20.3	86603	9.9	18.4
366801	9.6	19.5	97265	9.7	18.6	215609	9.7	20.6	221796	9.8	20.7	542936	9.9	20.9	292207	9.9	20.2
112724	9.6	19.6	122117	9.7	18.8	22546	9.7	19.1	503956	9.8	19.4	139214	9.9	20.2	329174	9.9	19.5
188849	9.6	18.8	443714	9.7	20.5	188644	9.7	20.6	299171	9.8	19.4	137079	9.9	18.6	78944	9.9	19.1
464435	9.6	20.5	177658	9.7	19.7	252514	9.7	19.9	285432	9.8	20.2	77435	9.9	18.9	385483	9.9	20.4
132838	9.6	19.9	231053	9.7	19.2	473818	9.7	20.9	489876	9.8	21.6	29819	9.9	17.0	293651	9.9	20.6
421074	9.6	20.7	460818	9.7	20.3	104913	9.7	20.6	99216	9.8	18.8	403703	9.9	21.1	395582	9.9	19.5
514114	9.6	20.6	330793	9.7	20.8	113666	9.7	19.6	176873	9.8	18.3	493226	9.9	21.5	373424	9.9	21.6
44108	9.6	17.5	77620	9.7	18.8	377849	9.7	20.8	335444	9.8	19.7	454446	9.9	20.7	191349	9.9	20.6
345356	9.6	19.9	489567	9.7	21.2	458175	9.7	21.2	165451	9.8	18.2	60987	9.9	19.1	198847	9.9	20.9
184626	9.6	20.3	139514	9.7	18.9	335386	9.7	21.3	389006	9.8	20.9	494886	9.9	21.4	397225	9.9	21.3
439048	9.6	21.3	258058	9.7	19.6	239908	9.7	20.4	134385	9.8	19.4	522278	9.9	20.4	457378	9.9	21.4
279247	9.6	20.7	128232	9.7	19.0	21381	9.8	18.7	415255	9.8	21.1	516863	9.9	20.2	167941	9.9	19.9
145799	9.6	19.8	133837	9.7	19.6	451909	9.8	21.6	395542	9.8	21.6	408219	9.9	20.8	142962	9.9	19.7
247849	9.6	21.0	450168	9.7	21.4	430392	9.8	19.9	354634	9.8	20.0	394093	9.9	20.5	293523	9.9	20.5
84581	9.6	18.5	280583	9.7	18.9	419350	9.8	21.0	247278	9.8	20.8	133688	9.9	19.3	211258	9.9	20.4
180885	9.6	20.0	131416	9.7	20.5	7165	9.8	17.1	360613	9.8	19.5	459617	9.9	21.5	180868	9.9	19.6
358242	9.6	20.9	406665	9.7	20.8	101649	9.8	17.0	53744	9.8	18.8	282909	9.9	20.2	402231	9.9	21.6
258260	9.6	20.2	359517	9.7	20.5	447624	9.8	19.8	136600	9.8	18.7	33608	9.9	16.9	361408	9.9	20.0
456810	9.6	21.0	345774	9.7	20.5	80394	9.8	17.8	82308	9.8	19.5	481891	9.9	20.0	284160	9.9	20.2
235367	9.6	20.2	454232	9.7	21.3	368472	9.8	19.6	345791	9.8	20.7	23044	9.9	17.9	104779	9.9	18.6
48978	9.6	19.3	161581	9.7	20.2	180875	9.8	19.3	253856	9.8	19.4	355374	9.9	20.4	79810	9.9	17.7
441371	9.6	20.7	259353	9.7	21.3	251592	9.8	20.8	145944	9.8	18.1	136841	9.9	18.5	444388	9.9	20.8
68290	9.6	17.5	143019	9.7	19.1	26473	9.8	18.1	141904	9.8	19.5	145311	9.9	19.2	187419	9.9	20.3
475430	9.6	21.4	282387	9.7	19.0	147710	9.8	19.5	404810	9.8	21.4	521997	9.9	20.3	63223	9.9	17.5
889	9.6	13.3	48760	9.7	18.9	244777	9.8	19.9	10150	9.8	18.2	134932	9.9	18.1	204462	9.9	18.3
400079	9.6	19.2	257873	9.7	20.8	27998	9.8	18.3	13784	9.8	18.1	479673	9.9	19.8	346897	9.9	19.8
15013	9.6	15.8	453756	9.7	19.2	192093	9.8	20.1	340192	9.8	20.7	243574	9.9	20.3	287780	9.9	20.3
87437	9.6	19.3	480060	9.7	20.5	357685	9.8	20.7	164555	9.8	20.0	229997	9.9	20.2	44893	9.9	19.5
407336	9.6	21.2	459356	9.7	21.3	124038	9.8	18.6	128887	9.8	19.6	457349	9.9	21.1	280489	9.9	20.3
385682	9.6	19.7	128941	9.7	19.1	490050	9.8	21.2	489022	9.8	21.0	421335	9.9	20.8	98589	9.9	17.2
45547	9.6	18.0	454784	9.7	20.3	166353	9.8	20.8	71860	9.8	18.4	210633	9.9	20.1	207518	9.9	21.4
172960	9.6	19.2	286142	9.7	18.9	477406	9.8	21.3	493406	9.8	21.2	94456	9.9	17.6	295027	9.9	19.9
217163	9.6	20.1	100520	9.7	18.4	151747	9.8	20.0	233199	9.8	19.2	143450	9.9	19.1	84519	9.9	18.3
125210	9.6	20.2	183075	9.7	19.9	397630	9.8	21.3	137767	9.8	18.8	23569	9.9	17.4	275921	9.9	20.5
87707	9.6	19.8	247259	9.7	20.2	541979	9.8	20.5	68979	9.8	18.4	46010	9.9	19.5	28638	9.9	18.3
175283	9.6	20.1	12051	9.7	17.7	407014	9.8	20.1	353067	9.8	19.8	307377	9.9	19.8	388076	9.9	19.8
489680	9.6	20.0	100466	9.7	19.5	275162	9.8	18.3	394599	9.8	20.9	320882	9.9	20.7	272281	9.9	20.3
206479	9.6	19.7	365711	9.7	20.4	33437	9.8	18.1	410126	9.8	21.2	223546	9.9	19.2	433473	9.9	19.9
316448	9.6	20.2	268230	9.7	20.3	462459	9.8	20.7	515884	9.8	21.1	81093	9.9	18.6	411164	9.9	20.1
2914	9.6	15.8	491561	9.7	22.3	28338	9.8	18.1	484446	9.8	20.7	486248	9.9	20.7	9233	9.9	17.6
146																	

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
464101	9.9	20.1	314983	10.1	19.4	173359	10.1	19.4	466935	10.2	20.3	99832	10.3	19.9	136765	10.4	19.5
201772	9.9	20.1	272262	10.1	20.5	155225	10.1	20.1	270151	10.2	21.4	332237	10.3	20.5	262154	10.4	20.6
541604	9.9	21.2	173698	10.1	20.5	397292	10.1	21.9	131343	10.2	19.6	446847	10.3	19.4	408271	10.4	21.6
198739	9.9	18.7	109711	10.1	18.8	409361	10.1	19.5	8053	10.2	17.0	340207	10.3	19.3	263658	10.4	19.5
343201	9.9	20.8	335208	10.1	19.1	89204	10.1	18.1	109603	10.2	16.0	459779	10.3	21.1	280731	10.4	20.7
67835	9.9	18.7	120517	10.1	19.2	399739	10.1	20.9	131407	10.2	20.0	118847	10.3	19.1	399795	10.4	20.5
399068	9.9	20.1	11048	10.1	16.5	450273	10.1	18.2	43823	10.2	17.6	503566	10.3	20.6	51854	10.4	17.6
111374	9.9	19.4	141700	10.1	19.6	366795	10.1	21.6	457545	10.2	20.7	363650	10.3	20.2	280732	10.4	20.5
171834	9.9	20.8	24139	10.1	19.2	174179	10.2	20.3	103022	10.2	17.9	354274	10.3	20.9	247959	10.4	19.0
491327	9.9	21.1	441036	10.1	19.7	326853	10.2	19.8	33987	10.2	17.8	276238	10.3	19.5	136287	10.4	19.8
28181	9.9	18.3	517027	10.1	20.6	467534	10.2	21.2	196037	10.2	20.4	277842	10.3	20.0	452064	10.4	21.0
132777	9.9	19.7	113162	10.1	19.9	9748	10.2	17.4	176261	10.2	19.3	370849	10.3	20.7	267543	10.4	20.8
458602	9.9	20.5	377943	10.1	21.1	76713	10.2	19.2	336532	10.2	20.6	220101	10.3	19.6	257786	10.4	20.4
42839	9.9	19.8	229404	10.1	19.6	267262	10.2	20.6	522038	10.2	20.8	340942	10.3	19.7	166736	10.4	19.8
420086	9.9	20.7	24347	10.1	18.0	372202	10.2	21.9	518278	10.2	19.5	447532	10.3	21.0	193218	10.4	18.8
49576	9.9	17.5	522277	10.1	21.5	103319	10.2	17.7	418564	10.2	20.0	447497	10.3	21.1	77379	10.4	19.4
197786	9.9	20.2	376721	10.1	21.6	526708	10.2	22.0	450265	10.2	20.7	369185	10.3	20.4	14756	10.4	17.8
75535	9.9	17.8	376029	10.1	19.5	475483	10.2	21.7	346369	10.2	20.1	404565	10.3	21.4	202137	10.4	20.7
199712	10.0	20.5	367440	10.1	19.9	108364	10.2	18.8	22513	10.2	18.8	307472	10.3	20.3	137285	10.4	20.1
163847	10.0	20.4	104960	10.1	19.6	44289	10.2	18.6	206604	10.2	20.2	219910	10.3	20.1	103634	10.4	19.3
127899	10.0	19.0	77571	10.1	18.8	382435	10.2	21.2	318052	10.2	19.7	339079	10.3	20.8	274437	10.4	19.8
65812	10.0	19.7	272167	10.1	20.6	303562	10.2	19.8	440122	10.2	21.4	494112	10.3	20.4	418781	10.4	20.8
286320	10.0	20.0	403121	10.1	18.2	268674	10.2	20.6	60149	10.2	19.0	201969	10.3	21.0	51256	10.4	18.2
451450	10.0	20.3	394585	10.1	21.1	520742	10.2	20.9	310297	10.2	20.4	166745	10.3	20.1	81176	10.4	17.7
167214	10.0	18.2	448380	10.1	20.6	54023	10.2	18.2	137493	10.2	19.0	511626	10.3	20.9	305087	10.4	20.3
157372	10.0	21.0	115541	10.1	19.2	43785	10.2	17.7	445968	10.2	18.8	383008	10.3	20.4	187779	10.4	20.0
133664	10.0	19.4	321931	10.1	20.7	489880	10.2	21.1	319760	10.2	19.7	66854	10.3	18.8	163827	10.4	20.0
194488	10.0	19.9	445597	10.1	20.9	286911	10.2	20.0	298095	10.2	19.2	116357	10.3	18.5	376678	10.4	20.3
427335	10.0	20.1	335216	10.1	20.2	249307	10.2	19.9	386874	10.2	20.1	153729	10.3	19.4	544362	10.4	21.0
523361	10.0	20.8	214137	10.1	18.8	409855	10.2	20.5	372207	10.2	21.2	173738	10.3	19.9	288882	10.4	20.4
117539	10.0	19.2	262244	10.1	20.2	364935	10.2	21.3	303579	10.2	19.7	205406	10.3	19.0	259687	10.4	19.5
230899	10.0	19.9	458594	10.1	20.7	268008	10.2	21.0	191652	10.2	20.2	37499	10.3	18.3	74103	10.4	16.9
79333	10.0	19.4	411899	10.1	20.9	174171	10.2	19.6	76025	10.2	19.7	202028	10.3	20.3	353246	10.4	21.0
113751	10.0	19.0	233848	10.1	19.8	48892	10.2	19.4	130077	10.2	19.0	436135	10.3	20.4	304958	10.4	21.3
463506	10.0	20.9	130009	10.1	20.0	144149	10.2	18.5	224968	10.2	19.9	125080	10.3	18.9	84209	10.4	18.8
463291	10.0	20.3	128282	10.1	19.3	114035	10.2	19.1	13555	10.2	17.0	101460	10.3	18.7	487733	10.4	20.6
161030	10.0	19.7	339019	10.1	20.3	79386	10.2	19.6	301241	10.2	19.7	284680	10.3	20.4	282840	10.4	19.8
492835	10.0	20.9	315883	10.1	19.3	317721	10.2	19.8	51761	10.2	17.9	253957	10.3	19.9	254702	10.4	21.0
495735	10.0	20.3	267545	10.1	20.2	365902	10.2	20.8	300595	10.2	20.4	185226	10.3	19.4	63135	10.4	19.7
368323	10.0	19.6	152735	10.1	18.9	321841	10.2	20.3	72533	10.2	18.9	444824	10.3	20.4	418633	10.4	20.7
472122	10.0	19.3	118260	10.1	18.8	26919	10.2	17.7	194498	10.2	19.3	464883	10.3	21.1	344868	10.4	20.6
161169	10.0	20.2	227758	10.1	19.4	213313	10.2	20.4	494048	10.2	20.3	450894	10.3	21.4	164559	10.4	20.5
63692	10.0	18.8	483688	10.1	20.6	493477	10.2	19.9	414699	10.2	20.6	284460	10.3	21.0	103255	10.4	18.6
54329	10.0	18.9	516797	10.1	20.9	273706	10.2	20.1	462685	10.2	20.7	424818	10.3	20.4	207259	10.4	18.8
144160	10.0	20.5	327537	10.1	20.2	542987	10.2	20.6	344523	10.3	19.9	720	10.3	13.5	194936	10.4	19.8
167406	10.0	19.4	99088	10.1	19.1	405367	10.2	18.8	448354	10.3	19.9	194583	10.3	19.1	492178	10.4	22.7
457428	10.0	20.3	210570	10.1	19.3	442237	10.2	21.0	54325	10.3	19.1	335311	10.3	21.2	517572	10.4	20.5
459769	10.0	20.6	384313	10.1	19.5	365994	10.2	20.0	15215	10.3	19.0	1070	10.3	15.8	341081	10.4	20.2
29967	10.0	17.5	2032	10.1	16.1	82743	10.2	19.6	8696	10.3	17.6	487757	10.3	20.5	456324	10.4	20.5
496042	10.0	20.7	112698	10.1	19.5	253313	10.2	19.3	115483	10.3	19.3	221357	10.3	20.8	451747	10.4	21.1
27984	10.0	18.9	447942	10.1	20.0	484183	10.2	21.0	307763	10.3	20.1	8206	10.3	16.9	451751	10.4	20.6
391449	10.0	22.6	169022	10.1	19.3	273280	10.2	19.8	317999	10.3	19.7	158609	10.3	18.5	458565	10.4	20.4
143112	10.0	18.6	14875	10.1	18.3	24263	10.2	17.2	364892	10.3	20.8	509715	10.3	21.4	478688	10.4	21.3
339927	10.0	20.3	184098	10.1	20.8	331326	10.2	19.6	307289	10.3	20.9	165690	10.3	19.0	415288	10.4	21.2
486234	10.0	20.3	440059	10.1	19.7	73395	10.2	19.6	73317	10.3	20.1	11541	10.3	16.9	453671	10.4	21.4
343196	10.0	20.3	49155	10.1	17.4	347811	10.2	20.0	202909	10.3	20.4	328480	10.3	19.8	50338	10.4	17.9
263460	10.0	20.0	286063	10.1	20.3	329660	10.2	20.5	296442	10.3	20.0	446362	10.3	21.8	455365	10.4	20.8
484115	10.0	21.5	221963	10.1	21.7	412142	10.2	20.2	139728	10.3	19.7	397873	10.3	18.4	335620	10.4	22.0
167402	10.0	19.3	244949	10.1	19.8	43801	10.2	19.2	477046	10.3	19.0	34148	10.3	17.4	23675	10.4	17.9
209809	10.0	18.7	222090	10.1	20.5	96256	10.2	19.7	251176	10.3	21.0	104469	10.3	18.5	354372	10.4	20.9
491401	10.0	20.8	89874	10.1	18.9	72775	10.2	18.7	266611	10.3	20.6	271952	10.3	19.5	420604	10.4	21.3
97535	10.0	19.5	226656	10.1	19.7	399002	10.2	20.3	379748	10.3	21.0	280509	10.3	20.8	358195	10.4	20.9
515754	10.0	22.1	270851	10.1	20.8	298395	10.2	20.3	420154	10.3	20.4	399946	10.3	20.0	388519	10.4	19.8
245745	10.0	20.6	151895	10.1	19.3	97183	10.2	18.5	369190	10.3	21.2	469823	10.3	19.7	180619	10.4	20.6
77442	10.0	19.4	74626	10.1	18.3	254081	10.2	21.0	421284	10.3	20.5	464613	10.3	20.3	146633	10.4	19.6
389685	10.0	20.6	14615	10.1	17.4	234766	10.2	19.9	189734	10.3	18.6	471032	10.3	20.8	68017	10.4	18.5
179044	10.0	19.0	489642	10.1	22.0	209206	10.2	20.7	270866	10.3	19.6	393250	10.3	20.0	492245	10.4	21.5
77166	10.1	19.0	368303	10.1	21.6	377927	10.2	21.1	190839	10.3	21.1	110674	10.3	19.2	60842	10.4	19.3
483490	10.1	21.7	42680	10.1	17.8	270764	10.2	20.7	46185	10.3	18.7	4					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
404022	10.4	21.1	47577	10.5	18.3	416336	10.6	19.7	74367	10.7	18.5	311609	10.7	21.3	67762	10.8	18.1
263037	10.4	20.7	451561	10.5	20.2	307295	10.6	21.0	185479	10.7	19.5	159537	10.7	21.1	199084	10.8	19.8
471946	10.4	19.7	143767	10.5	19.8	263428	10.6	19.9	516545	10.7	21.8	155970	10.7	18.9	234917	10.8	19.5
435499	10.4	21.2	2987	10.5	16.0	437619	10.6	20.2	173373	10.7	18.2	67680	10.7	18.2	267583	10.8	20.1
310287	10.4	21.3	270109	10.5	19.6	335364	10.6	20.7	138217	10.7	20.6	514896	10.7	21.6	56127	10.8	18.5
457898	10.4	19.8	191403	10.5	19.9	39154	10.6	18.6	224683	10.7	20.1	492210	10.7	21.7	148516	10.8	20.8
544446	10.4	20.4	443231	10.5	21.0	448562	10.6	21.1	270711	10.7	19.7	399800	10.7	21.4	215291	10.8	20.6
58356	10.4	17.6	128198	10.5	19.0	420916	10.6	20.8	447470	10.7	21.2	336064	10.7	21.2	172416	10.8	19.7
436989	10.4	21.2	439261	10.5	20.0	256896	10.6	19.8	190176	10.7	20.9	230423	10.7	18.9	241639	10.8	18.7
151919	10.4	19.6	309413	10.5	20.1	31882	10.6	19.2	99724	10.7	19.2	402280	10.7	22.0	277105	10.8	19.7
88564	10.4	19.4	404274	10.5	20.3	466712	10.6	20.0	495736	10.7	20.1	178671	10.7	20.8	122338	10.8	18.9
345319	10.4	20.1	384641	10.5	19.4	279717	10.6	19.6	17521	10.7	18.1	77986	10.7	20.3	224155	10.8	20.7
241284	10.4	19.1	427177	10.5	19.1	522181	10.6	20.8	397213	10.7	20.7	175157	10.7	19.4	198835	10.8	18.9
370277	10.4	21.2	275786	10.5	21.4	314931	10.6	19.9	404707	10.7	21.2	313898	10.7	20.5	177954	10.8	18.9
451573	10.4	20.4	146396	10.5	19.2	421375	10.6	21.3	207119	10.7	19.1	335391	10.7	20.9	449590	10.8	21.3
171219	10.4	19.0	517566	10.5	21.0	290862	10.6	20.6	44653	10.7	19.1	112491	10.7	18.7	328039	10.8	21.4
275140	10.5	19.7	327697	10.5	19.9	327697	10.6	20.7	298125	10.7	19.9	36954	10.7	19.0	459685	10.8	20.9
263440	10.5	20.1	193326	10.5	19.7	298404	10.6	21.7	10684	10.7	17.7	296410	10.7	19.4	223075	10.8	19.5
510158	10.5	20.9	185515	10.5	20.2	334680	10.6	19.0	359539	10.7	21.1	453587	10.7	21.3	257984	10.8	18.7
340199	10.5	18.8	73984	10.5	18.5	375114	10.6	21.1	179018	10.7	20.1	180671	10.7	18.9	360644	10.8	20.7
327653	10.5	20.3	25774	10.5	18.2	9399	10.6	17.8	448024	10.7	20.1	322592	10.7	18.9	41318	10.8	18.4
445203	10.5	20.5	323304	10.5	20.4	302615	10.6	21.3	272089	10.7	20.0	332936	10.7	20.1	49568	10.8	18.4
30287	10.5	19.7	40328	10.5	18.8	34118	10.6	17.5	192144	10.7	18.9	274357	10.7	20.8	193002	10.8	19.6
115043	10.5	18.8	242256	10.5	19.0	370606	10.6	19.6	372278	10.7	20.9	355049	10.7	21.1	514630	10.8	20.6
330240	10.5	20.8	397301	10.5	22.6	60742	10.6	18.3	279114	10.7	20.3	114479	10.7	19.1	505375	10.8	20.4
189017	10.5	20.6	206434	10.5	20.1	115380	10.6	18.9	475508	10.7	21.3	119260	10.7	18.8	229892	10.8	19.8
493287	10.5	20.9	286004	10.5	21.1	483343	10.6	21.1	29856	10.7	17.6	439543	10.8	20.1	177592	10.8	19.7
74499	10.5	18.2	355389	10.5	20.9	259960	10.6	20.3	309378	10.7	20.4	306477	10.8	19.8	261090	10.8	20.6
487421	10.5	20.7	334140	10.5	20.7	383547	10.6	19.8	306381	10.7	21.0	79747	10.8	18.4	248808	10.8	20.0
406133	10.5	21.0	437981	10.5	20.8	70668	10.6	19.6	446865	10.7	20.3	142724	10.8	19.0	141964	10.8	20.6
90277	10.5	19.5	15370	10.5	18.7	38662	10.6	18.3	26492	10.7	20.5	193303	10.8	19.4	271521	10.8	20.6
294699	10.5	19.9	324723	10.5	19.7	195711	10.6	19.4	305057	10.7	21.1	108370	10.8	19.4	414313	10.8	20.1
442392	10.5	21.1	91733	10.5	18.8	481768	10.6	20.9	424840	10.7	21.1	273018	10.8	20.3	162367	10.8	17.9
434600	10.5	21.3	136354	10.5	18.8	192066	10.6	20.1	227197	10.7	18.9	543216	10.8	21.0	196304	10.8	19.5
200965	10.5	19.5	272177	10.5	20.7	76793	10.6	19.3	231354	10.7	20.4	512512	10.8	20.6	124868	10.8	18.5
23951	10.5	18.8	60883	10.5	18.8	397240	10.6	20.6	72376	10.7	19.2	330591	10.8	19.4	182729	10.8	19.8
127366	10.5	19.1	409571	10.6	19.9	1186	10.6	14.5	395215	10.7	21.1	254776	10.8	20.4	380943	10.8	21.2
29622	10.5	16.2	382391	10.6	21.0	102698	10.6	18.7	115177	10.7	19.0	268849	10.8	19.7	516188	10.8	21.2
295831	10.5	20.1	232936	10.6	19.3	239452	10.6	21.3	275821	10.7	20.8	65644	10.8	18.7	200558	10.8	19.3
164426	10.5	20.5	147983	10.6	20.1	229306	10.6	19.2	35478	10.7	18.0	490569	10.8	21.3	488902	10.8	21.2
460635	10.5	20.2	542879	10.6	21.0	422089	10.6	20.4	477383	10.7	20.3	135803	10.8	20.2	487076	10.8	21.1
359466	10.5	21.4	491391	10.6	19.8	410914	10.6	21.1	71492	10.7	18.7	109800	10.8	19.9	84141	10.8	18.0
264832	10.5	20.4	372144	10.6	20.7	484851	10.6	21.2	97347	10.7	18.6	128095	10.8	19.5	493433	10.8	20.8
142553	10.5	18.9	476435	10.6	21.1	491377	10.6	21.0	355432	10.7	20.5	321846	10.8	20.6	267982	10.8	20.1
517369	10.5	21.1	30550	10.6	20.1	149691	10.6	19.7	343721	10.7	21.0	367292	10.8	20.9	137785	10.8	19.3
16170	10.5	17.1	158738	10.6	20.0	250973	10.6	20.7	4571	10.7	17.2	135025	10.8	20.1	337670	10.8	20.5
484748	10.5	20.1	400667	10.6	20.4	490920	10.6	19.9	81986	10.7	20.2	335379	10.8	20.8	41172	10.8	19.0
25327	10.5	17.1	356010	10.6	20.5	454841	10.6	21.7	288109	10.7	20.4	486961	10.8	20.8	48303	10.8	19.5
239633	10.5	20.3	278936	10.6	20.1	354671	10.6	21.7	103248	10.7	18.5	79214	10.8	19.5	309286	10.8	21.4
268215	10.5	19.6	312308	10.6	19.8	22727	10.6	18.2	195618	10.7	20.5	305265	10.8	20.3	293870	10.8	19.7
416732	10.5	20.5	423303	10.6	21.4	103288	10.6	18.6	422868	10.7	21.5	450381	10.8	20.9	379341	10.8	20.2
197799	10.5	20.5	263345	10.6	19.2	305923	10.6	19.7	398521	10.7	20.6	164523	10.8	20.3	359313	10.8	20.8
453164	10.5	20.2	280701	10.6	19.8	124747	10.6	18.9	278868	10.7	20.1	337861	10.8	21.0	517926	10.8	20.8
229690	10.5	19.2	292720	10.6	19.9	375068	10.6	20.9	133015	10.7	19.6	448362	10.8	20.4	50998	10.8	18.6
492146	10.5	20.8	122355	10.6	20.0	362224	10.6	20.3	394501	10.7	20.5	64475	10.8	18.9	412372	10.8	20.7
382389	10.5	20.5	278927	10.6	19.7	419527	10.6	19.6	489844	10.7	21.1	60812	10.8	18.5	18770	10.8	18.0
76464	10.5	18.8	291280	10.6	19.9	138427	10.6	19.6	319176	10.7	20.0	388941	10.8	20.5	49705	10.8	18.1
154389	10.5	18.7	281502	10.6	20.0	161749	10.6	19.9	363606	10.7	20.4	251090	10.8	20.8	401547	10.8	20.5
334094	10.5	20.1	21359	10.6	18.4	307883	10.6	19.2	293436	10.7	20.1	423072	10.8	20.5	445740	10.8	20.6
201408	10.5	18.9	301282	10.6	20.4	329536	10.6	20.8	157117	10.7	19.7	109776	10.8	18.1	449691	10.8	21.4
280798	10.5	19.6	275479	10.6	19.9	97668	10.6	19.6	229001	10.7	20.2	308805	10.8	21.3	142647	10.8	19.2
222723	10.5	19.5	184448	10.6	20.7	460295	10.6	20.3	131311	10.7	19.5	260178	10.8	20.4	158796	10.8	19.4
131694	10.5	18.9	156897	10.6	19.4	396669	10.6	20.9	161561	10.7	19.0	229361	10.8	21.1	335396	10.8	21.0
83834	10.5	19.2	34728	10.6	17.7	274384	10.6	19.4	326545	10.7	19.9	486559	10.8	21.1	160243	10.8	18.4
315614	10.5	20.1	180198	10.6	19.0	68237	10.6	18.6	366634	10.7	20.6	238311	10.8	20.4	447530	10.8	20.7
268634	10.5	21.2	289914	10.6	19.9	444861	10.6	20.9	95743	10.7	20.2	101006	10.8	19.6	508918	10.8	22.1
112233	10.5	19.9	133861	10.6	18.8	190360	10.6	19.4	143812	10.7	19.0	361352	10.8	20.0	305689	10.8	20.0
121889	10.5	20.2	228255	10.6	20.2	257143	10.6	20.0	343723	10.7	20.7	370347	10.8	20.4	330721	10.8	20.7
489067	10.5	21.1	298573	10.6	19.1	134235	10.6	19.7									

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
323258	10.8	21.5	67673	10.9	19.0	146047	10.9	19.0	234312	11.1	19.4	45451	11.1	17.7	301728	11.2	21.1
146517	10.9	19.1	173476	10.9	20.3	417370	10.9	21.3	117752	11.1	20.0	202448	11.1	20.3	204686	11.2	19.8
161220	10.9	19.4	517882	10.9	21.0	128021	10.9	20.6	217539	11.1	20.2	442907	11.1	20.1	376674	11.2	21.3
174138	10.9	19.2	307382	10.9	20.8	312560	10.9	20.3	157936	11.1	19.9	254837	11.1	19.8	489824	11.2	19.4
95276	10.9	19.8	449885	10.9	21.6	100007	10.9	18.8	19057	11.1	19.1	487518	11.1	20.9	503403	11.2	20.2
139867	10.9	20.1	503332	10.9	20.0	115738	10.9	18.9	254033	11.1	20.2	474804	11.1	19.7	449980	11.2	20.8
230664	10.9	19.9	51522	10.9	19.5	349111	10.9	21.3	459730	11.1	20.6	103539	11.1	18.8	477338	11.2	19.8
267912	10.9	18.9	175482	10.9	19.7	373811	10.9	21.1	332715	11.1	21.3	44042	11.1	19.6	494120	11.2	20.6
475846	10.9	20.4	327121	10.9	20.9	65507	10.9	18.5	251239	11.1	20.7	157664	11.1	20.4	45975	11.2	17.9
72287	10.9	18.7	493444	10.9	20.4	309630	11.0	20.0	157672	11.1	19.5	161217	11.1	20.0	542796	11.2	20.5
376948	10.9	19.7	263909	10.9	20.3	405316	11.0	19.8	309517	11.1	18.6	90110	11.1	19.5	261555	11.2	20.6
129443	10.9	20.1	452166	10.9	21.5	459826	11.0	20.8	51530	11.1	19.2	52569	11.1	19.0	197412	11.2	19.6
296559	10.9	20.5	11040	10.9	18.8	73935	11.0	19.2	277131	11.1	20.5	19524	11.1	16.4	376092	11.2	20.4
72638	10.9	18.6	269875	10.9	20.8	199714	11.0	20.1	494782	11.1	22.1	167569	11.1	19.3	286905	11.2	21.6
349550	10.9	20.7	214325	10.9	19.6	401505	11.0	20.9	122082	11.1	20.1	354641	11.1	20.1	208011	11.2	19.4
541075	10.9	20.5	164513	10.9	20.4	26851	11.0	17.5	69097	11.1	19.4	110623	11.1	19.1	103656	11.2	19.2
249994	10.9	19.9	300785	10.9	18.2	413448	11.0	20.4	153733	11.1	20.2	448564	11.1	20.1	446198	11.2	19.4
449271	10.9	20.9	174217	10.9	19.2	542794	11.0	20.2	72208	11.1	18.0	271135	11.1	19.7	342160	11.2	20.3
457459	10.9	19.8	489541	10.9	18.9	270307	11.0	20.8	28982	11.1	18.8	66095	11.1	19.1	14621	11.2	17.1
125166	10.9	19.3	49539	10.9	17.4	26590	11.0	18.0	223105	11.1	20.6	75256	11.1	18.6	310786	11.2	20.9
322102	10.9	20.6	540347	10.9	20.8	388482	11.0	20.4	445576	11.1	22.3	87055	11.1	20.0	334578	11.2	20.9
105235	10.9	19.6	180225	10.9	18.9	115362	11.0	18.7	454894	11.1	20.2	495412	11.1	20.5	357	11.2	13.2
90284	10.9	19.6	195744	10.9	20.0	68244	11.0	19.1	148098	11.1	19.2	171171	11.1	18.5	30065	11.2	19.0
234215	10.9	20.8	443797	10.9	20.4	64546	11.0	17.4	117442	11.1	19.7	151517	11.1	16.8	248965	11.2	19.9
378378	10.9	22.1	167146	10.9	18.9	333330	11.0	20.8	407359	11.1	20.7	351106	11.1	19.7	392496	11.2	20.6
218542	10.9	19.0	516601	10.9	21.4	412259	11.0	21.8	364909	11.1	20.4	333276	11.1	21.2	50080	11.2	18.5
520320	10.9	21.3	310128	10.9	19.2	223777	11.0	19.3	110922	11.1	20.6	358676	11.1	19.8	223343	11.2	19.3
292204	10.9	19.6	448828	10.9	20.1	167292	11.0	20.5	223134	11.1	19.1	77095	11.1	19.6	32562	11.2	18.2
495573	10.9	20.5	404045	10.9	20.4	263388	11.0	19.8	483822	11.1	21.0	162202	11.1	19.1	456371	11.2	21.1
204033	10.9	19.8	339875	10.9	21.3	374694	11.0	20.2	411965	11.1	20.5	223864	11.1	19.9	517518	11.2	20.5
5327	10.9	16.7	413814	10.9	20.1	196961	11.0	19.8	27376	11.1	19.3	287685	11.1	19.6	478500	11.2	19.5
117471	10.9	18.8	457351	10.9	20.9	453678	11.0	20.7	323624	11.1	19.9	137380	11.2	19.8	431571	11.2	20.6
493670	10.9	20.0	331550	10.9	19.8	180375	11.0	18.3	208317	11.1	20.8	187703	11.2	19.9	188998	11.2	19.8
70965	10.9	18.4	399165	10.9	19.9	185685	11.0	19.8	107778	11.1	20.1	48342	11.2	19.1	287400	11.2	20.4
434508	10.9	21.5	29246	10.9	17.3	517349	11.0	22.1	417400	11.1	20.1	394192	11.2	21.7	196432	11.2	20.4
369221	10.9	20.0	202946	10.9	20.2	269181	11.0	20.9	458088	11.1	20.6	15262	11.2	18.5	335346	11.2	20.3
329515	10.9	20.6	227337	10.9	18.8	270043	11.0	20.2	269874	11.1	19.7	420178	11.2	20.2	537620	11.2	20.3
41207	10.9	19.3	481056	10.9	20.5	336070	11.0	21.2	405634	11.1	20.8	334318	11.2	20.1	31504	11.2	18.2
129574	10.9	19.4	49809	10.9	18.2	353418	11.0	20.0	342239	11.1	21.1	391907	11.2	21.3	40306	11.2	17.5
230696	10.9	18.3	523329	10.9	20.9	444789	11.0	21.1	107999	11.1	19.4	280723	11.2	20.0	228546	11.2	19.2
477768	10.9	20.7	514874	10.9	21.1	259911	11.0	19.7	267818	11.1	20.0	346304	11.2	21.5	88780	11.2	20.3
275745	10.9	19.9	340181	10.9	19.3	181777	11.0	19.9	531199	11.1	22.8	360258	11.2	19.6	343190	11.2	21.1
438691	10.9	21.4	493242	10.9	20.8	145217	11.0	19.8	322537	11.1	19.5	398715	11.2	20.3	341048	11.2	20.2
174474	10.9	19.1	278997	10.9	19.8	24074	11.0	17.0	376683	11.1	21.9	542025	11.2	21.9	125073	11.2	19.9
78483	10.9	18.8	373667	10.9	22.3	348235	11.0	21.4	226863	11.1	20.2	244649	11.2	19.6	247973	11.2	18.4
223083	10.9	20.1	363321	10.9	20.5	408719	11.0	20.8	450699	11.1	20.9	126831	11.2	20.3	457505	11.2	20.5
163105	10.9	18.0	300487	10.9	21.1	307209	11.0	21.5	88147	11.1	18.6	230244	11.2	20.1	281863	11.2	19.7
198223	10.9	19.5	25817	10.9	19.5	90589	11.0	19.0	522134	11.1	20.9	178117	11.2	19.8	430841	11.2	20.5
386080	10.9	21.2	112102	10.9	20.2	295143	11.0	20.1	254847	11.1	20.9	41300	11.2	18.5	386111	11.2	21.7
114527	10.9	18.2	418570	10.9	19.9	400623	11.0	19.0	230656	11.1	19.4	395305	11.2	21.3	279026	11.2	20.7
9914	10.9	16.8	213609	10.9	20.5	119198	11.0	19.7	179407	11.1	20.2	334583	11.2	20.6	413645	11.2	22.8
488709	10.9	20.3	297009	10.9	21.7	241339	11.0	21.0	155528	11.1	19.7	221689	11.2	19.5	233042	11.2	20.1
403063	10.9	20.1	132612	10.9	20.1	15904	11.0	16.5	190310	11.1	20.3	208837	11.2	19.6	81832	11.2	20.0
396932	10.9	21.7	85742	10.9	18.5	271528	11.0	20.4	27488	11.1	18.5	204023	11.2	18.4	453168	11.2	20.3
305717	10.9	20.0	71807	10.9	17.9	19681	11.0	16.4	223736	11.1	19.8	248326	11.2	19.7	179068	11.2	19.1
149536	10.9	19.2	405047	10.9	21.6	541308	11.0	21.1	158567	11.1	20.0	477437	11.2	20.3	188403	11.2	20.4
193139	10.9	20.6	465516	10.9	20.3	27457	11.0	18.1	195823	11.1	19.3	29113	11.2	18.2	333051	11.2	19.5
480866	10.9	21.8	464060	10.9	20.7	271640	11.0	21.0	27537	11.1	17.1	409793	11.2	20.1	405480	11.2	19.5
335248	10.9	19.7	60931	10.9	19.1	397285	11.0	21.3	408493	11.1	20.6	225435	11.2	20.0	523477	11.2	21.1
229012	10.9	18.4	198800	10.9	20.1	255411	11.0	20.2	336637	11.1	19.8	506208	11.2	20.6	11905	11.2	17.5
139765	10.9	19.9	514111	10.9	21.4	390776	11.0	21.2	337830	11.1	20.0	226605	11.2	19.1	318988	11.2	21.1
174166	10.9	19.3	162371	10.9	17.3	16208	11.0	18.4	77838	11.1	18.3	195819	11.2	20.5	355483	11.2	20.5
270697	10.9	19.4	416480	10.9	21.1	184103	11.0	20.3	267562	11.1	20.0	505341	11.2	19.9	330267	11.2	21.4
48725	10.9	17.2	343368	10.9	20.2	147068	11.0	19.3	177520	11.1	19.9	443928	11.2	21.0	194118	11.2	20.7
44456	10.9	18.3	414014	10.9	20.7	410636	11.0	21.3	201296	11.1	20.0	395587	11.2	21.2	167221	11.2	19.2
271241	10.9	19.8	10188	10.9	18.2	101103	11.0	19.3	156637	11.1	19.4	228957	11.2	19.3	101755	11.3	18.9
16703	10.9	18.0	11369	10.9	16.9	353951	11.0	19.5	51758	11.1	18.3	274461	11.2	20.7	283248	11.3	20.2
71671	10.9	17.6	236849	10.9	20.2	113188	11.0	19.7	357429	11.1	19.4	521778	11.2	21.2	447889	11.3	20.2
31877	10.9	18.8	460578	10.9	20.6	369584	11.1	21.5	52503								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
340017	11.3	19.6	436169	11.3	20.7	348960	11.4	20.5	376225	11.5	20.6	261364	11.5	20.3	99065	11.6	19.1
353207	11.3	19.9	288229	11.3	20.5	191482	11.4	19.0	178872	11.5	20.3	359332	11.5	20.0	337449	11.6	20.2
158695	11.3	19.7	135815	11.3	19.8	276664	11.4	19.3	486317	11.5	20.3	234574	11.5	19.6	56633	11.6	19.4
397515	11.3	21.1	69969	11.3	17.6	269603	11.4	20.2	82835	11.5	19.3	217308	11.5	20.3	75764	11.6	18.1
484321	11.3	20.5	386709	11.3	20.3	251116	11.4	19.9	231679	11.5	21.0	380000	11.5	20.2	425002	11.6	21.0
255974	11.3	20.3	40631	11.3	19.1	387889	11.4	21.7	267781	11.5	19.0	297327	11.5	20.0	246930	11.6	20.5
410631	11.3	21.3	505661	11.3	20.6	296280	11.4	21.1	271585	11.5	20.7	251523	11.5	20.5	73344	11.6	19.3
121993	11.3	20.5	454818	11.3	21.4	519192	11.4	21.1	79397	11.5	20.2	139350	11.5	20.1	492804	11.6	20.8
373964	11.3	19.2	457063	11.3	20.0	386703	11.4	19.8	30066	11.5	19.0	337883	11.5	19.7	202368	11.6	19.9
108541	11.3	18.5	202319	11.3	20.0	369143	11.4	20.7	225208	11.5	20.5	284155	11.5	20.2	475197	11.6	21.2
365024	11.3	21.4	32638	11.3	17.6	412722	11.4	19.8	146832	11.5	18.8	320798	11.5	19.9	494101	11.6	20.1
470056	11.3	20.4	329867	11.3	19.7	520166	11.4	21.2	107724	11.5	20.1	420213	11.5	20.0	216568	11.6	19.4
117733	11.3	18.2	197704	11.3	20.4	125513	11.4	18.9	268695	11.5	21.3	160696	11.5	20.3	426092	11.6	20.5
20004	11.3	16.8	14010	11.3	18.3	189705	11.4	19.4	88034	11.5	19.5	471495	11.5	20.1	484126	11.6	20.6
150929	11.3	19.9	314994	11.3	20.9	42270	11.4	18.4	484363	11.5	19.5	61623	11.5	19.0	397562	11.6	20.7
48370	11.3	20.3	191453	11.3	19.8	16530	11.4	16.8	454346	11.5	22.0	240352	11.5	20.8	12506	11.6	18.0
112508	11.3	19.6	158472	11.3	19.9	329458	11.4	21.1	490344	11.5	19.9	521679	11.5	20.9	433335	11.6	19.8
521744	11.3	20.6	359739	11.3	20.3	372215	11.4	20.4	144060	11.5	20.4	105159	11.5	19.5	9241	11.6	16.9
364893	11.3	20.1	394188	11.3	21.0	81339	11.4	19.2	464749	11.5	20.4	517429	11.5	22.6	442442	11.6	22.1
66006	11.3	19.4	492916	11.3	20.9	173664	11.4	20.7	54429	11.5	19.0	226339	11.5	18.8	519108	11.6	22.4
274603	11.3	19.9	40105	11.3	18.4	43332	11.4	18.9	32766	11.5	17.6	221966	11.5	19.8	12514	11.6	18.7
86386	11.3	18.3	210370	11.3	20.2	103745	11.4	18.9	56771	11.5	18.9	132976	11.5	18.4	62083	11.6	18.5
493345	11.3	21.4	249901	11.3	20.3	139787	11.4	18.7	252636	11.5	20.7	29719	11.5	17.2	31846	11.6	20.0
97537	11.3	19.1	314789	11.3	20.5	248747	11.4	20.3	486366	11.5	20.7	488697	11.5	19.0	134146	11.6	19.5
84825	11.3	19.4	180281	11.3	19.8	13903	11.4	19.2	342494	11.5	19.5	64107	11.5	17.6	370442	11.6	20.1
84923	11.3	17.9	218422	11.3	19.9	493267	11.4	20.6	5157	11.5	17.1	1102	11.6	14.4	486350	11.6	19.5
460654	11.3	21.0	368843	11.3	21.0	94802	11.4	18.4	125436	11.5	18.6	23605	11.6	16.8	273165	11.6	20.8
23286	11.3	18.2	436778	11.3	22.2	494811	11.4	21.3	69110	11.5	18.9	461081	11.6	19.6	185749	11.6	20.0
287748	11.3	20.7	223314	11.3	19.6	74131	11.4	18.1	132804	11.5	19.6	464583	11.6	20.9	357748	11.6	21.2
197858	11.3	19.1	46057	11.3	18.9	109008	11.4	18.9	457923	11.5	20.6	89000	11.6	18.6	80442	11.6	19.3
198037	11.3	20.2	9556	11.3	16.3	218995	11.4	21.5	243235	11.5	19.9	78958	11.6	18.2	11355	11.6	17.4
249885	11.3	20.8	302568	11.4	19.5	25794	11.4	18.6	403166	11.5	20.3	401154	11.6	19.2	334100	11.6	19.7
494117	11.3	20.7	449246	11.4	20.4	147022	11.4	19.0	53578	11.5	18.2	20583	11.6	18.8	124689	11.6	20.4
44818	11.3	19.4	291198	11.4	19.6	289915	11.4	20.6	72689	11.5	19.4	213323	11.6	21.3	517888	11.6	22.0
543210	11.3	21.0	302965	11.4	19.5	402347	11.4	20.8	447639	11.5	20.7	186651	11.6	20.0	198774	11.6	19.5
303615	11.3	20.3	244345	11.4	20.1	361315	11.4	20.6	27848	11.5	17.4	4058	11.6	16.2	381390	11.6	20.2
508772	11.3	21.9	542755	11.4	20.7	138478	11.4	19.4	481795	11.5	20.0	110154	11.6	19.3	514939	11.6	20.6
543017	11.3	21.2	231192	11.4	20.0	228459	11.4	19.8	388480	11.5	20.1	414975	11.6	21.4	396002	11.6	20.5
166358	11.3	19.4	523158	11.4	21.0	12672	11.4	17.7	152096	11.5	20.4	404961	11.6	20.7	197224	11.6	19.8
418649	11.3	21.5	267260	11.4	19.5	80693	11.4	18.4	377953	11.5	21.4	319118	11.6	19.1	421555	11.6	20.1
382063	11.3	20.9	418630	11.4	21.6	477522	11.4	19.6	452859	11.5	21.1	160376	11.6	20.2	118564	11.6	20.5
63388	11.3	19.3	129994	11.4	20.3	390639	11.4	20.8	174388	11.5	19.8	341055	11.6	19.7	434903	11.6	19.9
335699	11.3	20.9	416376	11.4	20.9	293390	11.4	20.6	458041	11.5	20.1	239419	11.6	20.7	395588	11.6	21.5
296573	11.3	20.7	268694	11.4	19.6	229335	11.4	20.2	447852	11.5	19.3	422156	11.6	20.4	302997	11.6	20.4
307259	11.3	20.6	91783	11.4	19.1	255414	11.4	20.0	190511	11.5	20.7	112289	11.6	18.0	85711	11.6	19.6
418648	11.3	20.3	197333	11.4	19.3	488542	11.4	21.0	361841	11.5	20.4	518092	11.6	20.8	391952	11.6	20.6
392259	11.3	20.2	229662	11.4	19.9	346293	11.4	21.0	206376	11.5	18.9	23483	11.6	18.6	307416	11.6	20.1
71376	11.3	18.9	277093	11.4	19.3	328094	11.4	20.4	350903	11.5	20.5	31430	11.6	16.8	490180	11.6	21.8
482475	11.3	21.2	439286	11.4	21.1	339061	11.4	19.7	112616	11.5	19.4	487256	11.6	21.2	324400	11.6	20.1
134118	11.3	19.1	110816	11.4	19.4	454858	11.4	20.6	142467	11.5	20.0	29833	11.6	17.8	329628	11.6	20.0
268698	11.3	21.0	445577	11.4	21.3	109987	11.4	19.3	4477	11.5	16.4	47187	11.6	18.0	321093	11.6	20.1
17578	11.3	18.0	116121	11.4	17.9	368290	11.4	21.7	222919	11.5	19.9	414733	11.6	20.3	199610	11.6	19.7
164125	11.3	19.0	494898	11.4	20.8	74723	11.4	18.4	491002	11.5	21.1	461891	11.6	21.2	262232	11.6	20.3
64364	11.3	18.7	187577	11.4	19.7	486876	11.4	20.6	274283	11.5	20.5	257866	11.6	20.1	12457	11.6	16.2
415216	11.3	20.4	453188	11.4	20.6	201356	11.4	19.8	70117	11.5	19.1	483680	11.6	22.3	8222	11.6	17.8
164511	11.3	20.3	202563	11.4	20.1	383440	11.4	19.6	445713	11.5	21.6	179036	11.6	19.8	460418	11.6	20.1
184170	11.3	20.5	161199	11.4	20.2	515570	11.4	21.6	262014	11.5	20.3	304090	11.6	20.7	85898	11.6	17.6
79365	11.3	19.4	8381	11.4	16.7	316398	11.4	20.4	416139	11.5	19.5	200436	11.6	20.4	435445	11.7	20.6
460983	11.3	19.6	518945	11.4	19.1	11289	11.4	17.0	100011	11.5	18.9	274815	11.6	21.4	485755	11.7	20.6
28964	11.3	18.8	519785	11.4	21.0	116011	11.4	18.3	60522	11.5	19.4	158344	11.6	18.9	83845	11.7	20.1
106994	11.3	17.7	426998	11.4	20.2	50098	11.4	17.0	270190	11.5	21.2	62996	11.6	18.2	164135	11.7	18.9
81611	11.3	18.4	104659	11.4	18.7	183052	11.4	19.9	451709	11.5	20.7	268132	11.6	20.3	252417	11.7	19.8
484297	11.3	20.6	372117	11.4	20.1	105422	11.4	19.7	382036	11.5	19.8	28976	11.6	18.3	84458	11.7	18.6
173840	11.3	19.8	303596	11.4	20.6	110280	11.4	19.5	398926	11.5	20.5	132803	11.6	20.2	304170	11.7	21.5
230162	11.3	19.4	449920	11.4	21.6	460891	11.4	21.0	483543	11.5	20.0	49303	11.6	18.9	46930	11.7	17.5
376679	11.3	20.5	446791	11.4	23.1	78406	11.4	20.5	221933	11.5	21.0	287	11.6	11.4	351669	11.7	21.0
81052	11.3	19.2	8039	11.4	17.6	77398	11.4	18.9	516987	11.5	21.0	84951	11.6	18.3	143243	11.7	19.1
42529	11.3	18.5	209064	11.4	19.4	378001	11.4	20.2	108726	11.5	19.1	494757	11.6	21.4	493983	11.7	20.9
204265	11.3	18.2	124214	11.4	19.6	192214	11.4	19.3	405699	11.5	20.4	3148					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
8527	11.7	17.6	463482	11.7	20.9	99310	11.8	18.5	222987	11.9	20.6	142393	11.9	20.2	2389	12.0	17.1
248359	11.7	20.8	150053	11.7	20.7	20837	11.8	18.4	143505	11.9	19.0	24849	11.9	18.6	408474	12.0	21.3
17095	11.7	17.2	87323	11.7	18.2	515819	11.8	21.9	77604	11.9	19.3	111531	11.9	18.4	109389	12.0	18.8
441673	11.7	19.6	363583	11.7	19.6	22453	11.8	16.8	163893	11.9	20.5	522343	11.9	20.9	223962	12.0	19.7
455787	11.7	21.0	195548	11.7	21.1	135705	11.8	20.5	522256	11.9	21.0	400410	11.9	19.9	260092	12.0	20.6
29092	11.7	18.7	45941	11.7	19.1	157778	11.8	19.2	302549	11.9	20.5	306100	11.9	20.1	386622	12.0	20.5
44245	11.7	19.5	515519	11.7	21.1	74412	11.8	17.1	245266	11.9	19.4	523500	11.9	21.7	217472	12.0	20.2
77206	11.7	19.7	188342	11.7	19.2	347622	11.8	19.3	173270	11.9	20.2	49000	11.9	18.3	133424	12.0	18.7
140608	11.7	19.5	139811	11.7	20.2	218126	11.8	20.4	334252	11.9	19.6	40176	11.9	18.5	16685	12.0	17.7
198811	11.7	19.5	176039	11.7	19.0	317284	11.8	20.9	420119	11.9	20.9	336429	11.9	20.4	234643	12.0	19.5
497175	11.7	20.2	367530	11.7	21.0	139041	11.8	18.4	109380	11.9	19.7	160530	11.9	19.4	330506	12.0	21.0
444168	11.7	20.0	149652	11.7	20.5	494388	11.8	20.8	49372	11.9	18.1	44951	11.9	17.7	167672	12.0	19.4
359544	11.7	20.9	480476	11.8	20.5	115664	11.8	19.0	218127	11.9	20.3	411612	11.9	21.2	378398	12.0	20.6
143727	11.7	19.0	342333	11.8	19.2	461094	11.8	20.7	491620	11.9	21.6	48189	11.9	19.7	274631	12.0	19.9
447575	11.7	20.3	55667	11.8	17.4	159706	11.8	18.4	513057	11.9	21.1	520398	11.9	22.2	303658	12.0	20.2
30567	11.7	19.0	2687	11.8	15.9	191563	11.8	18.7	260678	11.9	21.8	26185	11.9	18.4	176632	12.0	20.3
179059	11.7	19.2	391124	11.8	20.0	383410	11.8	20.2	520296	11.9	21.3	88489	11.9	19.5	460190	12.0	21.3
201518	11.7	19.3	542594	11.8	20.5	251293	11.8	19.9	383476	11.9	19.7	288906	11.9	20.6	256404	12.0	19.6
100606	11.7	19.2	480159	11.8	20.8	21552	11.8	17.4	315692	11.9	20.2	191273	11.9	20.2	57274	12.0	18.4
366803	11.7	19.1	431687	11.8	21.2	244941	11.8	20.4	228548	11.9	17.8	442552	11.9	19.9	321761	12.0	20.8
487310	11.7	21.5	57951	11.8	19.6	404467	11.8	21.2	65879	11.9	18.3	364573	11.9	21.7	254738	12.0	19.9
228174	11.7	19.5	3866	11.8	16.6	513565	11.8	20.4	294665	11.9	20.3	434171	11.9	19.9	101416	12.0	19.6
10613	11.7	17.2	331092	11.8	20.3	372999	11.8	21.1	422373	11.9	20.6	443936	11.9	19.9	434545	12.0	22.1
291044	11.7	20.0	282879	11.8	21.4	100953	11.8	19.2	34011	11.9	18.6	267273	11.9	21.5	493898	12.0	20.5
261211	11.7	20.1	77010	11.8	19.1	337347	11.8	21.0	19502	11.9	17.1	22679	11.9	17.7	226411	12.0	20.3
244022	11.7	19.3	195002	11.8	18.9	139405	11.8	19.8	469457	11.9	21.2	364051	11.9	20.9	520744	12.0	21.3
6067	11.7	16.5	214942	11.8	20.3	376116	11.8	19.7	315722	11.9	20.6	14630	11.9	16.6	266142	12.0	20.1
443253	11.7	20.1	30598	11.8	17.9	442234	11.8	20.5	382031	11.9	20.3	354253	11.9	20.3	193843	12.1	21.1
434145	11.7	20.0	405573	11.8	21.0	223102	11.8	19.0	544727	11.9	20.4	22303	11.9	18.4	483584	12.1	20.9
182263	11.7	20.9	493182	11.8	20.8	238660	11.8	20.2	229011	11.9	18.9	279016	11.9	20.4	40953	12.1	19.0
382418	11.7	19.5	193137	11.8	21.4	341066	11.8	20.5	404717	11.9	21.3	29085	11.9	18.5	236811	12.1	20.4
196700	11.7	20.5	421911	11.8	19.7	116798	11.8	19.9	405962	11.9	20.0	487398	11.9	20.3	418642	12.1	21.4
360604	11.7	20.1	177037	11.8	19.9	433958	11.8	20.2	518432	11.9	19.2	243939	11.9	19.8	448353	12.1	21.4
236094	11.7	19.8	461645	11.8	21.2	279138	11.8	21.3	27865	11.9	18.5	415430	11.9	20.2	156865	12.1	19.7
178029	11.7	19.6	88036	11.8	19.3	488174	11.8	20.9	257151	11.9	20.2	131337	11.9	18.8	228189	12.1	20.5
206042	11.7	20.5	129828	11.8	18.4	377069	11.8	20.4	314268	11.9	20.5	18218	11.9	18.1	323203	12.1	21.1
329086	11.7	19.9	27795	11.8	18.2	219994	11.8	20.9	132607	11.9	20.9	267776	11.9	19.7	170917	12.1	18.3
274035	11.7	20.8	457381	11.8	20.2	311138	11.8	18.8	29771	11.9	18.6	370066	11.9	20.4	24066	12.1	18.0
255054	11.7	20.5	213835	11.8	20.5	398368	11.8	20.9	406689	11.9	21.0	254626	11.9	20.8	361759	12.1	20.1
284213	11.7	20.8	541185	11.8	20.9	163756	11.8	20.2	341114	11.9	19.4	372280	11.9	21.0	15802	12.1	18.1
266907	11.7	20.8	451262	11.8	20.1	180067	11.8	19.6	194918	11.9	18.7	83545	11.9	20.0	213930	12.1	19.8
202160	11.7	20.9	491371	11.8	21.2	450322	11.8	21.8	390676	11.9	21.7	247234	11.9	20.6	369203	12.1	21.7
251101	11.7	19.8	164673	11.8	19.8	486314	11.8	19.8	72771	11.9	20.0	402768	11.9	20.2	360933	12.1	20.8
52025	11.7	18.2	216159	11.8	20.7	41060	11.8	19.2	376304	11.9	19.8	228514	11.9	19.3	108633	12.1	18.9
58128	11.7	18.3	231106	11.8	20.3	261043	11.8	20.7	491583	11.9	21.1	373792	11.9	22.8	349558	12.1	21.6
257232	11.7	20.4	97122	11.8	19.7	337084	11.8	20.0	443241	11.9	20.7	13733	11.9	17.7	154395	12.1	19.0
345317	11.7	18.4	475592	11.8	21.2	301887	11.8	20.4	453932	11.9	20.6	48186	11.9	19.9	227609	12.1	20.6
407226	11.7	20.4	520394	11.8	22.1	302581	11.8	20.9	340190	11.9	20.8	384703	11.9	20.0	269891	12.1	19.9
482314	11.7	20.7	274751	11.8	20.0	78165	11.8	18.7	295535	11.9	19.6	54953	11.9	18.5	177412	12.1	18.7
406672	11.7	20.2	322354	11.8	19.9	26706	11.8	18.0	197012	11.9	19.5	339932	11.9	21.1	242817	12.1	19.4
517254	11.7	21.5	467045	11.8	20.2	103410	11.8	18.2	51447	11.9	19.5	451485	11.9	19.9	9654	12.1	17.0
162887	11.7	17.7	490236	11.8	21.2	180716	11.8	19.6	272230	11.9	21.2	321045	11.9	20.5	444853	12.1	20.1
340879	11.7	20.3	184547	11.8	19.8	177422	11.8	19.7	194527	11.9	18.1	499599	11.9	20.0	25467	12.1	16.5
310552	11.7	19.8	271276	11.8	20.6	107875	11.8	19.9	181888	11.9	20.3	99825	11.9	18.3	273211	12.1	20.3
368324	11.7	20.8	50450	11.8	19.6	43266	11.8	18.7	352232	11.9	20.7	400446	11.9	20.8	71069	12.1	18.3
450639	11.7	21.8	51728	11.8	18.5	276901	11.8	22.3	372160	11.9	21.2	164519	11.9	20.3	14340	12.1	18.3
301894	11.7	21.7	209241	11.8	19.7	214297	11.8	19.1	281905	11.9	19.6	18338	11.9	17.3	299042	12.1	20.4
66706	11.7	18.7	374670	11.8	20.7	379555	11.8	20.1	474826	11.9	21.8	474185	11.9	21.5	398533	12.1	19.9
21459	11.7	17.8	436865	11.8	21.4	372136	11.9	20.9	351765	11.9	20.3	220437	11.9	19.4	522289	12.1	20.7
322961	11.7	20.5	215677	11.8	20.0	290181	11.9	21.0	273235	11.9	19.7	592	11.9	13.5	17886	12.1	17.5
418641	11.7	21.6	303541	11.8	21.4	150809	11.9	20.1	284800	11.9	19.2	71989	11.9	18.4	493726	12.1	20.2
454486	11.7	20.3	64724	11.8	18.2	262946	11.9	19.6	522247	11.9	21.8	251238	11.9	20.1	455356	12.1	21.5
201700	11.7	20.2	394465	11.8	21.4	33862	11.9	17.5	305131	11.9	18.9	261874	11.9	20.3	422223	12.1	21.2
191347	11.7	19.2	287787	11.8	20.7	85392	11.9	19.1	514668	11.9	20.4	175503	11.9	19.6	349522	12.1	21.5
400599	11.7	20.7	273097	11.8	20.7	461117	11.9	20.7	401615	11.9	20.8	128359	11.9	20.4	258072	12.1	21.6
138033	11.7	20.9	368455	11.8	20.5	291757	11.9	20.3	327642	11.9	20.9	147818	11.9	20.1	330278	12.1	21.1
46118	11.7	18.3	386763	11.8	20.9	293874	11.9	19.4	191910	11.9	19.1	486518	12.0	21.5	275625	12.1	20.1
397251	11.7	20.8	186512	11.8	20.2	267822	11.9	19.9	177977	11.9	19.4	332982	12.0	20.3	69198	12.1	20.5
85680	11.7	19.2	136094	11.8	18.6	459250	11.9	20.9	200355	11.9</							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
86422	12.1	19.3	259880	12.2	19.2	297322	12.2	21.3	77481	12.3	18.9	492561	12.4	20.2	122314	12.5	19.3
282036	12.1	20.9	164086	12.2	19.8	431190	12.2	21.2	449268	12.3	20.1	416509	12.4	19.2	262345	12.5	20.3
193029	12.1	20.6	340014	12.2	21.6	172981	12.2	20.0	5087	12.3	16.9	185825	12.4	18.4	541279	12.5	20.3
11531	12.1	17.8	358980	12.2	21.6	274030	12.2	21.3	67077	12.3	18.2	477441	12.4	20.0	184814	12.5	20.2
118519	12.1	19.8	252570	12.2	20.2	221792	12.2	20.4	103942	12.3	19.4	267895	12.4	19.2	450077	12.5	20.6
517912	12.1	22.3	385677	12.2	20.8	398077	12.2	20.5	456163	12.3	22.3	493336	12.4	20.7	351384	12.5	20.1
357675	12.1	20.2	267798	12.2	19.6	486327	12.2	20.3	446672	12.3	21.8	3130	12.4	16.6	460278	12.5	20.6
468165	12.1	19.8	13051	12.2	18.7	281574	12.2	19.4	244372	12.3	20.6	24747	12.4	19.3	391170	12.5	20.2
436777	12.1	22.0	60434	12.2	17.9	251433	12.2	20.1	201915	12.3	19.2	111202	12.4	19.9	314271	12.5	20.8
457956	12.1	20.8	121032	12.2	18.6	287817	12.2	20.8	225335	12.3	20.2	520692	12.4	20.7	72544	12.5	19.3
441274	12.1	20.2	413395	12.2	21.4	125129	12.2	20.6	371827	12.3	22.1	453606	12.4	21.0	414330	12.5	21.1
128082	12.1	19.3	465567	12.2	21.0	77982	12.2	19.9	55672	12.3	18.1	317091	12.4	20.0	287837	12.5	20.4
357464	12.1	20.6	365479	12.2	20.7	338432	12.2	19.3	187549	12.3	20.2	141658	12.4	20.0	446541	12.5	20.3
14664	12.1	17.6	485517	12.2	21.7	461071	12.2	20.2	85044	12.3	20.1	449616	12.4	21.6	474686	12.5	20.7
544475	12.1	21.5	278312	12.2	20.6	123996	12.2	19.1	85374	12.3	19.5	308821	12.4	20.6	323369	12.5	19.9
107441	12.1	18.9	430568	12.2	21.6	47764	12.2	19.1	69024	12.3	18.6	493344	12.4	20.9	444506	12.5	20.4
73157	12.1	19.6	342061	12.2	22.2	313891	12.2	20.1	450788	12.3	20.4	4632	12.4	15.6	372731	12.5	19.8
403915	12.1	19.5	57351	12.2	18.6	230283	12.2	20.1	64864	12.3	18.1	107916	12.4	18.8	440184	12.5	19.0
431750	12.1	21.6	386267	12.2	21.8	30616	12.2	18.6	399766	12.3	21.7	359311	12.4	20.2	474888	12.5	20.0
288186	12.1	17.8	232057	12.2	21.0	467190	12.2	20.0	358294	12.3	20.5	43094	12.4	17.2	370579	12.5	21.5
61991	12.1	18.5	260648	12.2	19.9	122154	12.2	18.9	361825	12.3	21.0	162917	12.4	19.7	155435	12.5	18.8
76302	12.1	18.4	326320	12.2	21.0	109176	12.2	19.0	67032	12.3	18.2	97547	12.4	18.5	197315	12.5	19.9
346341	12.1	21.2	77516	12.2	19.3	23184	12.3	18.4	374618	12.3	21.0	269173	12.4	21.2	358345	12.5	20.2
57680	12.1	18.8	383483	12.2	19.7	71984	12.3	18.4	335309	12.3	20.0	410818	12.4	19.9	82912	12.5	19.0
496259	12.1	20.7	230782	12.2	19.2	226983	12.3	18.9	138363	12.3	18.4	472114	12.4	19.6	469386	12.5	20.8
425949	12.1	20.6	100407	12.2	19.3	374596	12.3	21.2	305117	12.3	21.0	106204	12.4	18.6	101623	12.5	17.2
475832	12.1	20.2	462451	12.2	21.1	144684	12.3	17.8	486355	12.3	20.1	181204	12.4	19.5	403099	12.5	20.9
278546	12.1	20.5	190993	12.2	19.4	417349	12.3	21.1	249431	12.3	19.5	520688	12.4	20.8	243734	12.5	20.6
296734	12.1	20.6	417328	12.2	20.5	432954	12.3	21.4	514163	12.3	20.9	379045	12.4	20.9	460233	12.5	21.5
415470	12.1	20.7	375607	12.2	20.7	216024	12.3	20.6	510148	12.3	20.6	256768	12.4	21.0	97529	12.5	19.1
36773	12.1	19.1	388083	12.2	20.3	395180	12.3	20.6	273664	12.3	19.8	393280	12.4	20.0	112557	12.5	19.3
106795	12.1	19.1	67485	12.2	18.7	542816	12.3	21.0	427618	12.3	20.2	12756	12.4	17.3	330665	12.5	20.9
45424	12.1	17.8	247051	12.2	20.3	328524	12.3	19.5	472086	12.3	19.6	481876	12.4	20.3	358689	12.5	20.4
274649	12.1	21.0	119122	12.2	20.7	106828	12.3	18.4	72473	12.3	18.9	268329	12.4	20.2	272275	12.5	20.0
36487	12.1	17.0	10058	12.2	18.3	192073	12.3	20.1	214698	12.3	20.6	409455	12.4	20.3	435078	12.5	20.6
520178	12.1	20.4	125840	12.2	18.2	257883	12.3	20.5	121183	12.3	20.0	213	12.4	13.4	302586	12.5	20.4
290276	12.1	20.8	411761	12.2	20.0	233061	12.3	19.6	434166	12.3	20.8	496629	12.4	20.6	382105	12.5	21.5
202747	12.1	20.1	180210	12.2	19.3	483520	12.3	20.8	386045	12.3	19.4	333538	12.4	21.0	41145	12.5	19.6
541578	12.1	20.3	356701	12.2	21.2	229324	12.3	21.4	517639	12.3	20.5	29106	12.4	18.1	456892	12.5	20.1
28587	12.1	17.3	4517	12.2	16.6	488807	12.3	20.7	111188	12.3	19.1	454088	12.4	20.6	19689	12.5	18.0
453865	12.1	20.9	382621	12.2	20.1	146071	12.3	19.8	466957	12.3	19.1	342202	12.4	20.7	311660	12.5	20.5
197492	12.1	19.5	217591	12.2	20.4	171170	12.3	19.8	147752	12.3	19.8	462467	12.4	20.8	294014	12.5	19.8
457986	12.1	20.4	232698	12.2	20.1	17224	12.3	16.4	100043	12.3	19.2	231597	12.4	20.8	356768	12.5	20.0
58601	12.1	17.8	272011	12.2	19.0	14554	12.3	17.7	53598	12.3	18.4	262417	12.4	19.7	447674	12.5	19.9
285757	12.1	19.2	382419	12.2	21.1	189327	12.3	20.2	69996	12.3	18.9	220640	12.4	20.7	394406	12.5	20.5
370331	12.1	20.4	541432	12.2	20.6	190926	12.3	21.3	390695	12.3	18.2	455570	12.4	20.5	44270	12.5	18.7
209816	12.1	20.2	7661	12.2	18.7	104806	12.3	17.9	516865	12.3	21.6	146577	12.4	19.1	495170	12.5	21.8
491300	12.1	20.5	450590	12.2	21.6	71911	12.3	19.0	107452	12.4	17.5	333265	12.4	20.8	331313	12.5	20.2
81470	12.1	18.0	195958	12.2	20.1	449241	12.3	20.8	269589	12.4	19.8	300320	12.4	20.7	485658	12.5	20.9
154103	12.1	20.3	270844	12.2	19.9	103161	12.3	19.9	485171	12.4	21.1	158711	12.4	20.7	309511	12.5	18.6
124536	12.1	18.9	54105	12.2	18.1	256298	12.3	20.0	328431	12.4	20.8	407382	12.4	20.7	76516	12.5	19.3
492872	12.1	20.6	167347	12.2	19.2	521658	12.3	21.5	142784	12.4	18.4	342056	12.4	20.5	422556	12.5	19.9
214765	12.1	20.3	253346	12.2	20.0	490902	12.3	21.3	265083	12.4	19.5	408284	12.4	21.2	276819	12.5	20.3
435541	12.1	22.0	257216	12.2	20.3	364907	12.3	21.6	292694	12.4	21.1	231832	12.4	20.9	482468	12.5	21.0
55336	12.1	17.5	195938	12.2	18.4	451304	12.3	20.6	194843	12.4	18.8	281821	12.4	19.9	250634	12.5	20.9
419292	12.1	20.9	282821	12.2	20.0	73389	12.3	19.4	117665	12.4	18.1	144293	12.4	19.6	245437	12.5	20.3
195880	12.1	20.3	4864	12.2	17.2	161981	12.3	20.4	457420	12.4	20.4	369366	12.4	20.5	446957	12.5	21.7
232114	12.1	18.5	419391	12.2	20.3	384659	12.3	19.9	177813	12.4	20.8	8374	12.4	16.6	197719	12.5	20.4
259621	12.1	20.1	177395	12.2	19.3	488495	12.3	21.0	450645	12.4	20.9	412772	12.4	20.9	261620	12.5	20.9
475657	12.1	22.0	226093	12.2	19.8	404443	12.3	20.2	403992	12.4	20.5	144811	12.4	19.7	186649	12.5	20.0
111870	12.1	19.3	82893	12.2	20.0	136617	12.3	20.5	453211	12.4	20.4	494286	12.4	19.7	183096	12.5	19.9
544645	12.2	20.8	186305	12.2	19.7	328595	12.3	21.2	10922	12.4	17.4	455408	12.4	19.7	124721	12.5	19.4
61500	12.2	19.1	160578	12.2	19.1	70643	12.3	18.1	126682	12.4	19.4	463375	12.4	20.0	219179	12.5	18.9
521444	12.2	20.4	516825	12.2	21.8	541870	12.3	21.4	449744	12.4	20.3	459912	12.4	21.0	51013	12.5	17.3
127437	12.2	20.1	290010	12.2	20.8	143000	12.3	19.4	124015	12.4	18.9	364860	12.4	20.6	190559	12.5	18.9
457443	12.2	20.2	16388	12.2	19.3	369486	12.3	21.8	248804	12.4	21.1	401744	12.4	20.4	479756	12.5	20.2
195821	12.2	20.2	359774	12.2	19.8	424215	12.3	21.3	73556	12.4	19.5	206642	12.4	20.0	154161	12.5	20.5
40270	12.2	17.7	274778	12.2	20.1	35669	12.3	18.7	490503	12.4	22.0	195937	12.4	18.8	275654	12.5	20.4
179348	12.2	20.3	287264	12.2	20.3	24936	12.3	18.7	454683								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
89724	12.5	19.0	195923	12.6	20.6	450601	12.7	20.8	420881	12.7	21.9	403625	12.8	21.3	330239	12.8	21.2
270766	12.5	21.4	514913	12.6	21.0	304142	12.7	19.9	186221	12.7	20.1	252571	12.8	19.6	27697	12.8	19.1
352209	12.5	19.7	196828	12.6	20.1	357713	12.7	21.1	6147	12.7	17.5	262643	12.8	20.3	27310	12.8	17.9
276693	12.5	19.1	361790	12.6	20.4	468741	12.7	24.3	54096	12.7	17.9	40925	12.8	19.7	16857	12.8	16.7
202378	12.5	19.8	453209	12.6	21.1	321534	12.7	20.3	275204	12.7	19.9	330305	12.8	21.0	489662	12.8	21.7
192924	12.5	19.2	48643	12.6	18.0	74451	12.7	18.8	87475	12.7	19.3	109887	12.8	19.4	401058	12.8	20.3
310787	12.5	19.8	449336	12.6	19.8	403578	12.7	20.6	337503	12.7	20.9	40499	12.8	18.8	247546	12.8	20.0
314925	12.5	20.0	101863	12.6	19.9	190028	12.7	21.2	20786	12.7	18.3	423119	12.8	20.4	506547	12.8	21.1
393469	12.5	20.3	85788	12.6	18.9	153804	12.7	20.0	473438	12.7	20.0	412581	12.8	20.2	230477	12.9	19.3
144615	12.5	18.7	302542	12.6	21.8	255946	12.7	20.7	449185	12.7	21.0	66066	12.8	19.1	363910	12.9	20.6
460673	12.5	20.2	364338	12.6	19.8	152915	12.7	19.4	372264	12.7	21.3	459257	12.8	20.8	475786	12.9	19.8
73551	12.5	18.6	183188	12.6	20.8	407748	12.7	19.8	380348	12.7	19.9	543601	12.8	20.7	462479	12.9	20.5
50604	12.5	19.4	370407	12.6	20.7	448184	12.7	21.1	452254	12.7	20.1	275867	12.8	21.7	466385	12.9	20.8
145769	12.5	19.5	363388	12.6	19.4	82495	12.7	19.3	3955	12.7	15.3	343935	12.8	20.3	327692	12.9	20.3
516565	12.5	21.4	231544	12.6	20.6	171141	12.7	21.2	391184	12.7	20.5	78510	12.8	18.4	418456	12.9	20.9
377192	12.5	19.8	463850	12.6	20.2	406954	12.7	21.4	472917	12.7	21.2	108671	12.8	19.3	55714	12.9	18.4
490053	12.5	21.2	117410	12.6	18.8	89555	12.7	18.6	272028	12.7	20.0	451099	12.8	20.9	180953	12.9	20.5
26476	12.5	16.5	348801	12.6	21.3	302538	12.7	20.3	338881	12.7	20.0	266904	12.8	20.0	434463	12.9	20.6
198056	12.5	20.4	435514	12.6	21.2	269468	12.7	20.2	275174	12.7	20.4	485530	12.8	20.5	478510	12.9	20.5
282007	12.5	20.1	114031	12.6	19.9	448774	12.7	21.9	352276	12.7	20.4	527509	12.8	20.7	275602	12.9	21.0
229949	12.5	20.8	329911	12.6	21.6	404758	12.7	21.6	116449	12.7	18.0	190502	12.8	20.8	218758	12.9	21.1
