

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
435625	1.0	20.3	362982	1.1	20.2	181916	1.2	18.8	514854	1.3	21.0	372835	1.3	20.7	505845	1.4	20.9
58774	1.0	17.4	356252	1.1	20.7	48018	1.2	18.2	428265	1.3	20.8	380307	1.3	20.2	270244	1.4	20.2
251386	1.0	19.5	48401	1.1	18.0	508063	1.2	20.4	481721	1.3	20.9	409700	1.3	20.9	104107	1.4	19.4
178471	1.0	18.4	118239	1.1	19.1	92306	1.2	17.8	382099	1.3	20.2	125693	1.3	19.1	72665	1.4	18.9
340340	1.0	19.5	284739	1.1	20.6	200263	1.2	19.5	77044	1.3	18.7	483610	1.3	20.2	393046	1.4	19.7
521553	1.0	20.5	358489	1.1	19.7	253496	1.2	18.4	90784	1.3	19.2	447051	1.3	19.0	37361	1.4	18.7
466916	1.0	21.0	472414	1.1	20.3	277300	1.2	20.4	509916	1.3	22.1	71951	1.3	18.6	211080	1.4	20.1
365332	1.0	20.4	311984	1.1	20.4	260237	1.2	19.8	57085	1.3	17.1	379885	1.3	19.8	39608	1.4	17.2
223915	1.0	20.4	424414	1.1	20.9	289471	1.2	20.2	6662	1.3	16.4	359707	1.3	19.8	187845	1.4	19.1
269755	1.0	18.9	376432	1.1	19.9	206137	1.2	19.2	265437	1.3	20.3	210173	1.3	19.7	320273	1.4	20.0
208537	1.0	18.7	95612	1.1	19.2	402290	1.2	19.7	446350	1.3	20.7	361504	1.3	20.4	24508	1.4	19.0
289002	1.0	20.2	221671	1.1	19.9	163989	1.2	19.1	64890	1.3	19.4	31115	1.3	17.3	372326	1.4	20.4
289669	1.0	19.7	111805	1.1	19.3	96456	1.2	18.7	520542	1.3	20.1	6535	1.3	15.6	436236	1.4	19.8
301215	1.0	19.4	365308	1.1	20.0	264366	1.2	21.0	57501	1.3	18.8	241741	1.3	19.1	436581	1.4	21.5
41369	1.0	17.8	236421	1.1	20.6	342011	1.2	20.0	168756	1.3	18.6	254928	1.3	19.8	143729	1.4	19.3
516480	1.0	21.5	402444	1.1	21.0	405274	1.2	20.8	66917	1.3	17.6	112287	1.3	19.3	126521	1.4	18.7
60263	1.0	17.2	378263	1.1	20.6	94030	1.2	16.9	434700	1.3	20.2	432672	1.3	21.9	308939	1.4	20.8
509385	1.0	21.2	355108	1.1	20.1	84382	1.2	19.5	515980	1.3	20.7	151473	1.3	20.2	515645	1.4	20.3
429553	1.0	20.6	232290	1.1	19.6	359894	1.2	21.5	80399	1.3	19.5	171230	1.3	20.0	412710	1.4	20.5
298130	1.0	19.8	389100	1.1	20.1	33577	1.2	16.4	348123	1.3	19.4	128046	1.3	18.7	138047	1.4	19.7
510132	1.0	20.3	404441	1.1	21.9	21830	1.2	17.9	187628	1.3	19.3	366038	1.3	21.3	447246	1.4	20.8
54883	1.0	17.7	515989	1.1	20.7	204959	1.2	19.8	115573	1.3	18.7	143752	1.3	18.3	355839	1.4	19.0
359604	1.0	21.3	401521	1.1	20.8	523562	1.2	20.5	363014	1.3	20.5	317836	1.3	19.1	299175	1.4	19.5
235163	1.0	19.4	193278	1.1	19.1	334958	1.2	20.3	219283	1.3	19.8	350338	1.3	19.7	160997	1.4	20.4
469564	1.0	21.4	316296	1.1	19.0	295192	1.2	19.6	153535	1.3	17.7	139988	1.3	19.8	400685	1.4	20.0
220506	1.0	20.2	180789	1.1	17.7	77496	1.2	18.4	233994	1.3	19.5	58854	1.3	17.4	312420	1.4	19.4
294741	1.0	20.5	518488	1.1	20.4	227447	1.2	20.6	357206	1.3	20.1	315086	1.3	20.6	300789	1.4	20.4
89969	1.0	18.1	372344	1.1	19.4	245241	1.2	20.7	16519	1.3	17.4	130287	1.3	18.5	195288	1.4	19.7
113544	1.0	18.2	184285	1.1	19.2	158697	1.2	19.0	379882	1.3	20.1	373202	1.3	19.4	82378	1.4	19.1
204943	1.0	21.0	459489	1.1	20.1	216814	1.2	17.2	54852	1.3	18.8	450559	1.3	20.9	161320	1.4	17.8
476239	1.0	20.1	124013	1.1	18.8	169816	1.2	19.9	213457	1.3	20.5	139006	1.3	19.7	91853	1.4	18.4
475163	1.0	22.2	346715	1.1	20.3	333740	1.2	19.5	52350	1.3	19.3	359893	1.3	21.1	291269	1.4	20.7
351873	1.0	20.8	286571	1.1	20.2	404007	1.2	21.5	283648	1.3	19.2	485783	1.4	20.7	472520	1.4	20.1
358638	1.0	20.3	134288	1.1	19.7	118700	1.2	17.7	104438	1.3	18.9	515890	1.4	20.7	220686	1.4	19.5
149171	1.0	19.5	152824	1.1	19.5	363663	1.2	20.2	251972	1.3	19.8	133935	1.4	18.1	366798	1.4	19.6
390920	1.0	21.4	80848	1.1	18.6	419519	1.2	18.2	437700	1.3	19.0	378287	1.4	21.3	364253	1.4	18.4
454919	1.0	19.4	358313	1.1	20.6	179482	1.2	19.1	506893	1.3	21.3	485202	1.4	21.0	153082	1.4	18.2
162100	1.0	18.4	114808	1.1	18.7	482140	1.2	20.3	21281	1.3	17.6	320981	1.4	19.4	319937	1.4	20.3
480604	1.0	20.7	439992	1.1	20.5	360871	1.2	20.2	471297	1.3	20.5	380927	1.4	20.5	120688	1.4	18.2
4449	1.0	16.0	365603	1.1	20.2	69547	1.2	19.8	397094	1.3	20.6	26454	1.4	16.3	351838	1.4	20.2
477921	1.0	20.5	325877	1.1	20.3	453650	1.2	20.5	280639	1.3	18.8	65866	1.4	16.7	66764	1.4	17.8
404795	1.0	20.4	476734	1.1	20.3	162899	1.2	19.7	103202	1.3	19.6	2398	1.4	16.6	130074	1.4	18.9
311551	1.0	20.2	494961	1.1	21.4	314416	1.2	19.5	380217	1.3	18.9	323795	1.4	19.3	515998	1.4	20.9
245343	1.0	19.6	395730	1.1	20.9	210750	1.2	18.4	481306	1.3	22.0	17753	1.4	18.2	335096	1.4	20.0
269631	1.0	20.0	297375	1.1	20.3	339181	1.2	19.6	514266	1.3	20.4	477043	1.4	20.5	273466	1.4	18.2
388975	1.0	20.5	21307	1.1	17.3	169520	1.2	19.4	510957	1.3	21.4	516748	1.4	20.2	264972	1.4	18.0
344116	1.0	20.6	339192	1.1	19.6	317799	1.2	19.3	83054	1.3	18.8	181971	1.4	18.5	131753	1.4	17.7
339072	1.0	19.1	296004	1.1	20.5	489932	1.2	20.4	223867	1.3	19.5	129308	1.4	18.8	427580	1.4	19.8
151378	1.0	19.1	507366	1.1	23.9	298692	1.2	20.5	329117	1.3	20.1	421213	1.4	19.4	369932	1.4	20.2
471223	1.0	21.0	244229	1.1	20.4	482362	1.2	20.9	318252	1.3	20.1	19300	1.4	17.1	216584	1.4	19.3
87894	1.0	18.2	329968	1.1	19.7	188955	1.2	19.5	218774	1.3	19.3	60806	1.4	16.8	515860	1.4	20.2
78985	1.0	18.9	133223	1.1	17.8	391961	1.2	20.3	93766	1.3	19.2	96283	1.4	19.2	208658	1.4	19.7
252743	1.0	20.2	511138	1.1	21.9	90392	1.2	19.3	143878	1.3	18.8	75930	1.4	19.0	317119	1.4	20.5
153418	1.0	18.5	18642	1.1	18.2	418295	1.2	20.7	77711	1.3	17.6	186942	1.4	18.9	352429	1.4	21.0
226361	1.0	19.8	35987	1.1	17.8	453395	1.2	20.9	324174	1.3	21.4	220490	1.4	19.7	511049	1.4	20.3
292981	1.0	20.0	430413	1.1	21.8	348356	1.2	19.8	136328	1.3	19.4	52823	1.4	18.5	14645	1.4	17.3
141783	1.0	18.2	312326	1.1	19.9	521731	1.2	20.9	391978	1.3	20.0	149334	1.4	19.9	155808	1.5	19.2
96145	1.0	19.7	106538	1.1	18.3	290777	1.2	20.6	387384	1.3	20.2	47297	1.4	17.3	176497	1.5	19.0
487027	1.0	21.0	250863	1.1	19.1	168612	1.2	19.6	449012	1.3	20.8	173000	1.4	18.3	98779	1.5	19.4
127195	1.1	19.9	219960	1.1	19.9	209864	1.2	19.8	127091	1.3	19.1	369946	1.4	20.9	249633	1.5	19.1
106563	1.1	17.3	126538	1.1	18.7	482614	1.2	20.8	301478	1.3	21.0	115477	1.4	18.6	514027	1.5	19.3
