

THE COMET HANDBOOK FOR 2024

彗星年表 2024

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Comet 29P/Schwassmann-Wachmann

Epoch = 2024 July 29.0 TT
 T = 2019 May 4.01987 TT
 Peri. = 52.09084
 Node = 312.40602 2000.0
 Incl. = 9.35794
 q = 5.7885676 AU

e = 0.0438781
 a = 6.0542151 AU
 n = 0.06616332
 P = 14.90 years

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	ml	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	08 35.15	+20 45.8	5.269	6.166	-0.42 +0.9	.	153.8
Jan. 11	08 30.69	+20 55.6	5.214	6.169	-0.48 +1.0	.	165.0
Jan. 21	08 25.78	+21 05.7	5.190	6.172	-0.50 +1.0	.	176.0
Jan. 31	08 20.74	+21 15.0	5.197	6.174	-0.50 +0.8	.	172.1
Feb. 10	08 15.91	+21 22.4	5.236	6.177	-0.46 +0.6	.	160.9
Feb. 20	08 11.62	+21 27.4	5.305	6.180	-0.39 +0.3	.	149.9
Mar. 1	08 08.12	+21 29.4	5.400	6.182	-0.30 0.0	.	139.0
Mar. 11	08 05.60	+21 28.2	5.518	6.185	-0.19 -0.3	.	128.4
Mar. 21	08 04.19	+21 23.8	5.655	6.188	-0.08 -0.6	.	118.2
Mar. 31	08 03.93	+21 16.3	5.804	6.190	+0.04 -0.9	.	108.2
Apr. 10	08 04.81	+21 05.8	5.963	6.193	+0.15 -1.2	.	98.6
Apr. 20	08 06.77	+20 52.4	6.125	6.195	+0.25 -1.5	.	89.3
Apr. 30	08 09.74	+20 36.3	6.287	6.198	+0.35 -1.8	.	80.3
May 10	08 13.61	+20 17.5	6.445	6.200	+0.43 -2.0	.	71.6
May 20	08 18.27	+19 56.0	6.595	6.203	+0.51 -2.3	.	63.1
May 30	08 23.61	+19 32.1	6.734	6.205	+0.57 -2.5	.	54.8
June 9	08 29.52	+19 05.7	6.860	6.208	+0.62 -2.8	.	46.7
June 19	08 35.90	+18 37.1	6.970	6.210	+0.66 -3.0	.	38.7
June 29	08 42.64	+18 06.2	7.063	6.213	+0.69 -3.2	.	30.8
July 9	08 49.67	+17 33.3	7.138	6.215	+0.71 -3.4	.	23.1
July 19	08 56.88	+16 58.6	7.191	6.217	+0.73 -3.6	.	15.3
July 29	09 04.20	+16 22.3	7.225	6.220	+0.73 -3.7	.	7.7
Aug. 8	09 11.55	+15 44.6	7.236	6.222	+0.73 -3.8	.	0.4
Aug. 18	09 18.85	+15 06.0	7.226	6.224	+0.72 -3.9	.	7.8
Aug. 28	09 26.01	+14 26.7	7.194	6.227	+0.71 -3.9	.	15.6
Sept. 7	09 32.98	+13 47.2	7.141	6.229	+0.68 -4.0	.	23.4
Sept. 17	09 39.67	+13 07.9	7.067	6.231	+0.65 -3.9	.	31.4
Sept. 27	09 45.99	+12 29.3	6.974	6.233	+0.61 -3.8	.	39.5
Oct. 7	09 51.86	+11 51.9	6.863	6.236	+0.56 -3.6	.	47.8
Oct. 17	09 57.20	+11 16.4	6.736	6.238	+0.50 -3.4	.	56.3
Oct. 27	10 01.91	+10 43.3	6.595	6.240	+0.43 -3.1	.	64.9
Nov. 6	10 05.90	+10 13.4	6.444	6.242	+0.36 -2.8	.	73.9
Nov. 16	10 09.07	+09 47.2	6.287	6.244	+0.27 -2.4	.	83.0
Nov. 26	10 11.34	+09 25.4	6.125	6.246	+0.17 -1.9	.	92.5
Dec. 6	10 12.64	+09 08.6	5.965	6.248	+0.07 -1.4	.	102.2
Dec. 16	10 12.89	+08 57.2	5.811	6.250	-0.03 -0.8	.	112.2
Dec. 26	10 12.10	+08 51.5	5.668	6.252	-0.14 -0.3	.	122.5
Jan. 5	10 10.26	+08 51.5	5.540	6.254	-0.24 +0.3	.	133.1
Jan. 15	10 07.48	+08 56.8	5.434	6.256	-0.33 +0.8	.	144.0
Jan. 25	10 03.89	+09 06.9	5.352	6.258	-0.40 +1.2	.	155.0
Feb. 4	09 59.70	+09 20.7	5.299	6.260	-0.44 +1.5	.	166.1
Feb. 14	09 55.16	+09 37.0	5.276	6.262	-0.46 +1.7	.	176.3
Feb. 24	09 50.58	+09 54.3	5.285	6.264	-0.45 +1.7	.	170.7
Mar. 6	09 46.24	+10 11.1	5.325	6.265	-0.41 +1.6	.	159.8
Mar. 16	09 42.43	+10 26.2	5.394	6.267	-0.34 +1.4	.	148.9
Mar. 26	09 39.35	+10 38.4	5.489	6.269	-0.26 +1.0	.	138.3

Comet C/2019 L3 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2022 Jan. 9.90988 TT
 Peri. = 171.68250
 Node = 290.73962 2000.0
 Incl. = 48.34439
 q = 3.5557467 AU
 e = 1.0026985

$$m1 = 2.6 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	11 28.66	-49 34.7	7.069	7.029	-0.04	-7.5	17.4	83.7
Jan. 11	11 27.64	-50 46.2	7.025	7.094	-0.18	-6.7	17.5	90.0
Jan. 21	11 25.26	-51 49.7	6.983	7.158	-0.31	-5.8	17.5	96.3
Jan. 31	11 21.58	-52 43.0	6.947	7.223	-0.44	-4.7	17.5	102.4
Feb. 10	11 16.74	-53 24.5	6.918	7.288	-0.54	-3.4	17.6	108.2
Feb. 20	11 11.00	-53 52.6	6.901	7.352	-0.61	-2.0	17.6	113.6
Mar. 1	11 04.71	-54 06.4	6.897	7.417	-0.64	-0.6	17.7	118.2
Mar. 11	10 58.27	-54 05.9	6.909	7.482	-0.64	+0.8	17.7	121.9
Mar. 21	10 52.10	-53 51.7	6.938	7.546	-0.59	+2.1	17.8	124.4
Mar. 31	10 46.59	-53 25.3	6.985	7.611	-0.50	+3.2	17.8	125.7
Apr. 10	10 42.04	-52 49.1	7.050	7.675	-0.39	+4.1	17.9	125.5
Apr. 20	10 38.65	-52 05.4	7.134	7.740	-0.27	+4.7	18.0	123.9
Apr. 30	10 36.55	-51 17.3	7.236	7.804	-0.14	+5.0	18.1	121.1
May 10	10 35.75	-50 27.2	7.353	7.868	-0.01	+5.0	18.1	117.4
May 20	10 36.21	-49 37.7	7.485	7.933	+0.11	+4.8	18.2	112.8
May 30	10 37.85	-48 50.9	7.629	7.997	+0.22	+4.5	18.3	107.8
June 9	10 40.55	-48 08.4	7.783	8.061	+0.32	+4.0	18.4	102.3
June 19	10 44.20	-47 31.6	7.945	8.125	+0.41	+3.3	18.5	96.6
June 29	10 48.66	-47 01.3	8.111	8.189	+0.49	+2.6	18.6	90.8
July 9	10 53.82	-46 38.1	8.279	8.253	+0.55	+1.9	18.6	85.0
July 19	10 59.57	-46 22.4	8.447	8.317	+0.60	+1.2	18.7	79.2
July 29	11 05.80	-46 14.3	8.613	8.381	+0.65	+0.4	18.8	73.5
Aug. 8	11 12.41	-46 13.7	8.772	8.445	+0.68	-0.3	18.9	68.0
Aug. 18	11 19.32	-46 20.4	8.925	8.509	+0.70	-1.1	19.0	62.8
Aug. 28	11 26.43	-46 34.1	9.067	8.573	+0.72	-1.7	19.1	57.9
Sept. 7	11 33.67	-46 54.4	9.199	8.636	+0.73	-2.4	19.1	53.4
Sept. 17	11 40.96	-47 21.1	9.317	8.700	+0.73	-3.0	19.2	49.6
Sept. 27	11 48.22	-47 53.4	9.421	8.764	+0.72	-3.5	19.3	46.6
Oct. 7	11 55.38	-48 31.1	9.510	8.827	+0.71	-4.0	19.3	44.6
Oct. 17	12 02.34	-49 13.5	9.583	8.890	+0.68	-4.5	19.4	43.8
Oct. 27	12 09.02	-50 00.1	9.639	8.954	+0.65	-4.9	19.4	44.3
Nov. 6	12 15.33	-50 50.3	9.678	9.017	+0.61	-5.2	19.5	46.0
Nov. 16	12 21.16	-51 43.5	9.701	9.080	+0.55	-5.4	19.5	48.8
Nov. 26	12 26.42	-52 38.8	9.708	9.143	+0.49	-5.6	19.5	52.6
Dec. 6	12 30.98	-53 35.7	9.701	9.206	+0.41	-5.7	19.6	57.3
Dec. 16	12 34.72	-54 33.1	9.681	9.269	+0.33	-5.7	19.6	62.6
Dec. 26	12 37.54	-55 30.0	9.650	9.332	+0.23	-5.6	19.6	68.4
Jan. 5	12 39.31	-56 25.5	9.610	9.395	+0.12	-5.4	19.7	74.5
Jan. 15	12 39.94	-57 18.1	9.564	9.457	0.00	-5.1	19.7	80.8
Jan. 25	12 39.37	-58 06.7	9.515	9.520	-0.12	-4.6	19.7	87.3
Feb. 4	12 37.57	-58 49.7	9.466	9.583	-0.25	-3.9	19.7	93.8
Feb. 14	12 34.59	-59 25.7	9.421	9.645	-0.36	-3.2	19.8	100.2
Feb. 24	12 30.54	-59 53.5	9.382	9.707	-0.46	-2.3	19.8	106.4
Mar. 6	12 25.62	-60 11.8	9.352	9.770	-0.53	-1.3	19.8	112.2
Mar. 16	12 20.11	-60 19.9	9.335	9.832	-0.57	-0.2	19.9	117.4
Mar. 26	12 14.33	-60 17.6	9.332	9.894	-0.58	+0.8	19.9	121.8

Comet C/2019 T4 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2022 June 8.68147 TT
 Peri. = 351.12221
 Node = 199.92826 2000.0
 Incl. = 53.62785
 q = 4.2395968 AU
 e = 0.9952107

$$m1 = 3.2 + 5 \log(\Delta) + 10.0 \log(r(t-60))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	17 01.46	+16 50.4	6.866	6.236	+0.80	+3.4	15.1	46.9
Jan. 11	17 09.31	+17 28.5	6.853	6.291	+0.76	+4.3	15.1	51.7
Jan. 21	17 16.70	+18 14.8	6.827	6.347	+0.71	+5.1	15.2	57.1
Jan. 31	17 23.53	+19 08.7	6.792	6.402	+0.65	+5.8	15.2	62.8
Feb. 10	17 29.71	+20 09.8	6.749	6.458	+0.58	+6.5	15.2	68.8
Feb. 20	17 35.12	+21 17.3	6.700	6.514	+0.50	+7.1	15.2	75.0
Mar. 1	17 39.68	+22 30.1	6.649	6.570	+0.41	+7.5	15.3	81.2
Mar. 11	17 43.29	+23 46.9	6.597	6.627	+0.31	+7.8	15.3	87.4
Mar. 21	17 45.88	+25 06.0	6.547	6.683	+0.20	+8.0	15.3	93.5
Mar. 31	17 47.41	+26 25.7	6.503	6.740	+0.09	+7.9	15.3	99.5
Apr. 10	17 47.85	+27 43.7	6.467	6.797	-0.02	+7.6	15.4	105.1
Apr. 20	17 47.19	+28 58.0	6.440	6.854	-0.12	+7.1	15.4	110.3
Apr. 30	17 45.52	+30 06.1	6.426	6.912	-0.22	+6.4	15.4	114.9
May 10	17 42.92	+31 05.9	6.427	6.969	-0.31	+5.4	15.5	118.7
May 20	17 39.56	+31 55.3	6.443	7.027	-0.37	+4.3	15.5	121.6
May 30	17 35.64	+32 32.8	6.476	7.084	-0.41	+3.1	15.5	123.3
June 9	17 31.40	+32 57.5	6.526	7.142	-0.43	+1.7	15.6	123.9
June 19	17 27.10	+33 08.9	6.594	7.200	-0.42	+0.4	15.7	123.2
June 29	17 23.00	+33 07.3	6.678	7.258	-0.39	-0.8	15.7	121.3
July 9	17 19.34	+32 53.5	6.778	7.316	-0.33	-2.0	15.8	118.4
July 19	17 16.32	+32 29.1	6.892	7.374	-0.26	-3.0	15.9	114.7
July 29	17 14.08	+31 55.7	7.018	7.432	-0.18	-3.8	15.9	110.3
Aug. 8	17 12.72	+31 15.2	7.155	7.491	-0.08	-4.4	16.0	105.5
Aug. 18	17 12.31	+30 29.7	7.301	7.549	+0.01	-4.7	16.1	100.4
Aug. 28	17 12.85	+29 41.2	7.453	7.608	+0.11	-5.0	16.2	95.0
Sept. 7	17 14.31	+28 51.3	7.608	7.666	+0.20	-5.0	16.2	89.5
Sept. 17	17 16.66	+28 01.9	7.764	7.725	+0.28	-4.9	16.3	84.0
Sept. 27	17 19.82	+27 14.3	7.920	7.783	+0.36	-4.6	16.4	78.6
Oct. 7	17 23.73	+26 29.9	8.072	7.842	+0.43	-4.2	16.5	73.2
Oct. 17	17 28.29	+25 49.8	8.218	7.901	+0.49	-3.7	16.6	68.1
Oct. 27	17 33.42	+25 14.7	8.357	7.959	+0.54	-3.2	16.6	63.2
Nov. 6	17 39.03	+24 45.6	8.487	8.018	+0.58	-2.6	16.7	58.8
Nov. 16	17 45.01	+24 23.0	8.605	8.077	+0.62	-1.9	16.8	54.9
Nov. 26	17 51.28	+24 07.4	8.711	8.136	+0.64	-1.2	16.8	51.6
Dec. 6	17 57.75	+23 59.0	8.804	8.194	+0.65	-0.4	16.9	49.2
Dec. 16	18 04.30	+23 58.1	8.882	8.253	+0.66	+0.3	16.9	47.8
Dec. 26	18 10.87	+24 04.7	8.945	8.312	+0.65	+1.1	17.0	47.5
Jan. 5	18 17.34	+24 18.8	8.993	8.371	+0.64	+1.8	17.0	48.3
Jan. 15	18 23.62	+24 40.2	9.027	8.430	+0.61	+2.5	17.1	50.1
Jan. 25	18 29.63	+25 08.5	9.047	8.489	+0.58	+3.2	17.1	52.9
Feb. 4	18 35.27	+25 43.3	9.053	8.548	+0.54	+3.8	17.1	56.4
Feb. 14	18 40.46	+26 24.0	9.047	8.606	+0.49	+4.4	17.1	60.7
Feb. 24	18 45.11	+27 09.9	9.031	8.665	+0.43	+4.8	17.2	65.4
Mar. 6	18 49.14	+28 00.1	9.006	8.724	+0.37	+5.2	17.2	70.4
Mar. 16	18 52.47	+28 53.6	8.975	8.783	+0.29	+5.5	17.2	75.7
Mar. 26	18 55.06	+29 49.3	8.939	8.842	+0.21	+5.6	17.2	81.2

Comet C/2020 Y2 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2022 June 18.15341 TT
 Peri. = 266.41368
 Node = 26.53346 2000.0
 Incl. = 101.18816
 q = 3.1448704 AU
 e = 0.9980582

$$m1 = 5.5 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	01 18.48	+00 44.7	5.718	5.946	-0.24	+4.5	17.0	98.6
Jan. 11	01 16.68	+01 31.5	5.961	6.014	-0.11	+4.8	17.2	88.4
Jan. 21	01 16.07	+02 21.0	6.204	6.083	0.00	+5.1	17.3	78.4
Jan. 31	01 16.49	+03 12.5	6.440	6.151	+0.09	+5.2	17.4	68.7
Feb. 10	01 17.79	+04 05.5	6.667	6.220	+0.17	+5.4	17.6	59.2
Feb. 20	01 19.83	+04 59.4	6.879	6.288	+0.24	+5.4	17.7	49.9
Mar. 1	01 22.47	+05 54.0	7.074	6.357	+0.29	+5.5	17.8	40.8
Mar. 11	01 25.57	+06 48.7	7.248	6.425	+0.33	+5.5	17.9	31.8
Mar. 21	01 29.01	+07 43.3	7.399	6.494	+0.36	+5.4	18.0	23.0
Mar. 31	01 32.67	+08 37.3	7.526	6.562	+0.37	+5.4	18.1	14.2
Apr. 10	01 36.45	+09 30.6	7.627	6.630	+0.38	+5.3	18.1	5.6
Apr. 20	01 40.25	+10 22.9	7.702	6.699	+0.38	+5.2	18.2	3.1
Apr. 30	01 43.97	+11 14.0	7.751	6.767	+0.36	+5.0	18.3	11.7
May 10	01 47.50	+12 03.6	7.774	6.835	+0.34	+4.9	18.3	20.3
May 20	01 50.76	+12 51.5	7.772	6.904	+0.31	+4.7	18.3	28.9
May 30	01 53.65	+13 37.5	7.748	6.972	+0.26	+4.5	18.4	37.6
June 9	01 56.07	+14 21.4	7.702	7.040	+0.21	+4.3	18.4	46.4
June 19	01 57.94	+15 02.9	7.638	7.108	+0.15	+4.0	18.4	55.2
June 29	01 59.15	+15 41.9	7.558	7.176	+0.08	+3.7	18.5	64.3
July 9	01 59.62	+16 17.9	7.467	7.244	0.00	+3.4	18.5	73.5
July 19	01 59.26	+16 50.7	7.367	7.312	-0.08	+3.1	18.5	82.9
July 29	01 58.01	+17 20.0	7.265	7.380	-0.18	+2.7	18.5	92.5
Aug. 8	01 55.82	+17 45.1	7.163	7.447	-0.27	+2.3	18.5	102.4
Aug. 18	01 52.68	+18 05.8	7.069	7.515	-0.37	+1.8	18.5	112.5
Aug. 28	01 48.60	+18 21.7	6.987	7.582	-0.46	+1.3	18.5	122.8
Sept. 7	01 43.66	+18 32.3	6.923	7.650	-0.54	+0.8	18.5	133.4
Sept. 17	01 37.98	+18 37.5	6.881	7.717	-0.60	+0.2	18.6	144.0
Sept. 27	01 31.74	+18 37.6	6.867	7.784	-0.65	-0.3	18.6	154.6
Oct. 7	01 25.17	+18 32.7	6.884	7.852	-0.67	-0.7	18.6	164.5
Oct. 17	01 18.52	+18 23.8	6.934	7.919	-0.66	-1.1	18.7	170.5
Oct. 27	01 12.06	+18 11.9	7.018	7.986	-0.63	-1.3	18.8	165.9
Nov. 6	01 06.01	+17 58.4	7.135	8.052	-0.57	-1.4	18.8	156.2
Nov. 16	01 00.61	+17 44.6	7.284	8.119	-0.50	-1.3	18.9	145.6
Nov. 26	00 55.99	+17 32.0	7.460	8.186	-0.41	-1.2	19.0	134.8
Dec. 6	00 52.27	+17 21.7	7.660	8.252	-0.32	-0.9	19.1	124.1
Dec. 16	00 49.49	+17 14.8	7.877	8.319	-0.23	-0.5	19.2	113.5
Dec. 26	00 47.65	+17 11.9	8.107	8.385	-0.13	-0.1	19.3	103.1
Jan. 5	00 46.70	+17 13.5	8.344	8.451	-0.05	+0.4	19.4	92.9
Jan. 15	00 46.60	+17 19.7	8.582	8.518	+0.03	+0.9	19.5	82.9
Jan. 25	00 47.25	+17 30.5	8.816	8.584	+0.10	+1.3	19.6	73.2
Feb. 4	00 48.55	+17 45.7	9.042	8.649	+0.16	+1.8	19.7	63.7
Feb. 14	00 50.42	+18 05.1	9.253	8.715	+0.21	+2.2	19.7	54.4
Feb. 24	00 52.75	+18 28.3	9.448	8.781	+0.25	+2.5	19.8	45.3
Mar. 6	00 55.44	+18 54.9	9.623	8.847	+0.29	+2.8	19.9	36.6
Mar. 16	00 58.39	+19 24.4	9.776	8.912	+0.31	+3.1	20.0	28.2
Mar. 26	01 01.52	+19 56.5	9.904	8.977	+0.32	+3.3	20.0	20.6

Comet 117P/Hein-Roman-Alu

Epoch = 2024 July 29.0 TT
 T = 2022 July 11.62246 TT
 Peri. = 223.90275 e = 0.2556312
 Node = 58.81811 2000.0 a = 4.1006508 AU
 Incl. = 8.70409 n = 0.11869294
 q = 3.0523965 AU P = 8.30 years

$$m1 = 5.0 + 5 \log(\Delta) + 15.0 \log(r(t-160))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	°			m	'		°
Jan. 1	00 15.27	-04 46.5	3.901	3.887	+0.56	+6.1	16.2	81.9
Jan. 11	00 21.37	-03 43.8	4.072	3.909	+0.67	+6.5	16.3	73.6
Jan. 21	00 28.43	-02 37.2	4.236	3.932	+0.75	+6.8	16.4	65.5
Jan. 31	00 36.29	-01 27.6	4.393	3.954	+0.82	+7.1	16.6	57.6
Feb. 10	00 44.81	+00 16.1	4.539	3.976	+0.89	+7.2	16.7	50.0
Feb. 20	00 53.89	+00 56.8	4.672	3.999	+0.93	+7.3	16.8	42.5
Mar. 1	01 03.41	+02 10.1	4.791	4.021	+0.97	+7.3	16.9	35.1
Mar. 11	01 13.28	+03 23.3	4.894	4.043	+1.00	+7.3	16.9	27.9
Mar. 21	01 23.41	+04 35.8	4.980	4.065	+1.02	+7.2	17.0	20.8
Mar. 31	01 33.73	+05 46.8	5.049	4.086	+1.04	+7.0	17.1	13.9
Apr. 10	01 44.17	+06 56.1	5.100	4.108	+1.05	+6.8	17.2	7.3
Apr. 20	01 54.65	+08 03.0	5.132	4.130	+1.05	+6.5	17.2	3.5
Apr. 30	02 05.11	+09 07.2	5.146	4.151	+1.04	+6.3	17.2	8.2
May 10	02 15.48	+10 08.2	5.141	4.173	+1.03	+5.9	17.3	14.8
May 20	02 25.69	+11 05.8	5.118	4.194	+1.01	+5.6	17.3	21.6
May 30	02 35.66	+11 59.7	5.077	4.215	+0.98	+5.2	17.3	28.6
June 9	02 45.31	+12 49.6	5.020	4.236	+0.94	+4.8	17.3	35.6
June 19	02 54.54	+13 35.4	4.947	4.257	+0.90	+4.3	17.4	42.7
June 29	03 03.27	+14 16.8	4.859	4.277	+0.84	+3.9	17.4	50.0
July 9	03 11.37	+14 53.7	4.758	4.298	+0.77	+3.4	17.3	57.5
July 19	03 18.73	+15 26.1	4.645	4.318	+0.69	+3.0	17.3	65.2
July 29	03 25.21	+15 54.0	4.524	4.338	+0.59	+2.5	17.3	73.1
Aug. 8	03 30.67	+16 17.2	4.395	4.358	+0.48	+2.1	17.3	81.3
Aug. 18	03 34.96	+16 35.8	4.263	4.378	+0.36	+1.6	17.2	89.8
Aug. 28	03 37.94	+16 49.8	4.130	4.397	+0.22	+1.1	17.2	98.7
Sept. 7	03 39.47	+16 59.1	4.001	4.416	+0.07	+0.7	17.2	107.9
Sept. 17	03 39.45	+17 03.7	3.879	4.436	-0.09	+0.2	17.1	117.6
Sept. 27	03 37.84	+17 03.8	3.769	4.455	-0.25	-0.2	17.1	127.8
Oct. 7	03 34.67	+16 59.4	3.677	4.473	-0.40	-0.7	17.1	138.4
Oct. 17	03 30.10	+16 51.0	3.606	4.492	-0.52	-1.0	17.1	149.3
Oct. 27	03 24.41	+16 39.2	3.560	4.510	-0.62	-1.3	17.1	160.6
Nov. 6	03 17.96	+16 25.0	3.544	4.528	-0.67	-1.5	17.1	172.1
Nov. 16	03 11.27	+16 09.9	3.559	4.546	-0.66	-1.5	17.2	175.7
Nov. 26	03 04.82	+15 55.6	3.606	4.564	-0.61	-1.3	17.2	164.3
Dec. 6	02 59.08	+15 43.8	3.682	4.581	-0.52	-1.0	17.3	152.8
Dec. 16	02 54.45	+15 36.2	3.786	4.598	-0.39	-0.5	17.4	141.6
Dec. 26	02 51.18	+15 33.9	3.914	4.615	-0.25	+0.1	17.5	130.7
Jan. 5	02 49.41	+15 37.4	4.060	4.632	-0.09	+0.7	17.6	120.1
Jan. 15	02 49.18	+15 47.1	4.221	4.648	+0.06	+1.3	17.7	109.9
Jan. 25	02 50.43	+16 02.6	4.390	4.664	+0.20	+1.9	17.8	100.1
Feb. 4	02 53.08	+16 23.5	4.565	4.680	+0.34	+2.4	17.9	90.6
Feb. 14	02 57.00	+16 49.0	4.739	4.696	+0.46	+2.8	18.1	81.5
Feb. 24	03 02.05	+17 18.2	4.910	4.712	+0.56	+3.1	18.2	72.7
Mar. 6	03 08.10	+17 50.3	5.073	4.727	+0.65	+3.3	18.3	64.2
Mar. 16	03 15.00	+18 24.5	5.226	4.742	+0.73	+3.5	18.4	56.0
Mar. 26	03 22.64	+19 00.0	5.367	4.757	+0.80	+3.6	18.4	47.9

Comet C/2020 F2 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2022 July 13.53563 TT
 Peri. = 48.27606
 Node = 250.30366 2000.0
 Incl. = 163.58953
 q = 8.8145881 AU
 e = 1.0041351

$$m1 = -6.0 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	12 31.21	+14 20.2	9.155	9.343	-0.19	+3.6	18.2	98.0
Jan. 11	12 28.94	+14 58.1	9.003	9.363	-0.27	+4.1	18.2	108.5
Jan. 21	12 25.85	+15 40.7	8.864	9.382	-0.35	+4.5	18.2	119.1
Jan. 31	12 21.94	+16 27.0	8.742	9.402	-0.43	+4.8	18.2	129.7
Feb. 10	12 17.26	+17 15.7	8.644	9.422	-0.51	+4.9	18.2	140.1
Feb. 20	12 11.90	+18 05.2	8.574	9.442	-0.57	+4.9	18.2	149.9
Mar. 1	12 05.99	+18 53.8	8.537	9.463	-0.61	+4.7	18.2	158.0
Mar. 11	11 59.72	+19 39.7	8.534	9.484	-0.64	+4.4	18.2	162.0
Mar. 21	11 53.29	+20 21.4	8.566	9.505	-0.64	+3.9	18.2	159.3
Mar. 31	11 46.91	+20 57.5	8.633	9.526	-0.63	+3.3	18.3	151.9
Apr. 10	11 40.78	+21 27.3	8.732	9.548	-0.59	+2.6	18.3	142.6
Apr. 20	11 35.11	+21 50.4	8.860	9.570	-0.54	+1.9	18.4	132.7
Apr. 30	11 30.02	+22 06.6	9.012	9.592	-0.47	+1.3	18.4	122.6
May 10	11 25.63	+22 16.4	9.182	9.615	-0.40	+0.6	18.5	112.5
May 20	11 22.01	+22 20.4	9.366	9.637	-0.32	+0.1	18.5	102.6
May 30	11 19.17	+22 19.1	9.558	9.661	-0.24	-0.4	18.6	92.8
June 9	11 17.10	+22 13.6	9.751	9.684	-0.17	-0.8	18.7	83.2
June 19	11 15.78	+22 04.5	9.942	9.708	-0.09	-1.1	18.7	73.8
June 29	11 15.13	+21 52.6	10.124	9.731	-0.03	-1.3	18.8	64.6
July 9	11 15.10	+21 38.8	10.294	9.755	+0.03	-1.5	18.8	55.6
July 19	11 15.62	+21 23.6	10.447	9.780	+0.08	-1.6	18.9	46.8
July 29	11 16.59	+21 07.8	10.582	9.804	+0.12	-1.6	19.0	38.3
Aug. 8	11 17.95	+20 51.9	10.693	9.829	+0.15	-1.6	19.0	30.1
Aug. 18	11 19.60	+20 36.6	10.781	9.854	+0.18	-1.5	19.0	22.7
Aug. 28	11 21.47	+20 22.3	10.842	9.880	+0.20	-1.3	19.1	16.9
Sept. 7	11 23.46	+20 09.7	10.876	9.905	+0.20	-1.1	19.1	14.9
Sept. 17	11 25.50	+19 59.3	10.882	9.931	+0.20	-0.9	19.1	18.0
Sept. 27	11 27.50	+19 51.6	10.861	9.957	+0.19	-0.6	19.1	24.4
Oct. 7	11 29.38	+19 47.1	10.814	9.984	+0.18	-0.3	19.2	32.3
Oct. 17	11 31.04	+19 46.3	10.742	10.010	+0.15	+0.1	19.2	40.9
Oct. 27	11 32.40	+19 49.7	10.648	10.037	+0.12	+0.6	19.2	49.9
Nov. 6	11 33.37	+19 57.7	10.535	10.064	+0.07	+1.1	19.2	59.2
Nov. 16	11 33.86	+20 10.6	10.406	10.091	+0.02	+1.6	19.2	68.8
Nov. 26	11 33.79	+20 28.7	10.266	10.118	-0.04	+2.1	19.2	78.6
Dec. 6	11 33.08	+20 51.9	10.121	10.146	-0.11	+2.6	19.2	88.7
Dec. 16	11 31.66	+21 20.1	9.975	10.174	-0.18	+3.1	19.1	98.9
Dec. 26	11 29.50	+21 53.0	9.835	10.202	-0.26	+3.5	19.1	109.3
Jan. 5	11 26.55	+22 29.8	9.706	10.230	-0.34	+3.9	19.1	119.8
Jan. 15	11 22.84	+23 09.5	9.596	10.259	-0.41	+4.1	19.1	130.2
Jan. 25	11 18.40	+23 51.0	9.509	10.287	-0.48	+4.2	19.1	140.4
Feb. 4	11 13.33	+24 32.7	9.450	10.316	-0.54	+4.1	19.1	150.1
Feb. 14	11 07.76	+25 13.2	9.423	10.345	-0.58	+3.9	19.2	158.0
Feb. 24	11 01.85	+25 50.8	9.429	10.374	-0.60	+3.6	19.2	161.9
Mar. 6	10 55.79	+26 24.4	9.470	10.404	-0.61	+3.1	19.2	159.2
Mar. 16	10 49.79	+26 52.7	9.545	10.434	-0.59	+2.5	19.3	151.9
Mar. 26	10 44.04	+27 15.3	9.652	10.463	-0.55	+1.9	19.3	142.8

Comet C/2020 R7 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2022 Sept. 16.17850 TT
 Peri. = 347.81436
 Node = 268.30284 2000.0
 Incl. = 114.90302
 q = 2.9545475 AU
 e = 1.0000597

$$m1 = 12.5 + 5 \log(\Delta) + 2.5 \log(r)$$

Oh TT 2024/25	R. A. (2000) h m	Decl. ° ' "	Delta	r	Daily motion m		m1	Elong. °
Jan. 1	16 18.18	+34 04.2	5.623	5.310	+0.51	+8.9	18.1	66.6
Jan. 11	16 22.96	+35 39.5	5.600	5.380	+0.44	+10.3	18.1	72.1
Jan. 21	16 26.94	+37 27.8	5.574	5.451	+0.35	+11.5	18.1	77.7
Jan. 31	16 29.91	+39 27.9	5.547	5.521	+0.23	+12.6	18.1	83.4
Feb. 10	16 31.64	+41 38.1	5.524	5.592	+0.10	+13.5	18.1	88.9
Feb. 20	16 31.89	+43 56.0	5.507	5.662	-0.07	+14.1	18.1	94.0
Mar. 1	16 30.38	+46 18.2	5.501	5.733	-0.26	+14.3	18.1	98.6
Mar. 11	16 26.88	+48 40.8	5.508	5.804	-0.47	+14.1	18.1	102.4
Mar. 21	16 21.17	+50 59.3	5.531	5.875	-0.70	+13.4	18.1	105.4
Mar. 31	16 13.12	+53 08.5	5.572	5.945	-0.93	+12.2	18.2	107.3
Apr. 10	16 02.74	+55 03.5	5.631	6.016	-1.16	+10.5	18.2	108.0
Apr. 20	15 50.25	+56 39.8	5.708	6.087	-1.35	+8.4	18.2	107.6
Apr. 30	15 36.16	+57 53.7	5.802	6.158	-1.47	+6.1	18.3	106.1
May 10	15 21.15	+58 43.5	5.913	6.228	-1.52	+3.6	18.3	103.6
May 20	15 06.08	+59 08.9	6.037	6.299	-1.48	+1.3	18.4	100.4
May 30	14 51.80	+59 11.7	6.172	6.370	-1.36	-0.9	18.5	96.7
June 9	14 39.01	+58 54.8	6.316	6.440	-1.18	-2.6	18.5	92.5
June 19	14 28.17	+58 22.2	6.465	6.511	-0.97	-4.0	18.6	88.1
June 29	14 19.50	+57 37.9	6.616	6.581	-0.75	-4.9	18.6	83.6
July 9	14 13.02	+56 45.8	6.767	6.651	-0.53	-5.5	18.7	79.2
July 19	14 08.62	+55 49.3	6.915	6.722	-0.33	-5.8	18.8	74.9
July 29	14 06.09	+54 51.4	7.057	6.792	-0.16	-5.8	18.8	70.8
Aug. 8	14 05.22	+53 54.2	7.192	6.862	0.00	-5.6	18.9	67.2
Aug. 18	14 05.80	+52 59.9	7.316	6.932	+0.13	-5.2	18.9	64.0
Aug. 28	14 07.59	+52 10.0	7.429	7.002	+0.24	-4.7	19.0	61.4
Sept. 7	14 10.42	+51 25.8	7.529	7.072	+0.33	-4.1	19.0	59.5
Sept. 17	14 14.10	+50 48.5	7.616	7.142	+0.41	-3.3	19.0	58.5
Sept. 27	14 18.46	+50 18.9	7.688	7.211	+0.47	-2.5	19.1	58.3
Oct. 7	14 23.37	+49 58.0	7.746	7.281	+0.52	-1.6	19.1	58.9
Oct. 17	14 28.69	+49 46.4	7.790	7.350	+0.55	-0.6	19.1	60.5
Oct. 27	14 34.27	+49 44.8	7.821	7.420	+0.57	+0.4	19.1	62.8
Nov. 6	14 40.00	+49 53.7	7.839	7.489	+0.58	+1.5	19.2	65.9
Nov. 16	14 45.74	+50 13.6	7.847	7.558	+0.57	+2.6	19.2	69.5
Nov. 26	14 51.34	+50 44.5	7.847	7.627	+0.55	+3.7	19.2	73.6
Dec. 6	14 56.67	+51 26.5	7.839	7.696	+0.51	+4.8	19.2	78.0
Dec. 16	15 01.56	+52 19.5	7.829	7.765	+0.46	+5.9	19.2	82.7
Dec. 26	15 05.83	+53 22.8	7.817	7.833	+0.39	+6.9	19.2	87.4
Jan. 5	15 09.30	+54 35.6	7.807	7.902	+0.29	+7.8	19.2	92.0
Jan. 15	15 11.73	+55 56.4	7.802	7.970	+0.18	+8.5	19.2	96.3
Jan. 25	15 12.92	+57 23.7	7.805	8.038	+0.04	+9.0	19.2	100.2
Feb. 4	15 12.59	+58 55.2	7.818	8.107	-0.13	+9.3	19.2	103.6
Feb. 14	15 10.51	+60 28.1	7.843	8.175	-0.31	+9.3	19.3	106.2
Feb. 24	15 06.46	+61 59.6	7.883	8.243	-0.52	+8.9	19.3	108.0
Mar. 6	15 00.24	+63 26.3	7.938	8.310	-0.74	+8.3	19.3	108.8
Mar. 16	14 51.80	+64 44.9	8.008	8.378	-0.96	+7.3	19.3	108.6
Mar. 26	14 41.23	+65 52.1	8.093	8.446	-1.16	+6.0	19.4	107.4

Comet C/2017 K2 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2022 Dec. 19.45424 TT
 Peri. = 236.20395
 Node = 88.22535 2000.0
 Incl. = 87.60442
 q = 1.7982769 AU
 e = 1.0001436

$$m1 = 4.6 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	05 37.35	-02 58.8	3.740	4.614	-0.99	+8.6	12.4	149.5
Jan. 11	05 28.04	-01 30.8	3.881	4.702	-0.85	+9.0	12.6	142.8
Jan. 21	05 20.24	+00 00.7	4.054	4.790	-0.69	+9.2	12.7	134.1
Jan. 31	05 14.16	+01 32.6	4.253	4.878	-0.51	+9.1	12.9	124.5
Feb. 10	05 09.83	+03 02.5	4.473	4.965	-0.34	+8.8	13.1	114.6
Feb. 20	05 07.20	+04 28.8	4.709	5.052	-0.17	+8.4	13.2	104.8
Mar. 1	05 06.14	+05 50.3	4.954	5.139	-0.03	+7.9	13.4	95.2
Mar. 11	05 06.49	+07 06.5	5.204	5.226	+0.11	+7.3	13.6	85.8
Mar. 21	05 08.06	+08 17.2	5.453	5.312	+0.22	+6.8	13.7	76.6
Mar. 31	05 10.68	+09 22.2	5.696	5.397	+0.31	+6.2	13.9	67.7
Apr. 10	05 14.17	+10 21.7	5.931	5.483	+0.39	+5.7	14.0	59.0
Apr. 20	05 18.37	+11 15.9	6.152	5.568	+0.45	+5.1	14.1	50.5
Apr. 30	05 23.13	+12 05.0	6.358	5.652	+0.50	+4.6	14.3	42.2
May 10	05 28.33	+12 49.2	6.545	5.737	+0.54	+4.2	14.4	34.1
May 20	05 33.83	+13 29.0	6.711	5.821	+0.56	+3.7	14.5	26.2
May 30	05 39.53	+14 04.5	6.856	5.904	+0.58	+3.3	14.6	18.6
June 9	05 45.31	+14 36.2	6.977	5.988	+0.58	+3.0	14.6	11.9
June 19	05 51.08	+15 04.3	7.074	6.071	+0.57	+2.6	14.7	8.3
June 29	05 56.73	+15 29.2	7.146	6.153	+0.56	+2.3	14.8	11.4
July 9	06 02.18	+15 51.3	7.194	6.236	+0.53	+2.1	14.8	18.0
July 19	06 07.33	+16 11.0	7.218	6.318	+0.49	+1.9	14.9	25.7
July 29	06 12.08	+16 28.8	7.219	6.399	+0.45	+1.7	14.9	33.8
Aug. 8	06 16.34	+16 45.0	7.197	6.481	+0.39	+1.6	15.0	42.1
Aug. 18	06 20.00	+17 00.1	7.156	6.562	+0.33	+1.5	15.0	50.7
Aug. 28	06 22.98	+17 14.7	7.098	6.643	+0.26	+1.4	15.0	59.5
Sept. 7	06 25.17	+17 29.1	7.025	6.723	+0.17	+1.5	15.0	68.6
Sept. 17	06 26.48	+17 43.8	6.941	6.803	+0.08	+1.5	15.1	78.0
Sept. 27	06 26.83	+17 59.3	6.851	6.883	-0.02	+1.6	15.1	87.6
Oct. 7	06 26.15	+18 15.8	6.759	6.963	-0.13	+1.7	15.1	97.6
Oct. 17	06 24.38	+18 33.5	6.671	7.042	-0.24	+1.9	15.1	107.9
Oct. 27	06 21.53	+18 52.7	6.593	7.121	-0.34	+2.0	15.1	118.5
Nov. 6	06 17.64	+19 13.1	6.529	7.200	-0.44	+2.1	15.1	129.4
Nov. 16	06 12.80	+19 34.5	6.487	7.278	-0.53	+2.2	15.1	140.6
Nov. 26	06 07.19	+19 56.6	6.470	7.356	-0.60	+2.2	15.2	152.0
Dec. 6	06 01.01	+20 19.0	6.484	7.434	-0.64	+2.2	15.2	163.5
Dec. 16	05 54.54	+20 41.1	6.531	7.512	-0.65	+2.2	15.2	174.7
Dec. 26	05 48.08	+21 02.7	6.613	7.589	-0.63	+2.1	15.3	172.5
Jan. 5	05 41.91	+21 23.4	6.729	7.666	-0.59	+2.0	15.4	161.1
Jan. 15	05 36.31	+21 43.3	6.877	7.743	-0.52	+1.9	15.5	149.7
Jan. 25	05 31.47	+22 02.3	7.055	7.819	-0.44	+1.9	15.5	138.5
Feb. 4	05 27.56	+22 20.5	7.257	7.895	-0.34	+1.8	15.6	127.4
Feb. 14	05 24.65	+22 38.2	7.479	7.971	-0.23	+1.7	15.7	116.7
Feb. 24	05 22.76	+22 55.6	7.715	8.047	-0.13	+1.7	15.8	106.2
Mar. 6	05 21.89	+23 12.6	7.960	8.122	-0.03	+1.7	15.9	95.9
Mar. 16	05 21.97	+23 29.5	8.207	8.198	+0.06	+1.7	16.0	86.0
Mar. 26	05 22.93	+23 46.1	8.452	8.273	+0.14	+1.7	16.1	76.3

Comet C/2022 E3 (ZTF)

Epoch = 2024 July 29.0 TT
 T = 2023 Jan. 12.68512 TT
 Peri. = 145.80960
 Node = 302.54096 2000.0
 Incl. = 109.16909
 q = 1.1126548 AU
 e = 1.0000323

$$m1 = 7.4 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	03 33.35	-60 58.2	4.573	4.640	-1.60	+8.1	17.4	87.7
Jan. 11	03 19.39	-59 29.9	4.733	4.738	-1.15	+9.5	17.5	84.3
Jan. 21	03 09.68	-57 51.4	4.895	4.835	-0.76	+10.1	17.7	80.7
Jan. 31	03 03.63	-56 09.4	5.057	4.932	-0.43	+10.2	17.8	77.1
Feb. 10	03 00.59	-54 28.8	5.215	5.028	-0.16	+9.8	18.0	73.7
Feb. 20	03 00.00	-52 53.0	5.369	5.123	+0.05	+9.2	18.1	70.4
Mar. 1	03 01.34	-51 24.7	5.515	5.218	+0.22	+8.4	18.3	67.6
Mar. 11	03 04.21	-50 05.4	5.652	5.312	+0.36	+7.4	18.4	65.2
Mar. 21	03 08.28	-48 56.4	5.779	5.406	+0.46	+6.3	18.5	63.3
Mar. 31	03 13.26	-47 58.6	5.894	5.499	+0.54	+5.1	18.7	62.1
Apr. 10	03 18.93	-47 12.5	5.998	5.591	+0.60	+3.9	18.8	61.6
Apr. 20	03 25.11	-46 38.6	6.089	5.683	+0.64	+2.7	18.9	61.8
Apr. 30	03 31.61	-46 17.2	6.168	5.774	+0.66	+1.5	19.0	62.6
May 10	03 38.31	-46 08.3	6.235	5.865	+0.67	+0.2	19.1	64.1
May 20	03 45.05	-46 12.3	6.291	5.955	+0.67	-1.1	19.1	66.2
May 30	03 51.71	-46 29.0	6.338	6.045	+0.66	-2.4	19.2	68.7
June 9	03 58.15	-46 58.2	6.376	6.134	+0.63	-3.6	19.3	71.7
June 19	04 04.24	-47 39.7	6.407	6.222	+0.58	-4.8	19.4	75.0
June 29	04 09.83	-48 33.1	6.434	6.310	+0.53	-6.0	19.4	78.5
July 9	04 14.77	-49 37.6	6.457	6.398	+0.45	-7.0	19.5	82.2
July 19	04 18.87	-50 52.2	6.479	6.485	+0.36	-8.0	19.6	85.9
July 29	04 21.94	-52 15.7	6.503	6.572	+0.24	-8.8	19.6	89.5
Aug. 8	04 23.77	-53 46.5	6.530	6.658	+0.11	-9.4	19.7	92.9
Aug. 18	04 24.11	-55 22.4	6.563	6.744	-0.06	-9.8	19.8	96.0
Aug. 28	04 22.72	-57 00.9	6.603	6.830	-0.24	-9.9	19.8	98.7
Sept. 7	04 19.34	-58 39.0	6.653	6.915	-0.46	-9.7	19.9	100.9
Sept. 17	04 13.74	-60 13.3	6.714	6.999	-0.69	-9.1	20.0	102.4
Sept. 27	04 05.80	-61 40.1	6.787	7.083	-0.92	-8.1	20.1	103.2
Oct. 7	03 55.51	-62 55.6	6.871	7.167	-1.15	-6.8	20.1	103.2
Oct. 17	03 43.11	-63 56.1	6.969	7.250	-1.34	-5.1	20.2	102.5
Oct. 27	03 29.08	-64 38.8	7.078	7.333	-1.47	-3.2	20.3	101.0
Nov. 6	03 14.17	-65 01.8	7.199	7.416	-1.51	-1.2	20.4	98.8
Nov. 16	02 59.26	-65 04.6	7.329	7.498	-1.45	+0.8	20.5	96.1
Nov. 26	02 45.24	-64 48.6	7.467	7.580	-1.32	+2.6	20.6	92.8
Dec. 6	02 32.83	-64 15.9	7.611	7.661	-1.13	+4.1	20.7	89.2
Dec. 16	02 22.49	-63 29.6	7.758	7.742	-0.91	+5.2	20.7	85.4
Dec. 26	02 14.42	-62 33.4	7.907	7.823	-0.68	+6.0	20.8	81.5
Jan. 5	02 08.61	-61 30.4	8.055	7.903	-0.46	+6.5	20.9	77.6
Jan. 15	02 04.92	-60 23.9	8.200	7.983	-0.26	+6.8	21.0	73.9
Jan. 25	02 03.10	-59 16.3	8.339	8.063	-0.09	+6.7	21.1	70.4
Feb. 4	02 02.92	-58 09.8	8.471	8.142	+0.06	+6.5	21.1	67.4
Feb. 14	02 04.12	-57 06.5	8.594	8.221	+0.19	+6.1	21.2	64.8
Feb. 24	02 06.47	-56 07.5	8.706	8.300	+0.29	+5.6	21.3	62.8
Mar. 6	02 09.76	-55 14.3	8.807	8.379	+0.37	+5.0	21.4	61.5
Mar. 16	02 13.80	-54 27.6	8.895	8.457	+0.44	+4.3	21.4	60.9
Mar. 26	02 18.41	-53 48.4	8.971	8.535	+0.49	+3.5	21.5	61.1