147484	12.5	20.3	520315	12.6	21.3	145881	12.7	19.4	7248	12.7	17.6	129514	12.8	21.1	25230	12.9	17.9
143919	12.5	18.9	418455	12.6	21.3	356023	12.7	19.0	51549	12.7	19.0	30171	12.8	17.8	283812	12.9	19.4
503911	12.6	23.3	473817	12.6	20.3	485692	12.7	20.8	520471	12.7	21.8	72748	12.8	19.3	88733	12.9	17.8
431906	12.6	21.0	453556	12.6	20.0	363341	12.7	20.1	294076	12.7	20.4	248875	12.8	21.0	77888	12.9	17.9
218926	12.6	20.3	289453	12.6	20.2	197384	12.7	19.8	35840	12.7	19.1	369983	12.8	23.9	379525	12.9	20.9
129405	12.6	19.2	83688	12.6	19.4	95904	12.7	20.0	228923	12.7	19.3	321790	12.8	20.7	88602	12.9	19.0
127533	12.6	19.7	247912	12.6	19.0	445652	12.7	19.8	217732	12.7	19.7	477830	12.8	19.9	167284	12.9	19.1
248942	12.6	20.4	347459	12.6	21.8	342840	12.7	18.7	61293	12.7	19.1	335203	12.8	20.5	412882	12.9	21.2
514117	12.6	20.6	197152	12.6	19.1	44148	12.7	17.8	199799	12.7	19.2	102884	12.8	17.6	472244	12.9	21.5
474371	12.6	20.6	132110	12.6	18.7	183524	12.7	20.0	467043	12.7	20.7	229403	12.8	20.0	258154	12.9	21.4
516655	12.6	22.6	71709	12.6	18.0	209700	12.7	20.1	42350	12.7	18.8	811	12.8	15.1	247253	12.9	19.7
397567	12.6	21.4	482677	12.6	19.5	121980	12.7	19.6	337461	12.7	21.3	104166	12.8	19.4	76398	12.9	18.5
347169	12.6	21.7	311717	12.6	20.4	158001	12.7	20.7	361795	12.7	20.9	167383	12.8	19.1	333532	12.9	20.6
520468	12.6	20.8	88416	12.6	19.4	125674	12.7	19.4	445650	12.7	20.2	96679	12.8	19.5	522066	12.9	21.6
322111	12.6	20.6	481806	12.6	20.3	328031	12.7	20.2	314348	12.7	20.8	104628	12.8	18.6	44164	12.9	18.0
443261	12.6	21.4	42464	12.6	19.3	371277	12.7	21.1	473827	12.7	19.7	145883	12.8	19.6	265119	12.9	19.4
174276	12.6	19.0	50570	12.6	17.8	3465	12.7	16.4	77791	12.7	19.0	414351	12.8	19.9	162324	12.9	19.7
210815	12.6	19.9	451876	12.6	21.9	455347	12.7	21.1	199492	12.7	20.6	457326	12.8	21.3	72681	12.9	18.6
493156	12.6	20.6	134716	12.6	18.9	434403	12.7	20.9	450375	12.7	21.2	321346	12.8	20.8	58976	12.9	19.8
326520	12.6	20.5	486554	12.6	20.8	180995	12.7	21.3	130331	12.7	19.1	86459	12.8	18.4	199274	12.9	20.0
184486	12.6	19.6	357409	12.6	19.9	240244	12.7	19.2	420094	12.7	20.3	330995	12.8	19.7	36484	12.9	18.6
457328	12.6	20.7	49354	12.6	18.0	3051	12.7	15.7	103945	12.8	19.4	514127	12.8	21.8	278542	12.9	19.9
543008	12.6	20.8	31019	12.6	19.3	455721	12.7	20.5	362467	12.8	21.0	40039	12.8	19.4	436860	12.9	22.6
238255	12.6	19.9	257249	12.6	20.4	278089	12.7	21.4	474731	12.8	21.1	397663	12.8	20.0	334114	12.9	20.5
411021	12.6	20.2	180172	12.6	18.8	103978	12.7	19.0	379930	12.8	20.7	78197	12.8	19.5	272917	12.9	20.6
128456	12.6	20.3	70799	12.6	19.6	403948	12.7	20.0	259129	12.8	19.6	441291	12.8	19.7	163440	12.9	18.6
36958	12.6	19.1	332901	12.6	19.6	359250	12.7	19.8	262945	12.8	20.1	343812	12.8	21.3	383554	12.9	21.2
223999	12.6	20.6	113343	12.6	19.0	452877	12.7	22.0	222112	12.8	20.4	25258	12.8	19.0	66058	12.9	18.4
243982	12.6	20.6	22659	12.6	18.9	72639	12.7	18.0	100575	12.8	20.5	268271	12.8	20.1	233048	12.9	19.3
197093	12.6	19.4	48477	12.6	17.8	361808	12.7	20.3	515793	12.8	21.5	309903	12.8	19.6	74363	12.9	19.5
516410	12.6	22.2	352239	12.6	21.3	38985	12.7	19.1	198781	12.8	20.0	179994	12.8	18.9	320025	12.9	19.6
276437	12.6	19.6	43293	12.6	18.3	182489	12.7	18.3	330221	12.8	20.7	85252	12.8	20.2	515879	12.9	21.1
181985	12.6	19.9	59460	12.6	19.1	187118	12.7	20.0	542062	12.8	20.8	542048	12.8	21.7	2517	12.9	16.5
233650	12.6	19.6	95417	12.6	18.8	140983	12.7	19.4	143750	12.8	19.6	419368	12.8	20.7	174393	12.9	20.2
54077	12.6	18.2	181898	12.6	19.9	428352	12.7	20.2	275120	12.8	19.8	88260	12.8	20.2	6199	12.9	15.1
515131	12.6	21.8	487881	12.6	20.9	237201	12.7	20.5	363990	12.8	21.1	134918	12.8	18.2	493340	12.9	20.0
7903	12.6	17.8	181422	12.6	20.2	146280	12.7	19.7	169810	12.8	20.5	436770	12.8	20.2	225047	12.9	20.0
20709	12.6	18.3	324938	12.6	19.5	178676	12.7	20.7	441529	12.8	22.2	341072	12.8	19.8	159768	12.9	19.9
461043	12.6	19.9	25696	12.6	17.9	251582	12.7	19.3	544441	12.8	20.8	438672	12.8	20.9	305203	12.9	19.2
272325	12.6	20.8	363410	12.6	21.5	61437	12.7	19.2	363605	12.8	19.8	291998	12.8	20.5	361427	12.9	20.2
213269	12.6	20.0	107488	12.6	19.6	484376	12.7	20.4	463011	12.8	21.4	273365	12.8	19.5	144474	12.9	19.1
7586	12.6	18.5	101668	12.6	18.4	333576	12.7	20.7	244995	12.8	19.8	339858	12.8	20.5	294290	12.9	19.8
27344	12.6	18.7	107108	12.6	18.2	195144	12.7	19.7	463059	12.8	20.0	1436	12.8	15.2	6027	12.9	16.1
12460	12.6	18.3	218048	12.6	19.9	77647	12.7	19.4	12069	12.8	17.2	57103	12.8	19.4	120073	12.9	19.5
470227	12.6	19.5	295476	12.6	20.8	129961	12.7	20.0	201132	12.8	18.8	464418	12.8	20.9	195642	12.9	19.7
152583	12.6	20.5	418784	12.6	20.1	231879	12.7	20.2	200531	12.8	18.7	489809	12.8	19.6	66845	12.9	18.6
110827	12.6	19.5	489859	12.6	21.0	7444	12.7	17.5	480334	12.8	21.0	409353	12.8	20.1	88028	12.9	19.4
180535	12.6	18.8	374629	12.6	21.2	18496	12.7	18.8	449876	12.8	21.5	1					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
34293	12.9	18.0	336998	12.9	21.3	232231	13.1	20.4	373477	13.1	20.0	396682	13.2	20.8	99183	13.3	18.5
378774	12.9	20.9	264310	12.9	20.6	46050	13.1	18.7	72165	13.1	16.5	393505	13.2	20.8	51322	13.3	18.7
328437	12.9	20.4	260985	12.9	20.5	283804	13.1	19.7	421660	13.1	21.0	380406	13.2	19.1	448842	13.3	20.5
127918	12.9	19.9	442905	12.9	19.9	174123	13.1	19.2	440089	13.1	21.4	106647	13.2	19.0	113201	13.3	18.7
383434	12.9	19.5	132941	12.9	18.7	228462	13.1	19.9	261810	13.1	19.7	72355	13.2	18.5	105380	13.3	18.8
82472	12.9	19.3	443687	12.9	21.5	516737	13.1	21.5	147361	13.1	19.2	28608	13.2	18.5	311634	13.3	20.3
204842	12.9	20.8	329193	12.9	20.2	427184	13.1	20.5	422105	13.1	21.9	142116	13.2	18.7	34694	13.3	17.0
52344	12.9	18.0	5683	12.9	16.4	179152	13.1	20.2	4669	13.1	16.3	327631	13.2	20.9	382422	13.3	20.3
192429	12.9	20.1	397733	12.9	20.5	249875	13.1	20.3	220802	13.1	20.0	389605	13.2	21.2	438738	13.3	21.2
481793	12.9	20.1	69842	12.9	19.1	138445	13.1	20.0	344258	13.1	21.7	288732	13.2	20.5	336798	13.3	20.5
332439	12.9	19.7	220057	12.9	19.9	269163	13.1	20.9	116399	13.1	19.2	110257	13.2	19.2	100574	13.3	19.5
139899	12.9	19.6	163334	12.9	20.0	85522	13.1	19.2	438731	13.1	21.4	398355	13.2	20.1	483075	13.3	20.8
430045	12.9	20.2	434504	12.9	21.7	309583	13.1	19.2	482685	13.1	19.7	124239	13.2	19.2	11770	13.3	17.8
261733	12.9	20.0	451592	13.0	20.5	27889	13.1	17.5	411482	13.1	20.8	31127	13.2	17.8	210606	13.3	19.1
420257	12.9	20.1	89659	13.0	19.7	164008	13.1	19.5	112643	13.1	20.1	309485	13.2	19.3	456230	13.3	20.9
254618	12.9	21.2	372090	13.0	20.5	482524	13.1	21.1	380472	13.1	20.9	45023	13.2	18.2	21821	13.3	18.4
105715	12.9	19.8	262613	13.0	19.9	331143	13.1	20.6	370503	13.1	21.3	97316	13.2	19.2	8925	13.3	17.2
26512	12.9	18.1	79688	13.0	18.6	204596	13.1	20.3	127407	13.1	20.3	411093	13.2	20.8	78328	13.3	18.7
438695	12.9	21.5	385546	13.0	21.5	373089	13.1	20.6	316117	13.1	20.7	544459	13.2	20.4	271168	13.3	20.2
29754	12.9	18.7	417879	13.0	20.9	96389	13.1	19.3	445210	13.1	20.6	229240	13.2	19.3	122169	13.3	18.7
27430	12.9	18.3	364327	13.0	20.9	119315	13.1	22.6	120618	13.1	20.1	271264	13.2	20.0	441055	13.3	20.9
229732	12.9	20.3	82340	13.0	19.3	523841	13.1	21.1	48241	13.1	17.6	344347	13.2	20.0	326542	13.3	21.2
386022	12.9	20.3	287733	13.0	20.5	522340	13.1	21.2	405529	13.1	20.9	333398	13.2	20.8	72813	13.3	18.7
204929	12.9	19.4	450877	13.0	20.2	219982	13.1	20.9	363582	13.1	20.5	192601	13.2	19.3	477124	13.3	20.0
129047	12.9	19.3	182493	13.0	20.5	408699	13.1	21.0	495727	13.1	21.0	111463	13.2	19.9	280627	13.3	19.5
61371	12.9	18.8	137361	13.0	19.9	29332	13.1	17.1	218134	13.1	19.7	311844	13.2	20.6	122142	13.3	20.7
196019	12.9	19.4	324121	13.0	20.9	174370	13.1	20.0	272088	13.2	20.4	272433	13.2	20.0	353527	13.3	20.9
514892	12.9	21.8	516000	13.0	21.4	138310	13.1	19.2	108519	13.2	19.6	135763	13.2	19.5	129206	13.3	20.6
79875	12.9	19.6	299532	13.0	21.0	383022	13.1	20.8	278185	13.2	20.0	369128	13.2	20.5	382097	13.3	20.8
93048	12.9	19.5	152640	13.0	18.9	114211	13.1	19.1	393527	13.2	21.3	44431	13.2	18.8	15082	13.3	16.9
367860	12.9	19.8	361748	13.0	20.3	328006	13.1	20.4	447636	13.2	20.9	445846	13.2	19.7	311673	13.3	21.0
480234	12.9	21.3	285559	13.0	21.1	518567	13.1	21.2	295173	13.2	20.1	493339	13.2	20.2	311337	13.3	20.3
372209	12.9	21.0	115381	13.0	18.6	156225	13.1	18.5	3850	13.2	16.8	125167	13.2	18.6	362879	13.3	20.3
481168	12.9	21.1	267628	13.0	21.0	335355	13.1	19.1	375620	13.2	21.5	158749	13.2	19.4	180228	13.3	20.3
155946	12.9	19.6	440854	13.0	20.5	464309	13.1	19.7	94653	13.2	18.9	37669	13.2	17.5	307438	13.3	20.8
396234	12.9	19.6	23438	13.0	18.9	403588	13.1	21.2	29077	13.2	18.4	133730	13.2	19.0	305741	13.3	19.6
421158	12.9	20.5	108360	13.0	20.0	422149	13.1	21.2	186603	13.2	19.5	239597	13.2	18.8	446314	13.3	21.2
123145	12.9	21.1	280665	13.0	19.1	77775	13.1	18.8	209892	13.2	20.7	329672	13.2	19.9	178932	13.3	20.2
189320	12.9	19.9	79235	13.0	19.8	405240	13.1	19.1	366498	13.2	20.4	85530	13.2	20.2	132703	13.3	19.1
29458	12.9	18.6	15903	13.0	18.2	423271	13.1	20.2	376627	13.2	20.6	97543	13.2	19.4	336773	13.3	19.4
382649	12.9	20.1	362714	13.0	20.1	150541	13.1	19.2	447992	13.2	20.5	273241	13.2	20.2	482241	13.3	21.1
285290	12.9	19.9	233147	13.0	18.4	414591	13.1	21.2	431568	13.2	20.4	406697	13.2	21.3	115535	13.3	19.2
459993	12.9	20.8	142220	13.0	20.4	85483	13.1	17.7	326773	13.2	20.5	294531	13.2	19.6	205973	13.3	20.4
107926	12.9	19.8	405801	13.0	20.0	332226	13.1	21.4	189986	13.2	20.7	355453	13.2	20.6	271941	13.3	18.5
187744	12.9	20.7	273500	13.0	19.8	409370	13.1	20.3	459344	13.2	20.8	360302	13.2	20.6	108457	13.3	19.1
30670	12.9	17.7	120238	13.0	20.6	131828	13.1	19.6	67531	13.2	17.4	225635	13.2	18.9	448914	13.3	21.4
324753	12.9	21.2	232285	13.0	20.2	484483	13.1	21.2	355277	13.2	20.9	49613	13.2	17.9	100255	13.3	19.9
444848	12.9	21.1	421474	13.0	21.4	310783	13.1	19.7	189309	13.2	19.6	442256	13.2	22.4	493999	13.3	21.1
190889	12.9	20.5	448968	13.0	20.8	26262	13.1	19.3	151216	13.2	19.3	315714	13.2	21.0	395170	13.3	20.4
374593	12.9	21.7	21958	13.0	17.9	284208	13.1	20.8	197693	13.2	20.7	50961	13.2	18.3	19038	13.3	18.2
457966	12.9	20.4	264887	13.0	20.4	236979	13.1	19.8	114830	13.2	19.0	197983	13.2	20.0	176971	13.3	19.6
72966	12.9	19.6	122282	13.0	20.2	230781	13.1	19.3	292688	13.2	21.0	310754	13.2	20.6	446008	13.3	19.4
199731	12.9	19.7	449097	13.0	21.2	60335	13.1	18.2	220148	13.2	19.8	129297	13.2	19.0	330735	13.3	21.3
128289	12.9	20.3	70734	13.0	18.0	65947	13.1	19.7	470955	13.2	20.9	359282	13.2	21.1	9608	13.3	18.6
72467	12.9	18.2	455526	13.0	19.9	454978	13.1	21.7	270589	13.2	21.2	49334	13.2	18.2	191506	13.3	19.6
27717	12.9	18.0	487106	13.0	20.9	260660	13.1	20.8	266016	13.2	20.0	235244	13.2	20.3	9073	13.3	16.4
254884	12.9	20.4	260498	13.0	20.6	372223	13.1	20.3	7534	13.2	17.7	327651	13.2	20.6	434579	13.3	22.0
297990	12.9	20.3	448495	13.0	21.6	193084	13.1	20.9	112978	13.2	20.6	458009	13.2	20.5	340994	13.3	20.3
3696	12.9	17.3	254076	13.0	20.0	223122	13.1	19.6	313230	13.2	19.8	367272	13.2	20.5	285183	13.3	20.4
437482	12.9	20.2	143969	13.1	18.7	48849	13.1	19.5	104495	13.2	19.5	19580	13.2	17.6	47346	13.3	18.3
8854	12.9	17.2	199713	13.1	19.7	419229	13.1	20.7	10264	13.2	18.6	184398	13.2	20.8	446684	13.3	21.5
332998	12.9	20.0	197060	13.1	19.0	186185	13.1	19.1	208827	13.2	20.5	201190	13.2	20.6	518569	13.3	20.9
239987	12.9	20.2	453723	13.1	19.3	197267	13.1	19.9	388867	13.2	20.6	116734	13.2	19.1	248559	13.3	20.0
266453	12.9	20.8	453633	13.1	20.6	451672	13.1	20.0	320215	13.2	20.2	416406	13.2	21.5	438009	13.3	21.3
339899	12.9	20.7	388111	13.1	19.3	64349	13.1	19.2	44019	13.2	18.3	475102	13.2	21.3	243402	13.3	20.0
494045	12.9	20.8	495554	13.1	20.5	450701	13.1	20.6	314932	13.2	20.4	174457	13.2	18.9	198951	13.3	21.3
520188	12.9	21.2	459864	13.1	21.6	376589	13.1	20.8	193743	13.2	20.2	243203	13.2	21.0	227749	13.3	19.1
326214	12.9	20.8	115352	13.1	18.7	192019	13.1	19.6	253989	13.2	19.6	292724	13.3	20.1	55218	13.3	19.2
483055	12.9	20.8	192461	13.1	19.7	81635	13.1	19.8	211697	13							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
312446	13.3	19.9	226232	13.4	20.4	257334	13.5	20.3	311760	13.5	20.1	486605	13.6	20.4	421714	13.6	20.4
466027	13.3	21.5	483586	13.4	20.8	32661	13.5	19.4	106692	13.5	19.6	222689	13.6	17.9	226991	13.7	19.0
158198	13.3	19.0	343350	13.4	19.0	63628	13.5	19.3	405336	13.5	19.9	488493	13.6	21.2	122456	13.7	19.3
229467	13.3	19.0	157011	13.4	20.1	154629	13.5	20.1	301419	13.5	20.2	240734	13.6	20.4	415222	13.7	19.8
315567	13.3	20.4	195992	13.4	20.0	439844	13.5	20.6	47787	13.5	18.5	408401	13.6	20.4	129190	13.7	20.0
313568	13.3	19.1	207983	13.4	19.6	147890	13.5	18.5	270884	13.5	20.1	75779	13.6	17.1	391186	13.7	20.9
244362	13.3	20.2	352900	13.4	20.5	3117	13.5	16.6	178381	13.5	18.8	207575	13.6	20.1	77672	13.7	17.6
379417	13.3	19.7	44207	13.4	19.0	208774	13.5	20.4	4622	13.5	17.2	454239	13.6	22.0	142199	13.7	19.0
168428	13.3	19.0	432583	13.4	20.7	45801	13.5	18.7	299087	13.5	19.1	393482	13.6	20.9	238220	13.7	20.5
287926	13.3	19.5	451679	13.4	21.0	241645	13.5	19.7	453966	13.5	21.1	16190	13.6	17.6	272005	13.7	19.4
288247	13.3	20.4	103286	13.4	18.0	491405	13.5	21.1	117324	13.5	19.3	494111	13.6	20.1	388550	13.7	21.7
402985	13.3	21.0	267797	13.4	19.8	274261	13.5	21.4	284893	13.5	20.9	196392	13.6	19.7	337378	13.7	21.1
93224	13.3	19.5	251560	13.4	21.2	541366	13.5	20.8	346312	13.5	21.1	202919	13.6	19.8	457821	13.7	20.5
168615	13.3	19.2	270082	13.4	20.9	308307	13.5	20.4	486364	13.5	20.8	403571	13.6	21.0	149700	13.7	20.3
222924	13.3	19.8	439758	13.4	21.0	188205	13.5	19.8	55239	13.5	19.7	426790	13.6	20.6	274064	13.7	20.0
296332	13.3	20.6	474914	13.4	20.5	394233	13.5	22.0	75222	13.5	19.9	127206	13.6	19.7	463840	13.7	20.7
344907	13.3	21.1	53712	13.4	19.5	310989	13.5	20.2	436787	13.5	20.5	460283	13.6	21.0	67107	13.7	18.7
145011	13.3	19.8	120146	13.4	19.5	422600	13.5	20.0	478465	13.5	20.0	22711	13.6	18.1	211351	13.7	19.2
375147	13.3	19.3	309521	13.4	21.1	356543	13.5	20.1	332647	13.5	21.4	431668	13.6	19.8	457478	13.7	21.3
48067	13.3	19.5	270876	13.4	20.3	367791	13.5	19.8	30150	13.5	18.3	220017	13.6	20.3	228997	13.7	19.5
447897	13.3	20.3	314987	13.4	19.9	7127	13.5	18.3	160304	13.5	20.4	48744	13.6	18.3	129061	13.7	19.4
379785	13.3	20.6	483693	13.4	21.1	386673	13.5	19.1	399802	13.5	20.3	457312	13.6	21.0	49410	13.7	18.4
144547	13.3	19.9	368999	13.4	21.9	492824	13.5	20.6	448959	13.5	21.0	134128	13.6	19.2	189703	13.7	20.3
230760	13.3	19.0	399136	13.4	21.2	345401	13.5	20.1	181577	13.5	20.3	461362	13.6	21.2	397825	13.7	21.2
277306	13.3	19.6	84820	13.4	19.2	244487	13.5	21.4	98162	13.5	19.9	270649	13.6	21.4	392494	13.7	21.3
487699	13.3	21.4	386050	13.4	19.6	294137	13.5	20.6	14631	13.5	16.8	461671	13.6	20.5	461004	13.7	20.4
123497	13.3	17.7	484119	13.4	20.7	25215	13.5	18.6	82262	13.5	20.6	489364	13.6	21.3	325485	13.7	20.8
164575	13.4	20.2	264819	13.4	20.5	515875	13.5	21.8	515822	13.6	20.9	371792	13.6	20.7	45735	13.7	19.0
479419	13.4	20.4	238693	13.4	19.3	366538	13.5	20.4	454739	13.6	21.3	374683	13.6	20.0	220013	13.7	21.0
21527	13.4	17.4	521899	13.4	20.5	87495	13.5	19.5	199968	13.6	20.6	495658	13.6	21.0	516923	13.7	20.9
679	13.4	12.1	128498	13.4	19.5	473771	13.5	19.9	426017	13.6	20.8	458248	13.6	21.1	542351	13.7	21.1
516197	13.4	20.6	421718	13.4	21.1	282211	13.5	20.2	61688	13.6	18.8	142635	13.6	18.7	14774	13.7	16.6
331977	13.4	19.6	207908	13.4	21.2	233797	13.5	21.2	489442	13.6	20.4	492739	13.6	21.1	494982	13.7	20.3
118494	13.4	19.2	452237	13.4	19.9	450804	13.5	21.3	356032	13.6	20.4	12747	13.6	16.7	137173	13.7	20.5
491408	13.4	21.6	186441	13.4	20.0	381069	13.5	19.1	19769	13.6	18.1	302642	13.6	20.3	293773	13.7	21.0
279217	13.4	19.5	435509	13.4	22.2	308251	13.5	19.6	492857	13.6	21.1	370378	13.6	20.8	309555	13.7	19.6
159995	13.4	20.0	191956	13.4	21.1	28629	13.5	19.7	176908	13.6	19.6	113899	13.6	19.1	363182	13.7	21.0
131339	13.4	20.5	370446	13.4	21.1	98184	13.5	19.6	380990	13.6	20.4	415663	13.6	20.6	257914	13.7	19.5
458636	13.4	19.3	51603	13.4	18.5	61195	13.5	19.3	135751	13.6	19.8	434847	13.6	20.2	464512	13.7	20.1
460955	13.4	20.4	107038	13.4	18.7	482725	13.5	20.5	462977	13.6	20.8	297330	13.6	19.8	335262	13.7	22.0
17645	13.4	18.5	74624	13.4	19.3	132904	13.5	20.4	302929	13.6	20.4	307347	13.6	21.6	62020	13.7	18.3
329256	13.4	20.2	458989	13.4	20.5	308844	13.5	20.5	160288	13.6	19.3	520737	13.6	20.3	47945	13.7	17.7
3212784	13.4	19.6	47931	13.4	19.4	197188	13.5	19.8	202074	13.6	20.9	156156	13.6	20.3	197666	13.7	20.2
187851	13.4	19.3	97752	13.4	20.2	452583	13.5	21.5	316776	13.6	19.8	208075	13.6	20.5	88537	13.7	19.2
169991	13.4	20.1	261126	13.4	20.5	316450	13.5	21.0	542023	13.6	21.2	275885	13.6	20.6	112100	13.7	19.3
481252	13.4	21.4	132884	13.4	19.4	174379	13.5	18.4	112404	13.6	19.4	5760	13.6	17.8	407945	13.7	20.3
180878	13.4	20.1	453873	13.4	20.4	190986	13.5	19.4	139638	13.6	19.0	69062	13.6	19.0	357549	13.7	18.7
118734	13.4	19.8	205395	13.4	20.6	197893	13.5	20.2	179879	13.6	19.9	259320	13.6	19.5	103179	13.7	18.7
54909	13.4	19.0	55308	13.4	18.6	427045	13.5	20.0	222943	13.6	20.3	15656	13.6	18.4	310084	13.7	20.9
360135	13.4	20.2	469301	13.4	21.0	142710	13.5	20.4	231508	13.6	20.1	274901	13.6	20.5	137789	13.7	18.2
113804	13.4	19.7	320230	13.4	21.2	230267	13.5	19.2	227981	13.6	19.5	67406	13.6	19.4	10495	13.7	18.4
22977	13.4	16.7	179249	13.4	20.0	384289	13.5	19.7	189958	13.6	19.7	8435	13.6	16.7	396196	13.7	20.7
170559	13.4	18.6	153837	13.4	19.1	164850	13.5	18.9	336973	13.6	21.1	208771	13.6	20.5	443239	13.7	20.3
360497	13.4	19.8	518516	13.4	21.4	235976	13.5	20.4	308765	13.6	21.1	251740	13.6	20.2	83680	13.7	19.4
340186	13.4	20.5	454444	13.4	21.4	280876	13.5	20.4	456629	13.6	21.0	360255	13.6	20.5	287724	13.7	20.3
467281	13.4	21.0	82987	13.4	19.5	440604	13.5	20.5	247381	13.6	20.0	13608	13.6	17.6	370874	13.7	19.8
321942	13.4	20.4	459697	13.4	19.4	512723	13.5	21.5	12765	13.6	17.3	321007	13.6	21.2	420176	13.7	21.0
544396	13.4	20.2	323314	13.4	20.8	328603	13.5	20.7	230622	13.6	19.8	348656	13.6	19.9	294412	13.7	20.1
127759	13.4	20.3	518112	13.4	20.8	22939	13.5	18.7	378583	13.6	20.2	287982	13.6	19.0	6303	13.7	16.9
187042	13.4	20.8	74319	13.4	19.0	414494	13.5	21.4	467119	13.6	19.9	482236	13.6	20.8	300374	13.7	20.8
199709	13.4	20.6	367825	13.4	19.8	487126	13.5	20.7	130265	13.6	20.1	292937	13.6	21.0	215957	13.7	21.0
398294	13.4	20.1	333316	13.4	21.4	229375	13.5	20.7	358307	13.6	20.5	22561	13.6	18.7	60417	13.7	19.4
99243	13.4	19.1	303572	13.4	20.1	267232	13.5	21.5	229625	13.6	20.3	290463	13.6	20.5	154984	13.7	19.9
245514	13.4	20.4	76236	13.4	18.3	336402	13.5	20.6	486502	13.6	21.1	130358	13.6	20.2	127852	13.7	20.4
362396	13.4	20.5	464440	13.4	20.1	42884	13.5	19.2	125655	13.6	18.6	120234	13.6	19.5	412866	13.7	20.3
274110	13.4	20.9	489100	13.4	20.5	226615	13.5	20.0	425214	13.6	21.4	314303	13.6	20.7	25281	13.7	17.3
170514	13.4	20.3	172664	13.4	18.8	406223	13.5	21.4	373951	13.6	20.5	88885	13.6	18.6	392503	13.7	21.7
410148	13.4	20.2	460736	13.4	20.5	40441	13.5	19.4	156885	13.6	19.5	76168	13.6	18.3	262672	13.7	20.0
275661	13.4	20.8	368856	13.4	20.5	449491	13.5	21.2	36679								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
455733	13.7	19.5	121568	13.8	19.9	482548	13.8	20.1	326508	13.9	20.5	27646	13.9	18.4	380160	14.1	22.1
195844	13.7	19.2	467401	13.8	21.1	92535	13.9	19.8	45838	13.9	18.3	66676	13.9	17.5	180654	14.1	20.7
201881	13.7	19.1	49573	13.8	18.4	112286	13.9	19.3	366645	13.9	20.9	105117	13.9	19.3	413324	14.1	19.1
352938	13.7	20.6	140298	13.8	19.6	370226	13.9	21.4	90165	13.9	19.1	543394	13.9	20.7	397198	14.1	20.9
110619	13.7	19.3	514877	13.8	21.8	145164	13.9	19.3	183599	13.9	19.8	115069	13.9	19.5	75443	14.1	18.0
161482	13.7	20.4	393513	13.8	21.7	493151	13.9	20.7	26211	13.9	18.3	325929	13.9	20.5	152645	14.1	20.9
357443	13.7	20.7	102811	13.8	19.6	415317	13.9	20.9	288409	13.9	20.1	186816	14.0	18.5	251577	14.1	20.2
388453	13.7	19.8	187977	13.8	21.0	325210	13.9	21.0	82850	13.9	18.5	13942	14.0	17.4	308292	14.1	20.7
129943	13.7	20.0	79161	13.8	18.5	142148	13.9	19.2	95715	13.9	19.0	520297	14.0	20.9	116862	14.1	19.6
458530	13.7	20.7	300777	13.8	20.1	149612	13.9	20.1	311744	13.9	20.4	251161	14.0	20.1	268821	14.1	19.5
365606	13.7	21.0	236756	13.8	20.4	7475	13.9	16.1	368416	13.9	20.9	249865	14.0	20.4	46777	14.1	18.8
176990	13.7	18.5	150116	13.8	20.4	481897	13.9	20.7	103485	13.9	19.1	324025	14.0	20.4	300453	14.1	18.4
523316	13.7	20.9	354263	13.8	20.5	505365	13.9	20.3	295804	13.9	20.3	484113	14.0	20.6	436934	14.1	20.7
404486	13.7	19.7	72468	13.8	19.1	237917	13.9	20.7	281944	13.9	20.0	358267	14.0	20.9	176848	14.1	20.3
204097	13.7	19.0	164678	13.8	19.3	8933	13.9	17.2	489349	13.9	20.0	365265	14.0	20.9	306424	14.1	20.4
325552	13.7	20.9	268711	13.8	20.6	445170	13.9	20.7	221971	13.9	19.5	60975	14.0	18.5	184390	14.1	20.8
344118	13.7	20.3	314293	13.8	20.2	93907	13.9	19.0	249546	13.9	20.8	342099	14.0	21.1	221962	14.1	19.9
171306	13.7	20.0	318729	13.8	21.4	458453	13.9	19.8	413265	13.9	21.2	267161	14.0	21.1	108005	14.1	19.9
447669	13.7	19.9	473935	13.8	20.4	313207	13.9	20.9	493158	13.9	20.8	496456	14.0	22.0	194830	14.1	19.9
440762	13.7	20.7	74209	13.8	18.9	145212	13.9	19.8	240992	13.9	20.5	218557	14.0	20.5	438178	14.1	21.4
110724	13.7	19.9	240414	13.8	20.5	390066	13.9	21.0	117803	13.9	19.3	435537	14.0	22.3	195884	14.1	19.9
407908	13.7	20.2	40792	13.8	19.5	184880	13.9	20.9	17014	13.9	18.0	363637	14.0	21.3	436136	14.1	20.7
362835	13.7	20.2	461134	13.8	21.3	212028	13.9	20.1	132503	13.9	20.5	523765	14.0	21.9	194719	14.1	18.6
452128	13.7	21.8	286364	13.8	19.5	361194	13.9	20.0	114872	13.9	19.4	96979	14.0	19.1	474739	14.1	21.4
27845	13.7	17.9	451108	13.8	20.7	475087	13.9	20.5	333511	13.9	21.4	74091	14.0	17.2	541755	14.1	21.1
457253	13.7	20.4	163664	13.8	20.2	397561	13.9	21.6	483319	13.9	20.3	272243	14.0	21.1	218860	14.1	20.4
358650	13.7	21.2	174426	13.8	19.3	93333	13.9	20.9	281692	13.9	20.9	197976	14.0	19.0	229365	14.1	19.6
271312	13.7	20.6	42834	13.8	19.0	145248	13.9	19.8	393503	13.9	21.1	15310	14.0	18.3	79392	14.1	19.5
61731	13.7	18.7	495179	13.8	21.6	78137	13.9	19.5	227102	13.9	20.5	351350	14.0	19.6	309212	14.1	20.9
366515	13.7	20.6	155517	13.8	20.4	257935	13.9	18.1	475691	13.9	19.7	492997	14.0	20.9	78022	14.1	19.2
15501	13.7	18.6	339888	13.8	20.9	505275	13.9	20.5	219951	13.9	20.1	541419	14.0	20.9	226159	14.1	20.5
158004	13.7	20.6	244606	13.8	19.1	343295	13.9	19.3	191570	13.9	19.8	63590	14.0	20.2	484443	14.1	20.0
257879	13.7	19.3	409337	13.8	19.5	398827	13.9	19.9	345772	13.9	21.7	305993	14.0	19.7	421266	14.1	20.3
317666	13.7	20.7	488612	13.8	21.9	369658	13.9	19.7	351339	13.9	20.4	71089	14.0	17.7	306737	14.1	19.4
112105	13.7	19.1	51927	13.8	17.4	234641	13.9	20.0	298482	13.9	19.9	65514	14.0	18.8	218565	14.1	21.2
185223	13.8	19.5	340225	13.8	20.2	76742	13.9	18.7	481021	13.9	20.4	473546	14.0	20.5	449652	14.1	21.3
34043	13.8	19.0	259047	13.8	19.7	450679	13.9	20.7	96787	13.9	18.9	331660	14.0	21.9	405350	14.1	20.0
18963	13.8	17.2	541343	13.8	21.4	35301	13.9	18.7	10135	13.9	16.9	330785	14.0	19.4	459391	14.1	20.5
295282	13.8	20.5	298412	13.8	19.6	463697	13.9	19.8	412921	13.9	20.6	478456	14.0	20.6	265049	14.1	19.9
265897	13.8	20.4	157154	13.8	20.3	446750	13.9	21.7	495612	13.9	21.1	414360	14.0	19.8	224868	14.1	19.4
226251	13.8	18.1	398954	13.8	20.0	276285	13.9	21.5	329511	13.9	20.2	214298	14.0	19.6	118006	14.1	19.8
341069	13.8	20.1	304140	13.8	20.1	161688	13.9	19.8	360486	13.9	20.8	418563	14.0	21.2	266095	14.1	20.0
280729	13.8	21.3	154115	13.8	20.3	505310	13.9	20.5	369894	13.9	20.3	249511	14.0	19.5	18423	14.1	16.9
264026	13.8	20.0	542616	13.8	20.8	400008	13.9	20.8	162430	13.9	20.7	296838	14.0	20.5	220544	14.1	19.3
86036	13.8	18.8	63335	13.8	19.3	97920	13.9	18.1	9398	13.9	19.2	85179	14.0	20.1	464283	14.1	20.5
464873	13.8	20.5	486488	13.8	20.4	327516	13.9	20.4	51330	13.9	18.5	99404	14.0	19.2	407220	14.1	20.1
317482	13.8	20.1	373298	13.8	20.1	82996	13.9	19.9	45305	13.9	18.7	259479	14.0	20.1	196968	14.1	19.2
461302	13.8	21.4	230170	13.8	20.8	401562	13.9	20.5	457921	13.9	20.2	117873	14.0	19.0	228251	14.1	19.4
239752	13.8	19.1	390205	13.8	20.7	330767	13.9	21.4	461863	13.9	20.7	18080	14.0	19.2	196399	14.1	20.3
223899	13.8	19.7	49479	13.8	18.1	314982	13.9	20.2	455753	13.9	21.1	132358	14.0	19.6	464057	14.1	20.2
487820	13.8	20.3	284735	13.8	20.5	327753	13.9	21.7	106640	13.9	19.0	305175	14.0	20.7	110620	14.1	19.6
279679	13.8	20.3	53201	13.8	18.6	463496	13.9	20.4	542260	13.9	20.5	492092	14.0	21.1	397309	14.1	22.1
449526	13.8	21.1	517371	13.8	22.1	124161	13.9	19.6	442386	13.9	20.1	144465	14.0	19.4	16055	14.1	16.9
358658	13.8	20.6	335427	13.8	20.1	329408	13.9	20.0	212909	13.9	19.0	133319	14.0	19.2	206518	14.1	19.3
26413	13.8	18.1	466599	13.8	20.6	2064	13.9	16.6	180610	13.9	20.2	168527	14.0	21.3	342328	14.1	20.3
541217	13.8	21.5	257851	13.8	20.7	473976	13.9	20.6	377213	13.9	19.9	228064	14.0	20.0	201346	14.1	19.6
120208	13.8	19.8	370624	13.8	18.3	413465	13.9	20.0	247326	13.9	19.7	364819	14.0	19.8	172196	14.1	19.9
78668	13.8	18.3	379769	13.8	20.3	283273	13.9	20.5	461403	13.9	21.1	260576	14.0	20.9	457256	14.1	20.9
81018	13.8	19.6	88524	13.8	19.2	345160	13.9	20.6	197684	13.9	20.8	843	14.0	17.5	163633	14.1	19.7
357027	13.8	20.6	226650	13.8	19.4	405639	13.9	22.2	385220	13.9	19.5	386288	14.0	21.4	7227	14.1	17.5
126041	13.8	19.7	402270	13.8	20.8	241136	13.9	20.2	313570	13.9	20.5	280705	14.0	19.8	211002	14.1	19.9
197088	13.8	20.3	269898	13.8	20.0	27477	13.9	17.9	60432	13.9	18.3	356077	14.0	20.5	47424	14.1	17.8
230486	13.8	20.9	101413	13.8	19.0	320990	13.9	20.6	22753	13.9	18.8	452338	14.0	21.9	365799	14.1	20.7
210635	13.8	20.1	455520	13.8	19.3	278414	13.9	20.7	230036	13.9	19.4	413309	14.0	19.9	10282	14.1	18.6
271381	13.8	19.7	450038	13.8	20.6	339939	13.9	21.0	444769	13.9	21.1	209803	14.0	19.9	457969	14.1	20.7
26973	13.8	19.1	279196	13.8	19.5	238667	13.9	20.1	236363	13.9	20.6	123194	14.0	20.1	135233	14.1	17.9
206067	13.8	20.4	441231	13.8	21.6	376841	13.9	20.9	446937	13.9	20.6	102073	14.0	18.7	403125	14.1	21.1
529227	13.8	21.3	370878	13.8	20.6	75281	13.9	18.0	77122	13.9	18.6	114871	14.0	18.6	417319	14.1	20.9
146355	13.8	18.8	519324	13.8	20.9	59645	13.9	19.1	343279</								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
179824	14.1	20.2	133005	14.2	19.8	412799	14.3	21.2	517173	14.3	21.7	336176	14.4	19.6	472539	14.4	20.9
177569	14.1	19.3	429967	14.2	21.8	214801	14.3	19.9	18906	14.3	18.8	230962	14.4	19.6	4462	14.4	17.3
355996	14.1	20.4	407180	14.2	20.7	248242	14.3	19.6	196569	14.3	19.7	481620	14.4	18.3	271580	14.4	21.1
77147	14.1	19.1	249978	14.2	19.0	48202	14.3	18.9	160647	14.3	18.6	491102	14.4	21.7	233488	14.4	18.7
30543	14.1	20.0	330505	14.2	21.1	280562	14.3	20.4	118628	14.3	18.9	416601	14.4	21.0	339722	14.4	19.7
106775	14.1	18.5	481743	14.2	20.8	88603	14.3	17.8	193000	14.3	20.7	44170	14.4	17.0	140126	14.4	20.6
144101	14.1	20.5	289272	14.2	20.2	122463	14.3	19.3	225190	14.3	19.8	22611	14.4	19.3	362236	14.4	20.6
365649	14.1	20.9	363935	14.2	21.1	541956	14.3	21.2	146356	14.3	17.8	319874	14.4	19.4	19678	14.4	18.2
177153	14.1	19.2	214874	14.2	20.0	136787	14.3	19.5	169950	14.3	16.8	202880	14.4	19.7	47246	14.4	18.7
195266	14.1	20.2	100980	14.2	18.3	261285	14.3	20.9	199672	14.3	20.4	177476	14.4	19.9	270540	14.4	19.5
281130	14.1	20.5	416814	14.2	20.6	106896	14.3	18.5	105026	14.3	19.7	231733	14.4	20.6	389299	14.4	20.7
28945	14.1	19.2	365419	14.2	20.3	454650	14.3	21.7	69420	14.3	16.7	180382	14.4	19.8	123845	14.4	18.8
135832	14.1	19.7	107385	14.2	18.2	213964	14.3	17.8	180301	14.3	18.9	199688	14.4	21.0	273180	14.4	20.7
226648	14.1	19.9	161085	14.2	19.1	289751	14.3	20.4	175177	14.3	19.9	496712	14.4	21.1	440648	14.4	21.1
49287	14.1	18.2	64387	14.2	19.0	279591	14.3	20.8	372190	14.3	21.1	117396	14.4	18.5	439479	14.4	20.2
516566	14.1	21.1	178902	14.2	20.3	363377	14.3	20.5	493115	14.3	20.4	397253	14.4	21.0	141681	14.4	20.3
330149	14.1	20.5	228241	14.2	19.9	378655	14.3	20.0	442493	14.3	22.0	6186	14.4	16.1	176338	14.4	20.0
457777	14.1	20.1	191521	14.2	19.8	489476	14.3	20.5	76108	14.3	18.3	409037	14.4	21.7	266802	14.4	18.9
71485	14.1	18.7	442248	14.2	21.4	198570	14.3	19.7	460879	14.3	20.8	317219	14.4	19.8	146543	14.4	19.0
492580	14.1	21.4	520915	14.2	20.9	464887	14.3	20.3	56598	14.3	19.2	10002	14.4	17.5	157473	14.4	19.8
334150	14.1	19.6	309612	14.2	19.2	110419	14.3	18.3	238672	14.3	19.9	127025	14.4	18.9	453596	14.4	21.3
359390	14.1	20.1	247516	14.2	20.0	144333	14.3	19.7	370322	14.3	21.6	435591	14.4	21.0	33472	14.4	18.4
79948	14.1	19.5	320839	14.2	20.9	369002	14.3	21.3	180017	14.3	18.5	427112	14.4	20.9	226423	14.4	20.2
141662	14.1	21.7	75928	14.2	19.3	541262	14.3	21.2	218333	14.3	18.8	195698	14.4	19.8	376242	14.4	20.5
330206	14.1	20.5	407848	14.2	20.4	495708	14.3	21.3	69214	14.3	19.2	124678	14.4	18.6	93669	14.5	19.6
260633	14.1	21.0	22076	14.2	18.1	112256	14.3	19.4	487008	14.3	20.8	412417	14.4	20.1	418490	14.5	21.2
330238	14.1	20.8	154204	14.2	19.8	422000	14.3	20.2	128153	14.3	20.1	518596	14.4	21.2	162242	14.5	20.5
390839	14.1	21.0	454365	14.2	21.0	79433	14.3	19.4	402639	14.3	20.2	463336	14.4	21.4	358619	14.5	20.8
101489	14.1	18.8	442619	14.2	21.6	453151	14.3	20.8	173114	14.3	19.4	226674	14.4	19.8	67161	14.5	17.6
397231	14.1	22.2	120369	14.2	20.6	231040	14.3	19.8	25554	14.3	16.9	279687	14.4	20.7	460658	14.5	21.3
17733	14.1	16.4	229062	14.2	20.4	362724	14.3	20.2	435512	14.3	21.9	228407	14.4	19.4	120531	14.5	19.6
477468	14.1	20.7	125991	14.2	19.4	204919	14.3	20.6	489856	14.3	21.5	114935	14.4	19.3	301833	14.5	20.8
477863	14.1	20.6	356800	14.2	20.7	316416	14.3	20.7	194356	14.3	20.2	119103	14.4	19.7	522254	14.5	20.7
421772	14.1	19.9	462498	14.2	20.6	372319	14.3	21.2	300606	14.3	21.2	298987	14.4	20.0	199218	14.5	19.1
184183	14.1	19.8	66076	14.2	17.4	45593	14.3	17.8	279207	14.3	20.6	106853	14.4	18.2	182577	14.5	20.8
216792	14.1	20.4	280922	14.2	20.4	95265	14.3	19.6	189161	14.3	19.0	235422	14.4	19.6	365976	14.5	20.1
331474	14.1	19.8	541598	14.2	20.8	385278	14.3	19.9	57721	14.3	19.7	154191	14.4	19.9	336586	14.5	21.4
455827	14.1	21.5	147659	14.2	19.4	503354	14.3	21.0	3836	14.3	17.2	252581	14.4	20.5	95875	14.5	20.1
67577	14.1	18.3	229787	14.2	19.8	230202	14.3	19.1	119297	14.3	20.6	194485	14.4	20.0	73537	14.5	19.5
418801	14.1	21.3	177760	14.2	20.4	204743	14.3	20.1	293484	14.3	20.3	54872	14.4	19.6	198682	14.5	19.5
78211	14.2	19.0	34195	14.2	18.8	297293	14.3	21.3	2671	14.3	16.4	359509	14.4	20.6	362428	14.5	21.2
121975	14.2	19.7	193174	14.2	19.8	376832	14.3	21.0	437890	14.3	20.9	482059	14.4	20.6	295536	14.5	20.4
55153	14.2	19.1	377134	14.2	21.3	458268	14.3	20.3	165751	14.3	18.7	357294	14.4	20.6	14127	14.5	17.4
80987	14.2	19.4	96880	14.2	19.8	185344	14.3	19.9	78505	14.3	17.7	80734	14.4	18.6	212288	14.5	19.4
374252	14.2	19.9	60319	14.2	18.2	274349	14.3	20.4	12537	14.3	17.5	480243	14.4	20.5	104	14.5	12.1
27476	14.2	17.2	89530	14.2	19.8	275249	14.3	19.8	333551	14.3	20.6	118088	14.4	20.4	21965	14.5	18.6
52016	14.2	17.8	143222	14.2	19.5	174430	14.3	19.1	217654	14.3	20.4	488057	14.4	21.0	440167	14.5	19.9
273265	14.2	20.4	287802	14.2	20.0	114049	14.3	20.3	380657	14.3	20.5	463028	14.4	20.7	544673	14.5	20.8
493714	14.2	20.9	459847	14.2	20.6	330843	14.3	21.1	261879	14.3	19.9	90517	14.4	19.2	318682	14.5	21.1
196749	14.2	19.8	485622	14.2	20.0	514130	14.3	20.4	466363	14.3	21.0	277138	14.4	20.4	479727	14.5	20.7
493332	14.2	20.7	191350	14.2	20.0	132817	14.3	19.4	71083	14.3	19.3	492742	14.4	20.8	344884	14.5	21.1
483323	14.2	20.2	461266	14.2	20.9	471968	14.3	21.4	373777	14.3	21.5	496776	14.4	20.2	192231	14.5	20.4
224179	14.2	18.9	370046	14.2	20.1	346347	14.3	20.6	287362	14.3	21.1	272173	14.4	19.8	313561	14.5	19.2
61706	14.2	19.2	226248	14.2	19.7	420131	14.3	21.2	394818	14.3	21.1	462112	14.4	21.9	477824	14.5	19.4
419937	14.2	20.4	419354	14.2	20.3	54471	14.3	18.3	409670	14.3	20.6	159968	14.4	20.3	339569	14.5	21.0
441656	14.2	21.8	479323	14.2	19.8	448537	14.3	20.7	541587	14.4	19.3	460519	14.4	20.2	225339	14.5	19.0
183591	14.2	19.6	162207	14.2	19.5	422192	14.3	21.2	272029	14.4	21.3	114039	14.4	19.7	133590	14.5	20.9
315734	14.2	20.7	244510	14.2	21.1	207968	14.3	20.6	192076	14.4	19.9	195352	14.4	19.3	11400	14.5	17.8
81042	14.2	19.8	100640	14.2	19.1	230150	14.3	20.3	247185	14.4	19.4	4224	14.4	15.5	453981	14.5	20.6
410821	14.2	20.3	391914	14.2	20.6	403599	14.3	20.9	220001	14.4	20.9	309498	14.4	19.2	486423	14.5	20.9
130223	14.2	20.0	522368	14.2	21.2	380097	14.3	20.8	449364	14.4	19.7	309622	14.4	19.1	139386	14.5	20.2
111396	14.2	18.7	461470	14.2	21.3	178523	14.3	20.4	412926	14.4	21.3	266041	14.4	19.4	281201	14.5	21.2
305083	14.2	21.1	391004	14.2	20.7	462431	14.3	20.5	29861	14.4	16.9	444851	14.4	20.5	132536	14.5	20.3
413261	14.2	20.1	417439	14.2	20.5	65649	14.3	19.1	229003	14.4	19.2	381946	14.4	18.4	16039	14.5	18.2
92019	14.2	18.7	455383	14.2	20.9	278426	14.3	20.2	78228	14.4	19.0	447928	14.4	20.5	355350	14.5	20.4
65877	14.2	16.9	112517	14.2	20.5	357009	14.3	19.9	340167	14.4	20.9	444872	14.4	21.9	15801	14.5	17.1
457418	14.2	20.4	460769	14.2	21.3	492068	14.3	21.0	139066	14.4	20.0	70060	14.4	18.6	431627	14.5	20.5
14424	14.2	17.0	369607	14.2	21.1	113089	14.3	19.9	88464	14.4	19.6	209853	14.4	19.6	23435	14.5	18.0
256294	14.2	20.9	345164	14.2	20.1	138401	14.3	19.8	513717</								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
150134	14.5	19.7	355430	14.6	20.4	169762	14.6	20.2	458504	14.7	20.5	378554	14.8	20.1	7921	14.8	17.3
67820	14.5	19.4	410099	14.6	20.9	171594	14.6	19.2	121123	14.7	20.0	463830	14.8	20.5	485579	14.8	20.6
295545	14.5	19.4	276568	14.6	20.2	493013	14.6	20.1	122924	14.7	20.2	92687	14.8	20.3	116958	14.8	19.5
446016	14.5	19.6	32379	14.6	18.8	81357	14.6	18.2	302908	14.7	20.4	210601	14.8	19.4	353130	14.8	19.1
485515	14.5	21.3	272072	14.6	20.4	115819	14.6	18.9	11325	14.7	18.4	26998	14.8	17.0	404339	14.8	21.3
233037	14.5	20.2	125429	14.6	18.9	333878	14.6	19.5	339045	14.7	20.8	464272	14.8	20.3	130241	14.8	19.2
517957	14.5	21.9	358560	14.6	22.0	356638	14.6	20.0	225156	14.7	20.9	255028	14.8	20.4	486928	14.8	20.1
228232	14.5	20.7	270621	14.6	20.6	104861	14.6	19.1	85263	14.7	19.8	112401	14.8	20.0	6481	14.8	17.2
262447	14.5	20.1	181319	14.6	19.9	459690	14.6	20.5	388137	14.7	20.3	330786	14.8	20.1	485644	14.8	20.8
276647	14.5	21.4	165131	14.6	20.7	514621	14.6	21.7	194519	14.7	19.4	73493	14.8	19.8	126030	14.8	18.8
392274	14.5	20.4	423775	14.6	20.6	287251	14.6	20.3	197768	14.7	20.8	353042	14.8	20.1	43738	14.8	21.0
136643	14.5	19.8	372175	14.6	21.6	396396	14.6	21.4	49907	14.7	17.3	5419	14.8	17.6	226044	14.8	19.8
264882	14.5	21.2	332622	14.6	20.3	107322	14.6	19.0	458612	14.7	20.0	463052	14.8	21.0	31787	14.8	18.0
530310	14.5	19.9	506127	14.6	20.0	197898	14.6	20.1	102886	14.7	19.8	464485	14.8	20.0	176383	14.8	20.0
257932	14.5	19.3	271298	14.6	21.0	72210	14.6	19.7	360606	14.7	19.7	268214	14.8	20.3	333500	14.9	19.8
101185	14.5	17.8	132622	14.6	20.2	363902	14.6	20.7	155682	14.7	20.6	356037	14.8	20.2	166791	14.9	19.4
133150	14.5	20.0	365517	14.6	20.7	35548	14.6	18.6	58015	14.7	19.9	489156	14.8	20.8	126213	14.9	19.7
57640	14.5	18.5	104101	14.6	19.5	413717	14.6	20.6	481985	14.7	22.9	519448	14.8	20.3	79616	14.9	19.3
518796	14.5	20.9	516581	14.6	21.0	51635	14.6	18.9	300628	14.7	20.1	508661	14.8	20.5	100612	14.9	19.2
198751	14.5	19.3	519051	14.6	21.6	78329	14.6	19.2	185402	14.7	20.5	249322	14.8	19.3	452043	14.9	19.9
109952	14.5	18.6	454869	14.6	21.7	175601	14.6	18.7	233942	14.7	19.6	82289	14.8	19.2	516814	14.9	21.7
489668	14.5	22.0	329533	14.6	21.1	372279	14.6	20.4	227198	14.7	19.5	250144	14.8	20.7	319153	14.9	19.8
280542	14.5	21.5	28433	14.6	18.4	494009	14.6	19.7	165676	14.7	20.1	294874	14.8	20.5	328656	14.9	20.0
192604	14.5	20.1	17269	14.6	17.5	115445	14.6	18.9	400624	14.7	20.9	37129	14.8	18.6	16488	14.9	17.5
60853	14.5	20.1	458605	14.6	21.5	444747	14.6	21.3	107918	14.7	19.2	330727	14.8	21.3	388047	14.9	20.2
15154	14.5	17.4	236988	14.6	20.2	31822	14.6	17.4	88991	14.7	19.0	34310	14.8	19.5	421662	14.9	21.7
294836	14.5	20.6	99955	14.6	19.8	427141	14.6	20.3	103744	14.7	18.9	191455	14.8	18.8	51487	14.9	19.1
180729	14.5	20.1	189721	14.6	20.1	320856	14.7	20.6	541331	14.7	20.3	145885	14.8	19.4	486283	14.9	21.4
266885	14.5	20.1	160665	14.6	18.9	194991	14.7	18.6	277116	14.7	20.1	420110	14.8	20.9	194310	14.9	19.8
245388	14.5	19.7	355307	14.6	20.3	117883	14.7	20.0	22534	14.7	19.0	280759	14.8	19.6	189746	14.9	19.9
204066	14.5	19.5	27498	14.6	18.2	110945	14.7	20.0	223951	14.7	18.8	369176	14.8	20.8	49515	14.9	17.3
42152	14.5	18.9	133858	14.6	18.9	312918	14.7	20.0	229079	14.7	19.8	107003	14.8	18.5	97605	14.9	18.9
181113	14.5	20.1	414724	14.6	19.9	30374	14.7	18.7	173137	14.7	20.8	280424	14.8	18.9	119253	14.9	19.8
367867	14.5	21.6	289949	14.6	20.2	267251	14.7	20.7	198756	14.7	20.4	11308	14.8	18.5	52932	14.9	18.5
284799	14.5	20.0	34067	14.6	19.1	144202	14.7	19.5	84531	14.7	18.5	161961	14.8	20.9	447919	14.9	20.3
373942	14.5	19.9	505654	14.6	20.6	159977	14.7	20.4	271537	14.7	20.3	493618	14.8	20.0	145080	14.9	19.9
45419	14.5	18.3	520555	14.6	21.3	302654	14.7	20.7	200703	14.7	19.5	108626	14.8	20.7	224673	14.9	20.3
305091	14.5	19.7	518995	14.6	20.1	286304	14.7	20.2	205079	14.7	18.6	264259	14.8	20.3	454757	14.9	19.9
143806	14.5	19.4	410466	14.6	20.5	97566	14.7	19.0	113911	14.7	19.5	333635	14.8	21.8	494503	14.9	21.0
249938	14.5	19.1	162283	14.6	19.3	150195	14.7	19.5	421345	14.7	20.5	367251	14.8	22.5	372163	14.9	20.7
75146	14.5	19.3	71476	14.6	18.9	237350	14.7	19.8	182059	14.7	20.1	250573	14.8	19.7	51233	14.9	17.9
167981	14.5	19.4	136888	14.6	19.9	329560	14.7	21.0	161322	14.7	18.9	542712	14.8	21.3	493306	14.9	20.4
82737	14.5	19.0	395421	14.6	20.9	138063	14.7	20.2	82734	14.7	19.0	82724	14.8	19.9	274301	14.9	20.7
186702	14.5	20.2	290967	14.6	19.8	7734	14.7	18.0	73477	14.7	18.2	454665	14.8	21.2	543075	14.9	20.5
486472	14.5	21.1	477368	14.6	21.1	134820	14.7	18.4	494801	14.7	19.8	264335	14.8	20.3	118051	14.9	18.8
23167	14.5	17.3	34767	14.6	16.9	493774	14.7	20.1	202395	14.7	19.9	193128	14.8	20.1	76101	14.9	19.3
11724	14.5	16.7	262532	14.6	21.0	447810	14.7	21.8	315801	14.7	20.8	463066	14.8	21.4	251285	14.9	19.8
284212	14.5	21.0	484487	14.6	18.8	47899	14.7	17.9	235775	14.7	21.0	103226	14.8	17.8	43106	14.9	18.9
217512	14.5	20.8	83157	14.6	18.9	352882	14.7	19.9	399744	14.7	22.2	369004	14.8	21.0	488450	14.9	22.1
108124	14.5	18.6	493017	14.6	20.6	216040	14.7	19.2	96199	14.7	18.6	304114	14.8	21.0	461292	14.9	21.8
406118	14.5	21.0	220023	14.6	19.2	3133	14.7	15.1	260874	14.7	20.5	109900	14.8	19.0	382306	14.9	21.4
263630	14.5	20.8	147639	14.6	20.0	259304	14.7	19.6	159154	14.7	19.7	84593	14.8	18.4	300634	14.9	20.1
458077	14.5	20.4	417436	14.6	20.6	273712	14.7	21.0	267045	14.7	20.3	260824	14.8	20.5	114598	14.9	19.6
316311	14.5	20.4	487818	14.6	20.7	148029	14.7	20.5	371294	14.7	20.9	408685	14.8	21.5	329666	14.9	20.5
164974	14.5	18.2	227083	14.6	21.2	287795	14.7	19.3	410941	14.7	20.8	361339	14.8	20.6	459674	14.9	21.2
44669	14.5	18.8	158773	14.6	20.4	220313	14.7	20.3	85188	14.7	18.6	520610	14.8	21.5	77920	14.9	19.8
61070	14.5	19.3	79225	14.6	19.4	80747	14.7	19.4	229734	14.7	21.3	216385	14.8	20.6	463592	14.9	20.9
245213	14.5	19.6	55269	14.6	18.0	381764	14.7	19.4	276820	14.7	21.2	216136	14.8	20.8	482886	14.9	20.3
467163	14.5	20.3	23313	14.6	17.2	171521	14.7	16.4	517353	14.7	21.2	261117	14.8	21.0	127854	14.9	19.3
115982	14.5	19.7	372259	14.6	19.7	394207	14.7	21.6	405530	14.7	20.3	10775	14.8	17.0	23831	14.9	18.4
328384	14.5	20.4	481830	14.6	20.4	272251	14.7	20.7	358125	14.7	21.6	474204	14.8	22.4	443197	14.9	21.1
309536	14.5	20.1	4372	14.6	16.9	220025	14.7	20.7	234708	14.7	19.7	48571	14.8	17.9	240252	14.9	20.2
307298	14.5	21.7	119290	14.6	20.7	515513	14.7	20.3	452343	14.7	21.4	515	14.8	14.6	456205	14.9	20.2
408643	14.5	20.9	43307	14.6	18.5	11627	14.7	16.6	451588	14.7	20.4	459009	14.8	20.0	54056	14.9	17.2
364261	14.5	19.3	75943	14.6	18.2	71477	14.7	18.8	359823	14.7	19.8	211217	14.8	19.2	405649	14.9	21.5
125752	14.5	19.0	126280	14.6	19.7	193080	14.7	19.5	197421	14.7	19.0	7770	14.8	16.8	371240	14.9	21.1
40776	14.5	18.0	37665	14.6	19.2	295381	14.7	20.3	373250	14.7	21.3	196126	14.8	20.1	462473	14.9	20.7
456984	14.5	19.6	315782	14.6	20.9	66739	14.7	18.3	360095	14.8	20.5	486310	14.8	21.4	261572	14.9	19.4
24678	14.5	18.1	477262	14.6	21.0	247636	14.7	20.1	116352	14.8	18.						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
203616	14.9	18.9	310364	14.9	19.9	52746	15.0	19.9	230157	15.1	20.4	209260	15.2	20.1	140052	15.2	18.3
154439	14.9	18.9	77401	14.9	19.0	301411	15.0	19.7	9588	15.1	18.2	32540	15.2	18.8	145073	15.2	19.5
113884	14.9	18.8	42056	14.9	18.4	183823	15.0	20.0	49462	15.1	17.2	108202	15.2	19.5	77602	15.2	19.1
542080	14.9	20.8	388514	14.9	21.4	115204	15.0	18.7	48914	15.1	18.6	109241	15.2	18.3	245340	15.2	19.9
189427	14.9	19.9	52396	14.9	19.4	178998	15.0	19.5	24989	15.1	17.7	280834	15.2	21.1	150462	15.2	19.1
382675	14.9	19.7	334271	14.9	19.3	81336	15.0	19.6	294350	15.1	20.9	168617	15.2	18.8	338963	15.2	19.9
85347	14.9	18.8	415708	14.9	22.1	474226	15.0	19.2	119597	15.1	20.1	108456	15.2	19.4	305804	15.2	19.8
233655	14.9	21.0	142890	14.9	19.9	460606	15.0	20.8	114850	15.1	19.2	455521	15.2	20.9	42994	15.2	17.2
281731	14.9	19.7	50754	14.9	17.7	270330	15.0	20.6	339134	15.1	19.7	233230	15.2	19.9	401546	15.2	20.6
149513	14.9	20.0	12512	14.9	18.5	407050	15.0	20.2	265806	15.1	20.4	28376	15.2	18.9	297363	15.2	19.2
250659	14.9	21.2	428197	14.9	21.3	286881	15.0	20.3	412691	15.1	20.7	226223	15.2	19.3	421530	15.2	20.5
520537	14.9	21.0	305698	14.9	20.6	152976	15.0	20.2	233016	15.1	19.0	450578	15.2	21.5	376571	15.2	20.4
293570	14.9	21.0	178461	14.9	20.6	26206	15.0	15.6	493765	15.1	20.4	489864	15.2	20.8	6581	15.2	16.5
108355	14.9	19.1	276641	14.9	21.4	273	15.0	14.7	484339	15.1	19.8	132620	15.2	19.4	1330	15.2	14.6
16304	14.9	19.5	520319	14.9	20.9	76001	15.0	18.8	163149	15.1	19.5	500430	15.2	20.6	78229	15.2	18.6
473505	14.9	21.2	277479	14.9	21.5	349132	15.0	20.9	348712	15.1	20.3	347037	15.2	20.5	9702	15.2	18.5
488694	14.9	20.7	65459	14.9	19.2	328589	15.0	19.5	36277	15.1	17.3	429075	15.2	21.2	56314	15.2	16.8
346623	14.9	19.4	270749	14.9	20.4	490025	15.0	20.8	339734	15.1	20.4	145576	15.2	20.1	190910	15.2	21.0
4185	14.9	16.1	486456	14.9	20.6	69778	15.0	18.1	162995	15.1	21.0	421188	15.2	21.3	383527	15.2	19.4
217681	14.9	20.6	457375	14.9	21.4	100495	15.0	19.6	112664	15.1	19.8	459616	15.2	20.9	229835	15.2	21.1
391256	14.9	21.8	105206	14.9	18.9	328010	15.1	20.0	191497	15.1	19.0	477245	15.2	20.5	542037	15.2	21.5
250652	14.9	20.4	125054	14.9	19.5	139494	15.1	19.9	494295	15.1	20.1	490438	15.2	21.7	261187	15.2	20.8
75232	14.9	17.9	332581	14.9	20.8	248851	15.1	21.3	312580	15.1	20.5	92419	15.2	20.3	42307	15.2	18.9
451481	14.9	21.2	193118	14.9	19.9	41592	15.1	18.6	524080	15.1	21.2	295826	15.2	20.5	196046	15.2	20.0
210293	14.9	20.1	140555	14.9	19.8	392683	15.1	21.2	360994	15.1	21.7	535847	15.2	20.8	230473	15.2	20.2
480320	14.9	20.9	42760	14.9	19.3	178193	15.1	20.4	289640	15.1	19.8	23493	15.2	17.0	274769	15.2	19.7
477353	14.9	20.5	473963	14.9	20.1	541199	15.1	20.6	57247	15.1	18.5	401544	15.2	19.8	418444	15.2	21.0
475748	14.9	21.4	383506	14.9	19.6	79344	15.1	20.1	400660	15.1	20.4	45963	15.2	19.0	339076	15.2	20.1
168248	14.9	20.6	461025	14.9	20.0	477186	15.1	21.7	468323	15.1	20.5	463351	15.2	21.4	191572	15.2	19.2
90796	14.9	19.7	79892	14.9	18.0	153502	15.1	19.9	229441	15.1	20.1	65913	15.2	18.1	475313	15.2	20.4
486461	14.9	19.9	57972	14.9	19.5	473979	15.1	20.4	521398	15.1	20.8	287887	15.2	20.5	49538	15.2	18.4
206381	14.9	19.8	391478	14.9	21.2	359326	15.1	19.8	345370	15.1	20.9	368315	15.2	20.6	139911	15.2	19.6
114056	14.9	20.0	515878	14.9	22.2	408663	15.1	20.3	215949	15.1	20.5	421805	15.2	20.9	463649	15.2	20.4
196176	14.9	19.4	257247	14.9	20.3	460620	15.1	20.5	380970	15.1	20.4	211305	15.2	20.4	105074	15.3	19.0
84586	14.9	18.7	103733	14.9	19.5	329547	15.1	19.7	264005	15.1	20.6	521825	15.2	21.5	375435	15.3	21.4
267515	14.9	20.2	486845	14.9	21.3	518993	15.1	20.2	418587	15.1	21.0	543179	15.2	20.6	483723	15.3	19.9
222958	14.9	20.8	369232	14.9	22.1	124727	15.1	20.3	180086	15.1	19.0	126972	15.2	19.5	445773	15.3	21.0
331423	14.9	20.8	364870	14.9	20.1	26878	15.1	18.0	249971	15.1	18.7	461075	15.2	20.3	268326	15.3	21.5
149648	14.9	19.4	4059	14.9	16.1	269135	15.1	20.8	344915	15.1	20.8	400857	15.2	21.6	1957	15.3	15.9
444771	14.9	21.2	398372	14.9	20.9	153104	15.1	20.0	455177	15.1	21.1	170560	15.2	19.7	249864	15.3	19.7
193206	14.9	21.3	305936	14.9	19.9	359325	15.1	20.5	474300	15.1	20.2	58994	15.2	17.8	211631	15.3	19.5
65075	14.9	19.3	152238	14.9	19.6	318294	15.1	20.0	39298	15.1	19.0	238240	15.2	20.7	232753	15.3	20.1
199483	14.9	20.3	54228	14.9	18.2	196116	15.1	19.7	419303	15.1	20.5	495705	15.2	21.0	108060	15.3	20.6
311793	14.9	20.3	486721	15.0	19.9	211637	15.1	19.2	265184	15.1	19.7	391468	15.2	20.2	108434	15.3	19.3
436056	14.9	21.2	153830	15.0	20.5	173303	15.1	19.8	103327	15.1	17.8	328410	15.2	21.4	77293	15.3	18.6
233471	14.9	20.3	286954	15.0	20.2	87192	15.1	19.0	270658	15.1	19.1	312884	15.2	21.5	315731	15.3	20.8
409823	14.9	19.9	157969	15.0	20.5	341938	15.1	20.3	454182	15.1	20.4	267283	15.2	21.0	517028	15.3	21.0
272459	14.9	20.3	254853	15.0	20.5	14704	15.1	17.0	348273	15.1	19.3	452912	15.2	21.4	467035	15.3	20.7
17613	14.9	16.6	439210	15.0	22.1	345265	15.1	21.3	441212	15.1	20.6	158386	15.2	19.6	314909	15.3	20.1
464779	14.9	21.1	97502	15.0	18.0	270122	15.1	20.0	122183	15.1	20.1	117827	15.2	19.0	236339	15.3	20.3
160866	14.9	20.2	70422	15.0	17.6	184770	15.1	19.9	187701	15.1	20.6	301174	15.2	20.4	88485	15.3	19.2
151001	14.9	20.2	442240	15.0	20.4	17068	15.1	17.2	6334	15.1	16.4	363328	15.2	20.6	337389	15.3	22.0
458228	14.9	21.3	192079	15.0	20.1	415169	15.1	21.1	241587	15.1	20.7	431148	15.2	21.9	8140	15.3	17.0
327140	14.9	22.3	411917	15.0	20.2	494139	15.1	20.5	211297	15.1	19.4	214315	15.2	19.5	15997	15.3	17.4
107638	14.9	20.2	441118	15.0	21.5	456049	15.1	20.8	375083	15.1	21.2	221520	15.2	20.6	457314	15.3	20.7
373857	14.9	21.4	420146	15.0	20.1	409669	15.1	21.3	469462	15.1	21.0	500325	15.2	22.1	163830	15.3	20.1
233146	14.9	20.0	343699	15.0	20.1	101420	15.1	19.4	196982	15.1	19.9	65640	15.2	17.8	460821	15.3	20.8
213293	14.9	20.0	217010	15.0	18.5	1148	15.1	15.0	413220	15.1	21.2	106788	15.2	18.6	127327	15.3	19.8
344139	14.9	20.2	426007	15.0	20.4	543048	15.1	21.8	267903	15.1	19.5	84946	15.2	18.7	60711	15.3	18.8
197939	14.9	21.1	294527	15.0	19.3	463570	15.1	21.6	44923	15.1	19.8	7516	15.2	17.8	427207	15.3	20.5
368838	14.9	20.5	299580	15.0	21.0	447144	15.1	21.0	228789	15.1	17.8	462456	15.2	20.8	418676	15.3	21.2
139151	14.9	19.6	7302	15.0	15.8	297236	15.1	19.0	405402	15.1	21.4	485703	15.2	20.4	3682	15.3	15.7
280218	14.9	22.0	248873	15.0	20.9	307316	15.1	21.1	89707	15.1	19.6	457525	15.2	20.7	21636	15.3	18.1
345142	14.9	22.1	178569	15.0	19.6	192140	15.1	19.2	275908	15.1	20.4	337873	15.2	20.4	395980	15.3	20.4
321798	14.9	21.2	401854	15.0	20.6	390179	15.1	20.8	447905	15.1	20.1	543002	15.2	21.4	443227	15.3	21.6
156126	14.9	20.0	463053	15.0	21.2	33231	15.1	18.0	48319	15.1	20.1	61147	15.2	18.2	174082	15.3	19.3
455773	14.9	20.6	17257	15.0	17.0	493174	15.1	20.8	250658	15.1	20.5	220353	15.2	19.2	507896	15.3	20.8
409629	14.9	20.7	232044	15.0	20.4	248235	15.1	19.5	88344	15.1	19.3	303474	15.2	19.3	61028	15.3	18.2
278724	14.9	21.5	187937	15.0	20.1	409497	15.1	21.2	5927	15.1	18.						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
279365	15.3	19.9	187063	15.4	20.3	262658	15.4	20.7	233240	15.5	20.2	108050	15.6	19.4	523411	15.6	21.0
442798	15.3	20.3	347190	15.4	20.3	100402	15.4	20.4	162446	15.5	19.2	230233	15.6	20.9	89608	15.6	19.2
88842	15.3	19.4	453887	15.4	20.8	110216	15.4	20.8	33903	15.5	18.4	56147	15.6	18.1	279651	15.6	20.7
4992	15.3	17.2	462711	15.4	21.1	320817	15.4	21.2	76860	15.5	18.1	428600	15.6	20.5	108372	15.6	19.3
150765	15.3	21.2	249980	15.4	20.4	235998	15.4	19.8	314942	15.5	19.6	260849	15.6	20.8	208207	15.6	21.2
455084	15.3	20.5	37173	15.4	19.3	180087	15.4	19.1	60294	15.5	19.4	118174	15.6	20.3	221531	15.6	19.9
518378	15.3	20.4	369214	15.4	19.8	395833	15.4	20.3	190337	15.5	19.5	121720	15.6	19.3	462475	15.6	21.2
46467	15.3	19.6	516754	15.4	20.6	81646	15.4	18.1	144191	15.5	19.8	421225	15.6	20.1	227941	15.6	19.6
475010	15.3	19.9	59067	15.4	18.5	394462	15.4	22.2	287953	15.5	21.2	376119	15.6	19.7	348289	15.6	19.4
418443	15.3	20.1	258913	15.4	20.6	105045	15.4	19.8	47085	15.5	18.9	394549	15.6	20.6	150427	15.6	20.6
438794	15.3	20.6	64142	15.4	18.4	377152	15.4	21.5	319043	15.5	20.6	517377	15.6	23.1	226416	15.6	19.2
