

The table of close approaches and collisions of celestial bodies with the Earth and the Moon

Date and time of update **29.06.2022 12:40**

Object	Photometric diameter (m)	Approach to	Approach date	Minimal distance (in units of the Earth-Moon distance)	Relative velocity (km/s)	MOID on date of approach (in units of the Earth-Moon distance)	Collision probability	Energy (Mt)	Palermo scale	Torino scale
2019 UK5	12-64	Moon	2022 09 26.92774	60.16	8.27	14.21	0.00E+00	.17E+00	—	0
2019 FM2	154-701	Earth	2022 09 26.88317	76.39	15.97	9.48	0.00E+00	.11E+04	—	0
2018 DS	18-86	Earth	2022 09 26.85684	79.92	7.25	10.26	0.00E+00	.38E+00	—	0
2019 AE3	6-36	Earth	2022 09 26.73100	103.96	3.80	0.64	0.00E+00	.58E-02	—	0
2021 JF	10-47	Moon	2022 09 26.49114	44.83	6.77	36.65	0.00E+00	.56E-01	—	0
2019 TK1	32-140	Earth	2022 09 26.47687	105.27	14.48	20.38	0.00E+00	.76E+01	—	0
2020 SA1	14-64	Moon	2022 09 26.35452	81.33	22.16	8.29	0.00E+00	.16E+01	—	0
2020 RF6	45-203	Earth	2022 09 26.31304	112.47	21.71	17.95	0.00E+00	.48E+02	—	0
2020 MP2	88-413	Moon	2022 09 26.24720	114.11	7.04	19.62	0.00E+00	.41E+02	—	0
2021 GQ1	9-42	Moon	2022 09 26.21552	52.69	7.73	15.15	0.00E+00	.55E-01	—	0
2018 SL1	10-52	Earth	2022 09 25.89839	52.77	9.25	8.10	0.00E+00	.12E+00	—	0
2020 SA1	14-64	Earth	2022 09 25.77481	81.43	22.38	7.60	0.00E+00	.16E+01	—	0
2019 TK1	32-140	Moon	2022 09 23.90902	105.13	14.29	22.87	0.00E+00	.74E+01	—	0
2020 RD4	2-10	Moon	2022 09 22.91836	81.52	3.37	0.12	0.00E+00	.15E-03	—	0
2020 FV3	6-30	Earth	2022 09 22.27457	28.49	5.59	7.12	0.00E+00	.89E-02	—	0
2020 RM	8-38	Earth	2022 09 22.25554	74.59	1.78	2.25	0.00E+00	.19E-02	—	0
2018 VP1	1-6	Moon	2022 09 21.76761	41.46	8.62	2.12	0.00E+00	.20E-03	—	0
2017 SL16	13-59	Earth	2022 09 21.58448	20.60	5.71	7.07	0.00E+00	.82E-01	—	0

2020 FV3	6-30	Moon	2022 09 21.00022	27.52	6.14	5.91	0.00E+00	.11E-01	—	0
2018 VP1	1-6	Earth	2022 09 20.28854	42.14	7.90	0.10	0.00E+00	.17E-03	—	0
2017 SL16	13-59	Moon	2022 09 19.57920	19.90	6.26	7.27	0.00E+00	.98E-01	—	0
2018 AJ13	20-126	Earth	2022 09 16.48370	48.13	21.95	5.00	0.00E+00	.74E+01	—	0
2018 AJ13	20-126	Moon	2022 09 16.47049	49.00	22.94	3.86	0.00E+00	.81E+01	—	0
2020 UR1	18-87	Moon	2022 09 14.80305	20.45	5.81	11.70	0.00E+00	.24E+00	—	0
2019 CD2	185-785	Earth	2022 09 14.32799	85.06	15.33	12.25	0.00E+00	.15E+04	—	0
2020 BC16	18-88	Earth	2022 09 14.07423	116.46	14.14	8.75	0.00E+00	.15E+01	—	0
2021 CO1	19-101	Moon	2022 09 13.37211	105.09	9.67	1.06	0.00E+00	.93E+00	—	0
2010 VQ	9-43	Moon	2022 09 13.20586	41.70	6.70	2.85	0.97E-10	.38E-01	-10.70	0
2018 HN	20-86	Earth	2022 09 13.04882	106.87	4.31	8.28	0.00E+00	.16E+00	—	0
2019 GJ4	12-65	Moon	2022 09 12.99929	72.22	3.75	22.03	0.00E+00	.36E-01	—	0
2019 CD2	185-785	Moon	2022 09 12.92375	85.94	14.39	22.03	0.00E+00	.14E+04	—	0
2020 RG6	38-184	Moon	2022 09 12.86188	108.45	13.22	4.39	0.00E+00	.12E+02	—	0
2019 SE1	13-61	Moon	2022 09 12.82060	110.40	14.81	20.27	0.00E+00	.59E+00	—	0
2021 ED2	3-17	Moon	2022 09 12.68634	20.60	4.76	3.29	0.00E+00	.12E-02	—	0
2021 RZ5	14-77	Earth	2022 09 12.56998	106.42	9.94	5.53	0.00E+00	.44E+00	—	0
2020 UR1	18-87	Earth	2022 09 12.23033	20.16	6.14	11.81	0.00E+00	.27E+00	—	0
2019 SQ	12-61	Earth	2022 09 12.12385	31.02	12.28	4.48	0.00E+00	.34E+00	—	0
2020 RG6	38-184	Earth	2022 09 11.64819	109.33	12.07	4.31	0.00E+00	.10E+02	—	0
2019 SQ	12-61	Moon	2022 09 11.47550	31.26	12.41	4.04	0.00E+00	.35E+00	—	0
2010 VQ	9-43	Earth	2022 09 10.95120	42.32	7.58	3.22	0.14E-08	.49E-01	-9.44	0

2021 RU7	42-191	Moon	2022 09 10.50602	43.73	11.38	9.71	0.00E+00	.11E+02	—	0
2019 SE1	13-61	Earth	2022 09 10.38554	110.70	15.04	20.66	0.00E+00	.61E+00	—	0
2018 BP3	4-18	Earth	2022 09 09.93073	28.39	5.01	1.31	0.00E+00	.15E-02	—	0
2020 DM1	42-206	Moon	2022 09 09.31113	110.88	3.28	12.79	0.00E+00	.10E+01	—	0
2021 RU7	42-191	Earth	2022 09 08.88960	43.83	11.06	10.64	0.00E+00	.10E+02	—	0
2020 GE	5-22	Moon	2022 09 08.75079	37.19	2.12	5.83	0.00E+00	.57E-03	—	0
2021 ED2	3-17	Earth	2022 09 08.68421	20.99	4.36	4.32	0.00E+00	.99E-03	—	0
2019 GJ	29-131	Earth	2022 09 08.44427	30.88	6.11	7.52	0.00E+00	.10E+01	—	0
2020 VL	18-89	Earth	2022 09 08.25409	83.10	3.32	21.17	0.00E+00	.84E-01	—	0
2020 FT	27-132	Earth	2022 09 07.37375	94.18	16.49	7.14	0.00E+00	.68E+01	—	0
2020 RF3	5-20	Moon	2022 09 07.00845	84.54	25.90	0.50	0.00E+00	.69E-01	—	0
2020 RF3	5-20	Earth	2022 09 06.82056	83.65	24.89	0.24	0.00E+00	.64E-01	—	0
2021 CO1	19-101	Moon	2022 09 06.43554	105.55	8.04	1.77	0.00E+00	.64E+00	—	0
2019 GJ	29-131	Moon	2022 09 06.20852	31.28	6.66	9.95	0.00E+00	.12E+01	—	0
2020 FT	27-132	Moon	2022 09 05.96409	93.52	17.31	6.70	0.00E+00	.75E+01	—	0
2020 CK1	10-48	Earth	2022 09 05.91880	59.80	13.25	1.86	0.00E+00	.21E+00	—	0
2021 RZ5	14-77	Moon	2022 09 05.85106	106.05	9.18	3.94	0.00E+00	.37E+00	—	0
2020 VL	18-89	Moon	2022 09 05.59609	83.93	4.13	7.21	0.00E+00	.13E+00	—	0
2018 BP3	4-18	Moon	2022 09 05.33651	28.03	5.62	1.33	0.00E+00	.19E-02	—	0
2019 GJ4	12-65	Moon	2022 09 05.28517	71.81	3.21	4.79	0.00E+00	.27E-01	—	0
2020 CK1	10-48	Moon	2022 09 05.18393	58.99	12.33	1.92	0.00E+00	.18E+00	—	0
2018 VC7	7-30	Earth	2022 09 05.08790	109.32	13.10	0.91	0.00E+00	.58E-01	—	0