255322	1.1	20.6	322179	1.1	20.5	80517	1.2	17.5	417888	1.3	19.4	386761	1.4	20.5	52821	1.5	18.8
114838	1.1	18.5	201821	1.1	20.1	237228	1.2	19.9	347531	1.3	21.3	112722	1.4	18.9	169858	1.5	19.1
315369	1.1	20.4	392379	1.1	20.7	313303	1.2	20.2	68255	1.3	20.1	517834	1.4	20.5	519669	1.5	21.3
449794	1.1	19.9	59500	1.1	18.6	397701	1.2	19.3	469999	1.3	21.0	514633	1.4	19.7	514236	1.5	20.8
132459	1.1	19.2	511510	1.1	19.7	284229	1.2	20.5	443493	1.3	19.4	95475	1.4	18.6	209094	1.5	18.7
300414	1.1	20.3	448549	1.1	19.5	73124	1.2	17.6	436315	1.3	19.2	349701	1.4	20.4	312606	1.5	19.8
435178	1.1	20.1	390952	1.1	20.4	159118	1.2	19.1	464633	1.3	18.8	475362	1.4	20.7	172927	1.5	19.1
133300	1.1	18.8	340406	1.1	20.0	315843	1.2	20.1	508136	1.3	21.7	103487	1.4	19.3	221909	1.5	20.0
310104	1.1	20.3	446625	1.2	20.2	476755	1.2	20.2	109098	1.3	18.5	46279	1.4	16.5	509331	1.5	21.2
476859	1.1	19.6	516938	1.2	20.7	5720	1.2	18.3	399020	1.3	19.7	70266	1.4				

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
451335	1.5	20.2	509049	1.6	21.1	420412	1.7	21.0	21276	1.7	18.3	482220	1.8	21.3	126569	1.9	19.1
261086	1.5	20.5	430123	1.6	20.7	326222	1.7	21.4	68925	1.7	18.7	334715	1.8	19.9	289358	1.9	20.2
423446	1.5	20.1	389794	1.6	19.7	139778	1.7	19.4	455059	1.7	20.3	171501	1.8	20.0	75696	1.9	19.6
63350	1.5	18.0	92139	1.6	18.7	359583	1.7	19.8	29122	1.7	16.7	327686	1.8	19.3	494608	1.9	21.6
218295	1.5	18.4	367035	1.6	19.9	277441	1.7	19.3	371512	1.7	18.6	174984	1.8	20.4	179670	1.9	18.3
272102	1.5	20.8	206730	1.6	19.9	264971	1.7	18.6	315143	1.7	20.1	339494	1.8	21.2	278263	1.9	19.9
374242	1.5	20.2	40327	1.6	17.1	51425	1.7	18.0	495945	1.7	19.1	390367	1.8	19.9	175195	1.9	19.7
348402	1.5	20.2	522845	1.6	20.5	324304	1.7	20.7	331137	1.7	20.5	449063	1.8	20.6	479823	1.9	21.1
115313	1.5	18.5	515315	1.6	22.1	190581	1.7	17.4	232965	1.7	19.9	388607	1.8	20.8	454987	1.9	20.6
521041	1.5	21.4	349742	1.6	20.1	316558	1.7	20.6	249763	1.7	19.4	3735	1.8	16.7	259746	1.9	19.3
352668	1.5	20.5	387573	1.6	19.2	95595	1.7	17.9	168705	1.7	20.1	319276	1.8	21.6	292507	1.9	19.7
479993	1.5	21.7	53040	1.6	18.6	91207	1.7	17.9	317227	1.7	20.2	56169	1.8	18.1	407590	1.9	21.1
219304	1.5	19.8	106014	1.6	18.4	263279	1.7	20.0	513418	1.7	21.1	516742	1.8	19.3	319202	1.9	19.9
342409	1.5	20.8	340302	1.6	20.1	400949	1.7	20.0	50599	1.7	17.5	327146	1.8	19.5	325680	1.9	19.7
202528	1.5	19.5	378291	1.6	21.4	487021	1.7	20.4	66828	1.7	17.5	57094	1.8	18.0	432615	1.9	21.3
62531	1.5	19.1	350506	1.6	19.6	377596	1.7	18.3	39498	1.8	19.5	313688	1.8	20.3	62702	1.9	18.5
326015	1.5	20.3	424496	1.6	20.0	146264	1.7	19.7	329162	1.8	19.7	178254	1.8	19.6	273385	1.9	18.4
60162	1.5	18.0	89928	1.6	19.2	306406	1.7	20.1	152334	1.8	20.1	308676	1.8	20.0	435774	1.9	20.9
286883	1.5	19.7	259583	1.6	19.7	424435	1.7	21.5	24237	1.8	17.7	7574	1.8	16.5	108832	1.9	17.9
4703	1.5	15.8	223561	1.6	20.0	364513	1.7	21.2	261677	1.8	20.4	382556	1.8	20.1	29983	1.9	18.8
472756	1.5	21.0	113185	1.6	18.5	247410	1.7	19.8	447999	1.8	19.8	414760	1.8	19.9	513841	1.9	21.0
9224	1.5	17.2	62659	1.6	19.3	209326	1.7	19.7	9079	1.8	17.0	393723	1.8	20.5	142917	1.9	18.9
327579	1.5	20.8	273512	1.6	21.3	388223	1.7	20.8	479522	1.8	20.1	67695	1.8	19.0	513508	1.9	20.3
24832	1.5	18.3	371452	1.6	21.0	99875	1.7	19.1	369930	1.8	20.4	98825	1.8	18.8	261639	1.9	19.8
393912	1.5	19.9	382028	1.6	19.7	265868	1.7	19.0	494655	1.8	20.9	42649	1.8	18.4	349840	1.9	21.1
221381	1.5	19.9	391315	1.6	19.7	175856	1.7	18.1	198467	1.8	20.7	258649	1.8	20.9	86534	1.9	17.2
5375	1.5	16.8	468981	1.6	19.5	378591	1.7	20.2	481461	1.8	21.0	401180	1.8	20.3	13780	1.9	18.8
314512	1.5	20.7	289084	1.6	19.8	479769	1.7	20.5	361064	1.8	19.1	397665	1.8	19.6	21435	1.9	17.9
65536	1.5	17.9	102855	1.6	18.7	142305	1.7	18.6	305190	1.8	20.3	15264	1.8	18.4	358860	1.9	20.9
261482	1.5	20.5	193572	1.6	19.6	40174	1.7	18.3	86187	1.8	18.0	380198	1.9	22.3	56359	1.9	16.7
198145	1.5	18.8	255296	1.6	20.4	521787	1.7	21.0	60588	1.8	17.7	230389	1.9	21.5	51221	1.9	19.3
170398	1.5	19.5	513332	1.6	21.4	195006	1.7	19.5	27049	1.8	17.5	216650	1.9	18.8	454959	1.9	20.8
386527	1.5	19.5	129118	1.6	19.7	225181	1.7	19.1	451130	1.8	19.0	94682	1.9	17.4	102176	1.9	18.3
252961	1.5	19.7	514048	1.6	21.3	139276	1.7	19.9	52259	1.8	17.6	137966	1.9	17.4	36859	1.9	18.7
143632	1.5	20.5	469179	1.6	20.5	521868	1.7	21.4	188573	1.8	18.5	274933	1.9	20.2	515939	1.9	19.5
22597	1.5	18.4	71462	1.6	18.5	124035	1.7	20.1	181456	1.8	19.4	366253	1.9	20.4	115469	1.9	19.8
313077	1.5	19.7	97014	1.6	18.0	163078	1.7	17.7	164058	1.8	18.0	21183	1.9	17.3	106686	1.9	19.7
224260	1.5	20.4	75416	1.6	17.1	227544	1.7	19.2	74391	1.8	18.3	75873	1.9	17.7	306736	1.9	21.3
432814	1.5	20.0	247476	1.6	20.1	315857	1.7	19.8	154147	1.8	19.2	211480	1.9	20.3	28931	1.9	16.9
91925	1.5	18.2	319256	1.6	20.1	356508	1.7	20.8	315363	1.8	19.0	295996	1.9	20.0	21650	1.9	17.5
127499	1.5	18.5	40370	1.6	17.3	218433	1.7	19.0	362284	1.8	20.7	133623	1.9	18.0	362269	1.9	19.7
361903	1.5	19.6	363975	1.6	21.6	38594	1.7	19.1	346738	1.8	20.1	218208	1.9	18.5	96588	1.9	18.6
469333	1.5	22.1	339110	1.6	19.0	363000	1.7	20.0	172144	1.8	20.0	91682	1.9	18.8	304233	1.9	20.3
326237	1.5	20.9	100106	1.6	19.1	198607	1.7	19.7	254488	1.8	19.5	367061	1.9	20.2	256515	1.9	20.7
476685	1.5	20.6	68799	1.6	19.0	478875	1.7	19.6	268884	1.8	20.8	479588	1.9	20.9	147352	1.9	17.9
51682	1.5	17.8	276582	1.6	19.9	337128	1.7	20.3	399047	1.8	20.4	24512	1.9	17.5	69588	1.9	19.1
403984	1.5	20.5	108525	1.6	18.0	258567	1.7	20.2	253629	1.8	20.3	241315	1.9	20.3	182742	1.9	19.9
354355	1.5	20.0	209127	1.6	17.9	284966	1.7	19.9	312618	1.8	20.9	470256	1.9	20.3	20733	1.9	17.6
185781	1.5	20.3	488681	1.6	20.4	287056	1.7	19.5	98607	1.8	18.6	319280	1.9	20.9	299684	1.9	19.9
180285	1.5	19.9	437966	1.6	19.7	349990	1.7	19.6	65122	1.8	19.2	232486	1.9	17.7	468495	1.9	20.8
386388	1.5	19.6	295373	1.6	19.8	376382	1.7	20.2	476816	1.8	20.9	283344	1.9	20.0	181013	1.9	19.8
11330	1.5	17.4	468491	1.6	20.9	487720	1.7	21.5	448396	1.8	18.4	436795	1.9	20.0	486619	1.9	21.2