115300	15.3	18.4	257075	15.4	20.2	126771	15.4	19.4	222964	15.5	20.6	192101	15.6	19.5	418451	15.6	21.1
465570	15.3	19.8	245675	15.4	20.1	288163	15.4	19.6	380047	15.5	20.8	204227	15.6	19.5	176976	15.6	19.5
488533	15.3	21.1	145641	15.4	18.8	320908	15.4	20.3	239687	15.5	21.3	62553	15.6	19.7	361823	15.6	20.6
447200	15.3	20.9	321607	15.4	19.7	487278	15.4	21.2	272059	15.5	20.3	415424	15.6	20.7	196144	15.6	19.0
366971	15.3	21.1	375357	15.4	20.4	479400	15.4	20.7	46227	15.5	18.8	252566	15.6	20.7	22845	15.6	17.5
97332	15.3	18.9	326494	15.4	21.3	270913	15.4	20.3	406943	15.5	21.5	487055	15.6	21.8	158689	15.6	19.1
116222	15.3	18.2	115905	15.4	19.6	347243	15.5	21.0	240683	15.5	19.6	450579	15.6	21.7	360610	15.6	19.2
485542	15.3	19.3	155950	15.4	18.5	199409	15.5	19.7	366074	15.5	20.6	331077	15.6	20.3	517784	15.6	21.2
43797	15.3	17.6	275791	15.4	20.0	220060	15.5	19.0	335351	15.5	21.0	109623	15.6	18.2	196530	15.6	19.9
343274	15.3	20.7	465439	15.4	20.3	68126	15.5	18.2	541186	15.5	21.1	44811	15.6	18.4	244177	15.6	19.6
327620	15.3	21.9	249997	15.4	20.1	124830	15.5	19.2	188736	15.5	20.7	12824	15.6	16.9	139637	15.6	19.4
463508	15.3	20.7	128253	15.4	19.8	138112	15.5	19.1	174286	15.5	20.0	190347	15.6	19.4	459784	15.6	21.6
219065	15.3	20.3	460835	15.4	21.0	203592	15.5	19.9	82573	15.5	19.0	248895	15.6	20.2	168547	15.6	19.4
309984	15.3	19.8	514911	15.4	20.9	47804	15.5	18.4	242118	15.5	19.9	362862	15.6	20.2	75227	15.7	17.7
5177	15.3	17.3	431650	15.4	20.0	196065	15.5	19.0	204985	15.5	20.9	45916	15.6	18.1	114533	15.7	18.0
421104	15.3	20.7	264486	15.4	21.2	218313	15.5	19.0	121950	15.5	19.7	487525	15.6	20.1	156724	15.7	19.1
279052	15.3	20.3	453426	15.4	20.8	208806	15.5	19.9	484744	15.5	20.4	518078	15.6	21.0	377022	15.7	22.0
80390	15.3	18.6	183262	15.4	20.4	132729	15.5	19.9	15497	15.5	19.0	131422	15.6	19.9	46999	15.7	18.3
321443	15.3	19.9	51018	15.4	18.4	484785	15.5	20.7	408644	15.5	20.6	105136	15.6	19.4	314309	15.7	20.9
400891	15.3	22.3	229360	15.4	21.3	377979	15.5	20.6	318840	15.5	20.7	137433	15.6	20.3	487567	15.7	20.7
81891	15.3	19.3	460806	15.4	19.8	420995	15.5	20.6	17325	15.5	18.3	112224	15.6	19.7	118540	15.7	19.2
372749	15.3	19.5	132834	15.4	19.2	116733	15.5	19.7	541753	15.5	21.3	323510	15.6	20.9	2984	15.7	15.6
188692	15.3	20.3	217543	15.4	20.3	317691	15.5	20.0	239333	15.5	20.3	392448	15.6	20.5	419424	15.7	18.9
230777	15.3	19.1	172219	15.4	19.3	60765	15.5	19.6	94863	15.5	20.2	271564	15.6	20.4	251050	15.7	21.7
197840	15.3	20.5	272098	15.4	21.0	481347	15.5	20.8	436091	15.5	21.6	295285	15.6	20.3	482048	15.7	21.1
13980	15.3	18.4	426529	15.4	20.5	84330	15.5	19.2	157493	15.5	19.6	278953	15.6	19.9	382166	15.7	21.1
475538	15.3	20.4	204708	15.4	20.3	203531	15.5	20.0	171509	15.5	20.2	186460	15.6	19.4	278437	15.7	21.0
487364	15.3	21.5	128241	15.4	19.3	507621	15.5	20.5	476484	15.5	20.4	289435	15.6	19.0	237886	15.7	20.6
209831	15.3	20.1	339974	15.4	20.6	22362	15.5	18.1	195670	15.5	19.9	17845	15.6	17.0	48453	15.7	17.5
251194	15.3	20.9	136616	15.4	19.3	233170	15.5	20.2	85005	15.5	18.7	481512	15.6	21.3	235352	15.7	20.0
330804	15.3	21.6	473469	15.4	21.2	142947	15.5	19.3	354245	15.5	21.1	97583	15.6	18.2	198129	15.7	19.5
494381	15.3	21.1	328830	15.4	20.4	385148	15.5	20.8	103631	15.5	19.6	202290	15.6	20.3	115683	15.7	18.8
83886	15.3	19.5	460833	15.4	20.8	78116	15.5	18.5	78062	15.5	19.2	172381	15.6	18.1	208083	15.7	19.2
542036	15.3	21.1	85469	15.4	20.0	365898	15.5	20.0	147445	15.5	19.8	484521	15.6	20.8	389717	15.7	20.6
191169	15.3	19.0	160472	15.4	19.4	345346	15.5	20.6	384335	15.5	20.3	396718	15.6	21.4	365241	15.7	20.3
154730	15.3	20.5	30045	15.4	19.2	477450	15.5	20.3	80245	15.5	18.0	394578	15.6	20.7	491541	15.7	21.6
481035	15.3	20.2	434534	15.4	21.1	366560	15.5	20.6	260448	15.6	19.3	166326	15.6	20.4	169453	15.7	18.9
518097	15.3	20.7	460275	15.4	20.9	332786	15.5	18.8	258262	15.6	19.3	227885	15.6	20.5	331572	15.7	20.5
15758	15.3	16.7	145255	15.4	20.4	259565	15.5	19.5	50305	15.6	17.7	455110	15.6	20.8	434580	15.7	20.8
510138	15.4	20.4	335261	15.4	21.4	280	15.5	14.6	231718	15.6	18.7	361859	15.6	19.9	71066	15.7	17.9
183474	15.4	19.5	275260	15.4	19.7	324213	15.5	20.7	125750	15.6	19.0	385724	15.6	21.4	203908	15.7	20.2
280722	15.4	20.3	270610	15.4	20.2	442334	15.5	20.7	426358	15.6	20.4	83364	15.6	19.7	141589	15.7	20.6
461185	15.4	20.7	284267	15.4	20.4	255364	15.5	20.6	17280	15.6	18.4	233217	15.6	19.8	360259	15.7	20.0
441151	15.4	20.9	159698	15.4	19.6	407234	15.5	20.5	78210	15.6	19.6	215946	15.6	20.6	517003	15.7	21.7
325873	15.4	20.6	404421	15.4	20.2	416767	15.5	19.9	12204	15.6	19.1	197210	15.6	19.2	320013	15.7	20.4
463847	15.4	21.4	39543	15.4	17.6	325513	15.5	21.0	515517	15.6	20.8	369910	15.6	19.8	421631	15.7	20.8
347448	15.4	20.8	137277	15.4	18.8	232317	15.5	20.3	318861	15.6	20.2	273175	15.6	20.6	163837	15.7	18.9
362391	15.4	20.4	357704	15.4	21.7	318124	15.5	20.4	107938	15.6	20.1	370448	15.6	20.9	493246	15.7	21.5
171515	15.4	19.7	451777	15.4	20.8	49601	15.5	18.1	213130	15.6	19.4	300651	15.6	21.1	134546	15.7	19.3
135734	15.4	19.4	34801	15.4	19.1	345324	15.5	20.3	10184	15.6	18.0	218941	15.6	20.5	139875	15.7	19.2
174371	15.4	19.4	9809	15.4	18.8	104958	15.5	19.6	319045	15.6	21.4	98094	15.6	19.1	275875	15.7	20.7
392267	15.4	19.6	136103	15.4	19.1	517986	15.5	21.6	401539	15.6	19.6	611	15.6	13.2	176996	15.7	18.6
384732	15.4	20.7	414298	15.4	20.0	354435	15.5	20.0	98293	15.6	19.9	212141	15.6	19.6	187197	15.7	20.1
82207	15.4	19.1	162472	15.4	20.6	535639	15.5	20.9	449727	15.6	19.9	136064	15.6	18.3	245902	15.7	20.8
280262	15.4	19.2	523246	15.4	20.3	201762	15.5	19.9	455772	15.6	21.1	544715	15.6	21.8	197458	15.7	18.6
172914	15.4	20.0	335856	15.4	20.8	460994	15.5	20.2	20664	15.6	18.2	541835	15.6	20.3	255304	15.7	20.1
173293	15.4	20.3	224743	15.4	19.4	27106	15.5	17.2	438668	15.6	20.8	193030	15.6	20.7	212207	15.7	20.7
265502	15.4	20.2	252487	15.4	20.5	388516	15.5	21.7	543								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
449557	15.7	21.7	442317	15.8	19.7	183441	15.9	18.7	252072	15.9	19.8	16727	15.9	18.7	449270	16.1	20.3
233224	15.7	18.7	126432	15.8	19.6	124606	15.9	20.6	410657	15.9	20.2	268253	16.0	19.9	148161	16.1	18.8
286229	15.7	19.9	86632	15.8	19.7	305935	15.9	19.7	25812	15.9	18.6	12952	16.0	19.0	130985	16.1	18.6
77077	15.7	19.0	418689	15.8	19.9	485616	15.9	20.6	26096	15.9	18.7	360860	16.0	20.5	99101	16.1	17.8
110274	15.7	19.4	67297	15.8	19.6	258087	15.9	21.0	383498	15.9	19.7	49888	16.0	19.0	183508	16.1	19.7
306439	15.7	21.4	13905	15.8	18.2	104668	15.9	19.4	146508	15.9	18.6	365269	16.0	21.5	222133	16.1	19.6
176622	15.7	20.6	96608	15.8	18.4	461244	15.9	21.1	357079	15.9	21.4	435489	16.0	21.4	46090	16.1	18.9
234477	15.7	20.0	112497	15.8	18.8	332616	15.9	21.5	160649	15.9	18.3	101498	16.0	19.6	278979	16.1	20.9
200438	15.7	19.7	450682	15.8	21.2	212929	15.9	19.4	265120	15.9	19.7	51022	16.0	18.4	127771	16.1	19.1
357671	15.7	20.6	84774	15.8	18.8	361607	15.9	19.1	366282	15.9	20.1	478447	16.0	22.0	446926	16.1	20.1
25952	15.7	17.9	363370	15.8	20.2	195634	15.9	20.1	391851	15.9	20.2	336890	16.0	20.8	523469	16.1	20.7
351811	15.7	20.3	180912	15.8	19.8	460749	15.9	20.9	28709	15.9	18.3	87873	16.0	18.9	313932	16.1	21.0
368349	15.7	20.0	440154	15.8	21.0	358234	15.9	20.6	312942	15.9	23.1	201226	16.0	19.6	268507	16.1	20.1
298444	15.7	21.3	185397	15.8	20.1	541348	15.9	21.3	249242	15.9	20.8	347548	16.0	22.2	101900	16.1	18.2
399778	15.7	20.3	349702	15.8	19.4	226390	15.9	19.6	460815	15.9	20.5	108227	16.0	19.7	333407	16.1	19.6
313276	15.7	18.0	523486	15.8	21.8	488085	15.9	20.4	18001	15.9	17.9	337554	16.0	21.0	124315	16.1	18.6
32525	15.7	19.4	173014	15.8	21.2	279197	15.9	21.3	46047	15.9	19.2	460768	16.0	19.7	230179	16.1	20.1
406603	15.7	20.2	541571	15.8	20.2	142732	15.9	19.9	418472	15.9	20.8	34999	16.0	18.6	307734	16.1	20.1
399256	15.7	22.0	337596	15.8	20.1	191909	15.9	19.9	359179	15.9	20.4	480360	16.0	20.5	230749	16.1	20.0
339980	15.7	21.0	278543	15.8	20.0	520922	15.9	21.5	420971	15.9	21.1	211352	16.0	19.6	143799	16.1	20.5
181797	15.7	19.8	355460	15.8	21.3	45608	15.9	18.5	379557	15.9	19.6	413461	16.0	19.9	46009	16.1	18.4
410843	15.7	20.9	14149	15.8	16.9	369201	15.9	20.1	232851	15.9	19.5	328783	16.0	21.2	523507	16.1	21.0
458645	15.7	20.3	283347	15.8	20.4	290286	15.9	20.8	358148	15.9	20.5	142735	16.0	20.1	207851	16.1	20.2
158682	15.7	19.1	91215	15.8	18.2	272113	15.9	21.1	45112	15.9	18.8	76418	16.0	18.6	261266	16.1	19.7
25116	15.7	18.7	12148	15.8	18.0	223017	15.9	20.7	317960	15.9	19.7	216209	16.0	19.4	43223	16.1	17.5
329262	15.7	18.8	493223	15.8	20.5	117603	15.9	20.1	182087	15.9	18.9	280519	16.0	22.0	247274	16.1	20.6
451744	15.7	20.7	175896	15.8	18.7	358160	15.9	20.8	342169	15.9	20.4	179277	16.0	20.1	504	16.1	14.0
14889	15.7	17.4	41871	15.8	18.8	195911	15.9	19.4	78179	15.9	20.5	481130	16.0	20.7	354243	16.1	20.2
388478	15.7	20.8	523415	15.8	21.1	196705	15.9	19.6	351778	15.9	20.6	453124	16.0	20.4	209720	16.1	20.4
360850	15.7	20.7	142909	15.8	19.9	113300	15.9	18.6	274113	15.9	20.2	82296	16.0	18.9	492611	16.1	21.7
288351	15.7	20.7	464360	15.8	21.2	265148	15.9	19.5	461280	15.9	21.2	438736	16.0	21.7	160841	16.1	18.2
91217	15.7	17.4	382632	15.8	19.1	416365	15.9	20.5	93072	15.9	19.3	58422	16.0	20.4	189288	16.1	20.4
40948	15.7	19.2	246394	15.8	20.5	305055	15.9	20.2	486532	15.9	21.4	68570	16.0	18.1	463882	16.1	20.4
139586	15.7	20.7	181885	15.8	20.1	155267	15.9	19.7	377076	15.9	21.8	514859	16.0	19.4	421380	16.1	21.2
195795	15.7	20.2	282021	15.8	21.1	413769	15.9	20.8	122123	15.9	19.9	447837	16.0	20.1	26771	16.1	18.7
363621	15.7	20.2	80386	15.8	17.2	198161	15.9	19.8	516415	15.9	22.1	217391	16.0	20.0	435444	16.1	21.4
482757	15.7	21.2	279226	15.8	19.8	157069	15.9	20.1	207150	15.9	19.4	60602	16.0	18.3	142624	16.1	19.5
324098	15.7	20.9	127717	15.8	19.7	449694	15.9	21.2	331628	15.9	19.6	165933	16.0	19.8	327578	16.1	20.0
45464	15.7	18.3	95744	15.8	19.8	25691	15.9	16.6	228212	15.9	19.8	12643	16.0	17.7	91644	16.1	18.7
403644	15.7	20.8	187996	15.8	21.3	16082	15.9	18.1	541305	15.9	20.1	81842	16.0	19.9	294746	16.1	20.3
458057	15.7	21.2	71096	15.8	16.2	143211	15.9	19.5	394910	15.9	19.6	146604	16.0	19.3	72061	16.1	18.1
367423	15.7	20.5	441234	15.8	20.9	122474	15.9	17.6	482558	15.9	20.1	70166	16.0	18.5	428510	16.1	20.3
216991	15.7	19.7	202138	15.8	20.7	77215	15.9	18.7	59068	15.9	19.4	69413	16.0	18.5	70797	16.1	19.1
429774	15.7	21.3	182149	15.8	19.9	266892	15.9	19.7	321658	15.9	19.5	408698	16.0	20.0	136049	16.1	18.3
250585	15.7	19.3	414695	15.8	20.0	97482	15.9	18.9	376491	15.9	21.4	414685	16.0	20.8	125867	16.1	18.7
57068	15.7	19.2	416791	15.8	20.3	27369	15.9	18.5	183855	15.9	19.7	402232	16.0	20.5	471006	16.1	20.9
161767	15.8	19.7	185955	15.8	20.6	112626	15.9	18.3	460432	15.9	20.8	357437	16.0	18.3	80488	16.1	18.2
322350	15.8	20.9	464597	15.8	21.1	78319	15.9	19.8	416500	15.9	19.2	501551	16.0	20.2	404990	16.1	20.4
261815	15.8	19.9	322651	15.8	21.4	339856	15.9	22.0	85000	15.9	18.3	265116	16.0	19.7	182340	16.1	20.2
143814	15.8	18.6	102505	15.8	20.4	361345	15.9	20.6	154855	15.9	20.5	96258	16.0	20.4	468450	16.1	20.7
330736	15.8	21.1	73325	15.8	20.2	285033	15.9	20.3	28055	15.9	18.4	173053	16.0	19.6	100152	16.1	19.7
359304	15.8	20.6	50307	15.8	19.1	132870	15.9	19.3	247562	15.9	19.6	209297	16.0	20.0	324020	16.1	20.4
305009	15.8	20.5	187941	15.8	20.4	52571	15.9	18.9	249834	15.9	20.6	347713	16.0	20.0	298568	16.1	18.8
139373	15.8	19.6	64267	15.8	18.7	421261	15.9	20.6	209710	15.9	21.2	349549	16.0	20.9	417242	16.1	19.8
35461	15.8	19.1	402716	15.8	20.7	193092	15.9	19.9	76745	15.9	18.7	463994	16.0	20.7	262124	16.1	19.8
270780	15.8	19.8	234094	15.8	20.6	349110	15.9	20.9	465467	15.9	20.4	101246	16.0	18.6	395930	16.1	19.9
445673	15.8	20.7	117932	15.8	19.8	426266	15.9	20.1	127597	15.9	18.8	541254	16.1	21.4	220941	16.1	19.5
402230	15.8	20.9	41525	15.8	19.3	117491	15.9	19.0	295514	15.9	20.1	329531	16.1	20.9	184288	16.1	18.7
463384	15.8	19.9	441601	15.8	21.4	47649	15.9	18.7	82626	15.9	19.7	251099	16.1	19.9	461010	16.1	19.7
150102	15.8	19.4	400118	15.8	22.0	458038	15.9	20.6	140551	15.9	19.7	83919	16.1	19.0	146655	16.1	18.6
194921	15.8	19.0	282064	15.8	20.3	495278	15.9	23.3	362967	15.9	20.6	188300	16.1	19.6	159516	16.1	20.2
139561	15.8	19.1	198197	15.8	18.5	267258	15.9	20.0	367354	15.9	20.4	57710	16.1	19.3	331986	16.1	21.4
346622	15.8	20.4	153556	15.8	19.8	246735	15.9	20.7	435462	15.9	20.8	234211	16.1	18.8	196337	16.1	19.5
197697	15.8	20.8	150537	15.8	20.3	359564	15.9	21.7	537964	15.9	21.6	516859	16.1	20.9	347233	16.1	20.9
205109	15.8	19.7	12766	15.8	16.9	391931	15.9	20.6	26850	15.9	17.9	78132	16.1	19.6	94622	16.1	17.6
237397	15.8	20.2	282989	15.8	20.1	31711	15.9	17.9	210637	15.9	20.4	294	16.1	15.4	331720	16.1	20.4
355487	15.8	19.6	488888	15.8	20.6	58924	15.9	19.5	402600	15.9	21.5	241765	16.1	20.2	18563	16.1	17.6
426226	15.8	20.2	487960	15.8	20.6	407524	15.9	20.9	55199	15.9	18.0	108787	16.1	18.8	56197	16.1	18.1
124022	15.8	19.1	128308	15.8	20.1	117773	15.9	19.3	202750	15.9							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
44570	16.1	18.6	462471	16.2	21.3	445602	16.3	20.6	322696	16.3	20.7	79605	16.4	19.3	411160	16.5	21.3
58922	16.1	19.3	215607	16.2	19.5	451587	16.3	20.4	514170	16.3	20.5	213359	16.4	20.8	155054	16.5	19.6
87990	16.1	18.8	420674	16.2	20.6	488983	16.3	21.5	458488	16.3	20.8	73375	16.4	19.0	286818	16.5	20.3
128271	16.1	20.0	535229	16.2	22.6	494126	16.3	20.5	319558	16.3	20.4	112740	16.4	19.3	354425	16.5	18.8
147600	16.1	19.0	488318	16.2	20.2	270864	16.3	19.8	27299	16.3	18.8	416455	16.4	20.3	326152	16.5	20.1
18111	16.1	17.8	486713	16.2	20.9	155649	16.3	19.1	164450	16.3	20.3	363336	16.4	19.7	87139	16.5	19.2
157411	16.1	19.4	153684	16.2	20.0	300505	16.3	19.9	272069	16.3	21.3	113524	16.4	18.4	1610	16.5	15.7
520716	16.1	21.4	489981	16.2	20.2	517251	16.3	21.1	261440	16.3	20.0	110240	16.4	19.5	216549	16.5	21.1
152165	16.1	19.3	103153	16.2	19.1	232810	16.3	19.2	153010	16.3	20.3	315636	16.4	19.1	489666	16.5	21.9
25985	16.1	18.8	174405	16.2	19.4	452298	16.3	21.1	197203	16.3	19.7	85986	16.4	18.4	108228	16.5	19.3
31684	16.1	18.2	213091	16.2	19.8	372738	16.3	19.2	453590	16.3	21.4	14233	16.4	16.5	52959	16.5	18.2
129711	16.1	19.7	331746	16.2	22.0	109760	16.3	19.0	410819	16.3	21.7	493478	16.4	20.4	407473	16.5	20.3
111482	16.1	19.7	6442	16.2	17.4	219405	16.3	20.5	342252	16.3	19.6	232681	16.4	19.2	342002	16.5	19.6
233013	16.1	20.9	15681	16.2	18.2	161208	16.3	20.1	520609	16.3	20.7	179601	16.4	20.9	478461	16.5	20.8
51337	16.1	17.8	403963	16.2	18.8	129731	16.3	19.1	386070	16.3	20.8	503832	16.4	20.3	405217	16.5	19.7
354259	16.1	21.0	460696	16.2	19.8	340210	16.3	20.7	199915	16.3	19.1	492188	16.4	20.8	16324	16.5	17.8
515508	16.1	21.1	273666	16.2	21.1	446392	16.3	21.2	393501	16.3	21.0	445714	16.4	20.8	461935	16.5	20.6
411153	16.2	19.9	11728	16.2	17.5	302967	16.3	20.2	148759	16.3	19.5	85277	16.4	18.6	249696	16.5	19.2
343706	16.2	21.5	484464	16.2	20.0	227110	16.3	20.0	493470	16.3	19.8	64908	16.4	18.4	273196	16.5	20.0
100412	16.2	19.7	431512	16.2	20.9	312320	16.3	20.6	521824	16.3	21.0	173067	16.4	19.5	168544	16.5	19.6
492233	16.2	21.5	244350	16.2	20.2	46207	16.3	17.4	405605	16.3	20.9	257072	16.4	20.4	109018	16.5	18.7
76329	16.2	17.8	324683	16.2	20.0	265928	16.3	19.8	461870	16.3	20.0	214318	16.4	19.9	342724	16.5	19.4
252668	16.2	18.8	516183	16.2	20.5	76647	16.3	18.3	349789	16.3	19.7	321285	16.4	20.1	274012	16.5	20.0
480849	16.2	19.4	326839	16.2	19.3	58030	16.3	18.4	172632	16.3	20.8	62283	16.4	19.7	445585	16.5	21.8
236980	16.2	18.7	409271	16.2	20.4	496523	16.3	20.2	460485	16.3	21.5	135006	16.4	20.2	82159	16.5	19.5
450599	16.2	21.6	321911	16.2	20.3	339970	16.3	20.3	77314	16.3	18.1	458694	16.4	20.0	514868	16.5	21.5
178673	16.2	20.9	81719	16.2	19.4	185747	16.3	20.5	300670	16.4	20.1	442187	16.4	19.9	31240	16.5	17.2
202770	16.2	20.1	131453	16.2	19.3	518433	16.3	21.2	157851	16.4	19.3	256361	16.4	20.8	388037	16.5	20.1
233817	16.2	20.5	480807	16.2	21.1	224980	16.3	19.8	178773	16.4	18.8	440027	16.4	20.8	262226	16.5	20.2
373879	16.2	21.0	302934	16.2	20.0	84904	16.3	18.9	272421	16.4	19.8	197508	16.4	19.7	109442	16.5	17.8
487892	16.2	21.1	176443	16.2	20.3	45268	16.3	19.2	231131	16.4	20.0	135864	16.4	18.9	459342	16.5	21.5
483331	16.2	20.9	33502	16.2	18.4	445618	16.3	20.0	441537	16.4	21.6	81461	16.4	19.4	467025	16.5	20.7
114636	16.2	18.6	467271	16.2	20.3	236978	16.3	19.7	162043	16.4	20.9	326576	16.4	20.8	422574	16.5	20.6
229457	16.2	19.3	9808	16.2	16.9	206596	16.3	20.2	309562	16.4	19.4	458661	16.4	20.1	271817	16.5	19.9
155128	16.2	19.4	20250	16.2	18.2	354284	16.3	21.4	447160	16.4	20.3	174963	16.4	20.1	118596	16.5	18.8
157750	16.2	20.1	396351	16.2	20.0	292848	16.3	20.1	418780	16.4	19.9	403990	16.4	20.7	196617	16.5	19.6
183117	16.2	19.7	162343	16.2	19.1	334493	16.3	20.7	423368	16.4	19.6	203688	16.4	19.4	512046	16.5	20.3
50082	16.2	17.8	486303	16.2	21.1	198325	16.3	20.0	95957	16.4	17.8	339386	16.4	19.1	312589	16.5	20.1
68963	16.2	18.7	238107	16.2	20.4	203126	16.3	19.0	378511	16.4	20.8	394151	16.4	22.4	56675	16.5	19.4
196425	16.2	20.1	339820	16.2	21.4	216899	16.3	20.5	76747	16.4	17.8	207327	16.4	20.2	168633	16.5	19.1
398185	16.2	19.1	416335	16.2	21.4	142022	16.3	20.0	155145	16.4	20.5	132665	16.4	20.0	73205	16.5	18.9
434512	16.2	21.6	401906	16.2	21.7	76948	16.3	19.0	455634	16.4	19.7	112897	16.4	19.1	311857	16.5	19.2
95327	16.2	18.9	49394	16.2	17.8	361209	16.3	20.6	79760	16.4	20.1	363599	16.4	24.0	485244	16.5	21.2
129937	16.2	19.1	84777	16.2	18.8	318034	16.3	20.9	309917	16.4	20.1	62208	16.4	19.1	422164	16.5	21.9
495752	16.2	20.9	543332	16.2	21.0	520813	16.3	21.0	32433	16.4	17.8	256383	16.4	20.1	119390	16.5	19.4
176242	16.2	19.2	393481	16.2	21.1	495680	16.3	20.6	144424	16.4	19.5	69032	16.4	19.1	33814	16.5	18.7
233861	16.2	20.5	268684	16.2	19.7	213135	16.3	19.5	384424	16.4	19.2	466450	16.4	20.6	515165	16.5	20.9
137842	16.2	18.9	270768	16.2	21.0	80576	16.3	18.6	422183	16.4	20.7	145907	16.4	19.3	495520	16.5	20.4
434119	16.2	21.1	144238	16.2	19.7	275263	16.3	19.3	58211	16.4	19.1	373104	16.4	19.8	391887	16.5	20.3
416731	16.2	20.4	272913	16.2	20.3	152205	16.3	19.1	352810	16.4	20.5	79695	16.4	19.3	249841	16.5	20.8
302525	16.2	21.0	168459	16.2	19.6	16766	16.3	16.3	479401	16.4	20.4	26651	16.4	17.7	224886	16.5	18.9
9981	16.2	17.2	481087	16.2	21.2	76194	16.3	18.7	181217	16.4	21.3	514890	16.4	20.9	182171	16.5	20.0
171341	16.2	20.4	411521	16.2	20.3	420936	16.3	20.5	485139	16.4	21.7	423837	16.4	20.7	107639	16.5	18.8
5304	16.2	16.2	219238	16.2	19.7	518997	16.3	20.1	253614	16.4	20.0	197388	16.4	19.4	345784	16.5	20.2
81495	16.2	19.2	182591	16.2	20.3	431274	16.3	21.1	209778	16.4	19.9	101774	16.4	19.4	495155	16.5	21.4
247974	16.2	19.7	61809	16.2	18.8	349122	16.3	21.4	153362	16.4	20.4	416357	16.4	20.9	55321	16.5	18.8
124537	16.2	18.6	460782	16.2	21.1	136492	16.3	19.3	125390	16.4	19.5	201008	16.4	19.5	278822	16.5	20.3
419444	16.2	20.3	288371	16.2	19.9	323359	16.3	21.5	240151	16.4	20.3	335645	16.4	21.5	353505	16.5	20.0
3477	16.2	16.4	195640	16.2	18.6	46591	16.3	16.7	233802	16.4	20.0	116153	16.5	19.1	241802	16.5	19.5
443725	16.2	20.8	514181	16.2	21.4	407836	16.3	19.1	47739	16.4	17.4	364957	16.5	20.4	11754	16.5	17.9
404527	16.2	21.2	238000	16.2	20.2	120526	16.3	20.8	24375	16.4	16.4	88596	16.5	18.4	540000	16.5	20.9
495279	16.2	21.3	445687	16.2	20.5	101463	16.3	18.2	486884	16.4	21.4	378809	16.5	20.5	448969	16.5	20.1
151300	16.2	19.5	222397	16.2	19.7	231214	16.3	19.2	483427	16.4	20.8	208302	16.5	19.0	161853	16.5	18.5
490466	16.2	21.1	37703	16.2	18.8	164917	16.3	19.2	49844	16.4	18.4	162336	16.5	20.3	281102	16.5	20.1
368296	16.2	20.1	17333	16.2	17.8	357697	16.3	20.9	222985	16.4	20.6	163566	16.5	18.9	187162	16.5	20.1
84646	16.2	18.6	302537	16.2	20.4	323323	16.3	20.2	113921	16.4	19.1	265923	16.5	20.1	335278	16.5	21.3
321451	16.2	19.8	48715	16.2	17.7	270782	16.3	20.1	33699	16.4	17.8	494093	16.5	20.3	488716	16.5	20.0
521653	16.2	20.2	113767	16.2	19.4	50253	16.3	18.5	315823	16.4	20.2	367359	16.5	19.9	187186	16.5	20.2
518964	16.2	21.0	428138	16.2	20.9	283772	16.3	20.5	371823								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
467036	16.5	20.6	124664	16.6	20.2	113422	16.7	19.0	153577	16.7	19.7	316120	16.8	21.3	82188	16.9	18.6
381050	16.5	19.6	489291	16.6	20.3	293804	16.7	21.0	250651	16.7	20.7	409315	16.8	20.6	308013	16.9	19.7
514351	16.5	20.3	103879	16.6	18.5	80974	16.7	19.2	26751	16.7	19.0	50532	16.8	18.4	269203	16.9	20.8
378548	16.5	19.7	543751	16.6	21.0	149681	16.7	20.7	7897	16.7	18.9	499878	16.8	21.2	81927	16.9	19.3
139329	16.5	19.5	434398	16.6	20.3	161702	16.7	19.4	175006	16.7	19.8	327495	16.8	20.4	401482	16.9	20.7
36025	16.5	19.0	448297	16.6	20.8	183324	16.7	20.0	116804	16.7	20.6	397516	16.8	21.2	455431	16.9	21.0
171745	16.5	20.6	361275	16.6	20.6	147192	16.7	19.6	486277	16.7	20.6	382644	16.8	21.0	519522	16.9	21.3
104363	16.5	19.1	359191	16.6	19.1	348669	16.7	19.5	363966	16.7	21.2	81008	16.8	19.2	254790	16.9	20.4
427063	16.5	19.9	228455	16.6	20.0	367435	16.7	20.8	494097	16.7	20.0	445235	16.8	20.1	263932	16.9	21.9
462959	16.5	21.1	482683	16.6	20.1	198140	16.7	21.3	332563	16.7	21.1	217234	16.8	18.2	295263	16.9	20.2
104776	16.5	18.8	477390	16.6	21.0	392250	16.7	19.4	50809	16.7	17.5	211726	16.8	19.4	293675	16.9	19.2
111036	16.5	19.0	542041	16.6	21.4	483133	16.7	20.2	72755	16.7	18.7	128067	16.8	18.9	89999	16.9	18.5
31433	16.5	18.2	292393	16.6	20.2	364362	16.7	20.4	243953	16.7	19.8	20616	16.8	17.2	96662	16.9	18.5
983	16.5	14.2	499135	16.6	19.7	244860	16.7	19.9	82299	16.7	19.3	278014	16.8	21.2	388930	16.9	21.1
484412	16.5	20.0	58616	16.6	20.0	316421	16.7	20.3	403586	16.7	19.6	442405	16.8	21.8	380036	16.9	21.0
271561	16.5	20.4	403563	16.6	20.4	54171	16.7	18.4	173154	16.8	20.0	108753	16.8	18.3	446740	16.9	21.1
342149	16.5	20.9	306163	16.6	20.2	252522	16.7	19.8	81650	16.8	17.5	484353	16.8	21.5	9561	16.9	17.6
59051	16.5	18.6	370598	16.6	19.8	305193	16.7	19.5	419449	16.8	19.2	103375	16.8	18.8	281483	16.9	20.6
21521	16.5	16.2	254704	16.6	20.3	392284	16.7	19.4	364286	16.8	20.5	236951	16.8	19.1	127403	16.9	20.2
391487	16.5	19.9	281162	16.6	19.2	156040	16.7	19.2	396894	16.8	19.1	186076	16.8	19.5	46491	16.9	18.6
79711	16.5	19.0	191411	16.6	19.8	351046	16.7	20.6	458578	16.8	20.3	55811	16.8	19.2	243691	16.9	20.5
74686	16.5	18.8	272073	16.6	20.1	116552	16.7	19.1	216361	16.8	19.7	464070	16.8	19.8	97123	16.9	19.5
113940	16.5	18.0	252497	16.6	19.7	122802	16.7	18.4	207100	16.8	19.1	320250	16.8	20.5	247210	16.9	19.9
191339	16.5	19.9	172218	16.6	19.1	28532	16.7	18.4	334881	16.8	21.2	52364	16.8	18.3	472492	16.9	20.3
185893	16.5	20.3	87357	16.6	18.1	419435	16.7	19.8	256733	16.8	20.6	84020	16.8	18.8	20859	16.9	17.1
268200	16.5	19.4	516700	16.6	21.1	436880	16.7	21.0	168593	16.8	18.7	23041	16.8	18.2	279373	16.9	19.7
477820	16.5	20.2	31855	16.6	19.3	7721	16.7	18.5	150473	16.8	20.0	267132	16.8	19.8	294680	16.9	20.5
133708	16.5	19.3	109738	16.6	19.3	143081	16.7	18.8	366563	16.8	21.3	191560	16.8	19.7	239596	16.9	20.0
167599	16.5	19.0	276422	16.6	19.5	404249	16.7	20.6	407418	16.8	21.3	46913	16.8	19.0	427107	16.9	20.4
274371	16.6	19.7	275085	16.6	20.4	382140	16.7	20.7	29927	16.8	17.5	155911	16.8	18.7	510788	16.9	19.5
541434	16.6	20.2	401737	16.6	20.0	487824	16.7	20.4	319477	16.8	20.5	52906	16.8	19.0	479460	16.9	19.4
55137	16.6	17.6	398127	16.6	20.5	277617	16.7	20.9	360634	16.8	20.2	218375	16.8	20.8	413275	16.9	19.8
462469	16.6	20.4	184765	16.6	20.3	327672	16.7	21.1	213361	16.8	20.5	333735	16.8	20.8	30906	16.9	18.3
165670	16.6	20.6	380962	16.6	20.9	100327	16.7	20.1	358717	16.8	19.5	517762	16.8	21.6	279528	16.9	19.9
326770	16.6	21.3	445645	16.6	21.7	328032	16.7	20.0	494522	16.8	20.1	141713	16.8	19.9	217394	16.9	20.2
488456	16.6	21.6	388063	16.6	19.4	107899	16.7	19.4	117796	16.8	18.3	64669	16.8	18.3	161783	16.9	20.2
216213	16.6	20.1	349626	16.6	20.3	492855	16.7	20.8	450658	16.8	20.8	256346	16.8	19.5	474202	16.9	22.0
410789	16.6	21.4	51527	16.6	19.7	227766	16.7	20.7	518543	16.8	20.4	277054	16.8	19.6	144662	16.9	18.9
103621	16.6	18.6	165717	16.6	19.9	516922	16.7	21.7	78256	16.8	18.3	280484	16.8	19.9	379027	16.9	23.1
236367	16.6	20.0	333513	16.6	20.8	107476	16.7	18.8	2504	16.8	15.3	230773	16.8	19.0	119080	16.9	19.7
86964	16.6	20.1	216998	16.6	20.5	107664	16.7	19.1	74465	16.8	18.7	66537	16.8	18.9	458060	16.9	20.1
233812	16.6	20.7	309976	16.6	19.8	197829	16.7	20.3	248203	16.8	19.6	457406	16.8	20.7	434574	16.9	21.4
307686	16.6	20.4	185875	16.6	18.8	179269	16.7	19.3	487188	16.8	20.6	163210	16.8	20.4	495726	16.9	20.6
97355	16.6	18.3	67388	16.6	19.3	109490	16.7	18.3	416533	16.8	19.8	290068	16.8	21.5	195723	16.9	20.1
196338	16.6	19.6	210655	16.6	20.1	249261	16.7	19.4	337915	16.8	20.0	142514	16.8	19.7	396665	16.9	21.3
441130	16.6	21.7	12353	16.6	17.4	223559	16.7	19.9	45445	16.8	17.8	38245	16.8	18.7	485560	16.9	19.0
399524	16.6	20.0	270771	16.6	20.5	515749	16.7	21.1	541536	16.8	22.5	379674	16.8	21.0	225020	16.9	20.8
448799	16.6	21.5	275186	16.6	20.2	233179	16.7	19.0	399206	16.8	20.2	336981	16.8	19.9	484299	16.9	19.4
334222	16.6	19.3	277077	16.6	20.2	139115	16.7	20.1	195736	16.8	19.8	523491	16.8	20.6	448798	16.9	20.8
202545	16.6	20.0	402654	16.6	21.0	48240	16.7	18.3	495430	16.8	20.2	18787	16.8	18.0	344903	16.9	20.8
335363	16.6	19.2	399491	16.6	21.2	96568	16.7	18.5	449480	16.8	20.0	85964	16.8	18.9	179343	16.9	19.7
359702	16.6	20.6	206599	16.6	19.7	457456	16.7	21.4	544443	16.8	20.8	14513	16.8	17.4	399459	16.9	21.3
101471	16.6	18.9	518994	16.6	20.4	372784	16.7	19.7	226168	16.8	20.3	485618	16.8	20.0	2321	16.9	16.2
336735	16.6	18.7	17293	16.6	17.0	204954	16.7	20.3	249925	16.8	20.9	28893	16.9	16.9	89388	16.9	20.0
265165	16.6	18.7	208006	16.6	20.0	461631	16.7	21.1	196388	16.8	19.2	342068	16.9	20.6	244630	16.9	19.6
14547	16.6	18.8	227051	16.6	19.8	44367	16.7	18.0	173352	16.8	18.4	234059	16.9	19.8	510019	16.9	19.5
177489	16.6	18.9	143350	16.6	18.6	248302	16.7	20.7	326891	16.8	20.9	354635	16.9	20.3	28600	16.9	18.5
49971	16.6	18.1	114329	16.6	19.2	183509	16.7	19.8	227995	16.8	20.1	189418	16.9	19.7	88536	16.9	19.4
42749	16.6	18.5	389462	16.6	19.8	530437	16.7	21.7	26521	16.8	18.7	252085	16.9	20.8	474387	16.9	21.4
232975	16.6	19.5	228166	16.6	20.6	88810	16.7	19.2	74323	16.8	17.5	399018	16.9	20.5	396691	16.9	21.2
407414	16.6	20.6	298477	16.6	20.9	373986	16.7	19.4	28289	16.8	18.1	171605	16.9	18.9	50259	16.9	18.0
356399	16.6	21.2	454555	16.6	21.1	72929	16.7	19.2	517432	16.8	21.9	77263	16.9	18.1	186726	16.9	19.9
315607	16.6	19.4	112228	16.6	20.4	261022	16.7	19.7	76212	16.8	18.7	16975	16.9	17.5	295137	16.9	20.4
99569	16.6	18.4	159902	16.7	21.0	132918	16.7	19.3	477466	16.8	20.1	310803	16.9	20.6	362375	16.9	21.0
518044	16.6	21.6	66719	16.7	17.7	320590	16.7	19.9	371327	16.8	20.5	422856	16.9	21.4	272047	16.9	20.2
305140	16.6	19.9	124735	16.7	18.4	112391	16.7	18.9	413764	16.8	20.0	189506	16.9	19.0	178552	16.9	19.7
334956	16.6	20.3	402319	16.7	21.2	246920	16.7	20.2	387587	16.8	20.4	514358	16.9	21.3	73828	16.9	18.5
407452	16.6	20.5	394118	16.7	19.9	167563	16.7	17.9	277918	16.8	19.3	262860	16.9	19.8	57499	16.9	17.8
410635	16.6	20.3	232699	16.7	18.9	454349	16.7	20.9	514437	16.8							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
422453	16.9	20.4	210517	17.0	20.2	270802	17.1	20.7	183100	17.1	19.1	461553	17.2	19.9	323501	17.3	20.1
450822	16.9	20.4	294036	17.0	20.4	340191	17.1	20.5	290062	17.1	20.3	228134	17.2	20.2	298026	17.3	19.2
274125	16.9	20.6	13115	17.0	17.5	88373	17.1	18.4	374244	17.1	21.7	117411	17.2	19.0	230010	17.3	19.4
295105	16.9	19.5	436626	17.0	21.2	185595	17.1	20.3	113974	17.1	19.7	244715	17.2	20.3	196154	17.3	20.7
150410	16.9	18.9	74334	17.0	19.5	541080	17.1	21.5	184761	17.1	19.3	257857	17.2	21.4	333523	17.3	21.0
364372	16.9	19.4	515151	17.0	21.2	512014	17.1	20.3	31157	17.1	18.1	438772	17.2	20.7	160869	17.3	20.8
292357	16.9	21.3	452079	17.0	19.2	283274	17.1	20.2	375076	17.1	20.5	279525	17.2	20.1	474440	17.3	22.0
262426	16.9	20.5	541527	17.0	21.2	257009	17.1	20.5	483550	17.1	20.6	10655	17.2	18.0	169794	17.3	19.9
344147	16.9	20.4	247299	17.0	20.0	279805	17.1	19.0	137099	17.1	19.2	451938	17.2	21.2	165855	17.3	20.1
290495	16.9	20.5	97649	17.0	18.0	46388	17.1	17.9	446965	17.1	21.2	364948	17.2	20.0	464575	17.3	20.2
24791	16.9	18.3	154786	17.0	20.1	206602	17.1	19.3	450023	17.1	21.8	85979	17.2	18.8	447769	17.3	21.4
230965	16.9	19.8	290018	17.0	20.3	134734	17.1	18.1	231031	17.1	18.3	387860	17.2	20.8	189879	17.3	19.0
429293	16.9	19.9	442349	17.0	21.2	281500	17.1	21.1	405597	17.1	20.8	275167	17.2	19.1	455499	17.3	20.9
277047	16.9	20.2	65739	17.0	18.6	65370	17.1	18.0	278635	17.1	21.3	458484	17.2	20.4	451490	17.3	20.0
454937	16.9	20.9	91830	17.0	18.5	170892	17.1	20.3	289560	17.1	19.7	196358	17.2	19.3	290886	17.3	20.1
307091	16.9	19.6	221601	17.0	19.0	385669	17.1	19.9	350869	17.1	21.0	96876	17.2	18.4	187495	17.3	19.7
372095	16.9	20.4	195981	17.0	20.5	76118	17.1	18.3	61944	17.1	18.8	521980	17.2	19.8	395046	17.3	20.8
355087	16.9	20.8	517814	17.0	21.2	371296	17.1	21.1	152369	17.1	20.1	311836	17.2	20.7	155696	17.3	20.5
276187	16.9	20.9	302910	17.0	19.3	233194	17.1	19.5	458679	17.1	20.7	185532	17.2	20.0	110407	17.3	18.8
287310	16.9	21.1	421585	17.0	21.5	404349	17.1	20.8	515477	17.2	20.2	79050	17.2	18.7	9847	17.3	17.3
80273	16.9	18.9	441281	17.0	20.7	331740	17.1	21.0	113558	17.2	18.8	57737	17.2	19.4	78766	17.3	18.6
281168	16.9	20.8	143364	17.0	18.4	52684	17.1	18.0	17287	17.2	17.4	22045	17.2	17.4	296765	17.3	19.5
164039	16.9	20.6	30544	17.0	18.5	36526	17.1	19.2	161541	17.2	20.2	486544	17.2	20.4	483613	17.3	21.5
158391	16.9	20.8	495058	17.0	20.7	165796	17.1	20.7	21257	17.2	18.3	232251	17.2	20.6	67220	17.3	19.0
321508	16.9	20.0	370289	17.0	19.8	513132	17.1	20.5	481800	17.2	20.3	110384	17.2	18.7	316544	17.3	20.5
181161	16.9	19.9	279389	17.0	18.9	210036	17.1	20.0	185039	17.2	20.2	342013	17.2	20.7	282619	17.3	20.7
441265	16.9	21.1	46059	17.0	18.7	308790	17.1	19.9	403079	17.2	18.8	149509	17.2	18.8	221989	17.3	19.1
32813	16.9	17.0	459384	17.0	20.8	449020	17.1	19.7	96923	17.2	17.7	516222	17.2	20.7	509013	17.3	20.9
390232	16.9	20.6	79578	17.0	19.3	11846	17.1	16.3	182707	17.2	19.6	82662	17.2	20.0	522065	17.3	21.4
361232	16.9	20.4	46808	17.0	19.0	362196	17.1	20.8	124543	17.2	18.8	215310	17.2	20.7	294777	17.3	20.5
390061	16.9	21.2	213987	17.0	18.7	372980	17.1	19.9	266685	17.2	20.0	368826	17.2	19.9	83075	17.3	19.2
68433	16.9	19.3	475149	17.0	20.8	149032	17.1	19.1	357457	17.2	21.4	499244	17.2	20.0	441168	17.3	20.7
418747	16.9	20.6	26562	17.0	18.7	22842	17.1	18.0	67928	17.2	18.7	142629	17.2	19.4	418426	17.3	21.1
177779	16.9	18.8	226382	17.0	19.4	30366	17.1	17.0	154102	17.2	19.5	142745	17.2	18.7	56081	17.3	18.5
517909	16.9	20.8	464539	17.0	19.7	89303	17.1	19.0	439517	17.2	20.3	313227	17.2	19.7	236065	17.3	19.1
244936	16.9	19.3	330331	17.0	19.8	96571	17.1	18.5	113409	17.2	19.0	151789	17.2	20.1	388117	17.3	19.6
281581	16.9	19.8	165037	17.0	20.7	459923	17.1	21.1	519036	17.2	20.5	406710	17.2	20.2	543006	17.3	20.9
17161	16.9	18.5	480447	17.0	20.1	58885	17.1	19.7	80836	17.2	18.9	114974	17.2	19.4	232088	17.3	19.6
316262	16.9	20.4	278496	17.0	19.4	302656	17.1	20.9	401635	17.2	21.6	213368	17.2	21.1	252324	17.3	20.3
269333	16.9	20.9	354134	17.0	19.1	333176	17.1	20.3	349576	17.2	22.0	281996	17.2	20.3	232627	17.3	19.5
488005	16.9	21.3	88420	17.0	18.8	523483	17.1	21.1	464120	17.2	20.1	492550	17.2	20.1	516857	17.3	20.6
266101	16.9	19.3	226675	17.0	19.2	227732	17.1	20.1	32160	17.2	17.5	328506	17.2	21.0	252379	17.3	18.8
196172	16.9	19.2	382648	17.0	20.5	108002	17.1	19.7	122128	17.2	19.6	466449	17.2	21.3	477889	17.3	20.3
231589	16.9	19.6	94676	17.0	18.9	168043	17.1	19.4	125350	17.2	19.2	220184	17.2	19.7	267105	17.3	18.5
495049	16.9	20.3	402714	17.0	19.6	350868	17.1	21.4	132881	17.2	19.0	340575	17.2	21.1	275798	17.3	19.7
128638	16.9	19.6	218146	17.0	19.4	421255	17.1	21.0	466234	17.2	21.4	287009	17.2	19.5	201481	17.3	20.1
450183	16.9	20.6	196970	17.0	19.1	415437	17.1	20.2	346300	17.2	20.6	109610	17.2	18.5	480207	17.3	19.9
273178	16.9	20.7	396930	17.0	20.7	394176	17.1	21.8	193170	17.2	19.2	382668	17.2	19.8	351358	17.3	20.5
208816	16.9	20.7	415411	17.0	20.2	243892	17.1	19.1	141513	17.2	19.3	453421	17.2	20.9	517596	17.3	20.1
197320	16.9	19.8	230451	17.0	20.0	493787	17.1	19.3	523258	17.2	21.1	198981	17.2	19.5	309531	17.3	20.1
142669	16.9	18.3	256020	17.0	21.3	13377	17.1	16.7	421186	17.2	20.6	249848	17.2	20.4	73262	17.3	20.2
397989	16.9	18.6	249845	17.0	20.5	108218	17.1	18.7	155410	17.2	18.7	139052	17.2	19.6	113033	17.3	19.6
276840	16.9	20.9	427530	17.1	21.0	441037	17.1	21.9	322923	17.2	19.2	443636	17.2	19.8	475470	17.3	20.7
229592	16.9	20.4	494914	17.1	20.4	325346	17.1	20.6	111093	17.2	18.5	340936	17.2	19.8	55326	17.3	17.7
386705	16.9	21.2	517779	17.1	21.1	409059	17.1	19.5	369217	17.2	20.2	90058	17.2	18.6	178258	17.3	19.9
99869	16.9	18.8	144737	17.1	18.4	372054	17.1	20.8	147280	17.2	18.4	23163	17.2	19.0	324813	17.3	20.1
28430	16.9	18.8	212160	17.1	20.3	282937	17.1	20.3	154627	17.2	19.3	267902	17.3	19.4	486352	17.3	20.6
465522	16.9	20.6	320778	17.1	20.3	466931	17.1	20.6	416739	17.2	19.8	270461	17.3	18.9	305089	17.3	19.8
404709	16.9	20.2	73463	17.1	18.3	304143	17.1	21.1	355533	17.2	20.0	208824	17.3	19.5	453642	17.3	21.0
261045	16.9	20.5	271374	17.1	19.6	233722	17.1	19.5	514889	17.2	21.1	47682	17.3	18.7	266090	17.3	19.3
137308	16.9	18.5	337595	17.1	21.1	208764	17.1	19.2	384284	17.2	19.7	196509	17.3	19.5	346948	17.3	19.7
280522	16.9	21.0	341036	17.1	19.9	262007	17.1	19.4	33952	17.2	17.2	278059	17.3	18.9	242797	17.3	19.3
59056	16.9	19.1	486297	17.1	20.9	125040	17.1	17.6	445221	17.2	20.3	420938	17.3	19.9	144570	17.3	18.7
148228	16.9	18.6	462516	17.1	20.6	547	17.1	13.7	71486	17.2	19.2	271115	17.3	20.6	454710	17.3	20.8
269451	16.9	19.7	244095	17.1	21.0	402735	17.1	19.9	360877	17.2	21.0	331026	17.3	19.6	71108	17.3	18.5
6566	17.0	16.9	519424	17.1	19.2	81447	17.1	19.8	474833	17.2	21.1	41190	17.3	18.7	256546	17.3	19.5
494471	17.0	20.5	368555	17.1	19.2	515761	17.1	21.4	165885	17.2	19.9	39175	17.3	18.5	388929	17.3	21.1
309561	17.0	18.8	159206	17.1	19.6	441609	17.1	20.9	166133	17.2	20.5	372527	17.3	19.2	450383	17.3	20.1
220414	17.0	18.6	158791	17.1	19.9	254665	17.1	19.4									

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
411531	17.3	20.3	115266	17.4	18.8	471993	17.5	20.7	63815	17.5	18.1	279340	17.6	18.7	260301	17.7	20.3
367432	17.3	20.8	336991	17.4	21.1	439076	17.5	21.0	170952	17.5	19.6	252722	17.6	18.8	268645	17.7	20.0
479327	17.3	20.4	488221	17.4	20.1	118898	17.5	19.0	172998	17.5	20.8	275076	17.6	19.7	388129	17.7	19.5
495749	17.3	20.9	144386	17.4	19.5	208074	17.5	19.8	261569	17.5	19.0	253306	17.6	19.4	392508	17.7	20.9
352831	17.3	19.8	152543	17.4	18.8	96535	17.5	17.8	64258	17.5	18.4	108951	17.6	18.2	8096	17.7	17.5
92877	17.3	17.7	55174	17.4	17.6	391811	17.5	20.6	340171	17.5	18.8	127450	17.6	20.0	32908	17.7	17.1
366235	17.3	20.0	83889	17.4	19.8	292436	17.5	20.1	460511	17.5	19.8	305836	17.6	20.4	486419	17.7	21.5
402261	17.3	21.7	24991	17.4	18.9	52277	17.5	19.0	228243	17.5	20.4	23280	17.6	17.4	238719	17.7	20.3
184684	17.3	19.9	295460	17.4	20.9	544840	17.5	20.6	366034	17.5	20.0	516703	17.6	21.2	444735	17.7	21.5
276731	17.3	20.3	452635	17.4	21.0	460982	17.5	20.2	199242	17.5	19.3	134136	17.6	19.4	384637	17.7	19.7
332405	17.3	20.9	241912	17.4	19.0	225633	17.5	19.1	286607	17.5	19.1	147891	17.6	20.1	486331	17.7	20.8
11957	17.3	16.4	255044	17.4	20.5	520424	17.5	21.5	182476	17.5	19.3	418586	17.6	21.1	60835	17.7	19.4
407907	17.3	20.3	447840	17.4	22.2	394117	17.5	19.3	361811	17.5	21.1	24664	17.6	18.0	273206	17.7	20.5
95779	17.3	18.3	139139	17.4	20.8	418596	17.5	19.7	544622	17.5	21.4	466365	17.6	20.7	77695	17.7	18.9
283338	17.3	21.0	269902	17.4	21.4	481187	17.5	21.2	137288	17.5	19.6	36263	17.6	18.4	113809	17.7	18.8
544279	17.3	21.7	86444	17.4	17.8	249883	17.5	20.1	123951	17.5	18.5	81772	17.6	18.1	341041	17.7	19.9
421645	17.3	20.9	108343	17.4	19.7	345511	17.5	19.8	394600	17.5	20.4	227258	17.6	18.9	464162	17.7	19.7
372250	17.3	21.0	185792	17.4	19.2	295916	17.5	20.9	40820	17.6	18.7	3018	17.6	16.5	447491	17.7	20.6
144034	17.3	19.2	519763	17.4	20.6	110705	17.5	18.8	69391	17.6	19.2	30693	17.6	17.4	454457	17.7	20.7
541523	17.4	20.9	271901	17.4	19.7	15823	17.5	17.4	350054	17.6	21.4	454260	17.6	20.5	456043	17.7	19.9
400066	17.4	20.1	228704	17.4	19.6	30752	17.5	19.1	160536	17.6	20.0	217511	17.6	20.3	488051	17.7	20.2
33592	17.4	18.2	422611	17.4	20.5	522175	17.5	20.6	401455	17.6	21.1	95450	17.6	17.8	324722	17.7	20.8
411151	17.4	20.2	444793	17.4	22.2	436202	17.5	20.9	185356	17.6	20.9	403052	17.6	20.1	282000	17.7	19.9
486934	17.4	21.2	518076	17.4	20.7	191187	17.5	19.0	378946	17.6	19.6	142293	17.6	20.4	114092	17.7	18.1
322006	17.4	21.3	274118	17.4	20.1	197952	17.5	19.4	38343	17.6	18.5	356727	17.6	20.7	43774	17.7	17.5
108129	17.4	19.4	138143	17.4	19.3	129098	17.5	19.0	207636	17.6	19.7	503305	17.6	19.3	149446	17.7	19.3
251066	17.4	19.0	46457	17.4	18.8	303061	17.5	19.6	283308	17.6	20.6	139397	17.6	20.2	331700	17.7	20.8
271270	17.4	19.8	411563	17.4	20.2	5681	17.5	16.9	311299	17.6	20.4	271613	17.6	21.2	31120	17.7	19.1
159707	17.4	20.1	520186	17.4	21.2	271517	17.5	19.8	191640	17.6	20.0	207517	17.6	20.3	447424	17.7	21.9
380144	17.4	18.6	386677	17.4	19.0	333853	17.5	21.0	41387	17.6	18.7	460315	17.6	21.1	90696	17.7	18.6
371334	17.4	20.5	363880	17.4	20.7	434349	17.5	20.6	301820	17.6	20.8	287489	17.6	19.1	197712	17.7	19.6
453824	17.4	20.3	96820	17.4	19.4	178448	17.5	20.0	135658	17.6	20.1	506146	17.6	19.9	138214	17.7	18.3
136027	17.4	19.4	248790	17.4	19.9	160053	17.5	19.8	464510	17.6	20.7	189722	17.6	19.2	515287	17.7	21.8
267574	17.4	20.7	34689	17.4	18.8	456313	17.5	20.8	457853	17.6	20.4	117610	17.6	19.9	314871	17.7	20.1
14365	17.4	18.9	18887	17.4	17.6	197342	17.5	19.1	277227	17.6	20.3	375530	17.6	20.2	456188	17.7	21.4
464056	17.4	21.1	101660	17.4	18.0	257414	17.5	20.5	13389	17.6	18.1	398567	17.6	21.3	309620	17.7	19.9
107124	17.4	18.8	66505	17.4	18.2	443846	17.5	20.7	183926	17.6	19.9	48390	17.6	19.3	246800	17.7	20.4
196	17.4	10.9	345447	17.4	20.3	90857	17.5	19.8	523451	17.6	20.5	271092	17.6	19.7	229320	17.7	20.4
244976	17.4	20.4	474389	17.4	21.5	523965	17.5	22.2	238246	17.6	20.6	64812	17.6	19.5	216993	17.7	19.5
361305	17.4	21.1	952	17.4	13.5	299012	17.5	19.0	416699	17.6	19.4	254641	17.6	21.4	335424	17.7	20.5
251096	17.4	21.0	197852	17.4	20.9	335967	17.5	21.0	249945	17.6	20.1	269410	17.6	19.6	516249	17.7	20.7
512550	17.4	20.3	230730	17.4	20.0	284027	17.5	21.0	8167	17.6	15.8	138178	17.6	19.3	326554	17.7	20.9
352771	17.4	19.6	292230	17.4	19.3	236998	17.5	20.1	432966	17.6	21.3	486192	17.6	20.3	400918	17.7	20.2
328568	17.4	20.4	459460	17.4	19.7	126281	17.5	19.1	139476	17.6	19.4	270281	17.6	19.9	76012	17.7	18.4
97344	17.4	18.4	216049	17.4	20.8	254083	17.5	20.3	358115	17.6	20.6	397909	17.6	20.9	260420	17.7	19.7
319466	17.4	19.9	276865	17.4	20.3	139726	17.5	19.0	359507	17.6	20.6	156878	17.6	17.3	80938	17.7	17.7
402655	17.4	20.3	262064	17.4	20.8	516203	17.5	21.0	329870	17.6	21.0	46013	17.6	18.3	51808	17.7	16.7
158677	17.4	19.8	131691	17.4	18.9	135733	17.5	18.6	209773	17.6	19.8	277125	17.6	20.9	43135	17.7	18.2
232745	17.4	19.6	193125	17.4	21.0	295646	17.5	20.0	31468	17.6	17.2	201310	17.6	20.3	271295	17.7	19.0
64828	17.4	18.3	268783	17.4	20.1	94669	17.5	17.7	327654	17.6	20.8	486377	17.6	18.9	216983	17.7	21.0
495786	17.4	21.2	335678	17.4	21.6	53381	17.5	18.4	453641	17.6	21.2	341943	17.6	20.9	271430	17.7	19.1
127375	17.4	20.0	385649	17.4	20.4	175541	17.5	19.8	418674	17.6	20.8	114410	17.6	19.4	19839	17.7	19.0
457929	17.4	21.4	419175	17.4	20.3	419944	17.5	20.0	40148	17.6	18.9	302639	17.6	20.3	300836	17.7	19.4
440014	17.4	20.1	66054	17.4	18.6	71297	17.5	16.7	486471	17.6	19.9	236362	17.6	19.3	410591	17.7	19.9
25041	17.4	19.1	265932	17.4	20.6	484789	17.5	21.1	219190	17.6	20.2	455711	17.6	20.2	103421	17.7	18.2
1799	17.4	15.9	77947	17.4	19.2	102680	17.5	19.8	468860	17.6	19.6	454902	17.6	21.0	111037	17.7	19.5
49749	17.4	19.5	412329	17.4	21.6	491367	17.5	20.3	70979	17.6	18.1	455053	17.6	22.3	331819	17.7	19.5
424706	17.4	21.1	485165	17.5	21.1	316540	17.5	20.7	158793	17.6	20.0	94807	17.6	18.5	278624	17.7	20.4
129971	17.4	21.2	37364	17.5	20.3	7479	17.5	16.0	448133	17.6	21.4	461937	17.6	20.5	372309	17.7	20.1
516123	17.4	21.6	22900	17.5	17.9	418650	17.5	21.4	77380	17.6	17.9	462424	17.6	20.9	444476	17.7	19.5
169891	17.4	19.7	298476	17.5	20.0	483477	17.5	20.7	511612	17.6	20.6	223023	17.7	20.9	485766	17.7	20.2
115479	17.4	18.3	258640	17.5	19.6	177794	17.5	19.8	326772	17.6	19.9	42495	17.7	18.9	394959	17.7	20.2
226237	17.4	19.5	307939	17.5	18.6	262191	17.5	20.7	477813	17.6	19.9	8822	17.7	18.2	374650	17.7	20.3
214573	17.4	20.6	157136	17.5	19.9	267937	17.5	20.5	273711	17.6	21.2	515499	17.7	21.7	482000	17.7	20.1
295391	17.4	20.5	272304	17.5	20.1	215612	17.5	20.6	450696	17.6	21.2	176043	17.7	19.9	19345	17.7	18.1
261632	17.4	18.7	232343	17.5	19.7	416466	17.5	19.2	492726	17.6	21.1	390825	17.7	20.6	73892	17.7	19.0
248110	17.4	20.8	113098	17.5	20.7	46764	17.5	18.7	230025	17.6	20.6	115199	17.7	19.9	274068	17.7	20.3
483547	17.4	20.7	484573	17.5	21.2	522539	17.5	20.6	334106	17.6	20.4	290175	17.7	21.5	152155	17.7	18.9
189424	17.4	19.8	482490	17.5	20.4	178674	17.5	20.7	408522	17.							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
364918	17.7	20.2	305011	17.8	20.3	92591	17.9	20.0	83566	17.9	19.2	263197	17.9	19.3	460767	18.1	20.0
460041	17.7	21.0	137345	17.8	20.0	191567	17.9	19.1	66987	17.9	18.6	367901	17.9	19.6	133787	18.1	19.4
530028	17.7	21.7	52018	17.8	19.9	358640	17.9	19.4	282087	17.9	21.0	47317	17.9	18.2	202628	18.1	20.8
69822	17.7	18.6	24959	17.8	18.0	314991	17.9	20.0	457436	17.9	21.2	441187	17.9	20.8	475045	18.1	19.6
48075	17.7	19.4	101658	17.8	17.5	467176	17.9	20.1	396090	17.9	19.8	248884	18.0	20.8	193203	18.1	19.7
362249	17.7	20.4	221430	17.8	19.8	477397	17.9	20.3	391192	17.9	20.9	435468	18.0	22.2	143195	18.1	19.6
376354	17.7	20.5	121368	17.8	19.3	416182	17.9	21.2	108408	17.9	18.9	243928	18.0	20.8	185854	18.1	20.4
482510	17.7	20.7	304145	17.8	20.7	78756	17.9	18.8	270731	17.9	20.7	106912	18.0	18.9	256279	18.1	20.8
169666	17.7	19.4	274016	17.8	20.9	9703	17.9	18.2	386043	17.9	20.4	42476	18.0	19.0	172277	18.1	18.9
54286	17.7	18.7	399816	17.8	20.4	409329	17.9	20.8	411462	17.9	19.9	447489	18.0	21.0	479375	18.1	20.5
326654	17.7	20.9	171344	17.8	20.3	232024	17.9	19.5	278249	17.9	20.5	327761	18.0	20.6	428540	18.1	19.4
274058	17.7	20.9	506165	17.8	20.1	379755	17.9	20.5	158584	17.9	19.7	71520	18.0	18.6	346289	18.1	21.6
50904	17.7	19.6	189689	17.8	20.2	168427	17.9	17.8	195763	17.9	20.2	446792	18.0	20.7	367669	18.1	19.7
370838	17.7	19.8	23005	17.8	16.2	444910	17.9	20.6	139835	17.9	20.0	394419	18.0	20.7	349950	18.1	20.6
464698	17.7	20.6	286759	17.8	20.0	63726	17.9	18.4	74128	17.9	18.6	541345	18.0	21.3	517841	18.1	21.0
357651	17.7	20.7	22031	17.8	17.7	273228	17.9	20.3	373103	17.9	20.7	441571	18.0	21.3	180703	18.1	20.4
63306	17.7	19.2	68593	17.8	17.8	505349	17.9	20.6	104276	17.9	18.4	109392	18.0	19.8	353327	18.1	20.1
275793	17.7	20.2	303391	17.8	19.8	277413	17.9	19.7	290258	17.9	20.0	227092	18.0	19.4	72069	18.1	17.7
82138	17.7	18.7	519815	17.8	20.8	32975	17.9	19.3	105079	17.9	20.4	196839	18.0	19.0	48431	18.1	19.3
352308	17.7	21.0	441558	17.8	21.6	175855	17.9	19.3	383421	17.9	19.9	291205	18.0	19.7	403442	18.1	19.0
177326	17.7	19.1	127679	17.8	18.7	273460	17.9	20.1	44725	17.9	18.9	331737	18.0	21.1	158792	18.1	19.4
459898	17.7	18.8	362250	17.8	20.9	312391	17.9	20.5	452006	17.9	20.9	86538	18.0	18.5	34848	18.1	18.0
487100	17.7	20.7	291804	17.8	21.3	155526	17.9	20.7	245372	17.9	19.7	254987	18.0	21.5	157496	18.1	18.7
451510	17.7	19.6	174101	17.8	19.0	418775	17.9	20.8	523504	17.9	20.5	100112	18.0	19.1	111385	18.1	18.7
320876	17.7	20.6	311849	17.8	19.7	59299	17.9	17.7	523481	17.9	21.2	273199	18.0	20.2	454769	18.1	20.2
402733	17.7	20.8	233184	17.8	19.7	272272	17.9	20.0	120734	17.9	19.6	200422	18.0	19.7	71429	18.1	18.1
434122	17.8	20.3	25530	17.8	17.3	352985	17.9	20.4	364915	17.9	20.5	332418	18.0	21.4	87003	18.1	19.8
137135	17.8	18.2	265125	17.8	18.8	99004	17.9	18.2	197199	17.9	19.6	155076	18.0	20.1	54938	18.1	18.5
541234	17.8	20.2	393514	17.8	20.8	403669	17.9	21.4	244390	17.9	21.4	172888	18.0	20.2	56937	18.1	19.1
354623	17.8	20.7	487277	17.8	21.1	157938	17.9	19.1	263118	17.9	20.0	182137	18.0	19.7	176572	18.1	19.4
1076	17.8	14.4	294401	17.8	20.3	32018	17.9	18.6	511492	17.9	19.9	108928	18.0	18.6	314874	18.1	19.7
328460	17.8	21.1	356574	17.8	20.3	75931	17.9	17.8	395513	17.9	21.7	47832	18.0	18.5	330302	18.1	20.7
338042	17.8	20.0	13772	17.8	17.1	124135	17.9	19.9	109155	17.9	19.4	216235	18.0	20.5	273561	18.1	19.2
178358	17.8	20.1	84508	17.8	18.7	160471	17.9	18.7	383459	17.9	19.7	270597	18.0	20.6	576	18.1	14.2
71642	17.8	17.9	195955	17.8	19.6	393492	17.9	22.4	276277	17.9	19.9	134906	18.0	18.3	518826	18.1	21.1
444561	17.8	20.6	252044	17.8	20.3	366188	17.9	20.4	178177	17.9	19.6	49557	18.0	18.2	226548	18.1	18.9
61659	17.8	19.5	416452	17.8	20.7	359821	17.9	20.7	230200	17.9	18.9	181876	18.0	19.7	271350	18.1	19.6
59437	17.8	18.6	32778	17.8	17.6	184470	17.9	20.4	297117	17.9	20.6	192153	18.0	19.2	201403	18.1	18.9
474016	17.8	20.4	244064	17.8	20.3	34765	17.9	17.8	70686	17.9	17.7	82894	18.0	18.7	488995	18.1	21.4
127612	17.8	19.1	415654	17.8	21.5	102598	17.9	18.5	443169	17.9	19.9	64856	18.0	18.7	110706	18.1	18.6
406940	17.8	20.6	421009	17.8	19.9	301430	17.9	19.3	111799	17.9	18.9	395157	18.0	20.3	521846	18.1	20.7
9565	17.8	17.4	458003	17.8	20.4	373114	17.9	19.6	470981	17.9	20.8	63885	18.0	17.7	489174	18.1	20.6
493305	17.8	20.4	518514	17.8	22.6	20625	17.9	17.9	44338	17.9	17.7	161496	18.0	19.5	330848	18.1	21.1
77802	17.8	19.4	406733	17.8	21.1	98180	17.9	20.4	396702	17.9	22.3	486386	18.0	21.3	160023	18.1	20.0
360166	17.8	20.4	444755	17.8	21.1	450616	17.9	21.2	345220	17.9	20.2	360321	18.0	21.1	38625	18.1	18.8
459832	17.8	21.1	410654	17.8	19.9	395161	17.9	20.4	479464	17.9	20.8	235102	18.0	20.0	165617	18.1	19.9
460131	17.8	21.1	267876	17.8	20.8	541585	17.9	20.6	326133	17.9	20.0	43574	18.0	18.3	202631	18.1	21.0
330725	17.8	19.8	297265	17.8	19.8	499881	17.9	20.0	520440	17.9	21.8	220742	18.0	20.5	124060	18.1	19.9
400368	17.8	21.2	438093	17.8	20.6	236353	17.9	20.4	318766	17.9	20.4	166225	18.0	17.2	461313	18.1	20.4
482476	17.8	21.1	492945	17.8	21.1	450093	17.9	21.3	56442	17.9	18.1	13192	18.0	18.1	334928	18.1	19.7
312583	17.8	19.2	515778	17.8	22.0	375477	17.9	20.6	68363	17.9	17.5	344200	18.0	21.3	349666	18.1	19.3
347969	17.8	20.2	167316	17.8	19.9	349632	17.9	21.4	62085	17.9	17.8	32153	18.0	18.4	156591	18.1	19.6
460923	17.8	20.8	135952	17.8	18.6	380239	17.9	21.4	365734	17.9	20.4	37515	18.0	19.7	405777	18.1	18.8
330232	17.8	21.0	34819	17.8	18.8	135534	17.9	19.2	319943	17.9	20.5	418464	18.0	21.6	182772	18.1	20.0
318165	17.8	20.5	358209	17.8	21.0	230138	17.9	19.8	175955	17.9	19.6	172289	18.0	18.4	158883	18.1	19.8
140620	17.8	19.1	457316	17.8	20.9	487920	17.9	21.4	29999	17.9	17.3	544141	18.0	20.5	317833	18.1	21.4
39176	17.8	18.1	239400	17.8	21.7	516230	17.9	20.2	218067	17.9	19.6	489818	18.0	21.1	379802	18.1	21.0
146741	17.8	19.5	373713	17.8	21.6	399270	17.9	19.8	126208	17.9	19.3	519842	18.0	21.1	414499	18.1	21.3
475148	17.8	21.2	335972	17.8	20.7	482489	17.9	20.9	281911	17.9	21.0	331669	18.0	20.6	491113	18.1	21.5
99868	17.8	18.2	164665	17.8	20.9	113803	17.9	19.3	316379	17.9	21.0	455400	18.0	19.6	120921	18.1	19.7
188428	17.8	19.4	232828	17.8	20.0	295561	17.9	20.1	58011	17.9	18.7	221549	18.0	20.9	257897	18.1	20.9
129562	17.8	19.5	232055	17.8	19.2	220625	17.9	20.4	445682	17.9	21.5	459118	18.0	20.9	362730	18.1	19.8
390633	17.8	20.0	22610	17.8	17.9	442381	17.9	21.2	60980	17.9	19.4	2799	18.0	17.7	186844	18.1	22.6
439961	17.8	20.3	464307	17.8	20.3	212423	17.9	20.0	305984	17.9	19.3	122186	18.0	20.4	522046	18.1	20.8
160871	17.8	20.3	212508	17.8	20.4	231035	17.9	19.8	100623	17.9	19.0	41320	18.0	17.8	407350	18.1	21.0
35308	17.8	19.1	6426	17.8	17.2	460859	17.9	20.7	370340	17.9	21.0	191180	18.0	18.9	308082	18.1	19.9
182737	17.8	20.0	265045	17.8	20.7	477443	17.9	21.3	209115	17.9	18.5	39276	18.0	18.3	234607	18.1	19.6
237451	17.8	20.8	277005	17.8	19.7	411308	17.9	20.4	97621	17.9	18.5	350350	18.1	20.2	139091	18.1	18.1
256275	17.8	21.7	270687	17.8	20.4	424678	17.9	22.0	523432	1							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
197713	18.1	21.0	193292	18.2	19.5	116045	18.3	18.7	2592	18.3	16.5	70837	18.4	20.4	334816	18.5	19.8