2018 DT1	132-607	Earth	2022 09 04.98715	70.27	21.07	23.28	0.00E+00	.12E+04	—	0
2018 DT1	132-607	Moon	2022 09 04.44509	69.78	21.66	16.06	0.00E+00	.13E+04	—	0
2019 LL1	8-52	Earth	2022 09 04.04396	101.48	16.50	3.50	0.00E+00	.27E+00	—	0
2019 LL1	8-52	Moon	2022 09 04.03229	100.52	15.45	4.78	0.00E+00	.23E+00	—	0
2018 VC7	7-30	Moon	2022 09 03.69034	108.44	12.19	1.48	0.00E+00	.50E-01	—	0
2020 DT4	16-75	Earth	2022 09 02.91723	22.71	4.63	20.20	0.00E+00	.11E+00	—	0
2021 JB	10-46	Moon	2022 09 02.68711	48.75	7.15	10.36	0.00E+00	.55E-01	—	0
2020 SN	23-107	Earth	2022 09 02.47541	61.97	10.06	8.53	0.00E+00	.14E+01	—	0
2021 JB	10-46	Earth	2022 09 02.45537	49.28	6.21	4.51	0.00E+00	.42E-01	—	0
2021 CO3	15-73	Moon	2022 09 02.29407	73.55	7.64	4.76	0.00E+00	.25E+00	—	0
2020 SN	23-107	Moon	2022 09 02.02100	62.91	11.02	5.32	0.00E+00	.17E+01	—	0
2021 CO3	15-73	Earth	2022 09 01.73694	74.51	8.32	9.69	0.00E+00	.29E+00	—	0
2021 CQ5	4-18	Earth	2022 09 01.50625	8.61	13.53	0.13	0.00E+00	.14E-01	—	0
2021 CQ5	4-18	Moon	2022 09 01.38854	8.14	12.60	3.86	0.00E+00	.12E-01	—	0
2019 TR6	20-116	Earth	2022 08 31.29912	44.21	8.40	16.71	0.00E+00	.96E+00	—	0
2018 FX4	15-74	Moon	2022 08 31.28050	23.28	21.64	2.42	0.00E+00	.20E+01	—	0
2020 RD4	2-10	Earth	2022 08 31.06430	76.68	6.26	0.02	0.00E+00	.52E-03	—	0
2018 FX4	15-74	Earth	2022 08 30.96227	23.92	20.90	1.46	0.00E+00	.19E+01	—	0
2020 DT4	16-75	Moon	2022 08 30.51679	22.44	4.95	20.50	0.00E+00	.12E+00	—	0
2019 GJ4	12-65	Earth	2022 08 30.40531	72.79	3.07	1.85	0.00E+00	.24E-01	—	0
2016 NF23	53-227	Earth	2022 08 30.31048	114.68	19.41	4.85	0.00E+00	.60E+02	—	0
2021 PF7	6-25	Moon	2022 08 30.27049	57.96	3.62	0.73	0.00E+00	.28E-02	—	0

2021 RQ2	3-11	Earth	2022 08 30.26018	113.41	11.85	0.59	0.00E+00	.26E-02	—	0
2021 PF7	6-25	Earth	2022 08 30.02077	56.96	4.61	2.21	0.00E+00	.46E-02	—	0
2017 BU	19-81	Earth	2022 08 29.69094	15.75	7.00	8.86	0.00E+00	.35E+00	—	0
2019 TR6	20-116	Moon	2022 08 29.47617	44.31	9.22	18.15	0.00E+00	.12E+01	—	0
2021 FX2	11-52	Earth	2022 08 29.08365	90.07	8.38	4.30	0.00E+00	.12E+00	—	0
2016 NF23	53-227	Moon	2022 08 28.94385	114.71	19.12	5.02	0.00E+00	.58E+02	—	0
2020 SW 3	8-48	Moon	2022 08 28.43077	22.70	8.48	11.14	0.00E+00	.65E-01	—	0
2020 SD6	13-75	Earth	2022 08 28.14347	55.28	8.26	14.79	0.00E+00	.25E+00	—	0
2021 RZ3	8-37	Moon	2022 08 27.97920	30.58	4.14	5.26	0.00E+00	.11E-01	—	0
2020 SW 3	8-48	Earth	2022 08 27.93863	23.10	9.21	10.80	0.00E+00	.77E-01	—	0
2017 BU	19-81	Moon	2022 08 27.91130	15.99	6.88	8.75	0.00E+00	.34E+00	—	0
2021 CO1	19-101	Earth	2022 08 27.75620	104.05	9.55	5.43	0.00E+00	.91E+00	—	0
2021 CO	18-79	Moon	2022 08 27.55786	34.02	13.90	4.04	0.00E+00	.13E+01	—	0
2019 NC1	115-523	Earth	2022 08 27.39742	25.00	4.96	22.71	0.00E+00	.43E+02	—	0
2021 CO	18-79	Earth	2022 08 27.10523	34.11	14.03	0.46	0.00E+00	.13E+01	—	0
2016 NK33	11-66	Moon	2022 08 26.43905	20.20	8.95	7.71	0.00E+00	.20E+00	—	0
2016 NK33	11-66	Earth	2022 08 26.29552	20.65	7.98	6.17	0.00E+00	.16E+00	—	0
2016 NN15	7-42	Moon	2022 08 26.07184	86.90	14.09	10.33	0.00E+00	.13E+00	—	0
2019 OZ2	12-58	Moon	2022 08 25.62381	93.02	13.52	20.75	0.00E+00	.42E+00	—	0
2019 NC1	115-523	Moon	2022 08 25.53534	25.39	4.57	6.14	0.00E+00	.37E+02	—	0
2021 FC	5-21	Moon	2022 08 25.16477	41.97	4.01	12.51	0.00E+00	.20E-02	—	0
2020 SD6	13-75	Moon	2022 08 24.85346	55.34	8.45	19.69	0.00E+00	.26E+00	—	0

2020 BF1	7-34	Moon	2022 08 24.79785	27.41	11.17	3.51	0.00E+00	.58E-01	—	0
2021 RQ2	3-11	Moon	2022 08 24.79740	113.19	11.11	0.12	0.00E+00	.23E-02	—	0
2021 CO1	19-101	Moon	2022 08 24.40787	103.22	10.88	12.25	0.00E+00	.12E+01	—	0
2016 NN15	7-42	Earth	2022 08 24.31271	86.37	13.51	3.40	0.00E+00	.12E+00	—	0
2020 BF1	7-34	Earth	2022 08 24.25913	26.93	10.78	2.13	0.00E+00	.54E-01	—	0
2019 OZ2	12-58	Earth	2022 08 23.53653	92.29	12.80	17.42	0.00E+00	.37E+00	—	0
2019 GJ4	12-65	Moon	2022 08 22.68099	73.26	2.92	16.52	0.00E+00	.22E-01	—	0
2016 BQ	9-40	Moon	2022 08 22.39842	47.65	8.80	4.53	0.00E+00	.58E-01	—	0
2021 PF7	6-25	Moon	2022 08 21.65791	57.54	4.18	1.58	0.00E+00	.38E-02	—	0
2021 JZ5	4-21	Moon	2022 08 21.58991	110.71	12.58	1.22	0.00E+00	.17E-01	—	0
2018 OL	33-153	Moon	2022 08 21.56049	63.30	12.72	1.67	0.00E+00	.68E+01	—	0
2019 BK2	9-37	Moon	2022 08 20.84217	115.37	11.27	4.36	0.00E+00	.84E-01	—	0
2016 BQ	9-40	Earth	2022 08 20.49743	46.73	8.07	2.93	0.00E+00	.49E-01	—	0
2021 RZ3	8-37	Moon	2022 08 20.44425	30.73	5.12	1.29	0.00E+00	.17E-01	—	0
2018 OL	33-153	Earth	2022 08 19.91731	62.82	12.55	3.82	0.00E+00	.67E+01	—	0
2020 FL6	19-82	Moon	2022 08 19.84649	85.30	19.09	3.48	0.00E+00	.26E+01	—	0
2020 FL6	19-82	Earth	2022 08 19.80736	84.28	18.13	5.02	0.00E+00	.23E+01	—	0
2021 JZ5	4-21	Earth	2022 08 19.62813	110.63	13.33	0.61	0.00E+00	.19E-01	—	0
2021 FC	5-21	Moon	2022 08 19.44510	42.16	2.64	1.34	0.00E+00	.85E-03	—	0
2020 GE1	8-36	Moon	2022 08 19.26801	73.22	4.23	5.41	0.00E+00	.11E-01	—	0
2021 RZ3	8-37	Earth	2022 08 19.06819	29.69	4.19	0.84	0.00E+00	.11E-01	—	0
2020 TO4	9-45	Moon	2022 08 18.93799	100.85	10.09	9.74	0.00E+00	.10E+00	—	0