Comet C/2023 RN3 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2023 Jan. 19.64296 TT
 Peri. = 130.47229 e = 0.4910238
 Node = 207.06917 2000.0 a = 10.1686493 AU
 Incl. = 10.35527 n = 0.03039549
 q = 5.1756005 AU P = 32.43 years

$$m1 = -11.6 + 5 \log(\Delta) + 35.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	00 01.46	+03 07.9	5.537	5.485	+0.47	+1.5	18.0	81.9
Jan. 11	00 06.52	+03 25.9	5.709	5.502	+0.55	+2.1	18.1	73.0
Jan. 21	00 12.32	+03 49.8	5.875	5.520	+0.62	+2.7	18.2	64.3
Jan. 31	00 18.77	+04 18.8	6.031	5.538	+0.68	+3.1	18.3	55.8
Feb. 10	00 25.76	+04 51.9	6.175	5.556	+0.73	+3.5	18.4	47.5
Feb. 20	00 33.19	+05 28.5	6.305	5.575	+0.76	+3.8	18.5	39.3
Mar. 1	00 40.98	+06 07.6	6.417	5.594	+0.79	+4.0	18.6	31.3
Mar. 11	00 49.03	+06 48.7	6.511	5.614	+0.82	+4.2	18.7	23.4
Mar. 21	00 57.28	+07 30.9	6.586	5.633	+0.83	+4.3	18.8	15.6
Mar. 31	01 05.63	+08 13.6	6.641	5.654	+0.84	+4.3	18.8	7.9
Apr. 10	01 14.03	+08 56.2	6.676	5.674	+0.84	+4.2	18.9	1.0
Apr. 20	01 22.39	+09 38.0	6.689	5.695	+0.83	+4.1	19.0	7.5
Apr. 30	01 30.65	+10 18.5	6.683	5.716	+0.82	+4.0	19.0	15.1
May 10	01 38.73	+10 57.2	6.656	5.738	+0.80	+3.8	19.1	22.7
May 20	01 46.57	+11 33.6	6.610	5.759	+0.77	+3.5	19.1	30.3
May 30	01 54.09	+12 07.3	6.547	5.781	+0.73	+3.2	19.2	38.0
June 9	02 01.21	+12 37.8	6.467	5.804	+0.69	+2.9	19.2	45.7
June 19	02 07.83	+13 04.7	6.372	5.826	+0.63	+2.5	19.2	53.6
June 29	02 13.89	+13 27.7	6.264	5.849	+0.57	+2.1	19.2	61.6
July 9	02 19.28	+13 46.5	6.145	5.873	+0.50	+1.6	19.3	69.8
July 19	02 23.91	+14 00.6	6.019	5.896	+0.42	+1.1	19.3	78.2
July 29	02 27.70	+14 09.7	5.888	5.920	+0.33	+0.6	19.3	86.9
Aug. 8	02 30.55	+14 13.8	5.756	5.944	+0.23	+0.1	19.3	95.8
Aug. 18	02 32.40	+14 12.4	5.627	5.968	+0.13	-0.4	19.3	104.9
Aug. 28	02 33.21	+14 05.6	5.504	5.993	+0.02	-1.0	19.3	114.4
Sept. 7	02 32.96	+13 53.4	5.393	6.018	-0.08	-1.5	19.3	124.2
Sept. 17	02 31.68	+13 36.1	5.297	6.043	-0.18	-2.0	19.4	134.3
Sept. 27	02 29.47	+13 14.1	5.222	6.068	-0.27	-2.4	19.4	144.7
Oct. 7	02 26.47	+12 48.3	5.170	6.093	-0.34	-2.8	19.4	155.4
Oct. 17	02 22.90	+12 19.8	5.146	6.119	-0.38	-2.9	19.5	166.2
Oct. 27	02 19.02	+11 50.1	5.152	6.145	-0.39	-3.0	19.6	176.7
Nov. 6	02 15.10	+11 20.7	5.189	6.171	-0.38	-2.9	19.6	171.4
Nov. 16	02 11.45	+10 53.4	5.256	6.197	-0.34	-2.6	19.7	160.5
Nov. 26	02 08.31	+10 29.5	5.352	6.223	-0.28	-2.1	19.8	149.6
Dec. 6	02 05.90	+10 10.4	5.475	6.250	-0.19	-1.6	19.9	138.8
Dec. 16	02 04.37	+09 56.9	5.621	6.277	-0.10	-1.0	20.1	128.2
Dec. 26	02 03.81	+09 49.3	5.784	6.304	0.00	-0.4	20.2	117.9
Jan. 5	02 04.27	+09 47.8	5.961	6.331	+0.10	+0.2	20.3	107.8
Jan. 15	02 05.72	+09 52.2	6.147	6.358	+0.20	+0.7	20.5	97.9
Jan. 25	02 08.12	+10 01.8	6.337	6.386	+0.29	+1.2	20.6	88.4
Feb. 4	02 11.40	+10 16.3	6.526	6.413	+0.37	+1.7	20.7	79.1
Feb. 14	02 15.49	+10 34.7	6.711	6.441	+0.45	+2.0	20.8	70.0
Feb. 24	02 20.28	+10 56.3	6.887	6.469	+0.51	+2.3	21.0	61.2
Mar. 6	02 25.68	+11 20.4	7.052	6.497	+0.57	+2.5	21.1	52.6
Mar. 16	02 31.60	+11 46.3	7.202	6.525	+0.62	+2.7	21.2	44.1
Mar. 26	02 37.95	+12 13.3	7.336	6.553	+0.66	+2.7	21.3	35.8

Comet C/2022 A2 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2023 Feb. 18.21156 TT
 Peri. = 88.36809
 Node = 171.58576 2000.0
 Incl. = 108.13869
 q = 1.7355122 AU
 e = 1.0002042

$$m1 = 1.2 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	22 46.12	-14 15.3	4.514	4.080	+0.54	-1.7	16.7	58.0
Jan. 11	22 51.81	-14 28.8	4.747	4.171	+0.60	-1.0	17.0	49.2
Jan. 21	22 58.03	-14 36.0	4.961	4.262	+0.65	-0.5	17.3	40.6
Jan. 31	23 04.64	-14 38.8	5.154	4.352	+0.68	-0.1	17.5	32.2
Feb. 10	23 11.51	-14 39.0	5.324	4.443	+0.70	+0.1	17.8	24.3
Feb. 20	23 18.51	-14 37.9	5.469	4.532	+0.70	+0.1	18.0	17.0
Mar. 1	23 25.54	-14 37.0	5.589	4.622	+0.70	0.0	18.2	11.5
Mar. 11	23 32.50	-14 37.5	5.683	4.711	+0.69	-0.2	18.4	11.0
Mar. 21	23 39.32	-14 40.6	5.750	4.800	+0.67	-0.5	18.6	15.9
Mar. 31	23 45.88	-14 47.4	5.793	4.889	+0.64	-0.9	18.8	23.0
Apr. 10	23 52.12	-14 58.9	5.812	4.977	+0.60	-1.5	19.0	30.8
Apr. 20	23 57.94	-15 16.3	5.807	5.065	+0.55	-2.1	19.1	38.9
Apr. 30	00 03.24	-15 40.4	5.783	5.152	+0.50	-2.8	19.3	47.3
May 10	00 07.95	-16 12.3	5.740	5.239	+0.43	-3.6	19.4	55.8
May 20	00 11.94	-16 52.8	5.683	5.326	+0.36	-4.5	19.5	64.5
May 30	00 15.13	-17 42.4	5.614	5.413	+0.27	-5.5	19.6	73.4
June 9	00 17.40	-18 41.7	5.539	5.499	+0.17	-6.5	19.7	82.5
June 19	00 18.64	-19 50.8	5.460	5.584	+0.06	-7.4	19.8	91.7
June 29	00 18.76	-21 09.3	5.385	5.670	-0.05	-8.3	19.9	101.1
July 9	00 17.67	-22 36.2	5.317	5.755	-0.18	-9.1	20.0	110.6
July 19	00 15.31	-24 10.1	5.263	5.839	-0.31	-9.7	20.1	120.1
July 29	00 11.67	-25 48.4	5.227	5.923	-0.43	-10.0	20.2	129.4
Aug. 8	00 06.81	-27 28.2	5.213	6.007	-0.55	-9.9	20.4	138.2
Aug. 18	00 00.84	-29 05.7	5.228	6.091	-0.65	-9.5	20.5	145.7
Aug. 28	23 54.00	-30 37.3	5.272	6.174	-0.72	-8.7	20.6	150.9
Sept. 7	23 46.58	-31 59.4	5.348	6.257	-0.76	-7.6	20.8	152.2
Sept. 17	23 38.93	-33 09.3	5.456	6.339	-0.76	-6.2	20.9	149.1
Sept. 27	23 31.45	-34 05.3	5.594	6.422	-0.73	-4.8	21.1	142.9
Oct. 7	23 24.49	-34 46.8	5.760	6.503	-0.65	-3.4	21.3	134.9
Oct. 17	23 18.36	-35 14.2	5.949	6.585	-0.56	-2.0	21.4	126.0
Oct. 27	23 13.30	-35 28.8	6.158	6.666	-0.44	-0.8	21.6	116.8
Nov. 6	23 09.44	-35 32.2	6.382	6.747	-0.32	+0.2	21.8	107.5
Nov. 16	23 06.84	-35 26.5	6.615	6.828	-0.19	+1.0	22.0	98.3
Nov. 26	23 05.48	-35 13.6	6.852	6.908	-0.07	+1.6	.	89.1
Dec. 6	23 05.30	-34 55.3	7.088	6.988	+0.04	+2.1	.	80.2
Dec. 16	23 06.20	-34 33.2	7.319	7.068	+0.14	+2.4	.	71.5
Dec. 26	23 08.04	-34 08.7	7.539	7.147	+0.23	+2.5	.	63.0
Jan. 5	23 10.72	-33 43.1	7.747	7.226	+0.31	+2.6	.	54.9
Jan. 15	23 14.10	-33 17.5	7.937	7.305	+0.37	+2.5	.	47.2
Jan. 25	23 18.04	-32 52.8	8.109	7.383	+0.42	+2.4	.	40.1
Feb. 4	23 22.43	-32 29.9	8.258	7.461	+0.46	+2.2	.	34.0
Feb. 14	23 27.15	-32 09.5	8.385	7.539	+0.49	+1.9	.	29.3
Feb. 24	23 32.10	-31 52.5	8.488	7.617	+0.50	+1.5	.	26.7
Mar. 6	23 37.18	-31 39.4	8.566	7.694	+0.51	+1.1	.	26.9
Mar. 16	23 42.29	-31 30.9	8.620	7.771	+0.51	+0.6	.	29.6
Mar. 26	23 47.33	-31 27.6	8.651	7.848	+0.50	0.0	.	34.4

Comet C/2019 U5 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2023 Mar. 29.65563 TT
 Peri. = 181.46403
 Node = 2.62857 2000.0
 Incl. = 113.51350
 q = 3.6238517 AU
 e = 1.0007438

$$m1 = 6.0 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	10 05.02	-42 01.1	4.105	4.382	-1.51	-11.6	13.9	99.8
Jan. 11	09 48.59	-43 46.2	4.048	4.431	-1.80	-9.1	13.9	106.6
Jan. 21	09 29.60	-45 02.8	4.014	4.480	-2.01	-5.8	13.9	112.3
Jan. 31	09 08.94	-45 44.8	4.006	4.531	-2.11	-2.2	13.9	116.4
Feb. 10	08 47.87	-45 49.5	4.026	4.583	-2.08	+1.6	14.0	118.7
Feb. 20	08 27.76	-45 18.5	4.076	4.635	-1.91	+4.9	14.0	118.9
Mar. 1	08 09.78	-44 17.8	4.154	4.688	-1.65	+7.4	14.1	117.0
Mar. 11	07 54.62	-42 55.7	4.258	4.742	-1.35	+9.0	14.2	113.5
Mar. 21	07 42.57	-41 21.3	4.383	4.797	-1.04	+9.8	14.3	108.8
Mar. 31	07 33.54	-39 42.8	4.525	4.852	-0.75	+9.8	14.4	103.2
Apr. 10	07 27.23	-38 06.5	4.679	4.908	-0.49	+9.3	14.5	97.3
Apr. 20	07 23.29	-36 37.3	4.841	4.964	-0.28	+8.4	14.6	91.2
Apr. 30	07 21.31	-35 18.2	5.005	5.021	-0.10	+7.3	14.8	85.1
May 10	07 20.94	-34 11.2	5.169	5.079	+0.04	+6.0	14.9	79.3
May 20	07 21.87	-33 17.4	5.327	5.137	+0.15	+4.6	15.0	73.8
May 30	07 23.80	-32 37.2	5.478	5.195	+0.24	+3.3	15.1	68.7
June 9	07 26.49	-32 10.6	5.618	5.254	+0.30	+1.9	15.2	64.1
June 19	07 29.74	-31 57.5	5.745	5.314	+0.35	+0.6	15.2	60.2
June 29	07 33.34	-31 57.6	5.858	5.373	+0.37	-0.7	15.3	57.1
July 9	07 37.15	-32 10.4	5.955	5.434	+0.38	-2.0	15.4	54.8
July 19	07 40.98	-32 35.6	6.037	5.494	+0.38	-3.2	15.5	53.5
July 29	07 44.70	-33 12.6	6.102	5.555	+0.36	-4.3	15.5	53.3
Aug. 8	07 48.15	-34 00.8	6.151	5.616	+0.32	-5.4	15.6	54.0
Aug. 18	07 51.18	-34 59.8	6.185	5.677	+0.27	-6.4	15.6	55.7
Aug. 28	07 53.63	-36 08.6	6.204	5.739	+0.21	-7.4	15.7	58.3
Sept. 7	07 55.34	-37 26.4	6.211	5.800	+0.12	-8.2	15.7	61.7
Sept. 17	07 56.11	-38 52.2	6.206	5.862	+0.02	-9.0	15.7	65.6
Sept. 27	07 55.75	-40 24.3	6.193	5.925	-0.11	-9.5	15.8	70.0
Oct. 7	07 54.05	-42 01.1	6.173	5.987	-0.25	-9.8	15.8	74.7
Oct. 17	07 50.79	-43 40.1	6.151	6.050	-0.42	-9.9	15.8	79.5
Oct. 27	07 45.79	-45 18.5	6.128	6.112	-0.60	-9.7	15.8	84.4
Nov. 6	07 38.86	-46 52.7	6.108	6.175	-0.80	-9.0	15.9	89.2
Nov. 16	07 29.94	-48 18.8	6.096	6.238	-1.00	-8.0	15.9	93.7
Nov. 26	07 19.07	-49 32.5	6.092	6.301	-1.19	-6.5	15.9	97.7
Dec. 6	07 06.48	-50 29.6	6.101	6.365	-1.34	-4.7	16.0	101.1
Dec. 16	06 52.60	-51 06.6	6.125	6.428	-1.44	-2.5	16.0	103.6
Dec. 26	06 38.06	-51 21.2	6.164	6.491	-1.46	-0.2	16.0	105.2
Jan. 5	06 23.57	-51 12.6	6.221	6.555	-1.42	+2.1	16.1	105.6
Jan. 15	06 09.86	-50 42.2	6.295	6.619	-1.30	+4.2	16.2	105.0
Jan. 25	05 57.53	-49 52.6	6.385	6.682	-1.14	+5.9	16.2	103.4
Feb. 4	05 46.97	-48 47.8	6.491	6.746	-0.95	+7.2	16.3	100.9
Feb. 14	05 38.39	-47 32.2	6.608	6.810	-0.75	+8.0	16.3	97.6
Feb. 24	05 31.81	-46 10.0	6.736	6.874	-0.55	+8.4	16.4	93.8
Mar. 6	05 27.14	-44 45.3	6.872	6.937	-0.37	+8.5	16.5	89.7
Mar. 16	05 24.19	-43 21.5	7.011	7.001	-0.21	+8.2	16.6	85.3
Mar. 26	05 22.76	-42 01.2	7.153	7.065	-0.07	+7.7	16.6	81.0

Comet 170P/Christensen

Epoch = 2024 July 29.0 TT
 T = 2023 Apr. 16.69606 TT
 Peri. = 224.95779 e = 0.3052859
 Node = 142.66344 2000.0 a = 4.2000439 AU
 Incl. = 10.12037 n = 0.11450471
 q = 2.9178297 AU P = 8.61 years

$$m1 = 4.0 + 5 \log(\Delta) + 22.5 \log(r(t-100))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	03 17.65	+05 01.2	2.541	3.236	-0.09 +3.7	16.9	127.5
Jan. 11	03 17.70	+05 42.0	2.679	3.258	+0.12 +4.5	17.1	118.0
Jan. 21	03 19.73	+06 30.5	2.828	3.280	+0.31 +5.2	17.2	108.8
Jan. 31	03 23.61	+07 24.5	2.986	3.303	+0.48 +5.6	17.4	100.0
Feb. 10	03 29.16	+08 22.0	3.149	3.327	+0.64 +5.9	17.6	91.6
Feb. 20	03 36.20	+09 21.2	3.314	3.351	+0.78 +5.9	17.8	83.6
Mar. 1	03 44.52	+10 20.5	3.477	3.375	+0.90 +5.9	17.9	75.9
Mar. 11	03 53.94	+11 18.6	3.636	3.400	+1.00 +5.7	18.1	68.5
Mar. 21	04 04.31	+12 14.5	3.790	3.424	+1.08 +5.4	18.2	61.3
Mar. 31	04 15.46	+13 07.1	3.936	3.450	+1.15 +5.1	18.4	54.3
Apr. 10	04 27.26	+13 55.7	4.072	3.475	+1.21 +4.6	18.5	47.5
Apr. 20	04 39.61	+14 39.8	4.198	3.501	+1.26 +4.1	18.7	40.9
Apr. 30	04 52.37	+15 18.7	4.311	3.527	+1.30 +3.6	18.8	34.4
May 10	05 05.45	+15 52.3	4.411	3.553	+1.32 +3.0	18.9	28.1
May 20	05 18.75	+16 20.1	4.498	3.579	+1.34 +2.5	19.0	21.9
May 30	05 32.19	+16 42.0	4.569	3.605	+1.35 +1.9	19.1	15.9
June 9	05 45.67	+16 58.1	4.625	3.632	+1.35 +1.3	19.2	10.4
June 19	05 59.11	+17 08.4	4.666	3.658	+1.34 +0.7	19.3	6.6
June 29	06 12.43	+17 13.0	4.690	3.685	+1.32 +0.2	19.4	7.6
July 9	06 25.56	+17 12.2	4.698	3.712	+1.30 -0.4	19.5	12.4
July 19	06 38.40	+17 06.3	4.690	3.739	+1.26 -0.9	19.5	18.3
July 29	06 50.87	+16 55.7	4.666	3.766	+1.22 -1.3	19.6	24.5
Aug. 8	07 02.89	+16 41.0	4.625	3.792	+1.17 -1.7	19.6	31.0
Aug. 18	07 14.37	+16 22.8	4.570	3.819	+1.11 -2.0	19.7	37.7
Aug. 28	07 25.22	+16 01.8	4.499	3.846	+1.05 -2.2	19.7	44.6
Sept. 7	07 35.33	+15 38.6	4.415	3.873	+0.97 -2.4	19.8	51.7
Sept. 17	07 44.59	+15 14.4	4.319	3.900	+0.87 -2.5	19.8	59.1
Sept. 27	07 52.88	+14 49.9	4.212	3.927	+0.77 -2.4	19.8	66.8
Oct. 7	08 00.08	+14 26.4	4.096	3.954	+0.65 -2.3	19.8	74.8
Oct. 17	08 06.03	+14 04.9	3.974	3.980	+0.52 -2.0	19.8	83.2
Oct. 27	08 10.60	+13 46.6	3.849	4.007	+0.38 -1.6	19.8	91.9
Nov. 6	08 13.65	+13 32.9	3.724	4.033	+0.22 -1.1	19.8	101.1
Nov. 16	08 15.06	+13 24.8	3.603	4.060	+0.05 -0.5	19.8	110.7
Nov. 26	08 14.75	+13 23.3	3.492	4.086	-0.13 +0.2	19.8	120.8
Dec. 6	08 12.71	+13 29.2	3.394	4.112	-0.30 +1.0	19.8	131.3
Dec. 16	08 09.04	+13 42.5	3.316	4.138	-0.45 +1.7	19.8	142.3
Dec. 26	08 03.97	+14 02.9	3.261	4.164	-0.57 +2.4	19.9	153.5
Jan. 5	07 57.85	+14 29.2	3.233	4.190	-0.65 +2.9	19.9	164.7
Jan. 15	07 51.18	+14 59.8	3.236	4.216	-0.68 +3.2	20.0	173.7
Jan. 25	07 44.51	+15 32.7	3.271	4.241	-0.65 +3.3	20.1	168.8
Feb. 4	07 38.40	+16 06.0	3.336	4.266	-0.56 +3.3	20.2	158.0
Feb. 14	07 33.32	+16 37.9	3.430	4.291	-0.44 +3.1	20.3	146.9
Feb. 24	07 29.63	+17 07.2	3.550	4.316	-0.28 +2.8	20.4	136.0
Mar. 6	07 27.52	+17 33.0	3.690	4.341	-0.12 +2.4	20.6	125.4
Mar. 16	07 27.07	+17 54.7	3.846	4.366	+0.05 +1.9	20.7	115.3
Mar. 26	07 28.25	+18 12.0	4.014	4.390	+0.20 +1.5	20.9	105.7

Comet C/2022 JK5 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2023 Apr. 29.19922 TT
 Peri. = 247.30541 e = 0.9389722
 Node = 59.64549 2000.0 a = 44.0881074 AU
 Incl. = 16.83180 n = 0.00336684
 q = 2.6906002 AU P = 292.74 years

$$m_1 = -8.1 + 5 \log(\Delta) + 45.0 \log(r(t-125))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	00 00.86	-13° 33.0	3.747	3.625	+0.83 +10.4	16.0	75.4
Jan. 11	00 09.43	-11 49.7	3.943	3.688	+0.89 +10.3	16.3	68.0
Jan. 21	00 18.57	-10 07.6	4.134	3.752	+0.94 +10.1	16.7	60.7
Jan. 31	00 28.17	-08 27.1	4.319	3.817	+0.98 +9.9	17.1	53.6
Feb. 10	00 38.11	-06 48.9	4.495	3.882	+1.01 +9.7	17.5	46.5
Feb. 20	00 48.30	-05 13.3	4.661	3.949	+1.03 +9.4	17.9	39.5
Mar. 1	00 58.65	-03 40.8	4.814	4.015	+1.04 +9.1	18.3	32.7
Mar. 11	01 09.09	-02 11.6	4.953	4.083	+1.05 +8.7	18.7	25.9
Mar. 21	01 19.55	+00 46.2	5.077	4.150	+1.04 +8.3	19.1	19.4
Mar. 31	01 29.97	+00 35.2	5.184	4.219	+1.04 +7.9	19.5	13.4
Apr. 10	01 40.28	+01 52.3	5.275	4.287	+1.02 +7.5	19.8	8.7
Apr. 20	01 50.44	+03 04.8	5.348	4.356	+1.00 +7.0	20.2	8.4
Apr. 30	02 00.36	+04 12.6	5.402	4.426	+0.98 +6.5	20.6	12.8
May 10	02 09.99	+05 15.5	5.439	4.495	+0.95 +6.0	20.9	18.8
May 20	02 19.27	+06 13.2	5.457	4.565	+0.91 +5.5	21.3	25.5
May 30	02 28.12	+07 05.8	5.458	4.635	+0.86 +5.0	21.6	32.4
June 9	02 36.47	+07 53.2	5.442	4.705	+0.80 +4.4	21.9	39.6
June 19	02 44.23	+08 35.2	5.411	4.775	+0.74 +3.9	.	47.0
June 29	02 51.30	+09 11.8	5.364	4.846	+0.67 +3.4	.	54.5
July 9	02 57.61	+09 43.1	5.305	4.916	+0.58 +2.8	.	62.3
July 19	03 03.04	+10 09.1	5.235	4.987	+0.49 +2.3	.	70.4
July 29	03 07.50	+10 29.9	5.157	5.058	+0.39 +1.8	.	78.7
Aug. 8	03 10.89	+10 45.5	5.074	5.128	+0.28 +1.3	.	87.4
Aug. 18	03 13.11	+10 56.2	4.989	5.199	+0.16 +0.8	.	96.3
Aug. 28	03 14.11	+11 02.1	4.907	5.270	+0.03 +0.3	.	105.6
Sept. 7	03 13.84	+11 03.6	4.832	5.340	-0.10 -0.1	.	115.3
Sept. 17	03 12.31	+11 01.2	4.768	5.411	-0.22 -0.4	.	125.3
Sept. 27	03 09.59	+10 55.4	4.720	5.482	-0.33 -0.7	.	135.6
Oct. 7	03 05.83	+10 47.1	4.693	5.552	-0.43 -0.9	.	146.3
Oct. 17	03 01.25	+10 37.2	4.692	5.623	-0.49 -1.0	.	157.0
Oct. 27	02 56.12	+10 26.8	4.719	5.693	-0.53 -1.0	.	167.5
Nov. 6	02 50.79	+10 17.3	4.777	5.764	-0.53 -0.9	.	174.2
Nov. 16	02 45.58	+10 09.8	4.866	5.834	-0.50 -0.6	.	167.1
Nov. 26	02 40.83	+10 05.5	4.986	5.904	-0.44 -0.2	.	156.5
Dec. 6	02 36.80	+10 05.2	5.135	5.974	-0.35 +0.2	.	145.7
Dec. 16	02 33.70	+10 09.6	5.309	6.044	-0.25 +0.7	.	134.9
Dec. 26	02 31.63	+10 18.8	5.504	6.114	-0.15 +1.2	.	124.4
Jan. 5	02 30.66	+10 32.8	5.717	6.184	-0.04 +1.7	.	114.1
Jan. 15	02 30.79	+10 51.3	5.941	6.254	+0.07 +2.1	.	104.1
Jan. 25	02 31.95	+11 13.9	6.172	6.323	+0.17 +2.5	.	94.3
Feb. 4	02 34.09	+11 39.9	6.406	6.393	+0.26 +2.8	.	84.8
Feb. 14	02 37.09	+12 08.9	6.637	6.462	+0.34 +3.0	.	75.6
Feb. 24	02 40.86	+12 40.1	6.862	6.531	+0.41 +3.2	.	66.5
Mar. 6	02 45.29	+13 12.9	7.077	6.600	+0.48 +3.3	.	57.7
Mar. 16	02 50.27	+13 46.7	7.279	6.669	+0.52 +3.4	.	49.0
Mar. 26	02 55.71	+14 21.1	7.464	6.738	+0.56 +3.4	.	40.5

Comet C/2020 V2 (ZTF)

Epoch = 2024 July 29.0 TT
 T = 2023 May 8.46722 TT
 Peri. = 162.40846
 Node = 212.37523 2000.0
 Incl. = 131.61258
 q = 2.2280515 AU
 e = 1.0008322

$$m1 = 3.5 + 5 \log(\Delta) + 10.0 \log(r(t+100))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	23 17.08	-41 18.1	3.831	3.435	+0.12	+3.3	12.7	59.4
Jan. 11	23 19.04	-40 45.9	4.031	3.514	+0.28	+3.1	12.9	52.1
Jan. 21	23 22.47	-40 17.3	4.210	3.592	+0.41	+2.6	13.1	45.7
Jan. 31	23 27.03	-39 53.7	4.367	3.672	+0.51	+2.0	13.2	40.3
Feb. 10	23 32.43	-39 36.4	4.500	3.752	+0.58	+1.4	13.4	36.4
Feb. 20	23 38.46	-39 26.4	4.608	3.832	+0.63	+0.5	13.5	34.3
Mar. 1	23 44.91	-39 24.8	4.692	3.913	+0.66	-0.4	13.6	34.3
Mar. 11	23 51.63	-39 32.8	4.750	3.993	+0.68	-1.4	13.7	36.3
Mar. 21	23 58.48	-39 51.5	4.786	4.075	+0.69	-2.5	13.8	40.1
Mar. 31	00 05.30	-40 22.0	4.800	4.156	+0.68	-3.7	13.9	45.1
Apr. 10	00 11.98	-41 05.5	4.794	4.237	+0.65	-5.1	13.9	51.1
Apr. 20	00 18.36	-42 03.1	4.771	4.319	+0.62	-6.6	14.0	57.7
Apr. 30	00 24.30	-43 16.0	4.735	4.400	+0.56	-8.2	14.0	64.7
May 10	00 29.64	-44 44.9	4.689	4.482	+0.49	-9.8	14.1	72.0
May 20	00 34.14	-46 30.4	4.637	4.563	+0.40	-11.5	14.1	79.5
May 30	00 37.57	-48 32.5	4.585	4.645	+0.27	-13.1	14.2	87.1
June 9	00 39.62	-50 50.3	4.537	4.726	+0.11	-14.6	14.2	94.5
June 19	00 39.86	-53 22.1	4.498	4.808	-0.09	-15.8	14.3	101.7
June 29	00 37.81	-56 04.5	4.472	4.889	-0.35	-16.7	14.3	108.4
July 9	00 32.85	-58 53.0	4.466	4.970	-0.68	-16.9	14.4	114.2
July 19	00 24.24	-61 40.9	4.481	5.051	-1.09	-16.5	14.4	118.9
July 29	00 11.22	-64 20.4	4.522	5.132	-1.57	-15.1	14.5	121.9
Aug. 8	23 53.20	-66 42.4	4.590	5.213	-2.09	-12.9	14.6	123.1
Aug. 18	23 30.13	-68 37.7	4.684	5.293	-2.56	-9.8	14.7	122.2
Aug. 28	23 03.02	-69 59.0	4.804	5.374	-2.86	-6.1	14.8	119.5
Sept. 7	22 34.05	-70 42.6	4.948	5.454	-2.89	-2.3	14.9	115.2
Sept. 17	22 06.18	-70 49.9	5.112	5.534	-2.62	+1.1	15.1	109.8
Sept. 27	21 41.95	-70 27.2	5.292	5.614	-2.16	+3.6	15.2	103.7
Oct. 7	21 22.76	-69 42.8	5.484	5.694	-1.62	+5.3	15.3	97.0
Oct. 17	21 08.84	-68 45.0	5.683	5.773	-1.12	+6.2	15.4	90.2
Oct. 27	20 59.71	-67 40.5	5.886	5.852	-0.68	+6.6	15.6	83.2
Nov. 6	20 54.62	-66 34.2	6.087	5.931	-0.32	+6.6	15.7	76.3
Nov. 16	20 52.78	-65 29.4	6.283	6.010	-0.03	+6.3	15.8	69.6
Nov. 26	20 53.49	-64 28.2	6.469	6.089	+0.19	+5.9	15.9	63.3
Dec. 6	20 56.19	-63 31.9	6.643	6.167	+0.36	+5.3	16.0	57.4
Dec. 16	21 00.41	-62 41.6	6.802	6.246	+0.49	+4.7	16.1	52.1
Dec. 26	21 05.76	-61 57.7	6.943	6.324	+0.59	+4.0	16.2	47.8
Jan. 5	21 11.95	-61 20.8	7.065	6.402	+0.65	+3.3	16.3	44.6
Jan. 15	21 18.71	-60 51.2	7.166	6.479	+0.70	+2.5	16.4	42.8
Jan. 25	21 25.85	-60 29.3	7.246	6.556	+0.73	+1.8	16.4	42.7
Feb. 4	21 33.17	-60 15.4	7.305	6.634	+0.74	+0.9	16.5	44.1
Feb. 14	21 40.49	-60 10.0	7.344	6.711	+0.73	+0.1	16.6	47.1
Feb. 24	21 47.68	-60 13.4	7.363	6.787	+0.71	-0.8	16.6	51.2
Mar. 6	21 54.59	-60 26.2	7.365	6.864	+0.67	-1.8	16.7	56.3
Mar. 16	22 01.04	-60 48.5	7.350	6.940	+0.61	-2.8	16.7	62.0
Mar. 26	22 06.89	-61 20.6	7.323	7.016	+0.54	-3.8	16.7	68.3

Comet C/2020 K1 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2023 May 9.01114 TT
 Peri. = 213.97837
 Node = 94.36423 2000.0
 Incl. = 89.67257
 q = 3.0734149 AU
 e = 0.9994384

$$m1 = 5.4 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	04 16.90	-83 14.8	4.005	3.825	-3.81	+17.8	14.2	72.4
Jan. 11	03 52.44	-80 06.7	4.033	3.881	-1.23	+19.8	14.3	74.1
Jan. 21	03 45.62	-76 43.1	4.063	3.938	-0.16	+20.9	14.4	75.7
Jan. 31	03 46.61	-73 11.2	4.099	3.995	+0.36	+21.5	14.5	77.0
Feb. 10	03 51.63	-69 35.4	4.143	4.054	+0.65	+21.6	14.6	78.0
Feb. 20	03 58.99	-65 59.5	4.195	4.114	+0.83	+21.5	14.7	78.5
Mar. 1	04 07.79	-62 26.9	4.256	4.175	+0.94	+21.0	14.8	78.6
Mar. 11	04 17.50	-59 00.7	4.328	4.237	+1.01	+20.2	14.9	78.1
Mar. 21	04 27.82	-55 43.8	4.409	4.299	+1.05	+19.1	15.0	77.2
Mar. 31	04 38.50	-52 38.5	4.498	4.362	+1.08	+17.8	15.1	75.8
Apr. 10	04 49.38	-49 46.6	4.594	4.425	+1.10	+16.4	15.2	74.1
Apr. 20	05 00.36	-47 09.7	4.695	4.490	+1.10	+14.8	15.3	72.1
Apr. 30	05 11.31	-44 48.7	4.800	4.554	+1.09	+13.2	15.4	70.0
May 10	05 22.17	-42 43.9	4.906	4.619	+1.08	+11.6	15.5	67.7
May 20	05 32.85	-40 55.8	5.012	4.685	+1.05	+9.9	15.6	65.6
May 30	05 43.27	-39 24.1	5.114	4.751	+1.03	+8.3	15.7	63.6
June 9	05 53.38	-38 08.4	5.211	4.818	+0.99	+6.7	15.8	61.9
June 19	06 03.10	-37 08.4	5.302	4.885	+0.95	+5.2	15.9	60.6
June 29	06 12.37	-36 23.1	5.384	4.952	+0.90	+3.7	16.0	59.8
July 9	06 21.11	-35 52.0	5.458	5.019	+0.84	+2.4	16.1	59.5
July 19	06 29.24	-35 34.3	5.520	5.087	+0.78	+1.1	16.2	59.9
July 29	06 36.68	-35 29.0	5.571	5.155	+0.70	-0.1	16.3	60.9
Aug. 8	06 43.34	-35 35.1	5.611	5.223	+0.62	-1.2	16.3	62.6
Aug. 18	06 49.12	-35 51.7	5.640	5.291	+0.53	-2.2	16.4	65.0
Aug. 28	06 53.91	-36 17.4	5.657	5.360	+0.42	-3.0	16.5	67.9
Sept. 7	06 57.60	-36 51.0	5.664	5.429	+0.30	-3.7	16.5	71.5
Sept. 17	07 00.05	-37 30.7	5.662	5.497	+0.17	-4.2	16.6	75.5
Sept. 27	07 01.15	-38 14.5	5.653	5.566	+0.03	-4.5	16.6	79.9
Oct. 7	07 00.78	-39 00.5	5.639	5.635	-0.12	-4.6	16.7	84.7
Oct. 17	06 58.85	-39 45.7	5.623	5.704	-0.28	-4.4	16.7	89.6
Oct. 27	06 55.32	-40 27.2	5.607	5.774	-0.44	-3.8	16.8	94.7
Nov. 6	06 50.20	-41 01.8	5.594	5.843	-0.60	-2.9	16.8	99.7
Nov. 16	06 43.60	-41 25.9	5.588	5.912	-0.73	-1.7	16.9	104.4
Nov. 26	06 35.76	-41 36.4	5.592	5.981	-0.84	-0.2	16.9	108.7
Dec. 6	06 27.01	-41 30.5	5.609	6.051	-0.91	+1.6	17.0	112.2
Dec. 16	06 17.79	-41 06.4	5.642	6.120	-0.93	+3.4	17.0	114.8
Dec. 26	06 08.58	-40 23.7	5.692	6.189	-0.90	+5.3	17.1	116.2
Jan. 5	05 59.85	-39 23.0	5.762	6.259	-0.83	+7.0	17.2	116.2
Jan. 15	05 52.02	-38 06.3	5.851	6.328	-0.72	+8.4	17.2	114.9
Jan. 25	05 45.37	-36 36.8	5.959	6.397	-0.59	+9.5	17.3	112.3
Feb. 4	05 40.10	-34 57.8	6.086	6.467	-0.45	+10.3	17.4	108.5
Feb. 14	05 36.28	-33 13.0	6.228	6.536	-0.30	+10.7	17.5	103.9
Feb. 24	05 33.88	-31 25.9	6.383	6.605	-0.16	+10.7	17.6	98.7
Mar. 6	05 32.83	-29 39.3	6.549	6.674	-0.03	+10.5	17.7	92.9
Mar. 16	05 33.01	-27 56.0	6.722	6.743	+0.08	+10.1	17.8	87.0
Mar. 26	05 34.28	-26 17.7	6.899	6.812	+0.18	+9.5	17.9	80.9

Comet 237P/LINEAR

Epoch = 2024 July 29.0 TT
 T = 2023 May 14.79656 TT
 Peri. = 25.35770 e = 0.4337934
 Node = 245.35191 2000.0 a = 3.5121687 AU
 Incl. = 14.01773 n = 0.14974110
 q = 1.9886131 AU P = 6.58 years

$$m1 = 3.9 + 5 \log(\Delta) + 27.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' .			m		°
Jan. 1	22 01.72	+00 12.5	3.097	2.638	+1.62 +6.1	17.9	53.7
Jan. 11	22 17.88	+01 16.4	3.239	2.681	+1.61 +6.7	18.2	47.9
Jan. 21	22 33.98	+02 26.3	3.374	2.725	+1.60 +7.3	18.5	42.1
Jan. 31	22 49.95	+03 40.9	3.501	2.769	+1.59 +7.7	18.8	36.3
Feb. 10	23 05.77	+04 59.3	3.617	2.813	+1.57 +8.0	19.0	30.6
Feb. 20	23 21.41	+06 20.6	3.723	2.857	+1.55 +8.2	19.3	25.0
Mar. 1	23 36.83	+07 43.6	3.816	2.902	+1.53 +8.4	19.5	19.5
Mar. 11	23 52.03	+09 07.6	3.897	2.946	+1.51 +8.4	19.8	14.5
Mar. 21	00 06.96	+10 31.8	3.964	2.990	+1.48 +8.4	20.0	10.4
Mar. 31	00 21.62	+11 55.3	4.017	3.034	+1.45 +8.3	20.2	8.8
Apr. 10	00 35.98	+13 17.4	4.055	3.077	+1.42 +8.1	20.4	11.0
Apr. 20	00 50.01	+14 37.6	4.078	3.121	+1.38 +7.9	20.5	15.4
Apr. 30	01 03.66	+15 55.1	4.086	3.164	+1.34 +7.6	20.7	20.7
May 10	01 16.91	+17 09.6	4.078	3.207	+1.30 +7.3	20.9	26.5
May 20	01 29.67	+18 20.6	4.056	3.249	+1.25 +6.9	21.0	32.6
May 30	01 41.90	+19 27.6	4.019	3.291	+1.19 +6.5	21.1	38.8
June 9	01 53.51	+20 30.2	3.968	3.333	+1.12 +6.0	21.3	45.3
June 19	02 04.40	+21 28.2	3.904	3.375	+1.04 +5.5	21.4	52.0
June 29	02 14.45	+22 21.2	3.828	3.416	+0.95 +5.0	21.5	58.9
July 9	02 23.52	+23 08.9	3.741	3.457	+0.85 +4.5	21.6	66.1
July 19	02 31.47	+23 50.9	3.646	3.497	+0.73 +3.9	21.7	73.6
July 29	02 38.12	+24 26.8	3.543	3.536	+0.59 +3.2	21.7	81.4
Aug. 8	02 43.28	+24 55.9	3.436	3.576	+0.43 +2.5	21.8	89.6
Aug. 18	02 46.78	+25 17.6	3.329	3.615	+0.25 +1.7	21.9	98.2
Aug. 28	02 48.45	+25 31.0	3.223	3.653	+0.06 +0.8	21.9	107.3
Sept. 7	02 48.17	+25 34.9	3.124	3.691	-0.14 -0.2	22.0	116.9
Sept. 17	02 45.90	+25 28.3	3.037	3.728	-0.33 -1.3	22.0	126.9
Sept. 27	02 41.74	+25 10.1	2.965	3.765	-0.51 -2.5	.	137.5
Oct. 7	02 35.94	+24 39.6	2.914	3.802	-0.66 -3.7	.	148.4
Oct. 17	02 28.94	+23 57.5	2.889	3.837	-0.74 -4.8	.	159.3
Oct. 27	02 21.32	+23 05.5	2.892	3.873	-0.77 -5.6	.	169.0
Nov. 6	02 13.73	+22 06.5	2.927	3.908	-0.73 -6.1	.	170.4
Nov. 16	02 06.83	+21 04.9	2.992	3.942	-0.63 -6.1	.	161.3
Nov. 26	02 01.12	+20 04.9	3.087	3.976	-0.49 -5.8	.	150.4
Dec. 6	01 56.96	+19 10.4	3.209	4.009	-0.32 -5.0	.	139.4
Dec. 16	01 54.55	+18 24.4	3.353	4.042	-0.14 -4.1	.	128.7
Dec. 26	01 53.90	+17 48.5	3.515	4.074	+0.03 -3.0	.	118.2
Jan. 5	01 54.97	+17 23.2	3.691	4.105	+0.20 -1.9	.	108.2
Jan. 15	01 57.61	+17 08.4	3.874	4.136	+0.34 -0.9	.	98.6
Jan. 25	02 01.66	+17 03.2	4.061	4.167	+0.48 0.0	.	89.3
Feb. 4	02 06.94	+17 06.4	4.248	4.197	+0.59 +0.7	.	80.4
Feb. 14	02 13.29	+17 16.8	4.430	4.227	+0.69 +1.4	.	71.8
Feb. 24	02 20.55	+17 33.0	4.605	4.256	+0.77 +1.9	.	63.4
Mar. 6	02 28.57	+17 53.8	4.770	4.284	+0.84 +2.3	.	55.3
Mar. 16	02 37.22	+18 17.9	4.922	4.312	+0.90 +2.6	.	47.4
Mar. 26	02 46.39	+18 44.3	5.060	4.339	+0.94 +2.7	.	39.7

Comet C/2021 X1 (Maury-Attard)

Epoch = 2024 July 29.0 TT
 T = 2023 May 27.15864 TT
 Peri. = 334.57439
 Node = 10.59504 2000.0
 Incl. = 140.10017
 q = 3.2337135 AU
 e = 1.0002894

$$m1 = 7.3 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	22 30.26	+03 46.2	4.202	3.835	-0.04	+2.8	16.3	61.7
Jan. 11	22 30.39	+04 17.5	4.410	3.884	+0.07	+3.5	16.4	52.1
Jan. 21	22 31.52	+04 55.6	4.597	3.936	+0.16	+4.1	16.6	43.0
Jan. 31	22 33.35	+05 39.6	4.762	3.988	+0.21	+4.7	16.7	34.4
Feb. 10	22 35.66	+06 29.1	4.900	4.042	+0.25	+5.2	16.8	26.5
Feb. 20	22 38.23	+07 23.4	5.012	4.096	+0.26	+5.7	16.9	19.9
Mar. 1	22 40.87	+08 21.9	5.095	4.152	+0.26	+6.1	17.0	16.1
Mar. 11	22 43.42	+09 24.2	5.150	4.209	+0.24	+6.4	17.1	16.8
Mar. 21	22 45.70	+10 30.0	5.177	4.266	+0.21	+6.7	17.2	21.6
Mar. 31	22 47.54	+11 38.6	5.177	4.324	+0.16	+7.0	17.2	28.4
Apr. 10	22 48.80	+12 49.6	5.152	4.384	+0.09	+7.2	17.3	36.2
Apr. 20	22 49.30	+14 02.5	5.103	4.443	0.00	+7.4	17.3	44.5
Apr. 30	22 48.85	+15 16.5	5.035	4.504	-0.10	+7.4	17.3	53.2
May 10	22 47.29	+16 30.8	4.951	4.565	-0.23	+7.4	17.4	62.0
May 20	22 44.41	+17 44.1	4.854	4.627	-0.37	+7.2	17.4	71.1
May 30	22 40.04	+18 55.1	4.750	4.689	-0.52	+6.9	17.4	80.5
June 9	22 34.04	+20 01.7	4.644	4.752	-0.70	+6.3	17.4	89.9
June 19	22 26.27	+21 01.3	4.541	4.816	-0.88	+5.5	17.4	99.6
June 29	22 16.72	+21 51.2	4.450	4.879	-1.05	+4.3	17.4	109.2
July 9	22 05.47	+22 28.1	4.375	4.943	-1.21	+2.9	17.4	118.7
July 19	21 52.79	+22 48.9	4.323	5.008	-1.33	+1.1	17.5	127.6
July 29	21 39.09	+22 51.5	4.299	5.073	-1.41	-0.8	17.5	135.4
Aug. 8	21 24.93	+22 34.7	4.309	5.138	-1.42	-2.7	17.6	141.1
Aug. 18	21 10.95	+21 59.6	4.354	5.204	-1.36	-4.4	17.7	143.6
Aug. 28	20 57.77	+21 08.7	4.435	5.269	-1.25	-5.8	17.8	142.2
Sept. 7	20 45.89	+20 06.0	4.551	5.335	-1.10	-6.7	17.9	137.3
Sept. 17	20 35.68	+18 56.3	4.698	5.402	-0.92	-7.2	18.0	130.2
Sept. 27	20 27.29	+17 44.1	4.871	5.468	-0.74	-7.2	18.1	121.9
Oct. 7	20 20.77	+16 33.3	5.067	5.535	-0.55	-6.9	18.3	113.0
Oct. 17	20 16.05	+15 27.1	5.277	5.601	-0.38	-6.3	18.4	103.9
Oct. 27	20 12.97	+14 27.7	5.497	5.668	-0.23	-5.5	18.5	94.8
Nov. 6	20 11.34	+13 36.5	5.721	5.735	-0.09	-4.6	18.7	85.9
Nov. 16	20 10.97	+12 54.4	5.943	5.802	+0.02	-3.7	18.8	77.1
Nov. 26	20 11.66	+12 21.5	6.158	5.870	+0.12	-2.8	18.9	68.6
Dec. 6	20 13.20	+11 58.1	6.362	5.937	+0.19	-1.8	19.1	60.4
Dec. 16	20 15.43	+11 44.0	6.550	6.004	+0.25	-0.9	19.2	52.7
Dec. 26	20 18.15	+11 38.7	6.720	6.072	+0.29	-0.1	19.3	45.6
Jan. 5	20 21.23	+11 41.9	6.869	6.139	+0.32	+0.8	19.4	39.3
Jan. 15	20 24.49	+11 53.1	6.994	6.207	+0.33	+1.5	19.5	34.3
Jan. 25	20 27.81	+12 11.8	7.096	6.275	+0.33	+2.3	19.5	31.2
Feb. 4	20 31.06	+12 37.4	7.172	6.342	+0.32	+2.9	19.6	30.5
Feb. 14	20 34.10	+13 09.4	7.223	6.410	+0.29	+3.5	19.7	32.3
Feb. 24	20 36.81	+13 47.1	7.249	6.478	+0.25	+4.1	19.7	36.2
Mar. 6	20 39.08	+14 29.8	7.253	6.545	+0.20	+4.5	19.8	41.7
Mar. 16	20 40.77	+15 16.7	7.235	6.613	+0.13	+4.9	19.8	48.1
Mar. 26	20 41.80	+16 07.0	7.198	6.680	+0.06	+5.2	19.8	55.3

Comet 126P/IRAS

Epoch = 2024 July 29.0 TT
 T = 2023 July 5.24253 TT
 Peri. = 356.57478 e = 0.6962822
 Node = 357.85827 2000.0 a = 5.6313496 AU
 Incl. = 45.87093 n = 0.07375396
 q = 1.7103411 AU P = 13.36 years

$$m1 = 9.3 + 5 \log(\Delta) + 15.0 \log(r(t-30))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	23 46.09	+63 56.5	2.089	2.525	+1.76 -3.9	16.4	104.7
Jan. 11	00 05.09	+63 23.8	2.220	2.594	+2.06 -2.5	16.7	101.0
Jan. 21	00 26.85	+63 03.7	2.356	2.663	+2.30 -1.4	17.0	97.1
Jan. 31	00 50.78	+62 53.3	2.498	2.733	+2.50 -0.6	17.3	93.0
Feb. 10	01 16.51	+62 49.6	2.643	2.803	+2.66 -0.1	17.6	88.9
Feb. 20	01 43.71	+62 49.9	2.791	2.873	+2.79 +0.1	17.9	84.7
Mar. 1	02 12.06	+62 51.3	2.942	2.944	+2.89 +0.1	18.2	80.4
Mar. 11	02 41.27	+62 51.4	3.095	3.014	+2.96 -0.1	18.5	76.1
Mar. 21	03 11.08	+62 48.1	3.248	3.084	+3.00 -0.6	18.7	71.7
Mar. 31	03 41.12	+62 39.8	3.400	3.154	+3.01 -1.2	19.0	67.4
Apr. 10	04 11.13	+62 25.4	3.550	3.224	+2.99 -1.8	19.2	63.1
Apr. 20	04 40.79	+62 04.3	3.697	3.293	+2.94 -2.5	19.5	58.9
Apr. 30	05 09.83	+61 36.2	3.840	3.362	+2.86 -3.2	19.7	54.8
May 10	05 38.02	+61 01.4	3.978	3.431	+2.77 -3.8	19.9	50.9
May 20	06 05.20	+60 20.6	4.109	3.499	+2.66 -4.4	20.1	47.1
May 30	06 31.22	+59 34.5	4.232	3.567	+2.54 -4.9	20.3	43.6
June 9	06 56.04	+58 44.0	4.346	3.635	+2.41 -5.2	20.5	40.5
June 19	07 19.61	+57 50.3	4.450	3.702	+2.29 -5.5	20.7	37.9
June 29	07 41.93	+56 54.5	4.544	3.769	+2.16 -5.6	20.9	36.0
July 9	08 03.04	+55 57.9	4.625	3.835	+2.05 -5.7	21.0	34.8
July 19	08 22.97	+55 01.5	4.694	3.900	+1.93 -5.6	21.2	34.6
July 29	08 41.77	+54 06.5	4.749	3.966	+1.82 -5.4	21.3	35.4
Aug. 8	08 59.48	+53 14.0	4.791	4.030	+1.71 -5.1	21.5	37.2
Aug. 18	09 16.14	+52 25.3	4.819	4.094	+1.61 -4.6	21.6	39.9
Aug. 28	09 31.77	+51 41.4	4.833	4.158	+1.51 -4.1	21.7	43.4
Sept. 7	09 46.40	+51 03.5	4.833	4.221	+1.41 -3.4	21.8	47.7
Sept. 17	10 00.00	+50 32.7	4.819	4.284	+1.30 -2.6	21.9	52.6
Sept. 27	10 12.55	+50 10.0	4.793	4.346	+1.20 -1.8	22.0	58.0
Oct. 7	10 24.02	+49 56.7	4.755	4.407	+1.08 -0.8	.	63.9
Oct. 17	10 34.30	+49 53.6	4.707	4.468	+0.96 +0.3	.	70.2
Oct. 27	10 43.30	+50 01.4	4.651	4.529	+0.82 +1.4	.	76.8
Nov. 6	10 50.88	+50 20.9	4.589	4.589	+0.67 +2.6	.	83.8
Nov. 16	10 56.84	+50 52.1	4.525	4.648	+0.50 +3.7	.	91.0
Nov. 26	11 00.99	+51 34.6	4.461	4.707	+0.31 +4.8	.	98.4
Dec. 6	11 03.07	+52 27.0	4.402	4.765	+0.08 +5.7	.	105.8
Dec. 16	11 02.84	+53 27.2	4.351	4.823	-0.16 +6.3	.	113.2
Dec. 26	11 00.08	+54 31.8	4.312	4.881	-0.42 +6.5	.	120.2
Jan. 5	10 54.65	+55 36.2	4.289	4.938	-0.69 +6.2	.	126.5
Jan. 15	10 46.59	+56 35.0	4.286	4.994	-0.94 +5.3	.	131.7
Jan. 25	10 36.21	+57 22.4	4.305	5.050	-1.15 +3.9	.	135.1
Feb. 4	10 24.11	+57 53.6	4.348	5.105	-1.27 +2.0	.	136.2
Feb. 14	10 11.19	+58 04.7	4.416	5.160	-1.30 -0.1	.	134.9
Feb. 24	09 58.46	+57 54.5	4.508	5.215	-1.22 -2.2	.	131.3
Mar. 6	09 46.87	+57 24.1	4.623	5.269	-1.06 -4.1	.	126.1
Mar. 16	09 37.16	+56 36.1	4.758	5.322	-0.85 -5.6	.	119.8
Mar. 26	09 29.71	+55 34.5	4.909	5.375	-0.61 -6.8	.	112.8