130008	1.5	19.2	224182	1.6	18.1	382501	1.7	18.7	419565	1.8	19.9	365377	1.9	20.0	346353	1.9	20.2
176498	1.5	19.5	328066	1.6	20.8	449907	1.7	20.4	405450	1.8	21.3	431269	1.9	20.3	285499	1.9	20.2
286485	1.5	20.6	516111	1.6	20.0	419768	1.7	21.2	349792	1.8	20.9	369462	1.9	20.5	321396	1.9	19.8
80614	1.5	19.5	37230	1.6	18.6	129845	1.7	18.1	267741	1.8	19.7	261362	1.9	20.5	71694	1.9	19.5
216480	1.5	18.4	279732	1.6	19.7	127923	1.7	19.4	266744	1.8	21.1	229932	1.9	19.4	113272	1.9	18.5
444130	1.5	19.3	188781	1.6	20.1	399538	1.7	20.3	314007	1.8	19.1	402772	1.9	21.1	436152	1.9	21.5
302857	1.5	21.0	423939	1.6	20.4	57633	1.7	19.5	291406	1.8	20.9	99113	1.9	18.9	277665	1.9	19.1
396181	1.5	20.5	255371	1.6	19.3	212345	1.7	20.1	91899	1.8	18.4	142640	1.9	18.9	168800	1.9	19.2
25291	1.6	19.4	321944	1.6	20.4	204095	1.7	18.5	268843	1.8	20.6	237543	1.9	20.2	350870	1.9	20.2
53058	1.6	18.6	447073	1.6	20.7	107479	1.7	19.7	208245	1.8	19.8	245264	1.9	19.3	508390	1.9	19.1
54689	1.6	18.8	353192	1.6	20.6	207027	1.7	17.6	451792	1.8	19.9	357902	1.9	20.6	255256	1.9	20.6
100006	1.6	19.2	9210	1.6	17.6	91015	1.7	18.6	503663	1.8	20.4	426598	1.9	21.0	314599	1.9	22.2
324935	1.6	20.7	98630	1.6	18.3	472488	1.7	20.8	8508	1.8	17.1	250768	1.9	20.4	488103	1.9	21.1
186994	1.6	19.3	386322	1.6	20.4	386752	1.7	21.3	164181	1.8	19.9	345429	1.9	20.9	67561	1.9	18.6
237595	1.6	20.4	490377	1.6	20.3	70898	1.7	18.9	72425	1.8	19.4	35052	1.9	18.7	313121	1.9	20.4
28441	1.6	17.9	57996	1.6	16.8	50808	1.7	19.0	269732	1.8	18.8	283646	1.9	21.4	23227	1.9	18.0
84143	1.6	17.7	416658	1.6	20.6	44055	1.7	17.0	389070	1.8	21.3	442890	1.9	20.7	339336	1.9	21.3
398101	1.6	20.2	284055	1.6	19.7	83712	1.7	18.9	448691	1.8	20.0	385533	1.9	23.3	483389	1.9	20.0
63020	1.6	19.1	451994	1.6	20.6	67700	1.7	18.8	14119	1.8	17.0	294516	1.9	20.1	440998	1.9	

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
439112	1.9	19.9	365735	2.0	20.6	275342	2.1	19.7	175455	2.2	19.7	478569	2.3	20.1	56616	2.4	17.1
31435	1.9	17.8	153558	2.0	18.8	251542	2.1	19.6	137668	2.2	18.9	115096	2.3	19.4	173689	2.4	20.1
393113	1.9	20.6	79263	2.0	19.5	11597	2.1	16.9	179582	2.2	20.4	395907	2.3	20.7	48638	2.4	18.6
223388	1.9	19.4	101697	2.0	19.3	358855	2.1	21.4	509553	2.2	21.4	470348	2.3	20.2	270011	2.4	21.4
438308	1.9	20.2	203295	2.0	19.7	231615	2.1	19.8	392313	2.2	20.8	159294	2.3	18.4	224254	2.4	20.1
24994	1.9	17.3	69517	2.0	18.7	287572	2.1	20.3	257967	2.2	20.2	245884	2.3	19.8	23038	2.4	16.3
459461	1.9	19.3	401256	2.1	20.8	294625	2.1	20.7	431814	2.2	20.3	340280	2.3	19.9	449425	2.4	20.4
311316	1.9	19.1	123865	2.1	19.4	77190	2.1	18.5	400920	2.2	20.4	398432	2.3	20.6	79328	2.4	19.1
98173	1.9	18.4	255188	2.1	20.9	397216	2.1	21.3	318557	2.2	19.5	505693	2.3	21.5	509607	2.4	21.4
108036	1.9	18.8	337989	2.1	20.9	293392	2.1	20.1	485457	2.2	20.1	393014	2.3	20.8	363635	2.4	19.7
375166	1.9	20.5	499231	2.1	20.1	291718	2.1	20.4	273800	2.2	20.4	391271	2.3	19.7	227289	2.4	20.5
321118	1.9	20.3	22199	2.1	18.6	505832	2.1	21.3	488067	2.2	20.9	175141	2.3	19.9	370642	2.4	20.5
401597	1.9	20.3	431476	2.1	19.7	25998	2.1	16.7	452268	2.2	20.0	508397	2.3	19.4	172307	2.4	19.2
261449	1.9	20.3	412606	2.1	20.3	388217	2.1	21.4	139077	2.2	19.9	90370	2.3	19.0	339272	2.4	19.7
283362	1.9	19.4	521118	2.1	20.3	69919	2.1	18.4	91855	2.2	18.0	135629	2.3	17.6	213250	2.4	17.7
523136	1.9	20.1	350320	2.1	20.8	5962	2.1	16.8	159250	2.2	20.8	131177	2.3	19.7	302807	2.4	19.3
469624	1.9	20.3	421486	2.1	20.0	99410	2.1	18.9	24528	2.2	18.8	220727	2.3	19.1	206418	2.4	17.5
412556	1.9	19.8	367470	2.1	19.7	123750	2.1	19.3	55592	2.2	17.1	335108	2.3	20.5	494172	2.4	19.2
232122	1.9	19.2	155286	2.1	19.2	373144	2.1	20.4	221465	2.2	18.8	350405	2.3	19.9	244658	2.4	20.2
304513	1.9	20.8	356514	2.1	20.5	341107	2.1	19.3	36570	2.2	18.5	297155	2.3	20.2	141519	2.4	19.7
184406	2.0	20.2	512757	2.1	20.3	319290	2.1	20.8	315142	2.2	20.6	15033	2.3	17.3	170173	2.4	18.3
202972	2.0	18.1	68022	2.1	19.2	74639	2.1	18.1	175917	2.2	20.0	199404	2.3	20.2	115342	2.4	19.0
285460	2.0	20.4	422812	2.1	21.2	507273	2.1	22.2	90874	2.2	17.8	25200	2.3	18.7	158079	2.4	18.6
418953	2.0	20.5	94665	2.1	17.3	91952	2.1	19.5	252096	2.2	19.9	21648	2.3	17.7	31974	2.4	18.7
164020	2.0	18.5	437495	2.1	20.4	319230	2.1	19.7	172847	2.2	19.7	89841	2.3	19.4	106929	2.4	19.1
479799	2.0	20.6	59418	2.1	18.3	299708	2.2	19.7	402051	2.2	20.8	93057	2.3	18.2	27593	2.4	18.9
374246	2.0	20.9	173586	2.1	20.0	350104	2.2	20.3	329748	2.2	20.0	398726	2.3	20.8	145989	2.4	20.3
119837	2.0	19.3	80948	2.1	19.2	263792	2.2	19.8	337310	2.2	20.4	339434	2.3	21.1	519701	2.4	21.3
208776	2.0	19.3	62293	2.1	18.6	232336	2.2	18.7	195314	2.2	20.7	500122	2.3	20.5	515108	2.4	21.0
225670	2.0	19.0	144019	2.1	20.2	421817	2.2	20.4	476851	2.2	18.8	265059	2.3	19.7	94023	2.4	17.7
120776	2.0	18.5	18432	2.1	17.8	384334	2.2	19.3	508389	2.2	19.9	167361	2.3	19.0	521538	2.4	21.2
506940	2.0	21.1	356587	2.1	20.1	41948	2.2	18.4	96046	2.2	18.2	186750	2.3	20.1	9109	2.4	17.0
115916	2.0	19.7	140310	2.1	19.9	39358	2.2	18.1	129227	2.2	19.3	164147	2.3	18.9	435065	2.4	20.4
390959	2.0	19.5	71067	2.1	18.9	173128	2.2	19.9	320174	2.2	20.2	126811	2.3	16.9	385357	2.4	19.4
449083	2.0	19.4	399457	2.1	25.8	514933	2.2	21.0	515175	2.2	20.2	173719	2.3	18.3	521374	2.4	20.4
183824	2.0	19.2	141255	2.1	19.6	467746	2.2	20.6	226319	2.2	20.6	250596	2.3	20.2	13792	2.4	17.4
491080	2.0	20.5	237244	2.1	20.1	177750	2.2	19.5	263337	2.2	20.9	131271	2.3	18.4	196434	2.4	18.4
203917	2.0	18.7	134147	2.1	18.9	513737	2.2	21.1	82511	2.2	17.4	241556	2.3	19.2	253421	2.4	19.1
346740	2.0	20.5	458272	2.1	20.7	244928	2.2	18.9	169502	2.2	19.4	177640	2.3	17.9	468009	2.4	21.2
107067	2.0	19.6	422662	2.1	18.9	513751	2.2	20.9	288205	2.3	19.8	19447	2.3	17.0	442596	2.4	20.9
2582	2.0	15.1	380736	2.1	19.6	364012	2.2	20.4	236561	2.3	18.6	58907	2.3	18.0	439632	2.4	19.8
392838	2.0	21.7	275929	2.1	19.7	508269	2.2	20.9	71449	2.3	19.3	183905	2.3	20.1	455126	2.4	20.7
114566	2.0	19.2	448992	2.1	20.9	49506	2.2	19.2	443306	2.3	20.9	328628	2.3	20.6	105439	2.4	18.8