2019 BK2	9-37	Earth	2022 08 18.43767	114.89	10.74	2.38	0.00E+00	.76E-01	—	0
2021 DC1	11-53	Moon	2022 08 18.21959	34.74	7.30	4.43	0.00E+00	.88E-01	—	0
2021 DC1	11-53	Earth	2022 08 17.94700	35.76	6.92	4.67	0.00E+00	.79E-01	—	0
2019 XW2	270- 1177	Moon	2022 08 17.64045	100.99	17.48	19.94	0.00E+00	.65E+04	—	0
2019 XW2	270- 1177	Earth	2022 08 17.18391	101.94	18.45	19.33	0.00E+00	.72E+04	—	0
2021 EW2	101-434	Moon	2022 08 15.71290	27.78	19.33	2.34	0.00E+00	.41E+03	—	0
2019 AV13	74-377	Moon	2022 08 15.63447	44.56	10.90	11.95	0.00E+00	.66E+02	—	0
2021 EW2	101-434	Earth	2022 08 15.62908	28.06	19.93	8.64	0.00E+00	.43E+03	—	0
2020 TO4	9-45	Earth	2022 08 15.45591	101.26	10.38	3.44	0.00E+00	.11E+00	—	0
2016 PD1	36-155	Moon	2022 08 15.25704	56.96	7.83	9.31	0.00E+00	.30E+01	—	0
2019 AV13	74-377	Earth	2022 08 14.74643	45.27	11.45	12.05	0.00E+00	.72E+02	—	0
2021 CN3	10-50	Earth	2022 08 14.52888	36.74	5.55	5.62	0.00E+00	.39E-01	—	0
2021 PV	21-128	Earth	2022 08 14.37779	92.06	9.94	17.50	0.00E+00	.16E+01	—	0
2020 GE1	8-36	Earth	2022 08 14.21372	72.55	3.31	4.30	0.00E+00	.67E-02	—	0
2021 OZ	50-215	Moon	2022 08 12.98582	90.44	10.51	9.34	0.00E+00	.14E+02	—	0
2016 PD1	36-155	Earth	2022 08 12.09256	57.44	8.52	8.87	0.00E+00	.36E+01	—	0
2021 CA6	4-17	Earth	2022 08 11.84368	42.79	4.23	0.59	0.00E+00	.12E-02	—	0
2021 PV	21-128	Moon	2022 08 11.62434	91.65	10.85	16.61	0.00E+00	.20E+01	—	0
2020 PL2	52-233	Moon	2022 08 10.44815	49.56	19.34	4.44	0.00E+00	.59E+02	—	0
2019 CA3	14-62	Earth	2022 08 10.28972	80.15	13.05	2.62	0.00E+00	.52E+00	—	0
2021 RZ3	8-37	Moon	2022 08 09.75183	30.24	3.74	2.78	0.00E+00	.88E-02	—	0
2020 PL2	52-233	Earth	2022 08 09.69166	49.40	19.06	5.32	0.00E+00	.57E+02	—	0

2021 CN3	10-50	Moon	2022 08 09.17944	36.63	4.94	6.36	0.00E+00	.31E-01	—	0
2020 RM	8-38	Earth	2022 08 08.12098	65.58	4.52	2.21	0.00E+00	.12E-01	—	0
2019 CA3	14-62	Moon	2022 08 07.99874	79.66	13.70	1.32	0.00E+00	.57E+00	—	0
2021 OZ	50-215	Earth	2022 08 07.88773	90.14	10.39	11.07	0.00E+00	.14E+02	—	0
2020 BD15	76-350	Earth	2022 08 07.30950	49.05	17.96	9.71	0.00E+00	.16E+03	—	0
2020 BD15	76-350	Moon	2022 08 07.16580	48.41	16.99	15.38	0.00E+00	.15E+03	—	0
2003 DY15	10-48	Moon	2022 08 06.76168	22.67	8.56	2.69	0.00E+00	.91E-01	—	0
2003 DY15	10-48	Earth	2022 08 06.16221	22.48	9.50	1.45	0.00E+00	.11E+00	—	0
2021 PZ9	8-41	Earth	2022 08 06.02016	35.30	4.48	7.65	0.00E+00	.13E-01	—	0
2020 PP1	9-41	Moon	2022 08 05.38252	13.25	3.23	13.01	0.00E+00	.90E-02	—	0
2021 CC7	2-10	Moon	2022 08 04.82008	33.19	4.39	7.72	0.00E+00	.28E-03	—	0
2019 GJ4	12-65	Moon	2022 08 04.55756	70.11	3.28	12.32	0.00E+00	.28E-01	—	0
2018 FO4	6-30	Moon	2022 08 04.49753	113.76	13.23	15.61	0.00E+00	.55E-01	—	0
2021 PK2	29-159	Earth	2022 08 04.44777	44.22	9.53	15.65	0.00E+00	.33E+01	—	0
2019 FL1	9-37	Earth	2022 08 04.43302	79.26	8.69	0.03	0.00E+00	.51E-01	—	0
2018 FO4	6-30	Earth	2022 08 04.11005	114.71	14.23	7.51	0.00E+00	.63E-01	—	0
2021 PK2	29-159	Moon	2022 08 03.85004	45.07	10.41	15.64	0.00E+00	.39E+01	—	0
2020 GE1	8-36	Moon	2022 08 03.63846	71.51	2.17	16.81	0.00E+00	.29E-02	—	0
2021 CA6	4-17	Moon	2022 08 03.58472	44.08	3.68	6.65	0.00E+00	.88E-03	—	0
2021 FC	5-21	Moon	2022 08 03.56403	39.33	3.74	6.27	0.00E+00	.17E-02	—	0
2020 ST2	30-139	Earth	2022 08 03.34464	105.30	11.99	6.92	0.00E+00	.46E+01	—	0
2019 AE3	6-36	Moon	2022 08 02.92369	95.82	8.02	4.84	0.00E+00	.26E-01	—	0

2021 GS12	16-71	Moon	2022 08 02.88301	28.34	5.29	13.46	0.00E+00	.12E+00	—	0
2021 CC7	2-10	Earth	2022 08 02.75151	33.97	5.13	0.40	0.00E+00	.38E-03	—	0
2022 MU2	61-298	Earth	2022 08 01.97113	32.66	10.26	15.95	0.00E+00	.31E+02	—	0
2019 QG	94-464	Earth	2022 08 01.89590	66.45	7.05	17.70	0.00E+00	.53E+02	—	0
2020 PP1	9-41	Earth	2022 08 01.70660	13.07	3.72	12.89	0.00E+00	.12E-01	—	0
2021 PZ9	8-41	Moon	2022 08 01.64968	36.44	3.57	6.03	0.00E+00	.83E-02	—	0
2022 MU2	61-298	Moon	2022 08 01.39180	32.68	11.14	14.22	0.00E+00	.36E+02	—	0
2019 FL1	9-37	Moon	2022 07 31.78146	79.25	9.57	9.84	0.00E+00	.62E-01	—	0
2019 AE3	6-36	Earth	2022 07 31.67202	96.73	8.51	0.50	0.00E+00	.29E-01	—	0
2020 ST2	30-139	Moon	2022 07 31.07720	105.29	12.92	7.66	0.00E+00	.54E+01	—	0
2020 UU	4-17	Moon	2022 07 31.06159	19.99	8.34	0.82	0.00E+00	.38E-02	—	0
2020 UU	4-17	Earth	2022 07 30.70594	20.93	7.37	0.80	0.00E+00	.30E-02	—	0
2020 GE1	8-36	Moon	2022 07 30.51317	71.55	2.10	0.07	0.00E+00	.27E-02	—	0
2019 MD1	10-49	Moon	2022 07 29.56799	27.53	9.08	12.16	0.00E+00	.10E+00	—	0
2021 GS12	16-71	Earth	2022 07 29.51021	28.62	4.76	10.04	0.00E+00	.10E+00	—	0
2019 MD1	10-49	Earth	2022 07 29.14870	28.07	8.18	10.17	0.00E+00	.82E-01	—	0
2018 PN22	6-32	Moon	2022 07 28.92976	64.07	4.46	6.46	0.00E+00	.67E-02	—	0
2018 PN22	6-32	Moon	2022 07 27.84919	64.07	4.27	6.64	0.00E+00	.61E-02	—	0
2019 GJ4	12-65	Moon	2022 07 27.31547	70.41	2.53	10.07	0.00E+00	.17E-01	—	0
2016 GE1	20-87	Moon	2022 07 27.22824	94.41	4.80	15.81	0.00E+00	.20E+00	—	0
2021 PZ9	8-41	Moon	2022 07 25.97014	36.17	4.44	3.01	0.00E+00	.13E-01	—	0
2021 CA6	4-17	Moon	2022 07 25.67579	43.45	4.63	8.71	0.00E+00	.14E-02	—	0