Comet C/2021 T4 (Lemmon)

Epoch = 2024 July 29.0 TT
 T = 2023 July 31.54166 TT
 Peri. = 329.81075
 Node = 257.88937 2000.0
 Incl. = 160.77809
 q = 1.4828223 AU
 e = 0.9999113

$$m1 = 9.2 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	15 16.39	-05 29.5	2.997	2.523	-0.08	+8.4	15.6	52.6
Jan. 11	15 14.82	-03 58.4	2.911	2.622	-0.26	+10.1	15.7	63.4
Jan. 21	15 11.20	-02 08.9	2.810	2.721	-0.49	+12.1	15.8	74.7
Jan. 31	15 05.08	+00 01.5	2.702	2.821	-0.77	+14.3	15.9	86.6
Feb. 10	14 56.02	+02 34.2	2.597	2.921	-1.09	+16.5	15.9	99.2
Feb. 20	14 43.62	+05 28.7	2.504	3.021	-1.43	+18.5	16.0	112.3
Mar. 1	14 27.74	+08 39.9	2.437	3.120	-1.77	+19.7	16.1	125.7
Mar. 11	14 08.62	+11 57.8	2.406	3.220	-2.07	+19.6	16.2	138.8
Mar. 21	13 47.03	+15 07.6	2.420	3.320	-2.25	+17.9	16.3	149.8
Mar. 31	13 24.31	+17 53.8	2.486	3.419	-2.27	+14.8	16.5	155.2
Apr. 10	13 02.05	+20 05.0	2.603	3.518	-2.14	+11.0	16.7	151.8
Apr. 20	12 41.72	+21 37.1	2.765	3.616	-1.88	+7.1	17.0	142.7
Apr. 30	12 24.30	+22 32.8	2.967	3.714	-1.56	+3.8	17.3	131.7
May 10	12 10.21	+22 58.7	3.198	3.812	-1.22	+1.2	17.5	120.5
May 20	11 59.42	+23 02.2	3.450	3.909	-0.91	-0.6	17.8	109.7
May 30	11 51.64	+22 49.9	3.715	4.005	-0.63	-1.9	18.1	99.3
June 9	11 46.46	+22 26.8	3.985	4.102	-0.39	-2.7	18.3	89.4
June 19	11 43.46	+21 56.7	4.255	4.197	-0.20	-3.3	18.6	79.9
June 29	11 42.24	+21 22.5	4.519	4.293	-0.04	-3.6	18.8	70.8
July 9	11 42.46	+20 45.9	4.772	4.387	+0.09	-3.7	19.0	62.0
July 19	11 43.83	+20 08.5	5.011	4.482	+0.19	-3.7	19.2	53.5
July 29	11 46.10	+19 31.3	5.232	4.575	+0.27	-3.7	19.4	45.3
Aug. 8	11 49.07	+18 55.2	5.433	4.669	+0.33	-3.5	19.6	37.4
Aug. 18	11 52.57	+18 21.0	5.612	4.761	+0.37	-3.3	19.7	29.9
Aug. 28	11 56.43	+17 49.3	5.766	4.854	+0.40	-3.0	19.9	23.2
Sept. 7	12 00.52	+17 20.8	5.894	4.945	+0.42	-2.6	20.0	18.0
Sept. 17	12 04.72	+16 56.2	5.995	5.037	+0.42	-2.2	20.1	16.0
Sept. 27	12 08.92	+16 36.1	6.070	5.127	+0.41	-1.7	20.2	18.3
Oct. 7	12 12.99	+16 21.1	6.117	5.218	+0.40	-1.2	20.3	23.8
Oct. 17	12 16.81	+16 12.2	6.138	5.308	+0.36	-0.5	20.4	30.9
Oct. 27	12 20.27	+16 09.9	6.133	5.397	+0.32	+0.2	20.5	39.0
Nov. 6	12 23.26	+16 15.1	6.106	5.486	+0.27	+1.0	20.5	47.5
Nov. 16	12 25.62	+16 28.3	6.058	5.574	+0.20	+1.8	20.6	56.5
Nov. 26	12 27.23	+16 50.3	5.994	5.662	+0.11	+2.7	20.6	65.9
Dec. 6	12 27.96	+17 21.5	5.916	5.750	+0.02	+3.6	20.7	75.6
Dec. 16	12 27.65	+18 02.1	5.831	5.837	-0.09	+4.6	20.7	85.5
Dec. 26	12 26.19	+18 51.9	5.743	5.924	-0.21	+5.5	20.7	95.8
Jan. 5	12 23.47	+19 50.2	5.660	6.010	-0.34	+6.3	20.8	106.3
Jan. 15	12 19.43	+20 55.7	5.588	6.096	-0.48	+6.9	20.8	116.9
Jan. 25	12 14.05	+22 06.2	5.532	6.182	-0.61	+7.2	20.8	127.5
Feb. 4	12 07.41	+23 18.9	5.501	6.267	-0.73	+7.3	20.9	137.9
Feb. 14	11 59.68	+24 30.6	5.498	6.352	-0.82	+7.0	20.9	147.3
Feb. 24	11 51.12	+25 37.8	5.528	6.436	-0.89	+6.3	21.0	154.6
Mar. 6	11 42.07	+26 37.4	5.592	6.520	-0.92	+5.4	21.1	157.5
Mar. 16	11 32.93	+27 26.7	5.693	6.603	-0.90	+4.3	21.2	154.3
Mar. 26	11 24.11	+28 04.4	5.827	6.686	-0.85	+3.1	21.3	147.1

Comet C/2023 K1 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2023 Sept. 7.70157 TT
 Peri. = 337.44854
 Node = 223.70460 2000.0
 Incl. = 137.99806
 q = 2.0392065 AU
 e = 0.9971805

$$m1 = -1.0 + 5 \log(\Delta) + 42.5 \log(r(t-25))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	15 03.63	-02 03.6	2.847	2.453	+0.18	+16.7	16.7	56.9
Jan. 11	15 04.67	+00 56.5	2.722	2.518	0.00	+19.7	17.0	67.6
Jan. 21	15 03.66	+04 29.1	2.590	2.586	-0.23	+23.2	17.4	78.8
Jan. 31	15 00.06	+08 38.8	2.460	2.657	-0.53	+27.1	17.8	90.4
Feb. 10	14 53.22	+13 27.6	2.343	2.730	-0.89	+31.0	18.1	102.4
Feb. 20	14 42.42	+18 51.6	2.250	2.805	-1.32	+33.9	18.5	114.2
Mar. 1	14 27.08	+24 36.8	2.195	2.881	-1.80	+34.8	19.0	125.1
Mar. 11	14 06.93	+30 19.0	2.186	2.959	-2.27	+32.9	19.5	133.5
Mar. 21	13 42.42	+35 27.0	2.230	3.039	-2.64	+27.8	20.0	137.3
Mar. 31	13 15.07	+39 33.6	2.327	3.119	-2.80	+20.6	20.6	135.5
Apr. 10	12 47.25	+42 25.6	2.471	3.200	-2.71	+13.1	21.2	129.3
Apr. 20	12 21.48	+44 05.9	2.654	3.283	-2.38	+6.6	21.9	120.7
Apr. 30	11 59.58	+44 48.9	2.865	3.365	-1.94	+1.8	.	111.4
May 10	11 42.30	+44 51.3	3.095	3.449	-1.47	-1.4	.	102.0
May 20	11 29.58	+44 28.1	3.335	3.532	-1.04	-3.3	.	92.8
May 30	11 20.90	+43 50.3	3.578	3.617	-0.67	-4.3	.	84.0
June 9	11 15.57	+43 05.2	3.819	3.701	-0.37	-4.7	.	75.7
June 19	11 12.97	+42 17.7	4.052	3.786	-0.13	-4.8	.	67.7
June 29	11 12.51	+41 30.8	4.273	3.871	+0.05	-4.6	.	60.3
July 9	11 13.75	+40 46.5	4.479	3.955	+0.20	-4.2	.	53.3
July 19	11 16.31	+40 06.0	4.666	4.040	+0.32	-3.8	.	46.9
July 29	11 19.87	+39 30.4	4.833	4.125	+0.40	-3.3	.	41.3
Aug. 8	11 24.22	+39 00.5	4.979	4.210	+0.47	-2.6	.	36.8
Aug. 18	11 29.13	+38 37.1	5.101	4.295	+0.52	-2.0	.	33.7
Aug. 28	11 34.44	+38 20.9	5.200	4.380	+0.55	-1.2	.	32.4
Sept. 7	11 40.01	+38 12.6	5.274	4.465	+0.57	-0.3	.	33.2
Sept. 17	11 45.69	+38 13.4	5.324	4.549	+0.57	+0.6	.	36.0
Sept. 27	11 51.34	+38 24.0	5.352	4.634	+0.56	+1.6	.	40.4
Oct. 7	11 56.84	+38 45.5	5.358	4.718	+0.54	+2.8	.	46.0
Oct. 17	12 02.04	+39 18.9	5.344	4.802	+0.50	+4.0	.	52.5
Oct. 27	12 06.78	+40 05.2	5.313	4.886	+0.44	+5.4	.	59.6
Nov. 6	12 10.89	+41 05.4	5.268	4.970	+0.37	+6.8	.	67.3
Nov. 16	12 14.16	+42 20.1	5.213	5.053	+0.27	+8.3	.	75.3
Nov. 26	12 16.36	+43 49.5	5.153	5.137	+0.15	+9.7	.	83.6
Dec. 6	12 17.21	+45 33.1	5.092	5.220	0.00	+11.1	.	92.0
Dec. 16	12 16.38	+47 29.6	5.037	5.302	-0.19	+12.3	.	100.3
Dec. 26	12 13.54	+49 36.5	4.993	5.385	-0.41	+13.1	.	108.4
Jan. 5	12 08.31	+51 49.7	4.965	5.467	-0.67	+13.5	.	116.0
Jan. 15	12 00.35	+54 03.8	4.958	5.549	-0.96	+13.2	.	122.5
Jan. 25	11 49.44	+56 12.0	4.978	5.631	-1.26	+12.2	.	127.5
Feb. 4	11 35.56	+58 07.3	5.025	5.713	-1.54	+10.5	.	130.3
Feb. 14	11 19.10	+59 42.7	5.103	5.794	-1.76	+8.2	.	130.6
Feb. 24	11 00.86	+60 53.1	5.210	5.875	-1.88	+5.5	.	128.3
Mar. 6	10 42.00	+61 36.0	5.344	5.956	-1.87	+2.8	.	124.0
Mar. 16	10 23.86	+61 52.0	5.502	6.036	-1.73	+0.2	.	118.2
Mar. 26	10 07.57	+61 44.7	5.681	6.116	-1.49	-1.8	.	111.4

Comet C/2023 P1 (Nishimura)

Epoch = 2024 July 29.0 TT
 T = 2023 Sept. 17.64093 TT
 Peri. = 116.29685
 Node = 66.83644 2000.0
 Incl. = 132.47686
 q = 0.2251036 AU
 e = 0.9960525

$$m1 = 9.8 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	12 07.49	-52 45.9	2.249	2.240	-2.22	-17.0	15.9	76.8
Jan. 11	11 42.03	-55 18.6	2.254	2.390	-2.95	-12.8	16.3	85.6
Jan. 21	11 09.51	-57 00.6	2.267	2.536	-3.58	-6.6	16.6	94.1
Jan. 31	10 32.07	-57 31.9	2.296	2.678	-3.86	+1.3	17.0	101.9
Feb. 10	09 54.03	-56 42.4	2.345	2.817	-3.64	+9.3	17.3	108.4
Feb. 20	09 20.13	-54 38.1	2.420	2.953	-3.03	+15.8	17.6	113.2
Mar. 1	08 53.20	-51 39.6	2.523	3.085	-2.28	+19.9	17.9	115.8
Mar. 11	08 33.69	-48 11.7	2.653	3.216	-1.57	+21.5	18.3	116.0
Mar. 21	08 20.71	-44 36.0	2.811	3.343	-0.99	+21.3	18.6	114.1
Mar. 31	08 12.94	-41 08.3	2.991	3.469	-0.54	+19.9	18.9	110.4
Apr. 10	08 09.16	-37 57.7	3.191	3.592	-0.20	+17.9	19.3	105.5
Apr. 20	08 08.39	-35 09.1	3.406	3.713	+0.06	+15.6	19.6	99.9
Apr. 30	08 09.86	-32 44.2	3.630	3.832	+0.25	+13.2	19.9	93.9
May 10	08 12.99	-30 42.7	3.860	3.950	+0.39	+10.9	20.2	87.6
May 20	08 17.35	-29 03.6	4.092	4.066	+0.49	+8.7	20.5	81.4
May 30	08 22.61	-27 45.2	4.322	4.180	+0.56	+6.8	20.7	75.2
June 9	08 28.51	-26 45.6	4.547	4.293	+0.62	+5.0	21.0	69.2
June 19	08 34.85	-26 03.2	4.764	4.404	+0.65	+3.4	21.2	63.4
June 29	08 41.46	-25 36.3	4.970	4.514	+0.67	+1.9	21.5	58.0
July 9	08 48.22	-25 23.3	5.163	4.622	+0.68	+0.6	21.7	53.0
July 19	08 54.99	-25 23.0	5.341	4.730	+0.67	-0.6	21.9	48.5
July 29	09 01.66	-25 34.1	5.502	4.836	+0.66	-1.7	.	44.8
Aug. 8	09 08.16	-25 55.6	5.646	4.941	+0.64	-2.7	.	42.1
Aug. 18	09 14.38	-26 26.5	5.772	5.045	+0.60	-3.6	.	40.5
Aug. 28	09 20.22	-27 05.7	5.878	5.148	+0.56	-4.3	.	40.2
Sept. 7	09 25.60	-27 52.4	5.964	5.250	+0.51	-5.1	.	41.3
Sept. 17	09 30.41	-28 45.8	6.031	5.350	+0.45	-5.7	.	43.7
Sept. 27	09 34.54	-29 44.8	6.080	5.450	+0.37	-6.2	.	47.3
Oct. 7	09 37.88	-30 48.6	6.111	5.549	+0.29	-6.6	.	51.9
Oct. 17	09 40.31	-31 55.9	6.125	5.647	+0.19	-6.9	.	57.2
Oct. 27	09 41.70	-33 05.3	6.125	5.745	+0.08	-7.0	.	63.1
Nov. 6	09 41.93	-34 15.4	6.114	5.841	-0.05	-7.0	.	69.5
Nov. 16	09 40.88	-35 24.2	6.093	5.937	-0.18	-6.7	.	76.3
Nov. 26	09 38.47	-36 29.6	6.068	6.032	-0.32	-6.3	.	83.2
Dec. 6	09 34.63	-37 29.1	6.040	6.126	-0.46	-5.5	.	90.3
Dec. 16	09 29.37	-38 20.1	6.015	6.219	-0.60	-4.5	.	97.4
Dec. 26	09 22.79	-38 59.7	5.997	6.312	-0.72	-3.2	.	104.3
Jan. 5	09 15.09	-39 25.5	5.990	6.404	-0.82	-1.7	.	110.7
Jan. 15	09 06.57	-39 35.4	5.997	6.495	-0.88	-0.1	.	116.4
Jan. 25	08 57.61	-39 28.3	6.023	6.586	-0.90	+1.7	.	121.1
Feb. 4	08 48.64	-39 04.1	6.069	6.676	-0.88	+3.3	.	124.4
Feb. 14	08 40.11	-38 24.0	6.138	6.765	-0.81	+4.8	.	126.0
Feb. 24	08 32.38	-37 30.4	6.230	6.854	-0.72	+6.0	.	125.7
Mar. 6	08 25.74	-36 26.1	6.344	6.942	-0.60	+6.9	.	123.6
Mar. 16	08 20.38	-35 14.7	6.480	7.030	-0.46	+7.4	.	120.0
Mar. 26	08 16.35	-33 59.8	6.635	7.117	-0.33	+7.6	.	115.2

Comet 103P/Hartley

Epoch = 2024 July 29.0 TT
 T = 2023 Oct. 12.50170 TT
 Peri. = 181.30824 e = 0.6937003
 Node = 219.74947 2000.0 a = 3.4746746 AU
 Incl. = 13.61046 n = 0.15217134
 q = 1.0642918 AU P = 6.48 years

$$m1 = 10.5 + 5 \log(\Delta) + 17.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	08 48.26	-14° 35' 2"	0.660	1.503	-1.18 +0.1	12.7	131.3
Jan. 11	08 35.69	-14 04.8	0.704	1.589	-1.31 +6.5	13.3	140.1
Jan. 21	08 22.93	-12 35.3	0.763	1.677	-1.20 +11.5	13.8	147.1
Jan. 31	08 12.04	-10 25.1	0.841	1.766	-0.93 +14.4	14.4	150.3
Feb. 10	08 04.30	-07 55.3	0.939	1.854	-0.58 +15.3	15.1	148.8
Feb. 20	08 00.23	-05 24.3	1.057	1.943	-0.20 +14.6	15.7	143.6
Mar. 1	07 59.71	-03 05.0	1.193	2.031	+0.13 +13.0	16.3	136.6
Mar. 11	08 02.30	-01 04.0	1.347	2.118	+0.41 +11.0	16.9	129.0
Mar. 21	08 07.49	+00 36.0	1.515	2.205	+0.64 +8.8	17.4	121.4
Mar. 31	08 14.73	+01 54.8	1.696	2.290	+0.82 +6.8	17.9	113.9
Apr. 10	08 23.55	+02 53.9	1.885	2.374	+0.96 +4.9	18.4	106.5
Apr. 20	08 33.59	+03 34.9	2.083	2.456	+1.06 +3.2	18.9	99.5
Apr. 30	08 44.52	+03 59.6	2.285	2.538	+1.13 +1.7	19.4	92.6
May 10	08 56.11	+04 10.1	2.489	2.618	+1.19 +0.3	19.8	85.9
May 20	09 08.15	+04 08.0	2.695	2.697	+1.22 -0.8	20.2	79.3
May 30	09 20.49	+03 54.9	2.898	2.774	+1.25 -1.9	20.6	72.9
June 9	09 33.02	+03 32.2	3.099	2.850	+1.26 -2.7	20.9	66.5
June 19	09 45.64	+03 01.1	3.293	2.925	+1.26 -3.5	21.2	60.2
June 29	09 58.28	+02 23.0	3.481	2.998	+1.26 -4.2	21.6	54.0
July 9	10 10.87	+01 38.7	3.660	3.070	+1.26 -4.7	21.8	47.8
July 19	10 23.39	+00 49.1	3.828	3.141	+1.25 -5.2	.	41.6
July 29	10 35.78	+00 04.7	3.984	3.211	+1.23 -5.6	.	35.4
Aug. 8	10 48.02	-01 02.2	4.126	3.279	+1.21 -5.9	.	29.2
Aug. 18	11 00.07	-02 02.4	4.253	3.346	+1.19 -6.1	.	23.1
Aug. 28	11 11.91	-03 04.7	4.364	3.412	+1.17 -6.3	.	17.0
Sept. 7	11 23.52	-04 08.6	4.458	3.476	+1.15 -6.4	.	11.4
Sept. 17	11 34.85	-05 13.2	4.533	3.540	+1.12 -6.5	.	7.6
Sept. 27	11 45.86	-06 18.0	4.590	3.602	+1.08 -6.5	.	8.6
Oct. 7	11 56.52	-07 22.5	4.626	3.663	+1.04 -6.4	.	13.7
Oct. 17	12 06.76	-08 25.9	4.643	3.723	+1.00 -6.3	.	20.1
Oct. 27	12 16.53	-09 27.7	4.640	3.782	+0.95 -6.1	.	27.0
Nov. 6	12 25.75	-10 27.2	4.617	3.840	+0.89 -5.8	.	34.3
Nov. 16	12 34.32	-11 23.8	4.576	3.896	+0.82 -5.5	.	41.9
Nov. 26	12 42.15	-12 16.8	4.517	3.952	+0.74 -5.1	.	49.7
Dec. 6	12 49.12	-13 05.5	4.442	4.007	+0.64 -4.6	.	57.9
Dec. 16	12 55.08	-13 48.9	4.354	4.060	+0.54 -4.0	.	66.3
Dec. 26	12 59.91	-14 26.4	4.254	4.113	+0.41 -3.4	.	75.1
Jan. 5	13 03.45	-14 56.9	4.147	4.165	+0.28 -2.6	.	84.2
Jan. 15	13 05.55	-15 19.3	4.036	4.215	+0.13 -1.8	.	93.7
Jan. 25	13 06.11	-15 32.6	3.925	4.265	-0.03 -0.8	.	103.6
Feb. 4	13 05.04	-15 35.8	3.820	4.314	-0.20 +0.3	.	113.8
Feb. 14	13 02.35	-15 27.8	3.726	4.362	-0.36 +1.4	.	124.5
Feb. 24	12 58.12	-15 08.2	3.649	4.409	-0.50 +2.6	.	135.4
Mar. 6	12 52.58	-14 37.0	3.593	4.455	-0.61 +3.7	.	146.6
Mar. 16	12 46.06	-13 55.3	3.564	4.500	-0.69 +4.7	.	157.7
Mar. 26	12 38.99	-13 05.0	3.564	4.544	-0.72 +5.4	.	168.0

Comet C/2023 X1 (Leonard)

Epoch = 2024 July 29.0 TT
 T = 2023 Oct. 18.07559 TT
 Peri. = 321.47599
 Node = 137.01347 2000.0
 Incl. = 110.58823
 q = 0.9505994 AU
 e = 0.9941408

$$m1 = 13.7 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	13 55.43	+58 27.3	1.054	1.568	+4.55	+86.5	16.3	100.5
Jan. 11	14 56.05	+71 29.9	1.157	1.690	+8.73	+65.9	16.9	104.0
Jan. 21	17 07.36	+80 04.4	1.318	1.814	+19.96	+30.1	17.5	103.0
Jan. 31	20 46.79	+81 34.6	1.518	1.938	+18.53	-12.1	18.2	99.2
Feb. 10	22 57.88	+78 39.2	1.741	2.062	+8.12	-19.7	18.8	94.1
Feb. 20	23 59.43	+75 37.9	1.975	2.185	+4.46	-15.7	19.4	88.5
Mar. 1	00 36.91	+73 22.1	2.213	2.308	+3.09	-11.0	20.0	82.8
Mar. 11	01 04.73	+71 50.2	2.447	2.430	+2.48	-7.0	20.5	77.3
Mar. 21	01 27.95	+70 54.8	2.674	2.550	+2.16	-3.9	20.9	72.1
Mar. 31	01 48.68	+70 28.1	2.891	2.670	+1.98	-1.3	21.3	67.3
Apr. 10	02 08.03	+70 24.6	3.095	2.788	+1.88	+0.8	21.7	63.1
Apr. 20	02 26.57	+70 40.0	3.284	2.905	+1.82	+2.4	.	59.4
Apr. 30	02 44.66	+71 10.9	3.458	3.021	+1.80	+3.8	.	56.5
May 10	03 02.57	+71 55.0	3.615	3.135	+1.79	+5.1	.	54.3
May 20	03 20.46	+72 50.5	3.755	3.249	+1.79	+6.1	.	53.0
May 30	03 38.49	+73 56.2	3.878	3.361	+1.82	+7.1	.	52.6
June 9	03 56.85	+75 11.0	3.985	3.472	+1.86	+8.0	.	53.1
June 19	04 15.73	+76 34.4	4.076	3.582	+1.93	+8.8	.	54.4
June 29	04 35.42	+78 05.9	4.152	3.691	+2.03	+9.6	.	56.5
July 9	04 56.45	+79 45.1	4.215	3.798	+2.21	+10.3	.	59.3
July 19	05 19.77	+81 31.7	4.267	3.905	+2.52	+11.0	.	62.6
July 29	05 47.58	+83 25.0	4.308	4.011	+3.20	+11.7	.	66.4
Aug. 8	06 26.20	+85 23.7	4.343	4.116	+5.05	+12.0	.	70.4
Aug. 18	07 41.54	+87 22.3	4.373	4.220	+12.92	+11.1	.	74.7
Aug. 28	11 57.62	+88 34.9	4.401	4.323	+38.73	-1.7	.	79.0
Sept. 7	16 03.56	+87 11.0	4.429	4.425	+10.88	-12.7	.	83.2
Sept. 17	17 16.23	+84 54.9	4.462	4.526	+4.63	-14.3	.	87.2
Sept. 27	17 53.93	+82 28.6	4.500	4.626	+3.04	-14.9	.	90.9
Oct. 7	18 21.16	+79 59.0	4.548	4.726	+2.43	-15.0	.	94.1
Oct. 17	18 43.89	+77 29.4	4.607	4.824	+2.12	-14.9	.	96.6
Oct. 27	19 04.17	+75 02.5	4.678	4.922	+1.94	-14.4	.	98.4
Nov. 6	19 22.97	+72 40.9	4.763	5.020	+1.82	-13.8	.	99.3
Nov. 16	19 40.70	+70 27.2	4.862	5.116	+1.72	-12.8	.	99.3
Nov. 26	19 57.60	+68 23.5	4.974	5.212	+1.65	-11.7	.	98.5
Dec. 6	20 13.83	+66 31.8	5.100	5.307	+1.59	-10.5	.	96.8
Dec. 16	20 29.44	+64 53.5	5.236	5.401	+1.53	-9.1	.	94.4
Dec. 26	20 44.46	+63 29.5	5.382	5.495	+1.47	-7.6	.	91.4
Jan. 5	20 58.93	+62 20.3	5.535	5.588	+1.42	-6.1	.	88.1
Jan. 15	21 12.84	+61 26.1	5.692	5.681	+1.36	-4.6	.	84.4
Jan. 25	21 26.19	+60 46.5	5.850	5.773	+1.30	-3.2	.	80.6
Feb. 4	21 38.96	+60 21.0	6.008	5.864	+1.24	-1.8	.	76.9
Feb. 14	21 51.11	+60 08.9	6.163	5.955	+1.18	-0.5	.	73.3
Feb. 24	22 02.63	+60 09.2	6.313	6.045	+1.11	+0.7	.	69.9
Mar. 6	22 13.45	+60 20.9	6.455	6.134	+1.04	+1.8	.	66.9
Mar. 16	22 23.52	+60 43.1	6.587	6.223	+0.96	+2.7	.	64.4
Mar. 26	22 32.77	+61 14.6	6.710	6.312	+0.88	+3.6	.	62.5

Comet C/2022 V2 (Lemmon)

Epoch = 2024 July 29.0 TT
 T = 2023 Nov. 1.91856 TT
 Peri. = 168.95072 e = 0.9438595
 Node = 332.86849 2000.0 a = 36.7589138 AU
 Incl. = 98.90195 n = 0.00442242
 q = 2.0636638 AU P = 222.87 years

$$m1 = 14.5 + 5 \log(\Delta) + 5.0 \log(r(t-80))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	11 19.56	-16 52.3	1.759	2.178	-1.94 -33.6	17.3	101.4
Jan. 11	10 56.74	-22 31.0	1.651	2.217	-2.72 -33.7	17.2	112.1
Jan. 21	10 25.87	-27 55.6	1.583	2.261	-3.52 -30.1	17.1	121.7
Jan. 31	09 47.69	-32 23.2	1.567	2.309	-4.11 -21.9	17.1	128.1
Feb. 10	09 05.77	-35 14.6	1.606	2.362	-4.18 -11.1	17.1	129.7
Feb. 20	08 25.73	-36 19.1	1.697	2.418	-3.70 -1.3	17.3	126.4
Mar. 1	07 52.20	-36 00.2	1.830	2.478	-2.90 +5.1	17.4	119.9
Mar. 11	07 26.91	-34 53.6	1.994	2.541	-2.08 +8.0	17.7	112.1
Mar. 21	07 09.38	-33 29.4	2.177	2.606	-1.38 +8.6	17.9	104.1
Mar. 31	06 58.18	-32 06.6	2.371	2.674	-0.83 +7.8	18.1	96.4
Apr. 10	06 51.84	-30 54.7	2.569	2.743	-0.41 +6.4	18.3	89.2
Apr. 20	06 49.17	-29 58.4	2.763	2.815	-0.10 +4.7	18.5	82.5
Apr. 30	06 49.23	-29 19.3	2.952	2.888	+0.13 +3.0	18.7	76.5
May 10	06 51.32	-28 57.5	3.130	2.963	+0.30 +1.2	18.9	71.2
May 20	06 54.93	-28 53.0	3.296	3.038	+0.43 -0.5	19.1	66.5
May 30	06 59.65	-29 05.4	3.449	3.115	+0.52 -2.1	19.2	62.6
June 9	07 05.18	-29 34.0	3.587	3.193	+0.59 -3.8	19.4	59.4
June 19	07 11.27	-30 18.8	3.710	3.271	+0.63 -5.3	19.5	57.1
June 29	07 17.71	-31 19.1	3.817	3.350	+0.66 -6.9	19.6	55.6
July 9	07 24.33	-32 34.8	3.910	3.430	+0.66 -8.4	19.7	55.0
July 19	07 30.94	-34 05.6	3.988	3.509	+0.65 -9.9	19.8	55.2
July 29	07 37.39	-35 51.2	4.054	3.590	+0.63 -11.4	19.9	56.2
Aug. 8	07 43.50	-37 51.3	4.107	3.670	+0.59 -12.8	20.0	57.9
Aug. 18	07 49.09	-40 05.4	4.151	3.751	+0.52 -14.1	20.1	60.2
Aug. 28	07 53.93	-42 32.6	4.186	3.832	+0.43 -15.4	20.1	62.9
Sept. 7	07 57.78	-45 12.0	4.215	3.913	+0.32 -16.6	20.2	65.9
Sept. 17	08 00.30	-48 02.1	4.241	3.994	+0.16 -17.5	20.3	69.1
Sept. 27	08 01.08	-51 00.5	4.265	4.075	-0.04 -18.2	20.3	72.4
Oct. 7	07 59.62	-54 04.6	4.291	4.156	-0.30 -18.6	20.4	75.6
Oct. 17	07 55.22	-57 10.1	4.320	4.237	-0.63 -18.4	20.5	78.6
Oct. 27	07 47.06	-60 11.9	4.356	4.318	-1.06 -17.7	20.5	81.3
Nov. 6	07 34.17	-63 03.3	4.398	4.399	-1.59 -16.2	20.6	83.5
Nov. 16	07 15.59	-65 35.6	4.451	4.479	-2.20 -13.8	20.7	85.3
Nov. 26	06 50.82	-67 38.9	4.513	4.560	-2.81 -10.4	20.7	86.5
Dec. 6	06 20.41	-69 03.5	4.586	4.640	-3.28 -6.0	20.8	87.0
Dec. 16	05 46.68	-69 42.0	4.669	4.720	-3.42 -1.2	20.9	87.0
Dec. 26	05 13.23	-69 33.4	4.762	4.800	-3.18 +3.3	21.0	86.3
Jan. 5	04 43.57	-68 43.4	4.863	4.880	-2.66 +6.9	21.1	85.2
Jan. 15	04 19.74	-67 22.2	4.972	4.959	-2.04 +9.4	21.2	83.6
Jan. 25	04 02.09	-65 41.0	5.085	5.039	-1.44 +10.8	21.2	81.8
Feb. 4	03 50.00	-63 49.3	5.201	5.118	-0.94 +11.4	21.3	79.7
Feb. 14	03 42.52	-61 54.8	5.319	5.197	-0.54 +11.4	21.4	77.6
Feb. 24	03 38.65	-60 02.9	5.435	5.275	-0.22 +10.9	21.5	75.5
Mar. 6	03 37.60	-58 17.1	5.548	5.353	+0.02 +10.1	21.6	73.6
Mar. 16	03 38.71	-56 40.4	5.657	5.431	+0.21 +9.1	21.7	71.9
Mar. 26	03 41.46	-55 14.3	5.759	5.509	+0.35 +8.0	21.7	70.6

Comet 404P/Bressi

Epoch = 2024 July 29.0 TT
 T = 2023 Nov. 3.31820 TT
 Peri. = 169.27853 e = 0.1252953
 Node = 260.03979 2000.0 a = 4.7246464 AU
 Incl. = 9.80346 n = 0.09597323
 q = 4.1326704 AU P = 10.27 years

$$m1 = 3.6 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	04 32.42	+22° 39' 8"	3.254	4.136	-0.46	-2.7	18.5 150.2
Jan. 11	04 28.54	+22 14.5	3.345	4.138	-0.30	-2.3	18.6 139.0
Jan. 21	04 26.30	+21 53.4	3.457	4.139	-0.13	-1.9	18.6 128.3
Jan. 31	04 25.83	+21 37.1	3.587	4.141	+0.05	-1.4	18.7 117.9
Feb. 10	04 27.12	+21 25.8	3.730	4.143	+0.22	-0.9	18.8 108.1
Feb. 20	04 30.09	+21 19.3	3.880	4.145	+0.38	-0.4	18.9 98.6
Mar. 1	04 34.61	+21 16.8	4.034	4.148	+0.53	-0.1	19.0 89.6
Mar. 11	04 40.51	+21 17.5	4.189	4.150	+0.66	+0.2	19.1 81.0
Mar. 21	04 47.64	+21 20.2	4.340	4.153	+0.77	+0.3	19.2 72.7
Mar. 31	04 55.84	+21 24.0	4.485	4.156	+0.87	+0.4	19.2 64.7
Apr. 10	05 04.93	+21 27.9	4.621	4.160	+0.95	+0.4	19.3 56.9
Apr. 20	05 14.80	+21 31.0	4.746	4.163	+1.02	+0.2	19.4 49.4
Apr. 30	05 25.30	+21 32.6	4.858	4.167	+1.08	0.0	19.4 42.1
May 10	05 36.30	+21 32.0	4.957	4.171	+1.12	-0.2	19.5 35.0
May 20	05 47.71	+21 28.6	5.040	4.175	+1.16	-0.5	19.5 28.1
May 30	05 59.41	+21 21.9	5.108	4.179	+1.18	-0.9	19.6 21.2
June 9	06 11.31	+21 11.8	5.159	4.183	+1.20	-1.2	19.6 14.5
June 19	06 23.32	+20 57.8	5.192	4.188	+1.20	-1.6	19.6 7.9
June 29	06 35.34	+20 40.1	5.208	4.193	+1.20	-2.0	19.6 2.7
July 9	06 47.29	+20 18.4	5.207	4.198	+1.19	-2.4	19.6 6.4
July 19	06 59.09	+19 52.9	5.187	4.203	+1.17	-2.8	19.6 12.9
July 29	07 10.65	+19 23.8	5.151	4.208	+1.14	-3.1	19.6 19.6
Aug. 8	07 21.89	+18 51.3	5.098	4.214	+1.10	-3.4	19.6 26.4
Aug. 18	07 32.72	+18 15.8	5.028	4.220	+1.06	-3.7	19.6 33.4
Aug. 28	07 43.06	+17 37.7	4.943	4.226	+1.00	-3.9	19.6 40.5
Sept. 7	07 52.80	+16 57.5	4.843	4.232	+0.94	-4.1	19.6 47.7
Sept. 17	08 01.83	+16 15.8	4.731	4.238	+0.86	-4.2	19.5 55.2
Sept. 27	08 10.06	+15 33.3	4.607	4.244	+0.77	-4.3	19.5 62.8
Oct. 7	08 17.35	+14 50.8	4.474	4.251	+0.67	-4.2	19.4 70.8
Oct. 17	08 23.58	+14 09.1	4.333	4.257	+0.56	-4.1	19.4 79.0
Oct. 27	08 28.61	+13 29.2	4.189	4.264	+0.43	-3.9	19.3 87.6
Nov. 6	08 32.31	+12 52.1	4.044	4.271	+0.29	-3.5	19.2 96.5
Nov. 16	08 34.55	+12 18.9	3.901	4.278	+0.14	-3.1	19.2 105.8
Nov. 26	08 35.24	+11 50.4	3.766	4.286	-0.02	-2.5	19.1 115.6
Dec. 6	08 34.31	+11 27.7	3.643	4.293	-0.18	-1.9	19.1 125.7
Dec. 16	08 31.82	+11 11.4	3.536	4.300	-0.33	-1.3	19.0 136.2
Dec. 26	08 27.88	+11 01.8	3.450	4.308	-0.46	-0.6	19.0 146.9
Jan. 5	08 22.75	+10 59.0	3.390	4.316	-0.56	+0.1	19.0 157.7
Jan. 15	08 16.83	+11 02.2	3.358	4.324	-0.62	+0.6	18.9 167.5
Jan. 25	08 10.59	+11 10.5	3.357	4.332	-0.62	+1.1	19.0 171.0
Feb. 4	08 04.55	+11 22.5	3.386	4.340	-0.57	+1.3	19.0 163.3
Feb. 14	07 59.21	+11 36.5	3.446	4.348	-0.48	+1.5	19.1 152.9
Feb. 24	07 54.98	+11 51.1	3.532	4.357	-0.35	+1.4	19.1 142.3
Mar. 6	07 52.14	+12 04.9	3.641	4.365	-0.20	+1.3	19.2 131.8
Mar. 16	07 50.85	+12 16.7	3.769	4.374	-0.04	+1.0	19.3 121.7
Mar. 26	07 51.14	+12 25.5	3.911	4.382	+0.11	+0.7	19.4 111.9

Comet C/2019 E3 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2023 Nov. 15.46470 TT
 Peri. = 280.70971
 Node = 347.21710 2000.0
 Incl. = 84.30356
 q = 10.3130416 AU
 e = 0.9981646

$$m1 = -3.0 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	02 36.01	-74 45.9	10.531	10.316	-1.21	+6.3	17.3	74.7
Jan. 11	02 25.55	-73 39.6	10.562	10.317	-0.85	+6.9	17.3	73.0
Jan. 21	02 18.43	-72 29.0	10.588	10.319	-0.55	+7.2	17.3	71.5
Jan. 31	02 14.14	-71 16.7	10.611	10.321	-0.29	+7.2	17.3	70.4
Feb. 10	02 12.18	-70 04.9	10.627	10.323	-0.09	+7.1	17.3	69.5
Feb. 20	02 12.08	-68 55.4	10.637	10.326	+0.08	+6.8	17.3	69.1
Mar. 1	02 13.46	-67 49.7	10.640	10.329	+0.21	+6.3	17.3	69.1
Mar. 11	02 16.00	-66 48.9	10.636	10.332	+0.31	+5.8	17.3	69.6
Mar. 21	02 19.41	-65 54.1	10.625	10.335	+0.38	+5.1	17.3	70.5
Mar. 31	02 23.47	-65 06.2	10.606	10.339	+0.43	+4.4	17.3	71.9
Apr. 10	02 27.99	-64 25.5	10.580	10.343	+0.47	+3.6	17.3	73.6
Apr. 20	02 32.78	-63 52.9	10.548	10.347	+0.49	+2.8	17.3	75.8
Apr. 30	02 37.69	-63 28.5	10.510	10.351	+0.49	+2.0	17.3	78.2
May 10	02 42.58	-63 12.6	10.467	10.356	+0.48	+1.1	17.3	81.0
May 20	02 47.29	-63 05.4	10.420	10.361	+0.46	+0.2	17.3	83.9
May 30	02 51.68	-63 06.8	10.370	10.366	+0.42	-0.6	17.3	87.0
June 9	02 55.61	-63 16.5	10.320	10.372	+0.36	-1.4	17.3	90.1
June 19	02 58.91	-63 34.3	10.270	10.378	+0.29	-2.2	17.3	93.3
June 29	03 01.41	-63 59.4	10.222	10.384	+0.20	-2.9	17.3	96.3
July 9	03 02.93	-64 31.2	10.178	10.390	+0.09	-3.5	17.3	99.2
July 19	03 03.27	-65 08.5	10.140	10.397	-0.04	-4.0	17.3	101.9
July 29	03 02.22	-65 49.9	10.108	10.404	-0.19	-4.3	17.3	104.2
Aug. 8	02 59.56	-66 33.8	10.085	10.411	-0.36	-4.5	17.3	106.0
Aug. 18	02 55.11	-67 18.2	10.072	10.418	-0.55	-4.4	17.3	107.4
Aug. 28	02 48.72	-68 00.6	10.069	10.426	-0.75	-4.1	17.3	108.1
Sept. 7	02 40.34	-68 38.7	10.078	10.434	-0.95	-3.5	17.3	108.1
Sept. 17	02 30.03	-69 09.8	10.099	10.442	-1.13	-2.6	17.3	107.3
Sept. 27	02 18.09	-69 31.3	10.132	10.451	-1.27	-1.5	17.3	105.9
Oct. 7	02 04.96	-69 41.3	10.176	10.460	-1.35	-0.3	17.3	103.8
Oct. 17	01 51.30	-69 38.2	10.232	10.469	-1.37	+1.1	17.3	101.0
Oct. 27	01 37.81	-69 21.5	10.298	10.478	-1.31	+2.4	17.4	97.7
Nov. 6	01 25.19	-68 51.6	10.372	10.488	-1.19	+3.7	17.4	94.0
Nov. 16	01 14.00	-68 09.8	10.453	10.497	-1.03	+4.8	17.4	89.9
Nov. 26	01 04.58	-67 17.8	10.538	10.507	-0.84	+5.7	17.4	85.5
Dec. 6	00 57.09	-66 17.8	10.626	10.518	-0.64	+6.4	17.5	81.1
Dec. 16	00 51.53	-65 11.9	10.713	10.528	-0.45	+6.8	17.5	76.6
Dec. 26	00 47.79	-64 02.2	10.799	10.539	-0.28	+7.1	17.5	72.2
Jan. 5	00 45.68	-62 50.7	10.879	10.550	-0.13	+7.2	17.5	68.0
Jan. 15	00 45.01	-61 39.0	10.953	10.562	0.00	+7.1	17.6	64.2
Jan. 25	00 45.54	-60 28.7	11.018	10.573	+0.11	+6.9	17.6	60.9
Feb. 4	00 47.09	-59 21.0	11.072	10.585	+0.20	+6.6	17.6	58.2
Feb. 14	00 49.45	-58 16.9	11.114	10.597	+0.27	+6.2	17.6	56.2
Feb. 24	00 52.46	-57 17.4	11.143	10.609	+0.33	+5.7	17.6	55.2
Mar. 6	00 55.95	-56 23.2	11.159	10.622	+0.37	+5.1	17.6	55.1
Mar. 16	00 59.79	-55 35.0	11.160	10.635	+0.40	+4.5	17.6	55.9
Mar. 26	01 03.83	-54 53.2	11.148	10.648	+0.41	+3.8	17.6	57.7

Comet 471P

Epoch = 2024 July 29.0 TT
 T = 2023 Dec. 20.17822 TT
 Peri. = 94.94226 e = 0.6282200
 Node = 283.30711 2000.0 a = 5.7091377 AU
 Incl. = 4.79364 n = 0.07225174
 q = 2.1225432 AU P = 13.64 years

$$m1 = 5.2 + 5 \log(\Delta) + 27.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	23 38.71	+02 50.6	2.126	2.125	+1.81 +9.9	15.8	76.6
Jan. 11	23 57.13	+04 32.1	2.233	2.132	+1.89 +10.5	16.0	71.3
Jan. 21	00 16.29	+06 18.9	2.342	2.143	+1.95 +10.9	16.2	66.2
Jan. 31	00 36.01	+08 08.7	2.451	2.158	+2.00 +11.1	16.3	61.3
Feb. 10	00 56.20	+09 59.4	2.560	2.177	+2.04 +11.1	16.5	56.5
Feb. 20	01 16.78	+11 49.2	2.670	2.199	+2.08 +10.9	16.7	51.8
Mar. 1	01 37.65	+13 36.2	2.778	2.225	+2.10 +10.5	17.0	47.1
Mar. 11	01 58.77	+15 18.7	2.885	2.254	+2.12 +9.9	17.2	42.5
Mar. 21	02 20.07	+16 55.2	2.989	2.287	+2.14 +9.3	17.5	37.9
Mar. 31	02 41.48	+18 24.4	3.091	2.322	+2.15 +8.5	17.7	33.3
Apr. 10	03 02.95	+19 45.2	3.189	2.360	+2.15 +7.6	18.0	28.7
Apr. 20	03 24.41	+20 56.8	3.282	2.400	+2.14 +6.6	18.2	24.1
Apr. 30	03 45.79	+21 58.6	3.369	2.442	+2.13 +5.6	18.5	19.4
May 10	04 07.02	+22 50.2	3.450	2.487	+2.11 +4.6	18.8	14.7
May 20	04 28.00	+23 31.4	3.524	2.534	+2.08 +3.5	19.0	10.0
May 30	04 48.67	+24 02.3	3.590	2.582	+2.05 +2.5	19.3	5.3
June 9	05 08.93	+24 23.1	3.646	2.631	+2.00 +1.5	19.6	1.5
June 19	05 28.71	+24 34.2	3.693	2.682	+1.95 +0.6	19.8	5.2
June 29	05 47.91	+24 36.2	3.729	2.735	+1.89 -0.3	20.1	10.2
July 9	06 06.47	+24 29.9	3.754	2.788	+1.82 -1.1	20.3	15.5
July 19	06 24.31	+24 16.0	3.768	2.842	+1.74 -1.8	20.6	21.0
July 29	06 41.34	+23 55.5	3.769	2.897	+1.66 -2.4	20.8	26.6
Aug. 8	06 57.51	+23 29.3	3.758	2.953	+1.57 -2.9	21.0	32.5
Aug. 18	07 12.72	+22 58.6	3.734	3.009	+1.47 -3.3	21.2	38.5
Aug. 28	07 26.91	+22 24.5	3.698	3.066	+1.36 -3.6	21.4	44.8
Sept. 7	07 39.99	+21 48.1	3.650	3.123	+1.24 -3.7	21.6	51.4
Sept. 17	07 51.86	+21 10.7	3.591	3.180	+1.12 -3.7	21.8	58.3
Sept. 27	08 02.42	+20 33.5	3.521	3.238	+0.98 -3.7	22.0	65.6
Oct. 7	08 11.54	+19 57.9	3.443	3.296	+0.83 -3.4	.	73.2
Oct. 17	08 19.09	+19 25.0	3.358	3.354	+0.66 -3.1	.	81.2
Oct. 27	08 24.94	+18 56.3	3.269	3.412	+0.48 -2.6	.	89.7
Nov. 6	08 28.92	+18 32.8	3.178	3.470	+0.29 -2.0	.	98.7
Nov. 16	08 30.91	+18 15.6	3.091	3.528	+0.09 -1.4	.	108.2
Nov. 26	08 30.85	+18 05.3	3.011	3.586	-0.12 -0.6	.	118.3
Dec. 6	08 28.70	+18 02.0	2.944	3.644	-0.33 +0.1	.	128.9
Dec. 16	08 24.60	+18 05.5	2.893	3.702	-0.51 +0.7	.	140.0
Dec. 26	08 18.82	+18 14.4	2.866	3.760	-0.65 +1.1	.	151.6
Jan. 5	08 11.81	+18 27.3	2.865	3.817	-0.75 +1.4	.	163.4
Jan. 15	08 04.17	+18 42.0	2.894	3.875	-0.77 +1.5	.	175.2
Jan. 25	07 56.56	+18 56.7	2.954	3.932	-0.73 +1.4	.	172.3
Feb. 4	07 49.63	+19 09.8	3.045	3.989	-0.63 +1.2	.	160.6
Feb. 14	07 43.91	+19 20.2	3.166	4.045	-0.49 +0.9	.	149.2
Feb. 24	07 39.74	+19 27.4	3.311	4.102	-0.32 +0.5	.	138.1
Mar. 6	07 37.33	+19 31.3	3.479	4.158	-0.14 +0.2	.	127.5
Mar. 16	07 36.69	+19 31.6	3.663	4.214	+0.03 -0.2	.	117.4
Mar. 26	07 37.73	+19 28.6	3.859	4.269	+0.19 -0.5	.	107.7