438226	18.1	21.4	425884	18.2	20.1	421254	18.3	21.7	368419	18.3	20.3	29980	18.4	18.2	221979	18.5	19.9
234986	18.1	17.7	288138	18.2	21.2	255254	18.3	20.2	177918	18.4	19.2	85945	18.4	19.2	247203	18.5	21.1
262367	18.1	19.7	272696	18.2	19.7	522157	18.3	20.1	269839	18.4	19.4	54792	18.4	17.7	353044	18.5	20.1
285062	18.1	19.8	237887	18.2	20.5	190493	18.3	20.8	443327	18.4	20.8	423372	18.4	19.4	406746	18.5	20.8
40268	18.1	19.0	153602	18.2	21.3	36463	18.3	17.9	344417	18.4	19.5	3552	18.4	21.1	485593	18.5	20.2
374635	18.1	21.2	459481	18.2	20.7	397850	18.3	20.1	34060	18.4	17.0	4724	18.4	16.7	335001	18.5	20.4
9249	18.1	17.6	203822	18.2	19.6	457305	18.3	20.2	175135	18.4	20.1	150004	18.4	19.6	110155	18.5	19.3
60607	18.1	18.1	196117	18.2	20.3	382024	18.3	19.8	386019	18.4	20.4	160322	18.4	19.6	366506	18.5	20.5
88422	18.1	20.0	344883	18.2	20.9	450670	18.3	20.1	519426	18.4	22.2	420951	18.4	20.5	386919	18.5	20.8
450827	18.1	21.7	493454	18.2	19.4	34730	18.3	20.4	231404	18.4	18.4	112796	18.4	19.9	279990	18.5	20.2
171464	18.1	19.5	228447	18.2	19.2	447759	18.3	21.0	309822	18.4	20.5	187163	18.4	20.5	399783	18.5	20.7
424799	18.1	20.9	127879	18.2	19.4	199641	18.3	20.7	308259	18.4	20.4	455129	18.4	20.4	36213	18.5	17.9
165923	18.1	20.0	486209	18.2	20.1	293846	18.3	20.7	368088	18.4	21.5	438665	18.4	21.4	447812	18.5	21.5
74544	18.1	19.3	541190	18.2	20.4	57814	18.3	18.7	377997	18.4	20.1	230176	18.4	18.7	288353	18.5	19.6
104322	18.1	19.6	486439	18.2	21.9	326117	18.3	20.7	233905	18.4	19.8	209248	18.4	20.4	520362	18.5	21.6
434630	18.1	22.1	134510	18.2	19.9	71454	18.3	17.5	203161	18.4	19.5	190313	18.4	20.0	111469	18.5	19.1
168006	18.1	19.5	197950	18.2	20.2	356721	18.3	20.3	453059	18.4	21.5	66939	18.4	18.6	391026	18.5	20.3
342054	18.1	20.0	439293	18.2	21.7	348692	18.3	20.0	384634	18.4	20.0	57854	18.4	19.4	102758	18.5	20.1
305625	18.1	20.6	38682	18.2	18.7	426106	18.3	21.0	196148	18.4	19.5	245438	18.4	20.3	38210	18.5	18.6
168577	18.1	18.8	412292	18.2	21.1	152126	18.3	19.9	377542	18.4	21.5	315742	18.4	20.5	121577	18.5	19.6
118091	18.1	18.4	382671	18.2	20.2	317081	18.3	19.1	518095	18.4	20.7	136533	18.4	19.8	210136	18.5	20.5
246223	18.1	20.4	393456	18.2	19.3	332645	18.3	21.4	332965	18.4	21.2	197402	18.4	19.2	370304	18.5	21.0
94871	18.1	19.8	437446	18.2	20.1	191983	18.3	20.9	9678	18.4	20.1	128287	18.4	20.3	87205	18.5	18.6
136218	18.2	19.1	316333	18.2	19.8	14976	18.3	18.9	300676	18.4	21.0	494016	18.4	21.3	385402	18.5	23.3
279051	18.2	19.4	462243	18.2	20.3	445731	18.3	19.9	280018	18.4	20.3	269193	18.4	20.6	486482	18.5	20.1
464239	18.2	20.6	112567	18.2	20.0	442326	18.3	20.7	542689	18.4	20.3	361306	18.4	20.9	42894	18.5	18.7
206456	18.2	19.6	336643	18.2	20.4	460023	18.3	20.6	279575	18.4	21.3	305222	18.4	20.6	104849	18.5	19.9
108823	18.2	18.7	441137	18.2	21.6	89689	18.3	18.9	68470	18.4	19.0	191448	18.4	19.8	76336	18.5	18.4
412368	18.2	20.0	113928	18.2	19.5	115513	18.3	19.4	228891	18.4	19.9	207307	18.5	20.3	192157	18.5	19.6
51496	18.2	19.0	254854	18.2	21.4	310758	18.3	20.7	513404	18.4	21.3	288772	18.5	20.7	30444	18.5	18.2
467152	18.2	20.9	208312	18.2	21.1	512495	18.3	21.1	418507	18.4	21.1	264025	18.5	20.5	37216	18.5	18.6
371355	18.2	19.5	190508	18.2	20.7	287083	18.3	20.7	113294	18.4	18.8	16214	18.5	17.5	108715	18.5	18.7
163107	18.2	19.7	235789	18.2	19.6	202069	18.3	20.3	259943	18.4	19.7	346288	18.5	20.8	407400	18.5	20.5
79887	18.2	18.7	277304	18.2	20.0	459860	18.3	21.4	110712	18.4	18.6	329448	18.5	20.2	319281	18.5	20.7
122261	18.2	19.1	514548	18.2	20.3	451700	18.3	19.8	103954	18.4	18.8	459083	18.5	20.4	42731	18.5	18.8
399821	18.2	22.8	165681	18.2	20.5	475011	18.3	21.1	51971	18.4	17.7	298606	18.5	18.9	281936	18.5	20.3
399366	18.2	21.4	393379	18.2	20.0	455635	18.3	19.6	66885	18.4	18.3	382847	18.5	19.4	360593	18.5	19.6
187111	18.2	20.1	543033	18.2	21.2	405291	18.3	20.5	10020	18.4	17.1	165133	18.5	20.1	240266	18.5	20.0
508347	18.2	19.8	16537	18.2	17.6	353014	18.3	20.3	263393	18.4	19.9	291164	18.5	20.6	16654	18.5	17.1
483857	18.2	20.2	474378	18.2	21.2	443265	18.3	20.9	234567	18.4	18.4	374648	18.5	20.7	231503	18.5	20.1
119796	18.2	19.2	459799	18.2	21.2	249840	18.3	19.3	208902	18.4	20.4	490528	18.5	20.8	300695	18.5	19.7
305806	18.2	20.3	230591	18.2	19.4	358536	18.3	20.6	365689	18.4	20.7	173237	18.5	19.9	18569	18.5	18.1
410526	18.2	21.0	464279	18.2	19.2	542018	18.3	21.3	231646	18.4	20.1	420239	18.5	19.9	143064	18.5	18.7
366613	18.2	20.3	297165	18.2	20.5	118644	18.3	19.6	491008	18.4	20.6	61794	18.5	18.0	167256	18.5	20.4
181555	18.2	19.9	490181	18.2	20.2	83631	18.3	18.7	470215	18.4	17.7	485493	18.5	19.9	485476	18.5	20.5
162025	18.2	19.4	245750	18.2	21.0	103967	18.3	19.3	25051	18.4	18.3	209910	18.5	20.2	469276	18.5	21.6
544419	18.2	20.9	227836	18.2	19.6	516661	18.3	21.2	29990	18.4	18.7	479431	18.5	20.1	188645	18.5	19.6
10430	18.2	17.2	88518	18.2	20.5	270254	18.3	21.0	393498	18.4	21.1	158006	18.5	20.3	383389	18.5	19.7
235156	18.2	20.0	236110	18.2	20.8	324048	18.3	19.9	314190	18.4	20.6	160520	18.5	19.7	133795	18.5	18.8
405645	18.2	21.5	315410	18.2	19.0	178260	18.3	19.8	443991	18.4	19.9	83166	18.5	20.3	347285	18.5	19.3
369067	18.2	20.1	58285	18.2	19.2	366661	18.3	22.1	238293	18.4	20.2	203896	18.5	20.0	515089	18.5	20.8
132845	18.2	20.1	269147	18.2	20.7	357001	18.3	21.9	96906	18.4	18.8	263453	18.5	18.5	249918	18.5	20.1
447961	18.2	18.9	523241	18.2	20.0	61188	18.3	19.4	310583	18.4	20.5	269364	18.5	20.9	354616	18.5	20.5
282527	18.2	20.3	467828	18.2	21.3	81395	18.3	19.2	387846	18.4	21.3	463475	18.5	20.9	262937	18.5	20.5
187682	18.2	20.1	416706	18.2	20.1	198748	18.3	19.7	6134	18.4	18.0	26484	18.5	19.7	245232	18.5	19.8
28414	18.2	17.8	107963	18.2	18.3	267237	18.3	21.5	60875	18.4	18.6	151866	18.5	19.5	465028	18.5	20.3
448904	18.2	20.2	61529	18.3	19.3	179154	18.3	19.5	271685	18.4	21.3	385411	18.5	19.0	213155	18.5	19.5
441559	18.2	21.4	274473	18.3	20.0	52936	18.3	17.4	473642	18.4	20.9	189686	18.5	21.1	504182	18.5	21.1
38704	18.2	18.3	405675	18.3	20.7	252482	18.3	20.3	291941	18.4	21.4	106872	18.5	18.8	250139	18.5	20.4
355318	18.2	18.9	448871	18.3	20.9	261846	18.3	19.7	460550	18.4	20.1	186943	18.5	20.7	118782	18.5	19.3
128036	18.2	19.7	281907	18.3	19.7	321053	18.3	21.3	325448	18.4	20.9	141116	18.5	18.9	136606	18.5	20.6
212079	18.2	20.4	412177	18.3	21.4	276174	18.3	20.7	237476	18.4	19.4	295817	18.5	20.1	130040	18.5	21.1
443053	18.2	20.2	430912	18.3	21.1	482988	18.3	19.4	515286	18.4	21.5	94461	18.5	17.9	158799	18.5	19.6
225654	18.2	19.2	493888	18.3	21.0	285565	18.3	20.7	70179	18.4	18.0	189360	18.5	19.5	107780	18.5	20.2
76791	18.2	18.5	352779	18.3	20.5	490227	18.3	21.4	83154	18.4	19.3	121022	18.5	18.9	173485	18.5	20.3
13525	18.2	18.2	518475	18.3	21.2	295595	18.3	20.0	515809	18.4	21.4	120981	18.5	20.8	218378	18.5	20.8
267236	18.2	20.0	76971	18.3	18.4	297310	18.3	18.8	496678	18.4	20.6	384768	18.5	20.5	132828	18.5	19.0
293800	18.2	20.8	228040	18.3	20.3	22660	18.3	18.3	5								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
252662	18.6	19.9	276741	18.6	20.0	503525	18.7	21.0	243931	18.8	21.3	89066	18.9	19.0	55377	18.9	17.9
28151	18.6	19.2	411446	18.6	19.9	62806	18.7	19.0	361282	18.8	20.5	293680	18.9	20.6	34536	18.9	17.3
119323	18.6	17.5	127645	18.6	18.7	114034	18.7	19.5	463034	18.8	21.2	18524	18.9	16.8	183361	18.9	18.3
463605	18.6	20.7	494035	18.6	20.0	182514	18.7	20.0	10004	18.8	18.1	372735	18.9	19.8	394115	18.9	20.6
409482	18.6	21.3	198272	18.6	20.3	448624	18.7	19.9	384376	18.8	19.7	212186	18.9	20.2	165612	18.9	19.5
157660	18.6	19.8	83926	18.6	18.3	354235	18.7	20.0	270785	18.8	20.4	270773	18.9	20.1	287856	18.9	20.6
485005	18.6	20.3	201240	18.6	20.3	516591	18.7	21.0	543044	18.8	21.4	296986	18.9	20.1	389405	18.9	19.0
19527	18.6	17.5	8084	18.6	16.0	260898	18.7	20.8	543503	18.8	21.6	371330	18.9	20.4	270997	18.9	19.7
491551	18.6	20.5	72747	18.6	18.7	31853	18.7	18.8	72973	18.8	19.7	282886	18.9	20.6	280341	18.9	20.2
383018	18.6	19.9	491540	18.6	21.8	448853	18.7	21.4	361869	18.8	20.1	246005	18.9	20.7	208793	18.9	21.1
397229	18.6	19.9	215187	18.6	20.9	406575	18.7	20.6	215286	18.8	20.1	451710	18.9	20.2	282535	18.9	21.2
3003	18.6	15.4	190578	18.6	20.6	51135	18.7	19.0	292186	18.8	20.6	102322	18.9	19.0	242045	18.9	20.3
233297	18.6	19.9	18299	18.6	17.2	482469	18.7	21.7	165903	18.8	20.1	212800	18.9	20.4	240119	18.9	20.0
42133	18.6	18.8	455466	18.6	20.6	35901	18.7	18.2	90229	18.8	18.6	276980	18.9	20.4	432374	18.9	21.6
330842	18.6	21.6	495571	18.6	20.3	90442	18.7	18.7	314864	18.8	19.9	390451	18.9	20.9	14726	18.9	16.8
72736	18.6	19.7	167231	18.6	19.2	96984	18.7	18.3	30568	18.8	18.6	376381	18.9	21.0	201540	18.9	18.5
331659	18.6	19.7	122179	18.6	18.8	414652	18.7	20.3	276872	18.8	21.6	185491	18.9	20.1	178453	18.9	19.9
476373	18.6	20.5	516672	18.6	20.8	215809	18.7	20.8	176841	18.8	19.2	337585	18.9	21.6	103461	18.9	19.1
132685	18.6	18.7	232037	18.7	19.0	199828	18.7	19.5	271454	18.8	19.7	230783	18.9	19.1	232303	18.9	20.2
152234	18.6	20.0	78819	18.7	19.2	128393	18.7	20.1	326005	18.8	20.9	168315	18.9	20.4	144870	18.9	18.0
478428	18.6	21.3	421204	18.7	20.9	28469	18.7	18.5	202098	18.8	21.2	366614	18.9	19.6	185680	18.9	21.0
118223	18.6	19.7	404666	18.7	20.3	159622	18.7	18.7	191507	18.8	18.7	360236	18.9	19.3	32086	18.9	19.2
131877	18.6	19.3	244565	18.7	21.4	136646	18.7	19.9	160195	18.8	19.5	518135	18.9	20.7	233815	18.9	20.2
1035	18.6	15.7	441107	18.7	22.1	452201	18.7	21.3	87050	18.8	19.9	356339	18.9	20.0	222226	18.9	18.8
259600	18.6	19.6	165669	18.7	20.6	63167	18.7	18.3	135909	18.8	20.1	346429	18.9	21.2	113296	18.9	19.3
340101	18.6	19.4	44673	18.7	16.9	232472	18.7	20.6	83248	18.8	19.7	437071	18.9	21.9	523340	18.9	20.4
484880	18.6	21.7	367349	18.7	20.6	500342	18.7	20.7	262127	18.8	20.5	47341	18.9	19.4	160268	18.9	19.8
176311	18.6	19.6	144120	18.7	18.9	451397	18.7	22.2	274269	18.8	20.2	403946	18.9	20.4	257217	18.9	18.5
454428	18.6	20.8	516886	18.7	22.2	133544	18.7	20.1	248234	18.8	20.6	471935	18.9	21.7	132887	18.9	19.6
210099	18.6	21.0	275827	18.7	20.0	331650	18.7	21.6	418474	18.8	21.2	304991	18.9	19.8	158852	18.9	20.2
155703	18.6	19.6	488110	18.7	20.5	93466	18.7	19.8	401085	18.8	19.6	363608	18.9	19.8	77659	18.9	19.0
201333	18.6	18.6	197795	18.7	19.3	359320	18.7	20.6	37409	18.8	17.6	414973	18.9	20.2	10611	18.9	16.9
213286	18.6	19.7	255126	18.7	19.7	344878	18.7	21.2	255147	18.8	21.2	372213	18.9	19.1	443204	18.9	20.7
86605	18.6	19.3	248288	18.7	21.2	446196	18.7	19.6	354304	18.8	21.4	484141	18.9	20.7	28691	18.9	17.6
273999	18.6	20.9	312759	18.7	20.1	92680	18.8	19.1	123990	18.8	19.7	31412	18.9	17.5	330236	18.9	20.3
424867	18.6	20.0	483494	18.7	20.5	446015	18.8	20.2	220646	18.8	20.3	203564	18.9	19.4	490080	18.9	22.3
470016	18.6	20.9	325862	18.7	20.2	239457	18.8	20.3	332615	18.8	20.9	153351	18.9	20.4	487268	18.9	21.0
313447	18.6	20.5	300633	18.7	19.8	87928	18.8	20.0	30108	18.8	18.8	107339	18.9	19.0	470036	18.9	20.8
455351	18.6	20.3	269051	18.7	19.8	104524	18.8	18.0	370543	18.8	20.1	50996	18.9	18.5	122069	18.9	20.0
306515	18.6	21.0	196967	18.7	20.0	39451	18.8	19.3	544410	18.8	21.7	178774	18.9	18.4	241089	18.9	19.8
209663	18.6	19.8	305111	18.7	20.2	207515	18.8	20.3	57106	18.8	19.3	177602	18.9	19.4	485609	18.9	21.1
174239	18.6	19.2	295515	18.7	20.1	104721	18.8	19.3	220100	18.8	19.8	296749	18.9	20.7	400922	18.9	21.3
79566	18.6	18.6	140200	18.7	20.0	208759	18.8	20.0	222190	18.8	18.9	445712	18.9	20.4	78699	18.9	17.6
143870	18.6	18.3	141512	18.7	20.3	155681	18.8	20.0	542654	18.8	21.2	334265	18.9	20.4	120064	18.9	18.7
70640	18.6	17.3	68341	18.7	18.6	16295	18.8	18.4	367007	18.8	19.6	139441	18.9	19.4	49729	18.9	18.4
196167	18.6	20.2	492579	18.7	20.8	85751	18.8	19.2	71491	18.8	18.7	176259	18.9	19.8	493172	18.9	20.4
299474	18.6	19.9	422466	18.7	21.0	104596	18.8	18.4	404201	18.8	20.8	520185	18.9	20.3	456545	18.9	19.4
307407	18.6	19.2	494980	18.7	20.6	187993	18.8	19.0	351093	18.8	20.3	306623	18.9	20.9	520393	18.9	21.7
53370	18.6	18.7	212101	18.7	19.1	420136	18.8	20.4	520759	18.8	20.7	43592	18.9	18.2	475022	18.9	20.3
230700	18.6	18.3	269245	18.7	20.5	249125	18.8	20.5	262296	18.8	20.9	199268	18.9	19.0	130422	18.9	18.8
30107	18.6	18.7	357280	18.7	19.5	265081	18.8	20.3	260046	18.8	20.9	328478	18.9	20.4	129201	18.9	18.4
25414	18.6	17.5	190975	18.7	20.5	409660	18.8	19.9	269632	18.8	19.6	373518	18.9	20.7	53906	18.9	18.8
305110	18.6	19.9	375149	18.7	20.1	477393	18.8	20.4	167497	18.8	19.4	367401	18.9	19.9	267832	18.9	20.6
447525	18.6	20.9	201395	18.7	19.0	263562	18.8	20.1	541232	18.8	20.5	123312	18.9	18.7	349115	18.9	20.8
494967	18.6	21.0	347868	18.7	19.9	176934	18.8	19.8	340041	18.8	20.4	332032	18.9	21.0	541994	18.9	21.4
481912	18.6	20.1	110210	18.7	19.5	389392	18.8	20.0	472010	18.8	20.4	135934	18.9	19.3	24391	18.9	17.5
414669	18.6	20.5	520449	18.7	21.9	65852	18.8	17.7	237958	18.8	19.8	436810	18.9	21.1	465550	18.9	20.5
453420	18.6	20.3	303607	18.7	20.2	353021	18.8	18.5	190356	18.8	19.4	422200	18.9	21.4	394589	18.9	21.0
419468	18.6	20.3	216921	18.7	19.8	466642	18.8	20.7	279984	18.8	19.9	174920	18.9	19.5	199140	18.9	19.0
193004	18.6	20.0	447809	18.7	22.0	418547	18.8	19.9	388080	18.8	18.9	68340	18.9	19.5	126511	18.9	19.8
302543	18.6	20.4	134833	18.7	18.3	67394	18.8	19.1	383126	18.8	19.4	111285	18.9	19.2	135	18.9	12.0
462356	18.6	21.1	13202	18.7	18.1	471959	18.8	22.0	138119	18.8	20.0	257847	18.9	20.3	57635	18.9	18.5
135783	18.6	20.8	329415	18.7	20.6	31925	18.8	19.0	330816	18.8	20.9	295430	18.9	21.4	117692	18.9	18.4
516911	18.6	21.6	235530	18.7	19.1	73719	18.8	19.4	490443	18.8	21.6	331730	18.9	20.3	285249	18.9	19.8
285105	18.6	20.7	268560	18.7	20.5	446546	18.8	20.9	344889	18.8	20.1	63516	18.9	18.3	224012	18.9	21.3
346298	18.6	22.1	330757	18.7	19.8	251395	18.8	19.5	300504	18.8	18.4	296508	18.9	19.8	203118	18.9	19.3
303986	18.6	20.7	374253	18.7	20.7	29989	18.8	18.2	189868	18.8	21.1	204850	18.9	20.2	305688	18.9	20.6
315623	18.6	20.6	99402	18.7	18.9	518926	18.8	20.1	271993	18.8	19.6	170611	18.9	19.5	84832	18.9	16.8
342074	18.6	21.2	369238	18.7	20.4	277182	18.8	19.7	39354								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
13289	18.9	16.9	448837	19.1	19.8	198415	19.1	19.0	51777	19.2	17.6	251726	19.3	18.9	504169	19.3	20.7
406904	18.9	20.7	165081	19.1	20.8	337894	19.1	19.3	463588	19.2	20.4	297216	19.3	20.5	521977	19.3	21.3
496815	18.9	20.4	449134	19.1	20.7	60885	19.1	19.5	329548	19.2	20.6	142847	19.3	20.5	29004	19.3	18.8
458234	18.9	20.8	452587	19.1	21.5	365950	19.1	19.6	91963	19.2	18.7	380968	19.3	21.0	367030	19.3	20.0
424943	18.9	19.7	103584	19.1	17.5	210083	19.1	20.3	87949	19.2	17.6	473850	19.3	20.3	191465	19.3	20.9
213280	18.9	20.7	194243	19.1	18.7	149293	19.1	19.4	61396	19.2	19.9	387553	19.3	21.3	163094	19.3	19.2
265214	18.9	19.1	342207	19.1	20.9	405546	19.1	21.7	97957	19.2	19.0	225337	19.3	19.2	17794	19.3	18.1
273359	18.9	20.2	342329	19.1	20.8	453905	19.1	20.6	385642	19.2	19.1	158018	19.3	20.7	345336	19.3	20.0
109971	18.9	20.4	362334	19.1	21.2	484825	19.1	20.5	192148	19.2	18.9	248757	19.3	21.0	271464	19.3	19.6
56608	18.9	19.1	273900	19.1	20.2	189933	19.1	18.9	25850	19.2	18.0	110656	19.3	18.6	325399	19.3	20.7
400073	18.9	21.0	453069	19.1	20.8	195842	19.1	19.9	354236	19.2	21.2	360856	19.3	20.2	361338	19.3	20.3
248932	18.9	19.5	267227	19.1	19.9	26768	19.2	18.6	389692	19.2	20.5	124652	19.3	18.1	110489	19.3	19.0
181296	18.9	19.8	319070	19.1	19.4	42625	19.2	18.3	281938	19.2	20.9	388547	19.3	20.8	230615	19.4	19.9
241775	19.0	19.7	275766	19.1	20.8	161178	19.2	19.8	415610	19.2	21.2	134983	19.3	19.4	420181	19.4	20.3
267784	19.0	20.0	148019	19.1	16.8	495258	19.2	21.0	402719	19.2	21.1	388143	19.3	19.9	298373	19.4	19.8
508405	19.0	20.4	348363	19.1	18.6	399791	19.2	20.9	2655	19.2	15.3	397173	19.3	20.0	133152	19.4	19.2
272293	19.0	19.8	51306	19.1	19.3	420845	19.2	20.2	416505	19.2	19.2	254731	19.3	19.9	84652	19.4	18.9
425196	19.0	20.3	231868	19.1	20.8	208850	19.2	19.7	71576	19.2	18.4	169728	19.3	20.8	430048	19.4	20.5
450632	19.0	21.1	172549	19.1	19.6	129996	19.2	19.0	332659	19.2	21.1	484835	19.3	20.5	241792	19.4	19.9
7489	19.0	18.5	132894	19.1	19.6	142311	19.2	20.1	318991	19.2	21.0	400033	19.3	21.7	418594	19.4	20.3
16741	19.0	17.8	332461	19.1	20.7	72096	19.2	19.0	459520	19.2	21.0	397555	19.3	20.7	520793	19.4	20.7
85907	19.0	17.2	451549	19.1	20.2	211285	19.2	20.2	197647	19.2	21.2	516068	19.3	21.4	431232	19.4	21.1
326869	19.0	20.3	170534	19.1	19.4	450683	19.2	20.8	386915	19.2	20.6	450938	19.3	19.7	73863	19.4	17.4
420806	19.0	20.6	354252	19.1	19.8	298542	19.2	21.0	70104	19.2	16.8	24733	19.3	19.0	36473	19.4	17.5
17914	19.0	18.1	285993	19.1	21.5	36326	19.2	19.3	480370	19.2	21.0	220795	19.3	19.8	110807	19.4	19.7
35304	19.0	19.1	193055	19.1	20.0	321085	19.2	19.3	340338	19.2	20.5	465346	19.3	21.3	199818	19.4	20.8
485808	19.0	20.5	264664	19.1	19.5	396476	19.2	20.9	240999	19.2	20.9	135535	19.3	19.6	516454	19.4	25.3
378404	19.0	21.5	157151	19.1	19.9	515962	19.2	21.6	397268	19.2	21.1	397886	19.3	19.6	421863	19.4	21.3
10092	19.0	17.3	369215	19.1	20.6	412508	19.2	20.7	117236	19.2	19.5	493838	19.3	19.8	321849	19.4	20.7
264276	19.0	20.1	83521	19.1	18.7	484314	19.2	19.5	158789	19.2	19.4	345381	19.3	19.8	415601	19.4	20.7
465258	19.0	21.1	173020	19.1	19.2	232847	19.2	19.9	340129	19.2	20.0	97656	19.3	19.8	251661	19.4	19.8
372772	19.0	20.3	375503	19.1	21.0	416812	19.2	20.3	485639	19.2	20.8	542554	19.3	20.5	512155	19.4	20.3
193283	19.0	18.6	89355	19.1	15.7	487455	19.2	20.7	454256	19.2	20.9	363946	19.3	21.2	278697	19.4	20.7
384291	19.0	20.3	85225	19.1	17.7	123210	19.2	19.9	203110	19.2	21.5	365639	19.3	20.4	254806	19.4	19.7
517786	19.0	21.7	229481	19.1	19.7	226616	19.2	20.0	341942	19.2	20.1	383837	19.3	20.9	465261	19.4	20.7
259639	19.0	20.3	103130	19.1	18.4	542035	19.2	21.7	384640	19.2	20.5	444588	19.3	20.8	320684	19.4	20.2
122105	19.0	19.4	381370	19.1	20.2	514895	19.2	21.7	186930	19.2	20.8	446817	19.3	19.6	442426	19.4	19.5
118636	19.0	19.1	185184	19.1	19.4	413484	19.2	21.1	280678	19.2	20.9	302998	19.3	20.0	301891	19.4	20.3
372659	19.0	20.2	395790	19.1	19.7	179593	19.2	20.1	232328	19.2	19.3	463868	19.3	21.4	265210	19.4	18.4
360628	19.0	20.0	184586	19.1	20.0	110136	19.2	19.7	322931	19.2	20.5	145277	19.3	19.3	107225	19.4	18.4
155675	19.0	19.9	332209	19.1	21.4	199849	19.2	20.6	82783	19.2	19.4	474078	19.3	19.9	160685	19.4	19.4
421149	19.0	20.7	122645	19.1	20.1	275757	19.2	20.0	408567	19.2	21.2	451528	19.3	21.2	422695	19.4	20.5
208786	19.0	20.3	100801	19.1	17.7	460145	19.2	20.5	372274	19.2	19.7	230768	19.3	18.6	410664	19.4	20.7
252541	19.0	20.0	366047	19.1	20.3	44909	19.2	18.2	99611	19.2	19.1	250597	19.3	20.6	244114	19.4	20.1
541361	19.0	20.9	166377	19.1	19.2	459725	19.2	20.7	295663	19.3	19.3	34073	19.3	19.2	305858	19.4	20.6
375467	19.0	20.5	15916	19.1	16.8	216048	19.2	20.5	233070	19.3	18.3	431715	19.3	21.2	259894	19.4	19.6
82142	19.0	18.8	146578	19.1	20.1	245908	19.2	20.4	24612	19.3	17.2	465031	19.3	21.0	298628	19.4	18.6
401231	19.0	19.6	486517	19.1	21.0	371346	19.2	19.9	491288	19.3	19.7	103692	19.3	19.3	463065	19.4	20.7
376718	19.0	19.4	186673	19.1	19.5	387326	19.2	21.3	326516	19.3	21.2	287992	19.3	20.5	179065	19.4	19.8
53722	19.0	19.1	154945	19.1	19.7	394637	19.2	20.8	473821	19.3	19.8	275658	19.3	20.9	213644	19.4	21.1
79856	19.0	17.9	338226	19.1	19.9	460813	19.2	21.3	132713	19.3	19.6	482472	19.3	21.2	47948	19.4	18.6
427257	19.0	20.5	69330	19.1	18.4	270163	19.2	20.7	389673	19.3	21.0	136448	19.3	20.0	327719	19.4	20.4
453075	19.0	20.8	279923	19.1	19.8	335709	19.2	20.8	110088	19.3	19.3	308194	19.3	20.0	212215	19.4	20.1
230463	19.0	20.6	411594	19.1	19.9	139827	19.2	19.6	14738	19.3	16.8	197657	19.3	20.5	458050	19.4	20.1
331658	19.0	20.5	334329	19.1	19.1	420954	19.2	20.6	200556	19.3	20.4	76691	19.3	20.4	375379	19.4	21.3
308152	19.0	19.4	59420	19.1	17.4	231022	19.2	19.5	143998	19.3	19.1	516884	19.3	22.1	51730	19.4	19.1
357733	19.0	20.7	135219	19.1	20.5	360892	19.2	21.3	439315	19.3	21.4	29781	19.3	16.6	141538	19.4	20.0
260094	19.0	20.5	267660	19.1	19.8	189404	19.2	19.9	207201	19.3	20.4	195686	19.3	19.8	104859	19.4	19.6
366004	19.0	20.1	255982	19.1	20.2	175252	19.2	19.6	463645	19.3	20.4	293630	19.3	20.2	201861	19.4	19.6
283799	19.0	19.6	316594	19.1	19.9	421891	19.2	20.9	307273	19.3	21.0	27155	19.3	18.0	155043	19.4	18.9
361302	19.0	20.4	379116	19.1	20.8	230028	19.2	18.8	377021	19.3	20.3	236265	19.3	20.8	212378	19.4	19.6
161204	19.0	19.6	13809	19.1	17.4	286224	19.2	19.6	144693	19.3	19.7	372063	19.3	20.3	167427	19.4	19.5
65277	19.0	20.3	220925	19.1	21.6	202411	19.2	17.6	229201	19.3	19.0	7801	19.3	18.3	290587	19.4	20.5
355325	19.0	21.2	356034	19.1	20.1	332986	19.2	20.3	365540	19.3	20.6	99852	19.3	19.3	39047	19.4	18.8
450611	19.0	20.8	349510	19.1	21.6	267878	19.2	17.7	220952	19.3	19.6	470030	19.3	21.3	474293	19.4	19.9
271918	19.0	20.4	390445	19.1	20.1	244967	19.2	19.8	187278	19.3	20.0	231721	19.3	19.9	214350	19.4	20.4
171519	19.1	19.3	255037	19.1	21.0	202950	19.2	20.1	185016	19.3	20.1	228617	19.3	18.4	460573	19.4	21.4
275028	19.1	20.0	493763	19.1	21.4	20905	19.2	18.9	221907	19.3	20.7	397254	19.3	22.5	467322	19.4	20.1
478441	19.1	21.3	160630	19.1	19.5	453625	19.2</										

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
246553	19.4	20.9	462452	19.5	21.5	179589	19.5	20.3	146479	19.6	19.6	210048	19.7	21.1	305020	19.8	20.0
458666	19.4	20.2	76592	19.5	19.1	160993	19.5	19.6	440095	19.6	20.2	372115	19.7	20.7	316195	19.8	20.3
65696	19.4	19.5	356459	19.5	20.4	393331	19.5	19.8	382996	19.6	20.6	25740	19.7	17.4	458273	19.8	21.1
489169	19.4	21.7	400024	19.5	20.3	1941	19.5	17.7	184728	19.6	20.3	523742	19.7	22.2	251597	19.8	20.0
49658	19.4	17.6	337794	19.5	20.7	516919	19.5	21.9	83090	19.6	19.6	83206	19.7	19.1	420776	19.8	21.6
396327	19.4	20.9	516549	19.5	21.8	378930	19.5	20.0	286885	19.6	20.6	281434	19.7	20.1	462114	19.8	21.1
101746	19.4	18.8	42248	19.5	19.3	301921	19.5	19.9	465808	19.6	20.6	347186	19.7	20.9	136237	19.8	18.8
254078	19.4	20.4	101705	19.5	19.3	104064	19.5	19.5	182581	19.6	20.0	456157	19.7	20.3	67486	19.8	18.5
339865	19.4	21.2	307392	19.5	19.3	496011	19.5	21.0	197731	19.6	20.7	68109	19.7	18.6	270624	19.8	20.1
307727	19.4	20.0	399236	19.5	20.7	494606	19.5	19.4	464548	19.6	20.7	494672	19.7	21.7	223937	19.8	19.3
155061	19.4	18.7	100068	19.5	18.7	372240	19.5	20.5	198742	19.6	19.8	279973	19.7	20.1	393581	19.8	20.8
47853	19.4	18.7	82756	19.5	19.6	159374	19.5	19.3	64568	19.6	18.2	53435	19.7	15.5	243697	19.8	19.4
53515	19.4	17.7	33451	19.5	17.7	233648	19.5	20.1	427627	19.6	20.5	131879	19.7	18.8	369025	19.8	20.9
234483	19.4	19.8	418535	19.5	21.4	73851	19.5	19.1	156604	19.6	20.5	329697	19.7	20.9	544482	19.8	21.2
79703	19.4	19.0	248287	19.5	20.7	192219	19.5	20.2	478470	19.6	20.0	404142	19.7	20.8	14683	19.8	18.2
511684	19.4	19.1	6525	19.5	17.7	369125	19.5	20.8	193155	19.6	20.7	94971	19.7	18.4	359274	19.8	21.6
330798	19.4	19.9	74986	19.5	18.5	459704	19.5	21.1	304954	19.6	20.8	463521	19.7	20.9	225068	19.8	20.7
223820	19.4	19.7	458091	19.5	19.3	259654	19.5	19.2	119778	19.6	18.7	273190	19.7	21.2	45499	19.8	18.3
404104	19.4	20.7	274577	19.5	19.6	275441	19.5	21.2	489478	19.6	21.0	133743	19.7	19.5	17185	19.8	16.4
523440	19.4	20.2	464436	19.5	20.1	84937	19.5	19.5	484130	19.6	21.7	268285	19.7	19.9	275900	19.8	20.6
420252	19.4	21.0	263182	19.5	21.0	93116	19.6	18.4	101414	19.6	18.9	43606	19.7	17.2	444868	19.8	20.7
156107	19.4	19.7	354713	19.5	22.0	14147	19.6	16.8	40166	19.6	19.2	246483	19.7	19.7	185035	19.8	19.5
404299	19.4	20.3	269299	19.5	20.5	35114	19.6	18.3	194275	19.6	19.8	127266	19.7	19.6	241632	19.8	19.3
462374	19.4	20.6	115315	19.5	19.1	159402	19.6	15.6	365573	19.6	21.2	496806	19.7	21.0	442246	19.8	20.5
471068	19.4	19.2	167571	19.5	20.2	486815	19.6	21.5	362262	19.6	21.8	312358	19.7	19.4	64292	19.8	18.6
486914	19.4	21.2	184412	19.5	19.8	202302	19.6	20.3	515753	19.6	21.4	412955	19.7	20.7	440248	19.8	21.7
416134	19.4	20.1	369132	19.5	21.3	444485	19.6	20.4	108133	19.6	19.3	73175	19.7	19.1	272368	19.8	21.2
253094	19.4	19.3	162402	19.5	17.9	274014	19.6	21.1	470113	19.6	21.4	457847	19.7	21.4	439062	19.8	22.0
357282	19.4	20.7	5462	19.5	16.2	148892	19.6	19.2	434546	19.6	21.8	152989	19.7	19.8	215290	19.8	19.8
272398	19.4	20.7	374639	19.5	21.0	118617	19.6	19.2	227707	19.6	20.2	199693	19.7	20.5	382612	19.8	20.4
139783	19.4	17.8	445671	19.5	20.8	165092	19.6	19.5	32742	19.6	18.7	455168	19.7	20.6	12144	19.8	18.2
275057	19.4	20.2	518246	19.5	20.4	168350	19.6	21.2	271990	19.6	19.8	298580	19.7	19.2	275738	19.8	20.6
373983	19.4	19.2	438473	19.5	20.8	217688	19.6	20.6	336625	19.6	20.9	190980	19.7	19.5	206201	19.8	20.7
213165	19.4	19.9	401503	19.5	19.9	28354	19.6	18.5	412341	19.6	21.4	400668	19.7	20.6	337399	19.8	21.2
403736	19.4	21.1	44937	19.5	17.3	343288	19.6	19.2	383556	19.6	19.9	278100	19.7	19.3	124603	19.8	18.7
4806	19.4	15.4	188708	19.5	20.9	532112	19.6	19.7	281919	19.6	21.3	460317	19.7	20.9	446284	19.8	20.8
384669	19.4	19.6	447834	19.5	20.9	482497	19.6	20.8	544820	19.6	21.1	517000	19.7	20.3	460271	19.8	21.1
416433	19.4	21.2	175332	19.5	20.3	188317	19.6	20.2	144582	19.6	18.4	366484	19.7	20.6	114701	19.8	19.9
425319	19.4	20.1	401717	19.5	21.0	271259	19.6	19.4	314329	19.6	21.2	255016	19.7	20.0	128210	19.8	18.7
72220	19.4	18.5	280239	19.5	19.8	371808	19.6	21.1	85906	19.6	17.8	135368	19.7	18.5	61148	19.8	19.3
420153	19.4	20.7	268551	19.5	19.6	135451	19.6	19.8	217299	19.6	20.2	124585	19.7	20.6	108280	19.8	19.9
484515	19.4	19.7	160024	19.5	19.9	150506	19.6	19.4	340204	19.6	20.2	349331	19.7	20.2	147442	19.8	19.6
412275	19.4	21.4	294278	19.5	19.3	326865	19.6	19.8	522418	19.6	21.2	287506	19.7	19.0	306290	19.8	20.7
370344	19.4	20.0	310232	19.5	19.4	161784	19.6	20.7	284045	19.6	19.6	277109	19.7	19.7	96579	19.8	18.0
517748	19.4	20.3	170876	19.5	19.5	158674	19.6	19.2	202117	19.6	19.9	440691	19.7	20.6	130067	19.8	19.4
234163	19.4	20.7	414487	19.5	21.2	68647	19.6	19.5	276298	19.6	21.0	470046	19.7	21.2	434159	19.8	21.2
211719	19.4	20.5	453957	19.5	20.1	306166	19.6	21.1	312568	19.6	20.3	100971	19.7	19.8	467078	19.8	20.3
543867	19.4	20.6	489897	19.5	20.2	434394	19.6	20.7	445935	19.6	19.5	462760	19.7	20.6	479583	19.8	20.2
102145	19.4	19.2	149946	19.5	20.1	45906	19.6	17.5	340945	19.6	20.7	377508	19.7	20.1	45943	19.8	17.4
316687	19.4	19.9	64083	19.5	18.4	441041	19.6	21.2	272453	19.7	21.2	248889	19.7	20.1	23297	19.8	17.8
71573	19.4	18.5	154172	19.5	20.2	199678	19.6	19.2	150371	19.7	18.7	378770	19.7	20.2	326881	19.8	20.0
518519	19.4	20.9	387502	19.5	19.9	76015	19.6	19.1	302616	19.7	19.9	355040	19.7	20.6	257593	19.8	20.3
176879	19.4	19.5	21516	19.5	18.1	326518	19.6	21.4	89132	19.7	19.2	149268	19.7	19.8	311860	19.8	20.2
28429	19.4	18.8	445623	19.5	20.1	402133	19.6	21.4	145934	19.7	18.8	425332	19.7	19.2	462401	19.8	21.2
458310	19.4	21.4	129714	19.5	19.6	394144	19.6	21.3	189880	19.7	20.2	334288	19.7	19.8	249704	19.8	19.4
13736	19.5	18.7	278941	19.5	19.7	170495	19.6	18.9	247037	19.7	19.9	462975	19.7	20.4	336881	19.8	20.7
517167	19.5	21.4	475174	19.5	19.6	248776	19.6	20.0	391418	19.7	21.2	180191	19.7	19.9	229712	19.8	19.8
400616	19.5	19.8	374656	19.5	20.5	113665	19.6	18.8	300824	19.7	19.1	45712	19.7	18.2	380316	19.8	20.4
104987	19.5	20.0	231731	19.5	20.1	249597	19.6	21.3	182162	19.7	19.4	452893	19.7	21.3	254099	19.8	20.5
235523	19.5	19.6	318220	19.5	21.0	291763	19.6	19.8	541187	19.7	20.2	463372	19.7	19.7	47405	19.8	18.6
411885	19.5	20.3	28904	19.5	18.0	330770	19.6	20.6	189387	19.7	19.9	273273	19.7	21.9	337566	19.8	20.3
352266	19.5	21.0	394101	19.5	19.6	99445	19.6	19.1	74098	19.7	18.7	205077	19.7	19.7	27396	19.8	16.2
450279	19.5	19.8	178044	19.5	20.1	122295	19.6	19.6	142573	19.7	20.3	369835	19.7	21.2	277489	19.8	21.0
105325	19.5	19.9	344886	19.5	20.8	77710	19.6	18.5	174766	19.7	20.3	252047	19.7	20.8	34017	19.8	18.8
104590	19.5	19.0	55682	19.5	19.6	447466	19.6	20.7	461563	19.7	19.9	506104	19.7	19.9	193226	19.8	19.4
192044	19.5	19.2	483092	19.5	19.4	459629	19.6	21.2	310846	19.7	19.2	32632	19.7	18.6	93002	19.8	20.7
176618	19.5	20.4	338993	19.5	21.5	5814	19.6	16.1	154861	19.7	20.1	50109	19.7	18.3	123111	19.8	18.8
339591	19.5	20.7	148339	19.5	20.0	368508	19.6	20.9	123396	19.7	18.8	100283	19.7	18.7	209139	19.8	20.0
316385	19.5	20.9	300420	19.5	21.3	124961	19.6	18.0									

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
99638	19.8	18.6	458074	19.9	19.7	197787	19.9	20.6	275416	20.0	19.5	335281	20.1	21.5	41448	20.2	17.4
316257	19.8	20.2	445197	19.9	19.9	212133	19.9	19.9	503445	20.0	20.5	229348	20.1	19.9	218939	20.2	20.6
201353	19.8	18.9	275111	19.9	19.6	24926	19.9	18.7	183003	20.0	20.3	338447	20.1	20.2	542917	20.2	21.8
438693	19.8	19.7	196051	19.9	20.3	137035	19.9	18.5	517804	20.1	20.4	197193	20.1	18.4	6313	20.2	17.1
293432	19.8	20.3	266178	19.9	19.8	195726	19.9	19.0	125613	20.1	18.1	286697	20.1	19.3	457479	20.2	20.4
157118	19.8	19.7	518930	19.9	19.9	65555	19.9	19.6	81716	20.1	20.4	167387	20.1	19.3	357708	20.2	21.7
275892	19.8	19.5	123096	19.9	19.2	60230	19.9	20.2	178018	20.1	20.6	135986	20.1	20.8	313439	20.2	19.6
56155	19.8	18.0	68355	19.9	17.8	2767	19.9	16.4	148942	20.1	19.5	457849	20.1	20.8	10444	20.2	17.5
131354	19.8	20.0	291166	19.9	20.4	97701	19.9	19.2	460664	20.1	20.1	85272	20.1	19.7	345391	20.2	20.2
99119	19.8	18.4	521794	19.9	21.0	12374	19.9	18.3	164856	20.1	19.3	51772	20.1	18.4	477230	20.2	21.5
384296	19.8	19.9	434506	19.9	20.9	119536	19.9	16.8	105314	20.1	19.4	242361	20.1	19.6	300299	20.2	20.2
398024	19.8	20.7	504498	19.9	20.3	142587	19.9	19.6	482911	20.1	20.0	262327	20.1	19.5	452950	20.2	20.5
300727	19.8	19.7	14543	19.9	18.1	201302	19.9	20.1	218999	20.1	20.2	36534	20.1	17.9	216173	20.2	19.7
245392	19.8	20.6	544966	19.9	20.5	195801	19.9	19.8	506128	20.1	19.6	43261	20.1	18.1	369842	20.2	21.1
60455	19.8	19.2	288005	19.9	19.4	460589	19.9	20.3	264810	20.1	20.6	475887	20.1	20.4	48050	20.2	18.3
149	19.8	12.7	408796	19.9	20.8	108128	19.9	19.9	221683	20.1	20.7	504702	20.1	19.6	8785	20.2	17.9
187082	19.8	20.3	230208	19.9	20.4	237883	19.9	21.3	57569	20.1	18.6	265955	20.1	20.2	405650	20.2	21.2
339913	19.8	20.0	462429	19.9	20.8	298499	19.9	21.9	37481	20.1	19.2	81578	20.1	19.6	33584	20.2	17.9
347493	19.8	19.8	445725	19.9	20.3	352799	19.9	19.6	224746	20.1	19.6	174951	20.1	19.4	1750	20.2	16.0
51393	19.8	18.9	226433	19.9	20.5	454513	19.9	21.0	450662	20.1	20.9	137428	20.1	19.6	374230	20.2	20.9
120384	19.8	19.2	86983	19.9	18.8	197675	19.9	21.1	447616	20.1	21.0	287985	20.1	20.0	10109	20.2	16.9
22092	19.8	16.1	24863	19.9	16.9	79018	19.9	19.2	142265	20.1	19.2	402397	20.1	20.8	109640	20.2	18.2
448733	19.8	20.6	493458	19.9	20.9	456013	19.9	21.0	200336	20.1	19.6	541671	20.1	20.6	242974	20.2	19.9
296569	19.8	21.3	205397	19.9	19.2	127660	19.9	20.4	54311	20.1	18.5	290149	20.1	21.3	215710	20.2	19.3
153907	19.9	20.2	213036	19.9	19.7	197430	19.9	19.3	317609	20.1	19.0	278891	20.1	21.2	370235	20.2	21.1
364318	19.9	20.8	453675	19.9	20.4	115268	19.9	19.5	98299	20.1	18.8	10461	20.1	17.4	499162	20.2	22.2
131327	19.9	19.2	483518	19.9	20.5	191422	20.0	19.5	193297	20.1	20.6	541838	20.1	20.7	267230	20.2	20.2
446777	19.9	21.6	168076	19.9	20.8	513357	20.0	20.7	114487	20.1	18.0	191406	20.1	21.1	54785	20.2	19.2
396157	19.9	20.5	108298	19.9	19.8	233537	20.0	20.5	281559	20.1	20.0	518655	20.1	21.4	193183	20.2	20.6
101751	19.9	20.1	364964	19.9	20.7	44151	20.0	17.9	297331	20.1	19.6	421234	20.1	20.6	179871	20.2	19.4
463621	19.9	20.8	156659	19.9	19.3	388552	20.0	20.6	179352	20.1	20.3	46349	20.1	17.8	78883	20.2	19.0
475202	19.9	21.2	207020	19.9	20.3	94864	20.0	19.3	521508	20.1	21.6	222496	20.1	18.5	397266	20.2	20.8
485209	19.9	21.0	283784	19.9	19.7	427096	20.0	20.5	236299	20.1	19.3	331849	20.1	19.6	361660	20.2	20.1
78087	19.9	19.3	140118	19.9	19.6	287000	20.0	19.6	4814	20.1	18.0	84759	20.1	19.5	310710	20.2	20.5
349555	19.9	21.7	13959	19.9	17.6	169344	20.0	21.2	275818	20.1	20.1	330186	20.1	20.8	267630	20.2	19.7
27433	19.9	18.8	101595	19.9	18.9	496256	20.0	20.4	523313	20.1	20.0	5631	20.1	16.8	467136	20.2	20.0
542707	19.9	21.1	212464	19.9	19.6	121620	20.0	19.5	187109	20.1	20.1	28052	20.1	18.9	72867	20.2	19.2
305127	19.9	20.4	462707	19.9	20.8	146574	20.0	18.4	136054	20.1	18.2	394195	20.1	20.8	372745	20.2	20.1
259956	19.9	19.7	151092	19.9	18.6	466824	20.0	20.8	65857	20.1	18.5	110939	20.1	18.0	221684	20.2	20.4
218147	19.9	19.4	83016	19.9	19.3	167193	20.0	19.6	416189	20.1	20.9	486927	20.1	21.7	282718	20.2	20.8
360798	19.9	19.8	133690	19.9	20.6	329453	20.0	21.3	176272	20.1	19.8	254877	20.1	20.5	14504	20.2	17.1
413802	19.9	20.0	303126	19.9	19.0	315691	20.0	19.8	128274	20.1	19.3	300632	20.1	20.0	62474	20.2	19.2
271401	19.9	20.5	269136	19.9	20.5	363465	20.0	21.3	109799	20.1	19.7	401815	20.1	21.6	419351	20.2	20.1
477394	19.9	21.0	473772	19.9	19.5	49338	20.0	18.1	170437	20.1	19.3	236085	20.1	19.9	18733	20.2	17.9
224114	19.9	20.6	446332	19.9	20.1	351364	20.0	19.2	18266	20.1	19.5	229355	20.1	20.6	516888	20.2	21.7
63410	19.9	19.1	488601	19.9	20.8	18908	20.0	19.0	228187	20.1	19.8	372029	20.1	20.4	254686	20.2	19.8
80773	19.9	18.4	144704	19.9	17.9	210491	20.0	20.2	313525	20.1	21.2	420021	20.1	20.3	157150	20.2	20.4
357084	19.9	21.2	295098	19.9	21.2	70756	20.0	17.5	112787	20.1	18.8	407703	20.1	21.3	164837	20.2	19.8
148485	19.9	20.7	290143	19.9	20.5	139609	20.0	20.1	413210	20.1	20.7	369186	20.1	20.3	38907	20.2	18.2
246142	19.9	18.4	57277	19.9	18.3	119124	20.0	18.2	191215	20.1	18.9	331314	20.1	20.8	541664	20.2	20.9
149617	19.9	19.8	272179	19.9	20.1	3330	20.0	16.8	100845	20.1	19.3	494812	20.2	21.7	456916	20.2	20.2
148917	19.9	17.5	91552	19.9	20.7	33089	20.0	17.4	327919	20.1	20.3	464814	20.2	20.7	493147	20.2	20.5
252365	19.9	21.1	49187	19.9	18.2	401075	20.0	21.4	10632	20.1	17.2	316891	20.2	20.4	450629	20.2	21.4
157170	19.9	20.1	225252	19.9	21.3	74086	20.0	19.2	380104	20.1	21.4	23796	20.2	17.1	456176	20.2	19.8
477402	19.9	20.6	189735	19.9	20.0	436798	20.0	22.9	248275	20.1	21.0	143842	20.2	19.3	429936	20.2	20.7
5467	19.9	15.9	440666	19.9	20.0	353768	20.0	19.5	289904	20.1	19.6	376647	20.2	20.0	45494	20.2	18.5
444481	19.9	19.9	60238	19.9	20.0	404337	20.0	21.2	62332	20.1	19.5	76208	20.2	18.3	237820	20.2	19.6
329876	19.9	20.7	354248	19.9	21.0	412352	20.0	21.6	267988	20.1	19.9	412514	20.2	20.4	181899	20.2	19.8
329542	19.9	21.1	64602	19.9	18.6	92780	20.0	20.7	73166	20.1	19.1	270155	20.2	20.5	335233	20.2	22.2
341012	19.9	20.1	127448	19.9	19.1	347628	20.0	20.5	395349	20.1	21.5	346524	20.2	19.9	370525	20.2	20.2
197413	19.9	19.5	515899	19.9	21.6	334123	20.0	20.5	141679	20.1	19.9	370293	20.2	20.7	70551	20.2	18.7
198033	19.9	20.0	13558	19.9	18.2	421108	20.0	21.5	96764	20.1	18.6	268742	20.2	21.0	519494	20.2	21.3
270954	19.9	20.1	513711	19.9	21.7	320958	20.0	21.2	278054	20.1	20.6	25508	20.2	18.0	97940	20.2	19.7
74400	19.9	18.1	487213	19.9	21.2	446313	20.0	20.5	410965	20.1	19.8	364946	20.2	20.7	129912	20.2	19.4
486964	19.9	20.5	193256	19.9	19.5	197723	20.0	19.9	8460	20.1	17.4	240984	20.2	21.0	274447	20.2	20.5
414285	19.9	19.2	7124	19.9	15.9	94907	20.0	19.3	70357	20.1	19.2	61736	20.2	18.2	516434	20.2	20.5
195671	19.9	19.9	492634	19.9	20.3	144464	20.0	19.8	404326	20.1	20.3	227894	20.2	19.3	196069	20.2	17.9
452861	19.9	21.1	232294	19.9	19.6	417286	20.0	20.8	9087	20.1	17.9	444499	20.2	20.7	153457	20.2	19.7
179084	19.9	21.0	202360	19.9	19.8	348422	20.0	20.5	444450	20.1	20.4	16					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
212034	20.2	20.2	313556	20.3	19.5	81211	20.4	19.2	307941	20.4	19.7	440142	20.5	21.4	373286	20.6	20.8
45228	20.2	19.0	427013	20.3	19.6	339645	20.4	21.0	453622	20.4	19.9	434419	20.5	22.2	295007	20.6	20.3
459823	20.2	19.9	193274	20.3	20.8	450707	20.4	19.6	252616	20.4	20.1	401161	20.5	20.2	401103	20.6	20.9
199243	20.2	20.4	414539	20.3	19.9	244359	20.4	20.5	265608	20.4	19.9	544590	20.5	21.4	313506	20.6	20.6
64696	20.2	18.8	3526	20.3	16.8	367872	20.4	20.7	332688	20.4	20.7	195841	20.5	20.8	400308	20.6	20.9
232462	20.2	19.1	487657	20.3	20.7	411834	20.4	20.9	287752	20.4	18.8	181123	20.5	20.2	295601	20.6	21.8
439326	20.2	21.2	21495	20.3	18.0	90790	20.4	19.2	228058	20.4	20.0	459415	20.5	19.9	460893	20.6	19.9
146798	20.3	19.4	226660	20.3	19.1	278099	20.4	19.8	322919	20.4	19.2	116242	20.5	19.3	336647	20.6	20.9
321400	20.3	20.1	241320	20.3	20.4	436123	20.4	20.8	353083	20.4	19.7	198733	20.5	19.5	460436	20.6	20.5
70723	20.3	18.2	418668	20.3	20.3	485520	20.4	19.5	444422	20.4	20.9	298540	20.5	19.7	388533	20.6	20.7
306568	20.3	21.1	324898	20.3	19.9	44814	20.4	18.9	190269	20.4	20.4	489439	20.5	20.3	523680	20.6	21.9
198827	20.3	19.6	106097	20.3	18.1	278619	20.4	21.9	16144	20.4	17.4	486574	20.5	21.0	374765	20.6	20.3
111057	20.3	18.9	173197	20.3	19.6	460778	20.4	20.4	221943	20.4	19.6	264795	20.5	20.5	200835	20.6	18.4
320833	20.3	20.7	18269	20.3	18.6	285884	20.4	20.0	348175	20.4	21.6	444797	20.5	21.4	402263	20.6	20.8
376609	20.3	20.3	292746	20.3	20.5	517755	20.4	22.1	291931	20.4	21.5	177403	20.5	19.0	436045	20.6	20.4
82637	20.3	20.1	392730	20.3	19.1	260009	20.4	20.7	12328	20.4	17.5	168416	20.5	20.0	46636	20.6	18.4
399780	20.3	20.4	438144	20.3	20.4	29871	20.4	16.9	82241	20.4	18.8	1278	20.5	14.8	468921	20.6	20.5
30219	20.3	19.5	329455	20.3	20.4	488117	20.4	20.7	371829	20.4	20.3	164852	20.5	19.7	2858	20.6	17.1
293700	20.3	20.7	300621	20.3	19.9	54477	20.4	18.7	145957	20.4	18.6	294212	20.5	20.7	273994	20.6	20.2
168154	20.3	20.3	81684	20.3	19.2	212500	20.4	20.7	353627	20.4	20.4	395299	20.5	20.0	545026	20.6	20.4
377500	20.3	21.1	463022	20.3	20.2	522346	20.4	21.0	519397	20.4	20.6	286546	20.5	19.6	345828	20.6	20.7
128732	20.3	19.6	68303	20.3	19.7	200007	20.4	20.0	393523	20.4	20.8	321621	20.5	19.1	149863	20.6	19.8
13118	20.3	17.6	520372	20.3	21.5	293763	20.4	20.5	376772	20.5	21.1	43017	20.5	19.6	250649	20.6	21.1
240747	20.3	20.1	329134	20.3	20.8	462694	20.4	20.7	134480	20.5	18.3	249829	20.5	19.5	389654	20.6	21.2
404970	20.3	19.4	158587	20.3	19.6	193275	20.4	21.0	396696	20.5	20.2	543476	20.5	20.7	120634	20.6	19.3
271450	20.3	20.5	291635	20.3	21.1	235805	20.4	19.1	34306	20.5	18.6	311813	20.5	19.6	270179	20.6	20.0
54475	20.3	18.7	125107	20.3	20.3	444920	20.4	20.2	161632	20.5	21.0	57991	20.5	19.8	380064	20.6	21.1
334147	20.3	20.2	161459	20.3	18.8	323363	20.4	20.0	350302	20.5	21.3	488264	20.5	20.6	192033	20.6	19.7
422855	20.3	21.3	350525	20.3	18.9	414716	20.4	20.6	521947	20.5	20.0	224812	20.5	20.7	44369	20.6	19.3
56535	20.3	19.6	261274	20.3	21.5	249195	20.4	20.0	302962	20.5	21.2	293632	20.5	20.9	267684	20.6	20.9
73566	20.3	19.6	362234	20.3	20.5	373463	20.4	21.0	5963	20.5	16.5	261363	20.5	20.0	41280	20.6	18.0
283782	20.3	20.7	55055	20.3	18.5	418557	20.4	21.1	404470	20.5	20.3	276787	20.5	21.1	473367	20.6	20.2
395479	20.3	22.2	351383	20.3	19.6	300427	20.4	20.1	270168	20.5	21.4	329477	20.5	21.2	404575	20.6	20.8
524530	20.3	21.4	142425	20.3	20.6	156066	20.4	18.5	24913	20.5	17.3	517368	20.5	22.0	460986	20.6	20.0
491516	20.3	21.6	348471	20.3	20.6	372052	20.4	21.8	341961	20.5	20.6	330249	20.5	19.6	383490	20.6	20.0
75518	20.3	18.2	197813	20.3	20.6	190246	20.4	20.6	449664	20.5	20.4	348218	20.5	20.9	268255	20.6	19.9
145543	20.3	20.2	399373	20.3	22.3	311009	20.4	19.6	59064	20.5	19.7	449963	20.5	21.3	492010	20.6	20.2
207262	20.3	19.6	458344	20.3	21.0	232466	20.4	19.8	50790	20.5	18.8	223109	20.5	19.6	278778	20.6	19.8
254551	20.3	20.1	343276	20.3	19.8	116525	20.4	19.1	359259	20.5	19.9	359252	20.5	19.0	248736	20.6	20.1
314402	20.3	20.5	137354	20.3	20.0	207396	20.4	21.1	197197	20.5	19.4	481832	20.5	19.9	446302	20.6	21.2
281170	20.3	20.5	249131	20.3	18.8	404372	20.4	20.4	313214	20.5	20.4	169697	20.5	20.1	451219	20.6	19.6
373102	20.3	19.8	132662	20.3	19.9	153414	20.4	18.7	277169	20.5	19.9	160269	20.5	19.7	483363	20.6	21.5
108497	20.3	18.7	236509	20.3	19.5	445220	20.4	19.3	434125	20.5	21.4	190000	20.5	20.1	40668	20.6	18.5
320881	20.3	20.7	36370	20.3	18.5	326130	20.4	19.0	479841	20.5	20.0	311797	20.5	20.9	461387	20.6	21.0
412732	20.3	20.6	48963	20.3	17.9	355292	20.4	20.3	349579	20.5	21.2	44013	20.5	18.4	2174	20.6	17.4
235962	20.3	20.3	159807	20.3	19.8	487293	20.4	20.8	201616	20.5	20.6	279084	20.5	20.8	384283	20.6	19.0
348725	20.3	20.6	404398	20.3	21.0	503323	20.4	21.2	5700	20.5	17.7	370305	20.5	21.4	214182	20.6	20.3
312975	20.3	18.9	145179	20.3	20.0	344195	20.4	21.2	158048	20.5	20.4	247269	20.5	20.2	56975	20.6	18.8
273108	20.3	20.5	462743	20.3	20.6	77991	20.4	19.1	60466	20.5	19.3	252925	20.5	21.1	487887	20.6	21.2
524531	20.3	22.4	65307	20.3	19.9	364828	20.4	19.4	154862	20.5	20.4	462783	20.5	20.1	51868	20.6	19.0
82887	20.3	19.1	141364	20.3	18.8	409532	20.4	20.5	286984	20.5	20.2	479869	20.5	19.5	373261	20.6	21.4
188676	20.3	20.6	147438	20.3	18.8	494908	20.4	19.6	142636	20.5	19.7	204437	20.5	19.7	702022	20.6	20.2
365577	20.3	21.6	26298	20.3	18.0	237881	20.4	21.1	274563	20.5	19.9	73333	20.5	19.8	272206	20.6	20.7
496693	20.3	20.7	266913	20.3	20.0	78401	20.4	19.6	50831	20.5	18.3	360611	20.5	19.1	220599	20.6	20.4
191365	20.3	19.9	42169	20.3	19.2	277633	20.4	19.9	485527	20.5	21.1	113691	20.5	19.5	203052	20.6	19.4
232760	20.3	20.6	393512	20.3	21.5	101061	20.4	19.8	25282	20.5	16.5	282991	20.5	18.9	154723	20.6	20.1
174438	20.3	19.4	79686	20.3	18.8	197369	20.4	19.0	529060	20.5	21.7	217315	20.5	19.5	427783	20.6	20.3
184741	20.3	19.6	427091	20.3	19.7	156308	20.4	19.7	58804	20.5	17.1	484552	20.5	21.4	307944	20.6	20.2
5816	20.3	16.7	9936	20.3	17.2	329739	20.4	18.9	173766	20.5	19.2	386665	20.5	20.2	260073	20.6	20.8
227189	20.3	19.2	310304	20.3	19.8	363004	20.4	20.3	31228	20.5	18.3	325318	20.5	20.1	349957	20.6	20.6
440485	20.3	20.7	29811	20.3	17.4	290609	20.4	20.8	104488	20.5	18.2	413509	20.5	22.6	394148	20.6	20.7
343912	20.3	20.3	441081	20.4	21.3	174261	20.4	20.6	120017	20.5	18.9	268209	20.5	20.1	182003	20.6	19.0
33068	20.3	17.7	54946	20.4	18.5	393542	20.4	21.1	103204	20.5	19.4	275656	20.6	21.2	231145	20.6	19.6
454315	20.3	21.0	449479	20.4	21.6	157217	20.4	19.8	522261	20.5	21.1	276384	20.6	20.1	157549	20.6	19.1
408582	20.3	21.1	520405	20.4	21.7	48371	20.4	19.3	43255	20.5	18.5	181192	20.6	19.9	181197	20.6	20.6
201161	20.3	18.6	17597	20.4	18.2	427246	20.4	20.5	366063	20.5	20.4	471995	20.6	20.1	231211	20.6	20.2
113260	20.3	18.4	515963	20.4	22.0	131523	20.4	19.6	335890	20.5	21.4	494124	20.6	21.6	260014	20.6	19.4
168529	20.3	19.8	463975	20.4	19.6	371286	20.4	21.0	38793	20.5	18.7	137206	20.6	20.5	405560	20.6	20.8
408214	20.3	20.5	92425	20.4	20.3	176191	20.4	20.0	410								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
262371	20.6	20.6	339780	20.7	19.6	155693	20.8	19.7	365638	20.9	20.9	263402	20.9	19.6	171900	20.9	19.8
488624	20.6	22.9	372287	20.7	19.9	74461	20.8	18.6	452588	20.9	20.9	96158	20.9	18.3	212092	20.9	20.8
354612	20.6	20.0	493240	20.7	20.3	320877	20.8	20.5	334110	20.9	20.0	229417	20.9	19.6	81525	20.9	19.8
396688	20.6	20.8	136871	20.7	17.9	132895	20.8	19.7	355437	20.9	21.2	376331	20.9	20.6	320844	20.9	20.8
340120	20.6	19.7	131362	20.7	20.6	186615	20.8	19.1	7703	20.9	19.0	464121	20.9	20.3	4003	20.9	16.7
134506	20.6	18.5	380969	20.7	20.3	34282	20.8	18.1	153342	20.9	20.4	388486	20.9	20.5	180296	20.9	19.7
334317	20.6	21.9	96573	20.7	18.7	274463	20.8	20.0	307105	20.9	19.8	344126	20.9	19.1	189946	20.9	19.0
220021	20.6	20.5	45096	20.7	18.3	447877	20.8	21.9	264803	20.9	20.9	451292	20.9	20.1	9239	20.9	16.2
20708	20.6	16.9	332689	20.7	19.7	449754	20.8	20.1	335436	20.9	20.3	435437	20.9	20.0	142912	20.9	18.3
112583	20.6	20.0	453561	20.7	19.6	21027	20.8	18.1	448007	20.9	20.1	275053	20.9	21.4	488470	20.9	20.6
283250	20.6	19.6	72861	20.7	18.8	544471	20.8	20.8	45411	20.9	16.6	191340	20.9	19.1	302992	21.0	21.1
221837	20.6	20.2	404906	20.7	20.7	46784	20.8	18.8	51041	20.9	18.9	296898	20.9	20.8	187780	21.0	20.7
110373	20.6	19.3	318832	20.7	20.3	276343	20.8	20.9	464527	20.9	20.6	368076	20.9	20.2	53490	21.0	17.8
87756	20.6	19.2	514844	20.7	21.3	197451	20.8	18.6	487335	20.9	21.3	233298	20.9	19.9	309979	21.0	19.2
168532	20.6	19.7	7839	20.7	21.8	150707	20.8	19.5	86766	20.9	19.9	144443	20.9	19.5	179048	21.0	19.2
1552	20.6	15.5	9576	20.7	17.4	88689	20.8	19.8	405688	20.9	20.8	470167	20.9	20.7	121150	21.0	20.1
541625	20.6	21.4	271519	20.7	21.1	158675	20.8	19.7	336997	20.9	19.6	269324	20.9	20.1	229718	21.0	19.2
133045	20.6	18.9	331586	20.7	21.3	376320	20.8	20.7	521799	20.9	21.2	213952	20.9	19.5	449215	21.0	20.4
530396	20.6	21.2	257837	20.7	21.2	493272	20.8	20.4	156242	20.9	20.0	488009	20.9	20.7	85210	21.0	19.4
76780	20.6	18.7	248737	20.7	20.5	337224	20.8	19.1	520835	20.9	20.9	51559	20.9	19.3	486980	21.0	20.5
247674	20.6	19.1	368304	20.7	20.4	45663	20.8	17.4	382678	20.9	20.4	421551	20.9	21.2	366005	21.0	20.2
370402	20.6	19.7	271407	20.7	19.9	113259	20.8	20.0	337450	20.9	20.6	359303	20.9	20.0	10405	21.0	18.3
436205	20.7	21.2	276703	20.7	20.8	184166	20.8	19.9	475113	20.9	20.7	9872	20.9	17.5	461398	21.0	20.6
399772	20.7	20.1	288911	20.7	20.3	493636	20.8	21.1	56340	20.9	17.5	418861	20.9	20.1	360312	21.0	21.3
456971	20.7	18.9	344176	20.7	18.3	208779	20.8	20.5	418494	20.9	21.1	169190	20.9	20.1	261994	21.0	20.3
515320	20.7	21.1	72605	20.7	18.9	281346	20.8	20.2	49337	20.9	19.1	420102	20.9	20.6	403091	21.0	20.0
252013	20.7	21.1	15190	20.7	19.0	22723	20.8	18.4	76894	20.9	18.8	143897	20.9	20.2	455731	21.0	20.6
328375	20.7	19.5	351363	20.7	19.7	362706	20.8	19.6	262469	20.9	20.0	120515	20.9	19.6	393511	21.0	21.4
286957	20.7	20.4	316060	20.7	20.5	378370	20.8	21.4	155081	20.9	18.7	114801	20.9	19.4	234614	21.0	19.8
453676	20.7	19.8	480889	20.7	19.8	475080	20.8	20.2	335682	20.9	20.6	153438	20.9	19.3	212617	21.0	21.3
281118	20.7	20.1	491194	20.7	20.4	155690	20.8	20.4	118506	20.9	19.4	486354	20.9	20.0	70671	21.0	18.9
51453	20.7	19.8	182268	20.7	19.4	279418	20.8	20.4	287873	20.9	20.7	137585	20.9	19.0	367661	21.0	19.9
462224	20.7	19.3	334580	20.7	20.9	420092	20.8	20.5	493390	20.9	21.3	123506	20.9	19.9	405540	21.0	21.0
262419	20.7	20.7	289952	20.7	20.7	416669	20.8	22.1	303154	20.9	18.3	132717	20.9	19.6	400646	21.0	20.8
428108	20.7	21.6	110849	20.7	19.5	28385	20.8	16.8	397573	20.9	21.8	58799	20.9	18.5	416488	21.0	18.6
516482	20.7	22.0	312274	20.7	20.3	275816	20.8	21.0	347550	20.9	20.8	82736	20.9	19.2	366624	21.0	20.5
390918	20.7	20.6	476447	20.7	20.9	395364	20.8	20.1	75993	20.9	19.1	380960	20.9	21.2	59053	21.0	18.2
21560	20.7	17.7	192418	20.7	19.4	104818	20.8	17.8	442779	20.9	20.7	435018	20.9	19.9	491398	21.0	21.0
371329	20.7	21.2	10610	20.7	18.0	305909	20.8	19.6	190981	20.9	20.1	412003	20.9	20.1	27837	21.0	18.7
441216	20.7	20.7	516764	20.7	20.2	154760	20.8	20.5	336505	20.9	19.8	235531	20.9	19.6	52975	21.0	24.0
334202	20.7	20.6	488590	20.7	22.5	459922	20.8	20.9	77846	20.9	18.6	517407	20.9	22.2	31744	21.0	18.2
329521	20.7	22.3	129107	20.7	19.3	73608	20.8	17.4	267165	20.9	19.0	435446	20.9	21.0	333232	21.0	20.2
84618	20.7	19.2	24694	20.7	16.9	155962	20.8	19.2	141591	20.9	20.2	35926	20.9	18.2	59102	21.0	18.5
370069	20.7	20.1	459726	20.7	20.5	211214	20.8	20.4	542071	20.9	20.7	376240	20.9	20.7	369645	21.0	20.2
56417	20.7	17.9	523283	20.7	20.6	227058	20.8	18.9	301578	20.9	21.2	160597	20.9	20.3	418598	21.0	21.4
376688	20.7	20.2	404012	20.7	20.9	464315	20.8	19.5	476433	20.9	20.9	455761	20.9	21.0	208311	21.0	20.7
4099	20.7	15.9	198684	20.7	19.3	530506	20.8	21.0	85241	20.9	19.6	89541	20.9	18.6	256213	21.0	20.0
328688	20.7	21.2	100308	20.7	18.2	226395	20.8	20.2	354012	20.9	20.5	185090	20.9	19.6	474411	21.0	21.4
72438	20.7	18.1	112161	20.7	19.5	77001	20.8	18.9	339835	20.9	20.7	449759	20.9	20.2	394958	21.0	20.2
210522	20.7	20.0	181479	20.7	19.4	292068	20.8	21.1	421435	20.9	20.3	518570	20.9	20.5	417407	21.0	20.5
270233	20.7	18.8	427189	20.7	20.2	44292	20.8	18.3	226214	20.9	18.8	256028	20.9	20.3	452904	21.0	21.1
270212	20.7	20.4	217492	20.7	19.8	303476	20.8	20.1	69862	20.9	19.2	260459	20.9	19.3	71605	21.0	18.9
473937	20.7	20.3	312304	20.7	20.7	497253	20.8	20.5	491503	20.9	20.5	120084	20.9	19.1	309529	21.0	19.0
391561	20.7	21.3	272713	20.7	20.0	26824	20.8	19.0	119090	20.9	20.3	64490	20.9	18.3	473424	21.0	20.7
371796	20.7	21.0	301816	20.7	20.3	78019	20.8	19.1	188829	20.9	19.9	147367	20.9	20.0	116036	21.0	17.9
353450	20.7	20.3	401702	20.7	21.1	191464	20.8	19.1	310774	20.9	20.2	23484	20.9	18.3	222443	21.0	19.5
236369	20.7	19.2	228895	20.8	19.4	414665	20.8	21.2	197676	20.9	20.8	397243	20.9	21.3	385997	21.0	20.8
464580	20.7	20.3	453653	20.8	21.2	11205	20.8	16.5	453626	20.9	21.0	149685	20.9	20.0	139737	21.0	19.2
513902	20.7	20.3	317366	20.8	20.4	14591	20.8	17.7	347562	20.9	19.6	300660	20.9	18.8	348682	21.0	20.8
274966	20.7	19.6	135715	20.8	19.8	376675	20.8	20.0	183067	20.9	18.9	253387	20.9	20.3	232664	21.0	19.8