2019 QG	94-464	Moon	2022 07 25.63369	66.29	6.41	17.43	0.00E+00	.44E+02	—	0
2019 ON	19-83	Earth	2022 07 24.94096	104.96	11.70	5.69	0.00E+00	.10E+01	—	0
2021 FC	5-21	Moon	2022 07 23.92946	40.26	2.20	7.00	0.00E+00	.59E-03	—	0
2021 PF7	6-25	Moon	2022 07 23.46625	63.91	2.65	1.09	0.00E+00	.15E-02	—	0
2019 ON	19-83	Moon	2022 07 23.18964	104.04	10.80	2.63	0.00E+00	.86E+00	—	0
2020 BW 12	11-56	Moon	2022 07 23.10723	26.03	10.01	14.08	0.00E+00	.17E+00	—	0
2020 BW 12	11-56	Earth	2022 07 22.88249	27.06	10.13	7.26	0.00E+00	.18E+00	—	0
2020 GE	5-22	Moon	2022 07 22.15554	24.72	1.96	3.66	0.00E+00	.48E-03	—	0
2018 PY7	9-43	Moon	2022 07 22.13508	27.72	9.19	2.99	0.00E+00	.72E-01	—	0
2020 PP	120-579	Earth	2022 07 21.92003	41.08	8.18	12.73	0.00E+00	.14E+03	—	0
2018 PY7	9-43	Earth	2022 07 21.71467	28.63	8.75	0.86	0.00E+00	.65E-01	—	0
2018 WS	11-47	Earth	2022 07 21.31489	88.20	2.50	0.94	0.00E+00	.81E-02	—	0
2019 GJ4	12-65	Earth	2022 07 21.22991	69.60	3.58	2.24	0.00E+00	.33E-01	—	0
2020 PP	120-579	Moon	2022 07 19.81940	41.68	8.62	26.38	0.00E+00	.16E+03	—	0
2018 HN	20-86	Moon	2022 07 19.81820	85.45	7.06	0.60	0.00E+00	.43E+00	—	0
2018 KS	5-24	Earth	2022 07 19.66867	84.70	5.63	1.59	0.00E+00	.52E-02	—	0
2016 NJ33	16-83	Earth	2022 07 18.99460	22.48	4.41	12.89	0.00E+00	.11E+00	—	0
2021 LF6	4-19	Moon	2022 07 18.70760	65.09	4.85	7.49	0.00E+00	.18E-02	—	0
2020 MP2	88-413	Earth	2022 07 18.52629	89.74	8.17	12.65	0.00E+00	.55E+02	—	0
2021 OT	12-48	Moon	2022 07 18.20264	15.83	12.01	3.16	0.00E+00	.22E+00	—	0
2021 BD3	15-66	Moon	2022 07 18.15667	98.09	6.53	5.28	0.00E+00	.15E+00	—	0
2006 DP62	79-378	Earth	2022 07 18.10157	24.21	19.54	4.79	0.00E+00	.23E+03	—	0

2021 OT	12-48	Earth	2022 07 17.98290	16.79	11.22	3.35	0.00E+00	.19E+00	—	0
2019 YV	42-178	Earth	2022 07 17.77360	99.34	13.08	9.76	0.00E+00	.13E+02	—	0
2006 DP62	79-378	Moon	2022 07 17.74258	24.96	18.81	4.84	0.00E+00	.22E+03	—	0
2021 PF7	6-25	Earth	2022 07 17.10467	65.16	1.92	2.21	0.00E+00	.79E-03	—	0
2016 NO56	14-63	Earth	2022 07 17.03583	37.10	9.39	1.00	0.00E+00	.27E+00	—	0
2019 NW 5	36-158	Earth	2022 07 16.79265	55.15	13.26	2.91	0.00E+00	.87E+01	—	0
2021 FC	5-21	Earth	2022 07 15.94578	39.14	3.42	0.22	0.00E+00	.14E-02	—	0
2018 HN	20-86	Earth	2022 07 15.34007	85.03	7.35	8.20	0.00E+00	.47E+00	—	0
2019 LG6	89-388	Earth	2022 07 15.09280	107.03	16.28	13.77	0.00E+00	.20E+03	—	0
2019 GJ4	12-65	Moon	2022 07 14.90351	69.43	4.73	16.02	0.00E+00	.58E-01	—	0
2019 NW 5	36-158	Moon	2022 07 14.89797	55.42	13.25	13.97	0.00E+00	.87E+01	—	0
2016 NO56	14-63	Moon	2022 07 14.44186	37.72	8.96	0.60	0.00E+00	.24E+00	—	0
2019 YV	42-178	Moon	2022 07 14.28716	100.00	13.44	5.52	0.00E+00	.14E+02	—	0
2019 GT1	19-98	Earth	2022 07 13.82359	81.14	10.55	1.20	0.00E+00	.11E+01	—	0
2016 NJ33	16-83	Moon	2022 07 13.75210	22.65	3.93	11.94	0.00E+00	.90E-01	—	0
2018 KS	5-24	Moon	2022 07 13.17376	85.80	4.42	4.97	0.00E+00	.32E-02	—	0
2019 LG6	89-388	Moon	2022 07 12.33423	107.44	15.84	2.29	0.00E+00	.19E+03	—	0
2019 JG1	8-42	Earth	2022 07 11.78426	46.31	6.52	5.61	0.00E+00	.32E-01	—	0
2021 FC	5-21	Moon	2022 07 11.56210	38.52	4.67	8.65	0.00E+00	.27E-02	—	0
2021 PE9	83-450	Moon	2022 07 11.49147	113.96	12.20	12.84	0.00E+00	.13E+03	—	0
2019 GT1	19-98	Moon	2022 07 10.53220	80.71	9.63	2.73	0.00E+00	.90E+00	—	0
2018 KS	5-24	Moon	2022 07 09.97923	85.77	4.66	2.66	0.00E+00	.36E-02	—	0

2021 LF6	4-19	Moon	2022 07 08.97171	65.84	6.58	4.16	0.00E+00	.34E-02	—	0
2019 DJ1	9-41	Earth	2022 07 08.50964	46.01	3.72	0.00	0.00E+00	.11E-01	—	0
2020 GE	5-22	Earth	2022 07 08.13120	24.20	1.62	1.92	0.00E+00	.33E-03	—	0
2019 JG1	8-42	Moon	2022 07 08.05292	46.74	6.31	6.14	0.00E+00	.30E-01	—	0
2021 GQ1	9-42	Moon	2022 07 06.90313	93.00	4.90	11.88	0.00E+00	.22E-01	—	0
2021 PE9	83-450	Earth	2022 07 06.73252	113.25	11.63	12.60	0.00E+00	.12E+03	—	0
2021 EL4	15-62	Earth	2022 07 05.97203	19.74	9.45	1.59	0.00E+00	.30E+00	—	0
2021 EL4	15-62	Moon	2022 07 05.79201	20.44	10.34	3.82	0.00E+00	.36E+00	—	0
2021 GQ1	9-42	Earth	2022 07 05.62579	92.61	3.93	0.41	0.00E+00	.14E-01	—	0
2019 JL	9-62	Moon	2022 07 04.51269	42.63	8.99	18.18	0.00E+00	.13E+00	—	0
2010 VQ	3-12	Earth	2022 07 04.23096	45.00	6.17	0.21	0.00E+00	.81E-03	—	0
2019 JL	9-62	Earth	2022 07 04.20516	43.07	9.26	11.61	0.00E+00	.14E+00	—	0
2018 PN22	6-32	Moon	2022 07 04.15879	68.92	5.15	2.95	0.00E+00	.89E-02	—	0
2010 VQ	3-12	Moon	2022 07 03.99975	44.04	7.12	1.94	0.00E+00	.11E-02	—	0
2020 GE	5-22	Moon	2022 07 01.76146	23.61	2.45	3.79	0.00E+00	.76E-03	—	0
2018 MA	26-139	Moon	2022 06 29.84667	62.03	14.32	14.16	0.00E+00	.52E+01	—	0
2021 LD6	7-33	Earth	2022 06 28.47255	22.43	4.58	0.26	0.00E+00	.85E-02	—	0
2018 MA	26-139	Earth	2022 06 28.36286	61.81	14.36	12.94	0.00E+00	.52E+01	—	0
2013 BC18	378- 1749	Earth	2022 06 28.24992	39.84	25.33	6.25	0.00E+00	.41E+05	—	0
2013 BC18	378- 1749	Moon	2022 06 28.09133	40.32	25.39	29.62	0.00E+00	.41E+05	—	0
2021 LF6	4-19	Earth	2022 06 27.72377	64.55	5.54	1.42	0.00E+00	.24E-02	—	0
441987 (2010 NY65)	111-449	Moon	2022 06 26.66605	24.71	14.23	6.57	0.00E+00	.27E+03	—	0