Comet C/2023 T2 (Borisov)

Epoch = 2024 July 29.0 TT
 T = 2023 Dec. 22.79385 TT
 Peri. = 111.19936
 Node = 317.53168 2000.0
 Incl. = 48.59788
 q = 1.9955391 AU
 e = 0.9912250

$$m1 = 10.7 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	23 03.43	+76 40.8	1.476	1.999	+7.99	0.0	17.6	107.0
Jan. 11	00 28.26	+76 06.1	1.475	2.009	+8.74	-8.4	17.6	107.9
Jan. 21	01 52.13	+73 58.9	1.491	2.027	+7.69	-17.9	17.7	108.2
Jan. 31	03 01.25	+70 25.1	1.527	2.051	+5.96	-25.1	17.9	107.5
Feb. 10	03 54.09	+65 54.4	1.586	2.082	+4.54	-29.0	18.1	105.7
Feb. 20	04 34.82	+60 57.7	1.668	2.119	+3.57	-30.1	18.3	102.8
Mar. 1	05 07.46	+55 58.4	1.773	2.162	+2.94	-29.5	18.6	99.0
Mar. 11	05 34.78	+51 10.9	1.900	2.211	+2.52	-27.8	19.0	94.4
Mar. 21	05 58.56	+46 43.0	2.046	2.264	+2.23	-25.6	19.4	89.3
Mar. 31	06 19.84	+42 37.4	2.206	2.321	+2.02	-23.3	19.7	83.8
Apr. 10	06 39.31	+38 53.8	2.378	2.383	+1.87	-21.2	20.1	78.1
Apr. 20	06 57.44	+35 30.0	2.558	2.448	+1.75	-19.4	20.5	72.3
Apr. 30	07 14.48	+32 23.5	2.742	2.516	+1.65	-17.8	20.9	66.5
May 10	07 30.66	+29 31.5	2.929	2.586	+1.58	-16.5	21.3	60.6
May 20	07 46.09	+26 51.3	3.114	2.659	+1.51	-15.5	21.7	54.6
May 30	08 00.88	+24 20.8	3.295	2.735	+1.45	-14.6	22.0	48.7
June 9	08 15.08	+21 57.9	3.471	2.811	+1.39	-13.9	.	42.8
June 19	08 28.75	+19 41.1	3.639	2.890	+1.34	-13.4	.	36.8
June 29	08 41.91	+17 29.1	3.796	2.970	+1.29	-13.0	.	30.8
July 9	08 54.58	+15 20.9	3.943	3.051	+1.24	-12.6	.	24.9
July 19	09 06.77	+13 15.6	4.076	3.133	+1.19	-12.4	.	18.9
July 29	09 18.48	+11 12.7	4.196	3.215	+1.14	-12.2	.	13.2
Aug. 8	09 29.71	+09 11.5	4.299	3.299	+1.10	-12.0	.	8.2
Aug. 18	09 40.43	+07 11.7	4.387	3.383	+1.04	-11.9	.	6.4
Aug. 28	09 50.61	+05 13.1	4.457	3.467	+0.99	-11.8	.	10.0
Sept. 7	10 00.24	+03 15.4	4.510	3.552	+0.93	-11.7	.	15.9
Sept. 17	10 09.26	+01 18.5	4.546	3.637	+0.87	-11.6	.	22.4
Sept. 27	10 17.60	+00 37.4	4.564	3.722	+0.80	-11.5	.	29.3
Oct. 7	10 25.22	-02 32.5	4.564	3.808	+0.72	-11.4	.	36.5
Oct. 17	10 32.01	-04 26.4	4.549	3.893	+0.63	-11.3	.	43.9
Oct. 27	10 37.88	-06 19.0	4.519	3.979	+0.53	-11.2	.	51.6
Nov. 6	10 42.72	-08 09.7	4.475	4.064	+0.42	-11.0	.	59.6
Nov. 16	10 46.41	-09 58.0	4.421	4.150	+0.30	-10.7	.	67.8
Nov. 26	10 48.82	-11 43.0	4.358	4.235	+0.17	-10.3	.	76.3
Dec. 6	10 49.82	-13 23.6	4.291	4.320	+0.02	-9.8	.	85.1
Dec. 16	10 49.30	-14 58.2	4.224	4.406	-0.14	-9.1	.	94.1
Dec. 26	10 47.21	-16 25.1	4.160	4.491	-0.30	-8.2	.	103.4
Jan. 5	10 43.53	-17 42.2	4.105	4.575	-0.45	-7.1	.	112.7
Jan. 15	10 38.35	-18 47.2	4.063	4.660	-0.59	-5.8	.	122.0
Jan. 25	10 31.88	-19 38.2	4.040	4.745	-0.71	-4.3	.	131.0
Feb. 4	10 24.42	-20 13.5	4.040	4.829	-0.78	-2.6	.	139.2
Feb. 14	10 16.41	-20 32.6	4.065	4.913	-0.81	-1.0	.	145.7
Feb. 24	10 08.34	-20 36.1	4.119	4.997	-0.79	+0.4	.	149.4
Mar. 6	10 00.68	-20 26.0	4.202	5.080	-0.73	+1.7	.	149.3
Mar. 16	09 53.87	-20 05.0	4.314	5.164	-0.62	+2.6	.	145.4
Mar. 26	09 48.21	-19 36.8	4.451	5.247	-0.49	+3.1	.	139.2

Comet 62P/Tsuchinshan

Epoch = 2024 July 29.0 TT
 T = 2023 Dec. 25.12378 TT
 Peri. = 47.30687 e = 0.6245291
 Node = 68.66747 2000.0 a = 3.3690539 AU
 Incl. = 4.73763 n = 0.15938305
 q = 1.2649817 AU P = 6.18 years

$$m_1 = 4.4 + 5 \log(\Delta) + 50.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	11 31.85	+13° 09.6	0.521	1.268	+2.89 -9.3	8.1	111.1
Jan. 11	11 58.30	+11 45.0	0.509	1.281	+2.33 -7.2	8.3	114.6
Jan. 21	12 18.77	+10 43.8	0.502	1.306	+1.70 -4.7	8.7	119.4
Jan. 31	12 32.75	+10 08.2	0.500	1.340	+1.03 -2.2	9.2	125.8
Feb. 10	12 40.00	+09 57.0	0.503	1.383	+0.36 0.0	10.0	133.7
Feb. 20	12 40.82	+10 03.4	0.515	1.434	-0.23 +1.2	10.8	143.0
Mar. 1	12 36.38	+10 16.3	0.538	1.491	-0.67 +1.2	11.7	153.2
Mar. 11	12 28.50	+10 24.1	0.575	1.553	-0.89 +0.1	12.8	163.0
Mar. 21	12 19.57	+10 16.8	0.630	1.619	-0.86 -1.8	13.9	168.6
Mar. 31	12 11.72	+09 49.7	0.704	1.688	-0.67 -3.8	15.0	164.5
Apr. 10	12 06.30	+09 03.7	0.796	1.759	-0.38 -5.5	16.2	155.9
Apr. 20	12 03.92	+08 01.8	0.907	1.832	-0.07 -6.9	17.3	146.8
Apr. 30	12 04.53	+06 48.1	1.033	1.906	+0.21 -7.9	18.5	138.1
May 10	12 07.76	+05 26.3	1.175	1.980	+0.45 -8.5	19.6	129.9
May 20	12 13.20	+03 58.8	1.329	2.055	+0.65 -9.0	20.7	122.2
May 30	12 20.41	+02 27.8	1.495	2.130	+0.80 -9.2	21.7	114.9
June 9	12 29.01	+00 54.6	1.669	2.205	+0.93 -9.4	.	107.9
June 19	12 38.74	+00 39.8	1.851	2.279	+1.02 -9.5	.	101.3
June 29	12 49.34	-02 14.3	2.038	2.353	+1.10 -9.4	.	94.8
July 9	13 00.64	-03 48.3	2.230	2.426	+1.16 -9.4	.	88.5
July 19	13 12.51	-05 21.3	2.423	2.498	+1.21 -9.2	.	82.3
July 29	13 24.83	-06 52.7	2.616	2.569	+1.25 -9.0	.	76.1
Aug. 8	13 37.54	-08 22.0	2.808	2.640	+1.29 -8.8	.	70.0
Aug. 18	13 50.57	-09 48.9	2.997	2.709	+1.32 -8.5	.	64.0
Aug. 28	14 03.87	-11 12.7	3.180	2.778	+1.34 -8.2	.	57.9
Sept. 7	14 17.39	-12 33.3	3.357	2.846	+1.36 -7.9	.	51.8
Sept. 17	14 31.11	-13 50.3	3.525	2.912	+1.38 -7.5	.	45.6
Sept. 27	14 44.97	-15 03.2	3.684	2.978	+1.39 -7.1	.	39.4
Oct. 7	14 58.95	-16 11.8	3.830	3.042	+1.40 -6.6	.	33.1
Oct. 17	15 13.00	-17 15.8	3.963	3.106	+1.41 -6.1	.	26.7
Oct. 27	15 27.06	-18 14.9	4.082	3.168	+1.41 -5.6	.	20.3
Nov. 6	15 41.11	-19 09.0	4.184	3.230	+1.40 -5.1	.	13.7
Nov. 16	15 55.06	-19 58.0	4.269	3.290	+1.39 -4.6	.	7.1
Nov. 26	16 08.85	-20 41.7	4.336	3.350	+1.37 -4.1	.	0.4
Dec. 6	16 22.41	-21 20.1	4.385	3.408	+1.34 -3.6	.	6.6
Dec. 16	16 35.65	-21 53.4	4.414	3.465	+1.30 -3.1	.	13.7
Dec. 26	16 48.48	-22 21.8	4.423	3.522	+1.26 -2.6	.	20.8
Jan. 5	17 00.80	-22 45.5	4.414	3.577	+1.20 -2.1	.	28.2
Jan. 15	17 12.49	-23 04.9	4.385	3.631	+1.13 -1.7	.	35.6
Jan. 25	17 23.44	-23 20.5	4.339	3.685	+1.05 -1.4	.	43.3
Feb. 4	17 33.51	-23 32.8	4.276	3.737	+0.95 -1.1	.	51.1
Feb. 14	17 42.56	-23 42.5	4.198	3.789	+0.84 -0.8	.	59.2
Feb. 24	17 50.44	-23 50.2	4.108	3.839	+0.72 -0.7	.	67.5
Mar. 6	17 57.01	-23 56.7	4.008	3.889	+0.58 -0.6	.	76.0
Mar. 16	18 02.08	-24 02.5	3.901	3.937	+0.42 -0.6	.	84.8
Mar. 26	18 05.53	-24 08.4	3.790	3.985	+0.25 -0.6	.	94.0

Comet 26P/Grigg-Skjellerup

Epoch = 2024 July 29.0 TT
 T = 2023 Dec. 25.33690 TT
 Peri. = 2.13914 e = 0.6405828
 Node = 211.53875 2000.0 a = 3.0155134 AU
 Incl. = 22.43305 n = 0.18821844
 q = 1.0838274 AU P = 5.24 years

m1 = 13.1 + 5 log(Delta) + 12.5 log(r(t-10)) (r < 2.6 AU)
 H = 15.7, G = 0.15 (r > 2.6 AU)

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		Mag.	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	16 28.29	-19 32.5	1.800	1.087	+4.42	+5.8	14.8	31.3
Jan. 11	17 11.69	-18 16.8	1.814	1.106	+4.22	+9.6	14.9	31.7
Jan. 21	17 52.78	-16 26.3	1.839	1.139	+3.96	+12.6	15.1	32.5
Jan. 31	18 31.07	-14 09.4	1.870	1.185	+3.66	+14.8	15.4	33.7
Feb. 10	19 06.34	-11 34.4	1.907	1.241	+3.36	+16.2	15.7	35.4
Feb. 20	19 38.56	-08 48.5	1.945	1.306	+3.06	+16.9	16.0	37.4
Mar. 1	20 07.86	-05 57.6	1.983	1.377	+2.78	+17.2	16.3	39.8
Mar. 11	20 34.45	-03 05.9	2.018	1.453	+2.52	+17.1	16.7	42.7
Mar. 21	20 58.49	+00 16.6	2.048	1.532	+2.27	+16.7	17.0	45.9
Mar. 31	21 20.19	+02 28.3	2.071	1.612	+2.05	+16.2	17.3	49.5
Apr. 10	21 39.68	+05 07.3	2.087	1.694	+1.83	+15.5	17.6	53.5
Apr. 20	21 57.06	+07 39.5	2.093	1.777	+1.62	+14.8	17.8	57.9
Apr. 30	22 12.37	+10 03.9	2.090	1.860	+1.42	+14.0	18.1	62.8
May 10	22 25.62	+12 20.0	2.078	1.942	+1.21	+13.1	18.3	68.1
May 20	22 36.72	+14 26.7	2.056	2.023	+0.99	+12.1	18.5	73.8
May 30	22 45.59	+16 23.0	2.027	2.104	+0.76	+11.0	18.7	80.1
June 9	22 52.06	+18 07.3	1.991	2.184	+0.51	+9.7	18.8	86.8
June 19	22 55.95	+19 37.2	1.950	2.262	+0.24	+8.1	19.0	94.1
June 29	22 57.11	+20 50.0	1.908	2.339	-0.04	+6.2	19.1	101.9
July 9	22 55.43	+21 41.8	1.867	2.415	-0.33	+3.9	19.2	110.3
July 19	22 50.93	+22 08.2	1.832	2.490	-0.60	+1.1	19.4	119.1
July 29	22 43.91	+22 05.3	1.808	2.563	-0.82	-2.0	19.5	128.2
Aug. 8	22 34.90	+21 30.2	1.799	2.635	-0.98	-5.3	19.9	137.2
Aug. 18	22 24.78	+20 22.7	1.811	2.706	-1.03	-8.4	19.9	145.4
Aug. 28	22 14.56	+18 47.0	1.846	2.775	-0.99	-10.9	19.9	151.3
Sept. 7	22 05.23	+16 50.6	1.908	2.843	-0.85	-12.4	20.0	153.0
Sept. 17	21 57.62	+14 43.5	1.997	2.909	-0.65	-12.9	20.2	149.7
Sept. 27	21 52.20	+12 35.8	2.111	2.974	-0.41	-12.5	20.4	143.0
Oct. 7	21 49.18	+10 35.8	2.250	3.038	-0.17	-11.3	20.7	134.7
Oct. 17	21 48.51	+08 49.2	2.409	3.100	+0.06	-9.8	20.9	125.9
Oct. 27	21 50.01	+07 19.1	2.584	3.161	+0.26	-8.0	21.1	116.9
Nov. 6	21 53.41	+06 06.6	2.772	3.221	+0.43	-6.3	21.4	108.1
Nov. 16	21 58.44	+05 11.6	2.969	3.279	+0.58	-4.6	21.6	99.4
Nov. 26	22 04.82	+04 33.1	3.170	3.336	+0.70	-3.0	21.7	91.0
Dec. 6	22 12.31	+04 09.7	3.372	3.392	+0.80	-1.6	21.9	82.8
Dec. 16	22 20.70	+03 59.9	3.572	3.447	+0.88	-0.3	22.0	74.8
Dec. 26	22 29.77	+04 02.0	3.767	3.500	+0.94	+0.8	.	66.9
Jan. 5	22 39.40	+04 14.6	3.954	3.553	+0.99	+1.8	.	59.2
Jan. 15	22 49.42	+04 36.2	4.130	3.604	+1.02	+2.6	.	51.7
Jan. 25	22 59.73	+05 05.4	4.294	3.654	+1.04	+3.3	.	44.2
Feb. 4	23 10.23	+05 41.0	4.443	3.703	+1.06	+3.9	.	37.0
Feb. 14	23 20.83	+06 21.8	4.575	3.750	+1.06	+4.3	.	29.8
Feb. 24	23 31.45	+07 06.7	4.689	3.797	+1.06	+4.7	.	22.9
Mar. 6	23 42.02	+07 54.9	4.784	3.843	+1.05	+5.0	.	16.4
Mar. 16	23 52.49	+08 45.2	4.859	3.887	+1.04	+5.1	.	10.9
Mar. 26	00 02.78	+09 37.0	4.914	3.930	+1.02	+5.2	.	8.6

Comet P/2018 P3 = 2023 V8 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2023 Dec. 26.70936 TT
 Peri. = 305.98416 e = 0.4174511
 Node = 59.15837 2000.0 a = 3.0045486 AU
 Incl. = 8.91475 n = 0.18924971
 q = 1.7502965 AU P = 5.21 years

$$m1 = 10.4 + 5 \log(\Delta) + 27.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	22 51.77	-13 43.3	2.031	1.751	+2.32 +18.2	18.6	59.5
Jan. 11	23 14.99	-10 38.7	2.109	1.755	+2.32 +18.7	18.7	55.8
Jan. 21	23 38.20	-07 30.2	2.188	1.763	+2.32 +19.0	18.9	52.1
Jan. 31	00 01.36	-04 20.4	2.268	1.775	+2.31 +18.9	19.0	48.5
Feb. 10	00 24.48	-01 11.8	2.349	1.791	+2.31 +18.7	19.2	44.9
Feb. 20	00 47.58	+01 53.4	2.432	1.810	+2.31 +18.2	19.4	41.3
Mar. 1	01 10.68	+04 52.9	2.514	1.833	+2.31 +17.6	19.6	37.7
Mar. 11	01 33.80	+07 44.9	2.596	1.858	+2.32 +16.7	19.9	34.0
Mar. 21	01 56.97	+10 27.7	2.678	1.887	+2.32 +15.7	20.1	30.4
Mar. 31	02 20.19	+12 59.7	2.758	1.918	+2.33 +14.6	20.4	26.7
Apr. 10	02 43.48	+15 19.9	2.835	1.952	+2.33 +13.3	20.6	22.9
Apr. 20	03 06.80	+17 27.3	2.910	1.987	+2.33 +12.0	20.9	19.1
Apr. 30	03 30.14	+19 21.0	2.980	2.025	+2.33 +10.6	21.2	15.2
May 10	03 53.45	+21 00.9	3.045	2.064	+2.33 +9.2	21.5	11.2
May 20	04 16.68	+22 26.6	3.105	2.105	+2.31 +7.8	21.7	7.2
May 30	04 39.74	+23 38.2	3.158	2.146	+2.29 +6.4	22.0	3.3
June 9	05 02.56	+24 36.1	3.203	2.189	+2.27 +5.1	.	2.3
June 19	05 25.04	+25 20.8	3.240	2.233	+2.23 +3.8	.	6.2
June 29	05 47.10	+25 52.9	3.269	2.277	+2.18 +2.6	.	10.6
July 9	06 08.65	+26 13.6	3.287	2.322	+2.12 +1.5	.	15.3
July 19	06 29.58	+26 23.8	3.295	2.367	+2.06 +0.5	.	20.1
July 29	06 49.82	+26 24.8	3.293	2.412	+1.98 -0.3	.	25.1
Aug. 8	07 09.28	+26 18.1	3.279	2.458	+1.90 -1.0	.	30.3
Aug. 18	07 27.89	+26 05.0	3.254	2.503	+1.81 -1.6	.	35.7
Aug. 28	07 45.56	+25 47.3	3.218	2.549	+1.71 -2.0	.	41.4
Sept. 7	08 02.22	+25 26.6	3.170	2.594	+1.61 -2.2	.	47.3
Sept. 17	08 17.77	+25 04.7	3.111	2.640	+1.49 -2.2	.	53.5
Sept. 27	08 32.12	+24 43.5	3.042	2.685	+1.37 -2.0	.	60.0
Oct. 7	08 45.15	+24 24.8	2.963	2.729	+1.23 -1.6	.	66.8
Oct. 17	08 56.72	+24 10.7	2.876	2.774	+1.07 -1.1	.	74.1
Oct. 27	09 06.67	+24 03.1	2.783	2.818	+0.90 -0.3	.	81.8
Nov. 6	09 14.81	+24 04.2	2.685	2.861	+0.70 +0.6	.	89.9
Nov. 16	09 20.90	+24 15.5	2.587	2.904	+0.49 +1.8	.	98.6
Nov. 26	09 24.73	+24 38.4	2.490	2.946	+0.25 +3.0	.	107.8
Dec. 6	09 26.05	+25 13.5	2.400	2.988	-0.01 +4.2	.	117.7
Dec. 16	09 24.72	+25 59.9	2.322	3.030	-0.28 +5.2	.	128.1
Dec. 26	09 20.70	+26 55.1	2.260	3.071	-0.55 +5.9	.	138.9
Jan. 5	09 14.15	+27 55.0	2.220	3.111	-0.78 +6.0	.	150.0
Jan. 15	09 05.57	+28 53.6	2.206	3.150	-0.94 +5.6	.	160.6
Jan. 25	08 55.74	+29 45.0	2.220	3.189	-1.02 +4.5	.	167.7
Feb. 4	08 45.63	+30 24.0	2.266	3.227	-0.98 +3.1	.	164.8
Feb. 14	08 36.29	+30 48.0	2.341	3.265	-0.86 +1.5	.	155.5
Feb. 24	08 28.57	+30 56.7	2.443	3.302	-0.66 +0.1	.	144.9
Mar. 6	08 23.02	+30 51.7	2.569	3.338	-0.42 -1.2	.	134.3
Mar. 16	08 19.92	+30 35.6	2.714	3.374	-0.18 -2.1	.	124.2
Mar. 26	08 19.23	+30 10.9	2.873	3.409	+0.06 -2.9	.	114.4

Comet 226P/Pigott-LINEAR-Kowalski

Epoch = 2024 July 29.0 TT
 T = 2023 Dec. 27.14451 TT
 Peri. = 341.03029 e = 0.5290791
 Node = 54.01124 2000.0 a = 3.7660439 AU
 Incl. = 44.04578 n = 0.13485778
 q = 1.7735088 AU P = 7.31 years

$$m1 = 9.0 + 5 \log(\Delta) + 20.0 \log(r(t-30))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' .			m	'		°
Jan. 1	00 49.20	-09 15.4	1.512	1.774	+0.84	+38.1	15.0	88.0
Jan. 11	00 58.48	-03 06.8	1.618	1.779	+1.03	+35.3	15.0	82.4
Jan. 21	01 09.60	+02 33.8	1.732	1.789	+1.20	+32.6	15.2	77.0
Jan. 31	01 22.26	+07 47.6	1.852	1.803	+1.34	+30.0	15.3	71.7
Feb. 10	01 36.30	+12 36.8	1.975	1.822	+1.48	+27.7	15.5	66.5
Feb. 20	01 51.63	+17 03.8	2.099	1.846	+1.60	+25.6	15.7	61.6
Mar. 1	02 08.16	+21 10.5	2.221	1.873	+1.72	+23.6	15.9	56.9
Mar. 11	02 25.90	+24 58.8	2.341	1.905	+1.84	+21.9	16.1	52.4
Mar. 21	02 44.84	+28 30.0	2.457	1.940	+1.96	+20.2	16.3	48.1
Mar. 31	03 05.01	+31 44.7	2.569	1.977	+2.08	+18.6	16.5	44.1
Apr. 10	03 26.42	+34 43.4	2.675	2.018	+2.21	+17.0	16.7	40.3
Apr. 20	03 49.11	+37 26.0	2.775	2.061	+2.34	+15.4	17.0	36.9
Apr. 30	04 13.06	+39 52.2	2.868	2.107	+2.46	+13.7	17.2	33.8
May 10	04 38.26	+42 01.6	2.955	2.154	+2.59	+12.0	17.5	31.1
May 20	05 04.61	+43 53.5	3.035	2.203	+2.69	+10.2	17.7	28.8
May 30	05 31.99	+45 27.5	3.108	2.253	+2.79	+8.4	17.9	27.1
June 9	06 00.23	+46 43.3	3.175	2.305	+2.86	+6.6	18.2	25.9
June 19	06 29.06	+47 40.8	3.234	2.358	+2.90	+4.8	18.4	25.4
June 29	06 58.20	+48 20.4	3.287	2.411	+2.92	+3.0	18.6	25.6
July 9	07 27.35	+48 43.0	3.333	2.465	+2.90	+1.4	18.9	26.5
July 19	07 56.20	+48 50.2	3.371	2.519	+2.86	-0.1	19.1	28.0
July 29	08 24.49	+48 43.6	3.403	2.574	+2.79	-1.3	19.3	30.0
Aug. 8	08 51.98	+48 25.4	3.427	2.629	+2.70	-2.3	19.5	32.5
Aug. 18	09 18.51	+47 58.4	3.444	2.685	+2.59	-3.1	19.7	35.5
Aug. 28	09 43.97	+47 24.9	3.454	2.740	+2.48	-3.6	19.9	38.8
Sept. 7	10 08.29	+46 47.7	3.456	2.795	+2.37	-3.8	20.1	42.4
Sept. 17	10 31.43	+46 09.6	3.451	2.850	+2.25	-3.8	20.3	46.3
Sept. 27	10 53.40	+45 33.1	3.438	2.905	+2.13	-3.5	20.4	50.5
Oct. 7	11 14.20	+45 00.8	3.419	2.960	+2.01	-2.9	20.6	54.9
Oct. 17	11 33.81	+44 35.0	3.392	3.014	+1.90	-2.1	20.8	59.7
Oct. 27	11 52.23	+44 18.0	3.360	3.068	+1.78	-1.1	20.9	64.6
Nov. 6	12 09.42	+44 11.9	3.322	3.122	+1.65	+0.1	21.0	69.8
Nov. 16	12 25.31	+44 18.4	3.280	3.175	+1.51	+1.4	21.2	75.3
Nov. 26	12 39.81	+44 39.1	3.235	3.228	+1.37	+2.9	21.3	80.9
Dec. 6	12 52.75	+45 15.1	3.188	3.281	+1.20	+4.5	21.4	86.6
Dec. 16	13 03.94	+46 06.8	3.142	3.333	+1.01	+6.0	21.5	92.5
Dec. 26	13 13.14	+47 13.8	3.099	3.384	+0.80	+7.5	21.6	98.3
Jan. 5	13 20.01	+48 34.7	3.060	3.435	+0.55	+8.8	21.7	104.1
Jan. 15	13 24.22	+50 06.6	3.030	3.486	+0.26	+9.6	21.9	109.6
Jan. 25	13 25.40	+51 45.2	3.010	3.536	-0.06	+10.0	22.0	114.6
Feb. 4	13 23.20	+53 24.6	3.003	3.585	-0.41	+9.7	.	118.9
Feb. 14	13 17.46	+54 57.2	3.012	3.634	-0.77	+8.6	.	122.1
Feb. 24	13 08.28	+56 15.0	3.037	3.682	-1.09	+6.6	.	123.9
Mar. 6	12 56.20	+57 09.9	3.080	3.730	-1.33	+4.0	.	124.3
Mar. 16	12 42.24	+57 35.8	3.141	3.777	-1.45	+0.9	.	123.0
Mar. 26	12 27.77	+57 29.8	3.220	3.823	-1.42	-2.4	.	120.4

Comet C/2021 S4 (Tsuchinshan)

Epoch = 2024 July 29.0 TT
 T = 2024 Jan. 3.22942 TT
 Peri. = 72.95650
 Node = 5.47604 2000.0
 Incl. = 17.47813
 q = 6.6897024 AU
 e = 0.9585157

$$m1 = -5.5 + 5 \log(\Delta) + 22.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	04 36.63	+41 27.6	5.836	6.690	-0.32	-1.4	16.9	148.0
Jan. 11	04 33.86	+41 11.6	5.915	6.690	-0.22	-1.8	16.9	139.1
Jan. 21	04 32.17	+40 53.0	6.018	6.691	-0.10	-1.9	17.0	129.8
Jan. 31	04 31.70	+40 33.3	6.140	6.692	+0.02	-2.0	17.0	120.4
Feb. 10	04 32.50	+40 13.9	6.276	6.694	+0.15	-1.9	17.1	111.0
Feb. 20	04 34.57	+39 55.8	6.424	6.697	+0.28	-1.7	17.1	101.8
Mar. 1	04 37.86	+39 39.5	6.577	6.700	+0.39	-1.5	17.2	92.9
Mar. 11	04 42.28	+39 25.5	6.733	6.704	+0.50	-1.3	17.2	84.1
Mar. 21	04 47.73	+39 13.9	6.887	6.709	+0.60	-1.0	17.3	75.6
Mar. 31	04 54.10	+39 04.5	7.036	6.714	+0.68	-0.8	17.3	67.3
Apr. 10	05 01.28	+38 57.2	7.176	6.720	+0.76	-0.6	17.4	59.3
Apr. 20	05 09.15	+38 51.6	7.306	6.726	+0.82	-0.5	17.4	51.5
Apr. 30	05 17.59	+38 47.4	7.422	6.733	+0.87	-0.4	17.5	44.0
May 10	05 26.51	+38 44.3	7.523	6.741	+0.91	-0.3	17.5	36.7
May 20	05 35.81	+38 42.0	7.608	6.749	+0.95	-0.2	17.6	29.9
May 30	05 45.38	+38 40.2	7.675	6.758	+0.97	-0.2	17.6	23.7
June 9	05 55.15	+38 38.7	7.723	6.768	+0.98	-0.1	17.6	18.5
June 19	06 05.00	+38 37.5	7.752	6.778	+0.99	-0.1	17.6	15.5
June 29	06 14.86	+38 36.6	7.761	6.789	+0.98	-0.1	17.7	15.8
July 9	06 24.65	+38 35.8	7.751	6.800	+0.97	-0.1	17.7	19.3
July 19	06 34.27	+38 35.5	7.722	6.812	+0.95	0.0	17.7	24.7
July 29	06 43.63	+38 35.7	7.675	6.825	+0.92	+0.1	17.7	31.0
Aug. 8	06 52.66	+38 36.6	7.609	6.838	+0.88	+0.2	17.7	37.9
Aug. 18	07 01.26	+38 38.7	7.528	6.851	+0.83	+0.3	17.7	45.1
Aug. 28	07 09.33	+38 42.2	7.431	6.866	+0.77	+0.4	17.7	52.7
Sept. 7	07 16.78	+38 47.5	7.322	6.881	+0.71	+0.6	17.7	60.4
Sept. 17	07 23.50	+38 55.0	7.202	6.896	+0.63	+0.9	17.7	68.4
Sept. 27	07 29.40	+39 04.9	7.074	6.912	+0.54	+1.1	17.6	76.7
Oct. 7	07 34.37	+39 17.4	6.941	6.928	+0.44	+1.4	17.6	85.2
Oct. 17	07 38.31	+39 32.6	6.806	6.945	+0.33	+1.7	17.6	93.9
Oct. 27	07 41.13	+39 50.3	6.674	6.963	+0.22	+1.9	17.6	102.8
Nov. 6	07 42.77	+40 10.2	6.549	6.981	+0.10	+2.1	17.6	112.0
Nov. 16	07 43.18	+40 31.4	6.435	7.000	-0.03	+2.2	17.6	121.3
Nov. 26	07 42.39	+40 53.0	6.336	7.019	-0.14	+2.1	17.6	130.7
Dec. 6	07 40.45	+41 13.6	6.257	7.039	-0.25	+1.9	17.6	139.9
Dec. 16	07 37.52	+41 31.7	6.201	7.059	-0.34	+1.6	17.6	148.6
Dec. 26	07 33.82	+41 45.9	6.171	7.080	-0.40	+1.1	17.6	155.9
Jan. 5	07 29.62	+41 54.8	6.169	7.101	-0.43	+0.6	17.6	160.0
Jan. 15	07 25.28	+41 57.6	6.197	7.123	-0.43	-0.1	17.6	158.7
Jan. 25	07 21.12	+41 53.9	6.254	7.145	-0.39	-0.7	17.7	153.0
Feb. 4	07 17.47	+41 43.8	6.339	7.168	-0.33	-1.3	17.8	144.9
Feb. 14	07 14.61	+41 28.0	6.448	7.191	-0.23	-1.9	17.8	136.0
Feb. 24	07 12.73	+41 07.3	6.579	7.215	-0.13	-2.3	17.9	126.7
Mar. 6	07 11.95	+40 42.8	6.729	7.239	-0.01	-2.6	18.0	117.4
Mar. 16	07 12.32	+40 15.5	6.892	7.263	+0.10	-2.9	18.1	108.2
Mar. 26	07 13.83	+39 46.2	7.064	7.288	+0.21	-3.0	18.2	99.1

Comet 216P/LINEAR

Epoch = 2024 July 29.0 TT
 T = 2024 Jan. 6.89571 TT
 Peri. = 151.74030 e = 0.4488085
 Node = 359.79723 2000.0 a = 3.8590601 AU
 Incl. = 9.06245 n = 0.13001150
 q = 2.1270811 AU P = 7.58 years

$$m1 = 5.0 + 5 \log(\Delta) + 37.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	11 56.16	+06 46.5	1.675	2.128	+1.02 -8.5	18.4	103.2
Jan. 11	12 05.32	+05 25.4	1.570	2.127	+0.78 -7.6	18.3	110.7
Jan. 21	12 11.95	+04 14.8	1.472	2.130	+0.51 -6.4	18.2	118.9
Jan. 31	12 15.73	+03 15.5	1.385	2.136	+0.21 -5.3	18.1	127.8
Feb. 10	12 16.39	+02 28.3	1.311	2.144	-0.11 -4.1	18.0	137.5
Feb. 20	12 13.92	+01 52.9	1.253	2.155	-0.41 -3.0	18.0	147.9
Mar. 1	12 08.67	+01 27.5	1.215	2.169	-0.65 -2.1	18.0	159.0
Mar. 11	12 01.42	+01 09.4	1.200	2.186	-0.79 -1.5	18.1	170.6
Mar. 21	11 53.32	+00 54.7	1.210	2.205	-0.80 -1.5	18.3	177.6
Mar. 31	11 45.72	+00 39.0	1.244	2.227	-0.69 -1.8	18.5	166.0
Apr. 10	11 39.71	+00 18.5	1.303	2.251	-0.48 -2.4	18.8	154.9
Apr. 20	11 36.10	+00 09.5	1.383	2.277	-0.21 -3.3	19.1	144.4
Apr. 30	11 35.19	+00 46.3	1.482	2.305	+0.06 -4.2	19.5	134.7
May 10	11 36.94	-01 32.2	1.596	2.335	+0.32 -5.1	19.8	125.7
May 20	11 41.15	-02 27.0	1.723	2.366	+0.54 -5.9	20.2	117.4
May 30	11 47.48	-03 29.7	1.860	2.400	+0.74 -6.7	20.6	109.7
June 9	11 55.59	-04 39.4	2.004	2.434	+0.90 -7.3	21.0	102.5
June 19	12 05.19	-05 55.0	2.154	2.470	+1.03 -7.8	21.4	95.6
June 29	12 16.01	-07 15.5	2.308	2.508	+1.14 -8.3	21.8	89.1
July 9	12 27.82	-08 39.7	2.464	2.546	+1.23 -8.6	.	82.9
July 19	12 40.47	-10 06.7	2.620	2.585	+1.30 -8.8	.	76.8
July 29	12 53.80	-11 35.4	2.776	2.626	+1.37 -8.9	.	70.9
Aug. 8	13 07.71	-13 05.0	2.930	2.666	+1.42 -9.0	.	65.1
Aug. 18	13 22.13	-14 34.7	3.080	2.708	+1.47 -8.9	.	59.4
Aug. 28	13 36.96	-16 03.5	3.226	2.750	+1.50 -8.8	.	53.7
Sept. 7	13 52.17	-17 30.8	3.365	2.793	+1.54 -8.6	.	48.0
Sept. 17	14 07.71	-18 55.8	3.498	2.836	+1.57 -8.3	.	42.3
Sept. 27	14 23.52	-20 17.9	3.622	2.879	+1.60 -8.0	.	36.6
Oct. 7	14 39.58	-21 36.4	3.736	2.922	+1.62 -7.6	.	30.8
Oct. 17	14 55.84	-22 50.8	3.839	2.966	+1.63 -7.2	.	25.1
Oct. 27	15 12.23	-24 00.7	3.930	3.010	+1.65 -6.7	.	19.3
Nov. 6	15 28.72	-25 05.6	4.008	3.054	+1.65 -6.2	.	13.7
Nov. 16	15 45.23	-26 05.2	4.072	3.098	+1.65 -5.7	.	8.7
Nov. 26	16 01.70	-26 59.3	4.121	3.142	+1.64 -5.1	.	6.2
Dec. 6	16 18.05	-27 47.9	4.155	3.186	+1.62 -4.6	.	9.1
Dec. 16	16 34.18	-28 30.9	4.173	3.230	+1.60 -4.0	.	14.5
Dec. 26	16 49.99	-29 08.6	4.175	3.273	+1.56 -3.5	.	20.7
Jan. 5	17 05.38	-29 41.3	4.160	3.317	+1.51 -3.0	.	27.3
Jan. 15	17 20.22	-30 09.4	4.130	3.360	+1.45 -2.6	.	34.0
Jan. 25	17 34.40	-30 33.5	4.084	3.403	+1.38 -2.2	.	41.0
Feb. 4	17 47.77	-30 54.5	4.025	3.446	+1.29 -2.0	.	48.2
Feb. 14	18 00.19	-31 13.2	3.952	3.489	+1.18 -1.8	.	55.5
Feb. 24	18 11.51	-31 30.5	3.867	3.531	+1.07 -1.7	.	63.1
Mar. 6	18 21.57	-31 47.4	3.773	3.573	+0.93 -1.7	.	70.9
Mar. 16	18 30.20	-32 04.8	3.671	3.615	+0.78 -1.8	.	79.0
Mar. 26	18 37.21	-32 23.7	3.564	3.656	+0.61 -2.0	.	87.3

Comet C/2023 S3 (Lemmon)

Epoch = 2024 July 29.0 TT
 T = 2024 Jan. 19.62700 TT
 Peri. = 281.56821 e = 0.9708681
 Node = 233.83359 2000.0 a = 28.4939534 AU
 Incl. = 140.49804 n = 0.00648000
 q = 0.8300830 AU P = 152.10 years

$$m1 = 16.0 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	°			m	'		°
Jan. 1	21 11.69	-38 04.7	1.501	0.899	-1.88	+3.8	16.4	35.2
Jan. 11	20 54.02	-37 22.8	1.637	0.845	-1.66	+4.7	16.3	24.4
Jan. 21	20 37.94	-36 30.0	1.714	0.830	-1.56	+6.1	16.4	17.5
Jan. 31	20 22.70	-35 21.8	1.728	0.856	-1.49	+7.8	16.5	18.8
Feb. 10	20 07.93	-33 55.7	1.683	0.919	-1.48	+9.6	16.8	26.9
Feb. 20	19 52.76	-32 10.2	1.586	1.008	-1.59	+11.8	17.0	37.9
Mar. 1	19 35.65	-30 00.2	1.449	1.116	-1.90	+14.7	17.3	50.3
Mar. 11	19 14.22	-27 13.0	1.286	1.236	-2.51	+19.6	17.5	64.2
Mar. 21	18 44.94	-23 22.0	1.112	1.361	-3.52	+28.2	17.6	80.2
Mar. 31	18 03.46	-17 40.4	0.953	1.490	-4.98	+42.5	17.6	99.6
Apr. 10	17 06.59	-09 17.5	0.842	1.621	-6.48	+59.1	17.7	122.8
Apr. 20	15 58.40	+01 02.7	0.825	1.751	-6.94	+61.3	18.0	146.2
Apr. 30	14 52.88	+10 05.0	0.921	1.881	-5.85	+43.3	18.6	154.5
May 10	14 02.03	+15 42.9	1.110	2.010	-4.14	+23.2	19.3	142.9
May 20	13 27.56	+18 32.2	1.356	2.137	-2.68	+10.6	20.0	128.4
May 30	13 05.75	+19 43.7	1.634	2.263	-1.65	+3.8	20.6	115.5
June 9	12 52.63	+20 03.2	1.928	2.387	-0.95	+0.1	21.2	104.1
June 19	12 45.42	+19 55.0	2.227	2.510	-0.48	-1.8	21.7	93.9
June 29	12 42.21	+19 32.0	2.525	2.631	-0.15	-2.8	.	84.6
July 9	12 41.81	+19 01.1	2.817	2.751	+0.08	-3.4	.	75.8
July 19	12 43.44	+18 26.3	3.098	2.869	+0.25	-3.6	.	67.6
July 29	12 46.52	+17 50.2	3.366	2.985	+0.37	-3.6	.	59.7
Aug. 8	12 50.69	+17 14.4	3.617	3.100	+0.47	-3.5	.	52.1
Aug. 18	12 55.66	+16 40.2	3.849	3.213	+0.53	-3.3	.	44.9
Aug. 28	13 01.21	+16 08.7	4.061	3.325	+0.58	-3.0	.	38.1
Sept. 7	13 07.19	+15 40.8	4.249	3.436	+0.62	-2.6	.	31.9
Sept. 17	13 13.45	+15 17.4	4.414	3.545	+0.64	-2.1	.	26.7
Sept. 27	13 19.86	+14 59.3	4.553	3.653	+0.65	-1.5	.	23.1
Oct. 7	13 26.33	+14 47.3	4.667	3.760	+0.64	-0.8	.	22.1
Oct. 17	13 32.73	+14 42.3	4.755	3.865	+0.63	-0.1	.	24.0
Oct. 27	13 38.96	+14 45.4	4.817	3.970	+0.61	+0.8	.	28.3
Nov. 6	13 44.91	+14 57.4	4.853	4.073	+0.57	+1.7	.	34.3
Nov. 16	13 50.45	+15 19.3	4.867	4.175	+0.53	+2.8	.	41.3
Nov. 26	13 55.45	+15 52.0	4.858	4.277	+0.47	+3.9	.	49.0
Dec. 6	13 59.76	+16 36.5	4.831	4.377	+0.39	+5.1	.	57.2
Dec. 16	14 03.23	+17 33.5	4.788	4.476	+0.29	+6.4	.	65.8
Dec. 26	14 05.69	+18 43.3	4.734	4.575	+0.18	+7.7	.	74.7
Jan. 5	14 06.95	+20 06.2	4.673	4.672	+0.05	+9.0	.	83.9
Jan. 15	14 06.84	+21 41.3	4.610	4.769	-0.09	+10.1	.	93.3
Jan. 25	14 05.18	+23 27.3	4.552	4.864	-0.26	+11.1	.	102.7
Feb. 4	14 01.83	+25 21.6	4.505	4.959	-0.43	+11.8	.	112.0
Feb. 14	13 56.71	+27 20.5	4.474	5.053	-0.61	+12.0	.	120.9
Feb. 24	13 49.86	+29 19.3	4.466	5.147	-0.78	+11.7	.	129.0
Mar. 6	13 41.38	+31 12.4	4.484	5.239	-0.93	+10.8	.	135.6
Mar. 16	13 31.60	+32 54.2	4.532	5.331	-1.04	+9.4	.	139.8
Mar. 26	13 20.93	+34 20.2	4.612	5.422	-1.10	+7.6	.	140.8

Comet 144P/Kushida

Epoch = 2024 July 29.0 TT
 T = 2024 Jan. 25.77901 TT
 Peri. = 216.32793 e = 0.6349399
 Node = 242.92406 2000.0 a = 3.8321200 AU
 Incl. = 3.93199 n = 0.13138489
 q = 1.3989541 AU P = 7.50 years

$$m1 = 8.0 + 5 \log(\Delta) + 25.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	03 04.42	+14 22.0	0.594	1.428	+1.38 -0.5	10.7	128.0
Jan. 11	03 20.48	+14 28.4	0.619	1.409	+1.87 +1.9	10.7	121.5
Jan. 21	03 41.21	+14 55.9	0.651	1.400	+2.30 +3.6	10.7	116.3
Jan. 31	04 05.79	+15 36.0	0.691	1.400	+2.64 +4.3	10.9	112.1
Feb. 10	04 33.35	+16 19.6	0.740	1.410	+2.89 +4.2	11.1	108.7
Feb. 20	05 03.00	+16 58.6	0.798	1.429	+3.05 +3.4	11.4	105.7
Mar. 1	05 33.83	+17 26.0	0.867	1.457	+3.11 +1.9	11.8	103.1
Mar. 11	06 05.03	+17 37.6	0.946	1.492	+3.11 +0.2	12.2	100.6
Mar. 21	06 35.96	+17 31.4	1.037	1.535	+3.06 -1.6	12.7	98.0
Mar. 31	07 06.08	+17 07.0	1.139	1.584	+2.95 -3.4	13.3	95.4
Apr. 10	07 35.06	+16 25.9	1.252	1.638	+2.83 -5.0	13.8	92.5
Apr. 20	08 02.75	+15 30.0	1.376	1.696	+2.69 -6.3	14.4	89.5
Apr. 30	08 29.04	+14 21.6	1.509	1.758	+2.55 -7.4	15.0	86.2
May 10	08 53.98	+13 03.1	1.651	1.823	+2.42 -8.3	15.6	82.8
May 20	09 17.63	+11 36.5	1.800	1.890	+2.30 -9.0	16.2	79.1
May 30	09 40.09	+10 03.9	1.955	1.959	+2.18 -9.5	16.8	75.2
June 9	10 01.48	+08 26.8	2.115	2.030	+2.09 -9.9	17.3	71.2
June 19	10 21.92	+06 46.5	2.279	2.101	+2.00 -10.2	17.8	67.0
June 29	10 41.50	+05 04.3	2.444	2.173	+1.92 -10.3	18.4	62.6
July 9	11 00.35	+03 21.1	2.610	2.245	+1.85 -10.4	18.9	58.1
July 19	11 18.56	+01 37.6	2.775	2.317	+1.79 -10.3	19.3	53.4
July 29	11 36.19	+00 05.2	2.936	2.389	+1.74 -10.2	19.8	48.6
Aug. 8	11 53.35	-01 47.0	3.094	2.461	+1.69 -10.1	20.2	43.6
Aug. 18	12 10.07	-03 27.0	3.245	2.533	+1.65 -9.9	20.6	38.5
Aug. 28	12 26.40	-05 04.8	3.389	2.604	+1.61 -9.6	21.0	33.3
Sept. 7	12 42.41	-06 39.9	3.523	2.674	+1.58 -9.3	21.4	27.9
Sept. 17	12 58.10	-08 11.9	3.647	2.744	+1.55 -9.0	21.8	22.3
Sept. 27	13 13.50	-09 40.4	3.759	2.814	+1.52 -8.6	.	16.7
Oct. 7	13 28.61	-11 04.9	3.858	2.882	+1.50 -8.2	.	10.8
Oct. 17	13 43.43	-12 25.2	3.942	2.950	+1.47 -7.8	.	5.0
Oct. 27	13 57.94	-13 40.9	4.010	3.017	+1.43 -7.3	.	2.2
Nov. 6	14 12.11	-14 51.7	4.062	3.084	+1.40 -6.8	.	8.0
Nov. 16	14 25.89	-15 57.3	4.097	3.149	+1.35 -6.3	.	14.5
Nov. 26	14 39.23	-16 57.5	4.114	3.214	+1.31 -5.7	.	21.2
Dec. 6	14 52.04	-17 52.2	4.114	3.278	+1.25 -5.2	.	28.2
Dec. 16	15 04.23	-18 41.2	4.095	3.341	+1.18 -4.6	.	35.3
Dec. 26	15 15.70	-19 24.5	4.061	3.403	+1.10 -4.0	.	42.7
Jan. 5	15 26.33	-20 02.1	4.009	3.465	+1.01 -3.4	.	50.3
Jan. 15	15 35.95	-20 33.9	3.944	3.525	+0.90 -2.9	.	58.2
Jan. 25	15 44.43	-21 00.2	3.866	3.585	+0.78 -2.3	.	66.3
Feb. 4	15 51.59	-21 21.0	3.777	3.644	+0.64 -1.8	.	74.7
Feb. 14	15 57.26	-21 36.3	3.681	3.702	+0.48 -1.2	.	83.5
Feb. 24	16 01.27	-21 46.2	3.581	3.759	+0.30 -0.7	.	92.7
Mar. 6	16 03.45	-21 50.7	3.481	3.816	+0.11 -0.1	.	102.2
Mar. 16	16 03.71	-21 49.5	3.386	3.871	-0.08 +0.4	.	112.1
Mar. 26	16 01.99	-21 42.6	3.300	3.926	-0.28 +1.0	.	122.5