241626	2.0	21.0	475863	2.1	20.6	99223	2.2	19.3	158128	2.3	19.7	135601	2.3	18.9	299217	2.4	19.8
447426	2.0	20.8	193540	2.1	18.4	251812	2.2	19.7	512974	2.3	19.1	504666	2.3	20.2	84534	2.4	18.5
153294	2.0	19.3	401262	2.1	20.3	478841	2.2	21.5	475298	2.3	20.2	489957	2.3	20.2	476692	2.4	20.5
289790	2.0	20.4	115435	2.1	19.8	182908	2.2	19.2	133521	2.3	18.8	14347	2.3	16.1	175372	2.4	21.3
226860	2.0	20.3	219897	2.1	20.1	258821	2.2	19.9	503348	2.3	19.6	87546	2.3	18.5	315841	2.4	20.0
85197	2.0	18.4	351117	2.1	20.0	323688	2.2	21.4	109730	2.3	19.2	128157	2.3	18.9	40988	2.4	19.1
254942	2.0	19.5	483281	2.1	20.8	11908	2.2	18.0	519257	2.3	21.2	160468	2.3	18.3	288011	2.4	19.9
383186	2.0	20.1	288802	2.1	19.6	35345	2.2	17.8	391917	2.3	20.4	254429	2.3	20.5	444285	2.4	20.3
320305	2.0	20.1	240207	2.1	19.5	292732	2.2	20.6	55756	2.3	19.4	414273	2.3	19.5	443903	2.4	20.0
15113	2.0	16.8	315452	2.1	20.6	504097	2.2	20.7	101803	2.3	18.5	324280	2.4	20.5	513413	2.4	20.7
481630	2.0	20.4	151500	2.1	19.2	402792	2.2	20.3	255382	2.3	19.6	254475	2.4	19.7	475989	2.4	19.1
255584	2.0	19.0	266059	2.1	18.7	391840	2.2	21.5	318334	2.3	19.5	67014	2.4	18.8	69206	2.4	18.0
449388	2.0	20.6	17128	2.1	16.2	404004	2.2	20.7	521821	2.3	20.4	503953	2.4	21.5	54214	2.4	19.5
371833	2.0	21.4	480628	2.1	20.1	341125	2.2	19.6	233715	2.3	18.6	104218	2.4	19.9	157816	2.4	19.8
403743	2.0	19.6	435849	2.1	20.8	71440	2.2	18.9	478673	2.3	20.7	359335	2.4	19.5	350377	2.4	20.8
274194	2.0	20.3	168099	2.1	18.5	138300	2.2	19.8	440475	2.3	20.6	451340	2.4	20.4	383260	2.4	21.5
289401	2.0	19.9	394613	2.1	20.1	364128	2.2	20.4	450256	2.3	20.8	349164	2.4	19.3	176836	2.4	19.3
339396	2.0	21.3	59857	2.1	18.3	169820	2.2	19.7	249745	2.3	18.6	518670	2.4	20.8	145743	2.4	19.7
430594	2.0	19.2	193406	2.1	18.3	40708	2.2	16.4	293777	2.3	20.4	22841	2.4	17.3	446124	2.4	20.4
173459	2.0	18.3	324874	2.1	19.9	297096	2.2	19.2	263366	2.3	21.6	390516	2.4	19.7	212828	2.4	19.2
313307	2.0	21.1	516444	2.1	20.5	148066	2.2	18.1	189813	2.3	19.1	191043	2.4	19.7	318253	2.4	19.6
42504	2.0	18.9	424507	2.1	21.4	391540	2.2	20.5	412728	2.3	19.2	408460	2.4	20.4	3019	2.4	15.7
123019	2.0	17.9	390899	2.1	19.7	167007	2.2	19.2	447220	2.3	21.4	508332	2.4	20.2	420753	2.4	20.0
432749	2.0	20.5	232093	2.1	19.2	102389	2.2	17.8	476068	2.3	20.2	54185	2.4	19.9	90496	2.4	18.7
339959	2.0	20.4	366616	2.1	18.2	79985	2.2	17.3	7641	2.3	17.0	449381	2.4	20.5	359347	2.4	20.7
477123	2.0	21.4	137611	2.1	19.1	339111	2.2	17.8	517980	2.3	20.4	487981	2.4	21.9	304341	2.4	20.3
442791	2.0	20.4	392818	2.1	20.7	27263	2.2	17.9	266586	2.3	19.6	131008	2.4	17.9	311120	2.4	19.5
316493	2.0	20.7	130931	2.1	20.7	293505	2.2	20.6	517	2.3	13.4	449548	2.4	19.9			

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
258717	4.9	20.0	496073	4.9	20.6	426116	5.1	20.0	439759	5.1	19.5	356900	5.2	20.4	474224	5.3	21.7
220238	4.9	20.6	199908	4.9	19.9	447698	5.1	21.3	448719	5.1	21.4	223450	5.2	19.2	226256	5.3	19.5
315833	4.9	19.7	160544	4.9	19.6	288144	5.1	19.3	486001	5.1	20.6	509512	5.2	20.9	14329	5.3	17.2
394960	4.9	21.9	444166	4.9	21.3	321481	5.1	20.4	439330	5.1	20.9	316969	5.2	19.8	299214	5.3	19.9
510956	4.9	20.9	438504	4.9	18.8	405859	5.1	20.3	441190	5.1	20.7	208290	5.2	19.8	127133	5.3	18.5
255300	4.9	20.3	363702	4.9	19.4	244441	5.1	18.6	515409	5.1	21.3	21501	5.2	18.0	490340	5.3	21.7
296782	4.9	20.3	2086	4.9	15.2	94109	5.1	18.4	313285	5.1	20.5	293429	5.2	21.1	344867	5.3	19.4
25973	4.9	17.5	123089	4.9	19.9	439003	5.1	21.5	352478	5.1	20.1	474187	5.2	20.2	448675	5.3	20.5
125946	4.9	18.7	509444	4.9	22.1	51650	5.1	17.7	319602	5.1	20.2	265111	5.2	20.2	218526	5.3	19.3
266948	4.9	19.0	242664	4.9	20.0	368097	5.1	20.5	154196	5.1	19.9	318475	5.2	20.1	1775	5.3	15.0
68112	4.9	19.6	480945	4.9	19.5	357406	5.1	22.9	205174	5.1	19.2	246820	5.2	19.6	181049	5.3	18.2
149820	4.9	18.4	339144	4.9	19.6	520259	5.1	21.2	478975	5.1	19.8	41810	5.2	19.2	156930	5.3	18.6
371872	4.9	19.8	481606	4.9	19.5	17821	5.1	17.8	347062	5.1	20.0	327074	5.2	20.6	476019	5.3	19.5
484898	4.9	19.4	245278	4.9	20.2	136192	5.1	18.8	370216	5.1	20.2	106809	5.2	19.4	117893	5.3	16.9
313270	4.9	20.1	87379	4.9	19.2	514985	5.1	22.2	483648	5.1	21.0	472898	5.2	20.2	324107	5.3	21.0
464046	4.9	20.9	220853	4.9	18.9	300465	5.1	20.0	195293	5.1	19.8	220407	5.2	19.0	47323	5.3	18.7
116103	4.9	19.1	253645	4.9	20.1	355157	5.1	21.0	288969	5.1	20.3	358940	5.2	20.5	195199	5.3	19.2
36968	4.9	17.8	269856	4.9	20.1	287412	5.1	18.9	447272	5.1	20.6	412764	5.2	20.1	508217	5.3	21.7
241749	4.9	18.8	507741	4.9	21.7	37896	5.1	17.9	130116	5.1	18.7	275932	5.2	18.8	338789	5.3	20.8
151688	4.9	20.1	171131	4.9	19.4	264866	5.1	19.7	146004	5.1	19.7	127963	5.2	18.9	37869	5.3	18.4
99590	4.9	19.4	168411	4.9	20.1	94217	5.1	19.8	505255	5.1	20.6	239171	5.2	20.3	476226	5.3	21.3
347053	4.9	21.1	207732	4.9	20.6	62539	5.1	18.7	447367	5.1	19.7	155084	5.2	20.0	318354	5.3	20.7
65045	4.9	19.3	350053	4.9	21.1	276286	5.1	19.6	225779	5.1	18.3	128107	5.2	18.4	415	5.3	12.4
85679	4.9	18.6	61542	4.9	17.4	157506	5.1	20.3	342709	5.2	21.3	287104	5.2	18.8	251731	5.3	19.9
322022	4.9	21.4	423458	4.9	20.1	342280	5.1	21.2	510855	5.2	20.3	390928	5.2	20.2	94756	5.3	18.7
518604	4.9	21.9	73420	4.9	18.3	20279	5.1	17.6	521310	5.2	20.6	280916	5.2	20.6	479138	5.3	20.4
472397	4.9	20.9	487885	4.9	20.0	340426	5.1	20.4	59288	5.2	18.5	202255	5.2	20.8	519141	5.3	21.0
271047	4.9	19.0	183839	4.9	21.0	508985	5.1	22.6	508129	5.2	21.4	293444	5.2	20.3	34492	5.3	18.7
258619	4.9	20.1	282062	4.9	19.2	361978	5.1	20.4	339242	5.2	19.6	479813	5.2	21.3	254938	5.3	19.6
179105	4.9	20.1	513354	4.9	20.6	303148	5.1	19.4	310615	5.2	21.0	371851	5.2	20.8	482875	5.3	19.5
269212	4.9	20.4	136598	4.9	20.1	191222	5.1	19.7	18766	5.2	17.7	126932	5.2	19.0	151464	5.3	19.3
400960	4.9	20.0	347430	4.9	20.1	287760	5.1	19.0	134900	5.2	19.8	97846	5.2	17.3	448990	5.3	21.3
288991	4.9	19.6	447689	4.9	20.3	243848	5.1	19.2	207322	5.2	19.6	507973	5.2	21.3	418184	5.3	20.3