441987 (2010 NY65)	111-449	Earth	2022 06 26.42912	24.49	14.01	6.87	0.00E+00	.26E+03	—	0
2019 WV1	5-20	Earth	2022 06 26.33552	65.69	13.72	0.58	0.00E+00	.20E-01	—	0
2019 WV1	5-20	Moon	2022 06 25.33374	65.08	13.07	3.27	0.00E+00	.18E-01	—	0
2021 LD6	7-33	Moon	2022 06 25.29411	21.95	3.88	0.14	0.00E+00	.61E-02	—	0
2019 NQ	9-44	Moon	2022 06 25.20678	5.35	8.23	4.94	0.00E+00	.59E-01	—	0
2019 NQ	9-44	Earth	2022 06 25.17824	4.58	7.43	4.54	0.00E+00	.48E-01	—	0
2016 OF	47-211	Earth	2022 06 23.86772	48.41	8.29	1.81	0.00E+00	.79E+01	—	0
2020 CQ2	4-16	Earth	2022 06 23.36043	57.86	11.43	0.01	0.00E+00	.73E-02	—	0
2018 PN22	6-32	Moon	2022 06 23.31366	68.16	3.48	0.80	0.00E+00	.41E-02	—	0
2020 CQ2	4-16	Moon	2022 06 23.31317	56.96	10.50	2.48	0.00E+00	.61E-02	—	0
2016 OF	47-211	Moon	2022 06 23.19228	47.50	8.25	5.52	0.00E+00	.79E+01	—	0
2021 PF7	6-25	Earth	2022 06 21.41796	62.86	4.36	2.22	0.00E+00	.41E-02	—	0
2019 TK5	6-33	Earth	2022 06 21.34273	71.85	4.68	0.25	0.00E+00	.78E-02	—	0
2020 VL	18-89	Moon	2022 06 20.26196	47.12	3.87	19.85	0.00E+00	.11E+00	—	0
2021 LA6	16-73	Earth	2022 06 19.88446	21.46	8.46	20.74	0.00E+00	.33E+00	—	0
2021 LA6	16-73	Moon	2022 06 19.00677	21.11	8.01	20.49	0.00E+00	.30E+00	—	0
2021 BP1	2-12	Moon	2022 06 18.81222	100.72	4.12	18.09	0.00E+00	.29E-03	—	0
2021 LL15	11-57	Earth	2022 06 18.74770	81.91	6.98	0.33	0.00E+00	.93E-01	—	0
2018 DY3	12-61	Earth	2022 06 18.31370	49.06	6.39	3.29	0.00E+00	.95E-01	—	0
2021 BD3	15-66	Moon	2022 06 17.77237	92.47	6.05	5.59	0.00E+00	.13E+00	—	0
2019 KJ4	7-38	Moon	2022 06 17.38629	39.81	8.25	1.21	0.00E+00	.38E-01	—	0
2019 MH1	24-118	Earth	2022 06 17.27295	25.65	18.22	19.58	0.00E+00	.60E+01	—	0

2018 KS	5-24	Moon	2022 06 17.24986	91.74	4.45	2.70	0.00E+00	.32E-02	—	0
2019 MH1	24-118	Moon	2022 06 17.18361	26.07	19.16	19.35	0.00E+00	.66E+01	—	0
2020 VL	18-89	Moon	2022 06 16.45807	47.17	3.50	21.34	0.00E+00	.93E-01	—	0
2021 BD3	15-66	Moon	2022 06 15.44286	92.48	5.98	10.74	0.00E+00	.13E+00	—	0
2019 KJ4	7-38	Earth	2022 06 15.02098	39.78	8.36	0.70	0.00E+00	.39E-01	—	0
2019 BF1	63-322	Earth	2022 06 14.70063	105.72	12.49	9.40	0.00E+00	.53E+02	—	0
2020 VL	18-89	Earth	2022 06 14.62681	46.28	4.09	21.49	0.00E+00	.13E+00	—	0
2018 PN22	6-32	Earth	2022 06 14.55875	69.37	4.21	5.57	0.00E+00	.60E-02	—	0
2021 BP1	2-12	Earth	2022 06 14.55205	100.03	3.32	1.34	0.00E+00	.19E-03	—	0
2018 XR	599- 2945	Moon	2022 06 13.44212	23.77	19.50	18.99	0.00E+00	.11E+06	—	0
2018 XR	599- 2945	Earth	2022 06 13.13521	23.13	19.85	18.43	0.00E+00	.11E+06	—	0
2019 LQ1	12-53	Earth	2022 06 12.85757	17.31	9.10	3.87	0.00E+00	.16E+00	—	0
2019 LQ1	12-53	Moon	2022 06 12.55653	16.52	8.14	2.43	0.00E+00	.13E+00	—	0
2018 XY3	233- 1030	Earth	2022 06 12.37423	43.08	21.27	18.13	0.00E+00	.63E+04	—	0
2019 BF1	63-322	Moon	2022 06 12.30943	105.60	11.90	34.21	0.00E+00	.48E+02	—	0
2018 XY3	233- 1030	Moon	2022 06 12.17576	42.49	20.79	17.84	0.00E+00	.60E+04	—	0
2019 VQ1	58-265	Earth	2022 06 10.78534	110.95	31.05	9.32	0.00E+00	.22E+03	—	0
2021 LK9	16-87	Earth	2022 06 10.70787	116.73	19.60	1.63	0.00E+00	.24E+01	—	0
2019 VQ1	58-265	Moon	2022 06 10.43663	110.38	30.50	9.80	0.00E+00	.21E+03	—	0
2018 MZ4	3-17	Moon	2022 06 09.59214	30.22	7.09	1.55	0.00E+00	.18E-02	—	0
2018 LU2	10-47	Earth	2022 06 09.47997	16.25	10.84	1.54	0.00E+00	.14E+00	—	0
2018 LU2	10-47	Moon	2022 06 09.33468	15.34	9.98	1.37	0.00E+00	.12E+00	—	0

2012 EQ3	70-300	Earth	2022 06 09.29922	87.72	23.91	10.88	0.00E+00	.20E+03	—	0
2012 EQ3	70-300	Moon	2022 06 09.16960	86.95	24.92	11.70	0.00E+00	.22E+03	—	0
2018 MZ4	3-17	Earth	2022 06 08.84378	29.22	7.80	0.43	0.00E+00	.22E-02	—	0
2019 DY1	18-84	Earth	2022 06 08.66127	95.30	18.18	14.30	0.00E+00	.23E+01	—	0
2019 DY1	18-84	Moon	2022 06 08.49051	96.02	19.17	14.24	0.00E+00	.26E+01	—	0
2018 KS	5-24	Earth	2022 06 08.12403	91.61	4.46	1.46	0.00E+00	.33E-02	—	0
2021 EZ2	27-133	Earth	2022 06 07.96471	41.88	10.55	3.96	0.00E+00	.28E+01	—	0
2021 ER4	7-36	Earth	2022 06 07.83503	79.35	19.02	0.79	0.00E+00	.18E+00	—	0
2021 EZ2	27-133	Moon	2022 06 07.65639	42.56	11.52	6.20	0.00E+00	.33E+01	—	0
2021 ER4	7-36	Moon	2022 06 07.62556	80.31	19.95	0.91	0.00E+00	.20E+00	—	0
2020 SS7	70-353	Earth	2022 06 06.79109	73.53	14.62	11.71	0.00E+00	.98E+02	—	0
2020 SS7	70-353	Moon	2022 06 06.74161	72.54	13.64	11.93	0.00E+00	.85E+02	—	0
2021 GT2	32-160	Moon	2022 06 06.40651	10.02	8.36	5.68	0.00E+00	.30E+01	—	0
2021 GT2	32-160	Earth	2022 06 06.29048	9.30	7.46	5.74	0.00E+00	.24E+01	—	0
2018 KS	5-24	Moon	2022 06 05.90619	90.57	4.43	3.37	0.00E+00	.32E-02	—	0
2016 EO84	42-182	Moon	2022 06 05.36613	77.56	9.26	1.03	0.00E+00	.67E+01	—	0
2021 KH2	18-82	Moon	2022 06 05.12686	99.44	8.54	5.12	0.00E+00	.50E+00	—	0
2021 LF6	4-19	Moon	2022 06 04.50499	66.74	6.18	0.99	0.00E+00	.30E-02	—	0
2021 EP2	32-153	Moon	2022 06 02.95114	40.28	3.78	0.05	0.00E+00	.57E+00	—	0
2016 KC	48-223	Moon	2022 06 02.79012	108.11	14.25	17.21	0.00E+00	.27E+02	—	0
2016 EO84	42-182	Earth	2022 06 01.99678	77.79	9.01	7.21	0.00E+00	.63E+01	—	0
2019 VT2	31-132	Earth	2022 06 01.59713	28.65	8.44	19.84	0.00E+00	.22E+01	—	0