Comet 207P/NEAT

Epoch = 2024 July 29.0 TT
 T = 2024 Jan. 31.82258 TT
 Peri. = 272.99818 e = 0.7584468
 Node = 198.15548 2000.0 a = 3.8843957 AU
 Incl. = 10.20099 n = 0.12874159
 q = 0.9382882 AU P = 7.66 years

$$m1 = 17.2 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	00 27.28	-13° 58.4	0.547	1.050	+1.98 -5.0	16.0	81.2
Jan. 11	00 49.46	-14 45.4	0.500	0.991	+2.53 -4.4	15.7	76.2
Jan. 21	01 17.53	-15 29.4	0.443	0.953	+3.18 -4.5	15.3	72.9
Jan. 31	01 53.12	-16 15.5	0.379	0.938	+4.10 -4.6	14.9	71.8
Feb. 10	02 40.41	-16 55.6	0.315	0.949	+5.65 -2.7	14.5	73.9
Feb. 20	03 47.49	-16 52.7	0.259	0.984	+8.17 +5.7	14.2	81.4
Mar. 1	05 21.90	-14 33.4	0.224	1.039	+10.74 +25.7	14.1	96.2
Mar. 11	07 10.50	-08 53.3	0.228	1.110	+10.26 +39.9	14.3	115.2
Mar. 21	08 40.30	-02 41.8	0.279	1.193	+7.30 +31.0	15.0	129.5
Mar. 31	09 41.23	+01 26.3	0.365	1.285	+4.82 +17.7	15.8	135.4
Apr. 10	10 22.11	+03 38.9	0.475	1.381	+3.35 +8.5	16.6	135.4
Apr. 20	10 51.56	+04 35.9	0.604	1.480	+2.53 +2.7	17.4	132.3
Apr. 30	11 14.56	+04 45.7	0.748	1.581	+2.06 -0.9	18.1	127.9
May 10	11 33.83	+04 25.4	0.907	1.683	+1.79 -3.3	18.7	122.7
May 20	11 50.94	+03 44.8	1.077	1.784	+1.63 -4.9	19.2	117.3
May 30	12 06.70	+02 50.7	1.259	1.885	+1.52 -6.0	19.8	111.6
June 9	12 21.62	+01 47.5	1.450	1.984	+1.46 -6.7	20.2	105.9
June 19	12 36.04	+00 38.1	1.648	2.083	+1.42 -7.2	20.7	100.1
June 29	12 50.12	+00 35.0	1.853	2.180	+1.39 -7.4	21.1	94.3
July 9	13 04.00	-01 50.1	2.062	2.275	+1.38 -7.6	21.4	88.5
July 19	13 17.76	-03 06.1	2.274	2.369	+1.37 -7.6	21.8	82.7
July 29	13 31.44	-04 21.6	2.486	2.461	+1.37 -7.5	.	76.8
Aug. 8	13 45.08	-05 36.0	2.698	2.552	+1.36 -7.3	.	70.9
Aug. 18	13 58.72	-06 48.4	2.906	2.641	+1.36 -7.1	.	64.9
Aug. 28	14 12.34	-07 58.3	3.110	2.728	+1.36 -6.8	.	58.9
Sept. 7	14 25.96	-09 05.1	3.307	2.814	+1.36 -6.5	.	52.8
Sept. 17	14 39.59	-10 08.3	3.495	2.899	+1.36 -6.1	.	46.6
Sept. 27	14 53.19	-11 07.5	3.673	2.982	+1.36 -5.7	.	40.4
Oct. 7	15 06.75	-12 02.3	3.839	3.063	+1.35 -5.2	.	34.1
Oct. 17	15 20.26	-12 52.3	3.990	3.143	+1.35 -4.7	.	27.8
Oct. 27	15 33.66	-13 37.3	4.126	3.221	+1.33 -4.2	.	21.4
Nov. 6	15 46.92	-14 16.9	4.246	3.298	+1.32 -3.7	.	15.0
Nov. 16	15 59.98	-14 51.0	4.347	3.374	+1.29 -3.1	.	9.1
Nov. 26	16 12.79	-15 19.5	4.429	3.448	+1.26 -2.5	.	5.7
Dec. 6	16 25.27	-15 42.2	4.491	3.522	+1.23 -2.0	.	9.0
Dec. 16	16 37.34	-15 59.1	4.533	3.593	+1.18 -1.4	.	15.3
Dec. 26	16 48.91	-16 10.3	4.555	3.664	+1.13 -0.8	.	22.3
Jan. 5	16 59.90	-16 16.0	4.556	3.733	+1.06 -0.3	.	29.7
Jan. 15	17 10.18	-16 16.4	4.537	3.802	+0.99 +0.2	.	37.3
Jan. 25	17 19.65	-16 11.8	4.500	3.869	+0.90 +0.7	.	45.1
Feb. 4	17 28.19	-16 02.4	4.446	3.935	+0.80 +1.2	.	53.1
Feb. 14	17 35.66	-15 48.9	4.377	3.999	+0.68 +1.6	.	61.4
Feb. 24	17 41.94	-15 31.7	4.296	4.063	+0.56 +1.9	.	69.9
Mar. 6	17 46.88	-15 11.4	4.205	4.126	+0.42 +2.2	.	78.6
Mar. 16	17 50.36	-14 48.6	4.108	4.187	+0.26 +2.4	.	87.7
Mar. 26	17 52.26	-14 23.9	4.009	4.248	+0.10 +2.5	.	97.0

Comet 219P/LINEAR

Epoch = 2024 July 29.0 TT
 T = 2024 Feb. 13.92068 TT
 Peri. = 107.65394 e = 0.3541762
 Node = 230.95334 2000.0 a = 3.6464334 AU
 Incl. = 11.53998 n = 0.14154732
 q = 2.3549535 AU P = 6.96 years

$$m1 = 6.3 + 5 \log(\Delta) + 20.0 \log(r(t+30))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	20 47.39	-08 52.8	3.135	2.373	+1.97 +6.8	16.2	33.1
Jan. 11	21 07.14	-07 40.3	3.186	2.366	+1.98 +7.8	16.3	28.2
Jan. 21	21 26.99	-06 18.7	3.231	2.360	+1.99 +8.6	16.3	23.4
Jan. 31	21 46.86	-04 49.2	3.268	2.357	+1.99 +9.4	16.3	18.8
Feb. 10	22 06.69	-03 12.7	3.298	2.355	+1.98 +10.0	16.4	14.4
Feb. 20	22 26.44	-01 30.4	3.320	2.355	+1.97 +10.5	16.4	10.6
Mar. 1	22 46.07	+00 16.2	3.335	2.357	+1.96 +10.9	16.4	7.9
Mar. 11	23 05.56	+02 05.9	3.342	2.361	+1.94 +11.1	16.5	7.6
Mar. 21	23 24.90	+03 57.4	3.342	2.367	+1.92 +11.2	16.5	10.0
Mar. 31	23 44.05	+05 49.4	3.334	2.375	+1.91 +11.2	16.5	13.6
Apr. 10	00 03.03	+07 40.5	3.318	2.384	+1.89 +11.0	16.6	17.8
Apr. 20	00 21.81	+09 29.5	3.295	2.396	+1.87 +10.7	16.6	22.2
Apr. 30	00 40.38	+11 15.2	3.264	2.408	+1.84 +10.3	16.7	26.8
May 10	00 58.70	+12 56.5	3.225	2.423	+1.82 +9.9	16.7	31.5
May 20	01 16.74	+14 32.5	3.179	2.439	+1.79 +9.3	16.8	36.4
May 30	01 34.44	+16 02.1	3.125	2.457	+1.75 +8.6	16.8	41.3
June 9	01 51.74	+17 24.6	3.063	2.476	+1.70 +7.8	16.8	46.5
June 19	02 08.54	+18 39.2	2.994	2.497	+1.65 +7.0	16.9	51.8
June 29	02 24.73	+19 45.4	2.919	2.518	+1.58 +6.1	16.9	57.3
July 9	02 40.18	+20 42.7	2.836	2.542	+1.50 +5.2	16.9	63.0
July 19	02 54.71	+21 30.6	2.748	2.566	+1.40 +4.3	16.9	69.0
July 29	03 08.14	+22 08.9	2.654	2.591	+1.27 +3.3	17.0	75.4
Aug. 8	03 20.24	+22 37.3	2.557	2.618	+1.13 +2.3	17.0	82.1
Aug. 18	03 30.74	+22 55.6	2.457	2.645	+0.95 +1.3	17.0	89.2
Aug. 28	03 39.39	+23 03.6	2.357	2.673	+0.75 +0.2	17.0	96.9
Sept. 7	03 45.90	+23 01.1	2.258	2.702	+0.52 -0.8	17.0	105.1
Sept. 17	03 49.99	+22 47.8	2.165	2.732	+0.27 -1.9	17.0	114.0
Sept. 27	03 51.48	+22 23.2	2.080	2.762	0.00 -3.1	17.0	123.5
Oct. 7	03 50.28	+21 47.3	2.007	2.793	-0.27 -4.2	17.0	133.7
Oct. 17	03 46.53	+21 00.2	1.952	2.825	-0.50 -5.3	17.1	144.7
Oct. 27	03 40.63	+20 03.2	1.919	2.857	-0.68 -6.2	17.1	156.2
Nov. 6	03 33.26	+18 58.9	1.912	2.889	-0.78 -6.7	17.2	168.1
Nov. 16	03 25.32	+17 51.7	1.933	2.922	-0.79 -6.7	17.3	179.1
Nov. 26	03 17.77	+16 46.4	1.984	2.955	-0.70 -6.2	17.5	167.5
Dec. 6	03 11.44	+15 48.2	2.063	2.988	-0.54 -5.3	17.7	155.7
Dec. 16	03 06.95	+15 01.0	2.168	3.022	-0.33 -4.0	17.9	144.3
Dec. 26	03 04.61	+14 26.9	2.295	3.056	-0.11 -2.7	18.1	133.4
Jan. 5	03 04.50	+14 06.1	2.441	3.090	+0.11 -1.4	18.3	123.1
Jan. 15	03 06.55	+13 58.0	2.600	3.124	+0.32 -0.2	18.5	113.3
Jan. 25	03 10.56	+14 00.6	2.770	3.158	+0.50 +0.8	18.8	104.1
Feb. 4	03 16.31	+14 12.1	2.945	3.192	+0.66 +1.6	19.0	95.4
Feb. 14	03 23.57	+14 30.3	3.122	3.226	+0.80 +2.1	19.2	87.1
Feb. 24	03 32.11	+14 53.1	3.299	3.260	+0.92 +2.5	19.4	79.1
Mar. 6	03 41.74	+15 18.9	3.472	3.294	+1.02 +2.7	19.6	71.5
Mar. 16	03 52.28	+15 45.8	3.640	3.328	+1.10 +2.7	19.8	64.1
Mar. 26	04 03.56	+16 12.6	3.800	3.362	+1.16 +2.6	20.0	56.9

Comet C/2021 S3 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 Feb. 14.70516 TT
 Peri. = 6.85167
 Node = 215.61974 2000.0
 Incl. = 58.53279
 q = 1.3201523 AU
 e = 1.0002046

$$m1 = 7.5 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	14 50.49	-37 40.5	1.878	1.477	+3.63	+12.2	10.1	51.2
Jan. 11	15 26.64	-35 12.1	1.763	1.418	+3.59	+18.3	9.9	53.4
Jan. 21	16 02.18	-31 39.3	1.652	1.371	+3.50	+25.1	9.6	56.0
Jan. 31	16 36.64	-26 55.8	1.547	1.338	+3.37	+32.4	9.4	58.9
Feb. 10	17 09.68	-20 58.2	1.454	1.322	+3.21	+39.8	9.2	62.2
Feb. 20	17 41.01	-13 48.4	1.379	1.323	+3.03	+46.6	9.1	65.5
Mar. 1	18 10.48	-05 37.4	1.326	1.340	+2.84	+51.7	9.1	68.9
Mar. 11	18 37.93	+03 13.6	1.300	1.373	+2.63	+54.2	9.1	72.1
Mar. 21	19 03.18	+12 15.5	1.303	1.421	+2.40	+53.6	9.2	75.0
Mar. 31	19 26.04	+20 58.8	1.333	1.481	+2.15	+50.4	9.4	77.4
Apr. 10	19 46.30	+29 01.5	1.385	1.552	+1.87	+45.5	9.6	79.3
Apr. 20	20 03.64	+36 11.5	1.454	1.631	+1.56	+39.9	9.9	80.9
Apr. 30	20 17.76	+42 25.4	1.534	1.718	+1.22	+34.4	10.2	82.2
May 10	20 28.26	+47 45.3	1.620	1.809	+0.83	+29.1	10.5	83.5
May 20	20 34.69	+52 14.3	1.708	1.905	+0.40	+24.2	10.8	84.9
May 30	20 36.69	+55 55.4	1.795	2.004	-0.06	+19.6	11.0	86.3
June 9	20 33.99	+58 50.2	1.881	2.106	-0.53	+14.9	11.3	88.0
June 19	20 26.75	+60 58.1	1.963	2.209	-0.95	+10.2	11.5	89.9
June 29	20 15.75	+62 18.1	2.043	2.313	-1.26	+5.3	11.8	92.0
July 9	20 02.42	+62 49.4	2.120	2.419	-1.39	+0.5	12.0	94.3
July 19	19 48.76	+62 33.3	2.197	2.524	-1.31	-4.1	12.2	96.6
July 29	19 36.68	+61 34.0	2.275	2.630	-1.06	-8.1	12.4	98.9
Aug. 8	19 27.52	+59 57.7	2.355	2.736	-0.72	-11.4	12.6	101.0
Aug. 18	19 21.93	+57 52.4	2.441	2.842	-0.36	-13.8	12.8	102.8
Aug. 28	19 19.91	+55 26.4	2.533	2.947	-0.02	-15.4	13.0	104.1
Sept. 7	19 21.12	+52 47.4	2.634	3.052	+0.28	-16.3	13.2	104.9
Sept. 17	19 25.11	+50 02.4	2.746	3.157	+0.53	-16.6	13.4	104.9
Sept. 27	19 31.34	+47 17.7	2.869	3.261	+0.73	-16.3	13.6	104.0
Oct. 7	19 39.37	+44 38.2	3.005	3.365	+0.89	-15.5	13.8	102.4
Oct. 17	19 48.80	+42 08.2	3.153	3.468	+1.01	-14.3	14.0	100.0
Oct. 27	19 59.30	+39 50.8	3.312	3.570	+1.10	-13.0	14.2	96.9
Nov. 6	20 10.60	+37 48.1	3.482	3.672	+1.17	-11.4	14.4	93.1
Nov. 16	20 22.48	+36 01.6	3.661	3.774	+1.21	-9.7	14.6	88.9
Nov. 26	20 34.73	+34 31.7	3.847	3.874	+1.24	-8.1	14.8	84.2
Dec. 6	20 47.23	+33 18.4	4.038	3.974	+1.26	-6.4	15.0	79.3
Dec. 16	20 59.84	+32 21.5	4.231	4.074	+1.26	-4.8	15.2	74.1
Dec. 26	21 12.44	+31 39.9	4.424	4.173	+1.26	-3.3	15.4	68.9
Jan. 5	21 24.96	+31 12.8	4.615	4.271	+1.24	-1.9	15.5	63.7
Jan. 15	21 37.31	+30 59.1	4.800	4.368	+1.22	-0.7	15.7	58.5
Jan. 25	21 49.43	+30 57.5	4.979	4.465	+1.20	+0.5	15.9	53.6
Feb. 4	22 01.27	+31 06.9	5.147	4.562	+1.16	+1.5	16.0	49.0
Feb. 14	22 12.75	+31 26.0	5.304	4.657	+1.13	+2.4	16.1	44.9
Feb. 24	22 23.83	+31 53.6	5.448	4.752	+1.08	+3.2	16.3	41.5
Mar. 6	22 34.46	+32 28.7	5.578	4.847	+1.04	+3.9	16.4	39.0
Mar. 16	22 44.59	+33 10.2	5.691	4.941	+0.98	+4.5	16.5	37.6
Mar. 26	22 54.16	+33 57.2	5.788	5.034	+0.92	+5.0	16.6	37.6

Comet C/2022 T1 (Lemmon)

Epoch = 2024 July 29.0 TT
 T = 2024 Feb. 17.44570 TT
 Peri. = 324.30282
 Node = 236.91815 2000.0
 Incl. = 22.54406
 q = 3.4448365 AU
 e = 1.0000867

$$m1 = 7.0 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	13 25.56	-25 19.5	3.664	3.473	+1.15	-6.2	16.6	71.1
Jan. 11	13 36.62	-26 18.5	3.526	3.462	+1.05	-5.5	16.5	78.2
Jan. 21	13 46.66	-27 09.8	3.386	3.454	+0.94	-4.6	16.4	85.7
Jan. 31	13 55.51	-27 52.0	3.247	3.449	+0.81	-3.7	16.3	93.4
Feb. 10	14 02.95	-28 23.7	3.111	3.446	+0.66	-2.5	16.2	101.5
Feb. 20	14 08.78	-28 43.5	2.980	3.445	+0.49	-1.3	16.1	109.9
Mar. 1	14 12.87	-28 49.7	2.859	3.447	+0.31	+0.2	16.0	118.7
Mar. 11	14 15.16	-28 40.9	2.750	3.451	+0.13	+1.8	15.9	127.9
Mar. 21	14 15.67	-28 15.8	2.658	3.458	-0.04	+3.4	15.9	137.5
Mar. 31	14 14.61	-27 33.9	2.585	3.467	-0.18	+5.1	15.8	147.2
Apr. 10	14 12.33	-26 36.0	2.535	3.479	-0.28	+6.6	15.8	156.9
Apr. 20	14 09.31	-25 24.1	2.511	3.493	-0.32	+7.8	15.8	165.5
Apr. 30	14 06.13	-24 02.1	2.515	3.510	-0.31	+8.6	15.8	169.2
May 10	14 03.32	-22 34.8	2.547	3.528	-0.24	+8.8	15.9	164.0
May 20	14 01.38	-21 07.8	2.606	3.549	-0.13	+8.5	16.0	155.1
May 30	14 00.65	-19 46.0	2.691	3.573	0.00	+7.7	16.1	145.6
June 9	14 01.33	-18 33.0	2.798	3.598	+0.15	+6.7	16.2	136.0
June 19	14 03.50	-17 31.5	2.925	3.626	+0.30	+5.5	16.3	126.8
June 29	14 07.14	-16 42.4	3.068	3.655	+0.44	+4.2	16.5	117.9
July 9	14 12.14	-16 05.6	3.224	3.687	+0.57	+3.0	16.6	109.3
July 19	14 18.42	-15 40.3	3.389	3.720	+0.69	+1.9	16.8	101.0
July 29	14 25.81	-15 25.1	3.561	3.755	+0.80	+1.0	16.9	93.1
Aug. 8	14 34.20	-15 18.5	3.736	3.792	+0.89	+0.2	17.1	85.4
Aug. 18	14 43.45	-15 19.0	3.912	3.831	+0.97	-0.4	17.3	77.9
Aug. 28	14 53.45	-15 24.9	4.087	3.871	+1.04	-0.8	17.4	70.6
Sept. 7	15 04.09	-15 34.8	4.258	3.913	+1.10	-1.1	17.6	63.5
Sept. 17	15 15.27	-15 47.1	4.423	3.956	+1.14	-1.3	17.7	56.4
Sept. 27	15 26.89	-16 00.7	4.580	4.001	+1.18	-1.4	17.8	49.4
Oct. 7	15 38.88	-16 14.4	4.727	4.047	+1.22	-1.3	18.0	42.5
Oct. 17	15 51.14	-16 27.2	4.863	4.094	+1.24	-1.2	18.1	35.6
Oct. 27	16 03.60	-16 38.1	4.987	4.143	+1.25	-1.0	18.2	28.7
Nov. 6	16 16.17	-16 46.4	5.096	4.192	+1.26	-0.7	18.3	21.9
Nov. 16	16 28.78	-16 51.4	5.190	4.243	+1.26	-0.3	18.4	15.2
Nov. 26	16 41.33	-16 52.6	5.267	4.295	+1.25	+0.1	18.5	9.0
Dec. 6	16 53.75	-16 49.6	5.327	4.347	+1.23	+0.6	18.6	5.7
Dec. 16	17 05.93	-16 42.0	5.369	4.401	+1.20	+1.0	18.7	9.4
Dec. 26	17 17.79	-16 29.7	5.393	4.455	+1.16	+1.5	18.8	15.9
Jan. 5	17 29.23	-16 12.5	5.399	4.511	+1.12	+2.0	18.8	23.0
Jan. 15	17 40.15	-15 50.5	5.388	4.567	+1.06	+2.5	18.9	30.4
Jan. 25	17 50.45	-15 24.0	5.360	4.624	+0.99	+2.9	19.0	38.0
Feb. 4	18 00.03	-14 53.0	5.316	4.681	+0.91	+3.3	19.0	45.7
Feb. 14	18 08.79	-14 18.0	5.258	4.739	+0.83	+3.7	19.1	53.6
Feb. 24	18 16.62	-13 39.3	5.188	4.798	+0.73	+4.0	19.1	61.6
Mar. 6	18 23.43	-12 57.6	5.108	4.857	+0.62	+4.3	19.1	69.9
Mar. 16	18 29.12	-12 13.5	5.022	4.917	+0.50	+4.5	19.2	78.3
Mar. 26	18 33.61	-11 27.6	4.931	4.977	+0.38	+4.7	19.2	86.9

Comet P/2001 Q6 = 2023 W1 (NEAT)

Epoch = 2024 July 29.0 TT
 T = 2024 Feb. 26.24289 TT
 Peri. = 42.91968 e = 0.8235828
 Node = 22.18468 2000.0 a = 7.9687990 AU
 Incl. = 56.90788 n = 0.04381419
 q = 1.4058332 AU P = 22.50 years

$$m1 = 12.5 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' .			m		°
Jan. 1	23 13.37	-03 40.4	1.661	1.585	+0.61 +35.9	16.6	68.1
Jan. 11	23 20.38	+02 14.8	1.720	1.530	+0.81 +35.2	16.4	62.0
Jan. 21	23 29.32	+08 04.4	1.775	1.484	+0.99 +34.7	16.3	56.7
Jan. 31	23 40.01	+13 50.8	1.822	1.447	+1.16 +34.6	16.2	52.3
Feb. 10	23 52.46	+19 36.7	1.862	1.422	+1.35 +34.7	16.1	48.8
Feb. 20	00 06.86	+25 24.3	1.894	1.408	+1.56 +34.9	16.1	46.4
Mar. 1	00 23.57	+31 14.7	1.919	1.407	+1.82 +35.2	16.1	45.1
Mar. 11	00 43.23	+37 07.9	1.939	1.417	+2.16 +35.4	16.2	44.7
Mar. 21	01 06.86	+43 01.5	1.956	1.440	+2.63 +35.2	16.3	45.2
Mar. 31	01 35.97	+48 49.3	1.974	1.474	+3.29 +34.1	16.5	46.3
Apr. 10	02 12.81	+54 19.5	1.996	1.517	+4.22 +31.4	16.7	47.8
Apr. 20	03 00.25	+59 12.4	2.026	1.570	+5.44 +26.2	17.0	49.4
Apr. 30	04 00.79	+62 58.1	2.068	1.630	+6.79 +17.5	17.3	50.8
May 10	05 13.36	+65 01.4	2.124	1.697	+7.66 +5.6	17.6	51.8
May 20	06 29.87	+65 00.5	2.196	1.769	+7.41 -6.8	17.9	52.3
May 30	07 39.27	+63 05.7	2.283	1.845	+6.27 -16.5	18.3	52.2
June 9	08 35.95	+59 52.2	2.386	1.924	+4.96 -22.2	18.7	51.4
June 19	09 20.49	+55 57.0	2.502	2.007	+3.89 -24.7	19.0	50.0
June 29	09 55.75	+51 46.0	2.629	2.091	+3.13 -25.3	19.4	48.0
July 9	10 24.43	+47 35.0	2.764	2.177	+2.59 -24.7	19.8	45.5
July 19	10 48.51	+43 32.6	2.904	2.264	+2.21 -23.6	20.1	42.6
July 29	11 09.31	+39 43.3	3.045	2.351	+1.94 -22.1	20.5	39.4
Aug. 8	11 27.72	+36 08.7	3.185	2.439	+1.74 -20.6	20.8	36.1
Aug. 18	11 44.36	+32 49.6	3.320	2.528	+1.58 -19.1	21.1	32.7
Aug. 28	11 59.60	+29 45.9	3.448	2.616	+1.46 -17.6	21.5	29.5
Sept. 7	12 13.75	+26 56.9	3.566	2.705	+1.36 -16.1	21.7	26.8
Sept. 17	12 26.98	+24 22.1	3.672	2.793	+1.28 -14.7	22.0	25.0
Sept. 27	12 39.41	+22 00.9	3.764	2.881	+1.20 -13.4	.	24.4
Oct. 7	12 51.12	+19 52.6	3.840	2.968	+1.13 -12.1	.	25.4
Oct. 17	13 02.12	+17 57.0	3.900	3.055	+1.06 -10.9	.	27.9
Oct. 27	13 12.43	+16 13.6	3.942	3.142	+0.99 -9.7	.	31.9
Nov. 6	13 22.01	+14 42.1	3.965	3.228	+0.92 -8.5	.	36.9
Nov. 16	13 30.80	+13 22.4	3.970	3.313	+0.83 -7.3	.	42.8
Nov. 26	13 38.73	+12 14.4	3.957	3.398	+0.74 -6.2	.	49.3
Dec. 6	13 45.69	+11 18.0	3.927	3.482	+0.64 -5.0	.	56.5
Dec. 16	13 51.55	+10 33.1	3.882	3.565	+0.52 -3.9	.	64.2
Dec. 26	13 56.17	+09 59.6	3.824	3.648	+0.39 -2.7	.	72.3
Jan. 5	13 59.38	+09 37.4	3.756	3.730	+0.24 -1.6	.	81.0
Jan. 15	14 01.01	+09 25.9	3.681	3.812	+0.07 -0.6	.	90.1
Jan. 25	14 00.92	+09 24.2	3.605	3.893	-0.11 +0.3	.	99.6
Feb. 4	13 58.97	+09 31.4	3.532	3.973	-0.30 +1.1	.	109.6
Feb. 14	13 55.11	+09 45.6	3.468	4.053	-0.49 +1.7	.	120.0
Feb. 24	13 49.38	+10 04.2	3.419	4.131	-0.67 +2.0	.	130.5
Mar. 6	13 41.95	+10 24.4	3.391	4.210	-0.82 +2.0	.	141.1
Mar. 16	13 33.17	+10 42.8	3.389	4.287	-0.94 +1.6	.	151.2
Mar. 26	13 23.51	+10 56.2	3.416	4.364	-0.99 +0.9	.	159.4

Comet 125P/Spacewatch

Epoch = 2024 July 29.0 TT
 T = 2024 Mar. 7.28110 TT
 Peri. = 87.13390 e = 0.5120729
 Node = 153.14851 2000.0 a = 3.1288551 AU
 Incl. = 9.98512 n = 0.17808441
 q = 1.5266532 AU P = 5.53 years

$$m1 = 13.5 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	15 07.58	-11 30.2	2.068	1.660	+2.95 -8.1	18.4	52.2
Jan. 11	15 37.54	-12 44.2	1.974	1.624	+3.05 -6.5	18.1	55.0
Jan. 21	16 08.35	-13 40.6	1.886	1.594	+3.12 -4.6	17.9	57.7
Jan. 31	16 39.76	-14 17.2	1.805	1.569	+3.16 -2.5	17.7	60.2
Feb. 10	17 11.46	-14 32.3	1.732	1.549	+3.17 -0.3	17.5	62.6
Feb. 20	17 43.04	-14 25.5	1.665	1.535	+3.14 +1.9	17.4	65.0
Mar. 1	18 14.09	-13 57.6	1.604	1.528	+3.06 +3.9	17.3	67.4
Mar. 11	18 44.22	-13 10.8	1.549	1.527	+2.95 +5.6	17.2	70.0
Mar. 21	19 13.02	-12 08.2	1.498	1.533	+2.79 +7.0	17.2	72.7
Mar. 31	19 40.20	-10 54.0	1.451	1.545	+2.62 +7.9	17.1	75.7
Apr. 10	20 05.47	-09 32.6	1.406	1.563	+2.41 +8.4	17.1	79.0
Apr. 20	20 28.60	-08 08.8	1.362	1.587	+2.19 +8.3	17.2	82.7
Apr. 30	20 49.41	-06 47.3	1.318	1.616	+1.95 +7.9	17.2	87.0
May 10	21 07.69	-05 32.6	1.274	1.650	+1.68 +6.9	17.3	91.8
May 20	21 23.21	-04 29.6	1.230	1.689	+1.39 +5.5	17.4	97.3
May 30	21 35.75	-03 42.6	1.186	1.731	+1.08 +3.7	17.4	103.5
June 9	21 45.05	-03 16.0	1.143	1.776	+0.74 +1.4	17.5	110.6
June 19	21 50.85	-03 14.2	1.104	1.825	+0.38 -1.3	17.6	118.7
June 29	21 53.04	-03 40.2	1.072	1.875	+0.02 -4.2	17.7	127.8
July 9	21 51.62	-04 35.5	1.049	1.928	-0.33 -7.1	17.9	137.9
July 19	21 46.97	-05 58.4	1.042	1.982	-0.61 -9.6	18.0	148.9
July 29	21 39.93	-07 42.4	1.052	2.038	-0.79 -11.2	18.2	160.5
Aug. 8	21 31.64	-09 37.5	1.085	2.094	-0.84 -11.6	18.5	171.9
Aug. 18	21 23.51	-11 31.4	1.143	2.151	-0.75 -10.9	18.8	173.3
Aug. 28	21 16.78	-13 13.8	1.224	2.209	-0.56 -9.3	19.1	162.5
Sept. 7	21 12.29	-14 38.1	1.329	2.267	-0.30 -7.3	19.4	151.5
Sept. 17	21 10.48	-15 41.2	1.455	2.325	-0.03 -5.1	19.8	141.1
Sept. 27	21 11.38	-16 23.4	1.599	2.383	+0.23 -3.1	20.2	131.3
Oct. 7	21 14.79	-16 46.5	1.757	2.440	+0.47 -1.3	20.5	122.1
Oct. 17	21 20.38	-16 52.4	1.928	2.498	+0.67 +0.3	20.9	113.5
Oct. 27	21 27.80	-16 43.5	2.107	2.555	+0.83 +1.6	21.2	105.3
Nov. 6	21 36.69	-16 21.9	2.292	2.612	+0.96 +2.8	21.6	97.4
Nov. 16	21 46.78	-15 49.3	2.481	2.668	+1.06 +3.8	21.9	89.8
Nov. 26	21 57.77	-15 07.2	2.671	2.724	+1.14 +4.7	.	82.5
Dec. 6	22 09.47	-14 17.2	2.861	2.779	+1.20 +5.4	.	75.3
Dec. 16	22 21.69	-13 20.4	3.046	2.833	+1.24 +6.0	.	68.2
Dec. 26	22 34.28	-12 18.0	3.227	2.887	+1.28 +6.5	.	61.3
Jan. 5	22 47.13	-11 11.0	3.400	2.940	+1.30 +6.9	.	54.5
Jan. 15	23 00.15	-10 00.6	3.564	2.992	+1.31 +7.2	.	47.7
Jan. 25	23 13.25	-08 47.6	3.717	3.043	+1.31 +7.4	.	41.0
Feb. 4	23 26.37	-07 32.8	3.857	3.094	+1.31 +7.5	.	34.4
Feb. 14	23 39.45	-06 17.3	3.983	3.144	+1.30 +7.6	.	27.8
Feb. 24	23 52.46	-05 01.8	4.095	3.193	+1.29 +7.5	.	21.3
Mar. 6	00 05.34	-03 46.9	4.190	3.242	+1.28 +7.4	.	14.9
Mar. 16	00 18.06	-02 33.6	4.268	3.289	+1.26 +7.2	.	8.8
Mar. 26	00 30.59	-01 22.5	4.329	3.336	+1.24 +7.0	.	4.5

Comet 227P/Catalina-LINEAR

Epoch = 2024 July 29.0 TT
 T = 2024 Mar. 8.26122 TT
 Peri. = 105.57352 e = 0.5275374
 Node = 36.80994 2000.0 a = 3.4365694 AU
 Incl. = 7.50856 n = 0.15470929
 q = 1.6236505 AU P = 6.37 years

$$m1 = 14.2 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°	'		m		°
Jan. 1	07 41.89	+37 10.1	0.790	1.749	-0.40 +8.4	16.1	161.0
Jan. 11	07 36.84	+38 25.2	0.751	1.716	-0.60 +6.2	15.9	163.4
Jan. 21	07 30.79	+39 12.3	0.731	1.688	-0.57 +2.8	15.8	159.2
Jan. 31	07 26.05	+39 23.2	0.730	1.664	-0.32 -1.0	15.7	151.6
Feb. 10	07 24.66	+38 57.0	0.746	1.645	+0.10 -4.5	15.7	143.1
Feb. 20	07 27.92	+37 58.2	0.776	1.632	+0.60 -7.4	15.8	135.0
Mar. 1	07 36.02	+36 33.5	0.818	1.625	+1.06 -9.7	15.9	127.7
Mar. 11	07 48.43	+34 48.2	0.870	1.624	+1.45 -11.5	16.0	121.1
Mar. 21	08 04.32	+32 45.9	0.932	1.628	+1.74 -13.0	16.2	115.2
Mar. 31	08 22.72	+30 29.5	1.002	1.639	+1.94 -14.3	16.3	110.0
Apr. 10	08 42.75	+28 01.1	1.080	1.655	+2.07 -15.4	16.6	105.2
Apr. 20	09 03.76	+25 23.0	1.167	1.676	+2.13 -16.3	16.8	100.8
Apr. 30	09 25.19	+22 37.5	1.261	1.703	+2.15 -16.9	17.0	96.7
May 10	09 46.69	+19 46.9	1.362	1.734	+2.14 -17.3	17.3	92.7
May 20	10 08.03	+16 53.4	1.471	1.769	+2.12 -17.4	17.5	88.9
May 30	10 29.05	+13 59.2	1.587	1.808	+2.08 -17.4	17.8	85.1
June 9	10 49.69	+11 06.0	1.710	1.851	+2.04 -17.2	18.0	81.3
June 19	11 09.95	+08 15.0	1.838	1.896	+2.00 -16.9	18.3	77.4
June 29	11 29.82	+05 27.7	1.971	1.944	+1.97 -16.5	18.6	73.5
July 9	11 49.34	+02 44.8	2.108	1.995	+1.94 -16.0	18.8	69.5
July 19	12 08.57	+00 07.1	2.248	2.047	+1.91 -15.5	19.1	65.4
July 29	12 27.53	-02 24.8	2.391	2.100	+1.88 -14.9	19.3	61.2
Aug. 8	12 46.28	-04 50.5	2.534	2.155	+1.87 -14.2	19.6	56.9
Aug. 18	13 04.86	-07 09.6	2.676	2.210	+1.85 -13.5	19.8	52.5
Aug. 28	13 23.32	-09 21.8	2.816	2.267	+1.84 -12.8	20.0	47.9
Sept. 7	13 41.68	-11 26.8	2.954	2.324	+1.83 -12.1	20.2	43.2
Sept. 17	13 59.97	-13 24.4	3.086	2.381	+1.83 -11.3	20.4	38.3
Sept. 27	14 18.20	-15 14.4	3.213	2.438	+1.82 -10.6	20.6	33.3
Oct. 7	14 36.39	-16 56.6	3.332	2.496	+1.82 -9.8	20.8	28.2
Oct. 17	14 54.52	-18 30.9	3.442	2.554	+1.81 -9.0	21.0	22.9
Oct. 27	15 12.57	-19 57.0	3.542	2.611	+1.80 -8.2	21.1	17.5
Nov. 6	15 30.53	-21 15.1	3.630	2.668	+1.79 -7.4	21.3	12.0
Nov. 16	15 48.34	-22 25.0	3.706	2.725	+1.77 -6.6	21.4	6.5
Nov. 26	16 05.95	-23 27.0	3.768	2.782	+1.75 -5.8	21.5	2.6
Dec. 6	16 23.30	-24 21.1	3.815	2.838	+1.72 -5.0	21.6	6.5
Dec. 16	16 40.30	-25 07.7	3.847	2.894	+1.68 -4.3	21.7	12.5
Dec. 26	16 56.87	-25 47.3	3.863	2.949	+1.63 -3.6	21.8	18.8
Jan. 5	17 12.92	-26 20.3	3.863	3.004	+1.57 -3.0	21.9	25.3
Jan. 15	17 28.32	-26 47.4	3.847	3.058	+1.50 -2.4	22.0	32.0
Jan. 25	17 42.98	-27 09.6	3.816	3.111	+1.42 -2.0	22.0	38.9
Feb. 4	17 56.76	-27 27.6	3.770	3.164	+1.32 -1.6	.	45.9
Feb. 14	18 09.53	-27 42.5	3.709	3.216	+1.22 -1.4	.	53.2
Feb. 24	18 21.15	-27 55.6	3.636	3.268	+1.09 -1.2	.	60.7
Mar. 6	18 31.47	-28 07.9	3.553	3.319	+0.95 -1.2	.	68.4
Mar. 16	18 40.32	-28 20.6	3.460	3.369	+0.80 -1.3	.	76.5
Mar. 26	18 47.53	-28 34.8	3.362	3.419	+0.62 -1.5	.	84.8

Comet C/2022 L2 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2024 Mar. 12.25810 TT
 Peri. = 199.91641
 Node = 39.24125 2000.0
 Incl. = 129.31419
 q = 2.6927332 AU
 e = 1.0012996

$$m1 = 9.5 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	15 31.47	-17 44.5	3.404	2.794	+0.10	-11.6	15.5	44.8
Jan. 11	15 31.83	-19 43.7	3.222	2.768	-0.05	-12.4	15.4	54.5
Jan. 21	15 30.36	-21 51.5	3.022	2.746	-0.27	-13.4	15.2	64.5
Jan. 31	15 26.33	-24 10.9	2.811	2.727	-0.58	-14.7	15.0	75.0
Feb. 10	15 18.76	-26 44.0	2.594	2.713	-1.00	-16.1	14.8	86.1
Feb. 20	15 06.30	-29 31.4	2.381	2.702	-1.58	-17.4	14.6	98.0
Mar. 1	14 47.25	-32 28.9	2.184	2.695	-2.34	-17.9	14.4	110.5
Mar. 11	14 19.76	-35 23.0	2.014	2.693	-3.27	-16.3	14.2	123.5
Mar. 21	13 42.76	-37 45.3	1.889	2.694	-4.20	-11.0	14.1	135.9
Mar. 31	12 57.81	-38 57.3	1.821	2.700	-4.76	-2.0	14.0	144.9
Apr. 10	12 10.24	-38 31.5	1.820	2.710	-4.62	+8.0	14.0	146.1
Apr. 20	11 26.95	-36 36.7	1.885	2.723	-3.89	+14.9	14.1	138.9
Apr. 30	10 52.28	-33 52.6	2.007	2.741	-2.95	+17.4	14.3	127.6
May 10	10 26.82	-31 00.2	2.173	2.762	-2.08	+16.5	14.5	115.5
May 20	10 09.19	-28 25.5	2.365	2.787	-1.41	+14.0	14.7	103.9
May 30	09 57.50	-26 18.9	2.573	2.816	-0.91	+11.0	14.9	93.1
June 9	09 50.19	-24 42.3	2.785	2.848	-0.54	+8.1	15.1	83.1
June 19	09 46.02	-23 33.7	2.994	2.883	-0.28	+5.4	15.3	73.9
June 29	09 44.10	-22 49.9	3.192	2.921	-0.09	+3.1	15.5	65.5
July 9	09 43.79	-22 27.8	3.376	2.962	+0.04	+1.1	15.7	57.9
July 19	09 44.60	-22 24.8	3.541	3.006	+0.13	-0.6	15.8	51.0
July 29	09 46.13	-22 38.4	3.685	3.053	+0.18	-2.2	16.0	45.0
Aug. 8	09 48.10	-23 07.1	3.806	3.102	+0.21	-3.6	16.1	40.2
Aug. 18	09 50.24	-23 49.4	3.903	3.153	+0.21	-4.9	16.2	36.9
Aug. 28	09 52.32	-24 44.3	3.975	3.207	+0.20	-6.1	16.3	35.5
Sept. 7	09 54.11	-25 50.9	4.023	3.262	+0.15	-7.3	16.4	36.1
Sept. 17	09 55.37	-27 08.5	4.046	3.319	+0.09	-8.3	16.4	38.6
Sept. 27	09 55.86	-28 36.3	4.045	3.378	0.00	-9.3	16.5	42.7
Oct. 7	09 55.29	-30 13.7	4.024	3.439	-0.13	-10.2	16.5	48.1
Oct. 17	09 53.33	-31 59.5	3.984	3.501	-0.29	-11.0	16.6	54.5
Oct. 27	09 49.64	-33 51.9	3.929	3.564	-0.48	-11.5	16.6	61.5
Nov. 6	09 43.77	-35 48.6	3.863	3.628	-0.72	-11.8	16.6	69.0
Nov. 16	09 35.28	-37 45.6	3.791	3.693	-1.01	-11.5	16.6	76.8
Nov. 26	09 23.77	-39 37.7	3.719	3.760	-1.33	-10.7	16.7	84.8
Dec. 6	09 08.91	-41 17.4	3.653	3.827	-1.67	-8.9	16.7	92.6
Dec. 16	08 50.68	-42 35.6	3.600	3.895	-2.00	-6.3	16.7	100.1
Dec. 26	08 29.53	-43 22.7	3.566	3.964	-2.24	-2.7	16.7	106.8
Jan. 5	08 06.47	-43 30.5	3.557	4.034	-2.36	+1.6	16.8	112.3
Jan. 15	07 43.01	-42 54.7	3.578	4.104	-2.31	+6.0	16.9	115.9
Jan. 25	07 20.74	-41 37.1	3.630	4.175	-2.11	+9.8	17.0	117.3
Feb. 4	07 00.98	-39 44.7	3.715	4.246	-1.80	+12.8	17.1	116.4
Feb. 14	06 44.52	-37 28.1	3.831	4.318	-1.45	+14.5	17.2	113.3
Feb. 24	06 31.56	-34 58.6	3.973	4.390	-1.11	+15.3	17.3	108.6
Mar. 6	06 21.94	-32 25.8	4.138	4.462	-0.79	+15.1	17.5	102.7
Mar. 16	06 15.29	-29 57.3	4.320	4.535	-0.52	+14.4	17.6	96.1
Mar. 26	06 11.14	-27 38.1	4.513	4.608	-0.29	+13.3	17.7	89.2

Comet 150P/LONEOS

Epoch = 2024 July 29.0 TT
 T = 2024 Mar. 12.47094 TT
 Peri. = 246.11796 e = 0.5490349
 Node = 272.05725 2000.0 a = 3.8707947 AU
 Incl. = 18.54750 n = 0.12942074
 q = 1.7455933 AU P = 7.62 years

H = 14.4 , G = 0.15

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	V	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	09 13.70	-01 22.0	1.039	1.874	-0.06	-22.1	135.8
Jan. 11	09 11.62	-05 01.9	0.961	1.842	-0.39	-21.6	142.6
Jan. 21	09 06.46	-08 30.7	0.903	1.814	-0.66	-19.7	148.1
Jan. 31	08 59.03	-11 34.0	0.865	1.791	-0.82	-16.4	150.7
Feb. 10	08 50.72	-13 58.0	0.849	1.772	-0.81	-11.9	149.6
Feb. 20	08 43.31	-15 35.0	0.851	1.758	-0.62	-7.1	145.6
Mar. 1	08 38.50	-16 26.6	0.871	1.749	-0.29	-2.9	139.9
Mar. 11	08 37.37	-16 40.9	0.904	1.746	+0.12	+0.2	133.8
Mar. 21	08 40.46	-16 29.4	0.950	1.748	+0.54	+2.1	127.8
Mar. 31	08 47.65	-16 04.1	1.006	1.755	+0.93	+2.9	122.2
Apr. 10	08 58.50	-15 33.9	1.070	1.767	+1.27	+3.0	117.0
Apr. 20	09 12.48	-15 06.1	1.143	1.784	+1.54	+2.4	112.2
Apr. 30	09 28.92	-14 45.3	1.224	1.807	+1.76	+1.6	107.7
May 10	09 47.26	-14 33.9	1.313	1.833	+1.92	+0.5	103.4
May 20	10 06.99	-14 33.6	1.410	1.864	+2.03	-0.6	99.3
May 30	10 27.67	-14 44.3	1.515	1.899	+2.10	-1.6	95.3
June 9	10 48.93	-15 05.3	1.627	1.937	+2.15	-2.6	91.3
June 19	11 10.53	-15 35.8	1.746	1.978	+2.17	-3.5	87.3
June 29	11 32.24	-16 14.1	1.873	2.022	+2.17	-4.2	83.2
July 9	11 53.94	-16 58.7	2.005	2.069	+2.17	-4.8	79.1
July 19	12 15.53	-17 48.2	2.143	2.117	+2.15	-5.2	74.8
July 29	12 36.93	-18 40.9	2.285	2.168	+2.13	-5.4	70.5
Aug. 8	12 58.15	-19 35.3	2.430	2.220	+2.11	-5.5	66.0
Aug. 18	13 19.15	-20 30.2	2.576	2.273	+2.09	-5.5	61.4
Aug. 28	13 39.94	-21 24.2	2.724	2.328	+2.07	-5.3	56.7
Sept. 7	14 00.53	-22 16.3	2.870	2.383	+2.05	-5.1	51.9
Sept. 17	14 20.91	-23 05.6	3.013	2.439	+2.03	-4.7	46.9
Sept. 27	14 41.08	-23 51.0	3.152	2.495	+2.01	-4.3	41.8
Oct. 7	15 01.05	-24 32.0	3.285	2.552	+1.99	-3.8	36.5
Oct. 17	15 20.79	-25 07.8	3.411	2.610	+1.96	-3.3	31.2
Oct. 27	15 40.28	-25 37.9	3.528	2.667	+1.93	-2.7	25.7
Nov. 6	15 59.49	-26 02.0	3.634	2.724	+1.90	-2.1	20.0
Nov. 16	16 18.37	-26 19.7	3.729	2.782	+1.87	-1.4	14.4
Nov. 26	16 36.87	-26 30.8	3.811	2.839	+1.83	-0.8	8.7
Dec. 6	16 54.93	-26 35.4	3.878	2.896	+1.78	-0.1	4.2
Dec. 16	17 12.48	-26 33.5	3.930	2.953	+1.72	+0.5	6.0
Dec. 26	17 29.44	-26 25.3	3.966	3.010	+1.66	+1.2	11.6
Jan. 5	17 45.74	-26 11.1	3.986	3.066	+1.59	+1.7	18.0
Jan. 15	18 01.28	-25 51.5	3.990	3.122	+1.51	+2.2	24.6
Jan. 25	18 15.99	-25 27.0	3.976	3.177	+1.42	+2.7	31.4
Feb. 4	18 29.77	-24 58.2	3.947	3.232	+1.32	+3.1	38.4
Feb. 14	18 42.50	-24 25.8	3.902	3.287	+1.21	+3.4	45.5
Feb. 24	18 54.11	-23 50.6	3.843	3.341	+1.09	+3.6	52.9
Mar. 6	19 04.47	-23 13.5	3.771	3.395	+0.96	+3.8	60.5
Mar. 16	19 13.45	-22 35.3	3.688	3.448	+0.82	+3.8	68.4
Mar. 26	19 20.95	-21 56.9	3.596	3.500	+0.66	+3.8	76.5

Comet C/2021 Q6 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 Mar. 25.18837 TT
 Peri. = 141.04224
 Node = 133.55014 2000.0
 Incl. = 161.84057
 q = 8.7078572 AU
 e = 1.0020773

$$m1 = -4.5 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	23 02.20	+06 50.5	9.006	8.722	+0.01	-2.2	19.1	70.2
Jan. 11	23 02.62	+06 31.3	9.166	8.719	+0.07	-1.6	19.1	60.2
Jan. 21	23 03.60	+06 17.6	9.311	8.716	+0.12	-1.1	19.2	50.4
Jan. 31	23 05.03	+06 08.9	9.435	8.714	+0.16	-0.6	19.2	40.8
Feb. 10	23 06.81	+06 04.6	9.538	8.712	+0.19	-0.2	19.2	31.5
Feb. 20	23 08.84	+06 04.2	9.614	8.710	+0.21	+0.1	19.2	22.7
Mar. 1	23 11.03	+06 06.8	9.663	8.709	+0.22	+0.4	19.2	14.9
Mar. 11	23 13.27	+06 11.9	9.684	8.708	+0.22	+0.6	19.2	10.4
Mar. 21	23 15.47	+06 18.9	9.675	8.708	+0.21	+0.8	19.2	13.1
Mar. 31	23 17.54	+06 26.9	9.638	8.708	+0.20	+0.8	19.2	20.2
Apr. 10	23 19.39	+06 35.3	9.574	8.708	+0.17	+0.8	19.2	28.7
Apr. 20	23 20.92	+06 43.4	9.484	8.709	+0.13	+0.8	19.2	37.6
Apr. 30	23 22.06	+06 50.6	9.371	8.710	+0.09	+0.6	19.2	46.6
May 10	23 22.72	+06 56.1	9.238	8.712	+0.04	+0.4	19.1	55.9
May 20	23 22.81	+06 59.1	9.088	8.714	-0.02	+0.1	19.1	65.3
May 30	23 22.27	+06 59.0	8.926	8.716	-0.09	-0.2	19.1	74.9
June 9	23 21.03	+06 55.1	8.756	8.719	-0.17	-0.6	19.0	84.6
June 19	23 19.02	+06 46.6	8.583	8.722	-0.24	-1.1	19.0	94.5
June 29	23 16.23	+06 32.9	8.413	8.726	-0.32	-1.7	18.9	104.6
July 9	23 12.64	+06 13.6	8.252	8.730	-0.40	-2.3	18.9	114.9
July 19	23 08.26	+05 48.2	8.106	8.734	-0.48	-2.9	18.9	125.4
July 29	23 03.17	+05 16.7	7.980	8.739	-0.55	-3.5	18.8	136.0
Aug. 8	22 57.46	+04 39.2	7.879	8.744	-0.60	-4.1	18.8	146.7
Aug. 18	22 51.28	+03 56.3	7.808	8.749	-0.64	-4.6	18.8	157.1
Aug. 28	22 44.80	+03 09.0	7.770	8.755	-0.66	-4.9	18.8	166.4
Sept. 7	22 38.23	+02 18.4	7.768	8.761	-0.65	-5.2	18.8	169.6
Sept. 17	22 31.80	+01 26.0	7.803	8.768	-0.63	-5.3	18.8	162.8
Sept. 27	22 25.69	+00 33.5	7.872	8.775	-0.58	-5.2	18.8	152.7
Oct. 7	22 20.11	+00 17.7	7.974	8.782	-0.52	-5.0	18.9	141.9
Oct. 17	22 15.19	-01 06.1	8.105	8.790	-0.45	-4.6	18.9	130.9
Oct. 27	22 11.05	-01 50.7	8.260	8.798	-0.37	-4.2	19.0	119.9
Nov. 6	22 07.75	-02 30.7	8.433	8.807	-0.28	-3.7	19.0	109.1
Nov. 16	22 05.29	-03 05.5	8.617	8.816	-0.20	-3.2	19.1	98.4
Nov. 26	22 03.67	-03 35.0	8.807	8.825	-0.12	-2.7	19.1	87.8
Dec. 6	22 02.84	-03 59.1	8.996	8.835	-0.04	-2.1	19.2	77.4
Dec. 16	22 02.73	-04 18.0	9.179	8.845	+0.03	-1.6	19.2	67.2
Dec. 26	22 03.26	-04 32.1	9.349	8.855	+0.08	-1.2	19.3	57.2
Jan. 5	22 04.33	-04 41.8	9.503	8.866	+0.13	-0.7	19.3	47.3
Jan. 15	22 05.85	-04 47.6	9.637	8.877	+0.17	-0.4	19.4	37.5
Jan. 25	22 07.71	-04 50.1	9.746	8.888	+0.20	-0.1	19.4	27.9
Feb. 4	22 09.81	-04 49.9	9.829	8.900	+0.22	+0.2	19.5	18.6
Feb. 14	22 12.06	-04 47.4	9.883	8.912	+0.23	+0.3	19.5	10.0
Feb. 24	22 14.36	-04 43.5	9.908	8.925	+0.23	+0.5	19.5	6.0
Mar. 6	22 16.61	-04 38.6	9.904	8.938	+0.22	+0.5	19.5	12.3
Mar. 16	22 18.72	-04 33.5	9.871	8.951	+0.20	+0.5	19.5	21.1
Mar. 26	22 20.60	-04 28.7	9.811	8.964	+0.17	+0.4	19.5	30.3