266779	4.9	20.3	327079	4.9	20.8	244749	5.1	19.4	221458	5.2	19.8	481906	5.2	20.9	128224	5.3	18.9
171776	4.9	19.5	233376	4.9	19.8	424604	5.1	19.9	36194	5.2	17.7	73791	5.2	19.3	146055	5.3	20.5
25707	4.9	16.5	203206	4.9	19.5	112427	5.1	18.4	252196	5.2	20.5	225748	5.2	19.2	307549	5.3	20.5
18664	4.9	18.9	9754	5.0	16.8	472748	5.1	20.8	509242	5.2	20.8	348012	5.2	19.5	491857	5.3	20.5
252904	4.9	20.1	153231	5.0	19.8	429083	5.1	20.7	100512	5.2	19.4	266589	5.2	19.8	433113	5.3	20.5
107428	4.9	19.3	349674	5.0	21.8	349079	5.1	21.1	169873	5.2	18.8	389062	5.2	18.9	392199	5.3	20.8
472896	4.9	20.1	18406	5.0	18.6	359602	5.1	20.1	289000	5.2	19.8	234675	5.2	20.5	85062	5.3	18.7
132711	4.9	18.2	428351	5.0	19.3	433964	5.1	18.7	468683	5.2	19.6	93005	5.2	18.8	313012	5.3	20.0
352192	4.9	19.0	316626	5.0	20.6	75057	5.1	18.8	127957	5.2	18.8	3288	5.2	18.3	73330	5.3	18.6
260753	4.9	20.0	283050	5.0	19.1	503941	5.1	22.9	6386	5.2	13.7	392801	5.2	20.2	447327	5.3	19.2
477531	4.9	20.4	452514	5.0	20.0	479682	5.1	20.7	128378	5.2	18.4	360724	5.3	19.8	400699	5.3	20.8
216588	4.9	19.8	117550	5.0	18.2	39268	5.1	18.6	33185	5.2	18.0	246897	5.3	18.8	255185	5.3	20.1
77131	4.9	19.5	513477	5.0	21.2	356217	5.1	20.0	321413	5.2	19.9	239207	5.3	19.5	469436	5.3	21.2
277405	4.9	20.0	141583	5.0	19.5	434261	5.1	18.4	171644	5.2	20.6	257366	5.3	19.5	246594	5.3	19.1
171094	4.9	19.5	257021	5.0	20.7	164761	5.1	19.8	34537	5.2	17.6	28216	5.3	17.7	407870	5.3	20.5
7065	4.9	17.8	58396	5.0	18.8	391816	5.1	20.9	291248	5.2	21.2	216388	5.3	20.1	312411	5.3	19.8
192223	4.9	19.6	161057	5.0	19.5	2966	5.1	16.3	310564	5.2	19.8	259893	5.3	21.0	378194	5.3	20.8
70446	4.9	18.4	520959	5.0	20.9	85255	5.1	17.9	22227	5.2	19.0	73539	5.3	17.8	301729	5.3	20.0
253579	4.9	20.8	170012	5.0	19.8	235237	5.1	20.3	65670	5.2	17.7	487944	5.3	20.5	41405	5.3	17.4
447046	4.9	20.7	375853	5.0	21.3	256892	5.1	20.4	81324	5.2	18.7	115877	5.3	18.8	431673	5.3	22.0
218214	4.9	18.5	429174	5.0	20.0	325589	5.1	19.1	177950	5.2	19.6	202348	5.3	19.6	273578	5.3	19.5
512830	4.9	21.1	139321	5.0	19.4	323068	5.1	19.7	219466	5.2	19.6	487123	5.3	21.0	298864	5.3	20.2
292550	4.9	21.0	178058	5.0	19.9	363746	5.1	21.6	257202	5.2	20.2	308983	5.3	20.5	72452	5.3	19.2
444283	4.9	21.2	430010	5.0	21.3	20418	5.1	17.7	326900	5.2	19.6	119945	5.3	19.7	6483	5.3	16.4
511637	4.9	21.1	399717	5.0	20.2	212380	5.1	19.1	260173	5.2	18.9	107891	5.3	19.0	89783	5.3	18.7
387914	4.9	19.6	473383	5.0	20.3	269144	5.1	19.2	187749	5.2	20.5	424953	5.3	20.8	492386	5.3	20.7
227187	4.9	18.9	253463	5.0	19.4	231509	5.1	19.9	134365	5.2	17.7	247380	5.3	19.9	254215	5.3	19.4
512835	4.9	20.5	353182	5.0	20.7	212918	5.1	19.1	218583	5.2	19.0	188632	5.3	18.8	509026	5.3	18.8
488864	4.9	20.1	392905	5.0	20.7	339159	5.1	20.0	113271	5.2	19.6	180159	5.3	19.8	523723	5.3	22.0
83409	4.9	18.6	40049	5.0	17.9	49465	5.1	18.7	392469	5.2	21.2	63748	5.3	18.5	138989	5.3	18.7
92353	4.9	19.4	459949	5.0	20.0	476029	5.1	20.1	237046	5.2	20.2	508974	5.3	22.6	352878	5.3	20.5
432778	4.9	19.2	318226	5.0	19.5	480722	5.1	20.5	278292	5.2	19.7	258499	5.3	20.3	275449	5.4	20.5
515218	4.9	20.0	2405	5.0	17.1	371947	5.1	21.0	516909	5.2	20.7	66532	5.3	17.6	255446	5.4	21.3
362871	4.9	19.8	72745	5.0	19.0	174489	5.1	19.5	342134	5.2	20.3	1446	5.3	15.5	392877	5.4	20.0
264876	4.9	20.0	305270	5.0	20.7	277555	5.1	19.6	57986	5.2	18.7	216575	5.3	20.6	179998	5.4	18.2
90607	4.9	18.5	259484	5.0	19.2	304332	5.1	20.2	387385	5.2	20.9	174746	5.3	19.3	379694	5.4	21.2
391516	4.9	19.8	350061	5.0	20.4	228205	5.1	20.9	383227	5.2	21.7	116901	5.3	19.4	260182	5.4	20.5
53884	4.9	18.6	424630	5.0	20.4	39610	5.1	18.5	319222	5.2	19.5	262973	5.3	20.5			

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
66211	10.1	17.3	43045	10.2	19.3	342550	10.2	20.3	15639	10.3	18.5	68926	10.4	18.0	73631	10.5	19.0
453457	10.1	20.9	18954	10.2	17.5	235131	10.2	18.4	478535	10.3	21.6	390510	10.4	20.5	375797	10.5	20.1
176693	10.1	19.6	511805	10.2	19.7	55856	10.2	18.3	295950	10.3	20.6	215427	10.4	19.2	354333	10.5	20.7
374959	10.1	20.7	379221	10.2	21.1	141868	10.2	18.8	206061	10.3	19.8	58956	10.4	17.6	103903	10.5	19.0
224766	10.1	21.1	70455	10.2	18.0	185640	10.2	20.7	448052	10.3	20.2	251663	10.4	19.0	204517	10.5	17.6
379600	10.1	20.8	157326	10.2	18.4	223376	10.2	18.2	103864	10.3	19.2	451145	10.4	20.6	349775	10.5	20.1
17516	10.1	16.7	510259	10.2	20.9	432819	10.2	19.8	366147	10.3	21.3	23924	10.4	17.3	37319	10.5	17.5
18547	10.1	17.3	151707	10.2	19.4	76349	10.2	18.5	38619	10.3	18.1	221814	10.4	20.7	187126	10.5	18.1
70248	10.1	18.5	173553	10.2	20.6	294381	10.2	19.8	23355	10.3	18.5	510368	10.4	19.9	41931	10.5	16.6
117337	10.1	18.9	396279	10.2	21.5	189210	10.2	19.0	370209	10.3	19.7	342914	10.4	19.5	153301	10.5	19.5
262269	10.1	20.2	476438	10.2	20.9	394661	10.2	20.3	91194	10.3	18.5	476212	10.4	19.7	412011	10.5	20.8
268916	10.1	21.1	209172	10.2	19.5	6795	10.2	16.4	198374	10.3	18.1	25284	10.4	16.9	272428	10.5	20.8
102297	10.1	19.3	451302	10.2	21.4	111264	10.2	19.0	370895	10.3	19.9	258802	10.4	19.7	314597	10.5	20.5
480014	10.1	20.9	399154	10.2	20.0	93377	10.2	18.9	114169	10.3	19.1	362522	10.4	21.0	396709	10.5	18.9
778	10.1	14.2	319639	10.2	19.2	241093	10.2	20.3	440389	10.3	21.8	266661	10.4	20.8	511859	10.5	20.8
400506	10.1	20.4	214027	10.2	20.0	350950	10.2	19.4	226523	10.3	19.5	95316	10.4	18.7	407623	10.5	20.6
507245	10.1	16.4	106878	10.2	18.8	188431	10.2	19.3	97112	10.3	18.7	448081	10.4	20.5	3059	10.5	15.5
177213	10.1	18.8	360782	10.2	20.4	439728	10.2	20.4	396966	10.3	20.2	520275	10.4	20.6	13425	10.5	17.2
323280	10.1	19.9	510369	10.2	19.4	442350	10.2	20.7	227950	10.3	20.4	472012	10.4	21.3	364980	10.5	20.6
143399	10.1	19.5	392883	10.2	19.5	382021	10.2	20.4	19628	10.3	17.4	223421	10.4	19.7	111343	10.5	17.7
478770	10.1	20.8	439392	10.2	20.1	445854	10.2	19.8	314579	10.3	20.9	188818	10.4	19.3	164016	10.5	19.5
275692	10.1	19.3	98157	10.2	18.1	154954	10.2	19.2	434983	10.3	21.2	117515	10.4	20.2	12868	10.5	15.8