2019 VT2	31-132	Moon	2022 06 01.59122	27.94	8.18	24.85	0.00E+00	.20E+01	—	0
2016 KC	48-223	Earth	2022 05 31.74145	108.59	14.74	13.83	0.00E+00	.28E+02	—	0
2021 KH2	18-82	Earth	2022 05 31.05334	100.23	9.17	2.08	0.00E+00	.58E+00	—	0
2020 DA4	15-65	Earth	2022 05 30.73098	6.82	8.64	1.97	0.00E+00	.28E+00	—	0
2021 KC	36-190	Earth	2022 05 30.32903	107.86	10.37	5.39	0.00E+00	.72E+01	—	0
2021 KO2	5-25	Earth	2022 05 30.19181	2.74	14.78	0.88	0.00E+00	.34E-01	—	0
2020 BZ	8-38	Earth	2022 05 30.18303	98.26	14.51	10.25	0.00E+00	.13E+00	—	0
2020 DA4	15-65	Moon	2022 05 30.16840	6.41	9.26	0.49	0.00E+00	.32E+00	—	0
2018 LR3	12-55	Earth	2022 05 30.06719	90.85	11.17	1.75	0.00E+00	.24E+00	—	0
2021 KO2	5-25	Moon	2022 05 29.87049	3.07	14.72	1.42	0.00E+00	.34E-01	—	0
2018 XE2	23-102	Earth	2022 05 29.54323	64.54	17.06	6.53	0.00E+00	.38E+01	—	0
2020 BZ	8-38	Moon	2022 05 29.14637	97.72	14.01	37.16	0.00E+00	.12E+00	—	0
2019 LM1	15-75	Earth	2022 05 29.02644	83.74	15.12	9.59	0.00E+00	.10E+01	—	0
2018 LP3	16-72	Earth	2022 05 28.90066	94.99	16.28	8.48	0.00E+00	.12E+01	—	0
2018 XE2	23-102	Moon	2022 05 28.54012	63.98	17.70	5.86	0.00E+00	.41E+01	—	0
2021 EP2	32-153	Moon	2022 05 28.21503	40.46	2.86	0.20	0.00E+00	.33E+00	—	0
2019 LM1	15-75	Moon	2022 05 27.66655	83.51	14.83	11.04	0.00E+00	.99E+00	—	0
2018 LP3	16-72	Moon	2022 05 27.64069	94.49	15.65	9.85	0.00E+00	.11E+01	—	0
2018 DN1	34-157	Moon	2022 05 27.04550	73.86	13.28	13.41	0.00E+00	.80E+01	—	0
2021 LF6	4-19	Moon	2022 05 27.02971	66.39	4.73	4.21	0.00E+00	.18E-02	—	0
2018 LR3	12-55	Moon	2022 05 26.88028	90.44	10.61	1.93	0.00E+00	.21E+00	—	0
2018 DN1	34-157	Earth	2022 05 25.80757	73.04	12.44	10.26	0.00E+00	.71E+01	—	0

2018 XU	34-171	Earth	2022 05 25.66916	30.67	24.21	5.31	0.00E+00	.31E+02	—	0
2018 XU	34-171	Moon	2022 05 25.65796	29.88	23.34	3.16	0.00E+00	.28E+02	—	0
2021 KC	36-190	Moon	2022 05 25.56827	107.27	9.82	5.40	0.00E+00	.64E+01	—	0
2017 UQ51	260- 1260	Earth	2022 05 24.81918	51.15	13.20	14.44	0.00E+00	.38E+04	—	0
2017 UQ51	260- 1260	Moon	2022 05 24.26264	50.36	12.36	15.57	0.00E+00	.34E+04	—	0
2021 BD3	15-66	Earth	2022 05 24.07942	89.47	5.63	6.19	0.00E+00	.11E+00	—	0
2000 HO4	78-349	Moon	2022 05 23.87897	65.03	16.66	13.88	0.00E+00	.15E+03	—	0
2000 HO4	78-349	Earth	2022 05 23.67755	65.94	17.62	14.90	0.00E+00	.16E+03	—	0
2018 KD2	14-68	Moon	2022 05 23.54773	61.91	18.78	1.46	0.00E+00	.13E+01	—	0
478784 (2012 UV136)	15-64	Moon	2022 05 23.37257	42.51	7.94	6.09	0.00E+00	.23E+00	—	0
2018 KD2	14-68	Earth	2022 05 23.25922	61.04	17.88	1.49	0.00E+00	.12E+01	—	0
2020 VH4	53-255	Moon	2022 05 22.74193	94.45	9.00	14.72	0.00E+00	.15E+02	—	0
478784 (2012 UV136)	15-64	Earth	2022 05 22.70855	41.54	6.94	4.44	0.00E+00	.17E+00	—	0
2021 LR2	21-101	Earth	2022 05 22.50952	53.55	11.96	13.54	0.00E+00	.16E+01	—	0
2021 LR2	21-101	Moon	2022 05 22.26308	54.44	12.90	13.02	0.00E+00	.19E+01	—	0
2018 VH5	7-34	Earth	2022 05 21.85015	65.18	10.19	5.61	0.00E+00	.43E-01	—	0
2021 CJ2	118-599	Moon	2022 05 20.99743	92.21	31.00	11.26	0.00E+00	.21E+04	—	0
2018 VH5	7-34	Moon	2022 05 20.95817	66.12	11.15	6.66	0.00E+00	.52E-01	—	0
2021 CJ2	118-599	Earth	2022 05 20.76272	92.85	31.71	9.12	0.00E+00	.22E+04	—	0
2020 VB3	2-11	Moon	2022 05 20.08208	42.54	3.95	0.57	0.00E+00	.20E-03	—	0
2021 BF2	12-56	Moon	2022 05 19.64202	47.09	8.19	25.97	0.00E+00	.14E+00	—	0
2021 KA1	13-57	Moon	2022 05 19.60990	111.09	17.77	10.36	0.00E+00	.76E+00	—	0

2018 VZ6	14-78	Moon	2022 05 19.57439	64.90	7.71	7.83	0.00E+00	.26E+00	—	0
2019 BQ2	8-37	Earth	2022 05 19.43587	102.50	17.82	2.54	0.00E+00	.18E+00	—	0
2018 PN22	6-32	Moon	2022 05 18.74888	66.44	3.22	5.22	0.00E+00	.35E-02	—	0
2021 KH2	18-82	Moon	2022 05 18.73903	101.86	9.66	1.78	0.00E+00	.64E+00	—	0
2021 EP2	32-153	Earth	2022 05 18.56170	38.81	4.20	1.01	0.00E+00	.71E+00	—	0
2021 BF2	12-56	Earth	2022 05 18.55809	46.83	8.67	3.54	0.00E+00	.16E+00	—	0
2019 JE	13-60	Earth	2022 05 18.47943	9.37	7.46	2.93	0.00E+00	.14E+00	—	0
2019 BQ2	8-37	Moon	2022 05 18.42723	102.97	18.27	21.00	0.00E+00	.19E+00	—	0
2019 JE	13-60	Moon	2022 05 18.27327	9.25	6.92	0.25	0.00E+00	.12E+00	—	0
2021 KA1	13-57	Earth	2022 05 18.09734	111.42	18.22	10.13	0.00E+00	.80E+00	—	0
2019 JU1	22-98	Earth	2022 05 17.99897	32.54	10.10	7.72	0.00E+00	.12E+01	—	0
2020 VH4	53-255	Earth	2022 05 17.46316	94.99	8.93	13.01	0.00E+00	.15E+02	—	0
2018 PN22	6-32	Moon	2022 05 17.11187	66.44	3.56	12.85	0.00E+00	.43E-02	—	0
2019 JU1	22-98	Moon	2022 05 16.80522	32.41	9.75	6.02	0.00E+00	.11E+01	—	0
2021 ED2	3-17	Moon	2022 05 16.66111	73.45	3.65	13.42	0.00E+00	.69E-03	—	0
2020 BP13	144-670	Earth	2022 05 16.65928	47.35	8.63	4.47	0.00E+00	.26E+03	—	0
388945 (2008 TZ3)	194-801	Earth	2022 05 15.88776	14.94	8.22	6.59	0.00E+00	.49E+03	—	0
2021 KH2	18-82	Moon	2022 05 15.21953	101.82	9.05	0.75	0.00E+00	.56E+00	—	0
2017 UC45	86-383	Earth	2022 05 14.88171	109.85	22.42	20.95	0.00E+00	.36E+03	—	0
388945 (2008 TZ3)	194-801	Moon	2022 05 14.68004	14.85	7.85	6.26	0.00E+00	.44E+03	—	0
2020 BP13	144-670	Moon	2022 05 14.04972	47.04	7.93	3.59	0.00E+00	.22E+03	—	0
2017 UC45	86-383	Moon	2022 05 13.97707	109.61	22.09	33.40	0.00E+00	.35E+03	—	0