Comet C/2022 U1 (Leonard)

Epoch = 2024 July 29.0 TT
 T = 2024 Mar. 25.92962 TT
 Peri. = 78.59343
 Node = 72.52615 2000.0
 Incl. = 128.14959
 q = 4.2021396 AU
 e = 0.9995522

$$m1 = 8.2 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	22 33.86	+41 07.7	4.257	4.262	-0.16	-10.0	17.6	83.7
Jan. 11	22 33.04	+39 37.6	4.388	4.249	0.00	-7.8	17.7	75.5
Jan. 21	22 33.62	+38 28.6	4.512	4.237	+0.12	-5.8	17.7	67.7
Jan. 31	22 35.19	+37 39.6	4.624	4.227	+0.20	-3.8	17.8	60.5
Feb. 10	22 37.43	+37 09.3	4.721	4.219	+0.25	-2.1	17.8	54.1
Feb. 20	22 40.07	+36 56.4	4.798	4.212	+0.28	-0.4	17.9	48.7
Mar. 1	22 42.84	+36 59.1	4.855	4.207	+0.28	+1.1	17.9	44.6
Mar. 11	22 45.55	+37 16.3	4.889	4.204	+0.26	+2.5	17.9	42.0
Mar. 21	22 47.95	+37 46.5	4.900	4.202	+0.22	+3.7	17.9	41.3
Mar. 31	22 49.83	+38 28.4	4.887	4.202	+0.15	+4.8	17.9	42.3
Apr. 10	22 50.97	+39 21.0	4.852	4.204	+0.06	+5.8	17.9	45.0
Apr. 20	22 51.10	+40 22.9	4.796	4.207	-0.05	+6.6	17.8	49.1
Apr. 30	22 49.94	+41 32.6	4.722	4.212	-0.20	+7.3	17.8	54.2
May 10	22 47.16	+42 48.6	4.630	4.219	-0.38	+7.9	17.8	60.1
May 20	22 42.38	+44 08.4	4.526	4.227	-0.60	+8.1	17.7	66.6
May 30	22 35.22	+45 28.9	4.413	4.237	-0.86	+7.9	17.7	73.5
June 9	22 25.26	+46 45.9	4.295	4.249	-1.16	+7.3	17.6	80.6
June 19	22 12.17	+47 53.4	4.178	4.262	-1.49	+6.0	17.6	87.8
June 29	21 55.80	+48 44.3	4.068	4.277	-1.81	+3.9	17.6	94.9
July 9	21 36.34	+49 10.3	3.970	4.293	-2.09	+0.9	17.5	101.7
July 19	21 14.49	+49 02.7	3.890	4.311	-2.27	-2.9	17.5	107.8
July 29	20 51.46	+48 15.6	3.834	4.330	-2.31	-7.0	17.5	112.9
Aug. 8	20 28.74	+46 46.7	3.806	4.351	-2.20	-11.1	17.5	116.3
Aug. 18	20 07.79	+44 39.0	3.810	4.374	-1.95	-14.6	17.5	117.8
Aug. 28	19 49.64	+42 00.4	3.846	4.397	-1.64	-17.2	17.6	117.0
Sept. 7	19 34.82	+39 01.3	3.914	4.423	-1.29	-18.6	17.6	114.1
Sept. 17	19 23.39	+35 52.7	4.012	4.449	-0.96	-19.0	17.7	109.5
Sept. 27	19 15.11	+32 44.3	4.135	4.477	-0.67	-18.5	17.8	103.5
Oct. 7	19 09.58	+29 43.4	4.278	4.506	-0.42	-17.5	17.9	96.7
Oct. 17	19 06.41	+26 55.3	4.436	4.536	-0.20	-16.0	18.0	89.4
Oct. 27	19 05.18	+24 22.9	4.601	4.568	-0.03	-14.3	18.1	81.9
Nov. 6	19 05.52	+22 07.7	4.770	4.601	+0.11	-12.6	18.2	74.3
Nov. 16	19 07.11	+20 10.1	4.935	4.635	+0.22	-10.8	18.3	66.8
Nov. 26	19 09.67	+18 29.7	5.092	4.670	+0.30	-9.1	18.4	59.5
Dec. 6	19 12.96	+17 05.6	5.237	4.706	+0.36	-7.5	18.5	52.7
Dec. 16	19 16.75	+15 57.0	5.366	4.743	+0.40	-6.1	18.6	46.5
Dec. 26	19 20.86	+15 02.5	5.476	4.781	+0.42	-4.7	18.7	41.3
Jan. 5	19 25.11	+14 21.2	5.565	4.820	+0.43	-3.5	18.8	37.4
Jan. 15	19 29.33	+13 51.9	5.630	4.861	+0.41	-2.3	18.8	35.3
Jan. 25	19 33.37	+13 33.3	5.671	4.902	+0.39	-1.3	18.9	35.4
Feb. 4	19 37.08	+13 24.5	5.688	4.944	+0.35	-0.4	18.9	37.6
Feb. 14	19 40.30	+13 24.2	5.681	4.986	+0.29	+0.4	18.9	41.6
Feb. 24	19 42.89	+13 31.2	5.651	5.030	+0.22	+1.1	19.0	47.1
Mar. 6	19 44.71	+13 44.5	5.600	5.074	+0.13	+1.6	19.0	53.6
Mar. 16	19 45.59	+14 02.6	5.530	5.119	+0.03	+2.0	19.0	60.8
Mar. 26	19 45.40	+14 24.1	5.445	5.165	-0.08	+2.3	19.0	68.6

Comet 130P/McNaught-Hughes

Epoch = 2024 July 29.0 TT
 T = 2024 Apr. 14.89495 TT
 Peri. = 246.13436 e = 0.4608370
 Node = 70.17805 2000.0 a = 3.3811871 AU
 Incl. = 6.06360 n = 0.15852591
 q = 1.8230110 AU P = 6.22 years

$$m1 = 10.0 + 5 \log(\Delta) + 15.0 \log(r(t-30))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	18 11.05	-24 44.6	2.999	2.028	+2.64 -0.8	17.4	7.3
Jan. 11	18 37.72	-24 45.2	2.948	1.994	+2.70 +0.9	17.2	11.5
Jan. 21	19 04.86	-24 28.8	2.892	1.962	+2.73 +2.6	17.0	15.5
Jan. 31	19 32.28	-23 54.9	2.834	1.932	+2.75 +4.3	16.9	19.4
Feb. 10	19 59.82	-23 03.7	2.774	1.906	+2.75 +6.1	16.7	23.1
Feb. 20	20 27.28	-21 55.8	2.712	1.883	+2.73 +7.7	16.6	26.8
Mar. 1	20 54.50	-20 32.4	2.650	1.864	+2.70 +9.1	16.4	30.4
Mar. 11	21 21.35	-18 55.0	2.588	1.848	+2.66 +10.4	16.3	33.9
Mar. 21	21 47.70	-17 05.7	2.526	1.836	+2.60 +11.5	16.1	37.3
Mar. 31	22 13.47	-15 06.9	2.465	1.828	+2.54 +12.3	16.0	40.7
Apr. 10	22 38.61	-13 00.9	2.404	1.824	+2.48 +12.9	15.9	44.1
Apr. 20	23 03.05	-10 50.6	2.345	1.824	+2.40 +13.2	15.8	47.5
Apr. 30	23 26.75	-08 38.4	2.285	1.828	+2.33 +13.2	15.7	51.0
May 10	23 49.69	-06 27.0	2.226	1.836	+2.25 +13.0	15.7	54.6
May 20	00 11.81	-04 18.8	2.167	1.848	+2.16 +12.6	15.6	58.3
May 30	00 33.05	-02 16.0	2.107	1.864	+2.07 +11.9	15.5	62.2
June 9	00 53.34	+00 20.5	2.046	1.884	+1.97 +11.1	15.5	66.3
June 19	01 12.55	+01 25.9	1.984	1.907	+1.86 +10.1	15.5	70.7
June 29	01 30.57	+03 01.8	1.920	1.933	+1.73 +9.0	15.5	75.4
July 9	01 47.21	+04 26.1	1.854	1.962	+1.58 +7.7	15.5	80.5
July 19	02 02.24	+05 37.9	1.786	1.994	+1.40 +6.5	15.5	86.1
July 29	02 15.40	+06 36.6	1.718	2.029	+1.20 +5.1	15.5	92.2
Aug. 8	02 26.39	+07 21.9	1.650	2.065	+0.97 +3.8	15.5	98.9
Aug. 18	02 34.85	+07 53.6	1.584	2.104	+0.70 +2.4	15.5	106.2
Aug. 28	02 40.47	+08 12.2	1.521	2.145	+0.39 +1.1	15.5	114.3
Sept. 7	02 42.94	+08 18.0	1.465	2.187	+0.06 -0.1	15.6	123.3
Sept. 17	02 42.09	+08 12.3	1.419	2.230	-0.26 -1.1	15.6	133.1
Sept. 27	02 38.05	+07 57.2	1.388	2.275	-0.57 -1.9	15.7	143.8
Oct. 7	02 31.22	+07 35.5	1.376	2.320	-0.80 -2.4	15.8	155.0
Oct. 17	02 22.51	+07 11.7	1.387	2.367	-0.93 -2.3	15.9	166.4
Oct. 27	02 13.07	+06 50.7	1.423	2.414	-0.94 -1.8	16.1	173.8
Nov. 6	02 04.13	+06 36.9	1.487	2.462	-0.82 -0.8	16.3	166.3
Nov. 16	01 56.79	+06 34.2	1.577	2.510	-0.62 +0.4	16.6	155.2
Nov. 26	01 51.71	+06 44.1	1.691	2.558	-0.37 +1.7	16.9	144.2
Dec. 6	01 49.20	+07 06.7	1.826	2.606	-0.11 +2.9	17.2	133.8
Dec. 16	01 49.26	+07 41.0	1.977	2.655	+0.14 +4.0	17.5	123.9
Dec. 26	01 51.70	+08 25.2	2.142	2.703	+0.36 +4.9	17.8	114.6
Jan. 5	01 56.25	+09 17.4	2.317	2.752	+0.56 +5.6	18.1	105.7
Jan. 15	02 02.61	+10 15.8	2.499	2.800	+0.72 +6.1	18.3	97.4
Jan. 25	02 10.50	+11 18.4	2.684	2.848	+0.86 +6.4	18.6	89.4
Feb. 4	02 19.67	+12 23.8	2.870	2.896	+0.98 +6.6	18.9	81.7
Feb. 14	02 29.92	+13 30.5	3.054	2.944	+1.08 +6.7	19.1	74.3
Feb. 24	02 41.04	+14 37.4	3.234	2.991	+1.15 +6.6	19.4	67.1
Mar. 6	02 52.90	+15 43.3	3.408	3.038	+1.22 +6.5	19.6	60.1
Mar. 16	03 05.36	+16 47.3	3.574	3.085	+1.27 +6.3	19.8	53.3
Mar. 26	03 18.30	+17 48.7	3.731	3.131	+1.32 +6.0	20.0	46.6

Comet 32P/Comas Sola

Epoch = 2024 July 29.0 TT
 T = 2024 Apr. 20.61799 TT
 Peri. = 54.67510 e = 0.5551916
 Node = 54.52957 2000.0 a = 4.5516656 AU
 Incl. = 9.92082 n = 0.10149591
 q = 2.0246191 AU P = 9.71 years

$$m1 = 9.0 + 5 \log(\Delta) + 12.5 \log(r(t+20))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	02 42.48	+18° 34.8	1.545	2.249	+0.12	+4.9	14.2	124.2
Jan. 11	02 45.18	+19 28.3	1.612	2.213	+0.46	+5.9	14.2	114.9
Jan. 21	02 51.22	+20 31.0	1.688	2.180	+0.78	+6.7	14.2	106.3
Jan. 31	03 00.36	+21 40.9	1.768	2.149	+1.07	+7.3	14.3	98.6
Feb. 10	03 12.34	+22 55.8	1.852	2.121	+1.34	+7.7	14.3	91.5
Feb. 20	03 26.91	+24 13.0	1.937	2.096	+1.59	+7.7	14.4	85.0
Mar. 1	03 43.79	+25 29.5	2.022	2.075	+1.81	+7.5	14.4	79.0
Mar. 11	04 02.74	+26 42.3	2.107	2.057	+2.00	+7.0	14.5	73.4
Mar. 21	04 23.55	+27 48.5	2.190	2.043	+2.17	+6.2	14.5	68.3
Mar. 31	04 45.97	+28 45.4	2.272	2.033	+2.32	+5.1	14.6	63.5
Apr. 10	05 09.75	+29 30.2	2.353	2.027	+2.44	+3.7	14.7	59.0
Apr. 20	05 34.65	+30 00.9	2.432	2.025	+2.54	+2.2	14.8	54.7
Apr. 30	06 00.36	+30 15.7	2.510	2.026	+2.60	+0.6	14.9	50.6
May 10	06 26.59	+30 13.5	2.587	2.032	+2.64	-1.2	15.0	46.7
May 20	06 53.07	+29 53.8	2.664	2.042	+2.65	-2.9	15.1	42.9
May 30	07 19.49	+29 16.9	2.739	2.055	+2.63	-4.6	15.2	39.2
June 9	07 45.63	+28 23.4	2.813	2.073	+2.59	-6.2	15.3	35.5
June 19	08 11.28	+27 14.7	2.886	2.093	+2.53	-7.6	15.4	31.9
June 29	08 36.27	+25 52.4	2.958	2.118	+2.46	-8.9	15.6	28.2
July 9	09 00.53	+24 18.4	3.027	2.145	+2.38	-10.0	15.7	24.6
July 19	09 23.98	+22 34.7	3.094	2.175	+2.30	-10.8	15.8	20.9
July 29	09 46.58	+20 43.4	3.158	2.209	+2.22	-11.5	16.0	17.3
Aug. 8	10 08.37	+18 46.3	3.217	2.244	+2.13	-12.0	16.1	13.6
Aug. 18	10 29.34	+16 45.4	3.272	2.283	+2.05	-12.2	16.2	10.2
Aug. 28	10 49.54	+14 42.4	3.321	2.323	+1.98	-12.4	16.4	7.5
Sept. 7	11 09.00	+12 38.7	3.363	2.365	+1.91	-12.3	16.5	6.7
Sept. 17	11 27.77	+10 36.0	3.398	2.409	+1.84	-12.2	16.6	8.8
Sept. 27	11 45.87	+08 35.3	3.424	2.455	+1.77	-11.9	16.8	12.5
Oct. 7	12 03.32	+06 38.0	3.441	2.502	+1.71	-11.5	16.9	17.0
Oct. 17	12 20.14	+04 44.9	3.447	2.550	+1.65	-11.0	17.0	21.9
Oct. 27	12 36.32	+02 57.2	3.443	2.599	+1.58	-10.5	17.1	27.2
Nov. 6	12 51.84	+01 15.4	3.427	2.650	+1.51	-9.8	17.2	32.8
Nov. 16	13 06.65	+00 19.4	3.400	2.701	+1.44	-9.1	17.3	38.7
Nov. 26	13 20.70	-01 46.8	3.362	2.752	+1.36	-8.3	17.3	44.9
Dec. 6	13 33.91	-03 06.0	3.311	2.805	+1.27	-7.5	17.4	51.4
Dec. 16	13 46.15	-04 16.7	3.250	2.857	+1.17	-6.6	17.5	58.2
Dec. 26	13 57.31	-05 18.3	3.180	2.910	+1.05	-5.7	17.5	65.4
Jan. 5	14 07.22	-06 10.5	3.100	2.964	+0.92	-4.7	17.5	72.9
Jan. 15	14 15.70	-06 53.0	3.015	3.017	+0.76	-3.7	17.6	80.8
Jan. 25	14 22.57	-07 25.7	2.924	3.071	+0.59	-2.7	17.6	89.1
Feb. 4	14 27.62	-07 48.5	2.833	3.125	+0.40	-1.7	17.6	97.9
Feb. 14	14 30.67	-08 01.4	2.744	3.179	+0.19	-0.8	17.7	107.2
Feb. 24	14 31.58	-08 05.0	2.661	3.232	-0.03	+0.2	17.7	116.9
Mar. 6	14 30.28	-07 59.6	2.590	3.286	-0.25	+1.0	17.7	127.2
Mar. 16	14 26.87	-07 46.5	2.534	3.340	-0.45	+1.7	17.7	138.0
Mar. 26	14 21.57	-07 27.5	2.499	3.393	-0.62	+2.2	17.8	149.1

Comet 12P/Pons-Brooks

Epoch = 2024 July 29.0 TT
 T = 2024 Apr. 21.12530 TT
 Peri. = 198.99272 e = 0.9545842
 Node = 255.85591 2000.0 a = 17.1920785 AU
 Incl. = 74.19167 n = 0.01382648
 q = 0.7807920 AU P = 71.28 years

$$m1 = 3.0 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	°			m	'		°
Jan. 1	19 36.71	+37 44.9	2.260	1.999	+2.79	+0.4	9.3	62.2
Jan. 11	20 06.36	+37 53.2	2.145	1.870	+3.18	+1.2	8.7	60.6
Jan. 21	20 40.12	+38 06.7	2.033	1.739	+3.62	+1.3	8.1	58.7
Jan. 31	21 18.37	+38 15.8	1.928	1.606	+4.08	+0.2	7.5	56.3
Feb. 10	22 01.28	+38 06.9	1.833	1.473	+4.54	-2.5	6.8	53.3
Feb. 20	22 48.40	+37 22.5	1.753	1.341	+4.90	-7.1	6.1	49.5
Mar. 1	23 38.45	+35 43.7	1.690	1.211	+5.09	-13.5	5.4	44.9
Mar. 11	00 29.37	+32 55.7	1.647	1.086	+5.05	-20.9	4.6	39.7
Mar. 21	01 18.81	+28 52.6	1.622	0.972	+4.78	-28.4	3.9	34.0
Mar. 31	02 04.86	+23 38.5	1.612	0.876	+4.37	-34.9	3.2	28.6
Apr. 10	02 46.59	+17 27.1	1.609	0.809	+3.93	-39.6	2.7	24.3
Apr. 20	03 24.11	+10 37.8	1.606	0.781	+3.55	-42.2	2.4	22.6
Apr. 30	03 58.47	+03 31.7	1.596	0.799	+3.33	-42.8	2.6	24.6
May 10	04 31.40	-03 34.8	1.578	0.858	+3.29	-42.3	3.0	29.5
May 20	05 04.72	-10 33.5	1.559	0.949	+3.42	-41.3	3.6	35.9
May 30	05 39.98	-17 20.7	1.547	1.059	+3.68	-39.9	4.3	42.9
June 9	06 18.30	-23 50.0	1.551	1.182	+4.03	-37.6	5.0	49.7
June 19	07 00.16	-29 50.1	1.578	1.311	+4.38	-33.8	5.8	55.8
June 29	07 45.34	-35 04.8	1.633	1.443	+4.67	-28.4	6.5	60.8
July 9	08 32.79	-39 20.7	1.721	1.576	+4.81	-22.1	7.1	64.4
July 19	09 20.75	-42 32.4	1.838	1.709	+4.75	-15.7	7.8	66.5
July 29	10 07.32	-44 43.8	1.982	1.840	+4.52	-10.2	8.5	67.0
Aug. 8	10 51.03	-46 06.5	2.148	1.970	+4.18	-6.1	9.1	66.1
Aug. 18	11 31.05	-46 54.0	2.332	2.098	+3.79	-3.3	9.7	64.1
Aug. 28	12 07.24	-47 18.3	2.527	2.225	+3.42	-1.6	10.2	61.3
Sept. 7	12 39.86	-47 29.0	2.728	2.349	+3.08	-0.6	10.7	57.7
Sept. 17	13 09.33	-47 32.4	2.932	2.472	+2.79	-0.1	11.2	53.6
Sept. 27	13 36.14	-47 32.4	3.134	2.593	+2.55	+0.1	11.7	49.2
Oct. 7	14 00.71	-47 31.5	3.331	2.712	+2.35	+0.1	12.1	44.6
Oct. 17	14 23.39	-47 31.0	3.518	2.829	+2.17	0.0	12.5	40.0
Oct. 27	14 44.45	-47 31.6	3.694	2.945	+2.03	-0.1	12.9	35.7
Nov. 6	15 04.09	-47 33.6	3.856	3.059	+1.89	-0.3	13.2	31.8
Nov. 16	15 22.46	-47 37.2	4.000	3.171	+1.77	-0.4	13.5	28.9
Nov. 26	15 39.63	-47 42.4	4.127	3.282	+1.65	-0.6	13.8	27.4
Dec. 6	15 55.65	-47 49.2	4.233	3.391	+1.54	-0.8	14.1	27.6
Dec. 16	16 10.51	-47 57.8	4.319	3.499	+1.42	-1.0	14.3	29.8
Dec. 26	16 24.19	-48 08.3	4.383	3.606	+1.30	-1.2	14.6	33.6
Jan. 5	16 36.60	-48 20.8	4.426	3.711	+1.17	-1.4	14.8	38.8
Jan. 15	16 47.65	-48 35.6	4.449	3.815	+1.03	-1.6	15.0	44.9
Jan. 25	16 57.22	-48 52.8	4.452	3.918	+0.87	-1.9	15.1	51.7
Feb. 4	17 05.15	-49 12.5	4.436	4.019	+0.69	-2.1	15.3	59.1
Feb. 14	17 11.24	-49 34.7	4.406	4.120	+0.50	-2.3	15.4	66.9
Feb. 24	17 15.32	-49 58.9	4.363	4.219	+0.29	-2.5	15.6	75.1
Mar. 6	17 17.16	-50 24.5	4.311	4.318	+0.05	-2.6	15.7	83.8
Mar. 16	17 16.56	-50 50.0	4.255	4.415	-0.20	-2.5	15.8	92.7
Mar. 26	17 13.40	-51 13.4	4.199	4.511	-0.46	-2.1	15.9	101.9

Comet 212P/NEAT

Epoch = 2024 Feb. 20.0 TT
 T = 2024 Apr. 25.10040 TT
 Peri. = 14.02619 e = 0.5866547
 Node = 97.97526 2000.0 a = 3.9010133 AU
 Incl. = 22.14875 n = 0.12791985
 q = 1.6124655 AU P = 7.70 years

$$m1 = 13.0 + 5 \log(\Delta) + 17.5 \log(r(t-40))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' .			m		°
Jan. 1	01 59.12	-10 14.6	1.512	1.983	+0.35 +19.5	19.9	103.2
Jan. 11	02 04.10	-06 53.5	1.558	1.929	+0.67 +20.8	19.8	96.1
Jan. 21	02 12.20	-03 21.7	1.607	1.878	+0.97 +21.6	19.7	89.6
Jan. 31	02 23.13	+00 16.2	1.658	1.830	+1.24 +22.0	19.5	83.5
Feb. 10	02 36.67	+03 56.6	1.710	1.786	+1.49 +22.1	19.4	77.9
Feb. 20	02 52.65	+07 36.5	1.761	1.745	+1.73 +21.8	19.2	72.7
Mar. 1	03 10.93	+11 12.4	1.813	1.709	+1.95 +21.3	19.1	68.0
Mar. 11	03 31.42	+14 41.3	1.864	1.678	+2.17 +20.4	18.9	63.7
Mar. 21	03 54.06	+17 59.7	1.914	1.653	+2.38 +19.1	18.8	59.7
Mar. 31	04 18.78	+21 03.7	1.965	1.633	+2.58 +17.5	18.7	56.1
Apr. 10	04 45.52	+23 49.6	2.017	1.620	+2.78 +15.4	18.6	52.7
Apr. 20	05 14.13	+26 13.4	2.069	1.613	+2.96 +13.0	18.5	49.7
Apr. 30	05 44.39	+28 11.5	2.124	1.613	+3.11 +10.3	18.5	46.9
May 10	06 16.01	+29 40.8	2.180	1.620	+3.22 +7.3	18.4	44.4
May 20	06 48.57	+30 39.3	2.239	1.633	+3.29 +4.1	18.4	42.0
May 30	07 21.58	+31 06.0	2.300	1.652	+3.31 +0.9	18.4	39.7
June 9	07 54.56	+31 01.6	2.365	1.678	+3.28 -2.1	18.5	37.5
June 19	08 27.03	+30 28.0	2.433	1.708	+3.20 -4.8	18.6	35.4
June 29	08 58.58	+29 28.4	2.504	1.744	+3.09 -7.2	18.7	33.2
July 9	09 28.96	+28 06.6	2.577	1.785	+2.97 -9.2	18.9	31.1
July 19	09 57.99	+26 26.9	2.652	1.829	+2.83 -10.8	19.1	28.9
July 29	10 25.62	+24 33.6	2.729	1.877	+2.69 -11.9	19.3	26.6
Aug. 8	10 51.88	+22 30.6	2.807	1.928	+2.55 -12.7	19.5	24.3
Aug. 18	11 16.82	+20 21.8	2.884	1.982	+2.43 -13.1	19.7	22.0
Aug. 28	11 40.55	+18 10.3	2.959	2.038	+2.31 -13.2	19.9	19.8
Sept. 7	12 03.18	+15 58.8	3.032	2.095	+2.21 -13.0	20.2	17.8
Sept. 17	12 24.81	+13 49.8	3.101	2.154	+2.11 -12.7	20.4	16.2
Sept. 27	12 45.54	+11 45.1	3.165	2.215	+2.03 -12.2	20.7	15.4
Oct. 7	13 05.46	+09 46.3	3.222	2.276	+1.95 -11.5	21.0	15.7
Oct. 17	13 24.63	+07 54.7	3.272	2.338	+1.88 -10.7	21.2	17.2
Oct. 27	13 43.08	+06 11.5	3.312	2.400	+1.81 -9.8	21.4	19.8
Nov. 6	14 00.84	+04 37.3	3.342	2.463	+1.74 -8.9	21.7	23.3
Nov. 16	14 17.91	+03 13.1	3.361	2.526	+1.67 -7.9	21.9	27.5
Nov. 26	14 34.27	+01 59.3	3.369	2.589	+1.60 -6.8	.	32.3
Dec. 6	14 49.87	+00 56.2	3.364	2.652	+1.52 -5.7	.	37.6
Dec. 16	15 04.64	+00 04.2	3.347	2.715	+1.43 -4.6	.	43.3
Dec. 26	15 18.49	+00 36.7	3.317	2.778	+1.33 -3.5	.	49.3
Jan. 5	15 31.33	-01 06.3	3.276	2.840	+1.22 -2.4	.	55.7
Jan. 15	15 43.00	-01 25.0	3.223	2.902	+1.10 -1.3	.	62.5
Jan. 25	15 53.38	-01 33.1	3.160	2.964	+0.96 -0.2	.	69.6
Feb. 4	16 02.28	-01 30.9	3.089	3.025	+0.80 +0.8	.	77.1
Feb. 14	16 09.52	-01 19.3	3.012	3.086	+0.63 +1.6	.	84.9
Feb. 24	16 14.94	+00 59.4	2.932	3.146	+0.43 +2.4	.	93.1
Mar. 6	16 18.35	+00 32.3	2.852	3.205	+0.22 +3.0	.	101.8
Mar. 16	16 19.61	+00 00.1	2.776	3.264	0.00 +3.4	.	110.8
Mar. 26	16 18.65	+00 35.1	2.708	3.323	-0.22 +3.6	.	120.1

Comet 299P/Catalina-PANSTARRS

Epoch = 2024 July 29.0 TT
 T = 2024 Apr. 30.36733 TT
 Peri. = 323.67526 e = 0.2809456
 Node = 271.58080 2000.0 a = 4.3895732 AU
 Incl. = 10.46839 n = 0.10716936
 q = 3.1563419 AU P = 9.20 years

$$m1 = 4.5 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	14 45.88	-24 15.4	3.698	3.216	+1.35 -6.3	17.5	53.7
Jan. 11	14 59.13	-25 16.5	3.572	3.206	+1.29 -5.8	17.4	60.6
Jan. 21	15 11.72	-26 12.5	3.439	3.198	+1.22 -5.3	17.3	67.7
Jan. 31	15 23.48	-27 03.0	3.300	3.190	+1.12 -4.7	17.2	75.0
Feb. 10	15 34.19	-27 47.7	3.157	3.183	+1.00 -4.2	17.1	82.6
Feb. 20	15 43.59	-28 26.5	3.012	3.177	+0.86 -3.5	16.9	90.4
Mar. 1	15 51.46	-28 59.1	2.869	3.171	+0.69 -2.9	16.8	98.5
Mar. 11	15 57.52	-29 25.0	2.730	3.167	+0.50 -2.2	16.7	107.0
Mar. 21	16 01.54	-29 43.6	2.598	3.163	+0.28 -1.4	16.6	115.9
Mar. 31	16 03.33	-29 54.0	2.476	3.160	+0.05 -0.5	16.5	125.3
Apr. 10	16 02.80	-29 55.0	2.369	3.158	-0.18 +0.5	16.4	135.0
Apr. 20	16 00.05	-29 45.3	2.280	3.157	-0.39 +1.6	16.3	145.1
Apr. 30	15 55.37	-29 24.0	2.213	3.156	-0.56 +2.8	16.2	155.4
May 10	15 49.29	-28 50.9	2.169	3.157	-0.66 +3.9	16.2	165.3
May 20	15 42.54	-28 07.4	2.153	3.158	-0.68 +4.8	16.2	171.8
May 30	15 35.96	-27 16.4	2.164	3.160	-0.62 +5.4	16.2	166.9
June 9	15 30.28	-26 21.7	2.202	3.163	-0.49 +5.5	16.2	157.3
June 19	15 26.15	-25 27.9	2.265	3.167	-0.31 +5.2	16.3	147.1
June 29	15 23.93	-24 38.9	2.350	3.171	-0.11 +4.5	16.4	137.1
July 9	15 23.81	-23 57.3	2.453	3.176	+0.10 +3.7	16.5	127.5
July 19	15 25.79	-23 24.6	2.571	3.183	+0.31 +2.8	16.6	118.4
July 29	15 29.77	-23 01.1	2.701	3.189	+0.50 +1.9	16.7	109.7
Aug. 8	15 35.59	-22 46.2	2.838	3.197	+0.68 +1.1	16.9	101.4
Aug. 18	15 43.07	-22 38.7	2.981	3.206	+0.83 +0.4	17.0	93.5
Aug. 28	15 52.00	-22 37.1	3.126	3.215	+0.97 -0.1	17.1	85.8
Sept. 7	16 02.22	-22 39.9	3.271	3.225	+1.09 -0.5	17.2	78.5
Sept. 17	16 13.56	-22 45.5	3.414	3.235	+1.19 -0.7	17.4	71.3
Sept. 27	16 25.86	-22 52.4	3.552	3.247	+1.28 -0.7	17.5	64.4
Oct. 7	16 39.00	-22 59.1	3.684	3.259	+1.35 -0.6	17.6	57.5
Oct. 17	16 52.84	-23 04.4	3.809	3.272	+1.42 -0.4	17.7	50.8
Oct. 27	17 07.25	-23 07.3	3.924	3.285	+1.47 -0.1	17.8	44.2
Nov. 6	17 22.13	-23 06.7	4.029	3.299	+1.51 +0.3	17.9	37.6
Nov. 16	17 37.36	-23 01.8	4.122	3.314	+1.54 +0.7	18.0	31.0
Nov. 26	17 52.83	-22 52.1	4.202	3.329	+1.56 +1.3	18.1	24.5
Dec. 6	18 08.45	-22 37.1	4.268	3.345	+1.56 +1.8	18.1	18.0
Dec. 16	18 24.09	-22 16.5	4.320	3.361	+1.56 +2.4	18.2	11.4
Dec. 26	18 39.65	-21 50.1	4.357	3.378	+1.55 +3.0	18.3	5.0
Jan. 5	18 55.06	-21 18.0	4.378	3.395	+1.53 +3.5	18.3	2.3
Jan. 15	19 10.19	-20 40.5	4.383	3.413	+1.49 +4.0	18.4	8.5
Jan. 25	19 24.96	-19 57.8	4.372	3.432	+1.45 +4.5	18.4	15.1
Feb. 4	19 39.28	-19 10.3	4.346	3.450	+1.40 +5.0	18.4	21.8
Feb. 14	19 53.06	-18 18.6	4.305	3.470	+1.35 +5.4	18.5	28.5
Feb. 24	20 06.22	-17 23.4	4.249	3.489	+1.28 +5.7	18.5	35.4
Mar. 6	20 18.68	-16 25.4	4.179	3.509	+1.20 +5.9	18.5	42.3
Mar. 16	20 30.33	-15 25.4	4.097	3.530	+1.12 +6.1	18.5	49.3
Mar. 26	20 41.10	-14 24.2	4.003	3.550	+1.02 +6.1	18.5	56.4

Comet P/2023 Y3 = 2017 BQ100 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2024 May 1.99774 TT
 Peri. = 13.18860 e = 0.3435134
 Node = 127.27093 2000.0 a = 3.6461139 AU
 Incl. = 12.52498 n = 0.14156593
 q = 2.3936249 AU P = 6.96 years

$$m1 = 7.3 + 5 \log(\Delta) + 25.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	07 12.55	+14 20.9	1.547	2.519	-0.76 +6.1	18.3	168.7
Jan. 11	07 04.69	+15 26.9	1.523	2.500	-0.80 +7.1	18.2	171.7
Jan. 21	06 57.02	+16 40.2	1.526	2.483	-0.71 +7.5	18.1	162.6
Jan. 31	06 50.71	+17 55.8	1.556	2.466	-0.52 +7.5	18.1	151.4
Feb. 10	06 46.67	+19 09.0	1.609	2.452	-0.25 +7.1	18.1	140.5
Feb. 20	06 45.51	+20 16.7	1.682	2.439	+0.05 +6.4	18.1	130.1
Mar. 1	06 47.43	+21 16.5	1.770	2.427	+0.36 +5.5	18.2	120.5
Mar. 11	06 52.36	+22 07.2	1.869	2.417	+0.65 +4.5	18.2	111.5
Mar. 21	07 00.08	+22 47.8	1.977	2.409	+0.91 +3.5	18.3	103.3
Mar. 31	07 10.23	+23 17.7	2.089	2.403	+1.14 +2.4	18.4	95.7
Apr. 10	07 22.47	+23 36.6	2.204	2.398	+1.33 +1.3	18.5	88.5
Apr. 20	07 36.46	+23 43.9	2.320	2.395	+1.48 +0.1	18.6	81.9
Apr. 30	07 51.84	+23 39.6	2.435	2.394	+1.60 -1.1	18.7	75.7
May 10	08 08.32	+23 23.6	2.548	2.394	+1.70 -2.2	18.8	69.8
May 20	08 25.66	+22 56.2	2.658	2.396	+1.77 -3.4	18.9	64.1
May 30	08 43.61	+22 17.8	2.765	2.401	+1.82 -4.4	19.0	58.7
June 9	09 01.99	+21 28.8	2.867	2.406	+1.86 -5.4	19.1	53.5
June 19	09 20.64	+20 30.1	2.964	2.414	+1.87 -6.4	19.2	48.5
June 29	09 39.43	+19 22.5	3.056	2.423	+1.88 -7.2	19.3	43.6
July 9	09 58.26	+18 06.9	3.142	2.434	+1.88 -8.0	19.4	38.8
July 19	10 17.06	+16 44.4	3.222	2.446	+1.88 -8.6	19.6	34.0
July 29	10 35.76	+15 16.1	3.294	2.460	+1.86 -9.1	19.7	29.4
Aug. 8	10 54.35	+13 43.2	3.360	2.476	+1.85 -9.5	19.8	24.8
Aug. 18	11 12.78	+12 06.9	3.418	2.493	+1.83 -9.8	19.9	20.2
Aug. 28	11 31.04	+10 28.3	3.468	2.511	+1.82 -9.9	20.0	15.8
Sept. 7	11 49.13	+08 48.6	3.509	2.531	+1.80 -10.0	20.1	11.7
Sept. 17	12 07.04	+07 09.0	3.541	2.552	+1.78 -9.9	20.2	8.5
Sept. 27	12 24.75	+05 30.7	3.564	2.574	+1.76 -9.7	20.3	7.5
Oct. 7	12 42.28	+03 54.6	3.577	2.597	+1.74 -9.4	20.4	9.6
Oct. 17	12 59.59	+02 22.0	3.580	2.621	+1.72 -9.0	20.5	13.6
Oct. 27	13 16.67	+00 53.8	3.572	2.647	+1.69 -8.5	20.6	18.3
Nov. 6	13 33.49	+00 28.8	3.553	2.673	+1.67 -7.9	20.7	23.5
Nov. 16	13 49.99	-01 45.0	3.523	2.700	+1.63 -7.2	20.8	28.9
Nov. 26	14 06.13	-02 53.9	3.482	2.727	+1.59 -6.5	20.9	34.6
Dec. 6	14 21.82	-03 54.7	3.430	2.756	+1.54 -5.6	21.0	40.5
Dec. 16	14 36.97	-04 46.6	3.367	2.785	+1.48 -4.7	21.1	46.6
Dec. 26	14 51.46	-05 29.1	3.295	2.815	+1.41 -3.7	21.1	53.0
Jan. 5	15 05.17	-06 01.8	3.213	2.845	+1.32 -2.7	21.2	59.6
Jan. 15	15 17.93	-06 24.2	3.124	2.876	+1.22 -1.7	21.2	66.4
Jan. 25	15 29.58	-06 36.3	3.027	2.907	+1.10 -0.6	21.3	73.6
Feb. 4	15 39.90	-06 38.2	2.926	2.938	+0.95 +0.4	21.3	81.0
Feb. 14	15 48.70	-06 30.0	2.822	2.970	+0.79 +1.3	21.4	88.8
Feb. 24	15 55.77	-06 12.4	2.717	3.002	+0.60 +2.3	21.4	97.0
Mar. 6	16 00.88	-05 46.2	2.615	3.035	+0.40 +3.0	21.4	105.5
Mar. 16	16 03.86	-05 12.7	2.519	3.067	+0.18 +3.7	21.5	114.4
Mar. 26	16 04.58	-04 33.9	2.433	3.100	-0.05 +4.1	21.5	123.7

Comet P/2011 N01 = 2023 WM26 (Elenin)

Epoch = 2024 July 29.0 TT
 T = 2024 May 5.24387 TT
 Peri. = 263.52637 e = 0.7788662
 Node = 295.83182 2000.0 a = 5.6241904 AU
 Incl. = 15.39799 n = 0.07389483
 q = 1.2436986 AU P = 13.34 years

$$m1 = 14.2 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	08 54.19	+17 07.9	1.113	2.018	-0.39 -9.5	17.5	148.5
Jan. 11	08 48.50	+15 26.2	0.977	1.929	-0.79 -11.0	17.0	159.5
Jan. 21	08 38.93	+13 27.9	0.864	1.841	-1.15 -12.9	16.5	170.2
Jan. 31	08 26.14	+11 10.1	0.775	1.755	-1.40 -14.8	16.1	171.2
Feb. 10	08 11.67	+08 34.1	0.711	1.672	-1.45 -16.4	15.7	159.6
Feb. 20	07 57.87	+05 45.8	0.669	1.592	-1.24 -17.2	15.3	146.8
Mar. 1	07 47.19	+02 52.9	0.646	1.516	-0.82 -17.3	15.1	134.7
Mar. 11	07 41.45	+00 01.9	0.634	1.447	-0.26 -16.9	14.8	123.9
Mar. 21	07 41.67	-02 46.2	0.630	1.385	+0.36 -16.7	14.6	114.9
Mar. 31	07 48.09	-05 34.3	0.628	1.332	+0.98 -17.0	14.4	107.7
Apr. 10	08 00.61	-08 26.4	0.626	1.290	+1.59 -17.6	14.3	102.4
Apr. 20	08 19.15	-11 26.6	0.623	1.261	+2.18 -18.6	14.2	98.8
Apr. 30	08 43.62	-14 36.1	0.621	1.246	+2.77 -19.4	14.1	97.0
May 10	09 14.07	-17 51.3	0.621	1.245	+3.38 -19.6	14.1	96.7
May 20	09 50.47	-21 04.2	0.628	1.260	+3.95 -18.7	14.2	97.7
May 30	10 32.18	-24 00.8	0.644	1.288	+4.42 -16.1	14.3	99.5
June 9	11 17.78	-26 24.6	0.676	1.329	+4.70 -12.1	14.6	101.8
June 19	12 05.05	-28 04.7	0.726	1.382	+4.72 -7.4	14.9	103.7
June 29	12 51.38	-28 59.0	0.795	1.443	+4.50 -3.1	15.3	104.9
July 9	13 34.80	-29 15.1	0.886	1.513	+4.14 0.0	15.7	105.1
July 19	14 14.36	-29 05.2	0.996	1.588	+3.73 +2.0	16.2	104.2
July 29	14 49.88	-28 40.2	1.124	1.668	+3.34 +3.0	16.7	102.3
Aug. 8	15 21.80	-28 07.9	1.269	1.751	+3.02 +3.4	17.1	99.6
Aug. 18	15 50.70	-27 32.9	1.428	1.837	+2.75 +3.6	17.6	96.2
Aug. 28	16 17.14	-26 57.1	1.599	1.925	+2.53 +3.6	18.1	92.3
Sept. 7	16 41.63	-26 21.2	1.780	2.013	+2.36 +3.6	18.5	87.9
Sept. 17	17 04.57	-25 44.9	1.969	2.103	+2.22 +3.7	18.9	83.3
Sept. 27	17 26.24	-25 07.6	2.164	2.193	+2.11 +3.8	19.3	78.3
Oct. 7	17 46.88	-24 28.8	2.363	2.283	+2.01 +4.0	19.7	73.1
Oct. 17	18 06.65	-23 47.7	2.564	2.373	+1.93 +4.2	20.0	67.8
Oct. 27	18 25.66	-23 04.0	2.764	2.463	+1.86 +4.5	20.3	62.2
Nov. 6	18 44.00	-22 17.1	2.962	2.552	+1.80 +4.9	20.6	56.4
Nov. 16	19 01.72	-21 26.8	3.155	2.640	+1.74 +5.2	20.9	50.6
Nov. 26	19 18.84	-20 33.1	3.341	2.728	+1.68 +5.6	21.2	44.6
Dec. 6	19 35.39	-19 36.0	3.519	2.815	+1.62 +5.9	21.4	38.4
Dec. 16	19 51.37	-18 35.5	3.686	2.901	+1.57 +6.2	21.7	32.2
Dec. 26	20 06.78	-17 32.0	3.840	2.986	+1.51 +6.5	21.9	25.9
Jan. 5	20 21.63	-16 25.7	3.980	3.071	+1.45 +6.8	.	19.5
Jan. 15	20 35.88	-15 16.9	4.105	3.154	+1.39 +7.0	.	13.1
Jan. 25	20 49.53	-14 06.2	4.212	3.237	+1.33 +7.2	.	7.0
Feb. 4	21 02.55	-12 54.0	4.302	3.319	+1.27 +7.3	.	3.9
Feb. 14	21 14.92	-11 40.8	4.373	3.400	+1.20 +7.4	.	8.7
Feb. 24	21 26.62	-10 27.2	4.425	3.480	+1.13 +7.4	.	15.2
Mar. 6	21 37.60	-09 13.6	4.458	3.559	+1.06 +7.3	.	22.2
Mar. 16	21 47.81	-08 00.8	4.473	3.637	+0.98 +7.2	.	29.3
Mar. 26	21 57.22	-06 49.4	4.469	3.715	+0.89 +7.1	.	36.5

Comet 50P/Arend

Epoch = 2024 July 29.0 TT
 T = 2024 May 12.75421 TT
 Peri. = 49.34224 e = 0.5300213
 Node = 355.16120 2000.0 a = 4.0901486 AU
 Incl. = 19.09763 n = 0.11915039
 q = 1.9222827 AU P = 8.27 years

$$m1 = 13.1 + 5 \log(\Delta) + 10.0 \log(r(t-50))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	22 12.26	-12° 34' 8"	2.737	2.249	+1.58 +14.8	19.2	50.8
Jan. 11	22 28.39	-10 03.2	2.786	2.206	+1.66 +15.5	19.2	45.2
Jan. 21	22 45.26	-07 24.8	2.827	2.166	+1.72 +16.2	19.1	39.9
Jan. 31	23 02.80	-04 39.9	2.861	2.128	+1.79 +16.8	19.1	34.8
Feb. 10	23 20.97	-01 49.1	2.888	2.092	+1.85 +17.4	19.0	30.0
Feb. 20	23 39.76	+01 07.0	2.908	2.059	+1.91 +17.9	18.9	25.5
Mar. 1	23 59.15	+04 07.4	2.921	2.030	+1.97 +18.2	18.9	21.2
Mar. 11	00 19.18	+07 10.8	2.930	2.003	+2.04 +18.5	18.8	17.3
Mar. 21	00 39.90	+10 15.9	2.933	1.980	+2.11 +18.5	18.7	13.8
Mar. 31	01 01.34	+13 20.9	2.933	1.960	+2.19 +18.4	18.6	10.8
Apr. 10	01 23.58	+16 24.0	2.929	1.945	+2.27 +18.1	18.6	8.7
Apr. 20	01 46.67	+19 22.9	2.923	1.933	+2.36 +17.6	18.5	8.0
Apr. 30	02 10.68	+22 15.4	2.915	1.926	+2.45 +16.8	18.4	8.7
May 10	02 35.65	+24 58.9	2.906	1.922	+2.55 +15.8	18.4	10.6
May 20	03 01.57	+27 31.0	2.896	1.923	+2.64 +14.5	18.3	13.0
May 30	03 28.43	+29 48.9	2.885	1.929	+2.74 +12.9	18.3	15.6
June 9	03 56.15	+31 50.6	2.874	1.938	+2.81 +11.2	18.3	18.5
June 19	04 24.57	+33 33.8	2.862	1.951	+2.87 +9.3	18.2	21.4
June 29	04 53.47	+34 57.3	2.848	1.969	+2.91 +7.2	18.2	24.5
July 9	05 22.59	+36 00.2	2.834	1.990	+2.91 +5.2	18.2	27.6
July 19	05 51.61	+36 42.6	2.817	2.015	+2.88 +3.1	18.2	31.0
July 29	06 20.19	+37 05.3	2.798	2.043	+2.82 +1.2	18.2	34.4
Aug. 8	06 48.02	+37 09.9	2.775	2.074	+2.73 -0.4	18.2	38.1
Aug. 18	07 14.81	+36 58.8	2.748	2.108	+2.61 -1.9	18.2	42.0
Aug. 28	07 40.31	+36 34.5	2.716	2.145	+2.47 -3.0	18.3	46.2
Sept. 7	08 04.34	+36 00.2	2.679	2.184	+2.32 -3.9	18.3	50.6
Sept. 17	08 26.74	+35 19.1	2.636	2.225	+2.15 -4.4	18.3	55.4
Sept. 27	08 47.41	+34 34.4	2.587	2.268	+1.97 -4.5	18.3	60.5
Oct. 7	09 06.24	+33 49.3	2.532	2.313	+1.78 -4.4	18.4	66.0
Oct. 17	09 23.13	+33 06.7	2.470	2.359	+1.58 -4.0	18.4	71.9
Oct. 27	09 37.97	+32 29.6	2.403	2.407	+1.37 -3.3	18.4	78.3
Nov. 6	09 50.60	+32 00.4	2.332	2.456	+1.13 -2.4	18.4	85.2
Nov. 16	10 00.83	+31 41.5	2.258	2.506	+0.88 -1.3	18.4	92.6
Nov. 26	10 08.45	+31 34.3	2.184	2.556	+0.61 0.0	18.4	100.6
Dec. 6	10 13.18	+31 39.7	2.112	2.607	+0.30 +1.2	18.5	109.2
Dec. 16	10 14.78	+31 56.9	2.047	2.659	-0.02 +2.3	18.5	118.4
Dec. 26	10 13.11	+32 23.5	1.992	2.712	-0.35 +3.0	18.5	128.1
Jan. 5	10 08.15	+32 55.1	1.953	2.764	-0.67 +3.2	18.5	138.2
Jan. 15	10 00.22	+33 25.0	1.934	2.817	-0.93 +2.6	18.6	148.1
Jan. 25	09 50.03	+33 46.0	1.939	2.870	-1.11 +1.4	18.7	156.7
Feb. 4	09 38.64	+33 51.9	1.972	2.923	-1.16 -0.4	18.8	161.3
Feb. 14	09 27.33	+33 38.9	2.034	2.976	-1.08 -2.4	19.0	158.8
Feb. 24	09 17.28	+33 07.1	2.124	3.030	-0.90 -4.1	19.2	151.3
Mar. 6	09 09.34	+32 19.3	2.240	3.083	-0.66 -5.5	19.3	142.0
Mar. 16	09 03.98	+31 19.4	2.378	3.135	-0.39 -6.5	19.6	132.4
Mar. 26	09 01.27	+30 11.4	2.535	3.188	-0.13 -7.1	19.8	122.9