543128	20.7	21.5	69197	20.8	18.1	519751	20.8	20.9	86864	20.9	19.5	325443	20.9	21.0	88308	21.0	19.3
467016	20.7	19.1	84514	20.8	19.0	420198	20.8	20.8	70992	20.9	17.2	271356	20.9	19.9	451281	21.0	20.3
495282	20.7	20.9	361273	20.8	20.6	220602	20.8	20.8	3010	20.9	18.0	418434	20.9	20.9	256127	21.0	20.9
345802	20.7	20.7	285389	20.8	20.0	265375	20.8	20.1	235525	20.9	20.0	79557	20.9	19.6	543779	21.0	21.2
82108	20.7	19.2	423340	20.8	20.1	271325	20.8	19.7	21088	20.9	16.4	320847	20.9	20.3	326760	21.0	20.3
492525	20.7	20.7	201378	20.8	20.4	265890	20.8	20.0	400833	20.9	21.6	364527	20.9	18.9	442249	21.0	20.9
541386	20.7	20.1	197035	20.8	20.1	412700	20.8	21.5	263552	20.9	20.3	46293	20.9	18.1	303032	21.0	20.6
104778	20.7	20.7	376820	20.8	19.8	157164	20.8	19.9	452347	20.9	21.2	336075	20.9	20.7	490257	21.0	20.1
230416	20.7	19.8	153424	20.8	19.7	334116	20.8	20.4	416543	20.							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
98287	21.1	19.9	112545	21.1	19.3	441097	21.2	20.0	283392	21.2	18.6	61276	21.3	19.1	444815	21.4	22.7
267076	21.1	20.6	178732	21.1	19.9	279623	21.2	19.6	283042	21.2	18.7	394592	21.3	21.0	452336	21.4	22.0
145150	21.1	19.6	162296	21.1	19.7	519838	21.2	21.8	129414	21.2	20.3	332978	21.3	20.3	263454	21.4	19.7
19229	21.1	17.1	457276	21.1	21.7	473430	21.2	20.8	231665	21.2	19.5	408184	21.3	21.1	441152	21.4	22.5
265855	21.1	20.7	36812	21.1	18.7	372301	21.2	21.3	51929	21.2	18.8	424791	21.3	20.6	429051	21.4	19.2
516872	21.1	20.7	107854	21.1	20.0	182118	21.2	20.9	329430	21.2	21.4	121730	21.3	17.7	187000	21.4	20.6
100119	21.1	17.5	407123	21.1	21.1	473939	21.2	19.8	416082	21.2	21.4	146896	21.3	19.4	415173	21.4	19.6
398402	21.1	21.0	90050	21.1	19.3	74887	21.2	19.3	407686	21.2	18.1	516468	21.3	21.3	193165	21.4	21.1
338901	21.1	20.1	394534	21.1	21.8	287537	21.2	19.7	83998	21.2	18.9	202022	21.3	19.9	353421	21.4	20.6
182681	21.1	19.7	222876	21.1	19.7	140572	21.2	20.2	120530	21.2	20.4	219242	21.3	18.1	49560	21.4	18.9
25069	21.1	18.5	175838	21.1	20.4	1746	21.2	15.6	261631	21.2	19.1	68344	21.3	18.6	305052	21.4	20.4
188038	21.1	19.0	471510	21.1	20.0	226283	21.2	18.4	158767	21.2	20.1	411312	21.3	21.0	408687	21.4	20.9
339893	21.1	21.7	49445	21.1	18.4	418340	21.2	21.5	88265	21.2	18.9	136605	21.3	20.1	215516	21.4	21.2
449991	21.1	21.9	26388	21.1	18.1	454144	21.2	20.6	491647	21.2	21.4	175962	21.3	19.3	368408	21.4	20.2
333346	21.1	20.9	15526	21.1	17.1	330536	21.2	20.8	26	21.2	11.2	146326	21.3	18.7	35307	21.4	19.5
300763	21.1	20.6	13614	21.1	15.7	186198	21.2	20.1	294633	21.2	20.4	185598	21.3	18.6	23361	21.4	18.4
326096	21.1	20.3	48316	21.1	19.7	415452	21.2	19.8	267238	21.2	20.1	396939	21.3	21.9	489826	21.4	21.0
201472	21.1	20.1	132820	21.1	19.7	403067	21.2	19.0	266013	21.3	20.6	364962	21.3	21.2	303547	21.4	19.9
377239	21.1	20.0	101114	21.1	19.4	65496	21.2	19.8	156224	21.3	18.9	267985	21.3	21.6	189012	21.4	19.5
239585	21.1	19.7	460404	21.1	20.6	192258	21.2	20.1	544993	21.3	20.9	136576	21.3	18.6	199717	21.4	20.1
321387	21.1	20.2	372263	21.1	20.5	275737	21.2	20.5	391854	21.3	20.5	406639	21.3	20.7	410553	21.4	21.1
484330	21.1	19.7	169883	21.1	18.8	419963	21.2	20.2	486976	21.3	20.3	305099	21.3	19.7	82645	21.4	18.7
237734	21.1	18.2	210831	21.1	20.0	106790	21.2	18.9	375529	21.3	20.1	81514	21.3	18.7	255734	21.4	20.6
437848	21.1	21.4	438076	21.1	21.6	149600	21.2	19.0	425320	21.3	19.9	195974	21.3	18.9	213315	21.4	20.3
199102	21.1	19.6	389961	21.1	20.2	243198	21.2	19.9	145360	21.3	19.6	13238	21.3	18.8	11808	21.4	17.8
346336	21.1	21.7	407509	21.1	21.1	230184	21.2	19.7	446996	21.3	19.7	184449	21.3	21.1	459688	21.4	20.2
332301	21.1	21.5	473418	21.1	20.7	88850	21.2	18.8	26363	21.3	17.4	195018	21.3	19.0	419260	21.4	20.5
416574	21.1	19.5	217727	21.1	19.9	236315	21.2	20.3	138450	21.3	18.8	460625	21.3	20.1	254985	21.4	19.7
348989	21.1	20.9	18746	21.1	20.0	263573	21.2	20.3	516876	21.3	22.6	480871	21.3	21.2	162245	21.4	19.0
486867	21.1	19.7	65222	21.1	19.7	161907	21.2	20.4	15	21.3	8.6	453980	21.3	20.3	179200	21.4	20.0
376083	21.1	20.4	462145	21.1	20.6	97221	21.2	19.9	54037	21.3	17.9	111045	21.3	19.5	47750	21.4	19.3
397584	21.1	20.8	97206	21.1	19.1	294761	21.2	19.6	115685	21.3	19.4	231725	21.3	20.6	487064	21.4	21.0
34548	21.1	18.8	108433	21.1	19.1	225341	21.2	21.2	343724	21.3	20.8	31659	21.3	17.8	45190	21.4	18.3
149827	21.1	20.5	346356	21.1	19.9	182475	21.2	19.0	489373	21.3	20.9	165090	21.3	20.4	147966	21.4	20.4
26856	21.1	17.5	268186	21.1	19.5	191891	21.2	19.1	70616	21.3	20.5	465580	21.3	21.0	189698	21.4	20.2
382162	21.1	21.2	305250	21.1	19.6	453774	21.2	21.6	127625	21.3	18.0	522170	21.3	21.0	113763	21.4	18.3
449520	21.1	21.1	139503	21.1	20.8	278475	21.2	21.0	476922	21.3	20.1	482552	21.3	21.0	39085	21.4	18.0
284926	21.1	20.1	315826	21.1	20.5	485546	21.2	21.1	461557	21.3	21.0	280541	21.3	20.9	363585	21.4	20.0
359284	21.1	19.5	66412	21.1	19.3	251604	21.2	20.8	200136	21.3	20.3	121968	21.3	19.6	249881	21.4	20.3
345243	21.1	21.8	541459	21.1	20.8	485538	21.2	20.3	541624	21.3	21.6	21622	21.3	18.3	448754	21.4	21.0
301691	21.1	20.4	197107	21.1	19.3	40695	21.2	18.8	152851	21.3	19.5	366981	21.3	20.4	136782	21.4	18.7
77415	21.1	18.8	375437	21.1	20.8	108660	21.2	17.8	267674	21.3	20.4	134874	21.3	19.7	323222	21.4	20.4
261759	21.1	20.3	543955	21.1	20.1	270723	21.2	20.3	275952	21.3	21.1	457504	21.3	20.4	253743	21.4	19.2
345323	21.1	20.4	418744	21.1	21.0	283761	21.2	19.7	29824	21.3	18.9	168608	21.3	18.6	203183	21.4	18.9
44121	21.1	18.9	413705	21.1	20.7	250610	21.2	20.8	81774	21.3	18.9	111832	21.3	18.5	105344	21.4	19.9
154722	21.1	20.1	271441	21.2	21.1	343228	21.2	20.6	254106	21.3	20.9	73672	21.3	19.6	327994	21.4	19.8
371311	21.1	20.5	449495	21.2	20.7	245631	21.2	20.3	414996	21.3	20.0	65704	21.3	19.0	404499	21.4	20.2
151912	21.1	20.1	272402	21.2	21.5	291514	21.2	20.8	193839	21.3	20.4	125573	21.3	19.4	73418	21.4	19.0
315827	21.1	21.0	441479	21.2	20.6	110983	21.2	19.4	22359	21.3	18.6	492610	21.3	21.1	193107	21.4	19.6
101540	21.1	17.7	125705	21.2	17.7	357483	21.2	21.4	76000	21.3	17.6	494136	21.3	21.5	278152	21.4	20.8
405622	21.1	20.3	133700	21.2	18.8	202995	21.2	20.1	320096	21.3	20.0	475864	21.4	20.4	515814	21.4	21.3
542324	21.1	21.4	231401	21.2	21.7	330749	21.2	19.7	196127	21.3	19.5	113302	21.4	19.4	72635	21.4	19.3
162862	21.1	18.8	327677	21.2	20.1	79453	21.2	19.8	198506	21.3	19.2	168370	21.4	20.6	270846	21.4	21.0
399514	21.1	20.6	473980	21.2	20.1	280537	21.2	20.9	166045	21.3	19.6	248741	21.4	20.3	46602	21.4	18.5
341047	21.1	20.4	107806	21.2	19.9	290306	21.2	20.7	136389	21.3	18.8	326219	21.4	19.7	383658	21.4	21.3
261443	21.1	20.0	398607	21.2	20.5	216219	21.2	20.6	194780	21.3	18.9	413382	21.4	21.0	490772	21.4	20.8
165894	21.1	20.9	38468	21.2	17.9	304	21.2	13.9	462161	21.3	20.2	103858	21.4	19.4	269547	21.4	20.6
406290	21.1	20.6	63445	21.2	20.0	53904	21.2	19.3	363918	21.3	21.5	223097	21.4	20.6	289901	21.4	21.1
461866	21.1	20.5	291293	21.2	20.7	488139	21.2	20.3	81222	21.3	18.9	48532	21.4	18.8	92010	21.4	19.2
300783	21.1	19.3	420129	21.2	20.5	349494	21.2	20.2	324684	21.3	20.4	515935	21.4	22.1	45385	21.4	18.5
22764	21.1	17.3	284761	21.2	21.4	459820	21.2	21.1	9368	21.3	15.7	486373	21.4	20.9	55149	21.4	19.1
116884	21.1	19.4	28859	21.2	17.7	405974	21.2	20.1	23532	21.3	18.4	306629	21.4	19.8	51961	21.4	19.0
405651	21.1	20.7	290435	21.2	20.1	359665	21.2	20.6	131446	21.3	20.6	155784	21.4	20.7	23510	21.4	18.5
443154	21.1	21.1	408823	21.2	21.0	202644	21.2	21.3	486123	21.3	19.0	25930	21.4	19.1	298479	21.4	19.3
77040	21.1	18.3	202132	21.2	20.6	422666	21.2	21.2	334171	21.3	20.9	61883	21.4	18.2	239772	21.4	19.6
484120	21.1	20.4	181084	21.2	20.1	356530	21.2	20.2	268629	21.3	21.0	393524	21.4	21.2	47839	21.4	17.8
148739	21.1	18.9	8322	21.2	18.0	161035	21.2	19.6	459377	21.3	20.9	52036	21.4	19.6	430053	21.4	20.5
402268	21.1	20.8	449354	21.2	20.4	279360	21.2	19.5	454326	21.3	21.3	42241	21.4	18.4	380961	21.4	21.2
271351	21.1	18.9	537805	21.2	21.1	453658	21.2	21.4	25050	21.3							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
281988	21.4	20.2	119243	21.5	18.6	182402	21.6	19.6	46338	21.6	19.6	444623	21.7	20.0	168282	21.8	20.5
74706	21.4	18.9	23534	21.5	18.3	516529	21.6	21.8	541731	21.6	21.6	514888	21.7	22.0	495742	21.8	21.2
165910	21.4	19.9	268577	21.5	21.1	334612	21.6	19.7	248762	21.6	20.7	279994	21.7	19.7	128471	21.8	19.1
214836	21.4	20.9	278606	21.5	20.9	157527	21.6	20.0	273521	21.6	19.8	15481	21.7	17.6	85041	21.8	18.8
82376	21.4	19.2	53491	21.5	17.7	18686	21.6	17.6	75965	21.6	17.8	394615	21.7	21.5	48451	21.8	18.7
337853	21.4	19.8	441502	21.5	22.0	391134	21.6	19.0	172838	21.6	18.6	49626	21.7	17.7	273563	21.8	20.3
29014	21.4	18.8	450646	21.5	20.5	186454	21.6	19.6	290899	21.6	20.5	388465	21.7	21.4	369543	21.8	20.3
519229	21.4	21.6	369124	21.5	20.9	443321	21.6	20.1	401706	21.6	21.2	281404	21.7	21.3	110488	21.8	20.4
274648	21.4	19.9	307712	21.5	21.8	292875	21.6	19.6	162985	21.7	19.7	455948	21.7	21.0	463543	21.8	20.5
440324	21.4	21.6	457950	21.5	20.2	337565	21.6	20.3	86486	21.7	21.0	43196	21.7	18.5	486335	21.8	20.9
308771	21.5	21.5	430127	21.5	20.8	229037	21.6	19.9	481125	21.7	21.3	151040	21.7	19.4	201492	21.8	20.6
485663	21.5	20.6	68585	21.5	18.5	349134	21.6	21.5	76036	21.7	19.4	320188	21.7	21.6	433374	21.8	20.8
244656	21.5	19.6	339700	21.5	21.8	110586	21.6	19.2	232820	21.7	21.4	133801	21.7	19.3	479362	21.8	20.4
66151	21.5	18.3	51871	21.5	18.7	440137	21.6	21.7	290824	21.7	20.7	326843	21.7	21.2	541318	21.8	21.2
35287	21.5	19.2	82106	21.5	19.5	234426	21.6	20.5	455730	21.7	20.2	232038	21.7	19.5	443315	21.8	20.3
6010	21.5	17.3	474312	21.5	19.8	216987	21.6	19.6	104380	21.7	18.8	462729	21.7	20.2	74932	21.8	18.6
291602	21.5	19.0	238855	21.5	19.7	12071	21.6	16.7	116229	21.7	18.7	396710	21.7	20.6	58726	21.8	18.5
217158	21.5	19.7	273553	21.5	20.8	223141	21.6	19.0	418729	21.7	20.5	6455	21.7	19.7	199183	21.8	19.5
81270	21.5	19.5	234472	21.5	18.8	197405	21.6	18.9	77330	21.7	19.2	263613	21.7	19.7	136194	21.8	20.1
189679	21.5	20.7	82997	21.5	19.0	354031	21.6	19.8	152595	21.7	18.8	367019	21.7	20.9	145923	21.8	19.8
12462	21.5	17.0	8034	21.5	21.2	373028	21.6	20.8	230758	21.7	19.9	337569	21.7	21.5	201217	21.8	19.9
184663	21.5	19.5	150522	21.5	19.6	334662	21.6	18.4	232010	21.7	20.6	110653	21.7	20.9	462727	21.8	20.5
290107	21.5	21.2	48991	21.5	17.9	452913	21.6	21.5	4884	21.7	17.3	153856	21.7	19.3	47029	21.8	17.7
446756	21.5	20.9	308133	21.5	19.6	256416	21.6	20.1	145075	21.7	19.8	450643	21.7	20.9	410678	21.8	18.9
486991	21.5	21.1	322318	21.5	21.0	146659	21.6	18.7	163001	21.7	22.3	292453	21.7	20.9	29539	21.8	18.9
400149	21.5	21.1	116996	21.5	19.6	5755	21.6	15.9	494832	21.7	22.2	474904	21.7	21.1	110427	21.8	18.6
212223	21.5	19.6	280559	21.5	20.8	6982	21.6	17.4	278530	21.7	20.3	494160	21.7	21.3	355354	21.8	20.9
266105	21.5	21.1	274325	21.5	20.8	60415	21.6	17.9	6822	21.7	18.5	260727	21.7	19.3	136326	21.8	18.8
427938	21.5	21.3	464045	21.5	19.8	470526	21.6	20.5	137320	21.7	19.8	292214	21.7	19.2	303558	21.8	20.6
515766	21.5	21.2	440143	21.5	21.6	82333	21.6	18.8	126177	21.7	17.9	314963	21.7	20.8	153736	21.8	20.7
181213	21.5	20.1	249337	21.5	19.8	128065	21.6	19.0	106407	21.7	19.6	137216	21.7	20.0	91500	21.8	19.4
333738	21.5	20.2	113126	21.5	19.3	128402	21.6	20.4	47582	21.7	17.4	324744	21.7	20.9	46441	21.8	17.5
332830	21.5	20.2	60410	21.5	19.1	307713	21.6	20.9	150075	21.7	20.0	454320	21.7	21.3	92595	21.8	20.0
42171	21.5	17.9	155550	21.5	19.7	189724	21.6	17.9	47014	21.7	17.1	162932	21.7	20.5	475269	21.8	20.3
363515	21.5	20.6	211668	21.6	19.8	270842	21.6	20.1	365805	21.7	20.2	311668	21.7	19.5	448804	21.8	21.8
59426	21.5	17.5	28502	21.6	18.4	541200	21.6	21.1	313199	21.7	20.1	180054	21.7	19.6	74712	21.8	17.8
64845	21.5	19.7	455750	21.6	21.7	428497	21.6	19.8	336863	21.7	20.7	44485	21.7	17.2	139970	21.8	19.2
228688	21.5	20.0	369630	21.6	19.9	275753	21.6	19.8	302571	21.7	19.6	7820	21.7	18.2	319738	21.8	19.2
31143	21.5	16.8	46438	21.6	19.3	462474	21.6	20.4	239790	21.7	18.6	257852	21.7	19.9	452873	21.8	21.1
456088	21.5	20.1	465575	21.6	20.2	349688	21.6	19.5	42702	21.7	17.3	145140	21.7	19.7	332666	21.8	21.2
228724	21.5	19.4	460775	21.6	21.4	445603	21.6	20.9	82602	21.7	19.1	99845	21.7	18.1	232049	21.8	19.3
23856	21.5	17.5	354006	21.6	18.0	265168	21.6	20.0	12690	21.7	15.9	75174	21.7	19.7	245348	21.8	19.9
261711	21.5	20.2	279825	21.6	21.5	266121	21.6	20.3	284477	21.7	21.0	201459	21.7	19.9	253910	21.8	20.2
252788	21.5	19.1	73933	21.6	18.0	108357	21.6	19.8	327990	21.7	21.5	115866	21.7	19.2	66963	21.8	18.1
481812	21.5	21.2	140580	21.6	18.6	228415	21.6	20.2	191419	21.7	19.3	230452	21.7	20.5	453582	21.8	22.0
146775	21.5	19.8	279206	21.6	20.2	274332	21.6	19.7	436144	21.7	21.2	93285	21.7	17.5	458586	21.8	21.2
327118	21.5	21.4	275960	21.6	21.1	227174	21.6	21.1	230445	21.7	18.8	440676	21.7	20.0	474217	21.8	20.1
176913	21.5	19.8	490417	21.6	20.3	240435	21.6	20.0	74434	21.7	18.0	261444	21.7	20.9	137801	21.8	17.7
365250	21.5	21.5	57575	21.6	18.1	201579	21.6	19.8	301958	21.7	19.3	209025	21.7	20.1	11755	21.8	17.7
276537	21.5	19.9	233732	21.6	20.3	140169	21.6	19.4	406167	21.7	20.3	269924	21.7	20.4	127517	21.8	19.4
449043	21.5	20.2	46261	21.6	18.3	248586	21.6	19.9	310242	21.7	19.9	16977	21.7	16.5	359653	21.8	19.0
320767	21.5	20.3	405598	21.6	21.0	215308	21.6	20.3	143086	21.7	19.4	126493	21.7	19.4	161656	21.8	20.5
368841	21.5	20.7	287590	21.6	19.5	107983	21.6	19.0	542039	21.7	20.6	268335	21.7	20.0	395670	21.8	20.8
414516	21.5	21.4	101437	21.6	19.4	15766	21.6	17.2	77621	21.7	19.0	370638	21.7	19.8	385372	21.8	20.2
16611	21.5	18.2	475684	21.6	20.3	165136	21.6	19.7	418639	21.7	20.3	147809	21.7	20.4	172171	21.8	18.3
441523	21.5	21.1	397621	21.6	20.2	33909	21.6	17.4	223733	21.7	20.2	230694	21.7	18.9	218812	21.8	21.1
143016	21.5	18.9	407255	21.6	19.4	481481	21.6	20.4	1905	21.7	16.0	316363	21.7	20.6	14315	21.8	18.1
369942	21.5	19.3	280495	21.6	21.2	19051	21.6	17.8	56226	21.7	19.0	57979	21.7	19.5	492398	21.8	21.3
477408	21.5	19.5	541378	21.6	20.9	270102	21.6	20.1	112075	21.7	19.3	107480	21.7	18.7	195874	21.8	19.6
442611	21.5	20.1	338412	21.6	20.1	461489	21.6	20.3	31761	21.7	17.3	29148	21.7	18.7	446225	21.8	20.5
174953	21.5	19.0	137248	21.6	18.9	438524	21.6	19.8	74719	21.7	18.6	253308	21.7	19.7	477366	21.8	21.1
84725	21.5	19.8	343391	21.6	20.2	438678	21.6	20.7	195695	21.7	19.7	138232	21.7	19.8	493957	21.8	20.7
108007	21.5	18.4	495293	21.6	21.4	421288	21.6	20.3	341975	21.7	20.3	467799	21.7	19.3	456628	21.8	20.0
485552	21.5	21.0	452388	21.6	22.4	249847	21.6	20.1	48256	21.7	17.6	259671	21.7	19.9	95748	21.8	19.7
229023	21.5	18.4	174301	21.6	20.3	480273	21.6	21.4	124511	21.7	17.9	2047	21.7	16.7	455185	21.8	20.5
319420	21.5	21.3	3616	21.6	15.9	458306	21.6	21.5	491107	21.7	21.2	52386	21.7	19.1	337543	21.8	21.0
367865	21.5	20.0	34876	21.6	18.1	337664	21.6	20.4	109286	21.7	19.0	482860	21.8	19.6	465505	21.8	20.8
443836	21.5	21.7	211363	21.6	19.6	67228	21.6	18.7	23882	21.7	18.7	11407	21.8	17.0	78975	21.8	19.1
133622	21.5	19.8	396662	21.6	21.8	544417	21.6	19.4	216815	21.7	20.3	6					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
516578	21.8	20.7	97185	21.9	18.6	452036	21.9	21.0	333317	22.0	20.6	453592	22.1	20.9	441208	22.2	21.5
48717	21.8	19.8	446650	21.9	21.2	372256	21.9	19.6	309587	22.0	20.4	398690	22.1	20.4	404276	22.2	19.8
273600	21.8	19.6	415243	21.9	20.7	446781	21.9	20.6	424826	22.0	21.2	220042	22.1	19.6	390057	22.2	21.0
171467	21.8	18.6	320696	21.9	20.9	322719	21.9	20.7	176967	22.0	19.6	461392	22.1	21.1	379078	22.2	20.6
33386	21.8	18.2	22736	21.9	16.9	475575	21.9	21.8	300355	22.0	21.8	476397	22.1	20.5	229947	22.2	19.3
190964	21.8	17.3	461267	21.9	20.8	106601	21.9	19.0	219486	22.0	19.9	280972	22.1	19.7	269899	22.2	21.6
128977	21.8	19.6	512279	21.9	19.6	491499	21.9	22.2	370225	22.0	21.1	9739	22.1	16.1	514106	22.2	21.0
387892	21.8	21.6	159811	21.9	19.5	447499	21.9	20.6	189750	22.0	19.4	44545	22.1	19.0	485689	22.2	20.4
254774	21.8	21.1	486425	21.9	21.1	41104	21.9	18.6	54450	22.0	19.1	195782	22.1	20.2	182721	22.2	20.7
464879	21.8	20.6	98272	21.9	18.0	102451	21.9	19.3	124575	22.0	19.8	221617	22.1	19.4	167872	22.2	19.3
378468	21.8	20.3	382133	21.9	20.9	154351	21.9	20.0	448367	22.0	20.7	352955	22.1	20.0	283429	22.2	20.8
396893	21.8	19.7	60280	21.9	17.6	112113	21.9	19.3	450875	22.0	20.7	63995	22.1	18.5	310018	22.2	19.6
252663	21.8	19.5	516663	21.9	20.6	149187	21.9	20.2	481133	22.0	21.6	456281	22.1	20.3	231072	22.2	19.3
466773	21.8	20.3	311817	21.9	20.7	435138	21.9	21.5	393154	22.0	20.9	399476	22.1	21.7	247553	22.2	20.5
400824	21.8	20.7	57727	21.9	19.2	3914	21.9	16.3	152207	22.0	19.4	287046	22.1	20.3	112559	22.2	19.8
338470	21.8	19.2	491437	21.9	21.2	167653	21.9	19.3	181808	22.0	20.2	496187	22.1	21.6	317397	22.2	20.5
442729	21.8	20.2	120859	21.9	19.7	455338	21.9	19.7	216515	22.0	20.2	307785	22.1	19.8	450666	22.2	21.2
489019	21.8	21.3	29278	21.9	19.1	122222	21.9	20.1	215471	22.0	19.7	394569	22.1	20.8	223511	22.2	19.1
144645	21.8	19.6	217354	21.9	18.5	80763	21.9	19.1	277324	22.0	20.6	290740	22.1	20.8	153579	22.2	21.0
505317	21.8	20.1	124682	21.9	18.2	411005	21.9	20.3	97614	22.0	18.1	189876	22.1	19.5	347216	22.2	21.0
41398	21.8	18.3	418520	21.9	20.3	515589	21.9	22.2	216538	22.0	19.8	27955	22.1	17.7	211208	22.2	19.5
15331	21.8	17.6	403135	21.9	19.8	415252	21.9	20.3	182585	22.0	19.2	115737	22.1	19.5	139837	22.2	18.8
455207	21.9	20.7	113701	21.9	18.9	119694	21.9	19.6	402233	22.0	21.0	113536	22.1	19.6	148230	22.2	18.7
462966	21.9	21.3	440114	21.9	21.5	469498	21.9	19.7	223074	22.0	21.4	228	22.1	15.7	121909	22.2	20.3
26959	21.9	17.7	301533	21.9	19.7	335359	21.9	20.4	380033	22.0	20.3	99270	22.1	18.3	372272	22.2	20.6
348255	21.9	20.0	370605	21.9	20.6	518265	21.9	20.8	300287	22.0	20.2	188840	22.1	20.4	160359	22.2	19.5
224306	21.9	19.0	330866	21.9	22.2	483396	21.9	20.6	448756	22.0	21.3	463331	22.1	20.7	489485	22.2	20.6
242984	21.9	20.9	254742	21.9	20.3	542361	21.9	20.2	177579	22.0	19.6	337892	22.1	20.6	160617	22.2	19.1
480303	21.9	21.5	53816	21.9	17.8	230845	21.9	21.1	270166	22.1	20.1	87049	22.1	20.2	115986	22.2	19.6
31934	21.9	18.7	411055	21.9	20.2	494119	21.9	20.7	337514	22.1	21.2	155680	22.1	19.7	95508	22.2	19.6
58331	21.9	20.2	517829	21.9	20.8	243955	21.9	20.9	321771	22.1	21.6	482914	22.1	20.4	349650	22.2	20.2
149605	21.9	19.4	482726	21.9	20.4	28868	21.9	18.1	128115	22.1	19.4	516856	22.1	20.7	396944	22.2	21.0
290464	21.9	20.3	46287	21.9	18.4	541596	21.9	22.3	390845	22.1	21.5	293717	22.1	21.4	241292	22.2	20.8
71256	21.9	18.6	514041	21.9	21.6	140362	21.9	20.9	88992	22.1	20.2	50150	22.1	17.5	146120	22.2	19.6
21933	21.9	18.5	183232	21.9	19.5	198793	21.9	19.0	376855	22.1	21.5	418562	22.1	20.2	81304	22.2	18.8
284207	21.9	19.8	243415	21.9	20.7	17030	21.9	17.6	323649	22.1	20.3	439347	22.1	21.6	197925	22.2	20.2
406959	21.9	21.3	320902	21.9	20.3	275458	21.9	20.5	22388	22.1	18.4	275134	22.1	20.0	165868	22.2	20.0
99009	21.9	18.7	26215	21.9	17.9	441003	21.9	21.6	115965	22.1	18.8	455135	22.1	21.0	360947	22.2	21.7
119143	21.9	20.0	332822	21.9	20.3	119740	21.9	20.3	342262	22.1	21.5	372049	22.1	21.5	396355	22.2	19.8
514585	21.9	21.1	94542	21.9	19.0	414530	21.9	20.4	441179	22.1	21.2	117653	22.1	20.2	100184	22.2	19.9
288131	21.9	19.5	69436	21.9	18.8	266909	21.9	20.9	453663	22.1	20.7	543930	22.1	22.3	104872	22.2	19.4
6124	21.9	17.6	67144	21.9	19.2	244375	21.9	20.2	194767	22.1	18.4	200387	22.1	20.6	80956	22.2	19.4
261703	21.9	20.0	92596	21.9	20.0	197389	21.9	18.5	334064	22.1	21.0	463820	22.1	19.9	92735	22.2	18.7
182237	21.9	18.9	212243	21.9	20.4	274009	21.9	21.7	158304	22.1	19.3	542909	22.1	21.4	448743	22.2	21.5
22268	21.9	17.7	446033	21.9	20.2	231463	22.0	19.1	464568	22.1	20.0	202347	22.1	20.4	339795	22.2	20.2
402637	21.9	20.5	180920	21.9	20.8	266164	22.0	20.5	255778	22.1	21.4	401849	22.1	20.6	262272	22.2	21.0
461456	21.9	21.0	323568	21.9	20.7	406724	22.0	20.4	334954	22.1	19.8	386683	22.1	20.5	108374	22.2	19.5
188682	21.9	19.8	420764	21.9	21.2	238485	22.0	19.5	233836	22.1	20.3	188647	22.1	20.3	333512	22.2	21.9
84404	21.9	18.6	228905	21.9	18.2	456318	22.0	21.3	79399	22.1	20.1	343714	22.1	21.0	118107	22.2	19.2
291228	21.9	19.3	522420	21.9	21.2	150031	22.0	20.5	277103	22.1	19.7	544119	22.1	20.7	181146	22.2	20.3
218543	21.9	18.3	193075	21.9	20.6	322342	22.0	20.2	115497	22.1	19.7	499917	22.1	20.5	349121	22.2	20.7
578	21.9	14.1	418500	21.9	21.5	193247	22.0	20.1	394466	22.1	21.7	246074	22.1	20.1	49956	22.2	17.4
380965	21.9	20.6	189098	21.9	20.8	441742	22.0	20.9	418854	22.1	20.6	198119	22.1	21.0	262430	22.2	21.7
194606	21.9	19.3	330198	21.9	21.2	461486	22.0	20.9	228496	22.1	19.7	241436	22.1	20.6	396700	22.2	21.3
153389	21.9	21.0	314923	21.9	20.5	441492	22.0	21.5	454685	22.1	21.1	73505	22.1	18.0	458112	22.2	21.1
145610	21.9	19.9	198645	21.9	19.9	292104	22.0	21.5	282871	22.1	20.9	326849	22.1	21.2	437341	22.2	20.4
515907	21.9	21.9	189891	21.9	18.9	448819	22.0	20.9	448958	22.1	19.8	78080	22.1	19.1	210189	22.2	20.1
387171	21.9	20.6	176600	21.9	18.6	173366	22.0	18.5	55327	22.1	18.5	340141	22.1	20.1	459829	22.2	19.9
508354	21.9	19.1	263195	21.9	19.6	108149	22.0	20.0	136152	22.1	18.9	116425	22.1	18.9	151138	22.2	19.5
161457	21.9	20.0	130674	21.9	18.7	273258	22.0	20.6	372091	22.1	20.9	442641	22.1	21.6	438737	22.2	21.5
197701	21.9	20.3	446291	21.9	21.0	485681	22.0	21.2	473075	22.1	20.2	133110	22.1	19.5	112220	22.2	19.5
280547	21.9	21.4	331749	21.9	19.5	50079	22.0	18.0	203933	22.1	20.2	232953	22.1	20.7	252767	22.2	19.5
33110	21.9	17.4	25725	21.9	17.6	513312	22.0	22.7	44009	22.1	18.8	489786	22.1	19.5	101363	22.2	19.6
29292	21.9	17.4	216037	21.9	20.2	541316	22.0	21.0	189492	22.1	19.6	365667	22.1	20.4	276708	22.2	19.8
143885	21.9	18.4	277470	21.9	21.0	451475	22.0	19.8	66037	22.1	18.4	215503	22.1	19.4	118280	22.2	19.5
50365	21.9	19.6	270619	21.9	20.3	46925	22.0	16.7	187880	22.1	20.2	194623	22.1	19.0	307693	22.2	20.3
244954	21.9	19.7	271280	21.9	20.2	145344	22.0	19.5	460604	22.1	20.3	2211	22.1	17.2	75313	22.2	19.1
485536	21.9	20.1	231235	21.9	18.4	12209	22.0	17.3	301139	22.1	20.7	452835	22.1	21.5	421190	22.2	19.9
157184	21.9	20.8	523745	21.9	21.8	126556	22.0	19.3									

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
127153	22.2	19.8	523375	22.3	20.9	174254	22.4	18.9	137242	22.4	20.5	27436	22.5	18.5	313810	22.6	18.4
514365	22.2	21.6	84024	22.3	19.3	368406	22.4	20.8	383816	22.4	20.5	291116	22.5	19.5	195145	22.6	19.5
360471	22.2	19.6	274063	22.3	21.1	221973	22.4	19.8	174602	22.4	20.4	226961	22.5	19.3	31888	22.6	18.7
172165	22.2	20.0	465561	22.3	21.1	90235	22.4	19.4	248268	22.4	19.9	263537	22.5	20.1	543174	22.6	21.9
196131	22.2	19.6	368391	22.3	21.2	485129	22.4	21.7	485485	22.4	20.6	409451	22.5	21.8	328803	22.6	20.8
132753	22.2	19.6	391113	22.3	20.4	152048	22.4	20.0	94654	22.4	19.3	106987	22.5	18.6	418495	22.6	20.7
336840	22.2	19.9	136930	22.3	19.5	273200	22.4	20.3	410808	22.4	19.6	164594	22.5	18.0	454470	22.6	21.4
216673	22.2	19.0	110220	22.3	20.3	311036	22.4	19.8	287007	22.4	20.3	207205	22.5	19.9	360210	22.6	20.5
302548	22.2	20.8	180340	22.3	19.2	28527	22.4	19.2	425011	22.4	21.2	484205	22.5	21.3	427345	22.6	20.4
337448	22.2	20.6	46911	22.3	20.3	202116	22.4	20.2	334099	22.4	20.6	379066	22.5	20.6	137760	22.6	18.1
331868	22.2	20.0	383391	22.3	20.3	389428	22.4	20.2	492904	22.4	21.0	73459	22.5	18.9	369951	22.6	20.4
454487	22.2	21.4	133851	22.3	19.5	404160	22.4	20.6	300610	22.4	20.7	189896	22.5	19.9	113826	22.6	19.2
43571	22.2	18.1	16812	22.3	16.7	2855	22.4	15.5	436106	22.4	20.1	482036	22.5	20.4	469493	22.6	20.9
377564	22.2	20.2	109	22.3	11.2	188750	22.4	20.1	28157	22.4	18.6	228418	22.5	19.8	249934	22.6	19.4
353960	22.2	20.6	197872	22.3	20.3	51912	22.4	18.6	388073	22.4	21.1	273987	22.5	20.4	271103	22.6	20.7
345138	22.2	20.1	252649	22.3	20.2	182265	22.4	20.6	65372	22.4	18.6	463359	22.5	20.3	44195	22.6	19.9
212669	22.2	19.4	246755	22.3	20.9	489006	22.4	21.4	381345	22.4	19.7	459761	22.5	20.8	409606	22.6	21.6
492717	22.2	21.5	197720	22.3	20.6	402310	22.4	21.3	115537	22.4	19.8	191579	22.5	19.8	428854	22.6	20.5
485637	22.2	19.8	200065	22.3	20.4	486966	22.4	20.8	126806	22.4	19.7	162306	22.5	19.1	544485	22.6	21.0
285030	22.2	20.8	44194	22.3	19.6	73690	22.4	17.5	52079	22.4	20.5	329045	22.5	20.3	232419	22.6	19.4
256182	22.2	21.2	102882	22.3	19.4	405602	22.4	21.3	400080	22.4	19.8	299070	22.5	20.5	188768	22.6	20.5
95408	22.2	19.2	15345	22.3	16.5	149552	22.4	19.5	544404	22.4	20.6	193144	22.5	20.5	397534	22.6	20.5
317265	22.2	20.1	454201	22.3	21.2	4190	22.4	17.1	80780	22.4	19.4	45758	22.5	19.0	271525	22.6	21.7
238999	22.2	19.4	97680	22.3	20.1	127454	22.4	19.2	14577	22.4	17.2	70933	22.5	20.2	247279	22.6	20.5
493187	22.2	21.4	355020	22.3	21.7	316374	22.4	21.1	407322	22.4	21.2	190495	22.5	20.2	184602	22.6	20.7
52548	22.2	19.4	83855	22.3	19.7	44913	22.4	17.6	138313	22.4	18.7	191138	22.5	20.4	414696	22.6	20.2
228516	22.3	19.8	354413	22.3	20.1	174890	22.4	19.5	305889	22.4	19.5	181390	22.5	20.2	23717	22.6	18.2
265474	22.3	19.3	441868	22.3	19.8	223997	22.4	20.8	409591	22.4	21.4	270926	22.5	19.8	541405	22.6	21.1
467297	22.3	20.8	14829	22.3	18.1	230207	22.4	19.8	517731	22.4	21.2	182198	22.5	19.9	31568	22.6	17.6
157169	22.3	19.9	160938	22.3	18.8	229460	22.4	19.6	458098	22.4	19.8	265972	22.5	20.7	541689	22.6	20.7
263706	22.3	20.8	282715	22.3	20.7	483676	22.4	21.2	54743	22.4	18.7	437133	22.5	21.6	472689	22.6	20.3
223031	22.3	20.7	492200	22.3	20.9	521580	22.4	21.0	542072	22.4	21.8	117398	22.5	18.4	319524	22.6	20.3
162001	22.3	19.7	199651	22.3	19.9	181370	22.4	20.3	39599	22.4	19.1	179866	22.5	18.8	159839	22.6	20.3
455340	22.3	20.4	56406	22.3	19.0	168025	22.4	20.2	220626	22.4	20.6	131153	22.5	19.2	15556	22.6	17.6
492943	22.3	20.8	50374	22.3	18.4	68398	22.4	18.0	17267	22.4	18.0	96348	22.5	18.7	209707	22.6	19.6
456122	22.3	21.2	354627	22.3	20.6	296869	22.4	20.6	220065	22.4	21.1	295919	22.5	21.0	117123	22.6	20.0
231988	22.3	21.0	325725	22.3	20.1	218145	22.4	20.1	228673	22.4	19.7	368411	22.5	20.4	70536	22.6	17.4
543762	22.3	21.1	53249	22.3	19.2	483097	22.4	19.4	3590	22.4	15.2	89618	22.5	20.0	372765	22.6	20.5
307321	22.3	21.1	48384	22.3	17.8	177553	22.4	20.2	261181	22.4	19.6	466909	22.5	21.1	49654	22.6	17.9
94850	22.3	18.9	429791	22.3	21.2	189294	22.4	20.3	398507	22.4	20.8	461536	22.5	20.7	362463	22.6	21.4
95889	22.3	19.1	421543	22.3	20.4	31441	22.4	18.3	219885	22.4	19.9	218840	22.5	20.6	59319	22.6	18.2
227294	22.3	18.3	465025	22.3	20.5	62678	22.4	19.1	356854	22.5	21.3	337479	22.5	19.9	370379	22.6	20.7
348213	22.3	21.5	117433	22.3	18.9	26814	22.4	20.0	444655	22.5	20.6	489867	22.5	21.3	337337	22.6	18.2
104671	22.3	20.6	270134	22.3	21.2	146992	22.4	19.8	491578	22.5	21.6	9085	22.5	18.2	45029	22.6	18.9
485683	22.3	19.6	406715	22.3	21.3	324050	22.4	20.8	22684	22.5	18.0	289708	22.5	19.7	400367	22.6	21.4
116147	22.3	20.6	100090	22.3	19.1	132964	22.4	21.2	168540	22.5	18.3	473930	22.5	20.1	420172	22.6	20.4
466670	22.3	20.3	13730	22.3	17.9	431313	22.4	20.8	84877	22.5	18.5	515480	22.5	20.3	345386	22.6	19.9
400154	22.3	21.4	290051	22.3	20.5	333018	22.4	21.5	261112	22.5	20.3	192172	22.5	21.4	43539	22.6	18.4
2901	22.3	16.3	459414	22.3	20.1	359619	22.4	21.0	391976	22.5	20.7	272202	22.5	20.6	228249	22.6	19.2
326788	22.3	19.9	542411	22.3	20.5	112197	22.4	18.8	277252	22.5	19.7	197275	22.5	20.1	427188	22.6	20.5
122039	22.3	19.2	233664	22.3	20.6	100275	22.4	19.2	393360	22.5	21.6	419390	22.5	20.6	291424	22.6	20.9
299052	22.3	19.5	471213	22.3	20.7	40475	22.4	18.4	115454	22.5	18.7	402307	22.5	20.7	409387	22.6	19.2
410472	22.3	20.4	367656	22.3	19.9	15410	22.4	16.7	333410	22.5	20.3	300407	22.5	21.2	186425	22.6	21.2
356653	22.3	21.0	27547	22.3	18.5	67418	22.4	18.0	541134	22.5	20.9	230232	22.5	20.3	327633	22.6	21.2
375367	22.3	20.6	154437	22.3	19.3	28876	22.4	17.9	90807	22.5	20.2	38854	22.5	19.4	162966	22.6	20.4
270160	22.3	21.4	420188	22.3	20.7	280002	22.4	19.7	161585	22.5	20.8	24082	22.5	18.1	518525	22.6	22.4
13786	22.3	16.7	299188	22.3	19.8	352907	22.4	19.5	375075	22.5	20.7	438748	22.5	19.8	130065	22.6	19.1
474796	22.3	21.2	110501	22.3	20.1	92697	22.4	20.5	177584	22.5	20.2	218846	22.5	21.1	104825	22.6	19.1
124491	22.3	19.8	80822	22.3	19.7	9878	22.4	18.2	415015	22.5	20.2	328021	22.5	21.0	427206	22.6	19.8
162923	22.3	19.0	386916	22.3	19.6	328744	22.4	19.8	113797	22.5	18.7	277927	22.5	21.2	313265	22.6	19.9
35087	22.3	18.4	480012	22.3	19.4	273186	22.4	20.3	363859	22.5	21.5	497094	22.5	18.3	541395	22.6	20.6
238305	22.3	21.1	444927	22.3	19.5	135015	22.4	19.8	541338	22.5	21.8	273991	22.5	20.5	193066	22.6	20.1
161804	22.3	19.6	279692	22.3	21.2	361649	22.4	20.0	449767	22.5	20.6	457341	22.5	20.9	427122	22.6	21.2
364826	22.3	20.7	226590	22.3	19.5	227814	22.4	19.5	243242	22.5	20.0	365254	22.5	21.6	91894	22.6	18.1
456725	22.3	21.3	517798	22.4	20.7	490969	22.4	21.0	475038	22.5	20.5	493788	22.5	20.1	31021	22.6	18.1
440372	22.3	18.4	324119	22.4	20.6	418685	22.4	19.8	443328	22.5	19.9	7389	22.5	16.9	160687	22.6	20.1
150018	22.3	19.6	221433	22.4	20.8	375518	22.4	21.0	216946	22.5	20.6	352936	22.5	20.6	95545	22.6	18.9
211354	22.3	19.9	252312	22.4	21.3	492921	22.4	21.8	185703	22.5	20.8	197788	22.5	20.3	330353	22.6	21.5
271368	22.3	20.2	86502	22.4	19.0	108054	22.4	19.8	146776	22.5							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
488870	22.6	20.9	464136	22.7	20.5	201316	22.8	20.0	358746	22.8	20.4	406074	22.9	20.9	447604	22.9	20.0
24851	22.6	16.6	160601	22.7	17.7	224828	22.8	21.0	446835	22.8	21.4	132125	22.9	18.7	249213	22.9	20.2
164870	22.6	19.0	22111	22.7	17.6	81154	22.8	18.8	223159	22.8	19.6	294487	22.9	19.7	209312	22.9	20.9
63547	22.6	17.9	488248	22.7	20.0	175963	22.8	20.0	99762	22.8	20.0	278132	22.9	19.9	337713	22.9	20.9
8567	22.6	18.2	51094	22.7	18.4	543474	22.8	22.4	1442	22.8	15.6	494481	22.9	21.5	544606	22.9	20.8
15298	22.6	17.8	353733	22.7	20.1	459931	22.8	21.5	49757	22.8	19.4	125081	22.9	18.4	444425	22.9	21.4
182558	22.6	19.1	449653	22.7	21.5	197104	22.8	20.2	289664	22.8	19.9	466019	22.9	21.5	7182	22.9	17.6
12053	22.6	17.7	243918	22.7	20.7	438221	22.8	22.1	489025	22.8	21.3	444839	22.9	21.5	122101	22.9	19.6
464782	22.6	20.7	451936	22.7	21.1	159348	22.8	19.6	47420	22.8	17.5	181952	22.9	20.3	511529	22.9	20.3
12124	22.6	18.2	142619	22.7	19.2	345467	22.8	21.9	158746	22.8	19.8	274468	22.9	19.9	316403	22.9	20.8
371787	22.6	21.9	455082	22.7	20.5	450928	22.8	20.4	428088	22.8	21.4	262313	22.9	19.7	414726	22.9	20.7
190771	22.6	20.4	266079	22.7	20.5	63681	22.8	17.2	489907	22.8	21.9	506151	22.9	20.0	27891	22.9	17.4
321319	22.6	19.7	88288	22.7	19.5	292054	22.8	20.8	41163	22.8	19.4	24356	22.9	17.9	76696	22.9	17.4
88045	22.6	19.6	446643	22.7	21.7	360353	22.8	20.2	453765	22.8	20.6	159745	22.9	19.1	224616	22.9	20.1
523360	22.6	21.1	489609	22.7	22.0	221633	22.8	19.4	105359	22.8	20.1	475135	22.9	20.2	396668	22.9	21.5
43815	22.6	16.2	288231	22.7	18.9	326295	22.8	19.9	301608	22.8	19.2	147075	22.9	18.6	269288	22.9	20.1
156647	22.6	20.0	306029	22.7	21.7	515037	22.8	20.9	363941	22.8	21.2	354423	22.9	20.0	261361	22.9	20.5
515126	22.6	21.8	441575	22.7	21.7	376084	22.8	19.2	133689	22.8	19.0	445723	22.9	20.5	63397	22.9	19.4
514629	22.6	21.9	447501	22.7	21.1	485571	22.8	20.9	320979	22.8	20.1	542484	22.9	20.8	31197	22.9	17.3
275669	22.6	21.1	482686	22.7	20.1	229359	22.8	19.9	34843	22.8	18.4	113284	22.9	20.2	207123	22.9	19.6
479330	22.6	20.1	120720	22.7	19.1	458656	22.8	20.8	475668	22.9	21.8	236324	22.9	20.6	132172	22.9	20.4
300723	22.6	21.0	305033	22.7	21.6	448230	22.8	20.0	24615	22.9	17.9	490399	22.9	21.1	111424	22.9	19.0
261200	22.6	21.1	517902	22.7	21.6	309495	22.8	20.6	450952	22.9	19.9	382851	22.9	19.5	458070	22.9	19.6
392966	22.6	21.1	357614	22.7	19.3	250679	22.8	19.3	263838	22.9	20.0	383413	22.9	20.5	413243	22.9	20.7
318817	22.6	20.1	270918	22.7	20.2	346390	22.8	21.9	450586	22.9	21.2	380368	22.9	19.9	235631	22.9	20.1
357073	22.6	20.8	223724	22.7	19.5	356303	22.8	21.0	108670	22.9	18.5	446914	22.9	20.7	519352	22.9	21.0
461029	22.6	20.5	7311	22.7	17.7	330333	22.8	21.3	361189	22.9	20.4	169143	22.9	19.5	200937	23.0	20.0
459815	22.6	21.5	316344	22.7	21.6	486438	22.8	20.3	63652	22.9	19.1	450623	22.9	20.8	431800	23.0	21.0
89429	22.6	19.2	433057	22.7	21.2	220069	22.8	20.1	108208	22.9	19.7	317259	22.9	19.7	201329	23.0	20.8
172646	22.6	20.1	493069	22.7	20.4	76267	22.8	18.7	137214	22.9	20.2	245855	22.9	20.7	205869	23.0	19.5
124228	22.6	20.8	192235	22.7	20.0	3990	22.8	16.3	520446	22.9	21.8	116137	22.9	18.5	43837	23.0	18.9
438085	22.6	21.7	430016	22.7	20.7	90340	22.8	19.2	76454	22.9	18.4	8002	22.9	17.9	323546	23.0	19.7
63606	22.6	18.2	226466	22.7	19.1	78350	22.8	19.4	146687	22.9	19.8	79897	22.9	17.7	410948	23.0	20.1
201778	22.6	20.0	202046	22.7	20.2	372098	22.8	20.2	401062	22.9	20.1	381731	22.9	19.3	268658	23.0	20.8
266474	22.6	20.0	540004	22.7	21.9	446090	22.8	19.9	212474	22.9	20.0	306561	22.9	19.6	88908	23.0	19.7
376228	22.7	20.7	302579	22.7	19.6	51859	22.8	18.5	332277	22.9	20.7	24906	22.9	17.7	142695	23.0	20.1
135721	22.7	20.2	356084	22.7	20.9	491005	22.8	19.6	203829	22.9	19.7	13638	22.9	17.4	188700	23.0	20.5
146522	22.7	19.1	427118	22.7	20.8	292874	22.8	20.2	273867	22.9	20.8	81450	22.9	18.7	219555	23.0	20.9
412456	22.7	20.3	272329	22.7	20.4	95913	22.8	18.0	115944	22.9	18.3	135186	22.9	19.5	129965	23.0	20.6
168277	22.7	19.5	57254	22.7	18.4	209806	22.8	20.2	444723	22.9	20.8	242372	22.9	19.1	189935	23.0	19.8
27806	22.7	17.8	232242	22.7	18.9	305183	22.8	20.1	456399	22.9	21.6	448936	22.9	20.0	229658	23.0	19.9
108472	22.7	20.1	315738	22.7	20.6	224050	22.8	20.0	270701	22.9	21.0	454553	22.9	21.1	230459	23.0	19.3
372137	22.7	19.9	340868	22.7	20.6	72872	22.8	16.9	328029	22.9	20.3	165656	22.9	21.2	482066	23.0	20.5
460921	22.7	20.2	462438	22.7	20.2	100726	22.8	17.7	277655	22.9	19.7	451296	22.9	21.0	301954	23.0	20.5
229516	22.7	20.2	217139	22.7	20.8	15350	22.8	16.4	100498	22.9	19.5	326812	22.9	20.6	153340	23.0	19.5
329441	22.7	19.5	462523	22.7	20.2	174148	22.8	20.0	274712	22.9	20.2	442377	22.9	20.6	466038	23.0	21.1
418534	22.7	20.0	135499	22.7	19.4	244476	22.8	20.7	248025	22.9	20.8	379586	22.9	20.0	361783	23.0	19.9
538077	22.7	21.2	30901	22.7	18.2	496542	22.8	20.4	271006	22.9	20.2	184938	22.9	20.6	107157	23.0	18.6
455395	22.7	19.5	162026	22.7	20.1	2096	22.8	17.5	481013	22.9	21.0	101516	22.9	19.3	542695	23.0	21.5
74825	22.7	18.5	370319	22.7	20.1	343456	22.8	19.5	237787	22.9	19.3	499970	22.9	20.3	483673	23.0	21.4
76595	22.7	18.5	377146	22.7	21.3	158404	22.8	18.9	226599	22.9	19.5	59717	22.9	19.7	40019	23.0	19.1
33160	22.7	17.3	252540	22.7	20.0	207186	22.8	21.0	381900	22.9	20.1	247576	22.9	20.1	191380	23.0	20.1
89534	22.7	18.7	337429	22.7	21.6	331286	22.8	21.3	493434	22.9	21.0	92523	22.9	20.2	101381	23.0	19.1
404502	22.7	20.9	300510	22.7	20.3	105156	22.8	19.7	367655	22.9	18.3	118706	22.9	20.2	48563	23.0	19.7
486962	22.7	21.4	63931	22.7	18.2	543872	22.8	18.7	459559	22.9	20.2	213117	22.9	19.4	130373	23.0	20.2
449343	22.7	19.8	342089	22.7	19.2	281335	22.8	20.8	456212	22.9	20.7	494090	22.9	20.8	345949	23.0	20.4
516229	22.7	21.4	158252	22.7	18.6	109798	22.8	18.3	318244	22.9	20.8	483112	22.9	20.5	378546	23.0	19.7
407081	22.7	20.6	31864	22.7	17.8	268620	22.8	19.8	26687	22.9	16.8	487370	22.9	21.3	267244	23.0	21.1
337768	22.7	19.6	6991	22.7	16.2	245811	22.8	19.9	377150	22.9	20.3	209749	22.9	19.8	407037	23.0	20.5
121154	22.7	19.2	292920	22.7	21.1	3127	22.8	16.7	247610	22.9	20.2	393499	22.9	21.5	198704	23.0	19.2
212111	22.7	20.5	457332	22.7	20.9	426812	22.8	20.9	49933	22.9	17.5	159708	22.9	19.4	30674	23.0	18.3
353403	22.7	20.4	179070	22.7	20.1	385671	22.8	20.6	204159	22.9	19.9	246768	22.9	20.4	418742	23.0	21.2
172759	22.7	18.9	101704	22.7	18.8	268635	22.8	20.2	118150	22.9	20.3	476551	22.9	20.7	382057	23.0	19.8
516001	22.7	21.6	86516	22.7	19.4	32915	22.8	18.2	485657	22.9	21.2	266657	22.9	19.6	119192	23.0	19.9
516908	22.7	21.3	405641	22.7	21.3	292488	22.8	19.4	454438	22.9	20.8	47313	22.9	17.4	97423	23.0	17.5
158666	22.7	18.9	95820	22.7	19.4	111481	22.8	19.5	371795	22.9	20.8	520876	22.9	20.7	458638	23.0	20.9
273840	22.7	21.0	332821	22.7	20.3	177178	22.8	19.5	148059	22.9	20.5	15286	22.9	17.4	84518	23.0	18.1
157241	22.7	20.3	86550	22.7	19.9	370273	22.8	21.1	114339	22.9	18.6	245644	22.9	20.5	228248	23.0	19.7
69408	22.7	20.3	467893	22.7	21.0	473977	22.8	20.4	493227								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
363623	23.1	20.9	282125	23.1	19.5	80912	23.2	19.3	110506	23.3	19.3	72777	23.3	18.3	79853	23.4	19.1
100607	23.1	21.1	321815	23.1	19.2	127476	23.2	20.1	492789	23.3	21.2	180625	23.3	20.1	7868	23.4	17.3
132498	23.1	20.3	172600	23.1	20.1	340954	23.2	19.5	392723	23.3	20.3	51212	23.3	17.8	249911	23.4	18.6
278663	23.1	21.0	220740	23.1	20.8	107906	23.2	18.6	493462	23.3	20.5	53943	23.3	19.2	241084	23.4	20.1
248693	23.1	20.3	42706	23.1	18.8	358206	23.2	20.9	520553	23.3	20.8	30651	23.3	18.5	482747	23.4	19.6
298610	23.1	19.3	209701	23.1	19.2	33534	23.2	18.0	356766	23.3	20.1	438647	23.3	20.4	258231	23.4	21.5
320134	23.1	20.4	407485	23.1	21.0	334913	23.2	19.6	120862	23.3	19.2	20348	23.3	17.8	189739	23.4	20.1
232662	23.1	19.4	430085	23.1	20.6	400936	23.2	20.0	331728	23.3	20.1	362688	23.3	19.8	11106	23.4	16.6
137975	23.1	18.7	306672	23.1	19.1	197716	23.2	21.1	386663	23.3	20.0	36449	23.3	18.5	334940	23.4	20.6
242622	23.1	20.7	376767	23.1	20.1	397369	23.2	21.7	380977	23.3	19.8	494122	23.3	21.0	203856	23.4	19.0
297208	23.1	19.7	291497	23.1	19.9	270120	23.2	20.9	145859	23.3	20.3	199699	23.3	19.8	301369	23.4	19.8
136828	23.1	20.3	166698	23.1	20.3	179245	23.2	19.8	416394	23.3	21.8	463861	23.3	20.3	542002	23.4	21.2
274121	23.1	20.0	157115	23.1	19.9	210029	23.2	20.7	311904	23.3	19.1	143208	23.3	19.8	148987	23.4	20.4
27497	23.1	16.6	33934	23.1	19.8	164385	23.2	20.1	259408	23.3	19.8	487939	23.3	21.7	457944	23.4	21.1
269887	23.1	20.6	156914	23.1	19.3	311627	23.2	20.0	167936	23.3	19.7	340160	23.3	20.5	514131	23.4	21.4
79841	23.1	19.7	131987	23.1	19.5	211781	23.2	20.6	152350	23.3	20.1	421548	23.3	20.7	9485	23.4	17.5
72392	23.1	19.7	133562	23.1	19.7	333315	23.2	20.5	445183	23.3	19.9	340202	23.3	20.5	127483	23.4	20.0
348249	23.1	19.3	108579	23.1	19.6	276410	23.2	19.5	265179	23.3	20.5	224660	23.3	19.6	150873	23.4	18.9
150264	23.1	20.1	458706	23.1	19.6	134396	23.2	20.2	72583	23.3	19.0	426508	23.3	21.4	53361	23.4	17.9
121193	23.1	18.0	400909	23.1	20.0	334336	23.2	20.4	307890	23.3	19.4	339925	23.3	20.6	14495	23.4	15.3
473933	23.1	20.1	516210	23.1	21.2	427001	23.2	19.8	204585	23.3	18.9	221869	23.3	20.0	460224	23.4	21.2
495408	23.1	20.2	286581	23.1	19.0	315622	23.2	20.4	294260	23.3	20.4	225650	23.3	19.7	244299	23.4	20.0
111605	23.1	19.4	84177	23.1	19.3	172630	23.2	20.1	259485	23.3	19.6	360857	23.3	21.7	119201	23.4	19.3
400187	23.1	21.6	5443	23.1	16.3	436992	23.2	21.4	452328	23.3	20.6	441460	23.3	21.6	328369	23.4	20.5
384609	23.1	21.4	479545	23.1	20.6	403594	23.2	20.5	346463	23.3	21.8	267512	23.3	21.3	218837	23.4	21.0
75923	23.1	18.1	439236	23.1	22.2	124798	23.2	19.3	431138	23.3	22.1	65863	23.4	19.6	495579	23.4	20.1
475699	23.1	22.0	72625	23.1	18.7	65448	23.2	20.2	124674	23.3	18.1	368202	23.4	20.2	405719	23.4	19.4
231661	23.1	19.1	442206	23.1	19.8	137318	23.2	18.9	444750	23.3	22.1	134987	23.4	20.1	415533	23.4	20.9
101089	23.1	19.7	291875	23.1	20.7	427081	23.2	20.8	309423	23.3	20.6	196475	23.4	19.7	106649	23.4	18.7
99269	23.1	19.6	485532	23.1	20.4	280416	23.2	18.7	110144	23.3	20.1	441233	23.4	21.6	156157	23.4	20.1
473799	23.1	21.2	37799	23.1	18.6	446063	23.2	20.4	363955	23.3	21.4	474905	23.4	20.6	379021	23.4	20.8
195030	23.1	19.6	447888	23.1	20.8	464161	23.2	20.4	370356	23.3	19.9	48823	23.4	17.8	488408	23.4	19.9
319052	23.1	20.8	86455	23.1	19.0	456384	23.2	21.4	374595	23.3	21.1	290352	23.4	20.1	452059	23.4	20.7
21417	23.1	18.5	226235	23.2	20.9	175899	23.2	19.0	460887	23.3	20.9	113655	23.4	18.7	115592	23.4	18.6
107623	23.1	19.2	224061	23.2	19.9	196222	23.2	19.7	216154	23.3	20.3	486365	23.4	20.4	55542	23.4	18.7
319056	23.1	20.8	414668	23.2	21.0	333578	23.2	21.1	110197	23.3	19.5	132357	23.4	19.2	112472	23.4	18.8
357174	23.1	19.6	362787	23.2	20.6	268210	23.2	18.9	269204	23.3	20.4	221852	23.4	19.6	475664	23.4	20.1
26143	23.1	19.1	263726	23.2	19.8	448848	23.2	20.4	474909	23.3	20.7	532805	23.4	20.7	362550	23.4	20.7
397839	23.1	19.9	283768	23.2	21.2	142480	23.2	20.1	159737	23.3	19.5	76229	23.4	19.0	368505	23.4	20.5
90118	23.1	19.6	148201	23.2	19.6	386272	23.2	20.7	79302	23.3	19.8	452937	23.4	20.4	389373	23.4	20.1
142033	23.1	20.0	439643	23.2	21.3	58452	23.2	19.6	110232	23.3	19.5	463601	23.4	21.1	487786	23.4	20.3
303009	23.1	19.1	402840	23.2	20.7	201985	23.2	20.7	516533	23.3	20.8	355358	23.4	20.5	388513	23.4	20.4
305557	23.1	20.3	412629	23.2	20.4	56737	23.2	19.1	139404	23.3	19.6	438899	23.4	21.1	62247	23.4	19.2
478450	23.1	19.6	408351	23.2	20.3	267659	23.2	20.8	125200	23.3	19.8	367404	23.4	21.9	49021	23.4	19.4
410607	23.1	21.1	53460	23.2	18.3	515910	23.2	21.6	484534	23.3	20.3	257868	23.4	20.0	197969	23.4	20.8
25048	23.1	18.1	404073	23.2	21.0	339982	23.2	20.1	473555	23.3	21.2	471989	23.4	20.3	327036	23.4	19.9
368511	23.1	20.9	474242	23.2	20.2	304898	23.2	22.0	353138	23.3	19.6	83326	23.4	19.2	114171	23.4	19.8
70629	23.1	20.2	102832	23.2	19.5	270048	23.2	20.2	157896	23.3	20.2	372306	23.4	21.9	542979	23.4	21.6
117772	23.1	19.3	255790	23.2	20.7	51626	23.2	18.2	330157	23.3	20.4	101179	23.4	19.7	150674	23.4	20.8
249862	23.1	21.7	441724	23.2	20.6	1874	23.2	16.4	270713	23.3	20.2	433689	23.4	21.4	492052	23.4	21.6
444167	23.1	20.7	462710	23.2	21.1	130371	23.2	19.8	228899	23.3	20.2	413723	23.4	20.7	422895	23.4	20.9
372033	23.1	20.5	134000	23.2	19.0	451702	23.2	20.7	50863	23.3	18.5	344891	23.4	21.0	437074	23.4	19.9
343709	23.1	20.5	477347	23.2	20.4	123857	23.2	18.2	156841	23.3	18.8	287129	23.4	20.3	151372	23.4	19.3
92604	23.1	18.9	157555	23.2	19.6	33324	23.2	18.0	418528	23.3	20.7	225639	23.4	19.8	455167	23.4	20.6
520522	23.1	21.8	461217	23.2	20.3	23345	23.2	17.7	296614	23.3	20.8	413746	23.4	20.7	327687	23.4	21.5
145133	23.1	20.9	313251	23.2	21.4	267067	23.2	20.5	456219	23.3	22.1	93088	23.4	18.9	254897	23.4	20.4
118586	23.1	18.7	488339	23.2	19.8	305197	23.2	20.8	267927	23.3	19.7	543211	23.4	22.1	543099	23.4	21.4
206200	23.1	19.7	192298	23.2	19.6	76045	23.3	19.0	384311	23.3	20.2	251145	23.4	20.1	5670	23.4	15.6
260537	23.1	19.9	136754	23.2	19.3	65289	23.3	19.5	36629	23.3	18.3	309546	23.4	20.3	122407	23.4	19.8
252691	23.1	19.6	92540	23.2	19.2	57192	23.3	18.1	245489	23.3	19.2	337890	23.4	20.1	231593	23.4	20.7
108226	23.1	19.7	335971	23.2	21.9	20476	23.3	17.6	436802	23.3	22.3	522345	23.4	20.3	402255	23.4	21.5
63321	23.1	19.6	410797	23.2	21.7	20269	23.3	17.9	432612	23.3	20.6	4595	23.4	17.3	414519	23.4	21.3
331568	23.1	20.7	3024	23.2	16.0	265211	23.3	20.3	55185	23.3	19.7	223049	23.4	19.2	452845	23.4	21.0
273182	23.1	20.2	187960	23.2	20.7	250136	23.3	21.0	269156	23.3	20.1	334936	23.4	19.6	539822	23.5	21.2
221385	23.1	20.9	395208	23.2	20.9	254839	23.3	20.0	483528	23.3	20.7	41044	23.4	17.1	176309	23.5	20.2
541601	23.1	21.9	71727	23.2	17.4	13200	23.3	19.3	204968	23.3	20.8	295511	23.4	20.4	355343	23.5	20.9
93050	23.1	19.5	216780	23.2	21.3	355408	23.3	19.8	177212	23.3	20.0	271399	23.4	20.3	164976	23.5	18.6
281880	23.1	19.6	379761	23.2	20.7	379800	23.3	20.5	434113	23.3	20.6	324682	23.4	20.3	341038	23.5	20.2
338916	23.1	20.3	27842	23.2	17.7	77200	23.3	19.0	1978								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
459595	23.5	20.8	55752	23.5	19.0	419184	23.6	21.0	415706	23.7	21.5	391834	23.7	21.7	453987	23.8	20.0
6657	23.5	18.4	133010	23.5	19.8	5367	23.6	16.5	377518	23.7	20.4	215646	23.7	20.9	129198	23.8	19.9
158556	23.5	20.0	451462	23.5	21.7	208773	23.6	19.7	452819	23.7	21.8	67939	23.7	18.9	331349	23.8	20.7
514858	23.5	21.7	364938	23.5	21.3	159981	23.6	20.8	69421	23.7	18.3	307290	23.7	20.4	157327	23.8	20.5
128735	23.5	19.2	6836	23.5	17.5	448371	23.6	20.4	145351	23.7	19.1	180948	23.7	20.2	238232	23.8	19.4
195065	23.5	18.9	468740	23.5	21.4	117600	23.6	20.1	103856	23.7	19.5	378983	23.7	21.3	312603	23.8	19.7
276781	23.5	20.5	341013	23.5	20.7	507894	23.6	19.6	262180	23.7	21.0	248824	23.7	20.1	451523	23.8	20.7
91687	23.5	19.6	45097	23.5	18.7	435543	23.6	21.1	214951	23.7	19.9	331643	23.7	22.2	303089	23.8	19.5
460530	23.5	20.1	7759	23.5	17.8	152302	23.6	19.4	71460	23.7	19.3	248651	23.7	20.0	543186	23.8	20.5
51719	23.5	19.2	35072	23.5	19.4	185713	23.6	20.1	7525	23.7	16.6	205960	23.7	20.8	15650	23.8	18.0
9223	23.5	16.7	339649	23.5	22.0	75433	23.6	18.0	75494	23.7	18.3	67621	23.7	19.4	100991	23.8	20.5
390663	23.5	20.2	225332	23.5	20.6	213637	23.6	19.7	24548	23.7	19.1	204812	23.7	19.6	7102	23.8	17.5
460473	23.5	20.8	360244	23.5	20.8	307706	23.6	21.1	307654	23.7	19.9	290351	23.7	20.8	43467	23.8	18.2
492129	23.5	21.5	174677	23.5	20.0	220917	23.6	20.4	366809	23.7	20.3	256953	23.7	20.6	113292	23.8	19.3
268753	23.5	20.1	140134	23.5	20.0	399786	23.6	21.4	481193	23.7	20.2	172649	23.7	19.2	315701	23.8	19.6
453648	23.5	21.4	65717	23.5	16.4	518005	23.6	21.3	168975	23.7	18.6	103980	23.7	19.4	451875	23.8	21.4
54237	23.5	19.3	303375	23.5	19.0	204426	23.6	20.1	259311	23.7	19.4	212759	23.7	19.8	543019	23.8	22.2
148495	23.5	19.4	146559	23.5	20.4	540024	23.6	21.2	451482	23.7	20.3	80310	23.7	17.8	280164	23.8	20.6
294871	23.5	20.5	496570	23.5	20.3	473384	23.6	20.5	119791	23.7	19.6	134469	23.7	20.3	4666	23.8	17.2
519202	23.5	21.8	298527	23.5	21.0	494603	23.6	20.1	6429	23.7	17.4	173510	23.7	20.4	444369	23.8	18.8
35169	23.5	19.2	162229	23.5	20.3	407090	23.6	20.8	41663	23.7	18.5	271443	23.7	19.9	388542	23.8	20.9
512241	23.5	20.2	340852	23.5	20.3	127845	23.6	19.2	21909	23.7	17.5	266966	23.8	20.5	121029	23.8	19.0
480868	23.5	20.8	52493	23.5	19.1	229077	23.6	20.5	426760	23.7	20.5	81762	23.8	19.6	495765	23.8	20.8
154059	23.5	19.6	337508	23.5	19.9	493016	23.6	21.2	461466	23.7	21.1	443015	23.8	19.5	493208	23.8	21.7
17422	23.5	18.2	194003	23.5	20.7	142823	23.6	19.3	77705	23.7	18.6	144124	23.8	18.8	145800	23.8	18.8
287204	23.5	20.1	457311	23.5	19.2	304150	23.6	21.2	373882	23.7	20.3	138961	23.8	19.2	265888	23.8	20.5
461060	23.5	21.1	74877	23.5	18.2	194357	23.6	20.3	238434	23.7	20.4	332214	23.8	20.8	434178	23.8	21.0
352285	23.5	19.9	461488	23.5	21.4	485565	23.6	21.6	230155	23.7	20.6	197386	23.8	19.5	288266	23.8	18.9
522406	23.5	21.1	348272	23.5	21.2	77777	23.6	17.7	84412	23.7	18.7	104129	23.8	19.8	474822	23.8	20.3
47803	23.5	18.5	399194	23.5	21.1	61743	23.6	19.3	170387	23.7	20.7	163053	23.8	19.2	456447	23.8	20.7
177469	23.5	20.0	126155	23.5	21.9	69982	23.6	19.0	367011	23.7	20.4	74886	23.8	18.2	196380	23.8	19.2
492124	23.5	21.3	334914	23.5	18.8	39850	23.6	17.7	47799	23.7	17.2	309508	23.8	20.9	247521	23.8	20.4
99801	23.5	19.2	503234	23.5	21.4	465555	23.6	20.8	154097	23.7	20.5	177299	23.8	19.4	329425	23.8	21.3
541243	23.5	21.4	305232	23.5	19.7	339962	23.6	20.1	188044	23.7	19.9	386877	23.8	21.1	92742	23.8	19.9
425953	23.5	20.3	456646	23.5	20.6	490253	23.6	21.5	281958	23.7	20.8	25408	23.8	17.6	464316	23.8	21.2
162254	23.5	20.1	183011	23.6	20.6	169148	23.6	20.3	52904	23.7	19.2	430386	23.8	20.3	99008	23.8	18.4
400019	23.5	21.8	336779	23.6	21.1	151806	23.6	19.3	234616	23.7	19.3	453594	23.8	21.5	494086	23.8	21.0
104455	23.5	19.4	110993	23.6	20.3	104057	23.6	18.1	8315	23.7	18.0	248850	23.8	20.3	287801	23.8	20.9
448868	23.5	20.6	119181	23.6	19.9	412696	23.6	20.7	197068	23.7	19.5	86838	23.8	19.9	355142	23.8	19.7
416162	23.5	20.7	371791	23.6	19.9	408425	23.6	20.4	75060	23.7	17.0	204553	23.8	20.0	454476	23.8	20.7
311771	23.5	19.7	51507	23.6	19.1	130003	23.6	20.7	134490	23.7	18.5	138902	23.8	19.0	44475	23.8	18.3
167469	23.5	19.6	347204	23.6	21.0	267550	23.6	20.8	198691	23.7	19.5	541576	23.8	21.6	475732	23.8	20.9
402108	23.5	19.5	458104	23.6	20.2	295165	23.6	20.1	422368	23.7	19.9	361835	23.8	21.3	419309	23.8	21.4
382689	23.5	20.6	110428	23.6	18.9	538061	23.6	20.1	15015	23.7	16.9	30977	23.8	17.7	178166	23.8	19.7
277314	23.5	19.6	441044	23.6	20.2	84446	23.6	19.2	144668	23.7	19.8	459780	23.8	20.9	493214	23.8	21.0
176214	23.5	19.9	351308	23.6	20.7	223076	23.6	20.0	116041	23.7	18.9	467198	23.8	20.7	76081	23.8	18.7
364806	23.5	20.1	464350	23.6	20.8	523744	23.6	22.0	443831	23.7	22.5	66121	23.8	19.1	70520	23.8	17.5
147062	23.5	19.4	48434	23.6	18.7	198796	23.6	20.1	113475	23.7	19.1	485543	23.8	21.3	251456	23.8	20.1
451566	23.5	20.2	177176	23.6	18.8	275648	23.6	21.6	357392	23.7	20.0	515135	23.8	22.0	200200	23.8	19.4
412588	23.5	20.9	70156	23.6	18.4	97810	23.6	19.9	293164	23.7	20.9	268770	23.8	20.0	218943	23.8	20.8