2020 UP4	49-241	Earth	2022 05 13.91566	27.49	11.53	15.17	0.00E+00	.20E+02	—	0
2018 VZ6	14-78	Earth	2022 05 13.65023	64.43	7.84	9.07	0.00E+00	.27E+00	—	0
2020 UP4	49-241	Moon	2022 05 13.15967	27.45	11.34	15.46	0.00E+00	.20E+02	—	0
2019 TC2	6-28	Earth	2022 05 12.54466	64.02	7.11	1.10	0.00E+00	.11E-01	—	0
2018 JM2	16-79	Moon	2022 05 12.41279	28.51	9.25	6.83	0.00E+00	.45E+00	—	0
2020 TF	109-471	Earth	2022 05 11.38039	57.52	16.33	1.44	0.00E+00	.37E+03	—	0
2018 JM2	16-79	Earth	2022 05 10.87225	28.08	8.78	6.67	0.00E+00	.40E+00	—	0
2020 TF	109-471	Moon	2022 05 10.86684	56.74	15.75	6.92	0.00E+00	.34E+03	—	0
2021 GM1	2-8	Moon	2022 05 10.39154	70.39	6.80	4.45	0.00E+00	.22E-03	—	0
2019 JX1	2-13	Earth	2022 05 10.15267	82.17	19.90	0.29	0.00E+00	.84E-02	—	0
2019 JX1	2-13	Moon	2022 05 09.79273	81.28	19.14	1.13	0.00E+00	.78E-02	—	0
2019 TC2	6-28	Moon	2022 05 09.76869	63.19	7.88	6.12	0.00E+00	.14E-01	—	0
2021 ED2	3-17	Moon	2022 05 09.52612	73.18	3.44	10.44	0.00E+00	.61E-03	—	0
2020 DT4	16-75	Moon	2022 05 09.37654	109.00	4.37	31.90	0.00E+00	.97E-01	—	0
2020 VB3	2-11	Moon	2022 05 09.01659	44.00	2.36	0.43	0.00E+00	.70E-04	—	0
2019 LB1	8-35	Earth	2022 05 08.76125	104.78	5.43	3.98	0.00E+00	.16E-01	—	0
2019 VN4	17-85	Moon	2022 05 07.26906	21.86	17.18	15.72	0.00E+00	.19E+01	—	0
2019 VN4	17-85	Earth	2022 05 07.13037	21.01	16.47	15.63	0.00E+00	.17E+01	—	0
2019 UB6	4-23	Moon	2022 05 07.04978	23.02	8.62	5.41	0.00E+00	.75E-02	—	0
2019 UB6	4-23	Earth	2022 05 06.96822	23.98	9.51	0.66	0.00E+00	.91E-02	—	0
2019 UX1	31-131	Earth	2022 05 06.89094	98.14	9.94	2.13	0.00E+00	.30E+01	—	0
2018 TF3	229- 1027	Moon	2022 05 06.13056	63.37	24.97	2.44	0.00E+00	.84E+04	—	0

2018 TF3	229-1027	Earth	2022 05 06.02396	64.31	25.84	7.71	0.00E+00	.90E+04	—	0
2020 DT4	16-75	Earth	2022 05 06.01810	109.98	5.31	20.44	0.00E+00	.14E+00	—	0
2019 JH7	2-11	Earth	2022 05 05.88832	101.44	16.85	0.27	0.00E+00	.43E-02	—	0
2020 FF1	5-25	Earth	2022 05 05.29598	69.51	10.33	1.46	0.00E+00	.19E-01	—	0
2020 FF1	5-25	Moon	2022 05 04.58515	68.55	11.15	2.81	0.00E+00	.22E-01	—	0
2011 GM62	60-261	Moon	2022 05 04.52971	109.22	12.84	14.54	0.00E+00	.38E+02	—	0
2019 JH7	2-11	Moon	2022 05 04.47913	102.05	17.24	0.04	0.00E+00	.45E-02	—	0
2018 CP2	27-127	Earth	2022 05 04.40969	59.77	9.19	6.15	0.00E+00	.20E+01	—	0
2021 LF6	4-19	Moon	2022 05 03.08834	71.60	5.68	4.30	0.00E+00	.25E-02	—	0
2018 CP2	27-127	Moon	2022 05 03.03775	59.09	10.05	1.57	0.00E+00	.24E+01	—	0
2019 JV1	55-240	Earth	2022 05 02.22786	29.08	16.71	9.18	0.00E+00	.50E+02	—	0
2021 LL15	11-57	Earth	2022 05 01.84201	95.49	3.69	0.36	0.00E+00	.26E-01	—	0
2019 JV1	55-240	Moon	2022 05 01.83781	29.80	16.21	10.05	0.00E+00	.47E+02	—	0
2019 AY13	69-314	Moon	2022 05 01.83149	24.61	15.15	7.12	0.00E+00	.87E+02	—	0
2020 VN1	6-25	Moon	2022 05 01.60184	18.68	3.12	9.91	0.00E+00	.20E-02	—	0
2021 GM1	2-8	Earth	2022 05 01.57012	69.23	5.77	0.20	0.00E+00	.16E-03	—	0
2019 AY13	69-314	Earth	2022 05 01.38932	24.71	15.26	14.31	0.00E+00	.89E+02	—	0
2011 GM62	60-261	Earth	2022 05 01.29876	109.67	13.04	11.50	0.00E+00	.39E+02	—	0
2019 SA6	17-79	Moon	2022 05 01.05901	85.62	19.27	37.26	0.00E+00	.22E+01	—	0
2019 SA6	17-79	Earth	2022 04 30.71094	86.18	19.46	11.40	0.00E+00	.22E+01	—	0
2021 HA2	7-36	Moon	2022 04 27.29594	93.25	18.23	1.23	0.00E+00	.16E+00	—	0
2020 TJ3	26-120	Earth	2022 04 26.60217	44.80	5.62	0.86	0.00E+00	.65E+00	—	0

2021 HA2	7-36	Earth	2022 04 26.21283	92.66	17.75	0.98	0.00E+00	.15E+00	—	0
2021 ED2	3-17	Earth	2022 04 25.55215	74.63	4.61	3.98	0.00E+00	.11E-02	—	0
2020 VN1	6-25	Earth	2022 04 25.36357	19.26	2.34	0.38	0.00E+00	.11E-02	—	0
2020 PP	120-579	Earth	2022 04 24.97518	100.43	3.84	12.66	0.00E+00	.32E+02	—	0
2019 HS2	10-48	Earth	2022 04 24.93718	43.67	14.16	4.91	0.00E+00	.25E+00	—	0
2019 HS2	10-48	Moon	2022 04 24.76860	42.73	13.40	5.64	0.00E+00	.22E+00	—	0
2020 TJ3	26-120	Moon	2022 04 24.68725	43.88	6.30	1.76	0.00E+00	.81E+00	—	0
2021 GM1	2-8	Moon	2022 04 24.61583	68.37	4.70	0.79	0.00E+00	.10E-03	—	0
2016 JQ5	4-20	Earth	2022 04 24.54859	72.56	15.45	1.20	0.00E+00	.23E-01	—	0
2016 JQ5	4-20	Moon	2022 04 24.28948	71.62	14.44	1.97	0.00E+00	.20E-01	—	0
2019 GA6	23-119	Earth	2022 04 24.08018	31.58	9.66	7.58	0.00E+00	.16E+01	—	0
2019 GA6	23-119	Moon	2022 04 23.72366	32.00	8.69	11.66	0.00E+00	.13E+01	—	0
2020 VB3	2-11	Moon	2022 04 23.52291	41.17	3.61	0.67	0.00E+00	.16E-03	—	0
2020 UX3	20-100	Moon	2022 04 22.94401	67.01	14.70	5.30	0.00E+00	.23E+01	—	0
2020 GE	5-22	Moon	2022 04 22.65069	36.63	2.33	0.52	0.00E+00	.69E-03	—	0
2019 GF1	6-29	Earth	2022 04 22.25852	83.07	8.18	4.49	0.00E+00	.19E-01	—	0
2020 UX3	20-100	Earth	2022 04 21.88174	67.61	14.31	12.64	0.00E+00	.22E+01	—	0
2020 PP	120-579	Moon	2022 04 21.87084	100.63	4.73	30.56	0.00E+00	.48E+02	—	0
2019 JZ7	34-160	Moon	2022 04 21.30047	88.00	15.20	1.22	0.00E+00	.11E+02	—	0
522684 (2016 JP)	128-539	Moon	2022 04 21.25591	76.00	9.02	11.90	0.00E+00	.17E+03	—	0
2021 GQ1	9-42	Moon	2022 04 20.95768	68.85	7.10	1.10	0.00E+00	.46E-01	—	0
2019 HM	13-65	Moon	2022 04 20.65778	102.32	8.17	4.86	0.00E+00	.19E+00	—	0