Comet 222P/LINEAR

Epoch = 2024 July 29.0 TT
 T = 2024 May 12.89299 TT
 Peri. = 346.30361 e = 0.7147275
 Node = 6.76493 2000.0 a = 2.8978822 AU
 Incl. = 5.09665 n = 0.19979425
 q = 0.8266861 AU P = 4.93 years

$$m1 = 15.2 + 5 \log(\Delta) + 15.0 \log(r(t-30))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	16 45.46	-25 14.1	2.788	1.960	+2.52 -5.1	.	26.7
Jan. 11	17 11.60	-25 59.5	2.637	1.863	+2.73 -3.8	.	30.9
Jan. 21	17 39.89	-26 30.3	2.482	1.765	+2.96 -2.1	21.9	34.7
Jan. 31	18 10.57	-26 42.0	2.327	1.665	+3.21 +0.1	21.4	38.0
Feb. 10	18 43.91	-26 28.9	2.173	1.563	+3.49 +3.0	20.9	40.7
Feb. 20	19 20.06	-25 43.6	2.025	1.460	+3.77 +6.6	20.4	42.6
Mar. 1	19 59.09	-24 17.9	1.888	1.357	+4.06 +11.1	19.9	43.7
Mar. 11	20 40.92	-22 03.2	1.766	1.255	+4.33 +16.5	19.3	43.8
Mar. 21	21 25.21	-18 52.3	1.664	1.155	+4.54 +22.3	18.8	42.9
Mar. 31	22 11.43	-14 42.6	1.587	1.060	+4.70 +28.1	18.2	41.0
Apr. 10	22 58.93	-09 39.2	1.540	0.974	+4.79 +32.8	17.6	38.2
Apr. 20	23 47.05	-03 56.8	1.525	0.903	+4.83 +35.6	17.1	34.7
Apr. 30	00 35.31	+02 01.9	1.540	0.852	+4.82 +35.8	16.5	30.9
May 10	01 23.37	+07 50.9	1.583	0.828	+4.78 +33.4	16.0	27.3
May 20	02 10.84	+13 06.5	1.647	0.834	+4.70 +29.0	15.6	24.2
May 30	02 57.27	+17 31.6	1.726	0.870	+4.56 +23.4	15.3	21.8
June 9	03 42.09	+20 58.4	1.814	0.930	+4.37 +17.4	15.3	20.3
June 19	04 24.68	+23 27.0	1.905	1.009	+4.12 +11.9	15.4	19.7
June 29	05 04.58	+25 03.3	1.997	1.099	+3.83 +7.1	15.8	20.1
July 9	05 41.52	+25 55.9	2.085	1.196	+3.53 +3.2	16.3	21.3
July 19	06 15.39	+26 14.0	2.168	1.297	+3.22 +0.2	16.9	23.2
July 29	06 46.26	+26 05.9	2.242	1.400	+2.93 -2.0	17.6	25.8
Aug. 8	07 14.29	+25 38.7	2.307	1.503	+2.65 -3.5	18.2	29.1
Aug. 18	07 39.67	+24 58.3	2.359	1.606	+2.40 -4.6	18.8	32.9
Aug. 28	08 02.59	+24 09.4	2.398	1.707	+2.16 -5.2	19.3	37.2
Sept. 7	08 23.24	+23 16.0	2.423	1.806	+1.94 -5.5	19.8	42.1
Sept. 17	08 41.73	+22 21.3	2.434	1.904	+1.74 -5.4	20.2	47.4
Sept. 27	08 58.18	+21 27.9	2.430	1.999	+1.53 -5.2	20.6	53.3
Oct. 7	09 12.61	+20 38.4	2.412	2.092	+1.33 -4.6	21.0	59.6
Oct. 17	09 24.99	+19 55.1	2.380	2.184	+1.12 -3.9	21.3	66.5
Oct. 27	09 35.26	+19 20.0	2.337	2.272	+0.91 -3.0	21.6	73.9
Nov. 6	09 43.29	+18 55.3	2.283	2.359	+0.67 -1.8	21.8	82.0
Nov. 16	09 48.86	+18 42.9	2.223	2.444	+0.42 -0.5	22.0	90.7
Nov. 26	09 51.79	+18 44.4	2.159	2.526	+0.14 +1.0	.	100.1
Dec. 6	09 51.82	+19 00.7	2.096	2.607	-0.16 +2.5	.	110.3
Dec. 16	09 48.80	+19 31.7	2.040	2.685	-0.47 +3.8	.	121.2
Dec. 26	09 42.69	+20 15.5	1.997	2.762	-0.78 +5.0	.	132.9
Jan. 5	09 33.71	+21 08.3	1.973	2.837	-1.04 +5.6	.	145.1
Jan. 15	09 22.46	+22 04.2	1.975	2.909	-1.22 +5.5	.	157.7
Jan. 25	09 09.88	+22 56.6	2.007	2.980	-1.29 +4.8	.	169.7
Feb. 4	08 57.13	+23 40.0	2.070	3.050	-1.24 +3.7	.	172.0
Feb. 14	08 45.41	+24 10.8	2.166	3.117	-1.08 +2.3	.	161.2
Feb. 24	08 35.62	+24 28.2	2.292	3.183	-0.85 +1.0	.	149.3
Mar. 6	08 28.31	+24 33.3	2.443	3.248	-0.58 -0.1	.	137.8
Mar. 16	08 23.69	+24 28.2	2.616	3.310	-0.32 -1.0	.	126.9
Mar. 26	08 21.65	+24 15.0	2.804	3.372	-0.07 -1.7	.	116.7

Comet 46P/Wirtanen

Epoch = 2024 July 29.0 TT
 T = 2024 May 19.10596 TT
 Peri. = 356.32061 e = 0.6587810
 Node = 82.16197 2000.0 a = 3.0913557 AU
 Incl. = 11.74976 n = 0.18133457
 q = 1.0548293 AU P = 5.44 years

$$m1 = 9.4 + 5 \log(\Delta) + 25.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	21 38.48	-23 10.0	2.621	1.977	+1.92 +10.6	18.9	40.4
Jan. 11	21 58.22	-21 17.6	2.608	1.892	+2.04 +12.0	18.4	35.3
Jan. 21	22 19.14	-19 11.3	2.583	1.807	+2.15 +13.4	17.9	30.6
Jan. 31	22 41.19	-16 50.5	2.547	1.721	+2.27 +14.9	17.3	26.3
Feb. 10	23 04.41	-14 14.0	2.502	1.636	+2.39 +16.5	16.7	22.6
Feb. 20	23 28.86	-11 21.3	2.449	1.551	+2.51 +18.2	16.1	19.3
Mar. 1	23 54.62	-08 12.2	2.391	1.468	+2.65 +19.8	15.5	16.5
Mar. 11	00 21.87	-04 46.7	2.329	1.387	+2.81 +21.4	14.8	14.1
Mar. 21	00 50.79	-01 06.1	2.267	1.311	+2.99 +22.8	14.1	12.3
Mar. 31	01 21.61	+02 47.2	2.207	1.240	+3.20 +23.9	13.5	10.9
Apr. 10	01 54.60	+06 49.1	2.152	1.178	+3.43 +24.4	12.8	9.9
Apr. 20	02 30.01	+10 53.2	2.105	1.125	+3.68 +24.2	12.3	9.4
Apr. 30	03 08.02	+14 50.2	2.068	1.086	+3.95 +22.9	11.9	9.3
May 10	03 48.70	+18 28.9	2.044	1.062	+4.21 +20.4	11.6	9.7
May 20	04 31.81	+21 36.5	2.034	1.055	+4.42 +16.6	11.5	10.4
May 30	05 16.75	+24 01.2	2.040	1.065	+4.56 +11.7	11.6	11.4
June 9	06 02.59	+25 34.4	2.061	1.092	+4.59 +6.3	11.9	12.4
June 19	06 48.11	+26 13.0	2.098	1.134	+4.49 +0.9	12.4	13.3
June 29	07 32.11	+25 59.5	2.150	1.188	+4.28 -4.0	12.9	13.9
July 9	08 13.67	+25 01.3	2.214	1.252	+4.00 -7.9	13.6	14.0
July 19	08 52.24	+23 28.4	2.289	1.324	+3.68 -10.8	14.2	13.7
July 29	09 27.67	+21 30.9	2.372	1.401	+3.37 -12.7	14.9	13.0
Aug. 8	10 00.09	+19 17.7	2.460	1.482	+3.09 -13.9	15.6	11.8
Aug. 18	10 29.76	+16 56.2	2.551	1.566	+2.83 -14.4	16.3	10.3
Aug. 28	10 57.00	+14 31.9	2.641	1.651	+2.60 -14.4	16.9	8.8
Sept. 7	11 22.16	+12 08.8	2.730	1.736	+2.41 -14.1	17.6	7.7
Sept. 17	11 45.53	+09 49.7	2.813	1.822	+2.25 -13.6	18.2	7.7
Sept. 27	12 07.36	+07 36.7	2.889	1.907	+2.11 -12.9	18.7	9.4
Oct. 7	12 27.85	+05 31.0	2.956	1.992	+1.98 -12.1	19.2	12.4
Oct. 17	12 47.17	+03 33.7	3.013	2.075	+1.87 -11.2	19.7	16.3
Oct. 27	13 05.41	+01 45.4	3.057	2.158	+1.77 -10.3	20.2	20.9
Nov. 6	13 22.67	+00 06.6	3.089	2.239	+1.67 -9.3	20.6	25.9
Nov. 16	13 38.96	-01 22.3	3.106	2.320	+1.58 -8.3	21.0	31.4
Nov. 26	13 54.28	-02 40.9	3.109	2.398	+1.48 -7.3	21.4	37.2
Dec. 6	14 08.61	-03 49.1	3.097	2.476	+1.38 -6.2	21.7	43.4
Dec. 16	14 21.87	-04 46.6	3.071	2.552	+1.26 -5.2	22.0	50.0
Dec. 26	14 33.96	-05 33.3	3.031	2.626	+1.14 -4.1	.	56.9
Jan. 5	14 44.74	-06 09.1	2.978	2.699	+1.00 -3.0	.	64.2
Jan. 15	14 54.06	-06 34.0	2.913	2.771	+0.84 -1.9	.	71.9
Jan. 25	15 01.73	-06 47.9	2.840	2.842	+0.67 -0.8	.	80.1
Feb. 4	15 07.55	-06 51.1	2.761	2.910	+0.47 +0.3	.	88.7
Feb. 14	15 11.30	-06 43.7	2.679	2.978	+0.25 +1.3	.	97.8
Feb. 24	15 12.80	-06 26.4	2.598	3.044	+0.02 +2.2	.	107.4
Mar. 6	15 11.91	-06 00.1	2.524	3.109	-0.22 +3.1	.	117.5
Mar. 16	15 08.59	-05 26.1	2.461	3.172	-0.46 +3.7	.	128.1
Mar. 26	15 02.99	-04 46.8	2.414	3.234	-0.68 +4.1	.	139.0

Comet C/2023 V4 (Camarasa-Duszanowicz)

Epoch = 2024 July 29.0 TT
 T = 2024 May 30.36651 TT
 Peri. = 50.85106
 Node = 66.32401 2000.0
 Incl. = 67.13137
 q = 1.1218034 AU
 e = 1.0010238

$$m_1 = 10.1 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	02 13.38	-36 23.3	2.219	2.476	-0.94	+26.7	16.8	93.1
Jan. 11	02 05.76	-31 44.1	2.207	2.361	-0.55	+29.2	16.5	86.5
Jan. 21	02 01.87	-26 44.2	2.205	2.246	-0.20	+30.8	16.2	79.6
Jan. 31	02 01.24	-21 31.8	2.210	2.131	+0.10	+31.7	15.9	72.4
Feb. 10	02 03.39	-16 12.5	2.219	2.017	+0.35	+32.2	15.6	65.3
Feb. 20	02 07.93	-10 49.5	2.228	1.903	+0.57	+32.4	15.3	58.2
Mar. 1	02 14.53	-05 24.7	2.235	1.791	+0.76	+32.6	15.0	51.3
Mar. 11	02 22.97	+00 01.8	2.238	1.681	+0.94	+32.8	14.7	44.5
Mar. 21	02 33.13	+05 31.1	2.234	1.575	+1.11	+33.1	14.3	38.1
Mar. 31	02 44.99	+11 04.5	2.221	1.474	+1.28	+33.7	13.9	32.1
Apr. 10	02 58.69	+16 44.3	2.198	1.380	+1.48	+34.4	13.6	26.8
Apr. 20	03 14.52	+22 32.4	2.164	1.295	+1.72	+35.3	13.2	22.6
Apr. 30	03 33.08	+28 30.6	2.120	1.224	+2.04	+36.4	12.8	20.1
May 10	03 55.38	+34 38.9	2.066	1.169	+2.49	+37.3	12.5	20.0
May 20	04 23.14	+40 54.0	2.004	1.134	+3.17	+37.6	12.3	22.3
May 30	04 59.10	+47 05.1	1.940	1.122	+4.20	+36.1	12.2	26.1
June 9	05 47.44	+52 48.0	1.879	1.133	+5.70	+31.2	12.1	30.8
June 19	06 52.61	+57 15.3	1.830	1.166	+7.52	+20.0	12.2	35.6
June 29	08 14.30	+59 17.7	1.802	1.219	+8.71	+1.7	12.5	40.3
July 9	09 40.45	+58 02.4	1.803	1.289	+8.16	-18.4	12.8	44.3
July 19	10 54.79	+53 48.2	1.838	1.373	+6.46	-32.6	13.1	47.4
July 29	11 51.75	+47 47.9	1.908	1.466	+4.84	-39.0	13.6	49.4
Aug. 8	12 34.51	+41 10.6	2.012	1.567	+3.68	-39.8	14.1	50.0
Aug. 18	13 07.55	+34 40.6	2.144	1.673	+2.91	-37.6	14.5	49.4
Aug. 28	13 34.23	+28 39.9	2.297	1.782	+2.41	-34.1	15.0	47.7
Sept. 7	13 56.71	+23 16.7	2.465	1.894	+2.08	-30.2	15.5	45.1
Sept. 17	14 16.35	+18 32.2	2.642	2.008	+1.84	-26.4	16.0	41.8
Sept. 27	14 33.97	+14 23.7	2.821	2.122	+1.67	-23.0	16.4	38.0
Oct. 7	14 50.13	+10 47.5	2.998	2.237	+1.55	-20.0	16.9	33.8
Oct. 17	15 05.16	+07 39.7	3.168	2.352	+1.45	-17.4	17.2	29.5
Oct. 27	15 19.28	+04 56.7	3.328	2.467	+1.37	-15.1	17.6	25.4
Nov. 6	15 32.63	+02 35.3	3.474	2.581	+1.29	-13.1	18.0	22.0
Nov. 16	15 45.26	+00 33.0	3.604	2.695	+1.22	-11.3	18.3	19.9
Nov. 26	15 57.19	-01 12.8	3.716	2.808	+1.16	-9.7	18.6	19.9
Dec. 6	16 08.44	-02 43.9	3.808	2.920	+1.08	-8.4	18.8	22.2
Dec. 16	16 18.93	-04 02.0	3.879	3.031	+1.01	-7.2	19.1	26.6
Dec. 26	16 28.61	-05 08.7	3.930	3.142	+0.92	-6.1	19.3	32.2
Jan. 5	16 37.41	-06 05.2	3.959	3.252	+0.83	-5.1	19.5	38.8
Jan. 15	16 45.19	-06 53.0	3.967	3.360	+0.72	-4.3	19.7	46.1
Jan. 25	16 51.85	-07 33.1	3.957	3.468	+0.60	-3.6	19.8	53.9
Feb. 4	16 57.25	-08 06.7	3.929	3.576	+0.46	-3.1	20.0	62.1
Feb. 14	17 01.24	-08 35.1	3.887	3.682	+0.32	-2.6	20.1	70.8
Feb. 24	17 03.68	-08 59.2	3.833	3.787	+0.15	-2.2	20.2	79.9
Mar. 6	17 04.41	-09 20.3	3.773	3.892	-0.02	-2.0	20.4	89.4
Mar. 16	17 03.34	-09 39.3	3.711	3.996	-0.21	-1.8	20.5	99.4
Mar. 26	17 00.39	-09 57.1	3.652	4.099	-0.40	-1.8	20.6	109.8

Comet P/2004 D029 = 2023 V7 (Spacewatch-LINEAR)

Epoch = 2024 July 29.0 TT
 T = 2024 June 1.60795 TT
 Peri. = 40.39514 e = 0.4422584
 Node = 147.37387 2000.0 a = 7.3106840 AU
 Incl. = 14.52490 n = 0.04986170
 q = 4.0774726 AU P = 19.77 years

$$m1 = 10.4 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	12 04.42	+04 57.2	3.872	4.167	+0.44 +0.7	19.5	100.6
Jan. 11	12 08.19	+05 09.5	3.716	4.156	+0.30 +1.8	19.4	110.0
Jan. 21	12 10.58	+05 32.8	3.569	4.146	+0.16 +2.9	19.3	119.7
Jan. 31	12 11.53	+06 06.9	3.436	4.136	+0.01 +4.0	19.2	129.7
Feb. 10	12 11.03	+06 50.9	3.322	4.127	-0.13 +4.9	19.2	140.0
Feb. 20	12 09.16	+07 42.9	3.229	4.119	-0.26 +5.5	19.1	150.5
Mar. 1	12 06.13	+08 40.0	3.163	4.111	-0.36 +5.9	19.0	160.7
Mar. 11	12 02.25	+09 38.7	3.124	4.104	-0.42 +5.8	19.0	169.1
Mar. 21	11 57.93	+10 34.7	3.116	4.098	-0.44 +5.3	19.0	169.2
Mar. 31	11 53.64	+11 24.3	3.136	4.093	-0.41 +4.5	19.0	160.9
Apr. 10	11 49.84	+12 04.4	3.184	4.088	-0.34 +3.4	19.0	150.9
Apr. 20	11 46.91	+12 32.7	3.257	4.085	-0.23 +2.1	19.1	140.8
Apr. 30	11 45.15	+12 48.5	3.351	4.082	-0.10 +0.9	19.1	130.8
May 10	11 44.73	+12 51.6	3.463	4.079	+0.03 -0.4	19.2	121.3
May 20	11 45.72	+12 42.8	3.588	4.078	+0.18 -1.5	19.3	112.1
May 30	11 48.10	+12 23.2	3.723	4.077	+0.31 -2.5	19.4	103.3
June 9	11 51.79	+11 54.0	3.863	4.078	+0.44 -3.4	19.4	94.9
June 19	11 56.71	+11 16.5	4.006	4.079	+0.55 -4.2	19.5	86.9
June 29	12 02.72	+10 32.1	4.148	4.080	+0.66 -4.8	19.6	79.1
July 9	12 09.69	+09 41.8	4.287	4.083	+0.75 -5.3	19.7	71.7
July 19	12 17.52	+08 46.8	4.421	4.086	+0.82 -5.7	19.7	64.4
July 29	12 26.07	+07 48.1	4.548	4.090	+0.89 -6.0	19.8	57.4
Aug. 8	12 35.27	+06 46.5	4.665	4.095	+0.95 -6.3	19.9	50.5
Aug. 18	12 45.01	+05 43.0	4.772	4.101	+1.00 -6.4	19.9	43.7
Aug. 28	12 55.21	+04 38.3	4.867	4.107	+1.04 -6.5	20.0	37.1
Sept. 7	13 05.81	+03 33.4	4.949	4.114	+1.08 -6.5	20.0	30.7
Sept. 17	13 16.73	+02 28.8	5.016	4.122	+1.11 -6.4	20.1	24.4
Sept. 27	13 27.91	+01 25.5	5.069	4.131	+1.13 -6.2	20.1	18.5
Oct. 7	13 39.30	+00 24.1	5.106	4.140	+1.15 -6.0	20.1	13.4
Oct. 17	13 50.83	+00 34.7	5.127	4.151	+1.16 -5.7	20.1	10.3
Oct. 27	14 02.42	-01 30.1	5.132	4.161	+1.16 -5.3	20.1	11.3
Nov. 6	14 14.03	-02 21.6	5.119	4.173	+1.16 -4.9	20.2	15.6
Nov. 16	14 25.57	-03 08.4	5.090	4.185	+1.15 -4.4	20.2	21.4
Nov. 26	14 36.97	-03 49.9	5.045	4.198	+1.13 -3.8	20.1	27.9
Dec. 6	14 48.12	-04 25.6	4.984	4.212	+1.10 -3.2	20.1	34.7
Dec. 16	14 58.94	-04 54.9	4.909	4.226	+1.06 -2.6	20.1	41.8
Dec. 26	15 09.32	-05 17.5	4.820	4.241	+1.01 -1.9	20.1	49.1
Jan. 5	15 19.13	-05 32.9	4.718	4.256	+0.95 -1.1	20.1	56.6
Jan. 15	15 28.25	-05 40.9	4.606	4.273	+0.87 -0.4	20.0	64.3
Jan. 25	15 36.54	-05 41.5	4.486	4.289	+0.78 +0.4	20.0	72.2
Feb. 4	15 43.85	-05 34.7	4.361	4.307	+0.67 +1.1	19.9	80.4
Feb. 14	15 50.05	-05 20.6	4.232	4.325	+0.55 +1.8	19.9	88.7
Feb. 24	15 55.01	-04 59.9	4.104	4.343	+0.42 +2.4	19.8	97.4
Mar. 6	15 58.58	-04 33.1	3.980	4.362	+0.28 +3.0	19.8	106.2
Mar. 16	16 00.70	-04 01.4	3.864	4.382	+0.13 +3.4	19.8	115.3
Mar. 26	16 01.32	-03 26.1	3.759	4.402	-0.02 +3.7	19.7	124.5

Comet 154P/Brewington

Epoch = 2024 July 29.0 TT
 T = 2024 June 12.90435 TT
 Peri. = 47.95887 e = 0.6763378
 Node = 343.00797 2000.0 a = 4.7980518 AU
 Incl. = 17.63453 n = 0.09377923
 q = 1.5529480 AU P = 10.51 years

$$m1 = 7.0 + 5 \log(\Delta) + 22.5 \log(r(t+30))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	20 25.98	-26° 10' 4"	3.200	2.333	+1.97 +11.0	16.9	23.7
Jan. 11	20 45.93	-24 15.6	3.174	2.263	+2.02 +12.1	16.6	18.5
Jan. 21	21 06.35	-22 09.0	3.138	2.193	+2.06 +13.3	16.2	13.5
Jan. 31	21 27.16	-19 50.1	3.092	2.124	+2.10 +14.6	15.9	8.9
Feb. 10	21 48.34	-17 18.2	3.038	2.057	+2.14 +15.9	15.5	4.9
Feb. 20	22 09.87	-14 33.2	2.978	1.992	+2.17 +17.2	15.2	3.3
Mar. 1	22 31.76	-11 35.3	2.912	1.929	+2.21 +18.5	14.8	5.7
Mar. 11	22 54.05	-08 24.6	2.843	1.868	+2.25 +19.7	14.5	9.1
Mar. 21	23 16.79	-05 01.8	2.772	1.812	+2.30 +20.9	14.2	12.4
Mar. 31	23 40.07	-01 28.1	2.700	1.759	+2.36 +21.9	13.9	15.6
Apr. 10	00 04.00	+02 15.0	2.630	1.710	+2.43 +22.8	13.7	18.5
Apr. 20	00 28.71	+06 05.4	2.563	1.667	+2.52 +23.3	13.5	21.2
Apr. 30	00 54.34	+09 59.9	2.501	1.630	+2.62 +23.6	13.3	23.7
May 10	01 21.04	+13 55.1	2.444	1.600	+2.73 +23.4	13.2	26.0
May 20	01 48.93	+17 46.2	2.395	1.576	+2.86 +22.7	13.2	28.2
May 30	02 18.15	+21 28.3	2.352	1.561	+3.00 +21.5	13.2	30.2
June 9	02 48.73	+24 55.9	2.317	1.554	+3.13 +19.7	13.3	32.1
June 19	03 20.61	+28 03.3	2.289	1.554	+3.25 +17.4	13.4	34.0
June 29	03 53.63	+30 45.5	2.268	1.564	+3.35 +14.7	13.6	35.9
July 9	04 27.47	+32 58.8	2.253	1.581	+3.41 +11.6	13.8	38.0
July 19	05 01.64	+34 40.7	2.241	1.606	+3.41 +8.4	14.1	40.2
July 29	05 35.59	+35 50.8	2.233	1.638	+3.36 +5.3	14.3	42.6
Aug. 8	06 08.72	+36 30.9	2.226	1.676	+3.24 +2.5	14.6	45.3
Aug. 18	06 40.44	+36 44.2	2.217	1.720	+3.08 0.0	14.9	48.4
Aug. 28	07 10.33	+36 35.2	2.207	1.770	+2.87 -1.9	15.2	51.8
Sept. 7	07 38.05	+36 09.1	2.193	1.824	+2.64 -3.3	15.5	55.6
Sept. 17	08 03.36	+35 31.3	2.173	1.881	+2.39 -4.2	15.8	59.8
Sept. 27	08 26.16	+34 46.8	2.148	1.942	+2.14 -4.6	16.1	64.6
Oct. 7	08 46.35	+34 00.3	2.117	2.006	+1.87 -4.6	16.4	69.9
Oct. 17	09 03.85	+33 16.2	2.079	2.071	+1.60 -4.1	16.6	75.7
Oct. 27	09 18.59	+32 38.0	2.035	2.139	+1.32 -3.4	16.9	82.1
Nov. 6	09 30.42	+32 08.9	1.987	2.208	+1.02 -2.3	17.1	89.2
Nov. 16	09 39.15	+31 51.1	1.935	2.278	+0.70 -1.1	17.4	97.0
Nov. 26	09 44.58	+31 46.0	1.884	2.349	+0.35 +0.2	17.6	105.5
Dec. 6	09 46.48	+31 53.5	1.836	2.420	-0.01 +1.4	17.8	114.8
Dec. 16	09 44.67	+32 11.6	1.797	2.492	-0.38 +2.2	18.0	124.7
Dec. 26	09 39.22	+32 35.8	1.770	2.564	-0.74 +2.5	18.2	135.2
Jan. 5	09 30.46	+33 00.0	1.763	2.636	-1.03 +2.1	18.5	146.0
Jan. 15	09 19.21	+33 16.5	1.779	2.708	-1.22 +1.0	18.7	156.2
Jan. 25	09 06.69	+33 19.0	1.822	2.780	-1.27 -0.7	19.0	163.4
Feb. 4	08 54.30	+33 04.2	1.895	2.852	-1.18 -2.5	19.3	162.9
Feb. 14	08 43.37	+32 32.4	1.997	2.923	-0.97 -4.0	19.7	155.3
Feb. 24	08 34.78	+31 46.8	2.125	2.994	-0.71 -5.2	20.0	145.6
Mar. 6	08 28.99	+30 51.6	2.277	3.065	-0.42 -5.9	20.4	135.5
Mar. 16	08 26.03	+29 50.5	2.449	3.135	-0.15 -6.3	20.7	125.7
Mar. 26	08 25.69	+28 46.5	2.636	3.204	+0.10 -6.5	21.1	116.2

Comet C/2023 Q2 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 June 24.05519 TT
 Peri. = 171.71851
 Node = 92.67901 2000.0
 Incl. = 104.05924
 q = 3.2093825 AU
 e = 0.9907812

$$m1 = 11.1 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	18 50.50	+13 32.0	4.352	3.611	+0.80	-8.9	19.9	36.7
Jan. 11	18 58.46	+12 08.1	4.333	3.570	+0.79	-7.7	19.8	34.8
Jan. 21	19 06.26	+10 55.7	4.294	3.530	+0.77	-6.7	19.7	34.7
Jan. 31	19 13.77	+09 53.2	4.234	3.492	+0.73	-5.8	19.7	36.5
Feb. 10	19 20.84	+08 59.0	4.153	3.456	+0.68	-5.0	19.6	40.1
Feb. 20	19 27.31	+08 11.4	4.050	3.422	+0.61	-4.5	19.5	45.0
Mar. 1	19 33.02	+07 28.4	3.927	3.391	+0.52	-4.1	19.4	50.9
Mar. 11	19 37.77	+06 47.9	3.785	3.362	+0.42	-4.0	19.3	57.8
Mar. 21	19 41.36	+06 07.5	3.626	3.335	+0.28	-4.1	19.1	65.3
Mar. 31	19 43.53	+05 24.3	3.454	3.310	+0.13	-4.6	19.0	73.4
Apr. 10	19 44.00	+04 35.1	3.271	3.288	-0.06	-5.4	18.8	82.2
Apr. 20	19 42.42	+03 35.8	3.083	3.269	-0.28	-6.6	18.7	91.6
Apr. 30	19 38.45	+02 22.0	2.894	3.252	-0.54	-8.4	18.5	101.7
May 10	19 31.68	+00 48.6	2.712	3.238	-0.84	-10.6	18.4	112.7
May 20	19 21.79	-01 09.3	2.545	3.227	-1.17	-13.3	18.2	124.4
May 30	19 08.58	-03 35.6	2.401	3.218	-1.50	-16.2	18.1	137.1
June 9	18 52.13	-06 30.7	2.291	3.213	-1.81	-19.0	18.0	150.3
June 19	18 32.97	-09 49.9	2.224	3.210	-2.03	-20.9	17.9	163.1
June 29	18 12.15	-13 22.7	2.206	3.210	-2.12	-21.5	17.9	169.1
July 9	17 51.08	-16 54.8	2.239	3.213	-2.06	-20.7	17.9	159.9
July 19	17 31.28	-20 13.7	2.321	3.218	-1.86	-18.8	18.0	146.6
July 29	17 13.94	-23 11.6	2.444	3.227	-1.57	-16.5	18.1	133.4
Aug. 8	16 59.78	-25 46.9	2.599	3.238	-1.23	-14.4	18.3	120.8
Aug. 18	16 49.05	-28 01.9	2.778	3.252	-0.89	-12.5	18.4	109.0
Aug. 28	16 41.62	-30 00.6	2.971	3.269	-0.57	-11.1	18.6	98.0
Sept. 7	16 37.22	-31 47.1	3.169	3.288	-0.29	-10.1	18.8	87.8
Sept. 17	16 35.47	-33 25.1	3.368	3.310	-0.04	-9.4	18.9	78.1
Sept. 27	16 35.98	-34 57.3	3.560	3.334	+0.16	-9.0	19.1	69.0
Oct. 7	16 38.45	-36 25.9	3.742	3.361	+0.34	-8.7	19.2	60.3
Oct. 17	16 42.56	-37 52.4	3.909	3.390	+0.49	-8.6	19.4	52.2
Oct. 27	16 48.06	-39 18.2	4.059	3.422	+0.62	-8.6	19.5	44.5
Nov. 6	16 54.75	-40 44.2	4.190	3.456	+0.73	-8.6	19.6	37.4
Nov. 16	17 02.42	-42 11.4	4.300	3.491	+0.82	-8.8	19.7	31.2
Nov. 26	17 10.93	-43 40.4	4.387	3.529	+0.89	-9.0	19.8	26.3
Dec. 6	17 20.13	-45 12.2	4.451	3.569	+0.95	-9.4	19.9	23.5
Dec. 16	17 29.88	-46 47.6	4.492	3.611	+1.00	-9.8	19.9	23.5
Dec. 26	17 40.06	-48 27.6	4.510	3.654	+1.04	-10.3	20.0	26.3
Jan. 5	17 50.56	-50 13.3	4.507	3.699	+1.06	-10.9	20.1	31.0
Jan. 15	18 01.23	-52 05.9	4.484	3.745	+1.07	-11.7	20.1	37.0
Jan. 25	18 11.96	-54 06.5	4.443	3.794	+1.07	-12.6	20.1	43.8
Feb. 4	18 22.59	-56 16.5	4.387	3.843	+1.05	-13.6	20.2	50.9
Feb. 14	18 32.94	-58 37.3	4.320	3.894	+1.01	-14.7	20.2	58.3
Feb. 24	18 42.81	-61 10.0	4.246	3.946	+0.95	-16.0	20.2	65.9
Mar. 6	18 51.88	-63 55.6	4.168	3.999	+0.85	-17.3	20.2	73.4
Mar. 16	18 59.68	-66 54.3	4.091	4.053	+0.69	-18.6	20.2	80.8
Mar. 26	19 05.50	-70 05.6	4.020	4.109	+0.43	-19.8	20.3	88.0

Comet 13P/Olbers

Epoch = 2024 July 29.0 TT
 T = 2024 June 30.04919 TT
 Peri. = 64.41713 e = 0.9303217
 Node = 85.84776 2000.0 a = 16.8702279 AU
 Incl. = 44.66553 n = 0.01422403
 q = 1.1754888 AU P = 69.29 years

$$m1 = 3.4 + 5 \log(\Delta) + 25.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	03 03.29	-15 18.0	2.167	2.721	-0.79 +15.4	15.9	114.1
Jan. 11	02 56.58	-12 33.8	2.177	2.617	-0.52 +17.5	15.5	105.5
Jan. 21	02 52.73	-09 31.2	2.197	2.511	-0.22 +19.0	15.1	96.8
Jan. 31	02 51.76	-06 16.1	2.223	2.405	+0.06 +20.0	14.7	88.3
Feb. 10	02 53.57	-02 52.7	2.252	2.299	+0.33 +20.7	14.2	80.2
Feb. 20	02 58.02	+00 36.2	2.279	2.193	+0.58 +21.1	13.7	72.4
Mar. 1	03 04.93	+04 08.8	2.301	2.087	+0.82 +21.4	13.2	65.1
Mar. 11	03 14.18	+07 44.1	2.316	1.982	+1.05 +21.7	12.6	58.2
Mar. 21	03 25.71	+11 21.8	2.322	1.877	+1.28 +21.9	12.1	51.8
Mar. 31	03 39.54	+15 01.6	2.319	1.775	+1.51 +22.1	11.5	45.9
Apr. 10	03 55.77	+18 43.5	2.305	1.675	+1.76 +22.3	10.8	40.5
Apr. 20	04 14.63	+22 26.7	2.281	1.579	+2.04 +22.4	10.1	35.7
Apr. 30	04 36.45	+26 09.9	2.247	1.488	+2.36 +22.2	9.5	31.7
May 10	05 01.75	+29 50.5	2.205	1.404	+2.75 +21.7	8.8	28.6
May 20	05 31.19	+33 23.4	2.154	1.329	+3.20 +20.6	8.2	26.6
May 30	06 05.54	+36 40.5	2.099	1.267	+3.74 +18.4	7.6	25.8
June 9	06 45.57	+39 28.7	2.043	1.219	+4.33 +14.6	7.1	26.3
June 19	07 31.59	+41 30.0	1.989	1.188	+4.92 +8.7	6.8	27.7
June 29	08 22.92	+42 23.1	1.942	1.176	+5.36 +0.8	6.6	29.9
July 9	09 17.43	+41 49.4	1.909	1.183	+5.50 -8.6	6.6	32.4
July 19	10 11.83	+39 41.2	1.896	1.211	+5.30 -17.8	6.9	34.9
July 29	11 02.99	+36 07.3	1.906	1.255	+4.85 -25.3	7.3	37.1
Aug. 8	11 49.07	+31 30.2	1.943	1.315	+4.30 -30.1	7.8	38.7
Aug. 18	12 29.64	+26 18.2	2.007	1.387	+3.77 -32.1	8.5	39.6
Aug. 28	13 05.19	+20 56.9	2.098	1.469	+3.31 -31.8	9.2	39.7
Sept. 7	13 36.58	+15 45.2	2.210	1.559	+2.94 -30.1	9.9	38.8
Sept. 17	14 04.64	+10 55.1	2.340	1.654	+2.65 -27.6	10.7	37.2
Sept. 27	14 30.08	+06 32.2	2.482	1.753	+2.42 -24.7	11.5	34.7
Oct. 7	14 53.49	+02 38.0	2.631	1.855	+2.25 -21.8	12.2	31.6
Oct. 17	15 15.26	+00 48.0	2.783	1.959	+2.10 -19.1	12.9	28.0
Oct. 27	15 35.70	-03 48.0	2.933	2.064	+1.98 -16.7	13.6	23.9
Nov. 6	15 55.04	-06 24.3	3.078	2.170	+1.88 -14.4	14.3	19.6
Nov. 16	16 13.41	-08 39.4	3.215	2.277	+1.79 -12.4	14.9	15.4
Nov. 26	16 30.90	-10 35.9	3.340	2.383	+1.70 -10.7	15.4	11.8
Dec. 6	16 47.57	-12 16.0	3.452	2.489	+1.62 -9.2	16.0	10.2
Dec. 16	17 03.41	-13 41.8	3.548	2.594	+1.54 -7.9	16.5	12.1
Dec. 26	17 18.43	-14 55.5	3.627	2.699	+1.46 -6.8	17.0	16.6
Jan. 5	17 32.58	-15 58.7	3.688	2.803	+1.37 -5.8	17.4	22.4
Jan. 15	17 45.80	-16 53.3	3.730	2.907	+1.27 -5.1	17.8	28.8
Jan. 25	17 58.04	-17 41.1	3.753	3.010	+1.17 -4.5	18.2	35.8
Feb. 4	18 09.19	-18 23.7	3.758	3.112	+1.05 -4.0	18.6	43.1
Feb. 14	18 19.15	-19 02.7	3.745	3.213	+0.93 -3.8	18.9	50.8
Feb. 24	18 27.81	-19 39.8	3.717	3.314	+0.79 -3.7	19.3	58.8
Mar. 6	18 35.03	-20 16.5	3.674	3.413	+0.64 -3.7	19.6	67.1
Mar. 16	18 40.68	-20 54.3	3.621	3.512	+0.47 -3.9	19.8	75.8
Mar. 26	18 44.62	-21 34.5	3.559	3.610	+0.29 -4.2	20.1	84.9

Comet 472P/NEAT-LINEAR

Epoch = 2024 July 29.0 TT
 T = 2024 July 15.54540 TT
 Peri. = 218.95092 e = 0.5671064
 Node = 205.99618 2000.0 a = 7.8300065 AU
 Incl. = 10.83577 n = 0.04498429
 q = 3.3895597 AU P = 21.91 years

$$m1 = -4.0 + 5 \log(\Delta) + 35.0 \log(r(t-20))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	00 46.23	+04 31.8	3.474	3.655	+0.59 +1.7	18.6	92.7
Jan. 11	00 52.76	+04 52.9	3.596	3.630	+0.73 +2.6	18.6	84.1
Jan. 21	01 00.58	+05 23.0	3.717	3.606	+0.85 +3.4	18.6	75.9
Jan. 31	01 09.54	+06 00.7	3.833	3.583	+0.95 +4.1	18.5	68.1
Feb. 10	01 19.51	+06 44.5	3.942	3.562	+1.05 +4.7	18.5	60.5
Feb. 20	01 30.37	+07 33.2	4.043	3.541	+1.13 +5.1	18.4	53.2
Mar. 1	01 42.01	+08 25.4	4.134	3.522	+1.20 +5.4	18.4	46.2
Mar. 11	01 54.33	+09 19.7	4.215	3.503	+1.27 +5.5	18.3	39.3
Mar. 21	02 07.25	+10 15.1	4.283	3.487	+1.32 +5.5	18.3	32.7
Mar. 31	02 20.69	+11 10.4	4.338	3.471	+1.37 +5.5	18.2	26.3
Apr. 10	02 34.58	+12 04.5	4.381	3.457	+1.41 +5.3	18.2	20.0
Apr. 20	02 48.86	+12 56.4	4.410	3.444	+1.45 +5.0	18.1	14.0
Apr. 30	03 03.44	+13 45.2	4.426	3.432	+1.47 +4.7	18.1	8.3
May 10	03 18.29	+14 30.1	4.428	3.422	+1.50 +4.2	18.0	3.9
May 20	03 33.32	+15 10.4	4.418	3.413	+1.51 +3.7	18.0	5.9
May 30	03 48.46	+15 45.4	4.394	3.405	+1.52 +3.2	17.9	11.1
June 9	04 03.65	+16 14.5	4.358	3.399	+1.52 +2.6	17.9	16.8
June 19	04 18.80	+16 37.2	4.310	3.395	+1.51 +1.9	17.8	22.6
June 29	04 33.82	+16 53.3	4.250	3.392	+1.49 +1.2	17.7	28.5
July 9	04 48.63	+17 02.4	4.179	3.390	+1.46 +0.5	17.7	34.4
July 19	05 03.10	+17 04.5	4.098	3.390	+1.43 -0.2	17.6	40.5
July 29	05 17.15	+16 59.5	4.007	3.391	+1.38 -0.9	17.6	46.6
Aug. 8	05 30.64	+16 47.7	3.906	3.394	+1.31 -1.6	17.5	53.0
Aug. 18	05 43.43	+16 29.2	3.798	3.398	+1.24 -2.2	17.5	59.5
Aug. 28	05 55.39	+16 04.5	3.683	3.403	+1.14 -2.8	17.4	66.2
Sept. 7	06 06.37	+15 34.2	3.563	3.410	+1.04 -3.3	17.4	73.1
Sept. 17	06 16.18	+14 59.0	3.439	3.419	+0.91 -3.8	17.3	80.4
Sept. 27	06 24.68	+14 19.9	3.314	3.429	+0.77 -4.1	17.2	88.0
Oct. 7	06 31.67	+13 37.8	3.189	3.440	+0.61 -4.3	17.2	96.0
Oct. 17	06 36.98	+12 54.1	3.067	3.452	+0.43 -4.4	17.2	104.4
Oct. 27	06 40.47	+12 10.2	2.952	3.466	+0.24 -4.3	17.1	113.2
Nov. 6	06 42.03	+11 27.8	2.848	3.482	+0.05 -4.1	17.1	122.5
Nov. 16	06 41.64	+10 48.7	2.757	3.498	-0.14 -3.7	17.1	132.1
Nov. 26	06 39.40	+10 14.6	2.685	3.516	-0.32 -3.1	17.1	142.0
Dec. 6	06 35.56	+09 47.4	2.635	3.535	-0.46 -2.3	17.1	151.9
Dec. 16	06 30.54	+09 28.5	2.611	3.555	-0.55 -1.4	17.2	160.8
Dec. 26	06 24.90	+09 18.6	2.614	3.576	-0.57 -0.5	17.3	165.9
Jan. 5	06 19.28	+09 17.9	2.647	3.599	-0.54 +0.4	17.4	163.0
Jan. 15	06 14.30	+09 25.9	2.708	3.622	-0.44 +1.2	17.5	154.9
Jan. 25	06 10.48	+09 41.2	2.795	3.647	-0.30 +1.9	17.7	145.2
Feb. 4	06 08.21	+10 02.1	2.905	3.673	-0.13 +2.3	17.9	135.4
Feb. 14	06 07.67	+10 26.6	3.035	3.699	+0.05 +2.6	18.1	125.7
Feb. 24	06 08.93	+10 53.0	3.181	3.727	+0.22 +2.7	18.3	116.3
Mar. 6	06 11.92	+11 19.5	3.339	3.755	+0.39 +2.6	18.5	107.3
Mar. 16	06 16.53	+11 44.6	3.505	3.784	+0.54 +2.4	18.7	98.6
Mar. 26	06 22.57	+12 07.1	3.675	3.815	+0.68 +2.1	18.9	90.4

Comet C/2022 S4 (Lemmon)

Epoch = 2024 July 29.0 TT
 T = 2024 July 18.74804 TT
 Peri. = 268.55565
 Node = 220.17435 2000.0
 Incl. = 101.22073
 q = 2.7618074 AU
 e = 0.9977233

$$m1 = 9.4 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	01 45.83	-29 54.3	3.257	3.424	-0.51	-3.2	16.0	91.3
Jan. 11	01 41.82	-30 19.7	3.355	3.367	-0.27	-1.8	16.0	82.3
Jan. 21	01 40.14	-30 32.9	3.446	3.312	-0.05	-0.8	16.0	73.9
Jan. 31	01 40.62	-30 38.6	3.527	3.258	+0.16	-0.3	16.0	66.3
Feb. 10	01 43.07	-30 40.7	3.593	3.207	+0.35	-0.1	16.0	59.5
Feb. 20	01 47.30	-30 42.5	3.641	3.157	+0.51	-0.3	16.0	53.7
Mar. 1	01 53.14	-30 47.0	3.670	3.110	+0.67	-0.7	15.9	48.9
Mar. 11	02 00.46	-30 56.6	3.678	3.065	+0.81	-1.3	15.9	45.5
Mar. 21	02 09.14	-31 13.7	3.666	3.023	+0.94	-2.2	15.8	43.5
Mar. 31	02 19.10	-31 40.5	3.633	2.983	+1.07	-3.3	15.8	43.1
Apr. 10	02 30.35	-32 19.2	3.582	2.946	+1.19	-4.6	15.7	44.1
Apr. 20	02 42.88	-33 12.1	3.514	2.912	+1.33	-6.2	15.6	46.3
Apr. 30	02 56.76	-34 21.4	3.431	2.881	+1.47	-7.9	15.5	49.5
May 10	03 12.12	-35 49.1	3.338	2.854	+1.62	-9.9	15.4	53.4
May 20	03 29.12	-37 37.5	3.237	2.830	+1.80	-12.0	15.3	57.8
May 30	03 48.04	-39 47.8	3.134	2.809	+2.01	-14.3	15.2	62.3
June 9	04 09.24	-42 20.6	3.033	2.792	+2.26	-16.5	15.2	66.7
June 19	04 33.19	-45 14.9	2.940	2.779	+2.57	-18.5	15.1	70.9
June 29	05 00.49	-48 27.0	2.861	2.769	+2.94	-20.0	15.0	74.6
July 9	05 31.89	-51 50.1	2.800	2.764	+3.40	-20.6	14.9	77.5
July 19	06 08.17	-55 14.0	2.762	2.762	+3.92	-19.9	14.9	79.4
July 29	06 49.98	-58 24.8	2.751	2.764	+4.50	-17.8	14.9	80.1
Aug. 8	07 37.41	-61 07.7	2.767	2.770	+5.02	-14.2	14.9	79.6
Aug. 18	08 29.42	-63 09.6	2.810	2.779	+5.37	-9.6	15.0	77.9
Aug. 28	09 23.64	-64 23.4	2.877	2.793	+5.42	-4.7	15.0	75.1
Sept. 7	10 16.90	-64 50.6	2.963	2.810	+5.15	-0.5	15.1	71.4
Sept. 17	11 06.37	-64 40.3	3.064	2.831	+4.67	+2.6	15.2	67.2
Sept. 27	11 50.55	-64 04.3	3.174	2.855	+4.11	+4.5	15.3	62.6
Oct. 7	12 29.17	-63 14.2	3.287	2.883	+3.57	+5.4	15.4	57.9
Oct. 17	13 02.66	-62 18.5	3.398	2.914	+3.10	+5.6	15.5	53.3
Oct. 27	13 31.76	-61 23.0	3.502	2.948	+2.70	+5.4	15.6	49.0
Nov. 6	13 57.18	-60 31.1	3.596	2.985	+2.36	+4.9	15.7	45.4
Nov. 16	14 19.47	-59 44.7	3.676	3.025	+2.07	+4.3	15.8	42.7
Nov. 26	14 39.05	-59 04.5	3.738	3.067	+1.82	+3.7	15.9	41.3
Dec. 6	14 56.22	-58 30.7	3.782	3.112	+1.59	+3.0	16.0	41.4
Dec. 16	15 11.10	-58 03.2	3.805	3.159	+1.37	+2.4	16.0	43.2
Dec. 26	15 23.77	-57 41.5	3.807	3.209	+1.14	+1.9	16.1	46.4
Jan. 5	15 34.15	-57 25.1	3.788	3.261	+0.91	+1.4	16.1	51.1
Jan. 15	15 42.10	-57 13.2	3.749	3.314	+0.65	+1.0	16.2	56.8
Jan. 25	15 47.42	-57 04.7	3.692	3.370	+0.38	+0.7	16.2	63.5
Feb. 4	15 49.82	-56 57.9	3.618	3.427	+0.07	+0.7	16.2	71.0
Feb. 14	15 48.98	-56 50.2	3.533	3.485	-0.27	+0.9	16.2	79.2
Feb. 24	15 44.63	-56 38.1	3.440	3.545	-0.64	+1.6	16.2	87.9
Mar. 6	15 36.57	-56 16.5	3.345	3.607	-1.01	+2.9	16.2	97.2
Mar. 16	15 24.88	-55 39.0	3.253	3.669	-1.35	+4.9	16.2	107.0
Mar. 26	15 10.05	-54 38.5	3.172	3.733	-1.62	+7.6	16.2	117.0