398501	10.1	19.5	389467	10.2	20.3	142375	10.2	19.3	513714	10.3	19.9	230003	10.4	20.5	157655	10.5	18.0
490388	10.1	20.1	385725	10.2	20.9	298137	10.2	19.5	131348	10.3	18.1	247985	10.4	20.5	412900	10.5	20.5
154976	10.1	19.2	323567	10.2	19.5	506529	10.2	20.2	428478	10.3	19.7	478996	10.4	21.0	332282	10.5	20.5
299753	10.1	19.2	177409	10.2	18.6	135581	10.2	17.0	304427	10.3	20.3	115508	10.4	18.8	225636	10.5	19.8
205384	10.1	20.3	223197	10.2	19.4	221833	10.2	18.8	494316	10.3	19.0	5035	10.4	16.4	53677	10.5	19.4
313305	10.1	20.1	519250	10.2	21.5	454989	10.3	19.8	474469	10.3	19.4	375238	10.4	21.1	91760	10.5	18.7
69657	10.1	17.8	514068	10.2	21.2	435559	10.3	20.3	155499	10.3	20.9	437510	10.4	20.4	186819	10.5	20.0
503907	10.1	21.0	504334	10.2	20.5	416725	10.3	21.0	212203	10.3	19.9	348101	10.4	20.1	311868	10.5	19.8
288736	10.1	19.2	482915	10.2	20.9	374018	10.3	21.0	474132	10.3	19.6	394942	10.4	20.3	139820	10.5	19.3
390758	10.1	20.9	45425	10.2	18.9	41232	10.3	17.7	364107	10.3	21.3	452760	10.4	21.1	72322	10.5	18.9
40850	10.1	18.8	224113	10.2	19.0	223984	10.3	18.1	115732	10.3	19.0	481643	10.4	20.8	71245	10.5	17.7
515689	10.1	20.1	48559	10.2	18.6	453123	10.3	19.8	326144	10.3	20.3	139250	10.4	19.1	449004	10.5	21.2
269446	10.1	19.2	255290	10.2	20.4	392766	10.3	20.9	358464	10.3	19.4	164210	10.4	19.5	188181	10.5	18.7
119474	10.1	19.6	476980	10.2	21.1	387382	10.3	20.6	192632	10.3	17.7	248981	10.4	20.4	178996	10.5	19.1
62863	10.1	18.9	356589	10.2	20.3	400970	10.3	20.8	79414	10.4	19.2	358861	10.4	20.0	342460	10.5	20.0
84679	10.1	18.8	275381	10.2	21.1	513468	10.3	20.9	44525	10.4	17.5	18522	10.4	17.4	288015	10.5	20.1
35356	10.1	17.9	240668	10.2	20.0	253616	10.3	19.3	200057	10.4	18.9	512794	10.4	20.0	243496	10.5	20.5
111394	10.1	18.6	217747	10.2	19.8	120892	10.3	20.0	428557	10.4	20.8	205178	10.4	20.1	96020	10.5	18.6
494391	10.1	20.5	4068	10.2	16.6	325978	10.3	20.7	115077	10.4	19.2	345049	10.4	20.9	158067	10.5	18.3
25959	10.1	17.5	290428	10.2	20.7	378231	10.3	20.1	445382	10.4	19.5	490151	10.4	19.9	118496	10.5	19.5
151486	10.1	19.9	293824	10.2	19.9	448654	10.3	21.1	523551	10.4	20.2	227162	10.4	18.9	291078	10.5	20.2
173368	10.1	19.4	399699	10.2	20.2	393098	10.3	21.5	287747	10.4	19.9	73267	10.4	19.8	518613	10.5	21.2
516384	10.1	19.3	325452	10.2	19.6	520547	10.3	20.9	149768	10.4	19.5	129986	10.4	19.6	252704	10.5	19.2
112008	10.1	17.7	269457	10.2	19.9	395756	10.3	21.1	455989	10.4	19.9	85042	10.4	19.2	242659	10.5	19.6
176346	10.1	19.6	77381	10.2	17.9	297217	10.3	19.0	439340	10.4	19.6	108810	10.4	17.9	98811	10.5	19.3
59315	10.1	18.3	395063	10.2	20.4	35672	10.3	19.1	211028	10.4	19.4	260362	10.4	19.1	343681	10.5	19.8
474136	10.1	20.8	416952	10.2	21.4	49773	10.3	18.2	13173	10.4	18.3	392069	10.4	20.7	130417	10.5	18.7
348134	10.1	20.6	474446	10.2	19.0	480573	10.3	20.2	352915	10.4	20.8	451133	10.4	19.0	523591	10.5	22.6
133278	10.1	19.0	360673	10.2	19.7	313906	10.3	18.5	345516	10.4	20.7	43274	10.4	18.3	393611	10.5	20.7
86854	10.1	19.4	67380	10.2	16.9	475401	10.3	20.7	298156	10.4	20.0	146210	10.4	19.2	195592	10.5	20.4
170018	10.1	19.4	406251	10.2	20.3	185398	10.3	19.1	194038	10.4	19.2	299673	10.4	19.3	97430	10.5	19.8
468730	10.1	19.3	490234	10.2	19.7	227238	10.3	19.5	100511	10.4	18.5	217720	10.4	19.6	303109	10.5	20.6
312610	10.1	20.1	119833	10.2	18.8	319990	10.3	20.6	514368	10.4	19.8	313315	10.4	21.3	328821	10.5	20.3
487826	10.1	21.0	180766	10.2	19.4	66554	10.3	18.0	485869	10.4	21.9	174303	10.4	19.6	99459	10.5	19.1
285851	10.1	20.6	211219	10.2	19.4	251949	10.3	20.4	86079	10.4	18.9	56035	10.4	18.0	43381	10.5	18.9
426068	10.1	21.1	315873	10.2	20.1	98891	10.3	19.1	317220	10.4	19.7	398306	10.4	19.9	221911	10.5	19.7
99492	10.1	19.8	387291	10.2	19.6	324409	10.3	18.8	299218	10.4	20.4	288013	10.4	18.8	428498	10.5	20.1
220369	10.1	19.5	487013	10.2	20.5	48309	10.3	18.2	434682	10.4	21.1	128223	10.5	20.3	186624	10.5	19.0
149559	10.1	19.4	312941	10.2	20.3	441349	10.3	20.0	447732	10.4	21.4	340362	10.5	18.9	414356	10.5	20.6
389314	10.1	20.9	522731	10.2	21.2	390792	10.3	20.9	224022	10.4	18.4	19680	10.5	16.2	236760	10.5	18.4
34284	10.1	18.1	14168	10.2	17.5	396923	10.3	20.3	521698	10.4	20.5	154407	10.5	19.4	208118	10.5	19.4
476814	10.1	20.4	404366	10.2	20.5	145976	10.3	16.8	93258	10.4	19.0	479358	10.5	21.2	97967	10.5	18.5
120670	10.1	19.5	388220	10.2	20.7	193666	10.3	20.3	284075	10.4	19.6	383281	10.5	21.6	52230	10.5	18.2
94568	10.1	18.8	52798	10.2	17.7	363440	10.3	19.6	113384	10.4	18.1	206180	10.5	19.4	149345	10.5	18.4
251964	10.1	20.9	284768	10.2	20.4	404937	10.3	20.3	516821	10.4	21.2	339223	10.5	20.1	444296	10.5	20.7
436072	10.1	20.8	364055	10.2	20.9	79148	10.3	19.6	395037	10.4	21.0	306873	10.5	19.5	254268	10.5	19.3
41345	10.1	16.8	432282	10.2	20.7	338010	10.3										

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
495191	11.0	19.7	111806	11.1	20.4	112576	11.2	19.5	38574	11.3	18.8	209046	11.4	19.2	300852	11.4	20.0
132369	11.0	19.5	446119	11.1	20.8	431968	11.2	20.2	513800	11.3	19.9	27519	11.4	18.2	225220	11.4	20.6
210442	11.0	20.1	109407	11.1	17.0	390756	11.2	20.3	172796	11.3	20.1	514489	11.4	20.8	390387	11.4	20.0
195010	11.0	19.7	469829	11.1	20.0	470517	11.2	21.2	495844	11.3	19.7	311158	11.4	20.4	247797	11.4	18.7
126626	11.0	19.0	512019	11.1	20.2	406995	11.2	21.2	288259	11.3	19.7	241486	11.4	20.6	321524	11.4	19.2
268275	11.0	19.3	400728	11.1	20.0	66919	11.2	17.5	485348	11.3	20.5	508149	11.4	21.8	481647	11.4	19.3
195416	11.1	19.6	97307	11.1	17.8	437290	11.2	20.9	72538	11.3	18.8	319131	11.4	21.5	68680	11.5	18.6
177387	11.1	20.1	63702	11.1	17.0	122591	11.2	18.0	166931	11.3	19.3	272411	11.4	19.8	432629	11.5	20.9
86485	11.1	18.7	42095	11.1	17.1	131905	11.2	18.0	51696	11.3	18.2	438102	11.4	20.2	451207	11.5	22.1
276465	11.1	19.5	16447	11.1	15.6	220821	11.2	19.5	195249	11.3	20.7	408302	11.4	20.9	218548	11.5	19.0
509036	11.1	19.2	12092	11.1	17.1	401698	11.2	21.4	52071	11.3	18.3	141603	11.4	19.5	217206	11.5	18.8