2018 DT	7-33	Earth	2022 04 20.51746	82.51	8.87	4.42	0.00E+00	.31E-01	—	0
2020 UN3	34-150	Moon	2022 04 20.25266	66.10	5.66	9.16	0.00E+00	.13E+01	—	0
2021 GB	8-38	Earth	2022 04 20.13680	52.59	5.82	6.72	0.00E+00	.20E-01	—	0
2021 GL16	11-49	Moon	2022 04 20.06273	34.23	4.68	1.21	0.00E+00	.33E-01	—	0
2020 VN1	6-25	Moon	2022 04 19.75183	20.35	1.82	12.38	0.00E+00	.66E-03	—	0
522684 (2016 JP)	128-539	Earth	2022 04 19.22532	76.80	8.05	11.60	0.00E+00	.14E+03	—	0
2019 JZ7	34-160	Earth	2022 04 19.21772	88.43	14.73	2.05	0.00E+00	.10E+02	—	0
2020 GE1	8-36	Moon	2022 04 19.17521	30.97	4.27	1.20	0.00E+00	.11E-01	—	0
2018 KS	5-24	Earth	2022 04 18.79714	82.36	5.49	1.50	0.00E+00	.49E-02	—	0
2020 GE	5-22	Earth	2022 04 18.74240	35.73	1.49	1.98	0.00E+00	.28E-03	—	0
2016 HP6	17-76	Moon	2022 04 18.38696	38.95	7.52	0.98	0.00E+00	.31E+00	—	0
2021 CC7	2-10	Moon	2022 04 18.36040	72.88	5.12	19.36	0.00E+00	.38E-03	—	0
2020 FJ5	13-57	Earth	2022 04 18.28691	116.74	15.76	7.09	0.00E+00	.57E+00	—	0
2013 US3	135-603	Moon	2022 04 18.27721	104.84	7.86	6.99	0.00E+00	.17E+03	—	0
2020 TQ6	26-131	Earth	2022 04 18.21305	13.17	15.37	4.94	0.00E+00	.54E+01	—	0
2020 TQ6	26-131	Moon	2022 04 18.11961	13.84	15.65	5.87	0.00E+00	.56E+01	—	0
2019 XP	8-48	Earth	2022 04 18.00695	52.46	15.78	1.32	0.00E+00	.22E+00	—	0
2019 XP	8-48	Moon	2022 04 17.23481	52.61	15.87	1.13	0.00E+00	.22E+00	—	0
2016 HP6	17-76	Earth	2022 04 16.58009	39.39	8.36	2.28	0.00E+00	.39E+00	—	0
2021 LL15	11-57	Earth	2022 04 16.39450	94.58	6.14	0.32	0.00E+00	.72E-01	—	0
2019 WD5	98-496	Moon	2022 04 16.13303	95.62	11.20	18.78	0.00E+00	.16E+03	—	0
2016 KR3	130-580	Moon	2022 04 16.09343	50.19	17.10	12.36	0.00E+00	.72E+03	—	0

2019 WD5	98-496	Earth	2022 04 15.76858	94.67	12.29	12.70	0.00E+00	.19E+03	—	0
2021 GL16	11-49	Earth	2022 04 15.58535	34.96	3.68	0.06	0.00E+00	.20E-01	—	0
2021 GQ1	9-42	Earth	2022 04 15.31548	69.26	7.41	0.64	0.00E+00	.50E-01	—	0
2016 KR3	130-580	Earth	2022 04 15.11279	49.85	17.00	11.55	0.00E+00	.71E+03	—	0
2020 UN3	34-150	Moon	2022 04 15.07735	66.24	5.61	13.59	0.00E+00	.13E+01	—	0
2013 US3	135-603	Moon	2022 04 15.01778	104.87	8.42	5.05	0.00E+00	.20E+03	—	0
2021 GR	4-21	Earth	2022 04 14.89138	109.24	14.72	1.02	0.00E+00	.22E-01	—	0
2019 FP1	10-50	Earth	2022 04 14.55815	110.23	21.45	3.77	0.00E+00	.66E+00	—	0
2008 GM2	4-18	Earth	2022 04 13.86963	67.97	9.53	0.84	0.00E+00	.64E-02	—	0
2019 FP1	10-50	Moon	2022 04 13.65666	109.72	20.88	3.70	0.00E+00	.62E+00	—	0
2018 DT	7-33	Moon	2022 04 13.59452	82.47	7.97	2.12	0.00E+00	.25E-01	—	0
2020 VB3	2-11	Moon	2022 04 12.75881	42.38	2.66	2.03	0.00E+00	.89E-04	—	0
2021 GR	4-21	Moon	2022 04 12.54404	108.77	14.20	1.30	0.00E+00	.20E-01	—	0
2020 GE1	8-36	Earth	2022 04 12.43275	31.20	4.04	3.76	0.00E+00	.10E-01	—	0
363599 (2004 FG11)	132-573	Earth	2022 04 12.24376	19.23	24.50	8.00	0.00E+00	.15E+04	—	0
2019 HM	13-65	Moon	2022 04 12.23113	102.77	9.62	2.99	0.00E+00	.27E+00	—	0
363599 (2004 FG11)	132-573	Moon	2022 04 12.17922	19.44	25.40	7.23	0.00E+00	.16E+04	—	0
2008 GM2	4-18	Moon	2022 04 11.50654	67.24	8.75	1.34	0.00E+00	.54E-02	—	0
2021 CC7	2-10	Moon	2022 04 11.28046	72.61	4.23	3.43	0.00E+00	.26E-03	—	0
2020 VN1	6-25	Moon	2022 04 11.23813	19.74	2.59	8.25	0.00E+00	.14E-02	—	0
2014 JR25	41-179	Moon	2022 04 10.68706	57.63	11.87	1.07	0.00E+00	.11E+02	—	0
2020 GH1	16-73	Earth	2022 04 10.35565	17.56	7.22	8.37	0.00E+00	.24E+00	—	0

2020 VB3	2-11	Earth	2022 04 10.28224	41.35	3.48	1.34	0.00E+00	.15E-03	—	0
2018 EW 1	11-56	Moon	2022 04 10.25535	108.81	4.94	6.67	0.00E+00	.45E-01	—	0
2019 YA4	47-211	Moon	2022 04 10.24811	23.32	14.26	8.74	0.00E+00	.23E+02	—	0
2019 YA4	47-211	Earth	2022 04 10.15904	24.01	13.29	8.98	0.00E+00	.20E+02	—	0
2020 GH1	16-73	Moon	2022 04 10.14335	16.69	7.25	9.35	0.00E+00	.24E+00	—	0
2021 GM1	2-8	Moon	2022 04 07.53657	71.14	6.51	2.35	0.00E+00	.20E-03	—	0
2018 EW 1	11-56	Moon	2022 04 07.35063	108.83	4.12	7.21	0.00E+00	.31E-01	—	0
2021 GL16	11-49	Moon	2022 04 06.77725	36.39	2.93	0.13	0.00E+00	.13E-01	—	0
2021 GD5	8-34	Earth	2022 04 06.66348	33.21	18.67	3.84	0.00E+00	.17E+00	—	0
2021 GD5	8-34	Moon	2022 04 06.57847	34.18	18.43	3.89	0.00E+00	.16E+00	—	0
2021 ED2	3-17	Moon	2022 04 05.91862	72.68	4.68	10.95	0.00E+00	.11E-02	—	0
2021 LF6	4-19	Moon	2022 04 05.79570	76.60	6.00	3.30	0.00E+00	.28E-02	—	0
2019 FZ1	17-79	Moon	2022 04 05.63895	48.60	21.37	11.93	0.00E+00	.27E+01	—	0
2020 UN3	34-150	Earth	2022 04 05.52869	64.69	6.00	10.32	0.00E+00	.15E+01	—	0
2021 GL7	36-162	Earth	2022 04 05.37947	95.78	24.99	20.58	0.00E+00	.32E+02	—	0
2019 GM1	7-39	Moon	2022 04 05.21361	27.23	3.56	8.11	0.00E+00	.71E-02	—	0
2019 FZ1	17-79	Earth	2022 04 05.06874	49.14	20.97	11.17	0.00E+00	.26E+01	—	0
2020 GE1	8-36	Moon	2022 04 04.94099	32.55	4.16	4.27	0.00E+00	.11E-01	—	0
2021 GL7	36-162	Moon	2022 04 04.88708	96.21	25.28	20.76	0.00E+00	.33E+02	—	0
2019 FN2	39-193	Moon	2022 04 04.30164	72.76	8.24	2.06	0.00E+00	.52E+01	—	0
2018 EW 1	11-56	Earth	2022 04 03.68903	107.73	4.43	5.46	0.00E+00	.36E-01	—	0
2021 GL6	13-71	Moon	2022 04 03.66910	110.13	13.88	18.17	0.00E+00	.61E+00	—	0

2019 GN2	10-44	Earth	2022 04 03.52758	44.43	18.00	1.13	0.00E+00	.38E+00	—	0
2019 GN2	10-44	Moon	2022 04 03.19697	44.98	18.48	1.44	0.00E+00	.40E+00	—	0
2016 GE1	20-87	Moon	2022 04 02.91753	9.72	5.16	8.95	0.00E+00	.23E+00	—	0
2016 GE1	20-87	Earth	2022 04 02.73929	9.72	5.93	8.63	0.00E+00	.30E+00	—	0
2021 GN1	11-50	Earth	2022 04 02.73729	13.19	14.39	12.44	0.00E+00	.31E+00	—	0
2021 GN1	11-50	Moon	2022 04 02.65819	14.19	14.11	10.40	0.00E+00	.30E+00	—	0
2007 FF1	92-465	Moon	2022 04 02.49060	18.74	13.34	13.03	0.00E+00	.19E+03	—	0
2007 FF1	92-465	Earth	2022 04 01.89906	19.31	12.83	13.36	0.00E+00	.17E+03	—	0
2008 KV2	122-517	Moon	2022 04 01.46962	37.14	12.37	21.72	0.00E+00	.28E+03	—	0
2008 KV2	122-517	Earth	2022 04 01.08446	37.30	12.74	17.04	0.00E+00	.30E+03	—	0
2021 GL6	13-71	Earth	2022 03 31.96299	110.45	14.40	21.19	0.00E+00	.65E+00	—	0
2019 HM	13-65	Earth	2022 03 31.70189	101.32	8.74	2.63	0.00E+00	.22E+00	—	0