351366	23.5	21.2	382653	23.6	20.7	359291	23.6	20.8	429076	23.7	21.2	519411	23.8	21.5	56783	23.8	18.9
57189	23.5	18.2	459920	23.6	20.6	236053	23.6	20.6	489184	23.7	20.5	484544	23.8	21.4	276761	23.8	19.2
516525	23.5	22.2	512212	23.6	21.4	329495	23.6	20.2	352951	23.7	20.0	161633	23.8	19.6	227528	23.8	20.4
189742	23.5	20.3	2224	23.6	16.1	43515	23.6	18.8	55538	23.7	17.0	402271	23.8	21.5	17091	23.8	18.0
387880	23.5	20.8	252369	23.6	21.2	227202	23.6	20.3	385529	23.7	21.0	297097	23.8	22.1	385060	23.8	21.0
73687	23.5	19.1	252644	23.6	20.1	95317	23.6	19.4	185745	23.7	21.0	361314	23.8	20.7	544814	23.8	21.4
110826	23.5	20.1	149508	23.6	20.2	268713	23.6	19.5	441632	23.7	21.7	109489	23.8	19.5	177390	23.8	19.8
63357	23.5	19.7	85558	23.6	18.2	299618	23.6	19.6	202159	23.7	19.0	377936	23.8	21.1	452354	23.8	21.8
184631	23.5	20.7	198651	23.6	19.6	457795	23.6	20.1	50682	23.7	18.8	30425	23.8	19.2	326108	23.8	20.1
415741	23.5	19.2	226525	23.6	19.8	228940	23.7	19.6	141677	23.7	19.3	57337	23.8	18.0	228469	23.8	20.1
117109	23.5	20.0	146724	23.6	18.1	52142	23.7	18.3	76462	23.7	19.1	314913	23.8	20.2	267579	23.8	20.6
492897	23.5	20.5	43877	23.6	19.9	412599	23.7	22.1	343359	23.7	20.0	23536	23.8	19.1	416169	23.8	21.3
489326	23.5	20.6	78854	23.6	18.8	453624	23.7	21.9	315715	23.7	20.9	4940	23.8	16.5	154450	23.8	19.2
167683	23.5	19.9	104384	23.6	18.5	199163	23.7	19.9	484199	23.7	20.5	491944	23.8	20.6	10625	23.8	16.9
447511	23.5	20.4	208070	23.6	19.2	52937	23.7	19.0	33805	23.7	16.6	376035	23.8	20.1	374592	23.8	21.0
485490	23.5	21.2	331517	23.6	21.4	271240	23.7	20.2	249504	23.7	20.2	273203	23.8	20.2	279028	23.8	20.1
53794	23.5	17.9	310966	23.6	19.8	11188	23.7	17.7	273334	23.7	20.8	395627	23.8	21.2	35440	23.8	17.6
133324	23.5	20.0	515119	23.6	21.0	361284	23.7	20.2	493997	23.7	19.8	119091	23.8	19.0	542674	23.8	20.5
472	23.5	11.9	314830	23.6	20.5	168592	23.7	18.9	42291	23.7	17.4	1					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
170506	23.9	21.0	255954	23.9	20.5	356108	23.9	20.3	134840	24.1	19.9	91641	24.1	18.1	122178	24.2	20.2
337349	23.9	21.1	483542	23.9	20.0	156633	23.9	19.4	252408	24.1	21.5	185911	24.1	20.4	30772	24.2	18.7
204161	23.9	19.7	379468	23.9	20.6	174974	23.9	20.3	46374	24.1	18.7	342150	24.2	21.3	452833	24.2	21.8
296834	23.9	18.4	517399	23.9	21.5	415495	23.9	20.0	412902	24.1	20.8	77610	24.2	19.0	544921	24.2	21.1
242966	23.9	20.0	451109	23.9	21.7	452066	24.0	20.4	77547	24.1	18.7	12518	24.2	17.6	303510	24.2	20.9
193076	23.9	19.6	49529	23.9	18.4	470258	24.0	19.7	36066	24.1	18.5	220601	24.2	20.8	262731	24.2	19.9
328447	23.9	22.0	33810	23.9	17.3	111766	24.0	19.0	369153	24.1	20.7	28726	24.2	18.8	454799	24.2	20.0
82994	23.9	18.1	71742	23.9	18.7	111258	24.0	18.6	155375	24.1	20.0	277388	24.2	20.6	183112	24.2	19.9
42722	23.9	18.4	124807	23.9	19.7	321609	24.0	21.0	253955	24.1	20.0	75691	24.2	17.9	4329	24.2	16.2
276689	23.9	20.1	330510	23.9	20.4	420709	24.0	21.2	415697	24.1	21.2	137912	24.2	18.9	114151	24.2	19.2
516282	23.9	20.6	333891	23.9	21.2	18958	24.0	17.8	116275	24.1	19.0	457323	24.2	21.3	465472	24.2	20.1
182696	23.9	18.9	157240	23.9	19.2	151774	24.0	19.9	390649	24.1	22.0	268794	24.2	19.5	224789	24.2	20.9
158064	23.9	21.0	408226	23.9	20.1	251284	24.0	20.8	477451	24.1	20.4	460479	24.2	20.6	199819	24.2	21.0
241859	23.9	20.5	519002	23.9	20.6	45188	24.0	18.8	297344	24.1	20.7	100461	24.2	19.8	218559	24.2	21.2
212741	23.9	19.7	488745	23.9	20.9	73751	24.0	19.9	307786	24.1	19.1	379456	24.2	19.6	294453	24.2	19.4
199771	23.9	20.2	323984	23.9	20.7	86454	24.0	19.1	74204	24.1	18.9	2149	24.2	15.7	36613	24.2	19.1
342214	23.9	20.7	136467	23.9	19.8	544648	24.0	20.2	75565	24.1	19.2	185439	24.2	20.1	156121	24.2	18.6
493442	23.9	20.8	207250	23.9	20.1	124846	24.0	20.1	103572	24.1	19.3	366948	24.2	21.3	358214	24.2	21.6
112989	23.9	19.0	302560	23.9	21.1	249020	24.0	20.6	373763	24.1	21.3	383457	24.2	19.3	108164	24.2	19.6
226305	23.9	18.4	221565	23.9	20.1	516892	24.0	20.9	152329	24.1	19.6	44817	24.2	19.1	43713	24.2	19.0
345312	23.9	21.3	248772	23.9	20.8	339884	24.0	21.3	151821	24.1	20.3	339900	24.2	19.7	115962	24.2	19.0
395467	23.9	22.2	364375	23.9	20.4	315708	24.0	20.2	223067	24.1	19.8	340136	24.2	19.1	357781	24.2	21.9
341	23.9	14.8	400406	23.9	18.9	1325	24.0	16.2	319000	24.1	20.7	206450	24.2	20.8	384617	24.2	20.2
541469	23.9	22.9	311867	23.9	20.7	9006	24.0	16.2	388963	24.1	21.0	323189	24.2	20.7	149228	24.2	19.2
331644	23.9	21.3	57774	23.9	18.7	202144	24.0	20.7	251707	24.1	20.0	82819	24.2	19.1	134164	24.2	19.9
115645	23.9	18.9	270060	23.9	20.7	104251	24.0	18.9	103195	24.1	18.5	139398	24.2	20.3	252626	24.2	20.1
263113	23.9	19.7	190705	23.9	19.2	22252	24.0	18.9	399155	24.1	20.8	88676	24.2	19.0	124485	24.2	20.9
25572	23.9	16.9	541428	23.9	20.8	440255	24.0	22.5	247948	24.1	19.8	368535	24.2	20.2	150870	24.2	21.1
485672	23.9	20.0	228838	23.9	19.3	409285	24.0	21.3	386504	24.1	21.0	325998	24.2	21.0	486265	24.2	20.1
208059	23.9	20.2	161311	23.9	20.0	248771	24.0	20.3	186920	24.1	21.1	356140	24.2	21.2	483300	24.2	21.1
236803	23.9	20.6	397353	23.9	22.1	323277	24.0	21.2	268690	24.1	21.2	336054	24.2	19.9	347226	24.2	20.5
270617	23.9	21.5	237684	23.9	19.4	113242	24.0	18.5	193228	24.1	19.5	365041	24.2	20.5	436828	24.2	21.2
524366	23.9	22.3	74550	23.9	18.4	133760	24.0	19.6	418445	24.1	21.4	120978	24.2	20.5	427862	24.2	20.3
124211	23.9	20.4	458170	23.9	21.8	336117	24.0	21.2	461642	24.1	20.3	225409	24.2	19.5	102956	24.2	18.5
419499	23.9	19.9	711	23.9	15.4	51898	24.0	18.5	220567	24.1	21.6	298396	24.2	19.0	517022	24.2	21.1
260973	23.9	20.3	96777	23.9	19.8	28994	24.0	19.7	402669	24.1	20.8	340185	24.2	21.2	279998	24.2	20.5
248216	23.9	20.4	58073	23.9	19.2	149290	24.0	19.4	53237	24.1	17.8	197500	24.2	18.7	458047	24.2	20.7
452961	23.9	20.3	60264	23.9	17.3	94820	24.0	19.3	84555	24.1	19.3	227105	24.2	20.8	131211	24.2	18.9
348611	23.9	20.6	116102	23.9	19.2	358245	24.0	20.7	358538	24.1	21.0	450462	24.2	20.4	337454	24.2	21.4
274697	23.9	19.9	61202	23.9	18.9	31837	24.0	18.5	486321	24.1	21.3	484127	24.2	21.3	113823	24.2	19.7
293618	23.9	21.1	43969	23.9	19.4	286910	24.0	21.6	184111	24.1	19.8	529110	24.2	22.7	313189	24.2	21.7
220630	23.9	20.0	156759	23.9	18.6	499507	24.0	22.4	448955	24.1	20.6	455337	24.2	20.8	206368	24.2	20.8
204994	23.9	20.9	307925	23.9	19.6	493202	24.0	20.8	199123	24.1	20.9	273278	24.2	20.2	89205	24.2	20.3
92171	23.9	17.6	519637	23.9	20.5	302598	24.0	21.0	208996	24.1	20.1	195796	24.2	19.9	225715	24.2	19.8
157283	23.9	19.9	12804	23.9	16.9	349424	24.0	19.3	331356	24.1	20.4	329653	24.2	20.3	467224	24.2	20.7
31966	23.9	19.1	540752	23.9	21.4	43228	24.0	18.1	59097	24.1	18.9	345510	24.2	20.0	199729	24.3	19.9
306436	23.9	22.2	198753	23.9	20.4	295349	24.0	21.1	197306	24.1	18.3	274641	24.2	20.6	167234	24.3	19.5
127662	23.9	18.8	47169	23.9	17.5	336627	24.0	21.3	64757	24.1	19.8	124879	24.2	19.4	92773	24.3	19.6
461044	23.9	19.9	145035	23.9	19.3	205042	24.0	20.7	274547	24.1	20.5	14216	24.2	16.4	227725	24.3	20.5
409417	23.9	21.8	450946	23.9	20.9	165995	24.0	19.5	467012	24.1	20.9	447675	24.2	20.8	229759	24.3	20.9
488587	23.9	21.8	484432	23.9	20.1	129283	24.0	19.5	142372	24.1	19.3	171856	24.2	20.3	449442	24.3	20.4
149489	23.9	18.6	278878	23.9	19.9	158017	24.0	19.9	16477	24.1	17.7	264469	24.2	19.8	27790	24.3	17.6
463558	23.9	20.9	418680	23.9	20.1	340036	24.1	19.3	123962	24.1	18.9	50196	24.2	17.5	436201	24.3	21.4
282615	23.9	20.0	229905	23.9	20.1	490840	24.1	21.8	462398	24.1	20.6	165565	24.2	18.8	1244	24.3	14.1
376066	23.9	20.0	290714	23.9	19.3	71723	24.1	18.6	248200	24.1	19.6	205061	24.2	20.0	520832	24.3	20.6
76677	23.9	19.4	418682	23.9	20.5	475037	24.1	20.8	120375	24.1	20.6	541462	24.2	21.5	369441	24.3	19.9
161695	23.9	19.9	124314	23.9	19.0	113682	24.1	18.8	355416	24.1	20.9	277415	24.2	20.5	36566	24.3	17.0
146482	23.9	20.1	495921	23.9	20.5	446984	24.1	20.9	15202	24.1	17.1	405419	24.2	19.9	515092	24.3	20.8
427365	23.9	21.0	225197	23.9	19.5	158681	24.1	20.8	405583	24.1	21.3	28249	24.2	18.2	466446	24.3	20.5
335219	23.9	20.2	235105	23.9	20.5	137226	24.1	20.6	473826	24.1	20.2	544319	24.2	21.1	95796	24.3	19.7
108316	23.9	19.9	81626	23.9	19.1	97775	24.1	17.8	157166	24.1	20.6	20908	24.2	18.9	455324	24.3	21.1
541349	23.9	21.3	60316	23.9	18.8	373855	24.1	20.6	163640	24.1	20.3	101536	24.2	19.7	443113	24.3	20.5
227540	23.9	20.8	337392	23.9	21.2	142517	24.1	19.4	79015	24.1	20.4	366366	24.2	17.8	541370	24.3	20.8
462439	23.9	20.5	488667	23.9	21.8	131325	24.1	20.0	422226	24.1	21.6	349949	24.2	20.7	221622	24.3	20.0
179286	23.9	19.7	229394	23.9	19.3	455685	24.1	20.2	280738	24.1	20.9	475856	24.2	20.5	139152	24.3	18.6
487475	23.9	20.5	274427	23.9	20.6	309459	24.1	20.2	461268	24.1	20.7	158879	24.2	20.8	465573	24.3	21.3
300761	23.9	20.7	460979	23.9	20.4	38125	24.1	17.9	146732	24.1	19.9	12308	24.2	17.3	126670	24.3	19.5
311083	23.9	19.5	390661	23.9	21.2	392858	24.1	20.8	164159	24.1	19.7	42235	24.2	18.4	290138	24.3	20.6
400401	23.9	19.9	486910	23.9	21.6	400094	24.1	22.4	62096	2							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
279099	24.3	19.9	353337	24.4	20.9	419967	24.4	20.2	424202	24.5	21.2	50428	24.6	18.3	384419	24.6	21.6
329090	24.3	19.8	300524	24.4	19.7	484315	24.4	21.1	467140	24.5	20.3	196294	24.6	18.1	329161	24.6	20.1
396783	24.3	20.4	448937	24.4	20.4	293341	24.4	20.5	68975	24.5	19.1	430600	24.6	21.6	399131	24.6	20.0
124568	24.3	20.3	340878	24.4	21.0	397233	24.4	21.1	261216	24.5	20.2	450169	24.6	20.9	275468	24.6	20.2
335324	24.3	21.2	518909	24.4	20.0	373653	24.4	20.6	177240	24.5	19.9	16889	24.6	19.5	337525	24.6	19.6
158888	24.3	20.9	249149	24.4	20.1	98971	24.4	19.1	246642	24.5	20.3	101037	24.6	20.1	16976	24.6	17.3
407555	24.3	20.7	49951	24.4	18.4	278954	24.4	20.0	388141	24.5	20.8	421923	24.6	20.7	459786	24.6	21.1
392587	24.3	21.6	61558	24.4	19.5	386270	24.4	21.0	9587	24.5	17.9	452373	24.6	20.8	180688	24.6	19.9
135902	24.3	19.9	67395	24.4	18.9	298456	24.4	20.0	120085	24.5	19.4	302627	24.6	20.1	77154	24.6	19.9
309488	24.3	19.6	389898	24.4	20.5	35908	24.4	18.8	163683	24.5	21.4	223554	24.6	20.1	326793	24.6	19.9
128295	24.3	20.5	234655	24.4	20.6	417420	24.4	20.3	114172	24.5	19.3	484712	24.6	19.7	300561	24.6	20.8
263920	24.3	20.6	399317	24.4	21.4	293962	24.4	21.3	288927	24.5	21.1	417406	24.6	20.5	290196	24.6	20.7
226381	24.3	19.3	69552	24.4	19.0	82367	24.4	19.0	227806	24.5	19.7	406591	24.6	20.5	77741	24.6	20.2
48938	24.3	18.3	238283	24.4	20.0	278646	24.4	20.7	95515	24.5	19.6	182984	24.6	20.9	86825	24.6	19.6
345225	24.3	20.8	218270	24.4	19.3	299182	24.4	18.9	406011	24.5	19.7	308288	24.6	19.9	58656	24.6	19.1
94017	24.3	18.6	490469	24.4	20.4	296449	24.4	19.8	254894	24.5	20.0	23568	24.6	18.3	58549	24.6	19.7
217802	24.3	18.8	50494	24.4	18.8	149603	24.4	19.5	290296	24.5	20.2	226589	24.6	19.5	254720	24.7	20.1
412251	24.3	21.3	45789	24.4	18.4	486926	24.4	20.9	110053	24.5	20.0	234548	24.6	19.4	503797	24.7	20.2
59775	24.3	19.3	302574	24.4	19.3	47587	24.4	18.5	150415	24.5	20.0	477445	24.6	19.7	541260	24.7	21.5
378940	24.3	21.8	278077	24.4	19.8	27952	24.4	17.0	346432	24.5	20.5	197222	24.6	20.0	452903	24.7	21.5
263934	24.3	21.8	351813	24.4	21.1	91578	24.4	19.3	335258	24.5	21.7	299083	24.6	19.5	78476	24.7	19.4
46060	24.3	19.3	239194	24.4	20.1	86986	24.4	19.4	163297	24.5	19.1	484436	24.6	19.7	141547	24.7	20.0
383012	24.3	20.7	82551	24.4	20.1	6479	24.4	16.2	409060	24.5	20.9	17985	24.6	17.6	2173	24.7	16.6
215534	24.3	19.7	22524	24.4	19.2	409523	24.4	20.7	184622	24.5	21.0	279033	24.6	19.7	256060	24.7	19.6
273110	24.3	21.6	443124	24.4	20.8	302565	24.4	20.7	170436	24.5	20.0	409910	24.6	21.5	27932	24.7	18.6
415563	24.3	20.9	131406	24.4	19.3	447513	24.4	21.4	243912	24.5	21.1	52233	24.6	19.0	526445	24.7	21.1
254994	24.3	19.4	269662	24.4	20.4	314328	24.4	21.1	82117	24.5	19.9	443962	24.6	23.0	414692	24.7	21.5
493203	24.3	19.7	63753	24.4	18.4	145602	24.5	20.9	370616	24.5	19.0	132715	24.6	18.7	542869	24.7	21.6
25679	24.3	18.1	396195	24.4	20.5	129696	24.5	20.3	300451	24.5	20.8	436790	24.6	21.4	239854	24.7	21.5
487900	24.3	20.7	214437	24.4	20.4	495373	24.5	20.4	14873	24.5	17.1	77851	24.6	18.4	75464	24.7	17.6
135432	24.3	19.8	374631	24.4	21.2	63243	24.5	18.7	364089	24.5	20.0	165075	24.6	20.1	91329	24.7	18.4
288486	24.3	20.7	131459	24.4	19.9	460365	24.5	20.0	463341	24.5	20.8	156640	24.6	20.3	103030	24.7	18.6
105093	24.3	19.8	334182	24.4	20.1	310743	24.5	20.9	344205	24.5	20.5	66057	24.6	18.9	454701	24.7	20.1
284478	24.3	20.7	306232	24.4	20.8	273793	24.5	21.2	336481	24.5	20.3	247050	24.6	20.0	450188	24.7	20.2
4069	24.3	16.9	375138	24.4	20.3	333221	24.5	20.2	451260	24.5	21.2	130110	24.6	19.6	407246	24.7	20.5
479724	24.3	20.5	139717	24.4	20.3	332833	24.5	20.2	270836	24.5	20.7	541741	24.6	21.0	434481	24.7	21.3
148751	24.3	21.2	495795	24.4	20.1	486395	24.5	21.2	48602	24.5	17.7	179720	24.6	20.0	71034	24.7	18.1
520189	24.3	21.6	416722	24.4	20.1	418777	24.5	20.8	273020	24.5	20.4	18288	24.6	17.1	119179	24.7	20.8
236534	24.3	20.0	412050	24.4	19.7	154712	24.5	19.7	262509	24.5	20.6	135796	24.6	19.7	52561	24.7	18.7
541288	24.3	20.3	350544	24.4	20.8	231062	24.5	20.2	38868	24.5	19.0	24546	24.6	18.8	115340	24.7	19.9
86450	24.3	16.0	136953	24.4	19.0	230015	24.5	20.4	517282	24.5	21.1	481798	24.6	20.6	81481	24.7	19.5
314911	24.3	19.4	33962	24.4	18.5	364887	24.5	20.0	231632	24.5	19.8	153593	24.6	20.8	9883	24.7	18.5
107745	24.3	19.4	426909	24.4	20.1	231885	24.5	19.8	212553	24.5	20.8	337855	24.6	19.8	187946	24.7	20.8
362755	24.3	20.1	36341	24.4	19.4	280615	24.5	18.8	102125	24.5	20.2	74077	24.6	19.6	119152	24.7	18.3
522290	24.3	21.3	275922	24.4	19.9	283788	24.5	20.9	280230	24.5	19.7	98138	24.6	18.3	96171	24.7	19.5
395655	24.3	21.8	142306	24.4	19.3	296276	24.5	19.7	391470	24.5	20.9	482034	24.6	21.3	24606	24.7	19.6
541074	24.3	21.2	441891	24.4	20.6	132944	24.5	20.5	307845	24.5	19.9	402323	24.6	21.1	420224	24.7	20.1
373640	24.3	21.7	42196	24.4	18.2	324187	24.5	20.6	248788	24.5	21.0	209848	24.6	20.5	86994	24.7	19.2
260945	24.3	20.1	225884	24.4	19.2	370392	24.5	20.6	355382	24.5	20.1	454667	24.6	21.2	507898	24.7	20.3
280540	24.3	20.8	76628	24.4	19.0	278972	24.5	19.7	115572	24.5	19.6	337562	24.6	21.5	523599	24.7	26.1
485399	24.3	21.5	274530	24.4	20.1	225177	24.5	20.5	462270	24.5	20.5	339833	24.6	20.8	12678	24.7	19.0
322147	24.3	20.8	364815	24.4	19.3	392924	24.5	20.5	74136	24.5	19.2	476842	24.6	20.6	413758	24.7	19.9
518817	24.3	20.0	397349	24.4	21.2	389667	24.5	21.0	68416	24.5	19.1	23821	24.6	18.5	517184	24.7	22.0
404427	24.3	19.9	139665	24.4	19.3	367983	24.5	20.9	542148	24.5	21.7	60496	24.6	19.9	368137	24.7	19.9
181302	24.3	19.4	143039	24.4	19.6	42691	24.5	19.3	450140	24.5	22.3	116658	24.6	19.5	32684	24.7	17.8
129872	24.3	19.0	391888	24.4	20.7	60942	24.5	19.4	402256	24.5	21.5	249844	24.6	20.8	43991	24.7	17.5
394545	24.3	21.7	542937	24.4	21.0	15044	24.5	18.2	281432	24.5	20.7	24228	24.6	17.5	453616	24.7	22.6
57139	24.3	18.3	234066	24.4	19.6	82325	24.5	19.4	189421	24.5	20.9	337823	24.6	19.2	191398	24.7	19.9
244083	24.3	20.2	249904	24.4	20.0	135984	24.5	19.3	213160	24.5	20.1	433381	24.6	21.1	73510	24.7	16.9
290210	24.3	20.9	39296	24.4	19.2	384426	24.5	19.7	460151	24.5	21.3	282605	24.6	19.3	385145	24.7	20.8
326825	24.3	20.5	116188	24.4	19.2	283339	24.5	21.0	76942	24.5	18.6	254804	24.6	20.2	331855	24.7	20.7
53215	24.3	17.8	248357	24.4	19.5	451826	24.5	21.3	363942	24.5	20.9	49251	24.6	19.4	105436	24.7	20.1
225342	24.3	20.0	378762	24.4	20.3	59128	24.5	18.8	415492	24.5	21.1	291128	24.6	20.5	447953	24.7	19.1
455682	24.3	19.7	463347	24.4	22.1	121360	24.5	19.6	269510	24.5	20.6	291776	24.6	20.0	486400	24.7	20.5
378374	24.3	20.4	463379	24.4	20.0	21937	24.5	18.9	388467	24.5	19.6	334462	24.6	21.0	493359	24.7	21.0
24104	24.3	15.9	335334	24.4	21.4	491423	24.5	20.0	60560	24.5	18.8	283259	24.6	21.1	196059	24.7	19.6
279367	24.3	19.7	258273	24.4	20.0	25708	24.5	17.8	35485	24.5	19.4	38095	24.6	19.0	246927	24.7	19.9
367978	24.3	20.1	411771	24.4	20.7	378538	24.5	19.9	181165	24.5	19.6	545007	24.6	21.2	207648	24.7	21.3
481062	24.3	21.7	411578	24.4	19.7	25702	24.5	18.3	368319	24.5	20.7						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
27785	24.7	19.4	446359	24.8	21.0	290989	24.8	21.2	49487	24.9	17.5	195809	24.9	19.8	175196	25.0	19.5
462120	24.7	21.9	413225	24.8	19.8	125790	24.8	19.0	363781	24.9	20.4	187132	24.9	20.4	7093	25.0	18.2
237214	24.7	21.3	261088	24.8	21.1	473058	24.8	21.7	484807	24.9	20.5	431768	24.9	22.1	53780	25.0	19.0
65136	24.7	19.5	46878	24.8	19.5	453160	24.8	20.6	516433	24.9	20.2	165083	24.9	20.4	110287	25.0	20.1
331879	24.7	19.9	279324	24.8	20.1	256937	24.8	19.9	313524	24.9	20.6	360297	24.9	21.0	208492	25.0	20.9
348199	24.7	20.5	267602	24.8	20.0	112838	24.8	19.8	72623	24.9	18.9	16582	24.9	17.0	121377	25.0	20.0
475611	24.7	20.2	132029	24.8	18.9	424708	24.8	21.5	102008	24.9	19.1	260556	24.9	19.3	482288	25.0	21.7
219041	24.7	21.5	166851	24.8	20.1	495206	24.8	20.1	179197	24.9	20.0	88386	24.9	20.2	361184	25.0	20.2
135574	24.7	19.9	434639	24.8	21.9	30675	24.8	18.5	483578	24.9	20.2	175039	24.9	20.5	360686	25.0	20.9
220723	24.7	19.5	34733	24.8	18.0	408869	24.8	22.6	64641	24.9	18.0	107554	24.9	18.8	316832	25.0	20.2
230989	24.7	19.5	124432	24.8	19.6	464196	24.8	20.4	13527	24.9	18.3	148374	24.9	20.4	412315	25.0	20.6
124912	24.7	20.6	485428	24.8	20.0	234032	24.8	20.3	116458	24.9	18.9	352826	24.9	20.3	357764	25.0	20.7
67767	24.7	18.4	214570	24.8	19.9	484881	24.8	21.6	51025	24.9	18.7	460375	24.9	21.6	494465	25.0	21.4
335402	24.7	19.8	197297	24.8	18.9	229687	24.8	19.9	7983	24.9	16.9	334135	24.9	20.9	94748	25.0	18.6
541261	24.7	20.4	132758	24.8	19.9	124299	24.8	20.3	494803	24.9	21.0	416726	24.9	19.7	372222	25.0	20.6
523399	24.7	21.0	147150	24.8	19.6	74181	24.8	18.5	330729	24.9	21.0	73360	24.9	19.0	292148	25.0	20.8
259531	24.7	19.7	443943	24.8	20.1	284854	24.8	20.2	189974	24.9	20.2	218777	24.9	20.3	154903	25.0	20.2
450631	24.7	21.4	112085	24.8	19.6	334165	24.8	20.6	442699	24.9	20.8	53068	24.9	17.4	499413	25.0	19.8
116912	24.7	19.9	63568	24.8	18.8	524268	24.8	23.7	446757	24.9	20.6	151520	24.9	20.7	33670	25.0	16.4
514837	24.7	20.8	197004	24.8	19.6	487390	24.8	21.3	36512	24.9	19.3	123228	24.9	20.0	495558	25.0	20.5
354254	24.7	21.2	275752	24.8	21.0	44381	24.8	18.8	333076	24.9	20.1	149285	24.9	18.9	460697	25.0	21.4
271367	24.7	19.9	57352	24.8	18.4	462506	24.8	20.5	248887	24.9	20.5	156234	24.9	20.0	23429	25.0	18.9
274949	24.7	20.9	68234	24.8	18.7	204843	24.8	21.1	376686	24.9	20.7	50358	24.9	17.8	451116	25.0	21.0
320797	24.7	21.4	441028	24.8	20.4	97348	24.8	19.3	277939	24.9	20.2	24040	24.9	18.3	131380	25.0	20.5
123113	24.7	17.5	279578	24.8	20.8	447561	24.8	21.1	284000	24.9	21.8	68471	24.9	19.2	420940	25.0	20.0
133447	24.7	19.3	113304	24.8	19.2	88895	24.8	18.6	8685	24.9	17.2	257082	24.9	18.9	432240	25.0	21.5
239528	24.7	19.9	236792	24.8	19.6	282536	24.8	19.8	422469	24.9	20.7	186694	24.9	19.1	488486	25.0	19.9
454632	24.7	20.5	464301	24.8	21.2	159923	24.8	20.1	125126	24.9	18.1	52274	24.9	19.3	311792	25.0	19.9
306191	24.7	21.2	387145	24.8	20.0	75152	24.8	18.5	182454	24.9	19.6	398676	24.9	19.4	114042	25.0	20.1
232028	24.7	19.6	494925	24.8	20.9	491451	24.8	19.9	332736	24.9	19.5	495897	24.9	20.9	213282	25.0	21.3
190976	24.7	19.1	219246	24.8	19.7	168176	24.9	20.7	119032	24.9	19.0	232671	24.9	19.7	46523	25.0	18.8
287131	24.7	21.0	372043	24.8	21.1	282379	24.9	20.2	146316	24.9	19.0	334300	24.9	18.4	81236	25.0	18.9
271217	24.7	20.1	95152	24.8	18.3	113914	24.9	18.9	358614	24.9	19.1	303600	24.9	20.0	55751	25.0	18.9
186183	24.7	20.3	446920	24.8	20.5	56959	24.9	19.1	326637	24.9	20.7	326607	24.9	20.9	137673	25.0	19.1
45841	24.7	18.8	20479	24.8	17.9	227611	24.9	20.8	41446	24.9	18.8	313569	24.9	19.6	325667	25.0	21.0
51686	24.7	19.0	56462	24.8	19.1	480895	24.9	22.3	455366	24.9	20.4	252505	24.9	19.3	370534	25.0	21.1
70648	24.7	19.5	267848	24.8	20.0	107249	24.9	18.8	87059	24.9	20.7	159617	24.9	19.1	418721	25.0	20.6
182722	24.7	20.5	461523	24.8	20.9	303088	24.9	20.1	335341	24.9	19.8	523844	24.9	21.0	541411	25.0	21.8
319929	24.7	21.3	447937	24.8	19.4	177063	24.9	19.1	102707	24.9	20.5	464079	24.9	19.8	444850	25.0	21.4
444715	24.7	21.4	77932	24.8	19.3	372156	24.9	20.4	49630	24.9	17.2	141498	24.9	19.5	68534	25.1	19.3
176939	24.7	18.7	151600	24.8	19.4	101238	24.9	19.9	230592	24.9	19.0	374239	24.9	20.8	145168	25.1	20.5
210527	24.7	20.7	307374	24.8	20.9	56274	24.9	19.3	471212	24.9	20.7	270935	24.9	19.9	351043	25.1	20.6
26910	24.7	18.3	184609	24.8	19.9	158759	24.9	19.3	260979	24.9	20.6	441119	24.9	20.8	518146	25.1	20.3
248310	24.7	20.6	398216	24.8	21.8	417866	24.9	20.5	398390	24.9	21.0	421688	24.9	21.1	240418	25.1	21.0
202599	24.7	19.9	376255	24.8	20.4	515040	24.9	20.2	16228	24.9	18.9	447894	24.9	22.0	164158	25.1	19.2
67505	24.7	19.2	493277	24.8	20.8	362384	24.9	21.3	25732	24.9	16.7	86596	24.9	18.7	199346	25.1	18.3
400865	24.7	21.4	182561	24.8	20.1	281202	24.9	21.6	139453	24.9	20.0	8271	24.9	17.4	197670	25.1	21.3
146600	24.7	20.2	372277	24.8	21.4	43280	24.9	18.6	123872	24.9	19.0	247893	24.9	20.1	271230	25.1	20.6
495588	24.7	20.5	5519	24.8	16.8	212205	24.9	20.3	149407	24.9	18.5	195882	24.9	20.8	317958	25.1	19.7
279383	24.7	20.0	285945	24.8	20.5	141588	24.9	20.0	450617	24.9	21.1	256800	24.9	20.0	289785	25.1	19.7
110070	24.7	17.8	300500	24.8	20.6	246509	24.9	20.1	18022	24.9	18.6	266864	24.9	20.3	46245	25.1	18.6
23277	24.7	18.2	351036	24.8	20.7	197472	24.9	20.1	305031	24.9	20.2	495288	25.0	20.9	292221	25.1	19.6
516060	24.7	22.2	191186	24.8	19.6	269673	24.9	20.0	411349	24.9	21.1	228300	25.0	20.3	252506	25.1	20.1
200400	24.7	20.3	145298	24.8	20.3	486344	24.9	20.6	251213	24.9	20.4	113759	25.0	18.6	91114	25.1	19.8
80393	24.7	17.8	172079	24.8	19.4	289701	24.9	19.9	378929	24.9	20.5	311684	25.0	20.2	202354	25.1	20.0
542605	24.7	21.7	245468	24.8	20.3	327987	24.9	20.9	247991	24.9	20.3	33312	25.0	17.5	385169	25.1	21.4
474048	24.7	21.0	305121	24.8	20.2	158969	24.9	19.9	1797	24.9	15.4	242845	25.0	19.6	75479	25.1	18.0
53676	24.7	18.5	528609	24.8	23.4	98050	24.9	19.3	311808	24.9	20.6	60863	25.0	19.7	311699	25.1	20.2
249491	24.7	19.4	187171	24.8	20.1	300784	24.9	19.5	303080	24.9	19.1	492018	25.0	21.5	409895	25.1	20.8
176876	24.7	19.7	346365	24.8	20.6	514841	24.9	20.2	369491	24.9	20.0	427245	25.0	19.6	448938	25.1	21.1
258754	24.8	20.0	175285	24.8	20.7	255892	24.9	20.2	485920	24.9	21.6	194618	25.0	19.5	329543	25.1	20.4
195243	24.8	18.7	418441	24.8	21.7	200011	24.9	20.7	189823	24.9	18.4	505648	25.0	20.5	316180	25.1	21.7
36734	24.8	17.2	117696	24.8	19.2	236020	24.9	19.7	372248	24.9	20.5	484342	25.0	20.9	310177	25.1	21.1
195164	24.8	19.6	282072	24.8	20.0	414558	24.9	20.9	475694	24.9	21.7	202741	25.0	20.0	218835	25.1	20.8
274147	24.8	21.5	6572	24.8	17.0	446116	24.9	20.7	397628	24.9	20.4	339736	25.0	20.8	445679	25.1	20.8
403317	24.8	19.7	267517	24.8	19.9	164658	24.9	20.3	197749	24.9	20.1	156902	25.0	19.9	289954	25.1	19.7
426822	24.8	20.2	375496	24.8	20.2	451887	24.9	21.7	210382	24.9	19.7	486616	25.0	20.8	146770	25.1	19.0
181599	24.8	19.6	386084	24.8	21.1	100076	24.9	20.0	282533	24.9	22.1	292774	25.0	20.0	197747	25.1	21.0
378507	24.8	20.5	151982	24.8	19.8	325759	24.9	19.9	179199</								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
541166	25.1	21.3	120626	25.1	19.9	239838	25.2	20.3	415418	25.3	21.4	148223	25.4	18.8	62288	25.4	18.2
174889	25.1	18.7	159184	25.1	19.2	360498	25.2	20.1	88914	25.3	18.0	388527	25.4	21.0	98194	25.4	20.0
174860	25.1	19.3	99839	25.2	19.0	109781	25.2	19.7	33574	25.3	18.9	195991	25.4	19.9	489196	25.4	20.5
4404	25.1	16.3	57185	25.2	18.2	139876	25.2	18.4	265267	25.3	18.5	486477	25.4	20.8	494152	25.4	20.2
216947	25.1	21.2	12332	25.2	17.2	77919	25.2	19.7	450950	25.3	19.7	189681	25.4	20.5	201237	25.4	21.3
289447	25.1	20.1	495653	25.2	20.7	178892	25.2	18.9	102804	25.3	19.3	162960	25.4	19.4	366266	25.4	20.5
46669	25.1	19.4	357489	25.2	20.8	305697	25.2	20.6	462756	25.3	19.5	77743	25.4	17.8	415245	25.4	20.1
179650	25.1	21.0	515148	25.2	21.6	354624	25.2	21.3	180053	25.3	18.8	349605	25.4	20.2	173483	25.4	20.6
454435	25.1	22.0	359672	25.2	19.4	7453	25.2	18.7	496191	25.3	21.0	6247	25.4	16.4	101949	25.4	19.9
13065	25.1	18.2	445658	25.2	20.3	186723	25.2	18.8	457928	25.3	20.0	86943	25.4	20.1	12522	25.4	18.3
495449	25.1	21.3	311666	25.2	19.8	69455	25.2	18.5	135946	25.3	19.6	421910	25.4	21.3	104939	25.4	19.5
323585	25.1	20.9	150388	25.2	18.9	83046	25.2	18.0	234221	25.3	20.4	43954	25.4	16.9	200080	25.4	20.1
287423	25.1	20.3	282105	25.2	19.7	415013	25.2	20.0	144751	25.3	19.5	30420	25.4	18.0	186765	25.4	19.5
236590	25.1	21.4	248258	25.2	20.3	401699	25.2	20.4	542757	25.3	21.2	76931	25.4	17.8	61380	25.5	19.0
490955	25.1	21.0	148213	25.2	19.3	405070	25.2	19.9	493015	25.3	19.9	8128	25.4	17.3	243199	25.5	19.8
285125	25.1	20.7	160671	25.2	19.9	92579	25.2	20.0	180344	25.3	18.4	294601	25.4	19.7	247876	25.5	19.6
130821	25.1	19.6	421240	25.2	20.6	357394	25.2	21.3	507889	25.3	20.7	209746	25.4	20.5	485147	25.5	21.0
33568	25.1	18.5	503227	25.2	21.7	356026	25.2	21.0	230759	25.3	20.7	280021	25.4	20.5	452673	25.5	20.8
463043	25.1	20.8	541717	25.2	20.4	215938	25.2	20.2	485638	25.3	20.5	4505	25.4	15.4	437976	25.5	22.0
72520	25.1	18.5	453615	25.2	21.8	267826	25.2	20.2	361400	25.3	20.7	102623	25.4	19.6	15106	25.5	17.0
274050	25.1	20.5	455688	25.2	19.9	281933	25.2	20.5	419337	25.3	19.9	158350	25.4	18.8	262322	25.5	20.6
517788	25.1	21.2	129197	25.2	20.1	233085	25.2	20.6	375146	25.3	20.4	513188	25.4	21.7	318833	25.5	20.8
272128	25.1	20.9	388325	25.2	19.9	280337	25.2	20.3	541271	25.3	21.3	118074	25.4	18.7	124203	25.5	20.7
172300	25.1	19.9	189089	25.2	20.4	403682	25.2	20.0	17360	25.3	18.7	341969	25.4	20.8	494148	25.5	20.8
295895	25.1	21.1	415241	25.2	20.2	486442	25.2	21.6	89533	25.3	20.0	170092	25.4	19.6	458640	25.5	20.4
310776	25.1	21.0	402241	25.2	21.1	76500	25.3	18.6	490830	25.3	20.9	310936	25.4	19.9	440291	25.5	21.5
479450	25.1	20.8	295427	25.2	21.3	287975	25.3	21.6	188077	25.3	17.8	418487	25.4	20.6	285161	25.5	20.8
23362	25.1	19.3	55970	25.2	19.2	107567	25.3	19.5	258436	25.3	20.2	152210	25.4	20.0	5469	25.5	17.3
457835	25.1	21.6	129318	25.2	20.1	158930	25.3	20.6	114188	25.3	20.1	446088	25.4	19.8	244256	25.5	19.9
213622	25.1	20.1	97155	25.2	19.0	375142	25.3	19.5	378521	25.3	21.7	339621	25.4	21.7	303827	25.5	18.9
388158	25.1	21.0	240380	25.2	20.7	6044	25.3	18.1	376865	25.3	21.0	461311	25.4	20.1	226937	25.5	19.0
68656	25.1	19.3	542049	25.2	21.4	364388	25.3	20.2	152582	25.3	19.3	474703	25.4	20.2	126536	25.5	18.8
491209	25.1	20.3	324076	25.2	21.0	416392	25.3	19.7	6589	25.3	18.3	405045	25.4	21.3	27884	25.5	18.0
529530	25.1	20.0	138315	25.2	18.9	172635	25.3	20.0	307477	25.3	19.4	184362	25.4	20.9	467100	25.5	19.7
6680	25.1	16.5	287300	25.2	20.9	42115	25.3	17.8	206908	25.3	20.4	207541	25.4	20.4	116979	25.5	19.8
11164	25.1	17.9	402250	25.2	21.0	120568	25.3	19.9	147218	25.3	20.0	98438	25.4	18.6	352873	25.5	20.8
327636	25.1	21.3	117506	25.2	20.0	237809	25.3	20.6	475581	25.3	21.1	66574	25.4	19.3	515282	25.5	22.5
161434	25.1	19.8	126163	25.2	18.8	320826	25.3	20.1	492732	25.3	20.4	92776	25.4	19.2	113783	25.5	18.7
401454	25.1	20.1	201819	25.2	19.7	520925	25.3	20.7	26787	25.3	19.5	40706	25.4	18.9	485566	25.5	19.6
329726	25.1	21.2	457768	25.2	21.1	215280	25.3	20.2	18057	25.3	18.7	337234	25.4	21.4	97585	25.5	19.5
302563	25.1	20.9	201828	25.2	19.8	460973	25.3	20.7	156085	25.3	20.8	269511	25.4	20.9	70211	25.5	18.0
386900	25.1	20.5	147140	25.2	19.8	109622	25.3	19.2	71789	25.3	19.9	388515	25.4	19.7	454054	25.5	20.6
201883	25.1	19.2	57883	25.2	18.9	486595	25.3	20.7	309595	25.3	20.1	267239	25.4	20.5	78059	25.5	19.9
33520	25.1	17.9	255675	25.2	20.1	162217	25.3	19.8	201388	25.3	19.3	442858	25.4	21.2	126222	25.5	18.4
77651	25.1	19.0	284241	25.2	20.3	10713	25.3	18.4	517231	25.3	19.9	517732	25.4	20.1	63459	25.5	19.5
385983	25.1	20.9	280543	25.2	21.8	178874	25.3	20.4	408787	25.3	20.7	410395	25.4	19.6	353811	25.5	20.9
482491	25.1	20.8	288269	25.2	18.1	37478	25.3	18.9	60743	25.3	18.6	322966	25.4	22.7	90139	25.5	18.5
378375	25.1	21.0	104052	25.2	20.3	254876	25.3	20.0	473340	25.3	21.4	5620	25.4	21.2	115017	25.5	19.2
458543	25.1	19.9	164846	25.2	18.8	463459	25.3	21.1	337241	25.3	20.4	170395	25.4	21.0	111010	25.5	19.4
83839	25.1	19.1	434111	25.2	22.4	84945	25.3	18.8	80605	25.3	18.9	454361	25.4	20.9	199785	25.5	20.7
161686	25.1	20.0	148046	25.2	18.4	55440	25.3	17.9	292959	25.3	20.6	401155	25.4	20.9	452920	25.5	20.4
240722	25.1	20.0	434496	25.2	21.1	443979	25.3	21.1	70039	25.3	18.3	314854	25.4	19.3	119586	25.5	20.0
359666	25.1	20.2	244367	25.2	20.6	265036	25.3	20.1	16860	25.3	17.3	434522	25.4	21.0	407447	25.5	21.0
401224	25.1	20.7	72608	25.2	19.0	37875	25.3	18.0	116430	25.3	18.3	119215	25.4	18.0	254717	25.5	21.0
351885	25.1	19.1	218459	25.2	20.3	496190	25.3	21.3	441522	25.3	21.8	42799	25.4	18.3	241985	25.5	20.8
156239	25.1	19.9	493409	25.2	20.9	197873	25.3	20.9	197636	25.3	20.5	112386	25.4	19.6	515295	25.5	20.5
12050	25.1	17.4	201813	25.2	18.4	282457	25.3	21.0	273173	25.3	19.8	164866	25.4	19.2	126404	25.5	18.9
11891	25.1	17.1	25088	25.2	19.1	531016	25.3	22.8	219487	25.3	19.1	459434	25.4	21.3	326747	25.5	21.1
351060	25.1	20.2	179274	25.2	20.1	63378	25.3	19.5	60220	25.3	19.8	73051	25.4	21.0	201844	25.5	20.0
162941	25.1	20.5	13709	25.2	15.5	462441	25.3	20.3	52405	25.3	19.3	149607	25.4	19.2	461681	25.5	21.1
62961	25.1	18.4	57004	25.2	19.6	81755	25.3	19.6	251146	25.3	20.6	357304	25.4	20.0	78410	25.5	19.9
294779	25.1	20.4	142916	25.2	20.3	94848	25.3	19.0	483689	25.3	21.6	280736	25.4	20.0	51762	25.5	18.7
279345	25.1	19.9	479441	25.2	19.9	177576	25.3	19.9	312364	25.3	20.5	195905	25.4	19.3	349643	25.5	20.0
442291	25.1	19.8	67610	25.2	16.7	78844	25.3	19.5	408009	25.3	20.9	51731	25.4	18.7	4090	25.5	17.0
274748	25.1	20.3	181090	25.2	20.7	222984	25.3	21.3	84196	25.3	19.0	13501	25.4	16.8	410666	25.5	20.4
69260	25.1	18.4	328740	25.2	20.7	45227	25.3	18.0	396711	25.3	21.1	51298	25.4	19.3	369669	25.5	19.8
413425	25.1	19.3	53608	25.2	18.0	5461	25.3	17.0	248767	25.3	20.3	346912	25.4	20.1	65433	25.5	18.7
150421	25.1	20.5	48104	25.2	19.1	444834	25.3	21.2	454897	25.3	21.0	181901	25.4	20.8	268707	25.5	20.8
130318	25.1	18.2	197401	25.2	20.0	436039	25.3	20.6	106263	25.3	19.3	137563					

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
520760	25.5	20.9	195982	25.6	19.5	85745	25.6	18.9	121563	25.7	19.6	332480	25.8	21.3	45730	25.8	18.5
457503	25.5	19.7	196981	25.6	20.0	276168	25.6	20.9	457427	25.7	21.2	372078	25.8	21.5	138415	25.8	20.2
291715	25.5	19.7	102979	25.6	18.9	207344	25.6	19.6	496687	25.7	21.2	57051	25.8	18.7	170714	25.8	18.3
377488	25.5	20.2	207251	25.6	19.7	339026	25.6	20.4	328629	25.7	20.9	544952	25.8	21.8	195679	25.8	20.8
334483	25.5	20.2	421178	25.6	20.8	68634	25.6	19.5	243001	25.7	20.2	174122	25.8	20.0	246138	25.8	21.2
438550	25.5	21.5	278459	25.6	20.3	275662	25.6	19.8	480848	25.7	20.3	113715	25.8	17.6	351072	25.8	19.9
454020	25.5	20.5	460948	25.6	21.0	449921	25.6	20.9	449919	25.7	21.1	148322	25.8	19.7	483752	25.8	21.5
489886	25.5	22.2	191439	25.6	19.4	273163	25.6	20.6	96709	25.7	19.6	144317	25.8	19.1	193601	25.8	17.4
359752	25.5	20.3	130056	25.6	20.0	279831	25.6	21.6	3864	25.7	16.6	342058	25.8	20.3	495541	25.8	20.9
405580	25.5	21.5	80563	25.6	18.5	3628	25.6	17.1	201866	25.7	19.5	236357	25.8	19.7	143739	25.8	18.5
372132	25.5	21.2	411952	25.6	20.7	91268	25.6	20.0	363379	25.7	19.9	458207	25.8	21.6	33961	25.8	18.6
197698	25.5	20.7	225652	25.6	19.2	418479	25.6	20.8	98953	25.7	18.6	520920	25.8	20.8	383688	25.8	21.6
418481	25.5	20.3	429779	25.6	20.4	441584	25.6	19.7	78144	25.7	18.6	62433	25.8	19.7	97577	25.8	18.9
26358	25.5	18.7	399125	25.6	19.9	322956	25.6	20.6	171608	25.7	18.6	492952	25.8	21.2	50759	25.8	18.2
70915	25.5	18.3	487949	25.6	20.8	457527	25.6	20.6	172082	25.7	19.6	27570	25.8	18.9	154104	25.8	20.0
108177	25.5	19.7	36456	25.6	18.6	10799	25.6	17.7	396664	25.7	21.9	369979	25.8	21.0	483052	25.8	20.5
393088	25.5	21.0	400065	25.6	21.4	115563	25.6	19.1	57284	25.7	18.7	118327	25.8	20.1	466390	25.8	21.4
513894	25.5	20.2	328791	25.6	19.6	163568	25.6	20.0	346364	25.7	20.8	61373	25.8	19.5	178429	25.8	20.5
275299	25.5	21.2	494885	25.6	21.6	500765	25.6	19.5	339789	25.7	21.7	216087	25.8	20.2	277100	25.8	19.2
305311	25.5	19.7	239316	25.6	19.7	12661	25.6	17.4	309554	25.7	20.5	453167	25.8	20.4	363596	25.8	21.0
399369	25.5	22.0	405616	25.6	21.6	199020	25.6	19.4	273286	25.7	20.8	146731	25.8	20.2	410993	25.8	19.7
43723	25.5	18.1	10295	25.6	19.7	240240	25.7	19.9	152224	25.7	19.6	280841	25.8	20.5	217235	25.9	20.1
228775	25.5	19.8	108035	25.6	19.5	357248	25.7	20.7	222993	25.7	20.8	21512	25.8	16.3	336992	25.9	20.9
49375	25.5	21.0	305008	25.6	20.5	276268	25.7	20.8	523474	25.7	21.7	191216	25.8	19.9	297924	25.9	19.5
270626	25.5	20.5	493947	25.6	21.3	257476	25.7	20.1	518820	25.7	21.1	364274	25.8	20.7	195851	25.9	19.4
252444	25.5	20.0	72866	25.6	19.0	491441	25.7	21.3	444492	25.7	20.5	293001	25.8	19.4	388517	25.9	20.4
216954	25.5	20.2	61214	25.6	19.4	357256	25.7	21.1	451284	25.7	19.9	408679	25.8	21.4	262700	25.9	20.4
495055	25.5	21.5	332225	25.6	21.4	362593	25.7	21.3	265129	25.7	19.9	270772	25.8	19.7	382666	25.9	20.5
244878	25.5	20.5	396483	25.6	20.2	444749	25.7	19.8	12489	25.7	16.5	480288	25.8	20.9	33981	25.9	19.2
486630	25.5	21.3	405171	25.6	20.9	364328	25.7	20.5	452871	25.7	22.1	306157	25.8	20.2	285690	25.9	21.0
515946	25.5	22.0	2157	25.6	16.3	442198	25.7	21.8	222936	25.7	21.2	42923	25.8	17.5	256759	25.9	20.6
40815	25.5	18.7	299172	25.6	19.7	194854	25.7	19.9	111013	25.7	19.3	208310	25.8	19.1	343271	25.9	19.6
294019	25.5	20.5	57044	25.6	19.2	221603	25.7	20.5	222108	25.7	20.7	515906	25.8	22.2	246983	25.9	19.8
459804	25.5	21.0	466439	25.6	21.3	131269	25.7	19.5	122249	25.7	20.3	271534	25.8	20.5	542066	25.9	20.7
126775	25.5	19.2	494369	25.6	21.5	175307	25.7	20.1	209141	25.7	19.4	368334	25.8	19.9	32046	25.9	18.7
409338	25.5	21.1	356083	25.6	20.1	111413	25.7	20.2	158016	25.7	20.8	25657	25.8	19.2	534676	25.9	23.0
460677	25.5	20.0	378392	25.6	21.8	454372	25.7	21.4	544470	25.7	20.7	198708	25.8	18.7	47949	25.9	19.1
268720	25.5	20.8	286719	25.6	19.6	11934	25.7	16.8	521955	25.7	21.4	74025	25.8	18.5	111358	25.9	19.2
320387	25.5	20.8	488859	25.6	20.8	252535	25.7	20.1	5228	25.7	17.8	543568	25.8	20.1	280889	25.9	20.9
360564	25.5	19.3	283758	25.6	21.6	227645	25.7	20.4	4663	25.7	16.4	78797	25.8	18.9	164888	25.9	19.8
245246	25.5	19.9	114053	25.6	19.0	137296	25.7	19.5	343895	25.7	20.4	456289	25.8	21.6	50086	25.9	18.6
38810	25.5	17.7	331678	25.6	21.5	370399	25.7	20.3	122825	25.7	19.1	32123	25.8	18.3	357711	25.9	21.4
410848	25.5	20.8	117336	25.6	19.4	372030	25.7	21.1	41989	25.7	17.4	230619	25.8	19.6	70994	25.9	17.5
446730	25.5	20.5	65567	25.6	20.3	73673	25.7	19.7	279967	25.7	20.6	372237	25.8	20.9	379101	25.9	20.4
490584	25.5	21.2	127786	25.6	18.8	456482	25.7	20.4	232765	25.7	19.9	379435	25.8	20.0	337744	25.9	20.5
150315	25.5	19.8	226276	25.6	18.9	69572	25.7	17.4	185726	25.7	21.4	491400	25.8	19.5	22872	25.9	18.7
317490	25.5	20.9	332977	25.6	21.0	450819	25.7	21.8	154833	25.7	20.0	308938	25.8	20.3	367016	25.9	21.0
48997	25.5	17.7	53799	25.6	17.9	494057	25.7	21.5	93278	25.7	19.2	194791	25.8	19.2	248844	25.9	21.2
337354	25.5	20.9	374623	25.6	21.3	63806	25.7	20.0	484517	25.7	22.4	277925	25.8	21.8	76490	25.9	19.1
254544	25.5	19.8	369621	25.6	19.7	172304	25.7	19.9	122170	25.7	18.8	136837	25.8	19.7	43313	25.9	18.2
236258	25.5	20.2	461208	25.6	20.9	278854	25.7	20.7	494808	25.7	21.5	9289	25.8	17.7	404629	25.9	20.2
433429	25.5	21.1	232717	25.6	18.8	175607	25.7	20.1	468140	25.7	20.6	529652	25.8	20.5	444860	25.9	19.9
479478	25.5	20.1	330905	25.6	20.7	267514	25.7	21.5	364426	25.7	21.3	205043	25.8	20.4	97556	25.9	19.0
46677	25.5	19.0	179276	25.6	19.0	59328	25.7	17.9	465462	25.7	21.2	447479	25.8	20.7	514145	25.9	20.8
409218	25.5	19.4	489699	25.6	20.4	136480	25.7	20.0	295473	25.7	20.7	222139	25.8	20.4	63593	25.9	19.2
91465	25.5	20.2	398395	25.6	20.8	146728	25.7	18.4	405553	25.7	21.4	285440	25.8	20.7	124569	25.9	18.2
198459	25.6	19.3	100423	25.6	20.3	144401	25.7	19.9	114577	25.7	19.5	179045	25.8	20.5	287332	25.9	20.0
462728	25.6	19.6	278604	25.6	20.7	440139	25.7	21.7	317138	25.7	20.4	405594	25.8	21.7	239977	25.9	20.1
287193	25.6	20.6	299519	25.6	21.3	22857	25.7	17.4	139036	25.7	18.3	67729	25.8	20.3	404220	25.9	20.6
18593	25.6	18.5	416508	25.6	19.1	304973	25.7	20.3	78500	25.7	18.7	288295	25.8	20.0	45005	25.9	19.2
541691	25.6	19.6	542010	25.6	21.3	457410	25.7	21.1	125092	25.7	18.9	356475	25.8	21.1	198760	25.9	19.3
230623	25.6	18.9	171349	25.6	20.8	544883	25.7	21.5	391466	25.7	20.5	157464	25.8	19.6	157904	25.9	20.5
386058	25.6	20.7	267231	25.6	20.8	460276	25.7	20.4	274412	25.7	20.9	412585	25.8	22.0	327042	25.9	21.2
275800	25.6	21.5	49257	25.6	18.6	492130	25.7	20.9	462786	25.7	20.2	45083	25.8	18.3	379819	25.9	20.7
46974	25.6	19.5	48529	25.6	20.6	212255	25.7	20.5	205124	25.7	19.8	448505	25.8	20.8	396438	25.9	20.1
298393	25.6	19.7	541986	25.6	21.4	541457	25.7	21.4	521676	25.7	21.2	295760	25.8	19.8	408399	25.9	20.8
258320	25.6	20.4	55001	25.6	18.9	56832	25.7	19.6	514779	25.7	21.9	479587	25.8	19.8	484329	25.9	20.9
35946	25.6	18.9	544951	25.6	20.8	71312	25.7	17.6	435459	25.8	21.2	423816	25.8	20.4	363891	25.9	20.8
462505	25.6	20.8	196457	25.6	19.4	522228	25.7	21.1	416374								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
291366	25.9	20.3	81478	25.9	19.1	462501	26.0	21.4	489979	26.1	21.3	362619	26.2	19.7	282622	26.2	19.6
182143	25.9	20.3	136146	25.9	20.8	26572	26.0	18.2	371801	26.1	21.0	359488	26.2	20.6	461918	26.2	20.4
187098	25.9	20.2	516891	25.9	22.0	452897	26.0	21.8	511545	26.1	21.2	266591	26.2	21.7	372096	26.2	20.4
160583	25.9	20.1	252614	25.9	20.7	99204	26.0	19.1	517265	26.1	20.9	378979	26.2	20.8	411082	26.3	20.2
456243	25.9	21.5	229298	25.9	20.0	488258	26.0	20.7	470069	26.1	21.2	125037	26.2	19.5	55293	26.3	19.1
422133	25.9	20.0	124247	25.9	19.7	176809	26.0	19.8	192216	26.1	19.9	315824	26.2	20.0	309981	26.3	19.4
379720	25.9	21.1	376565	25.9	20.1	136954	26.0	18.9	274787	26.1	20.9	118687	26.2	19.9	212581	26.3	19.6
65825	25.9	20.0	337060	25.9	20.5	67186	26.0	18.0	99949	26.1	17.8	364329	26.2	20.0	146187	26.3	19.9
92760	25.9	19.6	251202	25.9	20.6	68349	26.0	18.1	316356	26.1	20.6	89048	26.2	19.2	421569	26.3	20.7
82201	25.9	18.8	136388	25.9	18.3	321773	26.0	20.3	306	26.1	12.3	339625	26.2	20.7	484843	26.3	20.3
487439	25.9	20.7	449599	25.9	21.6	354602	26.0	19.8	51874	26.1	19.7	48221	26.2	19.0	178546	26.3	19.2
438703	25.9	21.6	334741	25.9	20.5	4639	26.0	17.4	74732	26.1	17.6	74651	26.2	19.4	442196	26.3	21.7
415504	25.9	20.4	452394	25.9	22.6	343195	26.0	19.6	544295	26.1	21.3	439563	26.2	20.6	416078	26.3	20.5
181051	25.9	20.9	307784	25.9	17.9	323525	26.0	20.3	392882	26.1	20.3	103907	26.2	19.3	403580	26.3	20.8
361371	25.9	21.1	242772	25.9	18.9	395710	26.0	19.5	409266	26.1	24.3	315694	26.2	19.6	8179	26.3	17.9
422582	25.9	20.8	10512	25.9	17.6	458274	26.0	20.1	29101	26.1	18.2	2921	26.2	18.3	519379	26.3	21.4
272346	25.9	21.1	87167	25.9	18.9	388241	26.0	21.3	356149	26.1	20.1	292752	26.2	20.2	298623	26.3	19.7
12095	25.9	17.5	92727	25.9	19.1	309747	26.0	20.5	339545	26.1	21.0	401750	26.2	20.7	458681	26.3	20.5
517935	25.9	21.7	80886	25.9	19.5	158660	26.0	18.3	452824	26.1	21.3	48610	26.2	17.4	133816	26.3	19.3
188011	25.9	21.0	368833	25.9	19.3	320991	26.0	21.0	475027	26.1	20.5	488713	26.2	19.8	307969	26.3	19.4
265491	25.9	20.8	466544	25.9	19.8	193497	26.1	19.3	147894	26.1	19.8	51504	26.2	18.9	328050	26.3	21.3
167889	25.9	19.9	121588	25.9	19.2	281149	26.1	19.4	71703	26.1	18.5	218419	26.2	20.5	362368	26.3	20.3
324925	25.9	20.7	113898	25.9	18.8	405618	26.1	20.5	452342	26.1	21.3	189892	26.2	19.1	231240	26.3	19.8
335282	25.9	21.4	71288	25.9	18.8	164557	26.1	20.4	22769	26.1	18.0	417284	26.2	20.1	233476	26.3	20.1
71571	25.9	18.6	276880	25.9	18.6	114336	26.1	18.8	486646	26.1	21.0	75032	26.2	18.2	258410	26.3	19.5
188857	25.9	19.3	287864	25.9	19.5	505264	26.1	20.4	417985	26.1	20.6	118498	26.2	19.0	332264	26.3	20.3
522223	25.9	21.2	47272	25.9	18.3	293544	26.1	20.5	401852	26.1	19.8	112964	26.2	20.1	372024	26.3	20.9
485541	25.9	20.4	307827	25.9	18.9	165766	26.1	20.4	187554	26.1	19.7	481261	26.2	21.2	76755	26.3	19.9
312881	25.9	19.8	90504	25.9	19.7	199065	26.1	20.5	158948	26.1	20.6	280496	26.2	20.3	147569	26.3	18.9
542874	25.9	20.9	166191	25.9	19.7	262083	26.1	21.1	308287	26.1	19.8	79285	26.2	20.0	26217	26.3	18.5
267593	25.9	20.3	372754	25.9	20.3	146000	26.1	17.6	230733	26.1	19.4	481183	26.2	20.5	163916	26.3	19.8
133749	25.9	19.4	228303	25.9	19.6	535986	26.1	22.5	233338	26.1	19.8	291925	26.2	20.7	197200	26.3	20.1
175383	25.9	20.8	287366	25.9	20.8	278877	26.1	20.3	416789	26.1	18.9	50853	26.2	17.1	270898	26.3	20.6
141185	25.9	18.8	239262	25.9	20.4	6621	26.1	16.9	449287	26.1	20.5	275770	26.2	21.5	235431	26.3	18.9
256395	25.9	20.9	463802	25.9	20.3	439264	26.1	21.0	227898	26.1	20.1	409512	26.2	20.8	437952	26.3	21.5
368099	25.9	21.2	227539	25.9	20.7	202627	26.1	20.9	191499	26.1	19.4	398180	26.2	21.4	254047	26.3	19.9
395536	25.9	21.5	10030	25.9	18.6	111135	26.1	18.6	338472	26.1	19.2	278416	26.2	20.2	254000	26.3	20.9
138265	25.9	19.4	44250	25.9	19.1	219196	26.1	20.9	518512	26.1	21.5	450078	26.2	21.2	373835	26.3	20.4
153745	25.9	19.7	456493	25.9	22.2	421211	26.1	19.7	316637	26.1	19.0	340025	26.2	20.7	383362	26.3	21.0
380039	25.9	19.7	492225	25.9	21.4	227735	26.1	19.5	91758	26.1	19.7	234476	26.2	20.0	248722	26.3	21.0
137631	25.9	19.0	343407	25.9	20.2	362612	26.1	19.9	70947	26.1	19.3	543246	26.2	21.2	443194	26.3	20.6
78209	25.9	19.9	16069	25.9	19.0	318609	26.1	21.0	124156	26.1	20.1	305288	26.2	18.3	364790	26.3	19.5
22378	25.9	19.4	53527	25.9	17.2	47381	26.1	17.7	78227	26.1	19.4	409883	26.2	20.7	368306	26.3	19.7
47930	25.9	19.9	301909	26.0	20.1	477403	26.1	19.4	365599	26.1	20.4	371797	26.2	19.6	62235	26.3	19.7
196889	25.9	20.1	326915	26.0	20.1	134781	26.1	18.9	194447	26.1	18.8	190989	26.2	20.4	372130	26.3	20.1
20000	25.9	20.1	262944	26.0	19.6	59718	26.1	18.4	129693	26.1	19.0	217849	26.2	21.6	303542	26.3	20.6
426788	25.9	20.9	288574	26.0	20.6	27216	26.1	19.0	440621	26.1	21.7	277852	26.2	20.0	310118	26.3	20.4
162228	25.9	19.6	199262	26.0	18.8	522218	26.1	20.7	308067	26.1	19.7	320814	26.2	20.4	543157	26.3	21.3
317392	25.9	20.7	77488	26.0	18.0	61705	26.1	19.0	174222	26.1	18.6	12415	26.2	17.6	46302	26.3	19.1
373129	25.9	20.0	181934	26.0	19.9	284199	26.1	20.6	18970	26.1	17.9	312661	26.2	21.2	400845	26.3	20.9
542988	25.9	21.4	506099	26.0	20.8	477599	26.1	21.9	158696	26.1	18.6	315763	26.2	20.5	9179	26.3	17.6
440825	25.9	20.1	439215	26.0	21.0	426396	26.1	22.0	444837	26.1	22.0	61898	26.2	18.7	508376	26.3	20.0
488294	25.9	20.0	139341	26.0	21.1	195643	26.1	20.1	441138	26.1	19.5	95295	26.2	19.1	34498	26.3	17.8
264027	25.9	21.4	289373	26.0	19.3	329490	26.1	20.2	112899	26.1	19.8	11746	26.2	18.2	222953	26.3	21.1
84425	25.9	19.3	13318	26.0	18.2	60374	26.1	18.1	390717	26.1	20.3	325561	26.2	20.1	202786	26.3	20.0
357242	25.9	21.0	518905	26.0	20.6	357686	26.1	21.5	284065	26.1	19.7	407637	26.2	19.9	241928	26.3	19.3
182981	25.9	20.2	543317	26.0	21.0	132888	26.1	19.4	231951	26.2	19.8	142727	26.2	19.5	113747	26.3	19.3
373116	25.9	20.3	462742	26.0	19.3	155090	26.1	19.7	129353	26.2	20.4	493862	26.2	20.3	460861	26.3	20.0
367394	25.9	21.1	456963	26.0	18.9	5536	26.1	15.7	186880	26.2	19.6	502025	26.2	20.4	43710	26.3	17.7
315688	25.9	20.1	538058	26.0	20.6	155527	26.1	20.4	143912	26.2	19.5	407328	26.2	21.2	73675	26.3	16.5
351063	25.9	20.0	185956	26.0	18.5	301870	26.1	20.8	35862	26.2	19.6	154756	26.2	19.7	523336	26.3	21.0
289289	25.9	20.4	408233	26.0	21.6	543083	26.1	21.4	280831	26.2	19.8	107776	26.2	19.4	160590	26.3	19.0
282916	25.9	21.1	412948	26.0	19.7	83187	26.1	19.4	44436	26.2	19.6	406950	26.2	19.1	23901	26.3	18.1
67466	25.9	18.6	4047	26.0	17.7	377207	26.1	20.0	481875	26.2	20.6	3948	26.2	16.9	268376	26.3	19.8
446972	25.9	21.0	395202	26.0	20.3	174224	26.1	19.7	215672	26.2	20.4	155172	26.2	18.7	69812	26.3	19.4
193704	25.9	20.2	474379	26.0	21.4	517495	26.1	22.0	147057	26.2	19.0	516205	26.2	19.6	479350	26.3	20.8
75953	25.9	18.4	81664	26.0	19.3	514139	26.1	20.6	227753	26.2	20.0	495744	26.2	20.0	405400	26.3	21.5
514584	25.9	21.4	79290	26.0	19.3	156002	26.1	18.7	232770	26.2	20.7	515763	26.2	20.9	347028	26.3	20.1
231617	25.9	20.5	462995	26.0	20.7	464581	26.1	20.9	419267	26.2							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
175365	26.3	19.9	231961	26.4	19.5	196177	26.4	19.6	374646	26.5	20.8	542637	26.6	20.4	185434	26.6	19.7
196861	26.3	19.5	233045	26.4	19.0	160931	26.4	19.5	386001	26.5	19.6	299503	26.6	21.0	274884	26.6	19.4
209873	26.3	20.5	58880	26.4	18.4	512250	26.4	20.0	15305	26.5	17.0	354010	26.6	19.8	144122	26.6	19.2
71519	26.3	18.4	271526	26.4	19.2	449629	26.4	22.0	438089	26.5	20.4	101375	26.6	19.3	467155	26.6	20.7
43812	26.3	17.0	285538	26.4	19.0	219257	26.5	18.8	23896	26.5	18.0	77479	26.6	19.2	51519	26.6	19.0
203116	26.3	20.8	222096	26.4	20.1	484774	26.5	19.4	221367	26.5	20.9	225354	26.6	19.7	189032	26.6	18.6
463565	26.3	21.1	107064	26.4	18.7	335299	26.5	21.0	102083	26.5	18.3	129126	26.6	19.4	10189	26.6	17.0
191551	26.3	19.5	353481	26.4	20.0	544655	26.5	21.1	544714	26.5	21.1	14736	26.6	17.7	248668	26.6	20.6
124934	26.3	19.8	446886	26.4	19.9	462448	26.5	19.7	254762	26.5	20.4	134187	26.6	19.2	495283	26.6	21.2
368479	26.3	20.8	440736	26.4	20.4	322192	26.5	20.7	433506	26.5	21.1	488847	26.6	20.7	66092	26.6	16.3
84956	26.3	18.0	124232	26.4	19.8	247016	26.5	19.8	195623	26.5	20.0	223193	26.6	19.4	228818	26.6	18.9
252577	26.3	20.3	240232	26.4	18.8	436924	26.5	23.0	33896	26.5	16.1	231969	26.6	20.0	460988	26.6	20.1
270650	26.3	19.9	447844	26.4	21.7	131692	26.5	18.3	14849	26.5	18.6	348251	26.6	20.4	4455	26.6	15.9
96600	26.3	18.1	360642	26.4	22.3	276773	26.5	20.5	360809	26.5	19.7	441796	26.6	19.0	399277	26.6	20.0
453920	26.3	20.6	514904	26.4	21.7	202322	26.5	20.0	163882	26.5	19.7	353003	26.6	20.0	197802	26.6	20.2
56972	26.3	19.1	282093	26.4	21.3	257893	26.5	20.5	375580	26.5	20.4	484858	26.6	20.0	206425	26.6	19.2
317020	26.3	20.3	311789	26.4	20.0	521771	26.5	20.4	199142	26.5	20.2	74930	26.6	19.3	298481	26.6	21.0
365511	26.3	20.9	325464	26.4	21.0	118581	26.5	17.8	332325	26.5	19.9	247507	26.6	21.0	86203	26.6	19.3
363029	26.3	21.2	70464	26.4	19.0	491608	26.5	22.1	86557	26.5	19.3	297337	26.6	19.7	423090	26.6	19.3
503345	26.3	20.5	42469	26.4	19.2	105578	26.5	18.4	109213	26.5	18.2	347182	26.6	20.2	314263	26.6	20.2
132842	26.3	20.6	158216	26.4	18.8	52853	26.5	19.3	104132	26.5	19.2	274744	26.6	19.8	357259	26.6	19.9
227803	26.3	18.9	379708	26.4	20.7	421460	26.5	22.2	61772	26.5	18.7	275974	26.6	23.7	280517	26.6	21.6
318676	26.3	20.8	223663	26.4	20.5	228650	26.5	19.5	31579	26.5	18.8	492114	26.6	21.4	274724	26.6	20.2
231860	26.3	20.7	131426	26.4	20.0	390244	26.5	20.6	466012	26.5	21.0	492989	26.6	20.7	122704	26.6	20.1
441099	26.3	21.4	187294	26.4	20.2	326761	26.5	21.2	50559	26.5	19.2	159778	26.6	20.4	178677	26.6	21.3
149636	26.3	20.0	267924	26.4	19.5	334606	26.5	20.1	458632	26.5	20.0	199706	26.6	20.0	97350	26.7	18.2
519468	26.3	20.6	5890	26.4	16.0	76888	26.5	18.9	131889	26.5	19.3	356057	26.6	21.2	189277	26.7	19.2
322934	26.3	19.6	542111	26.4	21.7	516887	26.5	21.5	70091	26.5	18.6	165050	26.6	20.0	277130	26.7	21.2
356109	26.3	19.6	46433	26.4	18.8	386982	26.5	20.8	541376	26.5	20.8	82360	26.6	18.7	351381	26.7	19.0
252694	26.3	19.4	18606	26.4	16.7	84312	26.5	17.8	94803	26.5	19.0	58709	26.6	18.7	391122	26.7	20.9
543087	26.3	21.5	491534	26.4	21.7	490453	26.5	22.1	227079	26.5	21.5	454637	26.6	20.7	247952	26.7	20.0
43925	26.3	17.5	458111	26.4	19.8	347769	26.5	19.8	329717	26.5	20.5	7085	26.6	18.0	237830	26.7	19.3
340079	26.3	20.3	386636	26.4	20.9	371324	26.5	20.6	96580	26.5	18.4	239153	26.6	19.5	210576	26.7	18.6
388130	26.3	20.4	212108	26.4	19.5	485427	26.5	20.1	361734	26.5	19.6	250629	26.6	21.0	6623	26.7	17.7
77853	26.3	19.1	46455	26.4	18.9	366646	26.5	20.9	404926	26.5	19.8	167764	26.6	19.8	16472	26.7	17.8
449949	26.3	20.9	28913	26.4	14.5	84577	26.5	18.9	96504	26.5	18.6	458696	26.6	20.6	61528	26.7	19.1
100211	26.3	17.7	408258	26.4	21.0	210412	26.5	20.0	395735	26.5	19.7	302659	26.6	20.4	207171	26.7	18.3
148914	26.3	19.8	375525	26.4	21.4	468564	26.5	19.9	92459	26.5	19.1	452034	26.6	21.3	237251	26.7	20.1
274608	26.3	19.9	353258	26.4	20.1	165135	26.5	19.7	451704	26.5	20.3	115853	26.6	17.7	239203	26.7	21.2
518544	26.3	22.0	363904	26.4	20.8	13365	26.5	17.5	227034	26.5	18.5	488517	26.6	21.2	190970	26.7	19.7