306752	11.1	19.0	326630	11.1	20.2	378028	11.2	19.8	485190	11.3	19.6	323226	11.4	18.9	11458	11.5	16.9
54742	11.1	18.5	451126	11.1	20.4	356438	11.2	20.8	339243	11.3	18.9	304278	11.4	20.1	515318	11.5	20.8
456618	11.1	24.3	480571	11.1	20.7	73048	11.2	18.5	513382	11.3	22.1	383034	11.4	19.2	159905	11.5	18.0
476648	11.1	18.9	116829	11.1	19.9	230339	11.2	19.8	195371	11.3	20.9	32860	11.4	19.0	122927	11.5	19.0
90065	11.1	19.0	117176	11.1	18.5	209540	11.2	19.0	293989	11.3	19.5	94299	11.4	19.4	365467	11.5	20.0
514461	11.1	21.1	36866	11.1	18.8	235199	11.2	18.5	451336	11.3	21.1	32494	11.4	17.2	337129	11.5	19.1
480887	11.1	21.5	24112	11.1	16.7	354436	11.2	20.1	246222	11.3	19.6	365294	11.4	19.1	121335	11.5	18.4
398770	11.1	20.6	346932	11.1	19.8	350933	11.2	19.2	47743	11.3	17.8	350428	11.4	20.3	129537	11.5	17.1
44928	11.1	17.6	275324	11.1	20.3	41665	11.2	18.6	522943	11.3	21.0	15128	11.4	18.7	394667	11.5	19.2
310025	11.1	19.8	181903	11.1	18.8	143014	11.2	18.5	413731	11.3	20.0	278805	11.4	19.0	507368	11.5	21.6
156651	11.1	20.2	136876	11.1	19.6	42472	11.2	18.9	66165	11.3	18.7	160538	11.4	19.4	424525	11.5	21.8
172181	11.1	18.8	97873	11.2	17.1	251773	11.2	20.2	348405	11.3	20.5	392001	11.4	21.0	419348	11.5	20.1
98447	11.1	17.6	273525	11.2	21.3	375255	11.2	20.8	207551	11.3	19.7	331151	11.4	20.3	323515	11.5	19.5
164994	11.1	20.3	506892	11.2	21.0	480194	11.2	20.1	239627	11.3	19.8	151409	11.4	19.4	355496	11.5	19.7
336016	11.1	20.2	210322	11.2	19.9	276726	11.2	19.8	330932	11.3	19.1	241333	11.4	19.1	95487	11.5	18.9
446357	11.1	20.7	395514	11.2	20.6	315110	11.2	19.6	327132	11.3	20.5	435683	11.4	20.3	515404	11.5	21.3
108873	11.1	17.2	4053	11.2	15.6	95592	11.2	19.5	322521	11.3	21.0	352252	11.4	19.0	167061	11.5	19.1
511284	11.1	21.3	390528	11.2	20.4	361116	11.2	18.0	484883	11.3	20.4	247469	11.4	20.0	324728	11.5	20.6
288865	11.1	19.6	283855	11.2	19.3	202139	11.2	19.9	133193	11.3	18.7	262023	11.4	19.3	496617	11.5	21.3
384871	11.1	19.9	446575	11.2	20.8	198341	11.2	18.8	126788	11.3	19.5	478924	11.4	20.0	160434	11.5	20.1
193397	11.1	20.2	190446	11.2	18.8	186275	11.2	19.1	131261	11.3	20.2	388632	11.4	20.1	63513	11.5	18.1
477157	11.1	20.9	342650	11.2	18.7	479430	11.2	20.2	321296	11.3	18.6	181549	11.4	19.8	521784	11.5	20.1
54678	11.1	19.4	480341	11.2	20.0	48285	11.3	18.3	66830	11.3	16.7	509088	11.4	21.3	26799	11.5	17.4
268893	11.1	20.8	291325	11.2	20.9	439258	11.3	19.8	423393	11.3	21.8	138369	11.4	19.8	339314	11.5	20.1
51702	11.1	18.3	129992	11.2	18.9	312001	11.3	20.5	247176	11.3	20.5	90789	11.4	18.4	11220	11.5	15.2
344434	11.1	19.8	156681	11.2	19.8	155321	11.3	19.6	245333	11.3	19.8	130554	11.4	18.4	473387	11.5	20.4
353666	11.1	19.4	452263	11.2	20.4	58265	11.3	17.2	205618	11.3	19.2	404387	11.4	21.2	73396	11.5	18.4
463420	11.1	20.5	339196	11.2	20.3	369507	11.3	20.4	274709	11.3	19.5	215415	11.4	20.3	180783	11.5	19.1
282544	11.1	19.2	296664	11.2	20.6	133346	11.3	19.4	367040	11.3	20.1	203214	11.4	19.7	153287	11.5	19.9
382043	11.1	20.6	266140	11.2	20.4	149109	11.3	19.6	139145	11.3	18.9	395527	11.4	20.1	121891	11.5	19.2
186973	11.1	19.7	515192	11.2	21.1	170681	11.3	19.8	284719	11.3	20.7	226448	11.4	19.0	289008	11.5	20.7
481393	11.1	20.8	521940	11.2	21.1	232877	11.3	20.8	65179	11.3	19.5	160292	11.4	20.7	144089	11.5	18.5
341837	11.1	21.4	70319	11.2	18.1	314407	11.3	20.7	344014	11.3	20.4	116499	11.4	19.7	221759	11.5	20.1
207058	11.1	19.7	9945	11.2	15.7	39004	11.3	18.1	362979	11.3	19.9	38615	11.4	18.7	363282	11.5	20.8
47322	11.1	17.6	71058	11.2	18.9	280295	11.3	18.3	160032	11.3	19.6	14919	11.4	17.4	28399	11.5	17.8
362965	11.1	20.4	217719	11.2	19.9	255358	11.3	19.4	245084	11.3	19.6	384403	11.4	21.4	112605	11.5	17.7
50954	11.1	18.8	37907	11.2	16.8	278914	11.3	18.8	69286	11.3	18.6	357199	11.4	19.5	480316	11.5	20.4
155865	11.1	20.0	10872	11.2	18.2	228448	11.3	18.5	30334	11.3	18.4	324803	11.4	20.4	315037	11.5	20.4
337276	11.1	19.3	349366	11.2	18.2	482450	11.3	21.2	127224	11.3	19.7	255448	11.4	20.6	18871	11.5	17.0
513937	11.1	21.0	239877	11.2	19.2	29094	11.3	17.7	412578	11.3	20.5	145719	11.4	20.3	297172	11.5	20.9
171420	11.1	19.9	29404	11.2	17.4	346601	11.3	21.0	408096	11.3	20.7	291499	11.4	19.7	291608	11.5	19.9
142110	11.1	19.5	255012	11.2	19.9	289281	11.3	20.2	83226	11.3	19.1	164734	11.4	20.1	300787	11.5	19.9
364104	11.1	21.0	230362	11.2	19.2	134352	11.3	19.2	442982	11.3	20.6	163709	11.4	19.1	287449	11.5	18.4
365610	11.1	20.8	421637	11.2	21.0	106645	11.3	18.8	73873	11.3	19.7	259448	11.4	19.2	491606	11.5	20.3
191742	11.1	19.2	410938	11.2	20.0	148398	11.3	19.4	169742	11.3	18.8	343414	11.4	20.6	219475	11.5	19.7
424528	11.1	21.0	319355	11.2	20.6	144318	11.3	20.3	169438	11.3	19.6	181281	11.4	18.4	15351	11.5	16.8
437755	11.1	19.9	468877	11.2	19.9	22500	11.3	17.2	253608	11.3	19.7	476205	11.4	20.2	512706	11.5	20.5
511352	11.1	20.6	451186	11.2	20.3	230764	11.3	19.7	393762	11.3	21.2	79276	11.4	20.3	388556	11.5	19.3
199272	11.1	18.7	136815	11.2	20.0	122756	11.3	18.9	453511	11.3	20.4	167352	11.4	19.0	269524	11.5	20.1
356212	11.1	20.8	82556	11.2	17.1	80888	11.3	19.1	477146	11.3	20.5	490835	11.4	21.0	469330	11.5	21.2
88240	11.1	20.0	430375	11.2	21.2	343680	11.3	20.9	115001	11.3	18.1	77141	11.4	20.1	358166	11.5	21.8
483070	11.1	20.0	364065	11.2	19.4	365324	11.3	20.0	218442	11.3	19.3	328146	11.4	20.8	479638	11.5	21.2
470727	11.1	19.9	443526	11.2	20.4	97128	11.3	19.9	154631	11.4	20.8	348075	11.4	19.5	271109	11.5	18.3
314586	11.1	20.0	12432	11.2	17.7	189616	11.3	20.0	153557	11.4	20.0	61621	11.4	18.4	67805	11.5	18.0
207309	11.1	19.6	352203	11.2	20.4	219507	11.3	18.4	314592	11.4	20.4	281250	11.4	19.0	155869	11.5	20.5
254988	11.1	19.8	436391	11.2	21.2	445499	11.3	20.0	97456	11.4	18.6	14270	11.4	17.5	355031	11.5	20.2
483334	11.1	19.9	360247	11.2	19.7	318983	11.3	20.9	258877	11.4	19.9	140935	11.4	18.5	482433	11.5	21.5
67079	11.1	18.5	302157	11.2	20.1	75528											

LIST OF ALL MINOR PLANETS IN ORDER OF OPPOSITION DATES IN 2020

№	09	V															