441200	26.3	19.8	232893	26.4	19.0	46382	26.5	17.8	2051	26.5	15.4	239749	26.6	19.1	48701	26.7	17.4
70794	26.3	18.2	232711	26.4	19.2	462512	26.5	20.1	122941	26.5	19.5	135381	26.6	19.7	267623	26.7	20.3
45597	26.3	18.6	418626	26.4	20.2	116595	26.5	19.0	467915	26.5	20.4	372646	26.6	19.7	46350	26.7	18.3
29624	26.3	16.9	414715	26.4	21.9	154738	26.5	19.3	139681	26.5	19.0	120245	26.6	20.1	473420	26.7	20.3
44568	26.3	17.9	397590	26.4	21.5	238075	26.5	19.8	325286	26.5	19.8	494656	26.6	20.3	218575	26.7	19.7
317181	26.3	20.3	156880	26.4	19.4	74679	26.5	18.0	485480	26.5	20.5	316515	26.6	20.2	381000	26.7	19.8
372276	26.3	21.0	489199	26.4	20.8	460577	26.5	20.4	493280	26.5	21.1	220058	26.6	19.6	45705	26.7	18.5
516862	26.3	20.0	3589	26.4	15.9	375459	26.5	21.2	369199	26.5	20.8	245905	26.6	20.7	226698	26.7	19.2
138344	26.3	19.0	518877	26.4	20.6	60498	26.5	18.7	344350	26.5	20.5	27808	26.6	17.8	351362	26.7	18.1
441532	26.3	21.1	42055	26.4	18.3	477400	26.5	20.6	355062	26.5	21.2	276396	26.6	19.1	124989	26.7	19.1
544663	26.3	19.7	53292	26.4	18.9	251263	26.5	20.6	233956	26.5	19.1	421813	26.6	20.8	164851	26.7	19.5
208783	26.3	19.8	73997	26.4	18.2	222863	26.5	19.8	387598	26.5	19.9	7078	26.6	17.9	46949	26.7	17.6
361346	26.3	19.8	274823	26.4	19.9	160248	26.5	19.8	427124	26.5	20.2	145348	26.6	19.7	386697	26.7	21.0
494144	26.3	20.5	142566	26.4	20.5	24730	26.5	17.5	16395	26.5	17.3	363938	26.6	20.9	273282	26.7	20.4
23526	26.4	18.6	346975	26.4	19.7	209195	26.5	20.7	155433	26.5	19.1	76193	26.6	18.9	339699	26.7	20.2
329681	26.4	20.8	468125	26.4	21.0	8440	26.5	17.6	43584	26.5	18.9	121600	26.6	20.1	359328	26.7	19.9
270671	26.4	20.9	411589	26.4	19.6	333130	26.5	20.3	489417	26.5	21.1	64410	26.6	18.5	416355	26.7	20.3
435687	26.4	20.9	518020	26.4	21.6	392881	26.5	19.9	107491	26.5	19.2	416751	26.6	20.0	463991	26.7	20.0
318771	26.4	21.1	114554	26.4	18.4	275430	26.5	20.1	29117	26.5	18.1	453649	26.6	21.2	458335	26.7	21.2
230180	26.4	18.7	439212	26.4	21.5	212107	26.5	20.6	46608	26.5	19.3	386033	26.6	20.2	495183	26.7	23.1
207125	26.4	20.1	222103	26.4	19.6	333182	26.5	20.0	330179	26.5	20.3	199188	26.6	19.5	199558	26.7	20.3
342166	26.4	19.5	363884	26.4	21.1	73850	26.5	18.7	200062	26.5	21.2	391599	26.6	21.3	348737	26.7	19.4
152980	26.4	20.2	271157	26.4	20.4	184671	26.5	20.5	261152	26.5	20.6	477433	26.6	20.9	372080	26.7	20.7
145756	26.4	19.7	337921	26.4	20.4	339774	26.5	20.4	276823	26.5	21.1	393582	26.6	21.3	491180	26.7	21.4
461015	26.4	20.5	355447	26.4	20.4	198108	26.5	19.9	312313	26.5	20.1	251219	26.6	19.9	281152	26.7	21.4
397347	26.4	21.5	122158	26.4	19.9	336050	26.5	20.4	145811	26.5	18.9	461104	26.6	20.5	191881	26.7	19.0
490811	26.4	20.5	197914	26.4	21.0	145145	26.5	18.9	853	26.5	14.7	220913	26.6	21.0	337516	26.7	19.6
450176	26.4	20.2	73660	26.4	19.0	164537	26.5	19.9	196097	26.5	19.9	506138	26.6	19.6	344888	26.7	20.0
342087	26.4	19.9	118041	26.4	19.7	169283	26.5	20.4	382402	26.5</							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
359899	26.7	20.4	111784	26.8	20.0	368103	26.8	19.9	99214	26.9	17.9	370337	26.9	20.2	28867	27.0	16.4
265166	26.7	19.8	384678	26.8	20.5	431660	26.8	20.9	455083	26.9	20.2	126480	26.9	19.3	190911	27.0	20.1
517225	26.7	19.0	487412	26.8	21.1	452355	26.8	20.8	452412	26.9	21.4	195633	26.9	19.7	331219	27.0	21.0
410496	26.7	20.9	11302	26.8	17.3	143676	26.8	18.9	360801	26.9	21.0	349571	26.9	21.3	201877	27.0	20.0
30222	26.7	17.3	89189	26.8	18.8	357065	26.8	21.8	369617	26.9	20.8	78121	26.9	20.2	321542	27.0	20.7
14750	26.7	18.2	496998	26.8	22.2	335852	26.8	19.7	345154	26.9	19.9	341000	26.9	20.6	40260	27.0	18.4
477435	26.7	20.4	415020	26.8	20.3	363887	26.8	20.7	351271	26.9	20.8	207160	26.9	18.2	485175	27.0	21.3
133308	26.7	19.3	459800	26.8	20.5	253778	26.8	19.5	84191	26.9	17.6	457473	26.9	20.8	302601	27.0	20.2
253269	26.7	19.2	88301	26.8	19.2	227064	26.8	19.4	417265	26.9	19.6	427657	26.9	19.9	453692	27.0	21.4
453583	26.7	20.7	406714	26.8	20.7	388937	26.9	21.1	126914	26.9	19.0	156964	26.9	19.4	137756	27.0	17.3
133869	26.7	20.0	148951	26.8	19.5	410451	26.9	20.4	503814	26.9	21.5	442296	26.9	21.6	52047	27.0	19.4
233263	26.7	19.4	179064	26.8	20.2	227811	26.9	19.6	273279	26.9	21.2	124982	26.9	18.4	457871	27.0	21.4
452858	26.7	21.3	38703	26.8	19.6	541374	26.9	20.5	253310	26.9	19.4	485687	26.9	20.6	141905	27.0	20.0
288058	26.7	20.0	418657	26.8	20.7	492110	26.9	21.7	50426	26.9	18.7	484328	26.9	20.6	212055	27.0	18.8
143860	26.7	19.2	419533	26.8	18.9	28309	26.9	16.4	300586	26.9	19.8	438056	26.9	20.6	466934	27.0	19.7
383390	26.7	19.9	209	26.8	12.8	129166	26.9	19.6	205050	26.9	19.2	143722	26.9	18.6	414840	27.0	21.4
23847	26.7	18.3	180275	26.8	19.3	134551	26.9	18.1	387891	26.9	20.3	35593	26.9	17.9	351805	27.0	20.9
61473	26.7	18.3	474366	26.8	21.2	388450	26.9	20.0	428127	26.9	21.2	77745	26.9	18.7	397352	27.0	21.7
127079	26.7	19.8	416205	26.8	20.1	376643	26.9	20.3	102883	26.9	18.7	307287	26.9	21.0	543221	27.0	21.7
151611	26.7	19.4	400001	26.8	20.6	377480	26.9	20.0	187771	26.9	20.4	197681	26.9	20.6	272467	27.0	19.5
222870	26.7	19.2	223682	26.8	20.0	74343	26.9	17.0	466668	26.9	19.7	486170	26.9	18.8	79260	27.0	18.6
270147	26.7	21.2	108565	26.8	19.9	69548	26.9	17.8	23689	26.9	16.9	181300	26.9	19.7	113845	27.0	19.3
15337	26.7	16.5	439366	26.8	18.7	516999	26.9	21.6	13867	26.9	17.8	353339	26.9	19.5	527325	27.0	21.8
454692	26.7	20.9	110835	26.8	18.7	442700	26.9	21.6	10073	26.9	17.0	357663	26.9	21.7	280004	27.0	20.3
9094	26.7	17.4	142389	26.8	20.2	108375	26.9	19.6	454010	26.9	20.1	104775	26.9	19.2	126327	27.0	19.6
464851	26.7	20.8	372322	26.8	19.8	271544	26.9	19.8	163571	26.9	19.1	448831	26.9	20.2	452251	27.1	20.7
303500	26.7	19.6	444935	26.8	21.3	321958	26.9	20.3	218418	26.9	20.4	143663	26.9	19.1	372200	27.1	20.3
230142	26.7	19.9	212089	26.8	19.9	443902	26.9	20.1	247261	26.9	20.3	296024	26.9	20.4	85143	27.1	19.4
302588	26.7	20.3	275900	26.8	21.3	101715	26.9	18.9	81783	26.9	18.9	408194	26.9	20.6	143385	27.1	18.9
217791	26.7	19.7	197936	26.8	20.4	226621	26.9	19.7	273112	26.9	20.1	173441	26.9	19.6	315886	27.1	20.0
5804	26.7	17.3	92871	26.8	20.5	135689	26.9	19.1	371304	26.9	21.1	28895	26.9	18.3	326580	27.1	21.5
354013	26.7	19.8	96322	26.8	18.3	254747	26.9	20.9	175727	26.9	19.5	373711	26.9	20.9	249855	27.1	20.9
51250	26.7	18.7	4104	26.8	16.6	45596	26.9	18.1	330771	26.9	19.9	445098	26.9	21.9	66429	27.1	18.8
46199	26.7	19.0	450598	26.8	21.2	370327	26.9	20.3	462487	26.9	20.7	514298	26.9	20.3	481923	27.1	19.8
280532	26.7	21.8	79665	26.8	18.5	157246	26.9	19.6	554035	26.9	19.7	409434	26.9	20.5	176390	27.1	20.6
267815	26.7	20.0	159004	26.8	19.5	243350	26.9	18.9	293638	26.9	21.0	380686	26.9	20.8	486390	27.1	21.4
355385	26.7	20.0	422070	26.8	20.0	145903	26.9	19.8	188906	26.9	19.8	324926	26.9	20.1	74351	27.1	17.8
112913	26.7	19.5	515456	26.8	20.4	195891	26.9	19.1	212854	26.9	20.2	293684	26.9	20.1	172555	27.1	20.4
146615	26.7	18.1	14	26.8	9.3	195871	26.9	20.8	151618	26.9	19.8	363903	26.9	21.0	467226	27.1	20.8
341039	26.7	20.0	232069	26.8	20.2	54245	26.9	17.6	244082	26.9	20.2	187274	27.0	19.5	132666	27.1	20.4
458551	26.7	20.4	90767	26.8	19.7	31661	26.9	17.2	333993	26.9	20.1	373686	27.0	20.4	420646	27.1	20.7
42468	26.7	19.1	119180	26.8	17.9	481008	26.9	20.9	480850	26.9	20.5	406053	27.0	21.3	473084	27.1	20.0
414687	26.7	19.3	345798	26.8	19.9	520729	26.9	20.9	454335	26.9	21.9	27330	27.0	18.6	214015	27.1	19.3
189900	26.7	20.1	328034	26.8	20.9	450591	26.9	21.1	121952	26.9	19.3	138133	27.0	19.2	260246	27.1	19.9
182572	26.7	19.8	445178	26.8	19.8	486272	26.9	19.7	456463	26.9	21.5	274923	27.0	20.1	214720	27.1	19.9
246029	26.7	20.4	475683	26.8	20.5	298616	26.9	19.7	44319	26.9	18.9	544058	27.0	21.1	176838	27.1	18.0
305066	26.7	20.0	470207	26.8	20.9	292154	26.9	20.8	54348	26.9	18.9	445613	27.0	20.4	454809	27.1	21.2
444878	26.7	20.1	463037	26.8	20.7	329239	26.9	20.8	5889	26.9	16.8	465469	27.0	20.2	75744	27.1	18.3
290362	26.7	20.2	336960	26.8	20.6	48771	26.9	19.6	365845	26.9	19.0	160055	27.0	19.4	61638	27.1	18.9
329657	26.7	20.8	376261	26.8	20.5	289545	26.9	19.7	487282	26.9	21.4	306571	27.0	20.2	44309	27.1	19.0
406949	26.7	20.8	261465	26.8	20.8	246019	26.9	20.7	427341	26.9	20.4	489473	27.0	20.2	254941	27.1	19.3
32157	26.7	19.5	179296	26.8	19.4	62086	26.9	18.5	263237	26.9	20.5	195690	27.0	19.5	101512	27.1	19.5
107790	26.7	19.0	495725	26.8	20.4	193662	26.9	18.9	359908	26.9	19.8	73720	27.0	19.3	184608	27.1	20.2
207148	26.7	19.8	44298	26.8	17.5	14901	26.9	17.7	270017	26.9	20.6	160650	27.0	19.0	227140	27.1	20.2
446967	26.7	20.2	368442	26.8	20.2	12696	26.9	17.7	253026	26.9	21.1	75434	27.0	18.0	83614	27.1	19.8
229042	26.7	19.9	202613	26.8	20.2	131414	26.9	19.6	138022	26.9	18.6	83282	27.0	19.4	96007	27.1	19.8
190932	26.7	20.6	184138	26.8	21.0	94831	26.9	18.2	277739	26.9	20.8	464439	27.0	20.7	49349	27.1	18.4
308764	26.7	20.6	205961	26.8	20.0	17149	26.9	18.0	486525	26.9	21.0	58952	27.0	17.3	486790	27.1	20.3
331030	26.7	20.3	493979	26.8	19.7	115788	26.9	16.6	345374	26.9	19.4	421401	27.0	20.3	449927	27.1	21.3
356130	26.7	20.4	483672	26.8	20.4	244010	26.9	20.1	254794	26.9	20.1	187773	27.0	20.2	24211	27.1	18.5
163445	26.7	20.6	414650	26.8	21.3	14696	26.9	17.6	467167	26.9	20.3	129115	27.0	18.8	197911	27.1	20.9
446143	26.7	19.6	292227	26.8	20.1	337574	26.9	20.7	518897	26.9	20.3	263835	27.0	19.9	33461	27.1	17.4
332068	26.7	20.3	292329	26.8	20.0	8000	26.9	17.3	309786	26.9	19.9	405101	27.0	20.2	418645	27.1	21.4
458693	26.7	20.4	24616	26.8	17.7	475848	26.9	20.0	196650	26.9	19.9	357288	27.0	20.3	269703	27.1	20.4
17989	26.7	17.6	178286	26.8	19.8	189650	26.9	19.1	91530	26.9	20.5	455105	27.0	21.5	11391	27.1	18.1
250716	26.7	19.9	474355	26.8	21.0	523776	26.9	21.9	159219	26.9	20.1	438523	27.0	20.0	370667	27.1	19.5
67583	26.7	17.4	105057	26.8	19.1	545062	26.9	20.5	46470	26.9	17.6	267839	27.0	20.5	484405	27.1	20.6
216896	26.7	20.9	414603	26.8	20.4	455968	26.9	21.0	152067	26.9	20.5	124713	27.0	20.5	493982	27.1	20.3
313238	26.8	20.2	123386	26.8	18.4	140012	26.9	19.6	454603	26.9</							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
212843	27.1	20.4	186226	27.2	19.6	165943	27.2	20.3	537999	27.3	20.8	230807	27.4	20.1	407528	27.5	21.0
82112	27.1	18.2	49252	27.2	19.7	237813	27.3	19.5	20433	27.3	18.2	30569	27.4	19.1	154055	27.5	19.3
266132	27.1	20.6	215304	27.2	20.3	181894	27.3	19.4	81046	27.3	19.1	232960	27.4	19.1	337409	27.5	20.6
543026	27.1	21.7	260608	27.2	20.4	461635	27.3	19.8	184364	27.3	20.3	410653	27.4	20.7	351312	27.5	20.1
154598	27.1	20.1	412987	27.2	19.4	48840	27.3	18.0	364968	27.3	20.5	298491	27.4	19.1	413996	27.5	21.2
198038	27.1	20.5	489384	27.2	21.0	114981	27.3	19.1	263970	27.3	21.4	326268	27.4	21.6	313058	27.5	20.6
288891	27.1	19.5	318876	27.2	20.2	358582	27.3	20.0	157226	27.3	19.7	234566	27.4	19.5	272187	27.5	19.8
51909	27.1	18.1	22571	27.2	17.5	84120	27.3	19.0	242824	27.3	19.5	375553	27.4	20.8	427291	27.5	20.1
301353	27.1	20.3	184879	27.2	20.6	460734	27.3	20.4	100805	27.3	17.7	116684	27.4	19.6	154586	27.5	19.9
16912	27.1	19.4	459631	27.2	20.9	412167	27.3	21.5	14288	27.3	19.3	138132	27.4	18.4	172202	27.5	20.0
303523	27.1	20.4	273134	27.2	20.9	327494	27.3	20.4	418662	27.3	20.6	515804	27.4	21.1	446255	27.5	20.6
172168	27.1	19.1	228979	27.2	19.9	229491	27.3	19.0	58520	27.3	19.3	337537	27.4	19.6	460524	27.5	21.0
495720	27.1	20.6	382113	27.2	20.1	388870	27.3	20.8	347553	27.3	19.6	219252	27.4	18.4	260636	27.5	19.8
360632	27.1	19.8	63854	27.2	18.6	394156	27.3	22.0	179278	27.3	20.2	46430	27.4	19.6	489582	27.5	22.3
62645	27.1	19.1	419046	27.2	22.0	331867	27.3	20.4	408610	27.3	20.5	254921	27.4	19.8	108157	27.5	19.4
215255	27.1	19.9	407301	27.2	21.2	225261	27.3	19.8	219996	27.3	20.5	32954	27.4	19.1	238073	27.5	20.0
409534	27.1	21.5	488479	27.2	21.1	111079	27.3	19.4	492307	27.3	19.9	31058	27.4	19.1	515944	27.5	21.6
151301	27.1	19.2	235293	27.2	20.3	269854	27.3	19.2	163574	27.3	20.0	458073	27.4	20.7	377551	27.5	19.7
247026	27.1	19.8	400832	27.2	21.9	331578	27.3	20.4	343854	27.3	20.7	543629	27.4	21.4	451453	27.5	20.3
275824	27.1	20.9	373676	27.2	20.3	251062	27.3	18.9	127746	27.3	19.5	293572	27.4	20.2	271978	27.5	20.1
392276	27.1	20.2	226202	27.2	19.8	167329	27.3	19.1	350369	27.3	20.3	456007	27.4	20.7	133592	27.5	20.4
198707	27.1	19.3	386021	27.2	19.9	252359	27.3	19.6	400638	27.3	20.4	190999	27.4	20.7	429509	27.5	20.0
462753	27.1	20.3	593	27.2	12.1	252515	27.3	20.2	15638	27.3	17.5	110304	27.4	18.9	104076	27.5	18.4
76484	27.1	19.3	438578	27.2	21.4	32789	27.3	18.1	53869	27.3	19.3	76546	27.4	18.4	213384	27.5	20.7
440266	27.1	21.5	246921	27.2	18.8	118070	27.3	19.3	153386	27.3	20.5	154773	27.4	20.6	514134	27.5	20.4
9706	27.1	17.1	345760	27.2	19.8	189311	27.3	20.5	372246	27.3	20.7	181143	27.4	19.4	108083	27.5	19.2
101327	27.1	19.5	399730	27.2	18.4	233082	27.3	20.5	278689	27.3	20.4	405563	27.4	22.7	103203	27.5	20.4
357643	27.1	20.4	456586	27.2	20.8	214637	27.3	20.1	69642	27.3	17.3	198838	27.4	18.4	332207	27.5	20.6
43576	27.1	18.6	360435	27.2	19.7	270647	27.3	20.2	233768	27.3	19.7	275832	27.4	20.9	283290	27.5	20.1
21755	27.1	16.0	324680	27.2	20.5	41248	27.3	18.4	7876	27.3	17.4	277034	27.4	19.9	237828	27.5	19.4
159177	27.1	18.5	152737	27.2	19.9	450633	27.3	21.0	79769	27.3	19.1	542944	27.4	22.2	449574	27.5	20.5
449507	27.1	21.2	397500	27.2	20.8	252488	27.3	19.5	155547	27.3	19.5	119031	27.4	18.8	158125	27.5	18.6
177017	27.1	19.3	316661	27.2	20.8	354386	27.3	20.0	409702	27.3	20.9	459857	27.4	20.5	132913	27.5	18.3
541621	27.1	22.2	244355	27.2	21.2	293196	27.3	18.6	155724	27.3	20.4	382106	27.4	21.0	365264	27.5	20.5
189663	27.1	20.4	351077	27.2	20.7	261857	27.3	20.0	124649	27.3	19.5	337237	27.4	19.7	103238	27.5	18.9
302641	27.1	20.2	1545	27.2	14.0	79393	27.3	18.8	544657	27.3	21.1	233010	27.4	20.5	329740	27.5	20.7
8288	27.1	17.8	131809	27.2	18.9	40551	27.3	18.9	180286	27.3	19.5	269200	27.4	19.9	119422	27.5	19.8
459875	27.1	19.0	427818	27.2	20.2	83145	27.3	18.5	129376	27.3	20.3	133772	27.4	18.8	441141	27.5	21.5
451898	27.1	21.2	378438	27.2	20.6	202313	27.3	20.2	307302	27.3	20.2	439633	27.4	20.3	495740	27.5	21.4
345003	27.1	19.1	57269	27.2	17.7	377921	27.3	20.8	345758	27.3	20.1	256323	27.4	20.6	45846	27.5	18.9
78086	27.1	19.8	463934	27.2	20.5	403055	27.3	18.8	453855	27.3	21.8	111748	27.4	19.2	130180	27.5	19.2
113112	27.1	19.2	418005	27.2	20.4	259977	27.3	20.4	44505	27.3	17.2	433204	27.4	20.9	247928	27.5	18.5
105313	27.1	19.2	96505	27.2	19.4	51697	27.3	19.1	325632	27.4	20.2	251147	27.4	19.7	180276	27.5	19.9
102079	27.1	18.9	72696	27.2	19.3	20086	27.3	23.5	521730	27.4	20.3	402731	27.4	21.4	186618	27.5	20.7
404373	27.1	21.1	141818	27.2	20.4	255233	27.3	20.2	162968	27.4	19.2	127474	27.4	19.7	209226	27.5	19.8
188233	27.1	19.8	48446	27.2	19.3	71041	27.3	19.0	187533	27.4	19.5	300696	27.4	19.3	215591	27.5	19.7
449497	27.1	20.9	515262	27.2	21.0	466276	27.3	20.7	15074	27.4	17.0	249309	27.4	19.4	8024	27.5	17.3
222457	27.1	19.2	141536	27.2	19.5	113111	27.3	19.1	226157	27.4	19.9	7463	27.4	16.7	270794	27.5	20.7
210511	27.1	19.1	359290	27.2	21.7	158665	27.3	19.3	120244	27.4	19.7	145863	27.4	19.5	394330	27.5	21.3
467918	27.1	19.8	426617	27.2	20.7	220629	27.3	20.3	312263	27.4	19.0	227768	27.4	20.5	82100	27.5	18.6
31388	27.1	18.0	206400	27.2	19.9	104591	27.3	18.8	270061	27.4	21.1	34683	27.4	18.4	300542	27.5	21.6
27251	27.1	17.8	535844	27.2	19.3	514518	27.3	20.7	522280	27.4	20.8	198857	27.4	18.9	376343	27.5	20.4
196976	27.1	19.5	319977	27.2	20.0	351056	27.3	20.1	24020	27.4	18.2	194959	27.4	19.3	228299	27.5	19.2
283810	27.1	20.4	446995	27.2	19.3	388561	27.3	20.5	56320	27.4	19.3	384320	27.4	20.5	100565	27.5	20.1
49474	27.1	17.8	474392	27.2	20.0	438153	27.3	20.8	331646	27.4	20.1	70216	27.4	17.9	386008	27.5	20.5
337534	27.1	20.0	14623	27.2	18.0	341056	27.3	20.1	442201	27.4	20.6	119134	27.4	20.1	136547	27.5	19.3
382438	27.2	20.8	192181	27.2	20.2	105153	27.3	19.2	199719	27.4	19.0	280694	27.4	18.8	234493	27.5	20.1
73029	27.2	18.7	255045	27.2	20.3	27529	27.3	17.5	443909	27.4	19.5	434426	27.4	20.8	3170	27.5	16.0
124341	27.2	19.6	158668	27.2	19.7	325747	27.3	20.1	376332	27.4	20.7	446976	27.4	21.8	114065	27.5	18.2
282628	27.2	20.5	29079	27.2	17.7	113659	27.3	18.8	25137	27.4	18.6	176637	27.4	20.0	197978	27.5	20.3
492720	27.2	21.0	333281	27.2	21.1	130262	27.3	19.5	30809	27.4	16.7	42184	27.4	18.5	404031	27.5	20.4
220157	27.2	20.0	543907	27.2	21.8	414987	27.3	19.8	113168	27.4	19.2	97618	27.4	18.7	436781	27.5	20.4
397337	27.2	21.4	76739	27.2	19.1	227106	27.3	20.3	514887	27.4	21.3	242099	27.4	20.4	204298	27.5	20.1
256227	27.2	19.6	45764	27.2	18.8	407356	27.3	20.0	280131	27.4	20.8	2024	27.4	16.1	451990	27.5	20.5
414644	27.2	20.8	73838	27.2	19.3	110087	27.3	19.9	195650	27.4	21.1	256764	27.4	19.5	113625	27.5	18.4
346385	27.2	21.0	111540	27.2	19.9	14720	27.3	16.2	79824	27.4	19.1	474368	27.4	21.1	482611	27.5	19.5
228948	27.2	18.5	231110	27.2	19.7	54961	27.3	19.5	510285	27.4	22.8	402309	27.4	21.8	152935	27.5	19.8
77165	27.2	18.7	2675	27.2	14.8	117617	27.3	19.1	346270	27.4	20.7	542991	27.4	20.5	211689	27.5	19.7
412860	27.2	20.4	520191	27.2	21.0	387258	27.3	19.5	266940	27							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
82343	27.5	19.6	165871	27.6	19.7	333272	27.7	20.8	274772	27.7	21.0	279846	27.8	20.8	541860	27.9	20.5
484083	27.5	21.6	50016	27.6	18.4	477811	27.7	20.1	412630	27.7	20.1	287043	27.8	21.0	189676	27.9	19.8
328900	27.5	19.8	446487	27.6	19.0	56765	27.7	19.3	488010	27.7	20.6	48915	27.8	18.8	443221	27.9	20.7
46928	27.5	17.5	207705	27.6	20.2	268642	27.7	19.4	155024	27.7	19.7	215329	27.8	20.3	183495	27.9	19.4
87314	27.5	18.4	187062	27.6	20.5	57123	27.7	18.9	57197	27.7	17.4	449264	27.8	21.0	390620	27.9	20.7
60687	27.5	18.2	503841	27.6	20.5	447508	27.7	21.1	414765	27.7	21.6	26209	27.8	20.8	396981	27.9	21.1
29765	27.5	17.3	325239	27.6	20.3	245859	27.7	20.1	318960	27.7	21.0	277859	27.8	21.6	92800	27.9	20.5
313885	27.5	19.3	331164	27.6	19.8	249271	27.7	19.7	79545	27.7	20.0	493067	27.8	21.0	448825	27.9	21.6
22983	27.5	19.0	41844	27.6	18.3	121080	27.7	18.0	77110	27.7	19.3	13520	27.8	17.3	331638	27.9	19.0
90604	27.5	19.8	53010	27.6	18.2	98270	27.7	19.9	337501	27.7	20.2	112213	27.8	19.8	210590	27.9	19.4
62445	27.5	19.4	320866	27.6	19.4	268165	27.7	19.7	30843	27.7	19.2	292013	27.8	21.0	192275	27.9	19.6
274229	27.5	20.9	399437	27.6	19.5	460680	27.7	21.1	282907	27.7	20.8	541414	27.8	20.6	347507	27.9	19.9
458485	27.5	20.1	281072	27.6	21.0	389349	27.7	20.8	389674	27.7	20.9	21775	27.8	18.3	187053	27.9	20.1
332612	27.5	20.9	27638	27.6	17.6	229075	27.7	19.7	287938	27.7	20.8	510807	27.8	20.6	52789	27.9	19.2
28788	27.5	17.3	321151	27.6	21.4	27794	27.7	17.9	256105	27.7	19.8	544433	27.8	20.9	213923	27.9	19.8
108801	27.5	19.3	18874	27.6	17.7	78902	27.7	19.8	313193	27.7	20.4	363919	27.8	21.3	4402	27.9	15.9
270956	27.5	19.5	402281	27.6	20.6	463025	27.7	20.7	132792	27.7	20.2	365916	27.8	19.9	37084	27.9	19.0
37995	27.5	19.0	237997	27.6	20.8	521950	27.7	19.9	269750	27.7	19.8	316892	27.8	18.5	327989	27.9	20.1
205422	27.5	19.6	150745	27.6	18.7	238299	27.7	19.3	187324	27.7	20.6	345330	27.8	20.7	155694	27.9	20.3
409685	27.5	20.6	321371	27.6	20.5	490992	27.7	20.9	335422	27.7	19.9	240949	27.8	21.1	77384	27.9	18.8
184410	27.5	20.7	486905	27.6	21.2	230173	27.7	19.9	249892	27.7	19.0	230164	27.8	20.0	1919	27.9	15.6
457992	27.5	21.0	138378	27.6	19.6	526570	27.7	20.9	497149	27.7	21.0	409664	27.8	20.8	150465	27.9	19.0
375446	27.5	20.8	165688	27.6	19.2	415453	27.7	19.9	517736	27.8	20.9	441038	27.8	21.3	404409	27.9	20.1
507345	27.5	20.9	270046	27.6	21.4	436049	27.7	20.5	287646	27.8	20.1	376708	27.8	21.8	15924	27.9	18.1
70847	27.5	18.7	95076	27.6	19.2	168724	27.7	19.9	278767	27.8	20.3	378508	27.8	20.7	161422	27.9	19.3
202408	27.5	19.0	97095	27.6	19.4	79500	27.7	18.3	435515	27.8	21.5	209062	27.8	19.9	243248	27.9	19.5
333895	27.5	20.2	328798	27.6	21.3	132543	27.7	19.4	474415	27.8	21.6	319944	27.8	19.6	179748	27.9	20.0
125689	27.5	18.7	163668	27.6	20.0	336497	27.7	20.0	191559	27.8	19.0	14016	27.8	17.6	91698	27.9	18.8
44288	27.5	18.8	209688	27.6	19.4	506088	27.7	19.9	102321	27.8	18.7	422527	27.8	20.4	194850	27.9	18.9
101023	27.5	18.9	461281	27.6	20.7	83945	27.7	19.5	516684	27.8	21.3	541649	27.8	21.7	86577	27.9	18.9
274485	27.5	20.9	418816	27.6	21.3	444796	27.7	21.3	111390	27.8	19.7	473824	27.8	20.5	378484	27.9	21.5
119225	27.5	19.5	367055	27.6	20.7	530451	27.7	21.9	313235	27.8	20.6	285529	27.8	20.2	252295	27.9	20.8
345107	27.5	21.2	302645	27.6	19.7	493372	27.7	20.3	230461	27.8	20.5	459403	27.8	20.9	110370	27.9	18.9
115652	27.5	18.5	357649	27.6	19.6	465499	27.7	20.0	421132	27.8	20.0	224799	27.8	20.2	210574	27.9	20.5
50785	27.5	17.4	446216	27.6	20.0	444883	27.7	21.9	78214	27.8	19.0	339587	27.8	21.4	207883	27.9	21.1
271465	27.5	20.6	302576	27.6	19.3	329698	27.7	20.5	194521	27.8	19.6	10981	27.8	18.3	7508	27.9	18.0
363954	27.5	20.8	43051	27.6	18.7	266086	27.7	19.7	196308	27.8	19.7	354276	27.8	21.0	541357	27.9	19.8
161447	27.5	19.5	240144	27.6	20.6	165616	27.7	18.6	141761	27.8	22.8	465239	27.8	20.4	517018	27.9	21.1
17106	27.5	17.4	306490	27.6	21.5	336731	27.7	19.6	169786	27.8	19.7	330517	27.8	20.7	13757	27.9	17.6
516491	27.5	20.0	287170	27.6	19.5	320012	27.7	20.9	399313	27.8	20.5	200391	27.8	19.6	404459	27.9	20.7
89625	27.5	18.9	133476	27.6	20.2	453604	27.7	20.9	84754	27.8	18.7	182725	27.8	19.7	185969	27.9	20.4
83202	27.5	19.4	518641	27.6	20.7	419488	27.7	19.1	214628	27.8	19.6	325474	27.8	20.7	303111	27.9	19.2
517844	27.5	21.8	422047	27.6	20.3	134399	27.7	20.2	114153	27.8	19.9	420912	27.8	21.8	68596	27.9	19.6
393487	27.5	21.3	324633	27.6	19.6	139710	27.7	19.7	298489	27.8	20.6	266716	27.8	20.5	198970	27.9	20.8
113387	27.6	18.3	129727	27.6	19.5	112589	27.7	19.7	280680	27.8	20.3	391127	27.8	19.9	475034	27.9	20.9
492517	27.6	20.9	236567	27.6	20.3	377930	27.7	21.3	329422	27.8	21.3	137806	27.8	17.1	24821	27.9	18.4
248763	27.6	21.3	517750	27.6	21.1	251233	27.7	20.0	383397	27.8	20.5	49547	27.8	17.9	229381	27.9	20.0
423405	27.6	20.4	195876	27.6	19.2	122190	27.7	19.6	407929	27.8	20.4	139371	27.8	20.0	303113	27.9	19.0
522365	27.6	20.6	318856	27.6	20.3	294492	27.7	20.4	408488	27.8	21.2	228713	27.8	20.0	430858	27.9	21.2
245530	27.6	20.2	280567	27.6	18.9	78063	27.7	19.2	337795	27.8	20.9	86492	27.8	18.3	146519	27.9	20.5
459827	27.6	20.7	386028	27.6	19.8	48022	27.7	18.7	145072	27.8	19.6	16323	27.8	18.8	267621	27.9	19.7
156785	27.6	19.6	115804	27.6	19.9	232076	27.7	19.7	374663	27.8	20.5	460836	27.8	20.8	455663	27.9	20.5
463069	27.6	21.2	399942	27.6	20.6	73898	27.7	18.7	336599	27.8	20.2	450379	27.8	21.0	438156	27.9	21.0
70239	27.6	19.0	332035	27.6	20.2	333539	27.7	21.3	73353	27.8	19.1	273310	27.8	20.0	409053	27.9	20.5
198663	27.6	20.0	174475	27.6	19.4	277767	27.7	21.0	109439	27.8	18.8	4944	27.8	17.1	100620	27.9	19.8
170786	27.6	19.4	449575	27.6	21.1	189884	27.7	19.6	455501	27.8	21.6	373056	27.8	20.2	516694	27.9	21.5
292566	27.6	20.1	516901	27.6	22.3	541416	27.7	19.9	216143	27.8	19.7	220500	27.8	19.5	386032	27.9	19.5
223027	27.6	20.0	250147	27.6	20.8	99178	27.7	18.1	252449	27.8	20.5	328076	27.8	20.6	366788	27.9	20.0
102428	27.6	19.6	447654	27.6	19.9	438001	27.7	21.0	113768	27.8	19.4	410853	27.8	20.3	442444	27.9	21.4
415702	27.6	19.6	482978	27.6	20.4	125276	27.7	17.9	175776	27.8	19.2	170056	27.8	18.7	414741	27.9	20.0
25489	27.6	17.8	397566	27.6	19.6	193156	27.7	20.3	385026	27.8	20.8	21142	27.8	17.0	48773	27.9	18.5
46741	27.6	18.8	452778	27.6	20.9	67517	27.7	18.8	544739	27.8	20.7	544269	27.8	20.5	455603	27.9	21.3
104595	27.6	19.2	458601	27.6	20.4	244523	27.7	20.2	307915	27.8	19.5	161134	27.8	19.9	431625	27.9	21.0
185119	27.6	20.4	349670	27.6	19.4	276367	27.7	19.9	121341	27.8	18.8	187055	27.8	20.4	95802	27.9	19.5
486223	27.6	20.5	116612	27.6	18.5	196565	27.7	20.1	26971	27.8	17.9	280534	27.9	21.0	217596	27.9	20.3
250461	27.6	19.3	121699	27.6	19.5	481253	27.7	20.1	308308	27.8	19.4	274207	27.9	21.3	330497	27.9	21.2
399887	27.6	21.6	493922	27.6	20.1	67039	27.7	17.4	187804	27.8	19.9	97994	27.9	18.3	521361	27.9	21.4
444510	27.6	19.6	229268	27.6	19.4	40162	27.7	17.8	135738	27.8	19.8	173595	27.9	19.0	418475	27.9	20.9
207838	27.6	20.8	277056	27.6	20.6	289989	27.7	20.1	272078								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
271335	27.9	20.5	196130	28.0	19.5	96639	28.1	18.7	221222	28.1	20.3	134366	28.2	18.5	10	28.3	9.9
84011	27.9	18.8	133473	28.0	19.8	402127	28.1	20.4	356070	28.1	19.8	171645	28.2	20.5	190124	28.3	19.1
442897	27.9	20.8	188833	28.0	20.0	165529	28.1	18.9	340071	28.1	20.6	486943	28.2	20.1	376336	28.3	20.7
365247	27.9	22.1	228446	28.0	19.7	443590	28.1	19.9	545058	28.1	20.5	302093	28.2	18.8	149737	28.3	19.8
257824	27.9	20.4	416306	28.0	20.7	490029	28.1	21.3	321076	28.1	20.8	541627	28.2	19.9	172668	28.3	19.8
210820	27.9	20.9	17897	28.0	17.6	234979	28.1	18.4	733	28.1	14.0	449705	28.2	19.5	447005	28.3	19.5
143196	27.9	19.0	239929	28.0	19.6	343965	28.1	20.5	310756	28.1	21.0	11354	28.2	17.9	347599	28.3	20.8
317032	27.9	20.4	127816	28.0	18.3	505337	28.1	18.9	213159	28.1	20.5	329976	28.2	20.3	340068	28.3	19.5
463959	27.9	19.6	283771	28.0	19.8	137395	28.1	19.3	158747	28.1	19.4	462440	28.2	19.7	263662	28.3	20.5
464351	27.9	20.6	60197	28.0	18.1	8635	28.1	16.8	209830	28.1	20.5	290269	28.2	20.2	375536	28.3	21.1
514894	27.9	21.4	5959	28.0	17.2	271960	28.1	19.9	492048	28.1	21.1	541322	28.2	21.4	10050	28.3	18.3
106321	27.9	18.1	346409	28.0	21.2	7039	28.1	17.5	464796	28.1	21.0	481805	28.2	20.4	495714	28.3	20.5
345196	27.9	21.2	199134	28.0	20.5	233276	28.1	20.1	104257	28.1	19.7	537837	28.2	21.1	112894	28.3	20.5
522057	27.9	21.1	55732	28.0	19.1	261065	28.1	20.3	4982	28.1	17.4	287509	28.2	19.6	162246	28.3	19.7
375073	27.9	21.2	494088	28.0	19.9	52998	28.1	19.0	59217	28.1	18.2	272076	28.2	20.0	200332	28.3	20.1
329359	27.9	22.0	248775	28.0	20.6	233909	28.1	19.5	455325	28.1	20.6	138515	28.2	20.0	303002	28.3	19.7
130059	27.9	20.5	197700	28.0	21.3	16557	28.1	16.4	40692	28.1	18.6	169289	28.2	19.9	347599	28.3	20.0
520254	27.9	21.4	277839	28.0	20.3	266865	28.1	20.6	31170	28.1	17.3	366489	28.2	20.4	269879	28.3	20.6
280676	27.9	19.6	477318	28.0	20.9	29258	28.1	18.9	488130	28.1	20.6	276243	28.2	21.0	122278	28.3	20.1
373638	27.9	20.7	488239	28.0	21.1	339658	28.1	20.9	80893	28.1	19.1	37531	28.2	17.7	380971	28.3	20.9
336869	27.9	19.8	74437	28.0	17.9	405676	28.1	20.7	14458	28.1	19.2	301390	28.2	20.2	164987	28.3	18.8
359422	27.9	20.1	421901	28.0	20.7	31113	28.1	17.9	287918	28.1	19.2	150574	28.2	19.8	77568	28.3	19.9
133634	27.9	19.0	276755	28.0	20.6	467018	28.1	20.1	301601	28.1	19.3	371264	28.2	20.5	82435	28.3	18.4
25661	27.9	17.8	174883	28.0	18.8	359727	28.1	19.7	350245	28.1	20.0	109261	28.2	19.5	138104	28.3	20.0
310816	27.9	19.9	297324	28.0	21.3	53024	28.1	18.1	10165	28.1	18.6	331614	28.2	19.6	60547	28.3	17.9
312327	27.9	18.5	347237	28.0	21.0	228885	28.1	19.2	119107	28.1	20.0	373270	28.2	20.2	159895	28.3	20.8
486159	27.9	20.2	419411	28.0	20.2	491533	28.1	21.3	399422	28.1	20.5	318152	28.2	20.9	428216	28.3	20.9
477234	27.9	21.2	64643	28.0	18.0	236617	28.1	20.7	323002	28.1	21.5	287903	28.2	19.8	353973	28.3	20.8
5217	27.9	16.5	403461	28.0	20.3	461463	28.1	21.5	37599	28.1	17.5	271548	28.2	19.7	281197	28.3	19.6
162271	27.9	19.7	271504	28.0	19.9	215568	28.1	19.5	224830	28.1	19.8	454588	28.2	20.9	316104	28.3	19.5
141689	27.9	19.1	23765	28.0	17.3	236987	28.1	20.4	512277	28.1	21.2	47812	28.2	18.1	112253	28.3	19.5
239966	27.9	20.6	516875	28.0	21.3	81690	28.1	19.2	446663	28.1	21.9	350276	28.2	20.0	313392	28.3	21.7
167267	27.9	19.5	424951	28.0	20.7	445171	28.1	20.4	29280	28.1	18.2	90668	28.2	18.7	482532	28.3	20.9
27625	27.9	19.1	406924	28.0	19.1	41155	28.1	18.9	191335	28.1	19.5	255003	28.2	20.7	369216	28.3	20.5
401918	27.9	21.1	303531	28.0	20.2	345761	28.1	20.1	51508	28.1	20.0	230211	28.2	19.1	159190	28.3	19.4
194526	27.9	19.4	467065	28.0	20.3	180568	28.1	20.1	274216	28.1	19.7	142807	28.2	19.8	359749	28.3	20.4
446969	27.9	19.3	139293	28.0	19.9	395924	28.1	20.2	16609	28.1	18.8	333950	28.2	20.8	248340	28.3	19.8
401684	27.9	20.1	335375	28.0	19.9	95187	28.1	18.7	86659	28.1	19.6	111619	28.2	19.2	73992	28.3	17.9
17894	27.9	17.6	12264	28.0	16.7	176253	28.1	19.6	160594	28.1	18.3	102209	28.2	19.0	467134	28.3	20.5
194776	27.9	19.3	272035	28.0	20.2	108136	28.1	19.8	544912	28.1	20.6	175240	28.2	19.6	121959	28.3	19.5
434136	27.9	21.5	317473	28.0	20.3	173474	28.1	18.9	389636	28.1	20.1	276749	28.2	20.6	170733	28.3	19.1
49890	27.9	17.2	327635	28.0	21.1	413299	28.1	19.6	272817	28.1	20.7	91521	28.2	18.4	184211	28.3	20.4
106863	27.9	18.3	121385	28.0	19.4	75910	28.1	18.4	367833	28.1	20.6	266161	28.2	19.4	541549	28.3	21.9
459883	27.9	20.7	432726	28.0	21.0	204940	28.1	19.8	316488	28.1	20.3	129226	28.2	20.6	174366	28.3	19.9
13793	27.9	18.9	151338	28.0	19.4	98878	28.1	18.8	109502	28.1	20.5	399467	28.2	20.4	171836	28.3	19.3
142561	27.9	20.2	230680	28.0	19.0	297037	28.1	20.6	322094	28.1	20.4	393595	28.2	21.0	12627	28.3	18.7
322030	27.9	20.7	319284	28.0	20.0	277856	28.1	19.8	10227	28.1	16.9	217496	28.2	20.4	226683	28.3	18.9
114044	27.9	19.2	333832	28.0	19.7	219847	28.1	20.2	162449	28.1	20.4	82197	28.2	19.0	405715	28.3	19.8
418785	27.9	20.7	294980	28.0	20.1	35189	28.1	17.6	324323	28.1	20.9	494766	28.2	21.5	347201	28.3	20.6
76199	27.9	18.9	237791	28.0	19.7	518811	28.1	20.0	207149	28.1	20.5	59591	28.2	19.5	46401	28.3	19.2
474983	27.9	20.9	438468	28.0	21.6	331000	28.1	19.6	305726	28.1	19.9	509586	28.2	20.5	506159	28.3	20.7
224677	27.9	20.0	541670	28.0	20.6	153018	28.1	19.8	378966	28.2	19.9	320607	28.2	20.1	346060	28.3	21.0
416754	27.9	20.4	227669	28.0	19.9	194750	28.1	18.9	190358	28.2	19.8	292581	28.2	20.1	192443	28.3	19.4
89543	27.9	19.9	234279	28.0	19.5	337939	28.1	19.6	436079	28.2	21.1	23954	28.2	18.4	206610	28.3	20.6
503860	27.9	20.4	447621	28.0	20.3	103602	28.1	18.8	372050	28.2	20.8	293661	28.2	20.6	81342	28.3	19.2
371266	27.9	19.9	279464	28.0	20.3	198848	28.1	20.2	467890	28.2	21.7	414562	28.2	19.6	345264	28.3	21.3
497935	27.9	21.8	441485	28.0	21.3	285388	28.1	19.8	494569	28.2	19.9	332585	28.2	20.8	146671	28.3	19.2
10046	27.9	17.5	132496	28.0	20.2	400104	28.1	21.2	303069	28.2	18.9	267408	28.2	19.3	331738	28.3	20.4
61503	27.9	19.5	317041	28.0	20.5	138848	28.1	20.7	438575	28.2	22.0	521958	28.2	20.7	104777	28.3	20.2
186474	27.9	19.8	158595	28.0	20.0	51007	28.1	17.9	259233	28.2	19.2	128117	28.2	19.8	133166	28.3	19.4
541491	27.9	21.6	488407	28.0	20.0	182983	28.1	20.3	245659	28.2	20.1	410569	28.2	20.2	385690	28.3	20.8
50048	27.9	18.2	256941	28.0	20.5	541403	28.1	20.9	245349	28.2	19.8	420949	28.2	21.0	541215	28.3	21.5
276214	27.9	20.6	129844	28.0	19.9	356554	28.1	20.1	15591	28.2	17.0	368288	28.2	20.6	459244	28.3	21.2
14835	27.9	17.2	219195	28.0	20.6	275734	28.1	19.5	142270	28.2	20.5	265439	28.2	19.7	302096	28.3	18.6
282636	27.9	20.4	53124	28.0	18.7	444802	28.1	21.2	445752	28.2	20.0	17871	28.2	17.4	540008	28.3	21.8
7253	27.9	16.2	242965	28.0	20.3	16231	28.1	18.9	346475	28.2	19.7	48508	28.2	18.5	334059	28.3	20.0
515917	27.9	22.1	11678	28.0	16.9	408689	28.1	20.7	73434	28.2	19.5	376697	28.2	21.4	259369	28.3	19.0
40487	27.9	18.6	514891	28.0	20.7	332620	28.1	20.8	471113	28.2	19.7	456181	28.2	20.5	22074	28.3	17.1
182527	27.9	19.6	79634	28.0	18.6	291726	28.1	20.7	345162	28.2							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
400402	28.3	19.4	82229	28.4	18.8	389354	28.5	19.3	393483	28.5	22.0	349526	28.6	21.0	197966	28.7	20.9
307835	28.3	21.7	346923	28.4	20.1	492169	28.5	20.2	495077	28.5	21.5	468762	28.6	20.2	203284	28.7	19.3
343990	28.3	20.2	226217	28.4	19.5	379873	28.5	20.2	320838	28.5	20.5	440201	28.6	21.0	171390	28.7	19.7
110999	28.3	19.5	319326	28.4	21.1	372566	28.5	18.6	48727	28.5	18.8	271332	28.6	19.7	307343	28.7	20.9
320565	28.3	20.0	175449	28.4	20.3	372066	28.5	21.1	359784	28.5	20.1	186409	28.6	19.6	543028	28.7	21.4
275618	28.3	18.0	289480	28.4	19.8	485539	28.5	20.5	289973	28.5	21.0	416519	28.6	20.1	290955	28.7	20.3
66639	28.3	18.6	439973	28.4	21.1	190498	28.5	19.7	271426	28.5	19.0	104507	28.6	19.0	407799	28.7	20.4
134011	28.3	19.8	150135	28.4	19.4	22747	28.5	18.8	334060	28.6	20.6	112608	28.6	18.5	76795	28.7	18.4
267887	28.3	19.2	129730	28.4	18.9	307369	28.5	20.2	254504	28.6	20.7	20550	28.6	17.8	460690	28.7	21.5
256203	28.3	19.8	305245	28.4	19.6	318975	28.5	20.6	54988	28.6	18.2	258356	28.6	19.7	162186	28.7	16.2
202707	28.3	21.2	463029	28.4	21.1	278611	28.5	21.7	202125	28.6	19.5	448966	28.6	20.4	141053	28.7	19.9
499953	28.3	21.3	169243	28.4	20.0	318756	28.5	20.8	306420	28.6	21.1	530979	28.6	20.5	504487	28.7	20.8
194832	28.3	19.8	97540	28.4	19.0	88353	28.5	19.4	495669	28.6	21.3	279357	28.6	20.4	200916	28.7	18.4
42333	28.3	17.4	398392	28.4	21.4	149851	28.5	19.7	487823	28.6	19.8	357470	28.6	20.1	242968	28.7	20.0
7922	28.3	16.4	116183	28.4	18.7	357295	28.5	20.2	94085	28.6	19.3	59413	28.6	18.1	164384	28.7	20.5
408718	28.3	20.3	101810	28.4	18.7	415425	28.5	20.4	191174	28.6	19.6	48444	28.6	18.1	103033	28.7	17.3
228433	28.3	20.5	273226	28.4	19.9	332341	28.5	19.8	313233	28.6	21.4	507469	28.6	20.7	254780	28.7	19.7
373078	28.3	20.3	265138	28.4	19.8	467392	28.5	20.5	137350	28.6	19.7	421595	28.6	20.2	256885	28.7	19.8
442197	28.3	20.0	372876	28.4	19.5	462987	28.5	21.3	544373	28.6	20.4	93074	28.6	18.9	390072	28.7	20.8
114097	28.3	18.9	118270	28.4	18.6	171849	28.5	19.4	458567	28.6	20.6	175971	28.6	20.0	161952	28.7	19.5
489851	28.3	20.1	407831	28.4	20.0	260773	28.5	20.4	281401	28.6	21.1	279411	28.6	20.1	51379	28.7	18.4
455497	28.3	20.8	485463	28.4	21.9	76406	28.5	18.1	227374	28.6	19.6	24423	28.6	18.0	314257	28.7	20.4
78348	28.3	19.2	314774	28.4	20.6	461180	28.5	20.4	161775	28.6	18.6	501994	28.6	21.0	115382	28.7	19.2
219986	28.3	20.7	494849	28.4	18.6	33	28.5	13.3	275487	28.6	20.2	160565	28.6	20.4	426502	28.7	20.3
468738	28.3	23.3	354238	28.4	21.1	4842	28.5	16.9	341898	28.6	21.8	321973	28.6	20.4	188702	28.7	20.1
484806	28.3	21.1	260832	28.4	20.9	207266	28.5	19.5	391234	28.6	21.8	217122	28.6	19.6	334811	28.7	20.1
271524	28.3	19.4	516632	28.4	20.4	220627	28.5	19.7	503418	28.6	20.4	112708	28.6	19.1	209648	28.7	18.9
74408	28.3	18.7	396472	28.4	20.3	240096	28.5	19.1	486480	28.6	20.5	21685	28.6	18.5	542767	28.7	20.4
381202	28.3	21.3	463577	28.4	21.0	454481	28.5	21.1	108322	28.6	19.8	56709	28.6	18.3	442523	28.7	22.5
14384	28.3	18.2	426250	28.4	20.9	141790	28.5	19.9	332838	28.6	20.3	417230	28.6	20.9	281372	28.7	20.1
390863	28.3	21.4	442333	28.4	21.6	270131	28.5	20.4	436040	28.6	21.3	454220	28.6	20.6	465812	28.7	20.4
460655	28.3	20.7	415198	28.4	21.2	45564	28.5	18.6	375504	28.6	21.3	27715	28.6	17.3	446527	28.7	20.9
105603	28.4	19.1	470209	28.4	20.4	486715	28.5	19.7	316082	28.6	20.4	221228	28.6	20.1	101792	28.7	18.2
79234	28.4	19.4	301864	28.4	21.3	109650	28.5	19.5	273172	28.6	19.6	117115	28.6	19.5	518237	28.7	20.7
361332	28.4	20.6	461502	28.4	20.4	124523	28.5	19.1	67826	28.6	18.4	467208	28.6	20.6	24663	28.7	17.6
330250	28.4	20.3	274741	28.4	20.4	416442	28.5	20.6	228855	28.6	19.2	311708	28.6	20.1	438106	28.7	20.9
348707	28.4	21.2	346350	28.4	21.6	11061	28.5	17.8	444020	28.6	20.2	299065	28.6	19.4	363611	28.7	20.9
453929	28.4	20.5	131853	28.4	19.3	532683	28.5	21.5	94491	28.6	17.5	201283	28.6	20.4	487792	28.7	20.3
223474	28.4	19.7	186701	28.4	18.7	341970	28.5	19.8	173231	28.6	19.8	247679	28.6	20.2	178991	28.7	19.5
286931	28.4	20.4	76027	28.4	18.4	367351	28.5	20.4	381034	28.6	20.5	468069	28.6	21.0	101126	28.7	19.9
363940	28.4	21.1	343838	28.4	21.1	473548	28.5	20.3	87126	28.6	19.8	216230	28.6	20.0	437852	28.7	21.5
178406	28.4	20.4	5757	28.4	17.3	412026	28.5	19.8	92216	28.6	18.9	332255	28.6	20.0	364942	28.7	20.4
408804	28.4	20.0	273473	28.4	19.2	59373	28.5	17.7	313811	28.6	19.7	407376	28.6	21.3	43940	28.7	18.2
337581	28.4	20.9	463433	28.4	20.0	214778	28.5	20.6	32041	28.6	18.6	107078	28.6	18.8	235427	28.7	19.4
369901	28.4	19.8	473995	28.4	20.5	89147	28.5	19.3	391175	28.6	20.2	363181	28.6	20.7	232712	28.7	19.5
427144	28.4	20.9	81761	28.4	20.5	417891	28.5	21.0	343186	28.6	20.2	407514	28.6	20.9	257537	28.7	19.0
77037	28.4	19.3	449688	28.4	21.2	101944	28.5	18.0	196289	28.6	19.5	315751	28.6	19.6	230626	28.7	19.7
291852	28.4	20.3	52509	28.4	19.3	348170	28.5	21.7	271979	28.6	20.5	194877	28.6	18.2	328605	28.7	20.3
12810	28.4	18.3	257090	28.4	20.1	495280	28.5	19.9	66454	28.6	19.8	425946	28.6	20.9	1607	28.7	15.2
212229	28.4	19.2	257855	28.4	20.7	273177	28.5	20.7	99850	28.6	18.6	265549	28.6	21.4	30943	28.7	16.9
59892	28.4	19.2	52843	28.4	18.8	340255	28.5	20.0	515147	28.6	20.6	155937	28.6	18.6	287999	28.7	20.6
261253	28.4	21.2	150789	28.4	19.2	230220	28.5	19.2	450222	28.6	22.5	230714	28.6	20.9	127682	28.7	19.5
30142	28.4	19.6	543027	28.4	21.3	48897	28.5	20.3	358548	28.6	20.7	450370	28.6	20.4	62780	28.7	18.8
541291	28.4	21.2	54124	28.4	19.4	76038	28.5	19.2	313474	28.6	20.6	242815	28.6	20.4	102404	28.7	19.7
516648	28.4	21.4	162030	28.4	19.3	358740	28.5	20.5	164630	28.6	18.8	81706	28.6	20.0	337868	28.7	19.8
124411	28.4	20.0	485224	28.4	20.7	55815	28.5	17.7	353004	28.6	19.7	331703	28.6	22.2	200313	28.7	20.0
492944	28.4	21.3	249270	28.4	19.9	182523	28.5	19.8	487974	28.6	21.5	42493	28.6	18.4	120272	28.7	19.3
462746	28.4	20.5	331029	28.4	20.4	163976	28.5	18.9	96526	28.6	18.6	312356	28.6	19.9	231390	28.7	19.9
238242	28.4	20.1	12186	28.4	17.5	336888	28.5	20.1	266702	28.6	20.7	83548	28.6	19.4	347282	28.7	20.6
428681	28.4	23.3	457524	28.4	20.1	541265	28.5	20.6	46629	28.6	19.3	420708	28.7	20.9	13874	28.7	17.4
448219	28.4	20.1	182542	28.5	20.1	412734	28.5	20.4	60255	28.6	18.1	218955	28.7	20.4	395137	28.7	19.7
226439	28.4	20.1	56683	28.5	19.5	48695	28.5	19.2	382186	28.6	21.1	198671	28.7	19.7	375155	28.7	19.9
486396	28.4	20.8	280784	28.5	19.1	135784	28.5	20.2	261719	28.6	20.0	33436	28.7	18.5	74336	28.7	18.3
77461	28.4	19.1	526506	28.5	21.4	31544	28.5	17.6	44564	28.6	18.2	28892	28.7	18.5	493219	28.7	21.0
460908	28.4	20.4	450166	28.5	20.7	473990	28.5	20.3	288188	28.6	18.7	166478	28.7	19.7	294197	28.7	20.5
73377	28.4	18.3	158629	28.5	19.0	143199	28.5	18.8	163597	28.6	20.2	227525	28.7	20.2	64208	28.7	18.2
442	28.4	12.7	385982	28.5	20.4	195936	28.5	18.9	485958	28.6	20.2	495565	28.7	20.1	295376	28.7	21.3
496271	28.4	21.6	413133	28.5	20.8	411774	28.5	21.0	30848	28.6	18.0	169612	28.7	19.2	496539	28.7	20.1
270613	28.4	21.9	276700	28.5	20.5	76772	28.5	18.0	144215	28.							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
265950	28.7	20.2	365454	28.8	21.0	29391	28.9	19.2	419410	28.9	19.6	283337	29.0	20.2	310789	29.1	20.9
81723	28.7	19.1	77249	28.8	18.7	42730	28.9	18.7	421756	28.9	20.8	493146	29.0	20.4	242079	29.1	20.5
216803	28.7	20.5	421697	28.8	21.3	2783	28.9	16.8	356019	28.9	20.4	395194	29.0	21.0	57448	29.1	18.5
416149	28.7	21.3	192165	28.8	19.6	473568	28.9	20.7	294006	28.9	19.6	414574	29.0	20.5	146734	29.1	19.1
284218	28.7	20.0	199439	28.8	20.6	92725	28.9	19.1	410825	28.9	21.0	307257	29.0	21.2	457200	29.1	20.3
454727	28.7	20.7	455452	28.8	19.4	481999	28.9	21.7	74061	28.9	19.0	68319	29.0	18.4	541723	29.1	21.0
482072	28.7	19.9	343800	28.8	20.7	194718	28.9	19.0	66043	28.9	20.3	228430	29.0	19.1	59274	29.1	18.8
13573	28.7	17.7	143292	28.8	18.3	101425	28.9	19.5	109229	28.9	19.7	491414	29.0	21.2	267827	29.1	19.7
414166	28.7	19.7	174435	28.8	19.5	459732	28.9	21.1	416109	28.9	19.9	369094	29.0	21.0	35367	29.1	20.1
312210	28.7	20.3	145774	28.8	19.2	57087	28.9	18.2	310811	28.9	20.1	314762	29.0	19.7	11213	29.1	16.4
175136	28.7	18.6	219989	28.8	20.7	205537	28.9	19.9	496927	28.9	20.6	193060	29.0	20.1	37645	29.1	18.2
235634	28.7	20.8	36594	28.8	19.5	404889	28.9	20.6	64334	28.9	18.0	252338	29.0	21.3	230156	29.1	19.8
208071	28.7	20.8	319941	28.8	18.8	104351	28.9	18.7	430820	28.9	21.4	81407	29.0	18.5	222981	29.1	19.8
248749	28.7	20.3	191005	28.8	18.9	336565	28.9	20.6	356818	28.9	20.7	270796	29.0	20.5	398003	29.1	20.4
464602	28.7	20.5	256895	28.8	19.7	514907	28.9	22.0	310866	28.9	18.0	31614	29.0	18.9	27234	29.1	17.8
214605	28.7	20.2	438269	28.8	21.4	495285	28.9	21.2	7282	28.9	16.3	168320	29.0	19.3	444386	29.1	19.5
503380	28.8	20.4	353941	28.8	21.4	126500	28.9	18.8	542480	28.9	20.5	256269	29.0	20.2	410515	29.1	20.8
421626	28.8	21.2	258158	28.8	19.9	134988	28.9	19.9	343253	28.9	19.6	160996	29.0	18.9	464584	29.1	19.8
453146	28.8	19.8	104406	28.8	20.1	297961	28.9	19.5	251615	28.9	20.4	122187	29.0	19.8	181429	29.1	19.2
137286	28.8	20.1	45215	28.8	18.6	236038	28.9	18.8	190878	28.9	20.8	376525	29.0	20.8	113237	29.1	19.4
230442	28.8	19.8	382687	28.8	20.6	276207	28.9	19.6	396706	28.9	20.8	115858	29.0	18.4	148226	29.1	18.6
398549	28.8	21.6	163577	28.8	19.6	454707	28.9	20.8	153705	28.9	20.0	451306	29.0	19.6	202089	29.1	19.9
488629	28.8	21.6	116088	28.8	19.6	159540	28.9	19.6	254766	28.9	20.6	523633	29.0	19.5	147915	29.1	19.5
215688	28.8	18.3	416775	28.8	20.4	159468	28.9	20.0	286914	28.9	20.5	375099	29.0	21.6	405624	29.1	20.7
346194	28.8	19.3	418621	28.8	21.0	156130	28.9	19.8	422116	28.9	20.4	398150	29.0	20.5	182109	29.1	20.2
480900	28.8	22.1	82619	28.8	19.5	482824	28.9	20.1	233143	28.9	19.5	76005	29.0	19.2	409327	29.1	20.5
489756	28.8	20.3	274521	28.8	20.6	375071	28.9	20.6	191193	28.9	19.4	348231	29.0	20.9	141359	29.1	18.7
219048	28.8	20.0	54142	28.8	18.4	231968	28.9	20.6	143074	28.9	20.7	162974	29.0	19.6	227737	29.1	19.9
172730	28.8	19.2	183574	28.8	20.1	434532	28.9	21.1	450810	28.9	21.5	86976	29.0	19.1	247292	29.1	20.4
331655	28.8	20.7	487231	28.8	20.9	518430	28.9	21.5	486304	28.9	20.7	333999	29.0	20.5	112477	29.1	18.7
140061	28.8	19.9	376982	28.8	21.1	521802	28.9	21.4	277885	28.9	20.8	94976	29.0	19.5	100101	29.1	20.1
132745	28.8	19.6	41392	28.8	18.1	340388	28.9	20.2	196596	28.9	18.8	514435	29.0	21.5	457863	29.1	21.2
69954	28.8	18.9	474240	28.8	19.8	419382	28.9	20.4	143571	28.9	18.7	232471	29.0	19.5	277901	29.1	19.6
270756	28.8	20.7	80871	28.8	19.2	258280	28.9	19.1	87124	28.9	19.8	462122	29.0	21.5	160264	29.1	20.3
59013	28.8	16.9	213979	28.8	18.7	64026	28.9	18.8	129171	28.9	19.0	108518	29.0	20.0	250576	29.1	20.5
46850	28.8	18.7	287890	28.8	20.6	277427	28.9	21.8	365868	28.9	19.6	339993	29.0	20.5	322040	29.1	20.1
334241	28.8	20.7	60414	28.8	18.5	454406	28.9	21.0	543129	28.9	20.9	111052	29.0	20.0	115556	29.1	18.6
518290	28.8	19.1	337355	28.8	21.7	120012	28.9	18.9	220991	28.9	19.6	481207	29.0	19.9	445414	29.1	20.1
543038	28.8	21.2	54842	28.8	19.8	456158	28.9	21.1	206165	28.9	20.8	199222	29.0	19.7	150124	29.1	20.6
379046	28.8	20.3	240444	28.8	20.0	258464	28.9	19.1	349531	28.9	21.3	213025	29.0	19.9	272097	29.1	20.4
308886	28.8	20.4	100046	28.8	17.5	331832	28.9	20.0	280418	28.9	19.2	136484	29.0	19.9	161164	29.1	20.5
411335	28.8	21.3	438549	28.8	20.9	406120	28.9	20.9	458046	28.9	21.1	176314	29.0	20.0	136357	29.1	19.9
304981	28.8	21.5	249340	28.8	20.3	63268	28.9	19.0	16331	28.9	18.2	348637	29.0	19.6	415566	29.1	20.8
361190	28.8	20.6	488954	28.8	21.2	393484	28.9	21.8	192625	28.9	20.4	333004	29.0	20.8	119700	29.1	19.3
408749	28.8	21.2	376275	28.8	21.0	449317	28.9	20.1	452136	28.9	21.1	340864	29.0	20.5	66650	29.1	19.0
433412	28.8	20.7	88591	28.8	19.4	372188	28.9	19.8	220918	28.9	20.7	26198	29.0	19.3	382638	29.1	21.4
394974	28.8	20.1	6524	28.8	15.8	181229	28.9	20.4	434013	28.9	22.0	53663	29.0	18.4	199112	29.1	20.6
486359	28.8	20.7	322578	28.8	19.6	33578	28.9	18.7	31459	28.9	17.5	281673	29.0	20.6	317237	29.1	19.8
3662	28.8	16.5	111492	28.8	19.5	165664	28.9	19.7	5538	28.9	17.1	416459	29.0	20.5	281470	29.1	21.1
244172	28.8	19.5	208852	28.8	20.8	453822	28.9	20.1	215715	28.9	18.6	34845	29.0	19.2	365967	29.1	21.2
172800	28.8	18.9	85083	28.8	20.1	90084	28.9	17.2	230681	28.9	19.3	168649	29.0	19.8	332243	29.1	21.2
391088	28.8	20.9	60503	28.8	18.8	364271	28.9	19.6	227745	28.9	19.4	175510	29.0	20.1	454564	29.1	21.2
269740	28.8	19.6	332783	28.8	20.3	204559	28.9	20.5	441695	28.9	21.0	399407	29.0	21.4	286062	29.1	20.4
316769	28.8	20.7	234982	28.9	19.4	125600	28.9	18.6	382333	28.9	20.9	460223	29.0	21.3	102969	29.1	17.4
111705	28.8	19.5	454778	28.9	20.2	171593	28.9	19.7	16037	28.9	18.0	295911	29.1	20.3	130296	29.1	18.1
299608	28.8	20.8	475704	28.9	22.0	480227	28.9	20.7	459790	28.9	20.1	198043	29.1	20.6	408199	29.1	19.6
223787	28.8	18.5	484846	28.9	20.9	8223	28.9	17.9	345353	28.9	20.2	396720	29.1	21.5	387731	29.1	20.1
449281	28.8	20.7	269265	28.9	20.0	482016	28.9	21.3	424700	28.9	19.9	454783	29.1	20.5	309477	29.1	21.1
236095	28.8	20.1	190796	28.9	20.3	325933	28.9	20.6	278614	28.9	21.8	114261	29.1	18.9	45348	29.1	18.6
393244	28.8	20.8	286888	28.9	20.8	542017	28.9	20.9	436390	28.9	21.6	223495	29.1	19.0	122064	29.1	20.3
368380	28.8	20.5	260902	28.9	20.9	102701	28.9	19.9	178320	28.9	20.2	93065	29.1	18.8	179128	29.1	19.0
450045	28.8	21.2	329196	28.9	19.4	28209	28.9	17.1	152983	28.9	19.5	492232	29.1	21.8	305026	29.1	21.0
362469	28.8	20.7	375067	28.9	20.7	388139	28.9	20.0	293652	28.9	21.2	470101	29.1	21.1	366959	29.1	20.8
232659	28.8	19.1	354286	28.9	19.2	202740	28.9	21.2	82482	29.0	19.8	522069	29.1	21.0	154848	29.1	19.7
489724	28.8	21.7	147411	28.9	18.4	492741	28.9	21.4	65828	29.0	18.5	383385	29.1	20.6	401469	29.1	20.2
214421	28.8	20.2	184688	28.9	20.6	200002	28.9	20.4	95177	29.0	18.9	368487	29.1	21.5	481202	29.1	21.8
79890	28.8	18.5	128332	28.9	20.1	282519	28.9	20.7	491416	29.0	19.4	419208	29.1	20.5	448841	29.1	20.3
452900	28.8	21.2	170394	28.9	21.0	183473	28.9	19.4	176180	29.0	20.3	286976	29.1	19.9	80086	29.1	19.0
209145	28.8	20.3	426550	28.9	20.8	484435	28.9	20.5</									

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
421191	29.2	20.9	347973	29.2	19.8	284164	29.3	20.1	252532	29.3	20.3	347568	29.4	20.0	226086	29.5	19.5
74507	29.2	17.9	491197	29.2	20.5	191235	29.3	19.3	59166	29.3	19.6	65491	29.4	18.8	186473	29.5	19.1
496554	29.2	20.1	519238	29.2	20.1	241182	29.3	20.9	473495	29.3	20.7	444765	29.4	22.3	286162	29.5	20.5
460927	29.2	21.1	404218	29.2	19.8	348254	29.3	19.5	269330	29.3	20.6	456276	29.4	21.3	54240	29.5	18.6
434587	29.2	21.6	114126	29.2	18.4	358202	29.3	20.9	265493	29.3	20.3	517715	29.4	21.1	10281	29.5	17.5
337885	29.2	20.0	80254	29.2	19.1	277438	29.3	20.9	345335	29.3	20.3	44094	29.4	18.3	463348	29.5	21.3
405570	29.2	22.1	195818	29.2	19.7	275964	29.3	20.4	349530	29.3	20.3	67416	29.4	17.9	226226	29.5	20.6
74122	29.2	19.7	57279	29.2	18.7	271447	29.3	19.5	378931	29.3	20.8	278721	29.4	20.8	481247	29.5	20.6
194686	29.2	20.5	275967	29.2	20.8	115070	29.3	18.6	1808	29.3	15.2	400745	29.4	20.9	452232	29.5	21.6
408146	29.2	20.9	417375	29.2	20.2	1136	29.3	15.4	416456	29.3	21.1	330491	29.4	20.7	112407	29.5	20.1
378941	29.2	21.1	293018	29.2	20.9	130829	29.3	20.0	27711	29.3	19.0	80417	29.4	18.0	266421	29.5	20.0
459387	29.2	20.8	382203	29.2	20.2	193172	29.3	20.7	31797	29.3	17.9	464092	29.4	20.7	14058	29.5	18.2
468874	29.2	21.1	280526	29.2	21.1	335952	29.3	21.2	128238	29.3	18.9	186434	29.4	19.3	333328	29.5	20.2
511506	29.2	20.3	273645	29.2	20.2	105119	29.3	19.4	230137	29.3	19.4	142041	29.4	20.9	222526	29.5	20.0
454319	29.2	21.4	379033	29.2	20.7	123963	29.3	19.4	271505	29.3	20.4	29706	29.4	18.9	514670	29.5	21.6
402751	29.2	20.2	519348	29.2	21.1	63478	29.3	18.7	252296	29.3	20.1	461824	29.4	20.9	159403	29.5	19.9
168306	29.2	20.3	544740	29.2	20.3	493079	29.3	21.2	486800	29.3	20.7	89622	29.4	19.1	461335	29.5	20.8
382623	29.2	21.1	119176	29.2	18.9	484413	29.3	20.1	454914	29.3	20.1	157360	29.4	19.6	396013	29.5	20.9
448887	29.2	19.2	514568	29.2	23.0	278770	29.3	20.8	155663	29.3	20.2	263540	29.4	20.0	360306	29.5	21.0
26863	29.2	19.0	389650	29.2	20.8	88659	29.3	20.5	97213	29.3	19.3	116456	29.4	18.5	287944	29.5	21.2
523270	29.2	21.0	169117	29.2	21.1	61381	29.3	19.2	194124	29.3	20.7	375117	29.4	20.3	331673	29.5	20.6
372069	29.2	20.9	414661	29.2	20.4	204825	29.3	20.2	138599	29.3	19.3	479485	29.4	20.0	57450	29.5	18.1
346435	29.2	20.7	68199	29.2	18.0	164083	29.3	19.7	230548	29.3	19.1	118837	29.4	19.1	365814	29.5	19.4
469527	29.2	21.3	76307	29.2	17.9	247603	29.3	20.4	494969	29.3	21.4	77311	29.4	18.3	192155	29.5	20.2
462455	29.2	20.5	138117	29.2	19.9	211627	29.3	19.6	312644	29.3	20.3	232454	29.4	19.5	329958	29.5	19.7
461079	29.2	21.0	21606	29.2	17.9	543551	29.3	22.0	28835	29.3	18.6	191230	29.4	19.9	348222	29.5	20.5
114083	29.2	19.7	522198	29.2	20.7	393233	29.3	20.3	9047	29.3	18.4	486011	29.4	20.9	447851	29.5	20.1
314828	29.2	20.6	364040	29.2	21.1	93825	29.3	18.6	222901	29.3	20.1	493621	29.4	22.0	98619	29.5	19.0
195703	29.2	20.1	157478	29.2	19.5	128706	29.3	20.0	493725	29.4	21.1	129125	29.4	18.9	237823	29.5	19.8
325482	29.2	19.6	112761	29.2	20.0	448872	29.3	21.8	251276	29.4	20.2	439274	29.4	20.1	520667	29.5	21.7
111872	29.2	19.6	458650	29.2	20.8	93844	29.3	18.8	164350	29.4	19.6	337803	29.4	20.0	26525	29.5	18.5
247289	29.2	19.8	449609	29.2	21.7	34899	29.3	18.3	234613	29.4	20.2	326774	29.4	21.6	47693	29.5	17.7
162979	29.2	21.7	231827	29.2	20.8	535133	29.3	21.4	243974	29.4	18.7	193954	29.4	20.3	396597	29.5	20.9
26490	29.2	17.3	116491	29.2	19.0	105138	29.3	18.8	162384	29.4	18.2	27731	29.4	18.7	376296	29.5	20.4
142192	29.2	19.8	56435	29.2	18.7	97440	29.3	19.1	82676	29.4	19.3	34691	29.4	18.8	145862	29.5	19.8
262990	29.2	20.4	359128	29.2	20.2	153573	29.3	20.1	46674	29.4	17.9	475780	29.4	21.2	421916	29.5	20.8
466666	29.2	21.1	400436	29.2	20.3	287500	29.3	18.9	440116	29.4	21.4	315705	29.4	20.1	439848	29.5	22.0
394158	29.2	21.0	17283	29.2	17.2	138248	29.3	20.6	146644	29.4	18.1	309431	29.4	21.2	383825	29.5	20.5
128658	29.2	20.2	185129	29.2	20.6	83149	29.3	19.8	66819	29.4	19.3	467061	29.4	20.8	359535	29.5	21.3
424354	29.2	21.2	217676	29.2	19.4	493955	29.3	20.8	13012	29.4	17.1	271516	29.4	20.0	108902	29.5	20.6
217711	29.2	19.7	156846	29.2	19.2	274715	29.3	19.6	17161	29.4	18.9	361842	29.4	21.5	231717	29.5	19.0
377503	29.2	20.8	484826	29.2	21.1	413750	29.3	20.0	337732	29.4	21.4	378579	29.4	19.3	408939	29.5	19.5
197979	29.2	20.5	113699	29.2	19.2	60896	29.3	19.1	14385	29.4	17.6	195769	29.4	19.7	219993	29.5	20.1
421144	29.2	21.2	45987	29.2	18.0	233586	29.3	19.7	176753	29.4	20.3	447948	29.4	21.0	258145	29.5	19.9
260903	29.2	21.0	139447	29.2	19.3	475937	29.3	19.4	114317	29.4	19.9	333908	29.4	21.3	38218	29.5	19.4
408676	29.2	20.7	485730	29.2	20.6	260861	29.3	20.3	373934	29.4	19.5	108846	29.4	20.0	218094	29.5	20.2
244652	29.2	19.7	385354	29.2	19.9	25620	29.3	17.9	82458	29.4	19.0	50875	29.4	19.3	139279	29.5	20.1
164873	29.2	19.9	59216	29.2	18.3	330260	29.3	20.6	70420	29.4	19.1	344075	29.4	20.6	519197	29.5	21.9
477287	29.2	20.8	283282	29.2	20.6	85097	29.3	18.6	368333	29.4	20.7	363222	29.4	19.6	39802	29.5	17.8
117507	29.2	19.0	36892	29.2	19.2	416383	29.3	21.1	62513	29.4	19.5	336932	29.4	20.5	129203	29.5	20.3
486408	29.2	19.8	107859	29.2	19.9	488628	29.3	21.1	210800	29.4	19.7	250251	29.4	19.4	10490	29.5	17.2
340020	29.2	20.7	402680	29.2	21.5	201294	29.3	19.5	228047	29.4	19.9	158625	29.5	17.9	431646	29.5	20.9
117764	29.2	18.8	299192	29.2	19.6	419336	29.3	21.1	52181	29.4	20.0	61309	29.5	19.1	375876	29.5	19.4
81129	29.2	19.4	369211	29.2	21.5	69826	29.3	19.0	99160	29.4	18.2	219200	29.5	21.6	235664	29.5	20.9
391820	29.2	19.8	46236	29.2	18.6	378923	29.3	21.3	171351	29.4	20.8	374647	29.5	20.2	474518	29.5	21.4
184386	29.2	20.1	263489	29.2	19.3	170573	29.3	19.6	361303	29.4	20.3	218934	29.5	20.5	482486	29.5	20.8
542632	29.2	20.9	415987	29.2	17.1	97509	29.3	18.6	56134	29.4	18.0	421302	29.5	20.7	290668	29.5	19.8
171523	29.2	17.9	301868	29.2	21.3	71395	29.3	18.7	362722	29.4	19.6	380989	29.5	20.4	55337	29.5	19.1
51523	29.2	18.9	85135	29.3	19.4	111208	29.3	17.7	487948	29.4	21.2	103129	29.5	18.0	425307	29.5	19.2
496198	29.2	21.4	168237	29.3	19.6	216259	29.3	20.1	33782	29.4	18.7	424707	29.5	21.1	18357	29.5	18.3
773	29.2	13.4	32535	29.3	18.7	263701	29.3	20.5	252490	29.4	21.3	236317	29.5	20.3	283612	29.5	19.4
273307	29.2	20.3	541509	29.3	21.2	48889	29.3	18.4	79379	29.4	19.1	196459	29.5	20.8	475263	29.5	20.1
483524	29.2	20.6	355362	29.3	20.4	490398	29.3	21.3	26616	29.4	18.1	14525	29.5	18.8	542820	29.5	20.8
41284	29.2	18.1	46700	29.3	17.6	293694	29.3	20.4	487565	29.4	21.2	45063	29.5	18.1	454494	29.5	21.3
325732	29.2	19.8	107909	29.3	20.0	343785	29.3	20.2	94996	29.4	19.8	74528	29.5	18.4	220104	29.5	19.1
309493	29.2	19.8	109210	29.3	18.8	337473	29.3	20.6	26700	29.4	18.2	463884	29.5	20.0	329449	29.5	20.7
412686	29.2	20.9	519312	29.3	20.6	159938	29.3	18.8	277115	29.4	20.1	172190	29.5	19.5	274003	29.5	20.1
220169	29.2	20.5	515014	29.3	20.6	280906	29.3	20.5	201838	29.4	19.0	445795	29.5	20.3	424295	29.5	21.7
224680	29.2	20.4	321517	29.3	19.7	244921	29.3	20.6	331692	29.4	1						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
399416	29.5	21.8	442962	29.6	19.5	144244	29.7	19.7	172176	29.7	19.9	126124	29.8	18.5	2891	29.9	16.0
227331	29.5	19.8	463049	29.6	20.2	125231	29.7	19.0	483481	29.7	22.2	193758	29.8	19.8	9609	29.9	17.2
15087	29.5	17.4	268801	29.6	19.4	377051	29.7	20.5	282514	29.7	21.5	199624	29.8	20.4	80862	29.9	19.9
82462	29.6	19.1	356792	29.6	21.5	27834	29.7	17.2	244411	29.7	19.7	63594	29.8	19.8	265144	29.9	20.5
271361	29.6	20.3	363064	29.6	19.6	102124	29.7	18.7	35698	29.7	17.9	411337	29.8	21.5	333517	29.9	21.6
33409	29.6	17.9	272278	29.6	19.9	375633	29.7	21.2	279728	29.7	20.1	519585	29.8	20.5	307716	29.9	19.8
34784	29.6	18.1	9501	29.6	19.4	234519	29.7	18.6	85769	29.7	18.7	420969	29.8	21.4	279405	29.9	20.2
248201	29.6	19.2	134266	29.6	19.1	444582	29.7	19.9	334693	29.7	19.6	216913	29.8	20.6	448325	29.9	20.5
53830	29.6	18.4	447847	29.6	20.9	211537	29.7	18.0	32999	29.7	17.0	73769	29.8	20.9	4432	29.9	17.9
216909	29.6	19.7	271442	29.6	20.6	496580	29.7	20.6	290814	29.7	20.7	486543	29.8	20.3	378434	29.9	21.4
460120	29.6	21.0	280261	29.6	19.8	452028	29.7	21.1	108250	29.7	18.3	441144	29.8	22.2	414513	29.9	21.1
270921	29.6	21.6	483587	29.6	21.0	123595	29.7	19.0	342036	29.7	20.1	308759	29.8	21.1	184397	29.9	19.8
402224	29.6	20.6	256235	29.6	19.5	54887	29.7	19.1	439219	29.7	21.7	400132	29.8	21.2	365705	29.9	21.3
228703	29.6	19.9	225038	29.6	19.9	266522	29.7	20.1	91763	29.7	18.8	359858	29.8	21.3	197172	29.9	21.0
54892	29.6	19.0	75331	29.6	18.8	444915	29.7	20.0	278855	29.7	20.4	229064	29.8	19.6	7529	29.9	17.2
529037	29.6	22.5	195877	29.6	18.9	214584	29.7	19.8	343863	29.7	21.0	249974	29.8	20.9	449486	29.9	21.1
241828	29.6	19.7	274994	29.6	21.1	455974	29.7	19.7	11475	29.7	16.4	372065	29.8	20.1	114328	29.9	18.0
159227	29.6	19.0	285442	29.6	20.0	136854	29.7	18.8	221530	29.7	20.9	370409	29.8	20.3	159751	29.9	18.4
406657	29.6	20.9	26527	29.6	18.7	139518	29.7	18.6	277896	29.7	21.1	388958	29.8	21.8	365561	29.9	20.6
414694	29.6	19.7	105076	29.6	19.5	76222	29.7	17.8	57315	29.7	19.0	258502	29.8	19.7	152402	29.9	20.0
184566	29.6	21.0	154264	29.6	20.7	293545	29.7	19.8	304121	29.8	21.0	250124	29.8	21.0	460037	29.9	21.9
216505	29.6	20.2	289538	29.6	20.5	351236	29.7	21.0	439052	29.8	20.8	154442	29.8	19.5	307335	29.9	20.7
452881	29.6	21.6	373124	29.6	20.5	197212	29.7	19.2	228973	29.8	19.6	418483	29.8	20.8	154074	29.9	19.7
443014	29.6	19.9	517881	29.6	21.7	28609	29.7	17.9	266666	29.8	20.1	112760	29.8	19.1	486362	29.9	20.7
490741	29.6	21.0	320290	29.6	19.8	128678	29.7	20.2	171622	29.8	19.5	15754	29.8	17.4	462761	29.9	20.5
254741	29.6	20.5	7276	29.6	16.9	56987	29.7	18.5	456223	29.8	20.4	281749	29.8	19.7	315851	29.9	20.3
328462	29.6	21.4	311616	29.6	20.9	132902	29.7	20.0	223033	29.8	19.9	484142	29.8	20.2	59425	29.9	18.8
103330	29.6	17.4	453635	29.6	20.7	146603	29.7	18.7	414561	29.8	20.1	47981	29.8	18.7	360248	29.9	21.0
329166	29.6	20.1	269742	29.6	20.7	363895	29.7	21.1	408487	29.8	21.4	375600	29.8	20.3	81845	29.9	19.5
121977	29.6	19.3	131372	29.6	19.6	325737	29.7	20.6	35221	29.8	17.5	271582	29.8	20.8	2511	29.9	15.9
170457	29.6	18.6	542926	29.6	21.0	214886	29.7	20.9	48032	29.8	19.0	403623	29.8	20.5	229617	29.9	20.8
30385	29.6	17.8	68719	29.6	19.6	413419	29.7	21.8	484092	29.8	21.0	361202	29.8	19.4	349078	29.9	20.4
262756	29.6	20.5	19597	29.6	18.7	211349	29.7	19.9	119679	29.8	18.7	274852	29.8	20.2	286877	29.9	20.4
477418	29.6	20.5	480932	29.6	20.4	414624	29.7	21.4	351819	29.8	20.7	420240	29.8	21.0	205964	29.9	19.5
308045	29.6	19.4	367850	29.6	20.0	252475	29.7	20.3	404844	29.8	21.0	408526	29.8	21.0	295002	29.9	20.1
484818	29.6	21.5	44254	29.6	19.1	269909	29.7	19.8	218551	29.8	20.5	310788	29.8	19.9	215169	29.9	19.3
379870	29.6	21.3	215869	29.6	19.6	359668	29.7	20.6	180234	29.8	19.4	400907	29.8	20.6	216146	29.9	20.8
313217	29.6	20.3	342866	29.6	23.2	302868	29.7	20.0	458711	29.8	19.4	490997	29.8	21.0	522249	29.9	21.5
315612	29.6	19.5	212123	29.6	19.9	327066	29.7	21.0	74231	29.8	19.2	242131	29.8	20.3	293918	29.9	20.9
228978	29.6	19.6	271408	29.6	18.7	143178	29.7	19.3	201966	29.8	20.3	22554	29.8	17.7	232811	29.9	19.1
372258	29.6	20.2	85337	29.6	19.5	102442	29.7	19.1	10393	29.8	18.6	266507	29.8	20.2	87017	29.9	19.5
109494	29.6	18.8	460941	29.6	20.5	23691	29.7	18.0	78524	29.8	18.1	542155	29.8	21.0	176885	29.9	19.8
283209	29.6	19.4	222977	29.6	20.6	307931	29.7	19.1	440238	29.8	20.8	482808	29.8	21.1	491626	29.9	22.2
314201	29.6	20.7	135920	29.6	19.4	426176	29.7	20.5	114120	29.8	18.7	230728	29.8	20.7	467178	29.9	20.0
44327	29.6	19.8	380493	29.6	19.9	489510	29.7	19.6	115126	29.8	19.1	56668	29.8	19.1	294875	29.9	20.0
278803	29.6	19.4	418567	29.6	20.6	174988	29.7	19.3	240973	29.8	21.0	349509	29.8	21.3	405039	29.9	21.2
319998	29.6	20.4	173433	29.6	20.4	4344	29.7	16.9	330782	29.8	21.3	28653	29.8	19.3	189690	29.9	20.8
198101	29.6	21.0	495084	29.6	20.7	280728	29.7	19.1	99435	29.8	18.7	522291	29.8	20.7	438764	29.9	20.6
191248	29.6	18.5	179311	29.6	20.3	199893	29.7	20.6	108329	29.8	19.4	92518	29.8	19.8	114100	29.9	19.6
359769	29.6	21.4	53030	29.6	18.2	77004	29.7	18.2	405677	29.8	20.4	337801	29.8	21.0	279482	29.9	20.6
278456	29.6	20.9	12350	29.6	17.2	101319	29.7	20.0	41200	29.8	18.2	162435	29.8	21.0	299459	29.9	20.4
179295	29.6	19.9	67280	29.6	19.1	108001	29.7	19.3	407545	29.8	20.9	288178	29.8	20.0	414933	29.9	21.2
328011	29.6	21.7	464398	29.6	20.2	294255	29.7	20.5	271970	29.8	20.4	441010	29.8	21.5	92919	29.9	18.6
8521	29.6	17.1	352694	29.6	20.3	78159	29.7	19.1	412796	29.8	21.1	117766	29.8	19.8	419396	29.9	20.0
131068	29.6	19.6	157998	29.6	20.2	93078	29.7	19.7	195713	29.8	18.7	80456	29.8	18.7	211233	29.9	19.1
493094	29.6	21.4	176862	29.6	19.4	278673	29.7	20.7	180280	29.8	20.1	334191	29.8	20.4	65014	29.9	19.1
291089	29.6	19.9	251121	29.6	19.7	541401	29.7	20.3	158877	29.8	21.3	101635	29.8	19.2	394606	29.9	20.1
440017	29.6	21.4	269693	29.6	20.6	423823	29.7	19.8	454787	29.8	21.0	26515	29.8	18.3	33077	29.9	19.9
8062	29.6	15.3	543109	29.7	20.9	206681	29.7	18.4	507875	29.8	20.1	302638	29.8	19.4	148023	29.9	18.8
220623	29.6	20.1	80685	29.7	19.4	265504	29.7	19.9	99400	29.8	18.2	132261	29.8	20.4	392504	29.9	21.2
405485	29.6	20.2	190466	29.7	18.7	267535	29.7	20.1	344254	29.8	20.7	491373	29.8	20.7	245638	29.9	19.7
72361	29.6	18.1	254711	29.7	21.8	245256	29.7	19.2	142721	29.8	19.4	47539	29.8	18.1	325412	29.9	20.5
142679	29.6	20.3	443412	29.7	20.2	443770	29.7	20.9	474166	29.8	21.6	260627	29.8	21.5	170535	29.9	19.2
349668	29.6	19.4	241881	29.7	20.4	124235	29.7	19.3	162921	29.8	19.9	290678	29.8	20.5	271930	29.9	20.0
41346	29.6	18.7	254011	29.7	19.9	473466	29.7	19.8	427332	29.8	20.5	113440	29.9	20.1	59452	29.9	17.5
3559	29.6	17.1	242987	29.7	20.8	271420	29.7	19.7	295845	29.8	20.9	339706	29.9	20.3	366136	29.9	20.7
195712	29.6	19.7	371799	29.7	20.8	97336	29.7	19.7	488960	29.8	21.3	495067	29.9	21.2	488605	29.9	22.1
301888	29.6	20.4	468763	29.7	20.3	154122	29.7	19.5	116752	29.8	18.3	221958	29.9	20.3	377177	29.9	20.1
75116	29.6	17.9	157465	29.7	20.0	457391	29.7	20.7	248236	29.							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
467344	29.9	22.4	382384	29.9	21.1	75274	30.0	17.7	122764	30.1	20.3	201365	30.2	20.9	479462	30.2	20.2
134505	29.9	18.4	297251	29.9	20.8	68253	30.0	19.1	310292	30.1	19.9	160785	30.2	21.2	150719	30.2	20.5
138958	29.9	18.6	446802	29.9	20.2	364900	30.0	21.1	230605	30.1	19.7	196461	30.2	19.8	434549	30.2	21.7
363945	29.9	21.2	467164	29.9	20.0	375126	30.0	21.5	480437	30.1	20.2	122050	30.2	19.5	491328	30.2	20.5
367747	29.9	20.4	502595	29.9	21.0	345838	30.0	20.1	218039	30.1	20.4	446906	30.2	20.6	493991	30.2	20.6
201370	29.9	20.4	542928	29.9	21.5	195019	30.0	18.7	485628	30.1	20.4	457344	30.2	21.4	365740	30.2	21.0
9974	29.9	16.5	90962	29.9	19.4	274699	30.0	20.3	459954	30.1	20.7	155333	30.2	20.7	198794	30.2	19.2
484102	29.9	21.5	382693	29.9	19.8	400764	30.0	20.6	514648	30.1	21.8	251208	30.2	21.2	302564	30.2	19.8
517833	29.9	21.6	64170	29.9	18.6	379530	30.0	20.6	347258	30.1	21.8	360616	30.2	19.5	302611	30.2	19.6
309863	29.9	20.5	452478	29.9	19.5	436153	30.0	20.6	322922	30.1	19.9	286199	30.2	21.5	463277	30.2	20.4
142464	29.9	18.1	295543	29.9	21.0	218035	30.0	19.7	490723	30.1	20.6	44174	30.2	17.4	456111	30.2	21.4
491407	29.9	20.5	348664	29.9	19.8	43832	30.0	18.8	125578	30.1	18.5	279047	30.2	20.2	112769	30.2	20.3
64480	29.9	18.5	77960	29.9	17.4	406737	30.0	20.7	178610	30.1	19.4	189441	30.2	20.3	41348	30.2	18.1
201170	29.9	20.7	146924	29.9	19.8	433315	30.0	20.5	271371	30.1	20.0	347230	30.2	21.0	478530	30.2	20.4
232473	29.9	19.1	475872	29.9	20.2	185271	30.0	19.7	493694	30.1	22.3	308037	30.2	20.3	49581	30.2	17.4
212438	29.9	20.5	492894	29.9	21.3	70360	30.0	18.4	317979	30.1	19.7	421090	30.2	21.0	37388	30.2	17.3
182800	29.9	18.9	405693	29.9	21.0	96690	30.0	19.5	494681	30.1	20.6	313563	30.2	19.1	486427	30.2	20.7
60027	29.9	20.0	261188	29.9	20.9	462410	30.0	20.4	330292	30.1	21.5	489779	30.2	19.8	462351	30.2	21.1
115502	29.9	18.8	61481	29.9	18.5	408893	30.0	20.8	332055	30.1	20.4	384629	30.2	19.9	76569	30.2	19.0
325215	29.9	20.5	442319	29.9	20.3	285523	30.0	20.4	26102	30.1	19.1	331873	30.2	20.2	516412	30.2	22.1
164899	29.9	20.7	400626	29.9	20.1	270686	30.1	21.0	234639	30.1	19.5	287130	30.2	21.4	247251	30.2	20.3
440149	29.9	21.0	115012	29.9	19.3	53591	30.1	18.2	75806	30.1	18.4	346798	30.2	20.6	356323	30.3	20.1
49296	29.9	18.4	328818	29.9	20.8	97462	30.1	18.4	111077	30.1	18.8	414255	30.2	20.8	320923	30.3	19.8
252288	29.9	20.9	156029	29.9	19.0	98056	30.1	19.5	73945	30.1	18.8	86598	30.2	18.7	197759	30.3	21.1
235087	29.9	19.9	420591	29.9	20.4	482021	30.1	21.7	279248	30.1	19.6	467168	30.2	20.4	544098	30.3	22.0
269725	29.9	21.0	259423	29.9	19.8	438044	30.1	21.7	368177	30.1	20.2	425397	30.2	19.5	197355	30.3	20.1
158015	29.9	20.6	489387	29.9	22.2	466569	30.1	19.9	135708	30.1	19.6	84804	30.2	19.3	254779	30.3	19.6
484499	29.9	19.2	400071	29.9	20.3	124391	30.1	19.3	234648	30.1	19.7	173390	30.2	18.6	340135	30.3	20.5
88433	29.9	19.4	6839	30.0	16.5	457412	30.1	21.2	356686	30.1	20.1	293126	30.2	20.1	233755	30.3	19.8
57358	29.9	18.8	180725	30.0	20.5	194372	30.1	21.5	464839	30.1	19.7	242580	30.2	21.6	362339	30.3	20.9
38215	29.9	19.2	190848	30.0	20.5	108480	30.1	19.9	316681	30.1	20.8	23909	30.2	18.9	360918	30.3	20.6
204872	29.9	20.0	80770	30.0	17.6	357057	30.1	20.3	148911	30.1	20.2	211713	30.2	18.6	35096	30.3	18.9
180906	29.9	20.6	432469	30.0	20.7	64123	30.1	17.7	367928	30.1	20.7	268633	30.2	20.6	57739	30.3	18.8
168604	29.9	17.6	489842	30.0	20.7	281453	30.1	21.4	79835	30.1	19.0	110682	30.2	19.3	68391	30.3	18.6
135723	29.9	18.9	82714	30.0	19.2	281100	30.1	19.9	364342	30.1	20.3	202460	30.2	20.9	136079	30.3	18.8
109485	29.9	18.4	277058	30.0	19.3	87117	30.1	19.5	290097	30.1	20.4	263548	30.2	19.7	92146	30.3	18.2
254933	29.9	19.8	261142	30.0	21.6	223713	30.1	21.1	542120	30.1	20.8	194803	30.2	18.8	254891	30.3	20.4
380681	29.9	20.5	385397	30.0	19.2	481264	30.1	20.8	500749	30.1	23.4	277870	30.2	20.4	188498	30.3	20.4
360487	29.9	20.7	445941	30.0	20.2	307995	30.1	20.1	275259	30.1	19.5	279119	30.2	19.6	405601	30.3	20.7
228401	29.9	19.3	199697	30.0	19.2	47057	30.1	18.6	89807	30.1	19.0	246211	30.2	20.2	309362	30.3	21.1
331556	29.9	19.7	359617	30.0	19.3	464369	30.1	19.4	126413	30.1	19.5	66581	30.2	18.7	122544	30.3	19.1
410087	29.9	20.6	357658	30.0	21.6	413385	30.1	20.9	7241	30.1	16.8	284928	30.2	19.6	370603	30.3	20.0
35518	29.9	17.3	37606	30.0	18.4	268850	30.1	19.8	394272	30.1	21.6	462406	30.2	20.5	143342	30.3	19.5
262740	29.9	19.0	118015	30.0	20.5	475205	30.1	19.8	424862	30.1	21.0	408490	30.2	20.8	339619	30.3	20.6
472292	29.9	20.4	351668	30.0	20.3	353665	30.1	20.6	370481	30.1	21.5	162948	30.2	20.2	287294	30.3	20.4
196032	29.9	19.9	32670	30.0	19.7	229043	30.1	20.8	277915	30.1	19.6	445562	30.2	21.5	409582	30.3	20.3
415664	29.9	19.8	165803	30.0	19.0	117580	30.1	18.4	230741	30.2	19.7	298406	30.2	20.9	127442	30.3	20.0
186505	29.9	19.9	165112	30.0	19.8	543509	30.1	20.2	447518	30.2	21.1	261148	30.2	21.3	54741	30.3	19.0
356647	29.9	20.9	234646	30.0	19.8	119236	30.1	19.6	279954	30.2	20.5	486413	30.2	20.8	139742	30.3	19.5
439850	29.9	20.2	462428	30.0	20.5	42402	30.1	19.1	178285	30.2	18.7	455316	30.2	21.1	514880	30.3	20.7
71095	29.9	17.3	49973	30.0	16.6	469525	30.1	21.5	336590	30.2	19.7	341988	30.2	19.6	148992	30.3	19.7
541694	29.9	22.0	276388	30.0	20.0	329220	30.1	20.3	58489	30.2	19.0	259468	30.2	20.6	368188	30.3	20.9
434965	29.9	20.8	40666	30.0	18.7	243594	30.1	20.5	403987	30.2	20.5	162910	30.2	21.0	112274	30.3	19.2
495238	29.9	20.9	191391	30.0	18.7	362200	30.1	21.7	152261	30.2	19.4	346311	30.2	21.0	330541	30.3	20.4
10917	29.9	16.3	356000	30.0	20.6	468128	30.1	20.1	351717	30.2	20.4	383427	30.2	21.4	7720	30.3	19.5
434509	29.9	21.7	416288	30.0	20.7	52316	30.1	17.3	302546	30.2	20.7	177263	30.2	19.3	120232	30.3	20.0
32469	29.9	17.3	457952	30.0	20.8	166994	30.1	18.9	27404	30.2	18.2	315878	30.2	20.4	370398	30.3	20.8
72783	29.9	18.1	340229	30.0	20.2	287284	30.1	21.2	116990	30.2	19.7	445056	30.2	21.7	544055	30.3	21.0
1788	29.9	17.0	17728	30.0	19.0	202934	30.1	20.7	195639	30.2	19.5	299138	30.2	20.6	210981	30.3	20.5
487195	29.9	20.0	293663	30.0	20.6	452868	30.1	21.7	128575	30.2	19.6	195789	30.2	20.2	432343	30.3	21.5
238946	29.9	19.1	337458	30.0	20.7	375426	30.1	20.4	269277	30.2	21.2	454785	30.2	20.3	450919	30.3	18.9
59039	29.9	18.7	436050	30.0	21.5	489850	30.1	21.7	372186	30.2	20.3	281533	30.2	20.1	453758	30.3	20.0
122343	29.9	18.4	88932	30.0	19.1	364996	30.1	20.3	4592	30.2	17.3	484849	30.2	20.5	414747	30.3	19.5
121174	29.9	18.8	476506	30.0	20.2	395516	30.1	20.6	248308	30.2	19.8	483669	30.2	21.8	152160	30.3	19.6
85933	29.9	20.4	68810	30.0	19.1	450289	30.1	19.9	218269	30.2	19.9	331123	30.2	20.9	201313	30.3	19.8
129861	29.9	19.2	10990	30.0	17.8	78494	30.1	20.3	172854	30.2	20.6	69646	30.2	17.5	299048	30.3	20.2
207253	29.9	19.1	61152	30.0	18.9	73694	30.1	17.9	417352	30.2	20.4	140588	30.2	18.4	444164	30.3	20.2
223026	29.9	20.7	15812	30.0	18.2	192203	30.1	20.1	277049	30.2	19.9	270655	30.2	19.7	144477	30.3	18.8
444001	29.9	19.4	75262	30.0	19.2	315846	30.1	19.6	484823</								

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
325438	30.3	21.2	392191	30.4	19.3	6046	30.4	17.2	278486	30.5	20.4	541678	30.6	21.9	279326	30.6	20.2
238878	30.3	20.7	392758	30.4	20.3	369628	30.4	20.6	103381	30.5	18.8	523282	30.6	20.2	16031	30.6	18.5
95798	30.3	19.5	273151	30.4	19.7	114236	30.4	19.3	16615	30.5	19.4	356107	30.6	20.1	380959	30.6	20.6
282356	30.3	19.5	167992	30.4	19.8	89612	30.4	19.0	307262	30.5	20.4	91096	30.6	17.9	330246	30.6	20.7
10031	30.3	17.6	389422	30.4	20.5	116551	30.4	18.6	277050	30.5	19.7	470953	30.6	21.8	275750	30.6	20.6
385068	30.3	19.6	253937	30.4	19.3	47796	30.4	17.4	311728	30.5	20.4	518987	30.6	20.7	255182	30.6	20.1
209204	30.3	20.7	444901	30.4	21.5	541242	30.4	21.4	216205	30.5	20.7	58732	30.6	17.7	300440	30.6	21.6
87875	30.3	19.6	310566	30.4	20.2	124795	30.4	19.8	439224	30.5	21.7	4612	30.6	15.3	100329	30.6	19.2
269130	30.3	21.1	14754	30.4	17.9	374199	30.4	19.5	3619	30.5	17.8	363830	30.6	20.9	306203	30.6	20.7
13074	30.3	17.5	366469	30.4	19.7	57290	30.4	18.4	305223	30.5	20.8	274716	30.6	20.6	161117	30.6	20.3
10206	30.3	17.6	324136	30.4	20.5	473300	30.4	20.9	20975	30.5	17.5	401064	30.6	19.5	31192	30.6	18.4
420201	30.3	19.9	491258	30.4	21.5	243241	30.4	20.4	541379	30.5	20.4	92451	30.6	19.4	159666	30.6	19.2
200354	30.3	21.4	294126	30.4	20.0	377168	30.4	19.7	393517	30.5	21.3	61433	30.6	19.3	274863	30.6	21.1
100130	30.3	19.8	370309	30.4	21.3	36457	30.4	18.8	333730	30.5	21.6	114223	30.6	20.5	485504	30.6	21.4
114179	30.3	19.4	269597	30.4	19.1	254829	30.4	20.5	420557	30.5	21.0	396213	30.6	20.3	441111	30.6	21.2
364335	30.3	20.3	282024	30.4	21.2	490984	30.4	20.1	404474	30.5	20.2	421247	30.6	20.6	279215	30.6	20.6
305108	30.3	21.4	142111	30.4	20.0	345762	30.4	20.7	121296	30.5	19.3	120142	30.6	19.5	317074	30.6	21.0
391194	30.3	20.6	341040	30.4	20.0	153568	30.4	21.4	373489	30.5	21.3	20870	30.6	19.2	199748	30.6	20.5
148492	30.3	20.5	21	30.4	11.1	305072	30.4	19.8	474172	30.5	21.8	270677	30.6	20.4	262808	30.6	20.1
184844	30.3	20.4	285147	30.4	20.5	386872	30.4	20.8	335849	30.5	20.8	66089	30.6	18.8	66696	30.6	19.7
451266	30.3	20.7	302406	30.4	21.1	183664	30.4	19.6	182455	30.5	19.6	47388	30.6	16.7	383370	30.6	21.1
203185	30.3	19.0	418477	30.4	20.2	486493	30.4	20.0	131925	30.5	19.0	130176	30.6	18.6	524185	30.6	22.6
541700	30.3	21.7	394083	30.4	20.4	332398	30.4	21.3	205130	30.5	20.7	458068	30.6	20.5	422126	30.6	21.2
383422	30.3	20.1	191388	30.4	19.6	158654	30.4	19.5	452348	30.5	21.6	332520	30.6	20.4	235152	30.6	20.5
185333	30.3	20.0	403655	30.4	21.2	516807	30.5	21.8	5309	30.5	18.2	70639	30.6	17.7	257441	30.6	20.6
102356	30.3	18.8	536147	30.4	20.8	501555	30.5	20.6	541140	30.5	19.5	491442	30.6	21.0	346578	30.6	20.2
68251	30.3	19.3	404440	30.4	20.3	464066	30.5	19.5	112347	30.5	18.6	137268	30.6	19.6	235483	30.6	19.6
149727	30.3	19.3	238235	30.4	19.9	63491	30.5	20.7	544118	30.5	20.6	4394	30.6	18.7	460869	30.6	21.4
405691	30.3	21.2	247510	30.4	20.5	65661	30.5	19.3	146779	30.5	19.7	441540	30.6	21.6	449439	30.6	20.0
219355	30.3	20.5	4566	30.4	16.7	326215	30.5	20.5	406946	30.5	19.6	144267	30.6	19.9	112693	30.6	19.6
114497	30.3	19.5	95799	30.4	19.7	232436	30.5	19.5	485831	30.5	20.9	289097	30.6	20.4	539894	30.6	20.2
441114	30.3	21.0	271279	30.4	19.6	85533	30.5	19.3	132885	30.5	19.4	285649	30.6	20.8	517753	30.7	22.2
443339	30.3	20.2	346416	30.4	20.0	415344	30.5	21.6	63930	30.5	18.6	462435	30.6	21.8	177180	30.7	20.5
99693	30.3	19.6	266165	30.4	19.7	473888	30.5	20.8	31361	30.5	17.5	282001	30.6	20.3	335519	30.7	20.6
386685	30.3	19.7	86005	30.4	19.8	199284	30.5	18.9	450916	30.5	20.3	131410	30.6	19.6	116166	30.7	19.7
404610	30.3	19.8	26451	30.4	18.1	112528	30.5	19.7	144494	30.5	20.0	369911	30.6	21.4	441565	30.7	22.1
486435	30.3	21.1	163783	30.4	20.1	236288	30.5	19.9	146571	30.5	18.4	500640	30.6	20.7	186274	30.7	19.0
355126	30.3	20.2	487735	30.4	21.5	267641	30.5	21.0	403519	30.5	20.7	6341	30.6	16.0	226653	30.7	19.6
182566	30.3	20.1	465722	30.4	20.2	521994	30.5	21.3	541218	30.5	20.9	158813	30.6	19.9	399285	30.7	20.3
244499	30.3	19.5	161835	30.4	19.4	335673	30.5	21.1	133383	30.5	19.6	82673	30.6	19.9	440181	30.7	19.8
262177	30.3	20.5	65651	30.4	19.8	196352	30.5	19.7	421123	30.5	20.5	402240	30.6	20.7	1856	30.7	15.7
310805	30.3	21.0	161056	30.4	19.7	398280	30.5	20.7	378427	30.5	21.3	51328	30.6	17.8	273219	30.7	20.8
517178	30.3	20.9	280556	30.4	21.2	425323	30.5	19.8	363385	30.5	20.0	84758	30.6	19.1	149456	30.7	19.7
2166	30.3	16.9	365034	30.4	20.3	252376	30.5	20.4	230697	30.5	19.5	55799	30.6	17.8	514719	30.7	21.9
53882	30.3	18.0	132841	30.4	20.0	141595	30.5	18.6	403627	30.5	20.5	488715	30.6	20.0	177968	30.7	18.9
406671	30.3	20.8	219570	30.4	21.0	421324	30.5	19.7	152918	30.5	18.7	410846	30.6	21.2	167168	30.7	20.3
408143	30.3	21.4	418605	30.4	20.2	411839	30.5	19.8	518096	30.5	20.9	488526	30.6	21.5	360611	30.7	19.5
88193	30.3	19.3	186772	30.4	18.9	120715	30.5	19.2	57879	30.5	19.6	254995	30.6	20.7	83236	30.7	18.9
487819	30.3	21.0	172147	30.4	19.6	328481	30.5	20.6	182717	30.5	20.1	8761	30.6	16.7	26536	30.7	17.2
101243	30.3	20.4	113356	30.4	20.8	277882	30.5	20.9	18096	30.5	18.2	458233	30.6	21.2	277307	30.7	20.0
236278	30.3	20.7	348193	30.4	21.1	441192	30.5	20.1	119056	30.5	19.8	266884	30.6	19.3	358775	30.7	21.2
277477	30.3	20.2	286876	30.4	21.0	314862	30.5	20.8	108963	30.5	19.6	125786	30.6	19.1	419432	30.7	20.6
45307	30.3	17.8	202276	30.4	20.5	397640	30.5	19.6	84521	30.5	18.7	136246	30.6	19.2	7114	30.7	17.1
233039	30.3	18.9	315453	30.4	20.4	27745	30.5	18.2	24309	30.5	17.4	495263	30.6	20.5	206435	30.7	18.8
388545	30.3	21.0	300904	30.4	19.8	300748	30.5	20.1	541622	30.5	20.5	413240	30.6	20.5	363553	30.7	20.8
27112	30.3	16.4	201284	30.4	20.0	450587	30.5	20.4	369444	30.5	19.8	153748	30.6	20.1	382629	30.7	20.5
221619	30.3	19.7	190931	30.4	20.8	287238	30.5	20.0	297206	30.5	21.4	517532	30.6	22.2	311784	30.7	20.0
287818	30.3	21.4	161298	30.4	18.9	120065	30.5	18.9	541606	30.5	21.6	444718	30.6	19.2	201021	30.7	18.0
270827	30.3	20.3	384277	30.4	20.4	358617	30.5	20.4	448345	30.5	21.0	112726	30.6	18.6	416271	30.7	21.7
489428	30.3	20.8	395767	30.4	20.5	114187	30.5	18.7	210514	30.5	19.7	49348	30.6	17.6	152699	30.7	19.3
513185	30.4	20.9	436111	30.4	20.9	452595	30.5	21.8	76653	30.5	18.5	498449	30.6	19.5	3014	30.7	17.0
487667	30.4	21.0	4873	30.4	16.8	406619	30.5	19.9	21679	30.5	18.6	372311	30.6	20.2	390062	30.7	19.8
272376	30.4	20.5	195990	30.4	19.9	428116	30.5	21.6	480483	30.5	20.3	238256	30.6	19.4	276346	30.7	19.9
510658	30.4	21.0	176633	30.4	20.1	47837	30.5	17.8	460868	30.5	20.1	409440	30.6	21.9	445717	30.7	19.7
120438	30.4	20.0	245978	30.4	20.8	201401	30.5	19.9	119211	30.5	19.3	86496	30.6	18.3	332947	30.7	19.9
190905	30.4	21.2	202684	30.4	20.6	334544	30.5	20.8	8415	30.5	17.2	378955	30.6	20.5	95302	30.7	19.1
155309	30.4	20.3	495101	30.4	20.6	411063	30.5	20.5	156096	30.5	19.1	77294	30.6	18.8	53636	30.7	19.0
400147	30.4	21.1	293366	30.4	20.0	314213	30.5	20.6	450902	30.5	20.7	257158	30.6	20.5	284383	30.7	19.8
310349	30.4	20.9	171566	30.4	20.1	194882	30.5	19.5	377522	30.5							

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
242961	30.7	19.8	442227	30.8	21.5	115360	30.8	18.9	102972	30.9	18.8	98000	30.9	18.9	414543	31.0	20.8
452288	30.7	19.3	45056	30.8	18.9	270905	30.8	19.7	285039	30.9	20.4	226156	30.9	19.9	1160	31.0	15.3
6979	30.7	17.0	421042	30.8	21.5	252527	30.8	19.5	218272	30.9	19.5	167615	30.9	19.3	481128	31.0	21.5
341921	30.7	20.6	13579	30.8	16.6	241378	30.8	18.6	104841	30.9	18.7	21434	30.9	17.3	517918	31.0	21.7
1425	30.7	14.6	316847	30.8	19.8	79692	30.8	19.4	183502	30.9	19.5	441298	30.9	19.1	66895	31.0	18.8
156284	30.7	19.8	83100	30.8	18.9	256198	30.8	20.1	124342	30.9	19.6	312943	30.9	20.1	407247	31.0	20.4
249969	30.7	20.1	475862	30.8	20.8	371244	30.8	20.6	3557	30.9	17.4	117594	30.9	19.5	319964	31.0	20.1
389702	30.7	21.3	103683	30.8	18.9	74480	30.8	18.5	35196	30.9	19.2	155040	30.9	19.5	151901	31.0	20.4
129982	30.7	19.2	200921	30.8	19.3	458158	30.8	21.7	503695	30.9	21.3	406612	30.9	21.1	319920	31.0	21.0
48674	30.7	17.8	327067	30.8	20.7	36950	30.8	19.0	120042	30.9	19.1	278649	30.9	19.8	32522	31.0	17.8
9442	30.7	16.2	299134	30.8	19.8	477822	30.8	20.2	269758	30.9	21.6	197854	30.9	20.6	30686	31.0	18.4
208007	30.7	19.5	297273	30.8	19.4	232722	30.8	19.7	289380	30.9	19.1	11510	30.9	16.8	184416	31.0	19.8
116480	30.7	18.7	145289	30.8	20.2	326860	30.8	20.5	325903	30.9	20.1	487276	30.9	20.4	345340	31.0	20.2
496742	30.7	20.0	329112	30.8	20.6	398479	30.8	20.9	89070	30.9	18.8	244419	30.9	20.5	535025	31.0	20.9
243944	30.7	21.2	244488	30.8	21.0	9021	30.8	16.6	70047	30.9	19.7	484821	30.9	20.8	444118	31.0	21.0
167211	30.7	20.0	373527	30.8	20.7	520895	30.8	21.0	245481	30.9	20.7	458672	30.9	20.2	15018	31.0	16.6
324005	30.7	20.9	206940	30.8	19.7	216124	30.8	20.3	71283	30.9	18.5	25796	30.9	18.0	541176	31.0	20.3
492005	30.7	20.4	521834	30.8	20.1	518102	30.8	21.3	401795	30.9	20.1	314455	30.9	20.8	2419	31.0	16.0
487094	30.7	20.9	224662	30.8	19.7	490514	30.8	21.1	412941	30.9	21.4	15299	30.9	16.7	283604	31.0	19.6
12041	30.7	18.9	271468	30.8	20.2	276588	30.8	21.1	268282	30.9	20.1	179318	30.9	20.3	471950	31.0	21.2
279657	30.7	20.2	261314	30.8	20.8	162036	30.8	19.8	194253	30.9	19.4	486643	30.9	21.0	396513	31.0	21.3
256999	30.7	19.9	50346	30.8	18.4	458532	30.8	21.1	104404	30.9	19.0	247563	30.9	20.6	168139	31.0	20.4
545009	30.7	20.9	235912	30.8	19.2	87112	30.8	19.2	218566	30.9	20.3	453944	30.9	19.8	488285	31.0	21.3
504776	30.7	20.8	45817	30.8	18.5	123500	30.8	20.5	227881	30.9	18.9	484762	30.9	21.1	65040	31.0	19.0
424778	30.7	20.9	113633	30.8	19.3	1461	30.8	14.4	108608	30.9	19.8	541329	30.9	20.8	484802	31.1	21.0
441177	30.7	20.7	128510	30.8	19.6	13091	30.8	19.3	261083	30.9	21.2	201005	30.9	19.6	128867	31.1	19.6
101230	30.7	19.6	399014	30.8	20.6	224017	30.8	21.2	385701	30.9	20.8	380931	30.9	21.1	6146	31.1	17.8
204835	30.7	20.3	230830	30.8	20.1	441611	30.8	19.9	383349	30.9	20.9	515746	30.9	21.4	67293	31.1	19.5
103110	30.7	18.6	442747	30.8	21.0	330004	30.8	20.9	411392	30.9	20.9	202593	30.9	18.7	150479	31.1	19.7
84839	30.7	18.6	99881	30.8	19.4	412212	30.8	21.1	251763	30.9	19.9	255209	30.9	19.3	165795	31.1	20.2
312239	30.7	20.2	452406	30.8	21.7	45085	30.9	18.6	32769	30.9	16.3	305684	30.9	20.6	453742	31.1	20.9
339955	30.7	20.7	400627	30.8	20.1	480107	30.9	20.1	541399	30.9	21.4	418424	30.9	21.0	321522	31.1	20.5
152550	30.7	19.6	280508	30.8	21.5	458051	30.9	20.3	454496	30.9	20.7	87164	30.9	19.1	420274	31.1	20.0
212587	30.7	19.9	248313	30.8	20.6	307498	30.9	19.6	367379	30.9	20.9	516708	30.9	21.6	541483	31.1	20.7
416992	30.7	22.1	47496	30.8	18.4	495482	30.9	20.7	199779	30.9	19.7	543979	30.9	21.4	155006	31.1	20.0
469572	30.7	18.8	297936	30.8	20.6	170692	30.9	19.4	273198	30.9	20.1	342365	30.9	19.8	460090	31.1	21.3
334539	30.7	20.8	464571	30.8	21.0	231527	30.9	19.9	181512	30.9	20.2	294456	30.9	20.1	25001	31.1	18.7
269279	30.7	20.4	347229	30.8	21.8	385404	30.9	21.1	144470	30.9	18.7	352963	30.9	19.7	518981	31.1	21.4
243693	30.7	18.6	305744	30.8	19.9	388549	30.9	20.8	46924	30.9	20.1	393192	30.9	20.3	520180	31.1	20.7
362817	30.7	19.9	541951	30.8	21.1	391849	30.9	19.9	235433	30.9	18.8	32402	30.9	18.8	162464	31.1	19.3
113897	30.7	18.9	260183	30.8	19.5	4115	30.9	16.4	277891	30.9	20.7	404703	30.9	20.5	288530	31.1	20.9
174347	30.7	19.7	484777	30.8	20.9	269730	30.9	20.5	187272	30.9	21.0	139965	30.9	19.7	228081	31.1	19.6
361353	30.7	20.6	491438	30.8	20.3	267893	30.9	19.4	385349	30.9	21.2	423080	31.0	20.7	522462	31.1	20.5
92490	30.7	19.6	70162	30.8	18.3	364914	30.9	20.7	76311	30.9	18.3	482047	31.0	20.8	543497	31.1	21.3
377477	30.7	20.4	271299	30.8	20.8	357436	30.9	18.6	242321	30.9	20.6	71705	31.0	18.6	485434	31.1	21.8
55577	30.7	19.2	450007	30.8	21.0	26186	30.9	18.8	85254	30.9	18.4	452860	31.0	20.9	335651	31.1	21.2
450710	30.7	19.7	366639	30.8	21.1	350900	30.9	20.3	52841	30.9	18.6	403142	31.0	20.6	197668	31.1	20.9
53087	30.7	17.3	22301	30.8	18.0	156938	30.9	20.4	63548	30.9	19.6	54068	31.0	19.0	277071	31.1	19.4
441289	30.7	20.8	219990	30.8	20.2	68494	30.9	17.6	337350	30.9	21.0	47164	31.0	19.4	464087	31.1	20.7
151678	30.7	19.4	224598	30.8	20.0	80681	30.9	17.2	215211	30.9	20.0	331475	31.0	22.0	118735	31.1	19.3
51238	30.7	18.8	138230	30.8	19.4	350323	30.9	19.7	115463	30.9	19.2	392521	31.0	21.2	144392	31.1	19.1
23770	30.7	19.4	110104	30.8	19.3	96023	30.9	20.0	305179	30.9	20.3	2547	31.0	16.9	149216	31.1	20.4
493180	30.7	20.8	494902	30.8	21.3	89860	30.9	19.3	322729	30.9	21.1	70424	31.0	18.8	361651	31.1	19.4
145877	30.7	20.0	202350	30.8	19.4	27394	30.9	18.4	151954	30.9	19.8	492074	31.0	21.5	31795	31.1	17.1
481262	30.7	20.5	330679	30.8	21.0	10376	30.9	18.1	154114	30.9	19.5	335473	31.0	20.8	542420	31.1	20.2
149219	30.7	18.4	11278	30.8	17.7	10049	30.9	17.9	441049	30.9	21.3	133857	31.0	18.6	257032	31.1	20.3
441482	30.7	21.5	520543	30.8	21.1	269160	30.9	20.2	277088	30.9	20.4	217415	31.0	20.2	415717	31.1	20.6
61290	30.7	17.3	59314	30.8	17.7	201407	30.9	19.6	216767	30.9	20.5	239586	31.0	19.5	96815	31.1	19.5
344919	30.7	19.8	63341	30.8	19.9	367847	30.9	20.8	186423	30.9	19.9	270044	31.0	21.0	211350	31.1	19.2
272240	30.7	19.5	444707	30.8	21.3	307676	30.9	21.8	143093	30.9	19.2	117683	31.0	19.1	166995	31.1	19.4
286451	30.7	19.9	99238	30.8	19.6	178969	30.9	20.1	108168	30.9	20.0	321746	31.0	19.8	543549	31.1	21.3
544503	30.7	21.4	50076	30.8	18.8	252325	30.9	21.2	254889	30.9	19.8	402273	31.0	20.9	16278	31.1	17.2
231004	30.7	19.6	76	30.8	12.0	119082	30.9	20.4	159423	30.9	20.2	312920	31.0	20.9	274015	31.1	21.0
21993	30.8	18.8	370583	30.8	21.1	176735	30.9	20.1	324717	30.9	21.1	544271	31.0	21.2	379011	31.1	20.6
43600	30.8	17.5	70596	30.8	19.6	252372	30.9	20.6	45756	30.9	18.1	192046	31.0	18.0	276284	31.1	21.3
25249	30.8	18.9	277079	30.8	20.9	543163	30.9	19.8	494366	30.9	21.0	542398	31.0	21.3	212105	31.1	20.9
495489	30.8	21.0	114526	30.8	18.5	380991	30.9	20.4	229424	30.9	20.3	247550	31.0	19.5	169060	31.1	19.5
292248	30.8	20.6	197334	30.8	19.0	119976	30.9	24.2	95731	30.9	18.8	70922	31.0	18.2	492194	31.1	21.5
277078	30.8	20.4	199277	30.8	19.4	101120	30.9	19.4	101189	30.9	19.5						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
105540	31.1	19.1	101696	31.2	19.1	38705	31.2	18.6	379034	31.3	20.4	163224	31.4	20.0	169179	31.4	20.6
112322	31.1	20.1	459806	31.2	20.3	236358	31.2	20.1	22573	31.3	19.0	417336	31.4	20.4	449644	31.4	21.9
24680	31.1	17.0	409431	31.2	21.6	483675	31.2	21.0	148224	31.3	19.2	346305	31.4	21.6	173220	31.4	20.5
275114	31.1	19.8	161628	31.2	19.5	45739	31.2	18.3	274794	31.3	20.0	280688	31.4	20.4	286054	31.4	19.3
10660	31.1	17.8	11612	31.2	17.0	300323	31.2	20.7	487802	31.3	21.3	487382	31.4	21.2	143231	31.4	20.3
485719	31.1	19.7	119720	31.2	19.8	418760	31.2	20.3	30445	31.3	17.5	482239	31.4	21.1	493054	31.4	21.1
146545	31.1	19.2	406663	31.2	20.5	459649	31.2	19.8	62483	31.3	18.8	419105	31.4	21.5	322824	31.4	20.0
28843	31.1	18.1	453766	31.2	18.6	88697	31.2	20.6	542281	31.3	20.8	217713	31.4	21.1	49006	31.4	19.3
394165	31.1	21.3	191013	31.2	19.9	519207	31.2	21.0	287529	31.3	20.0	150136	31.4	19.9	157725	31.4	20.7
118306	31.1	20.3	182654	31.2	19.5	350251	31.2	21.5	229388	31.3	19.9	541425	31.4	20.7	161715	31.4	20.2
373701	31.1	21.2	72307	31.2	18.6	369195	31.2	21.7	101276	31.3	20.1	172407	31.4	19.4	418465	31.4	20.3
235460	31.1	19.1	435027	31.2	21.5	261097	31.2	19.9	160246	31.3	19.4	404476	31.4	21.4	295688	31.4	20.6
5391	31.1	17.3	518534	31.2	22.1	544977	31.2	22.6	227962	31.3	20.0	398601	31.4	20.3	387814	31.4	20.3
344807	31.1	17.7	17464	31.2	17.4	233015	31.2	19.6	143664	31.3	19.9	337540	31.4	20.8	364825	31.4	19.7
105043	31.1	19.7	108699	31.2	18.7	677	31.2	13.7	276212	31.3	21.2	190315	31.4	18.8	105487	31.4	19.6
217005	31.1	20.0	321851	31.2	20.2	522205	31.2	20.9	260054	31.3	20.9	107893	31.4	18.7	105007	31.4	19.6
230160	31.1	19.2	193190	31.2	19.8	256659	31.2	20.4	229940	31.3	20.6	3736	31.4	15.6	334332	31.4	20.0
321693	31.1	20.5	473582	31.2	20.4	434833	31.2	19.9	190894	31.3	20.0	467230	31.4	20.2	158169	31.4	19.0
79793	31.1	19.7	413627	31.2	21.4	377059	31.2	20.5	249959	31.3	20.3	91860	31.4	19.5	125169	31.5	19.1
7844	31.1	18.3	124754	31.2	19.2	269600	31.2	19.7	51822	31.3	18.0	391167	31.4	20.9	368325	31.5	20.4
517903	31.1	22.2	217441	31.2	20.5	459793	31.2	20.9	516627	31.3	21.0	184660	31.4	20.2	407534	31.5	20.4
435477	31.1	20.9	442727	31.2	20.5	417353	31.2	20.3	215159	31.3	18.4	97632	31.4	18.3	235535	31.5	19.3
99935	31.1	18.6	36476	31.2	18.9	469172	31.2	20.4	280778	31.3	19.6	55447	31.4	19.0	328458	31.5	21.9
48162	31.1	17.8	78493	31.2	18.8	65750	31.2	17.8	148195	31.3	19.2	456260	31.4	22.4	252544	31.5	19.1
45546	31.1	19.4	330499	31.2	20.9	145359	31.2	19.1	389754	31.3	21.4	309454	31.4	21.3	174743	31.5	19.0
469294	31.1	21.2	396495	31.2	20.0	88646	31.3	19.5	104733	31.3	19.1	369388	31.4	19.9	269897	31.5	20.4
463610	31.1	21.8	64050	31.2	18.6	236649	31.3	19.5	91797	31.3	19.1	286103	31.4	19.2	150688	31.5	20.1
231819	31.1	19.5	15418	31.2	17.9	460510	31.3	20.8	77774	31.3	18.5	229371	31.4	20.0	216682	31.5	19.9
260913	31.1	20.8	271730	31.2	20.3	101898	31.3	19.9	435635	31.3	21.6	331195	31.4	20.3	185910	31.5	20.6
409406	31.1	20.7	6739	31.2	17.9	27343	31.3	18.6	15330	31.3	18.4	310738	31.4	21.5	517796	31.5	21.5
118716	31.1	20.4	33826	31.2	18.8	75384	31.3	18.1	126588	31.3	19.4	404829	31.4	21.9	267101	31.5	20.0
237314	31.1	20.5	256088	31.2	20.4	272271	31.3	19.8	102167	31.3	19.1	447596	31.4	20.4	486267	31.5	20.7
421323	31.1	21.2	382355	31.2	20.7	150861	31.3	18.9	81341	31.3	18.4	186527	31.4	20.0	543158	31.5	21.6
33991	31.1	19.0	542138	31.2	21.4	69226	31.3	18.6	132897	31.3	19.6	215504	31.4	20.2	443957	31.5	21.7
129235	31.1	19.4	269723	31.2	20.5	395191	31.3	19.8	462365	31.3	21.5	245462	31.4	20.0	233846	31.5	20.4
133427	31.1	19.0	344943	31.2	19.8	394890	31.3	20.2	439894	31.3	20.7	259675	31.4	19.2	294969	31.5	20.0
483308	31.1	21.2	450399	31.2	19.6	284015	31.3	20.9	310785	31.3	20.3	262231	31.4	19.8	324668	31.5	20.4
367335	31.1	20.4	375079	31.2	20.3	278398	31.3	20.8	464598	31.3	21.1	456479	31.4	21.4	387607	31.5	18.9
154653	31.1	19.1	61968	31.2	20.3	175551	31.3	19.9	249932	31.3	20.9	519869	31.4	21.5	300387	31.5	20.1
455373	31.1	21.2	231580	31.2	20.6	77684	31.3	19.0	412739	31.3	20.8	249342	31.4	19.8	247555	31.5	20.3
235028	31.1	19.5	412704	31.2	21.4	15231	31.3	17.9	99258	31.3	19.7	486345	31.4	20.6	243371	31.5	19.9
489481	31.1	20.1	269539	31.2	19.8	129679	31.3	19.4	354621	31.3	20.5	190944	31.4	18.3	332569	31.5	20.4
438709	31.1	22.0	271475	31.2	20.0	139480	31.3	18.8	67104	31.3	18.2	478419	31.4	21.9	15272	31.5	16.6
187422	31.1	19.9	125608	31.2	20.2	96807	31.3	19.3	473808	31.3	20.4	161458	31.4	19.4	117867	31.5	20.4
403635	31.1	20.9	396303	31.2	19.9	7926	31.3	17.7	6337	31.3	16.6	178138	31.4	19.0	242896	31.5	20.3
375552	31.1	21.1	312177	31.2	18.8	254833	31.3	20.2	331736	31.3	20.5	183643	31.4	18.9	107397	31.5	18.9
234626	31.1	19.7	43373	31.2	18.7	1995	31.3	16.5	294574	31.3	19.8	378558	31.4	19.4	94055	31.5	19.2
275992	31.1	20.2	147982	31.2	20.1	298546	31.3	20.4	88562	31.3	20.2	71371	31.4	17.9	59037	31.5	18.7
521875	31.1	20.9	478460	31.2	21.0	53045	31.3	18.5	275759	31.3	20.3	490402	31.4	21.4	134278	31.5	19.5
329110	31.1	19.6	31323	31.2	17.4	32571	31.3	18.4	175432	31.3	20.4	74405	31.4	18.5	216069	31.5	20.5
263192	31.1	19.0	484371	31.2	20.9	75643	31.3	18.6	316452	31.3	20.1	128284	31.4	19.4	113334	31.5	18.7
173731	31.1	19.8	113827	31.2	18.8	27033	31.3	17.1	77340	31.3	19.4	190224	31.4	19.3	2019	31.5	15.7
210214	31.1	18.8	513614	31.2	21.0	506125	31.3	20.1	461364	31.3	20.9	375555	31.4	20.2	21567	31.5	17.6
390500	31.1	20.3	474422	31.2	20.7	159068	31.3	21.0	518990	31.3	20.8	1897	31.4	16.8	239188	31.5	20.1
110630	31.1	18.6	11695	31.2	17.0	50270	31.3	18.2	427355	31.3	20.3	456455	31.4	21.6	277634	31.5	20.8
157113	31.1	20.1	543047	31.2	20.8	290480	31.3	19.9	205317	31.3	21.0	249598	31.4	18.5	174230	31.5	19.9
348202	31.1	21.5	404241	31.2	19.6	441173	31.3	20.8	373131	31.3	20.3	288166	31.4	19.8	252462	31.5	19.9
259428	31.1	20.0	452170	31.2	21.3	136112	31.3	20.0	62099	31.3	20.0	274598	31.4	20.8	201840	31.5	19.4
517745	31.1	21.7	540255	31.2	21.8	202371	31.3	19.4	145737	31.3	19.6	481515	31.4	20.2	96736	31.5	18.5
336641	31.1	22.0	189440	31.2	20.2	214656	31.3	20.8	116973	31.3	18.9	428710	31.4	19.9	55283	31.5	18.6
444788	31.1	21.5	277400	31.2	20.5	216189	31.3	21.0	142895	31.3	20.1	455631	31.4	20.7	489207	31.5	22.2
162924	31.1	19.9	229865	31.2	20.2	276760	31.3	19.7	445557	31.3	21.3	55412	31.4	17.9	44405	31.5	18.2
110786	31.2	19.1	22306	31.2	18.6	456141	31.3	21.1	413351	31.4	19.7	68493	31.4	18.8	494797	31.5	20.3
95828	31.2	18.7	176200	31.2	20.0	238590	31.3	19.1	125713	31.4	18.6	138299	31.4	18.8	374215	31.5	20.6
544852	31.2	20.6	204739	31.2	20.0	496812	31.3	20.7	278651	31.4	21.4	194120	31.4	21.2	399520	31.5	21.0
9027	31.2	18.1	390555	31.2	20.7	407318	31.3	20.1	473526	31.4	20.3	38590	31.4	19.4	481206	31.5	21.1
15615	31.2	18.9	25060	31.2	18.4	270919	31.3	19.8	29870	31.4	16.0	135939	31.4	18.8	356002	31.5	20.6
194079	31.2	19.2	405720	31.2	19.8	88569	31.3	20.1	252364	31.4	20.4	369625	31.4	19.7	410523	31.5	21.3
196842	31.2	19.2	120356	31.2	19.4	397489	31.3	21.0	362091	31.4	20						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
407441	31.5	21.5	117304	31.6	19.2	360595	31.6	20.2	412973	31.7	20.7	459423	31.8	20.5	339763	31.8	20.4
4879	31.5	16.4	522586	31.6	21.1	337006	31.6	20.1	427318	31.7	21.0	178321	31.8	20.2	26952	31.8	18.7
28279	31.5	18.0	57459	31.6	17.1	7164	31.6	16.7	439067	31.7	22.1	380704	31.8	20.4	361839	31.8	20.6
111075	31.5	19.8	201983	31.6	21.3	426817	31.6	20.4	68933	31.7	18.8	151158	31.8	19.1	492874	31.8	20.4
24031	31.5	17.6	116728	31.6	19.4	516850	31.6	20.8	405671	31.7	21.0	345382	31.8	20.9	487883	31.8	19.6
146621	31.5	19.1	146804	31.6	20.1	123225	31.6	20.1	261354	31.7	19.8	182486	31.8	20.1	275833	31.8	20.6
495178	31.5	21.8	232678	31.6	19.4	444829	31.6	21.3	141330	31.7	18.6	3448	31.8	15.3	372057	31.8	22.1
75453	31.5	19.0	50707	31.6	18.0	346324	31.6	21.0	199066	31.7	20.0	496699	31.8	20.7	464186	31.8	20.0
120934	31.5	19.2	334654	31.6	19.9	371269	31.6	20.7	414532	31.7	22.8	311619	31.8	20.3	6306	31.8	15.4
219983	31.5	21.4	348198	31.6	21.5	467904	31.6	19.7	122781	31.7	19.4	10624	31.8	17.7	100979	31.8	18.1
79258	31.5	17.5	459745	31.6	20.2	517742	31.6	21.0	319387	31.7	20.7	118714	31.8	19.2	231395	31.8	20.4
421274	31.5	20.6	427812	31.6	20.4	23917	31.6	17.7	20912	31.7	18.4	535228	31.8	22.4	440302	31.8	22.3
230599	31.5	23.5	481250	31.6	20.3	227849	31.6	19.7	231539	31.7	20.2	14361	31.8	16.4	108278	31.8	19.5
306194	31.5	19.8	359375	31.6	18.8	301972	31.6	19.0	90157	31.7	19.1	226565	31.8	19.7	363849	31.8	21.5
249856	31.5	20.8	348223	31.6	20.4	147121	31.6	18.9	483529	31.7	20.3	72303	31.8	17.8	397217	31.8	19.8
174356	31.5	19.5	248261	31.6	20.0	60	31.6	10.1	362346	31.7	21.2	87027	31.8	19.7	368038	31.8	20.4
182410	31.5	19.5	59248	31.6	18.9	1492	31.6	15.2	542437	31.7	20.6	85171	31.8	19.4	83201	31.8	19.4
28284	31.5	17.0	157161	31.6	20.5	177681	31.6	19.7	262831	31.7	20.2	243586	31.8	19.9	201215	31.8	21.0
8842	31.5	17.4	428902	31.6	19.9	467277	31.7	20.0	287348	31.7	21.6	312316	31.8	19.7	310995	31.8	19.7
61808	31.5	19.0	445207	31.6	20.3	134930	31.7	18.8	296564	31.7	20.6	139510	31.8	19.0	441065	31.8	22.5
193114	31.5	20.0	268781	31.6	19.9	45054	31.7	17.4	439500	31.7	19.9	156553	31.8	19.2	146468	31.9	18.7
300608	31.5	20.8	104723	31.6	20.5	155253	31.7	20.1	484337	31.7	20.5	201897	31.8	19.6	258012	31.9	18.9
4808	31.5	15.1	197192	31.6	19.6	441543	31.7	20.9	230709	31.7	20.2	58589	31.8	18.0	158309	31.9	19.7
363384	31.5	20.4	477372	31.6	20.8	55298	31.7	17.6	196251	31.7	19.7	381924	31.8	20.5	206463	31.9	20.2
343661	31.5	20.8	102839	31.6	20.0	96141	31.7	19.3	90513	31.7	18.9	374630	31.8	21.0	312687	31.9	20.1
404799	31.5	20.1	382360	31.6	20.6	410565	31.7	20.6	19367	31.7	17.7	309469	31.8	20.9	165833	31.9	20.5
327055	31.5	21.0	323584	31.6	20.9	40913	31.7	19.4	43182	31.7	18.0	379477	31.8	19.7	333108	31.9	20.1
270775	31.5	20.0	57858	31.6	18.7	234738	31.7	19.6	116244	31.7	19.7	79224	31.8	20.1	101198	31.9	20.5
18343	31.5	18.2	378460	31.6	21.0	335306	31.7	21.8	400851	31.7	21.6	42417	31.8	19.7	388123	31.9	20.1
110787	31.5	19.2	77823	31.6	18.3	242381	31.7	20.6	252026	31.7	21.1	475496	31.8	22.3	104011	31.9	19.2
368464	31.5	22.2	358697	31.6	19.2	159755	31.7	19.4	54046	31.7	17.4	339984	31.8	20.0	359319	31.9	21.6
407463	31.5	19.6	102955	31.6	19.2	313197	31.7	20.3	3598	31.7	16.7	516594	31.8	20.9	419288	31.9	21.0
542699	31.5	20.7	372203	31.6	21.7	382187	31.7	20.9	135762	31.7	20.0	9632	31.8	19.3	493175	31.9	21.4
311814	31.5	19.6	175579	31.6	20.2	513533	31.7	19.9	167833	31.7	20.1	474036	31.8	20.1	379787	31.9	21.1
114197	31.5	20.3	422359	31.6	20.7	82545	31.7	19.1	486491	31.7	20.6	365984	31.8	20.2	418799	31.9	21.1
193157	31.5	21.1	44034	31.6	18.4	273143	31.7	19.8	322272	31.7	20.1	48419	31.8	17.4	153832	31.9	19.7
246767	31.5	20.1	131484	31.6	20.4	503316	31.7	20.6	385360	31.7	20.9	39165	31.8	18.1	194232	31.9	20.5
410796	31.5	21.9	146778	31.6	19.3	233978	31.7	20.1	270834	31.7	19.9	47844	31.8	19.0	65756	31.9	19.8
341115	31.5	19.9	256255	31.6	21.3	110932	31.7	20.1	219159	31.7	20.2	159735	31.8	19.7	74201	31.9	18.7
456385	31.5	21.6	50978	31.6	18.4	266064	31.7	20.2	455080	31.7	21.9	463777	31.8	20.2	451517	31.9	21.4
292710	31.5	20.6	481529	31.6	20.1	488560	31.7	20.5	215040	31.7	18.9	75545	31.8	19.2	245791	31.9	20.2
55173	31.5	18.3	269658	31.6	20.5	239789	31.7	20.7	272077	31.7	20.0	406656	31.8	20.5	541427	31.9	20.5
71717	31.5	19.3	316258	31.6	20.7	148945	31.7	19.5	139340	31.7	20.2	460622	31.8	20.4	257289	31.9	20.8
47755	31.5	19.1	128547	31.6	19.7	394078	31.7	20.3	41316	31.7	17.8	25975	31.8	18.3	182102	31.9	19.4
188391	31.5	20.4	154962	31.6	20.2	489570	31.7	21.1	56433	31.7	18.2	265820	31.8	20.3	247508	31.9	20.1
118090	31.5	19.5	177483	31.6	19.7	522639	31.7	21.3	462492	31.7	20.8	286826	31.8	21.4	348191	31.9	21.1
147529	31.5	18.9	199154	31.6	19.4	461492	31.7	20.3	135561	31.7	19.2	505346	31.8	19.5	676	31.9	14.4
361705	31.5	19.9	473738	31.6	19.8	259159	31.7	20.0	543056	31.7	22.0	87110	31.8	18.9	186476	31.9	21.1
421371	31.5	19.7	51435	31.6	18.8	518549	31.7	21.1	60290	31.7	18.4	271968	31.8	19.7	454620	31.9	21.5
319162	31.5	21.2	278695	31.6	21.6	177614	31.7	21.1	50776	31.7	18.5	241776	31.8	20.6	135928	31.9	19.4
67571	31.5	20.2	160022	31.6	19.3	322510	31.7	20.6	453379	31.7	20.5	447817	31.8	21.4	483175	31.9	21.0
381724	31.5	19.5	141657	31.6	20.2	458607	31.7	20.2	484388	31.7	20.3	412877	31.8	19.9	265055	31.9	19.6
334495	31.5	21.1	248743	31.6	20.5	227787	31.7	19.3	98553	31.7	19.8	417896	31.8	20.5	368301	31.9	21.0
195474	31.5	20.6	142801	31.6	19.2	463535	31.7	21.3	255217	31.7	20.4	59197	31.8	19.0	510299	31.9	19.8
280716	31.5	19.5	348684	31.6	20.3	372758	31.7	20.2	150713	31.7	20.9	487580	31.8	21.0	506133	31.9	20.9
25568	31.5	18.3	11677	31.6	17.5	457281	31.7	21.6	136053	31.7	19.8	311824	31.8	20.9	202050	31.9	20.5
196166	31.5	19.1	277018	31.6	19.9	2666	31.7	16.1	457924	31.7	21.5	103775	31.8	18.5	211251	31.9	19.6
362519	31.5	19.9	460741	31.6	20.2	524491	31.7	22.0	251990	31.7	20.4	40385	31.8	18.6	362159	31.9	20.8
49599	31.5	17.9	70070	31.6	19.1	302936	31.7	20.1	197766	31.8	19.8	133529	31.8	19.2	542085	31.9	21.7
353855	31.5	19.7	512248	31.6	20.3	380984	31.7	20.2	25117	31.8	17.8	288149	31.8	19.8	74758	31.9	18.5
252495	31.6	19.7	497590	31.6	21.8	26869	31.7	18.1	492228	31.8	21.3	165089	31.8	20.5	303037	31.9	19.8
400091	31.6	21.4	19602	31.6	17.9	87307	31.7	18.8	195705	31.8	19.1	219052	31.8	19.9	447551	31.9	20.7
334066	31.6	20.1	418467	31.6	21.0	445224	31.7	20.5	46023	31.8	18.8	318656	31.8	21.1	486589	31.9	20.6
98398	31.6	20.1	186393	31.6	21.2	277887	31.7	20.1	209188	31.8	20.2	451706	31.8	20.6	303090	31.9	19.7
104795	31.6	19.5	237213	31.6	20.6	441587	31.7	21.3	147206	31.8	20.6	480376	31.8	21.0	390557	31.9	21.4
270867	31.6	20.2	313865	31.6	20.8	76548	31.7	17.4	159738	31.8	19.3	132946	31.8	19.6	15942	31.9	16.9
53785	31.6	17.8	52172	31.6	18.1	194319	31.7	21.0	196086	31.8	19.6	160260	31.8	19.5	399251	31.9	20.5
249289	31.6	20.4	454550	31.6	21.2	50783	31.7	18.1	233109	31.8	19.8	25054	31.8	19.5	162896	31.9	21.1
286293	31.6	19.3	313516	31.6	19.2	236340	31.7	19.5	142663	31.8	20.3						

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

№	01	V	№	01	V	№	01	V	№	01	V	№	01	V	№	01	V
137390	31.9	19.0	54358	31.9	18.4	491143	31.9	21.7	232602	31.9	19.5	190936	31.9	19.2	179795	31.9	20.5
69785	31.9	17.6	108152	31.9	19.7	169127	31.9	21.0	149249	31.9	18.8	384321	31.9	20.7	357243	31.9	20.0
396480	31.9	20.3	195941	31.9	19.8	38976	31.9	19.3	214285	31.9	20.8	371278	31.9	21.1	401653	31.9	20.7
184336	31.9	20.6	29740	31.9	17.3	31992	31.9	18.3	346445	31.9	20.6	167842	31.9	20.3	13715	31.9	18.8
91319	31.9	17.7	290535	31.9	20.3	110844	31.9	20.2	282161	31.9	19.3	180915	31.9	20.2	511528	31.9	20.1
438715	31.9	21.7	273322	31.9	21.1	511526	31.9	19.7	290247	31.9	20.4	51071	31.9	19.0	222152	31.9	18.4
153008	31.9	20.2	504392	31.9	22.8	99766	31.9	19.4	362883	31.9	20.1	27691	31.9	18.0	159016	31.9	20.5
394132	31.9	21.6	440021	31.9	21.4	81575	31.9	19.5	345406	31.9	20.4	458084	31.9	19.9	78563	31.9	18.5
291738	31.9	20.9	23928	31.9	18.9	151626	31.9	20.1	136400	31.9	18.9	79659	31.9	19.0	450233	31.9	20.4
145971	31.9	18.5	235979	31.9	19.1	47584	31.9	18.4	397673	31.9	21.2	236072	31.9	20.4	458373	31.9	21.0
123235	31.9	19.6	170449	31.9	21.2	423048	31.9	20.5	184641	31.9	20.2	481283	31.9	20.3	483678	31.9	20.8
195917	31.9	19.5	393082	31.9	20.0	197750	31.9	20.3	408510	31.9	20.5	412270	31.9	21.7	506129	31.9	20.7
415324	31.9	21.3	60627	31.9	19.4	434542	31.9	21.6	421174	31.9	20.7	92585	31.9	20.1	212877	31.9	20.5
220609	31.9	20.3	499930	31.9	22.9	148986	31.9	19.7	244038	31.9	18.9	274257	31.9	21.0	111451	31.9	19.7
278378	31.9	20.9	399615	31.9	19.6	426596	31.9	21.4	487957	31.9	20.0	495315	31.9	20.9	529678	31.9	20.7
404922	31.9	20.9	332440	31.9	19.1	49382	31.9	17.9	461915	31.9	20.9	114122	31.9	20.1	186248	31.9	18.8
279961	31.9	20.6	281317	31.9	21.1	88678	31.9	19.5	453409	31.9	21.2	118182	31.9	18.4	271376	31.9	19.1
245485	31.9	19.6	35523	31.9	18.9	491410	31.9	20.2	165792	31.9	21.1	196957	31.9	20.0	129364	31.9	20.3
251155	31.9	19.6	452885	31.9	21.7	407506	31.9	21.1	239965	31.9	20.3	221295	31.9	20.8	427210	31.9	20.5
494905	31.9	21.7	158194	31.9	19.7	377148	31.9	20.6	406688	31.9	20.9	218844	31.9	20.4	45497	31.9	17.0