193502	30.6	18.3	188407	30.7	20.6	445789	30.8	20.2	72622	30.8	18.9	366115	30.9	19.8	435858	30.9	19.7
2289	30.6	17.4	291108	30.7	21.2	245578	30.8	20.4	363973	30.8	20.4	408066	30.9	20.2	299109	30.9	19.4
60431	30.6	18.1	70631	30.7	18.2	212816	30.8	19.8	315957	30.8	19.9	126822	30.9	19.0	133734	30.9	18.7
13215	30.6	17.1	157020	30.7	20.2	301362	30.8	19.8	259539	30.8	19.5	227561	30.9	19.8	514069	30.9	21.2
108361	30.6	18.3	11613	30.7	16.6	324264	30.8	20.5	38420	30.8	18.6	363532	30.9	19.2	66797	30.9	18.6
2846	30.6	16.3	2551	30.7	16.0	79936	30.8	19.1	172956	30.8	19.4	236538	30.9	19.7	137892	30.9	17.2
72430	30.6	19.9	115979	30.7	19.1	308945	30.8	20.4	273603	30.8	20.6	133545	30.9	18.4	23961	30.9	18.0
360067	30.6	20.5	473396	30.7	19.5	283705	30.8	18.1	321485	30.8	19.5	304239	30.9	19.2	476957	30.9	20.4
481629	30.7	20.5	404505	30.7	21.4	208027	30.8	18.7	26884	30.8	18.4	453505	30.9	20.7	263775	30.9	19.5
241958	30.7	19.6	294120	30.7	19.7	523639	30.8	21.5	41981	30.8	18.0	161099	30.9	18.7	326161	30.9	20.5
319449	30.7	20.3	227982	30.7	20.2	160140	30.8	18.9	485317	30.8	20.6	78386	30.9	19.2	145152	30.9	18.5
427669	30.7	20.9	40939	30.7	19.2	510689	30.8	20.7	252154	30.8	20.4	120120	30.9	19.7	41489	30.9	18.4
298092	30.7	18.8	10650	30.7	17.3	93253	30.8	18.2	482680	30.8	19.9	37852	30.9	18.0	35208	30.9	17.8
134185	30.7	19.3	517001	30.7	19.9	448998	30.8	20.9	430851	30.8	20.2	37943	30.9	19.0	289477	30.9	20.0
238578	30.7	20.7	316605	30.7	20.1	15847	30.8	18.0	365652	30.8	20.7	406246	30.9	21.6	69540	30.9	19.4
284530	30.7	17.8	229465	30.7	19.2	69758	30.8	18.1	493637	30.8	21.1	356205	30.9	20.4	164680	30.9	19.7
256489	30.7	19.7	359004	30.7	21.1	825	30.8	14.3	316596	30.8	20.4	507186	30.9	19.9	451637	30.9	21.1
136532	30.7	19.2	151451	30.7	20.3	211752	30.8	20.5	517878	30.8	20.6	4063	30.9	15.6	424600	30.9	20.1
162822	30.7	19.3	151284	30.7	19.7	515952	30.8	20.3	86148	30.8	18.2	511963	30.9	20.3	171692	30.9	18.2
156645	30.7	19.5	485830	30.7	21.2	230938	30.8	19.5	4989	30.8	16.6	7944	30.9	17.1	58309	30.9	18.1
220771	30.7	19.6	511986	30.7	21.8	25613	30.8	17.9	181778	30.8	20.3	515676	30.9	20.7	125919	30.9	18.6
68085	30.7	18.4	184791	30.7	19.9	130916	30.8	18.6	154239	30.8	18.9	826	30.9	15.3	18997	30.9	17.4
462264	30.7	19.3	358988	30.7	21.0	49165	30.8	17.3	43729	30.8	19.2	13795	30.9	18.2	390300	30.9	21.3
104763	30.7	19.1	426215	30.7	20.7	505712	30.8	20.5	356151	30.8	20.4	84682	30.9	19.3	301944	30.9	20.4
300827	30.7	19.8	33551	30.7	18.5	272637	30.8	19.3	291784	30.9	21.4	197261	30.9	19.3	52722	30.9	17.0
92256	30.7	18.0	481229	30.7	21.3	222836	30.8	19.3	235357	30.9	20.6	112591	30.9	17.7	318521	30.9	19.6
484800	30.7	20.6	318535	30.7	20.3	63261	30.8	19.1	355736	30.9	20.8	523569	30.9	20.9	312948	30.9	19.9
340111	30.7	20.4	186521	30.7	19.0	160391	30.8	20.2	486944	30.9	19.9	129088	30.9	19.5	232193	30.9	20.6
402047	30.7	19.9	41031	30.7	18.2	339327	30.8	19.2	331561	30.9	20.9	160864	30.9	18.8	246748	30.9	20.0
182066	30.7	20.1	403514	30.7	20.2	83975	30.8	19.6	113370	30.9	19.7	421642	30.9	20.6	68873	30.9	18.5
397374	30.7	20.5	286810	30.7	21.1	238225	30.8	19.9	390363	30.9	20.4	402827	30.9	21.1	39342	30.9	18.9
50396	30.7	18.6	107482	30.7	19.3	246550	30.8	18.4	356249	30.9	20.7	400740	30.9	19.0	273465	30.9	20.8
172311	30.7	18.4	340325	30.7	20.2	444116	30.8	20.2	432953	30.9	21.2	291152	30.9	20.5	245450	30.9	19.4
325724	30.7	19.8	18437	30.7	17.3	164579	30.8	19.1	453492	30.9	20.9	221480	30.9	20.3	100600	30.9	18.9
510050	30.7	21.5	982	30.7	14.1	450529	30.8	21.2	480721	30.9	20.4	70093	30.9	18.3	285856	30.9	19.8
417874	30.7	24.4	48834	30.7	17.5	235264	30.8	20.0	294958	30.9	20.9	178952	30.9	19.7	391619	30.9	20.7
348364	30.7	20.3	114821	30.7	19.0	97236	30.8	19.7	97399	30.9	18.7	97708	30.9	19.6	206394	30.9	18.8
65276	30.7	17.4	123268	30.7	18.8	52317	30.8	16.1	389418	30.9	20.2	5248	30.9	15.9	400461	30.9	21.0
481258	30.7	22.4	36028	30.7	17.8	255313	30.8	19.3	124495	30.9	17.6	28667	30.9	18.3	487242	30.9	20.8
439615	30.7	19.7	397995	30.7	21.1	338329	30.8	19.9	228861	30.9	20.7	521649	30.9	20.3	443301	30.9	20.9
244872	30.7	19.8	449766	30.7	21.1	298198	30.8	18.6	279488	30.9	19.8	515357	30.9	20.7	486100	30.9	19.8
115857	30.7	18.8	243161	30.7	19.7	29635	30.8	18.1	279496	30.9	20.5	73183	30.9	19.2	475348	30.9	19.7
63202	30.7	18.9	39275	30.7	19.3	313362	30.8	20.8	244425	30.9	19.7	11642	30.9	17.1	301172	30.9	20.3
477018	30.7	21.2	470055	30.7	21.1	218799	30.8	19.6	72776	30.9	18.3	60567	30.9	18.8	340399	30.9	19.8
452084	30.7	20.3	43262	30.7	18.0	22632	30.8	17.6	103000	30.9	18.9	204521	30.9	20.1	348299	30.9	20.4
339187	30.7	20.6	94204	30.7	18.7	314690	30.8	18.2	396281	30.9	20.2	57572	30.9	18.3	213997	30.9	20.8
39362	30.7	18.6	447243	30.7	21.0	406749	30.8	21.0	317840	30.9	20.4	241474	30.9	19.7	454019	30.9	21.1
69649	30.7	18.7	339326	30.8	20.7	252560	30.8	20.1	326123	30.9	20.4	223603	30.9	19.7	439842	30.9	20.4
157796	30.7	20.6	353869	30.8	19.7	109504	30.8	18.6	76870	30.9	18.8	432695	30.9	21.4	254880	30.9	19.9
472561	30.7	21.1	29543	30.8	17.6	70439	30.8	18.3	78994	30.9	19.1	42357	30.9	19.1	449957	30.9	20.2
446948	30.7	20.4	21102	30.8	17.6	426653	30.8	18.2	6405	30.9	16.1	390351	30.9	20.8	67202	30.9	16.9
256661	30.7	20.4	219894	30.8	19.8	291236	30.8	20.1	147846	30.9	19.4	273599	30.9	21.1	22745	30.9	17.4
98843	30.7	18.8	469703	30.8	21.2	508989	30.8	22.0	292030	30.9	19.8	236461	30.9	20.0			
169427	30.7	19.9	399969	30.8	19.5	49514	30.8	17.5	430682	30.9	17.9	63241	30.9	19.4			
388898	30.7	20.7	442416	30.8	20.2	470497	30.8	20.5	322948	30.9	20.3	20153	30.9	18.2			
129229	30.7	18.6	44358	30.8	16.4	164431	30.8	19.4	297182	30.9	20.4	13744	30.9	16.7			
219313	30.7	19.4	333713	30.8	19.9	405838	30.8	20.4	442357	30.9	20.5	241584	30.9	18.7			
37862	30.7	18.7	221109	30.8	19.8	273475	30.8	19.4	384904	30.9	19.7	409055	30.9	19.4			
92313	30.7	18.1	418276	30.8	22.1	14170	30.8	17.9	41916	30.9	16.5	293322	30.9	20.0			
166834	30.7	19.1	474247	30.8	17.8	384944	30.8	19.9	50148	30.9	18.6	407462	30.9	20.4			