Comet 362P/(457175)

Epoch = 2024 July 29.0 TT
 T = 2024 July 20.13714 TT
 Peri. = 53.48053 e = 0.2786903
 Node = 192.54238 2000.0 a = 3.9735343 AU
 Incl. = 15.55509 n = 0.12443388
 q = 2.8661488 AU P = 7.92 years

$$m1 = 1.8 + 5 \log(\Delta) + 25.0 \log(r(t-175))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	14 25.27	-12 03.2	3.394	3.055	+1.30	-2.9	17.8	61.8
Jan. 11	14 37.97	-12 27.6	3.250	3.038	+1.23	-1.9	17.7	68.9
Jan. 21	14 49.92	-12 42.2	3.100	3.021	+1.15	-0.9	17.5	76.2
Jan. 31	15 00.96	-12 46.1	2.948	3.005	+1.04	+0.2	17.3	83.8
Feb. 10	15 10.85	-12 38.5	2.795	2.990	+0.92	+1.4	17.1	91.6
Feb. 20	15 19.35	-12 18.5	2.645	2.976	+0.76	+2.7	16.9	99.8
Mar. 1	15 26.22	-11 45.9	2.499	2.963	+0.59	+4.0	16.7	108.2
Mar. 11	15 31.22	-11 00.3	2.362	2.950	+0.39	+5.3	16.5	117.1
Mar. 21	15 34.15	-10 02.3	2.236	2.938	+0.17	+6.4	16.3	126.3
Mar. 31	15 34.89	-08 53.2	2.125	2.927	-0.05	+7.4	16.1	135.9
Apr. 10	15 33.46	-07 35.2	2.034	2.917	-0.26	+8.1	16.0	145.7
Apr. 20	15 30.05	-06 12.3	1.965	2.907	-0.43	+8.4	15.8	155.2
Apr. 30	15 25.10	-04 49.4	1.920	2.899	-0.56	+8.1	15.7	163.1
May 10	15 19.22	-03 32.4	1.902	2.891	-0.61	+7.1	15.6	165.7
May 20	15 13.18	-02 27.1	1.911	2.885	-0.58	+5.7	15.6	160.6
May 30	15 07.74	-01 37.7	1.945	2.879	-0.48	+3.9	15.5	151.9
June 9	15 03.54	-01 06.9	2.002	2.875	-0.33	+2.0	15.5	142.5
June 19	15 01.08	+00 55.0	2.079	2.871	-0.14	+0.2	15.5	133.1
June 29	15 00.59	-01 00.8	2.172	2.868	+0.06	-1.5	15.6	124.1
July 9	15 02.15	-01 21.9	2.278	2.867	+0.27	-2.9	15.6	115.5
July 19	15 05.73	-01 55.5	2.393	2.866	+0.46	-3.9	15.7	107.4
July 29	15 11.18	-02 38.9	2.515	2.867	+0.64	-4.8	15.7	99.7
Aug. 8	15 18.36	-03 29.2	2.640	2.868	+0.81	-5.3	15.8	92.4
Aug. 18	15 27.08	-04 24.2	2.767	2.870	+0.95	-5.7	15.8	85.5
Aug. 28	15 37.18	-05 21.5	2.894	2.874	+1.08	-5.8	15.9	78.8
Sept. 7	15 48.50	-06 19.3	3.020	2.878	+1.19	-5.7	15.9	72.3
Sept. 17	16 00.91	-07 15.9	3.141	2.883	+1.29	-5.5	16.0	66.0
Sept. 27	16 14.25	-08 09.7	3.258	2.890	+1.38	-5.2	16.0	59.9
Oct. 7	16 28.43	-08 59.4	3.370	2.897	+1.46	-4.7	16.0	54.0
Oct. 17	16 43.31	-09 43.8	3.474	2.905	+1.52	-4.1	16.1	48.1
Oct. 27	16 58.80	-10 22.0	3.571	2.914	+1.58	-3.4	16.1	42.4
Nov. 6	17 14.79	-10 53.1	3.658	2.924	+1.62	-2.7	16.1	36.7
Nov. 16	17 31.18	-11 16.3	3.736	2.935	+1.66	-1.9	16.2	31.2
Nov. 26	17 47.85	-11 31.2	3.804	2.947	+1.68	-1.0	16.2	25.8
Dec. 6	18 04.71	-11 37.3	3.860	2.959	+1.69	-0.1	16.2	20.7
Dec. 16	18 21.64	-11 34.5	3.905	2.973	+1.69	+0.8	16.2	16.2
Dec. 26	18 38.56	-11 22.9	3.938	2.987	+1.69	+1.7	16.2	12.9
Jan. 5	18 55.36	-11 02.5	3.958	3.002	+1.67	+2.5	16.2	11.8
Jan. 15	19 11.93	-10 33.7	3.965	3.018	+1.64	+3.3	16.2	13.5
Jan. 25	19 28.20	-09 56.9	3.960	3.034	+1.61	+4.1	16.2	17.3
Feb. 4	19 44.08	-09 12.9	3.941	3.051	+1.56	+4.8	16.2	22.1
Feb. 14	19 59.46	-08 22.3	3.910	3.069	+1.51	+5.4	16.2	27.5
Feb. 24	20 14.28	-07 26.0	3.867	3.087	+1.45	+5.9	16.2	33.2
Mar. 6	20 28.47	-06 24.8	3.811	3.106	+1.38	+6.3	16.2	39.1
Mar. 16	20 41.92	-05 19.9	3.745	3.125	+1.30	+6.7	16.2	45.2
Mar. 26	20 54.57	-04 12.3	3.667	3.145	+1.22	+6.9	16.2	51.5

Comet P/2010 WK (LINEAR)

Epoch = 2024 July 29.0 TT
 T = 2024 July 21.10527 TT
 Peri. = 41.00397 e = 0.6909671
 Node = 11.32418 2000.0 a = 5.7672533 AU
 Incl. = 11.40077 n = 0.07116239
 q = 1.7822710 AU P = 13.85 years

$$m1 = 13.0 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Variation		m1	Mot. /PA	Elong.
2024/25	h m	° ' .			for T=+1 day				°
Jan. 1	21 33.84	-20 31.4	3.380	2.699	-0.59	-4.5	20.0	23.3/64	39.8
Jan. 11	21 49.11	-18 47.2	3.394	2.631	-0.60	-5.0	19.9	24.8/64	33.6
Jan. 21	22 05.11	-16 55.3	3.395	2.565	-0.62	-5.4	19.7	26.2/64	27.7
Jan. 31	22 21.74	-14 55.7	3.385	2.499	-0.65	-5.9	19.6	27.5/63	22.0
Feb. 10	22 38.95	-12 48.2	3.364	2.434	-0.67	-6.4	19.5	28.8/63	16.6
Feb. 20	22 56.69	-10 33.1	3.331	2.370	-0.70	-6.9	19.4	30.0/62	11.4
Mar. 1	23 14.96	-08 10.7	3.290	2.308	-0.74	-7.4	19.2	31.2/62	6.6
Mar. 11	23 33.74	-05 41.2	3.239	2.248	-0.77	-8.0	19.1	32.3/62	2.9
Mar. 21	23 53.07	-03 05.3	3.182	2.189	-0.82	-8.5	18.9	33.4/62	4.0
Mar. 31	00 12.97	+00 23.7	3.118	2.133	-0.86	-9.0	18.8	34.5/62	7.8
Apr. 10	00 33.50	+02 22.8	3.051	2.080	-0.92	-9.4	18.6	35.6/62	11.7
Apr. 20	00 54.72	+05 12.8	2.980	2.029	-0.97	-9.8	18.4	36.6/62	15.5
Apr. 30	01 16.69	+08 05.0	2.907	1.982	-1.04	-10.1	18.3	37.5/63	19.1
May 10	01 39.51	+10 57.7	2.834	1.939	-1.11	-10.2	18.1	38.4/63	22.5
May 20	02 03.23	+13 48.7	2.761	1.901	-1.19	-10.2	18.0	39.1/64	25.7
May 30	02 27.93	+16 35.6	2.690	1.867	-1.27	-10.0	17.9	39.8/66	28.8
June 9	02 53.66	+19 15.7	2.622	1.838	-1.35	-9.6	17.7	40.3/67	31.8
June 19	03 20.41	+21 46.2	2.557	1.815	-1.43	-9.0	17.6	40.6/69	34.6
June 29	03 48.14	+24 03.8	2.495	1.798	-1.51	-8.1	17.5	40.8/71	37.5
July 9	04 16.75	+26 05.9	2.437	1.787	-1.58	-7.0	17.5	40.7/74	40.3
July 19	04 46.04	+27 49.9	2.383	1.782	-1.64	-5.6	17.4	40.3/76	43.1
July 29	05 15.75	+29 13.9	2.332	1.784	-1.68	-4.2	17.4	39.7/79	46.1
Aug. 8	05 45.54	+30 17.0	2.284	1.793	-1.69	-2.6	17.3	38.8/82	49.1
Aug. 18	06 15.01	+30 59.4	2.238	1.807	-1.68	-1.0	17.3	37.6/85	52.4
Aug. 28	06 43.77	+31 22.4	2.193	1.828	-1.66	+0.6	17.3	36.2/88	55.8
Sept. 7	07 11.43	+31 28.1	2.148	1.854	-1.61	+2.1	17.3	34.4/90	59.6
Sept. 17	07 37.63	+31 19.9	2.102	1.886	-1.55	+3.5	17.4	32.4/92	63.7
Sept. 27	08 02.07	+31 01.5	2.055	1.922	-1.48	+4.8	17.4	30.1/94	68.2
Oct. 7	08 24.50	+30 36.9	2.006	1.963	-1.42	+5.9	17.4	27.5/95	73.1
Oct. 17	08 44.68	+30 10.5	1.954	2.009	-1.36	+6.9	17.5	24.6/96	78.5
Oct. 27	09 02.41	+29 46.2	1.901	2.058	-1.31	+7.8	17.5	21.3/96	84.4
Nov. 6	09 17.47	+29 27.9	1.846	2.110	-1.27	+8.7	17.6	17.7/94	91.0
Nov. 16	09 29.61	+29 18.9	1.790	2.165	-1.26	+9.5	17.6	13.7/91	98.2
Nov. 26	09 38.60	+29 21.4	1.736	2.223	-1.27	+10.3	17.7	9.4/84	106.1
Dec. 6	09 44.15	+29 36.9	1.687	2.282	-1.30	+11.0	17.7	5.2/64	114.8
Dec. 16	09 46.06	+30 04.4	1.646	2.344	-1.35	+11.6	17.8	3.3/357	124.1
Dec. 26	09 44.30	+30 41.0	1.617	2.407	-1.43	+12.0	17.9	6.3/309	134.1
Jan. 5	09 39.04	+31 21.1	1.605	2.471	-1.51	+12.1	18.0	9.7/294	144.4
Jan. 15	09 30.93	+31 57.0	1.614	2.537	-1.59	+11.8	18.1	12.2/285	154.4
Jan. 25	09 21.02	+32 21.5	1.648	2.603	-1.64	+11.2	18.2	13.3/277	162.3
Feb. 4	09 10.61	+32 29.1	1.709	2.670	-1.64	+10.2	18.4	12.8/269	163.8
Feb. 14	09 01.08	+32 17.8	1.798	2.738	-1.60	+9.1	18.6	11.1/259	157.8
Feb. 24	08 53.46	+31 49.3	1.912	2.805	-1.52	+8.1	18.9	8.8/245	148.7
Mar. 6	08 48.35	+31 07.0	2.050	2.874	-1.42	+7.2	19.1	6.7/224	139.0
Mar. 16	08 45.95	+30 14.8	2.208	2.942	-1.31	+6.4	19.4	5.8/192	129.4
Mar. 26	08 46.11	+29 16.1	2.382	3.010	-1.19	+5.8	19.7	6.4/162	120.2

Comet C/2022 U3 (Bok)

Epoch = 2024 July 29.0 TT
 T = 2024 July 28.51130 TT
 Peri. = 189.10652
 Node = 272.78454 2000.0
 Incl. = 33.65659
 q = 4.8263201 AU
 e = 1.0018655

$$m1 = 3.3 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	04 39.67	+33 52.4	4.212	5.096	-0.38	-6.4	17.0	151.1
Jan. 11	04 36.40	+32 47.7	4.268	5.071	-0.26	-6.5	17.0	141.1
Jan. 21	04 34.49	+31 43.4	4.349	5.048	-0.11	-6.3	17.0	130.9
Jan. 31	04 34.07	+30 41.8	4.450	5.026	+0.04	-6.0	17.1	120.8
Feb. 10	04 35.17	+29 44.1	4.567	5.005	+0.19	-5.5	17.1	110.9
Feb. 20	04 37.76	+28 51.3	4.695	4.985	+0.34	-5.0	17.1	101.4
Mar. 1	04 41.73	+28 03.5	4.829	4.966	+0.47	-4.5	17.2	92.1
Mar. 11	04 46.97	+27 20.5	4.966	4.948	+0.59	-4.1	17.2	83.2
Mar. 21	04 53.34	+26 41.5	5.101	4.932	+0.69	-3.7	17.2	74.6
Mar. 31	05 00.69	+26 05.8	5.232	4.916	+0.78	-3.4	17.3	66.3
Apr. 10	05 08.89	+25 32.4	5.355	4.902	+0.86	-3.2	17.3	58.2
Apr. 20	05 17.81	+25 00.5	5.468	4.889	+0.93	-3.2	17.3	50.4
Apr. 30	05 27.32	+24 29.1	5.568	4.877	+0.98	-3.1	17.4	42.8
May 10	05 37.30	+23 57.3	5.655	4.866	+1.02	-3.2	17.4	35.3
May 20	05 47.65	+23 24.5	5.727	4.857	+1.05	-3.4	17.4	28.0
May 30	05 58.26	+22 50.1	5.783	4.849	+1.07	-3.6	17.4	20.9
June 9	06 09.04	+22 13.3	5.822	4.842	+1.08	-3.8	17.4	13.8
June 19	06 19.90	+21 33.9	5.843	4.836	+1.09	-4.1	17.4	7.0
June 29	06 30.74	+20 51.5	5.847	4.832	+1.08	-4.4	17.4	2.4
July 9	06 41.49	+20 05.7	5.834	4.829	+1.07	-4.8	17.4	7.8
July 19	06 52.06	+19 16.5	5.803	4.827	+1.04	-5.1	17.4	14.6
July 29	07 02.37	+18 23.7	5.756	4.826	+1.01	-5.5	17.4	21.6
Aug. 8	07 12.33	+17 27.3	5.692	4.827	+0.97	-5.8	17.3	28.7
Aug. 18	07 21.85	+16 27.4	5.612	4.829	+0.92	-6.2	17.3	35.9
Aug. 28	07 30.85	+15 24.1	5.518	4.832	+0.87	-6.5	17.3	43.2
Sept. 7	07 39.23	+14 17.7	5.412	4.837	+0.80	-6.8	17.2	50.7
Sept. 17	07 46.88	+13 08.4	5.293	4.842	+0.72	-7.1	17.2	58.4
Sept. 27	07 53.71	+11 56.5	5.166	4.849	+0.63	-7.3	17.2	66.2
Oct. 7	07 59.61	+10 42.7	5.032	4.858	+0.53	-7.5	17.1	74.3
Oct. 17	08 04.45	+09 27.4	4.893	4.867	+0.42	-7.6	17.1	82.7
Oct. 27	08 08.15	+08 11.4	4.754	4.878	+0.30	-7.6	17.0	91.3
Nov. 6	08 10.60	+06 55.6	4.617	4.890	+0.17	-7.5	17.0	100.1
Nov. 16	08 11.72	+05 41.2	4.487	4.903	+0.04	-7.3	16.9	109.3
Nov. 26	08 11.50	+04 29.3	4.368	4.918	-0.10	-7.0	16.9	118.6
Dec. 6	08 09.93	+03 21.4	4.263	4.933	-0.23	-6.5	16.8	128.1
Dec. 16	08 07.13	+02 19.0	4.179	4.950	-0.34	-5.9	16.8	137.5
Dec. 26	08 03.29	+01 23.6	4.118	4.968	-0.43	-5.1	16.8	146.5
Jan. 5	07 58.66	+00 36.5	4.083	4.987	-0.49	-4.2	16.8	154.2
Jan. 15	07 53.62	+00 01.5	4.077	5.007	-0.51	-3.3	16.8	158.7
Jan. 25	07 48.55	+00 30.2	4.101	5.028	-0.49	-2.4	16.9	158.1
Feb. 4	07 43.85	+00 50.0	4.154	5.050	-0.44	-1.5	16.9	152.7
Feb. 14	07 39.88	-01 01.9	4.235	5.074	-0.35	-0.8	17.0	144.8
Feb. 24	07 36.90	-01 07.5	4.340	5.098	-0.24	-0.3	17.1	136.0
Mar. 6	07 35.11	-01 08.7	4.466	5.123	-0.11	+0.1	17.2	126.9
Mar. 16	07 34.60	-01 07.3	4.609	5.150	+0.02	+0.2	17.3	117.9
Mar. 26	07 35.37	-01 05.1	4.765	5.177	+0.15	+0.2	17.4	109.1

Comet C/2023 R2 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 Aug. 12.14830 TT
 Peri. = 337.30173
 Node = 188.91397 2000.0
 Incl. = 30.69077
 q = 0.9051743 AU
 e = 1.0002120

$$m1 = 10.5 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	02 12.42	-09 47.5	2.975	3.385	-0.25	+1.4	18.2	106.3
Jan. 11	02 10.81	-09 26.8	3.008	3.271	-0.05	+2.8	18.0	96.7
Jan. 21	02 11.31	-08 53.0	3.043	3.156	+0.17	+4.0	17.9	87.5
Jan. 31	02 13.88	-08 08.8	3.074	3.040	+0.37	+4.9	17.8	78.8
Feb. 10	02 18.46	-07 16.1	3.097	2.922	+0.56	+5.7	17.6	70.6
Feb. 20	02 24.95	-06 16.8	3.110	2.803	+0.75	+6.2	17.4	63.0
Mar. 1	02 33.27	-05 12.7	3.110	2.683	+0.93	+6.6	17.2	55.9
Mar. 11	02 43.35	-04 05.2	3.095	2.562	+1.10	+6.9	17.0	49.4
Mar. 21	02 55.16	-02 55.5	3.064	2.439	+1.27	+7.0	16.8	43.4
Mar. 31	03 08.68	-01 44.8	3.018	2.314	+1.45	+7.1	16.5	38.0
Apr. 10	03 23.96	+00 34.1	2.957	2.189	+1.63	+7.0	16.3	33.3
Apr. 20	03 41.09	+00 35.5	2.880	2.063	+1.82	+6.9	15.9	29.2
Apr. 30	04 00.20	+01 42.9	2.791	1.935	+2.03	+6.6	15.6	25.9
May 10	04 21.49	+02 47.1	2.690	1.807	+2.26	+6.2	15.2	23.3
May 20	04 45.20	+03 46.5	2.581	1.680	+2.51	+5.6	14.8	21.4
May 30	05 11.62	+04 39.8	2.465	1.553	+2.80	+4.9	14.4	20.1
June 9	05 41.10	+05 25.1	2.348	1.428	+3.13	+4.0	13.9	19.1
June 19	06 13.98	+06 00.3	2.232	1.307	+3.49	+2.9	13.4	18.3
June 29	06 50.56	+06 23.3	2.124	1.193	+3.87	+1.6	12.9	17.4
July 9	07 31.02	+06 32.1	2.027	1.090	+4.26	0.0	12.4	16.4
July 19	08 15.20	+06 25.2	1.947	1.003	+4.61	-1.6	12.0	15.3
July 29	09 02.59	+06 02.7	1.888	0.940	+4.88	-3.1	11.6	14.5
Aug. 8	09 52.19	+05 25.4	1.854	0.908	+5.03	-4.5	11.4	14.5
Aug. 18	10 42.59	+04 35.5	1.845	0.911	+5.03	-5.6	11.4	15.5
Aug. 28	11 32.30	+03 35.8	1.864	0.949	+4.88	-6.4	11.6	17.4
Sept. 7	12 20.06	+02 29.7	1.909	1.016	+4.63	-6.8	12.0	19.5
Sept. 17	13 05.01	+01 21.4	1.978	1.106	+4.32	-6.8	12.4	21.5
Sept. 27	13 46.71	+00 15.6	2.069	1.212	+3.99	-6.3	12.9	23.0
Oct. 7	14 25.11	+00 44.1	2.177	1.327	+3.66	-5.5	13.4	23.9
Oct. 17	15 00.33	-01 34.5	2.299	1.449	+3.36	-4.5	13.9	24.2
Oct. 27	15 32.61	-02 13.9	2.430	1.574	+3.08	-3.3	14.4	23.9
Nov. 6	16 02.26	-02 41.4	2.567	1.701	+2.83	-2.1	14.9	23.2
Nov. 16	16 29.54	-02 56.5	2.706	1.829	+2.61	-0.8	15.3	22.2
Nov. 26	16 54.70	-02 59.7	2.843	1.957	+2.41	+0.3	15.7	21.3
Dec. 6	17 17.97	-02 51.2	2.976	2.084	+2.23	+1.5	16.1	20.7
Dec. 16	17 39.50	-02 31.7	3.102	2.210	+2.06	+2.5	16.4	20.8
Dec. 26	17 59.43	-02 02.1	3.219	2.335	+1.91	+3.5	16.7	21.8
Jan. 5	18 17.85	-01 22.9	3.325	2.459	+1.76	+4.4	17.0	23.9
Jan. 15	18 34.83	+00 35.2	3.419	2.582	+1.62	+5.2	17.3	27.0
Jan. 25	18 50.43	+00 20.3	3.499	2.703	+1.48	+5.9	17.5	31.0
Feb. 4	19 04.65	+01 22.8	3.565	2.823	+1.35	+6.6	17.8	35.7
Feb. 14	19 17.49	+02 31.2	3.616	2.942	+1.21	+7.1	18.0	40.9
Feb. 24	19 28.96	+03 44.7	3.653	3.059	+1.07	+7.6	18.2	46.6
Mar. 6	19 39.00	+05 02.3	3.676	3.175	+0.92	+7.9	18.3	52.8
Mar. 16	19 47.57	+06 22.9	3.685	3.290	+0.77	+8.2	18.5	59.3
Mar. 26	19 54.61	+07 45.3	3.684	3.404	+0.62	+8.3	18.7	66.1

Comet 30P/Reinmuth

Epoch = 2024 Feb. 20.0 TT
 T = 2024 Aug. 17.18430 TT
 Peri. = 9.48637 e = 0.5143440
 Node = 117.23587 2000.0 a = 3.7344252 AU
 Incl. = 8.05321 n = 0.13657413
 q = 1.8136460 AU P = 7.22 years

$$m1 = 8.9 + 5 \log(\Delta) + 15.0 \log(r(t-20))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	01 24.60	+00 48.8	2.305	2.650	+0.40	+6.3	17.3	99.4
Jan. 11	01 29.62	+00 19.1	2.388	2.597	+0.62	+7.4	17.3	90.9
Jan. 21	01 36.80	+01 37.6	2.469	2.544	+0.83	+8.3	17.2	83.0
Jan. 31	01 45.95	+03 04.5	2.547	2.491	+1.01	+9.1	17.1	75.6
Feb. 10	01 56.88	+04 37.9	2.620	2.439	+1.19	+9.6	17.1	68.6
Feb. 20	02 09.45	+06 16.1	2.686	2.388	+1.34	+10.0	17.0	62.0
Mar. 1	02 23.54	+07 57.3	2.745	2.337	+1.49	+10.2	16.9	55.9
Mar. 11	02 39.04	+09 39.9	2.795	2.288	+1.63	+10.3	16.8	50.1
Mar. 21	02 55.89	+11 22.2	2.836	2.239	+1.76	+10.2	16.7	44.6
Mar. 31	03 14.02	+13 02.5	2.869	2.192	+1.88	+9.9	16.6	39.4
Apr. 10	03 33.41	+14 39.2	2.894	2.146	+2.01	+9.4	16.5	34.6
Apr. 20	03 54.02	+16 10.4	2.912	2.102	+2.13	+8.7	16.3	30.0
Apr. 30	04 15.80	+17 34.2	2.922	2.060	+2.24	+7.9	16.2	25.6
May 10	04 38.71	+18 48.8	2.926	2.021	+2.35	+6.9	16.1	21.5
May 20	05 02.71	+19 52.2	2.925	1.984	+2.45	+5.7	15.9	17.6
May 30	05 27.68	+20 42.7	2.919	1.950	+2.55	+4.3	15.8	13.9
June 9	05 53.53	+21 18.6	2.909	1.919	+2.63	+2.7	15.7	10.4
June 19	06 20.12	+21 38.5	2.896	1.892	+2.69	+1.1	15.6	7.0
June 29	06 47.27	+21 41.3	2.881	1.868	+2.74	-0.7	15.4	3.8
July 9	07 14.82	+21 26.5	2.865	1.849	+2.77	-2.5	15.3	1.0
July 19	07 42.55	+20 53.9	2.848	1.833	+2.78	-4.2	15.2	2.7
July 29	08 10.27	+20 04.1	2.830	1.822	+2.77	-5.9	15.2	5.7
Aug. 8	08 37.82	+18 58.0	2.812	1.816	+2.74	-7.4	15.1	8.7
Aug. 18	09 05.02	+17 37.3	2.793	1.814	+2.70	-8.8	15.0	11.7
Aug. 28	09 31.76	+16 03.8	2.774	1.816	+2.64	-10.0	15.0	14.8
Sept. 7	09 57.94	+14 19.7	2.755	1.824	+2.58	-10.9	15.0	18.0
Sept. 17	10 23.48	+12 27.8	2.735	1.835	+2.52	-11.5	15.0	21.3
Sept. 27	10 48.35	+10 30.4	2.714	1.852	+2.45	-11.9	15.0	24.7
Oct. 7	11 12.53	+08 30.1	2.691	1.872	+2.38	-12.1	15.0	28.3
Oct. 17	11 35.98	+06 29.7	2.666	1.896	+2.30	-12.0	15.0	32.0
Oct. 27	11 58.70	+04 31.3	2.637	1.924	+2.23	-11.6	15.1	36.0
Nov. 6	12 20.66	+02 37.2	2.604	1.955	+2.15	-11.1	15.1	40.2
Nov. 16	12 41.81	+00 49.5	2.567	1.990	+2.07	-10.4	15.2	44.7
Nov. 26	13 02.12	+00 50.1	2.525	2.027	+1.98	-9.5	15.3	49.5
Dec. 6	13 21.51	-02 20.1	2.477	2.067	+1.88	-8.4	15.4	54.5
Dec. 16	13 39.86	-03 39.0	2.423	2.109	+1.77	-7.2	15.4	59.9
Dec. 26	13 57.06	-04 45.8	2.364	2.153	+1.65	-6.0	15.5	65.6
Jan. 5	14 12.91	-05 39.7	2.299	2.199	+1.50	-4.7	15.6	71.7
Jan. 15	14 27.23	-06 20.1	2.230	2.247	+1.34	-3.3	15.6	78.3
Jan. 25	14 39.79	-06 46.7	2.156	2.295	+1.15	-1.9	15.7	85.3
Feb. 4	14 50.32	-06 59.3	2.081	2.345	+0.93	-0.5	15.8	92.8
Feb. 14	14 58.54	-06 58.2	2.006	2.396	+0.69	+0.8	15.8	100.8
Feb. 24	15 04.21	-06 44.1	1.934	2.448	+0.42	+2.1	15.9	109.4
Mar. 6	15 07.08	-06 17.9	1.868	2.500	+0.13	+3.2	15.9	118.6
Mar. 16	15 07.05	-05 41.8	1.812	2.552	-0.16	+4.1	16.0	128.4
Mar. 26	15 04.19	-04 58.6	1.771	2.605	-0.43	+4.6	16.1	138.7

Comet P/2014 MG4 (Spacewatch-PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 Sept. 6.77119 TT
 Peri. = 298.94347 e = 0.2587247
 Node = 311.69385 2000.0 a = 5.0141741 AU
 Incl. = 9.36483 n = 0.08778190
 q = 3.7168834 AU P = 11.23 years

$$m1 = 0.8 + 5 \log(\Delta) + 25.0 \log(r(t-525))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Variation		m1	Mot. /PA	Elong.
2024/25	h m	°			for T=+1 day				°
Jan. 1	14 40.26	-24 14.4	4.361	3.881	-0.53	+2.3	21.1	15.6/114	55.0
Jan. 11	14 50.45	-25 15.5	4.223	3.869	-0.56	+2.2	21.0	14.6/114	62.5
Jan. 21	14 59.89	-26 13.5	4.076	3.857	-0.58	+2.1	20.9	13.3/115	70.3
Jan. 31	15 08.41	-27 07.9	3.923	3.846	-0.61	+2.1	20.8	11.8/116	78.3
Feb. 10	15 15.83	-27 58.6	3.767	3.834	-0.65	+2.0	20.6	10.1/119	86.5
Feb. 20	15 21.92	-28 45.1	3.610	3.824	-0.68	+2.0	20.5	8.2/122	94.9
Mar. 1	15 26.50	-29 27.0	3.456	3.814	-0.72	+2.0	20.4	6.2/129	103.7
Mar. 11	15 29.35	-30 03.5	3.309	3.804	-0.76	+2.0	20.2	4.1/144	112.7
Mar. 21	15 30.34	-30 33.7	3.171	3.795	-0.80	+2.1	20.1	2.6/182	122.1
Mar. 31	15 29.42	-30 56.2	3.048	3.786	-0.84	+2.2	19.9	3.1/235	131.7
Apr. 10	15 26.62	-31 09.7	2.942	3.778	-0.88	+2.4	19.8	4.9/261	141.5
Apr. 20	15 22.16	-31 12.8	2.858	3.770	-0.90	+2.6	19.7	6.7/272	151.3
Apr. 30	15 16.46	-31 04.8	2.798	3.763	-0.92	+2.8	19.6	8.1/280	160.5
May 10	15 10.04	-30 45.8	2.766	3.756	-0.93	+3.0	19.5	8.8/286	166.8
May 20	15 03.57	-30 17.3	2.761	3.750	-0.92	+3.2	19.5	8.7/292	165.6
May 30	14 57.70	-29 42.0	2.784	3.744	-0.90	+3.3	19.5	7.9/299	158.2
June 9	14 52.97	-29 03.2	2.833	3.739	-0.87	+3.4	19.4	6.5/307	148.9
June 19	14 49.80	-28 24.6	2.905	3.734	-0.83	+3.3	19.4	4.7/322	139.2
June 29	14 48.42	-27 49.4	2.998	3.730	-0.80	+3.2	19.5	3.3/352	129.7
July 9	14 48.90	-27 19.7	3.107	3.727	-0.76	+3.1	19.5	3.3/38	120.4
July 19	14 51.24	-26 57.1	3.229	3.724	-0.73	+2.9	19.5	4.8/67	111.5
July 29	14 55.32	-26 42.0	3.360	3.721	-0.70	+2.7	19.6	6.8/81	103.0
Aug. 8	15 01.01	-26 34.3	3.496	3.719	-0.68	+2.4	19.6	8.8/87	94.7
Aug. 18	15 08.18	-26 33.2	3.635	3.718	-0.66	+2.2	19.6	10.6/91	86.8
Aug. 28	15 16.65	-26 37.9	3.774	3.717	-0.64	+2.0	19.7	12.3/94	79.1
Sept. 7	15 26.30	-26 47.3	3.910	3.717	-0.62	+1.7	19.7	13.8/95	71.6
Sept. 17	15 36.98	-27 00.2	4.041	3.717	-0.61	+1.5	19.7	15.0/96	64.3
Sept. 27	15 48.58	-27 15.3	4.165	3.718	-0.60	+1.3	19.7	16.2/96	57.2
Oct. 7	16 00.98	-27 31.6	4.280	3.719	-0.59	+1.0	19.8	17.1/96	50.2
Oct. 17	16 14.08	-27 48.0	4.384	3.721	-0.58	+0.8	19.8	17.9/95	43.2
Oct. 27	16 27.77	-28 03.4	4.477	3.724	-0.57	+0.6	19.8	18.6/95	36.4
Nov. 6	16 41.95	-28 17.0	4.556	3.727	-0.57	+0.4	19.7	19.1/94	29.6
Nov. 16	16 56.52	-28 28.1	4.621	3.730	-0.56	+0.1	19.7	19.5/93	22.9
Nov. 26	17 11.38	-28 35.9	4.671	3.735	-0.56	-0.1	19.7	19.7/92	16.4
Dec. 6	17 26.43	-28 40.1	4.705	3.739	-0.55	-0.3	19.7	19.9/91	10.2
Dec. 16	17 41.57	-28 40.1	4.723	3.744	-0.55	-0.6	19.6	19.9/89	5.6
Dec. 26	17 56.67	-28 36.0	4.724	3.750	-0.54	-0.8	19.6	19.8/88	7.2
Jan. 5	18 11.65	-28 27.5	4.708	3.756	-0.54	-1.0	19.5	19.6/87	13.0
Jan. 15	18 26.39	-28 14.8	4.676	3.763	-0.54	-1.3	19.5	19.3/86	19.5
Jan. 25	18 40.77	-27 58.2	4.628	3.770	-0.53	-1.5	19.4	18.8/84	26.3
Feb. 4	18 54.70	-27 38.2	4.564	3.778	-0.53	-1.7	19.3	18.2/83	33.2
Feb. 14	19 08.05	-27 15.1	4.485	3.786	-0.53	-1.9	19.2	17.5/82	40.3
Feb. 24	19 20.73	-26 49.8	4.394	3.795	-0.53	-2.1	19.2	16.6/81	47.5
Mar. 6	19 32.61	-26 22.9	4.290	3.804	-0.53	-2.3	19.1	15.6/80	54.8
Mar. 16	19 43.57	-25 55.3	4.175	3.814	-0.53	-2.5	19.0	14.3/79	62.2
Mar. 26	19 53.51	-25 28.0	4.052	3.824	-0.54	-2.7	18.9	12.9/78	69.8

Comet C/2021 G2 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2024 Sept. 9.22711 TT
 Peri. = 343.28085
 Node = 221.09472 2000.0
 Incl. = 48.47363
 q = 4.9823800 AU
 e = 1.0002073

$$m1 = 3.6 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	12 07.64	-37 06.3	5.378	5.344	+0.42	-4.3	14.5	82.8
Jan. 11	12 11.30	-37 46.7	5.219	5.317	+0.30	-3.7	14.4	90.3
Jan. 21	12 13.71	-38 19.4	5.061	5.291	+0.17	-2.8	14.4	98.2
Jan. 31	12 14.82	-38 42.4	4.906	5.266	+0.04	-1.7	14.3	106.1
Feb. 10	12 14.62	-38 53.5	4.759	5.242	-0.09	-0.4	14.2	114.2
Feb. 20	12 13.19	-38 50.5	4.624	5.219	-0.20	+1.1	14.1	122.3
Mar. 1	12 10.72	-38 31.6	4.504	5.197	-0.30	+2.8	14.0	130.0
Mar. 11	12 07.47	-37 55.7	4.402	5.175	-0.36	+4.6	14.0	137.2
Mar. 21	12 03.78	-37 02.3	4.323	5.155	-0.38	+6.3	13.9	143.2
Mar. 31	12 00.07	-35 52.7	4.269	5.136	-0.36	+7.8	13.9	147.0
Apr. 10	11 56.72	-34 28.9	4.241	5.118	-0.30	+9.0	13.8	147.9
Apr. 20	11 54.10	-32 54.5	4.241	5.101	-0.21	+9.9	13.8	145.5
Apr. 30	11 52.46	-31 13.6	4.267	5.085	-0.10	+10.3	13.8	140.5
May 10	11 51.98	-29 30.5	4.319	5.070	+0.02	+10.3	13.8	133.8
May 20	11 52.75	-27 49.4	4.393	5.057	+0.15	+9.9	13.9	126.2
May 30	11 54.78	-26 13.7	4.486	5.044	+0.27	+9.2	13.9	118.1
June 9	11 58.02	-24 45.8	4.596	5.033	+0.39	+8.3	13.9	109.9
June 19	12 02.39	-23 27.6	4.719	5.022	+0.49	+7.3	14.0	101.6
June 29	12 07.78	-22 19.8	4.850	5.013	+0.59	+6.2	14.0	93.4
July 9	12 14.08	-21 22.7	4.985	5.005	+0.68	+5.1	14.1	85.3
July 19	12 21.19	-20 36.1	5.122	4.999	+0.75	+4.1	14.1	77.3
July 29	12 29.00	-19 59.3	5.258	4.993	+0.82	+3.2	14.2	69.5
Aug. 8	12 37.41	-19 31.4	5.388	4.989	+0.87	+2.3	14.2	61.8
Aug. 18	12 46.34	-19 11.6	5.511	4.985	+0.92	+1.6	14.3	54.1
Aug. 28	12 55.70	-18 58.6	5.623	4.983	+0.96	+1.0	14.3	46.6
Sept. 7	13 05.42	-18 51.6	5.723	4.982	+0.99	+0.4	14.4	39.1
Sept. 17	13 15.43	-18 49.2	5.809	4.983	+1.01	0.0	14.4	31.8
Sept. 27	13 25.65	-18 50.5	5.879	4.984	+1.03	-0.3	14.4	24.5
Oct. 7	13 36.04	-18 54.5	5.932	4.987	+1.04	-0.5	14.4	17.3
Oct. 17	13 46.51	-19 00.0	5.966	4.991	+1.05	-0.6	14.5	10.8
Oct. 27	13 57.00	-19 06.1	5.982	4.996	+1.05	-0.6	14.5	6.7
Nov. 6	14 07.44	-19 11.9	5.977	5.002	+1.04	-0.5	14.5	9.5
Nov. 16	14 17.75	-19 16.4	5.953	5.010	+1.02	-0.3	14.5	16.0
Nov. 26	14 27.85	-19 18.8	5.909	5.018	+0.99	-0.1	14.5	23.4
Dec. 6	14 37.64	-19 18.2	5.845	5.028	+0.96	+0.3	14.4	31.2
Dec. 16	14 47.03	-19 13.7	5.764	5.039	+0.91	+0.7	14.4	39.1
Dec. 26	14 55.91	-19 04.7	5.666	5.051	+0.86	+1.2	14.4	47.3
Jan. 5	15 04.16	-18 50.3	5.554	5.064	+0.79	+1.8	14.4	55.6
Jan. 15	15 11.67	-18 29.9	5.429	5.078	+0.71	+2.4	14.3	64.2
Jan. 25	15 18.31	-18 02.9	5.294	5.094	+0.61	+3.1	14.3	73.0
Feb. 4	15 23.96	-17 28.7	5.154	5.110	+0.51	+3.8	14.2	82.0
Feb. 14	15 28.51	-16 46.8	5.011	5.128	+0.39	+4.6	14.2	91.2
Feb. 24	15 31.87	-15 57.1	4.870	5.147	+0.27	+5.4	14.2	100.7
Mar. 6	15 33.95	-14 59.4	4.735	5.166	+0.14	+6.2	14.1	110.4
Mar. 16	15 34.73	-13 54.0	4.612	5.187	+0.01	+6.9	14.1	120.4
Mar. 26	15 34.24	-12 41.7	4.504	5.209	-0.12	+7.6	14.0	130.6

Comet C/2022 E2 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2024 Sept. 14.12511 TT
 Peri. = 41.72170
 Node = 125.37263 2000.0
 Incl. = 137.12857
 q = 3.6662709 AU
 e = 1.0009822

$$m1 = 2.1 + 5 \log(\Delta) + 12.5 \log(r) \text{ (vis.)}$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	09 09.84	+12 53.0	3.485	4.316	-1.26	+12.5	12.7	143.6
Jan. 11	08 56.16	+15 04.5	3.345	4.271	-1.49	+13.8	12.6	157.6
Jan. 21	08 40.39	+17 26.3	3.250	4.227	-1.67	+14.5	12.5	172.1
Jan. 31	08 23.19	+19 50.7	3.205	4.185	-1.76	+14.3	12.4	173.1
Feb. 10	08 05.52	+22 09.4	3.210	4.143	-1.75	+13.3	12.3	158.4
Feb. 20	07 48.42	+24 15.4	3.263	4.104	-1.64	+11.7	12.3	144.0
Mar. 1	07 32.85	+26 05.0	3.356	4.065	-1.45	+10.0	12.3	130.1
Mar. 11	07 19.47	+27 37.6	3.480	4.028	-1.20	+8.4	12.4	116.9
Mar. 21	07 08.64	+28 54.9	3.626	3.992	-0.94	+7.0	12.4	104.4
Mar. 31	07 00.41	+29 59.8	3.784	3.958	-0.68	+5.9	12.5	92.7
Apr. 10	06 54.64	+30 55.3	3.945	3.926	-0.45	+5.1	12.5	81.6
Apr. 20	06 51.11	+31 44.0	4.102	3.895	-0.24	+4.6	12.5	71.1
Apr. 30	06 49.51	+32 28.3	4.249	3.866	-0.07	+4.2	12.6	61.2
May 10	06 49.55	+33 09.8	4.381	3.839	+0.08	+4.1	12.6	51.7
May 20	06 50.96	+33 50.0	4.494	3.814	+0.21	+4.0	12.6	42.8
May 30	06 53.48	+34 29.9	4.585	3.790	+0.30	+4.0	12.6	34.3
June 9	06 56.90	+35 10.8	4.650	3.768	+0.38	+4.2	12.6	26.4
June 19	07 01.01	+35 53.4	4.690	3.749	+0.44	+4.4	12.6	19.7
June 29	07 05.61	+36 38.9	4.702	3.731	+0.48	+4.7	12.6	15.2
July 9	07 10.54	+37 28.4	4.687	3.716	+0.51	+5.2	12.6	15.1
July 19	07 15.63	+38 23.1	4.645	3.702	+0.51	+5.8	12.5	19.4
July 29	07 20.70	+39 24.5	4.577	3.691	+0.50	+6.6	12.5	26.0
Aug. 8	07 25.57	+40 34.1	4.483	3.681	+0.47	+7.5	12.4	33.6
Aug. 18	07 30.00	+41 54.2	4.366	3.674	+0.41	+8.7	12.4	41.8
Aug. 28	07 33.74	+43 26.7	4.230	3.670	+0.32	+10.0	12.3	50.4
Sept. 7	07 36.46	+45 14.4	4.077	3.667	+0.20	+11.7	12.2	59.3
Sept. 17	07 37.67	+47 19.8	3.911	3.666	+0.02	+13.6	12.1	68.6
Sept. 27	07 36.77	+49 45.3	3.740	3.668	-0.24	+15.7	12.0	78.2
Oct. 7	07 32.81	+52 32.5	3.567	3.672	-0.61	+17.9	11.9	88.1
Oct. 17	07 24.43	+55 40.8	3.403	3.678	-1.15	+19.9	11.8	98.1
Oct. 27	07 09.63	+59 05.4	3.254	3.686	-1.94	+21.0	11.7	108.1
Nov. 6	06 45.49	+62 33.5	3.130	3.697	-3.06	+20.2	11.7	117.7
Nov. 16	06 08.69	+65 40.8	3.041	3.709	-4.47	+16.2	11.6	126.0
Nov. 26	05 17.73	+67 50.4	2.993	3.724	-5.76	+8.2	11.6	131.8
Dec. 6	04 17.72	+68 25.8	2.991	3.741	-6.05	-2.3	11.6	133.8
Dec. 16	03 20.76	+67 18.3	3.036	3.760	-5.09	-11.5	11.7	131.3
Dec. 26	02 36.28	+64 56.0	3.125	3.780	-3.65	-16.7	11.8	125.3
Jan. 5	02 05.70	+61 59.4	3.252	3.803	-2.39	-18.2	11.9	117.2
Jan. 15	01 46.16	+59 00.2	3.408	3.828	-1.48	-17.3	12.0	108.0
Jan. 25	01 34.39	+56 16.2	3.584	3.854	-0.85	-15.2	12.2	98.5
Feb. 4	01 27.93	+53 55.6	3.772	3.883	-0.42	-12.6	12.3	89.0
Feb. 14	01 25.09	+52 00.8	3.963	3.913	-0.13	-10.1	12.5	79.9
Feb. 24	01 24.73	+50 31.0	4.150	3.944	+0.07	-7.7	12.6	71.2
Mar. 6	01 26.08	+49 24.0	4.328	3.978	+0.21	-5.5	12.8	63.0
Mar. 16	01 28.58	+48 37.6	4.492	4.013	+0.30	-3.6	12.9	55.5
Mar. 26	01 31.82	+48 09.0	4.638	4.049	+0.35	-2.0	13.0	48.7

Comet C/2023 A3 (Tsuchinshan-ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2024 Sept. 27.75177 TT
 Peri. = 308.49440
 Node = 21.56016 2000.0
 Incl. = 139.10949
 q = 0.3914193 AU
 e = 1.0000829

$$m1 = 3.0 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	15 01.20	-07 18.9	4.732	4.249	+0.44	-2.0	14.2	55.3
Jan. 11	15 05.25	-07 36.5	4.467	4.136	+0.36	-1.5	14.0	64.2
Jan. 21	15 08.43	-07 48.3	4.189	4.021	+0.26	-0.8	13.7	73.4
Jan. 31	15 10.45	-07 53.7	3.901	3.905	+0.13	-0.1	13.4	83.0
Feb. 10	15 10.98	-07 51.6	3.608	3.787	-0.04	+0.7	13.0	92.8
Feb. 20	15 09.60	-07 41.0	3.314	3.668	-0.26	+1.6	12.7	103.2
Mar. 1	15 05.82	-07 20.7	3.026	3.547	-0.53	+2.6	12.3	114.1
Mar. 11	14 59.06	-06 49.0	2.749	3.424	-0.86	+3.9	11.9	125.6
Mar. 21	14 48.70	-06 04.5	2.492	3.300	-1.26	+5.2	11.5	138.0
Mar. 31	14 34.19	-05 05.9	2.261	3.173	-1.70	+6.7	11.0	151.1
Apr. 10	14 15.21	-03 53.1	2.067	3.044	-2.14	+8.0	10.6	164.5
Apr. 20	13 51.98	-02 28.8	1.916	2.912	-2.52	+8.9	10.2	171.0
Apr. 30	13 25.56	+00 59.3	1.814	2.778	-2.75	+8.9	9.8	159.0
May 10	12 57.83	+00 26.1	1.763	2.642	-2.76	+7.9	9.5	143.2
May 20	12 31.03	+01 37.3	1.757	2.502	-2.55	+6.0	9.2	127.2
May 30	12 07.03	+02 27.8	1.786	2.359	-2.20	+3.8	8.9	111.9
June 9	11 46.86	+02 55.7	1.838	2.213	-1.79	+1.6	8.6	97.5
June 19	11 30.75	+03 02.1	1.900	2.062	-1.40	-0.4	8.3	84.2
June 29	11 18.34	+02 50.3	1.960	1.907	-1.06	-2.1	8.0	71.9
July 9	11 09.03	+02 22.9	2.009	1.748	-0.79	-3.5	7.5	60.4
July 19	11 02.13	+01 42.5	2.038	1.583	-0.58	-4.7	7.0	49.7
July 29	10 56.95	+00 50.8	2.041	1.412	-0.45	-5.7	6.4	39.4
Aug. 8	10 52.84	+00 11.1	2.009	1.235	-0.38	-6.7	5.7	29.7
Aug. 18	10 49.12	-01 22.7	1.935	1.050	-0.38	-7.7	4.7	20.6
Aug. 28	10 45.11	-02 43.1	1.810	0.859	-0.44	-8.5	3.5	13.3
Sept. 7	10 40.24	-04 09.9	1.620	0.665	-0.53	-8.8	1.8	11.7
Sept. 17	10 35.47	-05 32.0	1.337	0.487	-0.22	-6.8	-0.3	17.7
Sept. 27	10 44.39	-06 05.8	0.941	0.392	+3.47	+2.7	-2.2	23.0
Oct. 7	12 12.08	-04 09.1	0.553	0.465	+17.33	+26.5	-2.4	9.8
Oct. 17	15 37.28	+01 15.2	0.517	0.636	+17.21	+24.3	-0.9	33.9
Oct. 27	17 32.12	+03 26.2	0.805	0.830	+6.44	+4.6	1.5	53.7
Nov. 6	18 18.38	+03 52.2	1.152	1.021	+3.11	+1.3	3.4	56.3
Nov. 16	18 43.46	+04 03.9	1.491	1.207	+1.97	+1.2	4.9	53.8
Nov. 26	19 00.63	+04 18.9	1.808	1.385	+1.48	+1.9	6.1	49.4
Dec. 6	19 14.16	+04 41.4	2.101	1.557	+1.23	+2.7	7.0	44.4
Dec. 16	19 25.69	+05 12.5	2.367	1.723	+1.07	+3.6	7.8	39.3
Dec. 26	19 35.94	+05 52.1	2.606	1.883	+0.97	+4.4	8.5	34.8
Jan. 5	19 45.22	+06 40.2	2.817	2.039	+0.88	+5.3	9.1	31.1
Jan. 15	19 53.66	+07 36.7	2.999	2.190	+0.80	+6.1	9.6	28.8
Jan. 25	20 01.30	+08 41.0	3.154	2.337	+0.72	+6.9	10.1	28.6
Feb. 4	20 08.10	+09 53.2	3.280	2.480	+0.63	+7.6	10.5	30.4
Feb. 14	20 13.98	+11 12.6	3.380	2.620	+0.53	+8.3	10.9	34.0
Feb. 24	20 18.85	+12 39.0	3.454	2.758	+0.43	+9.0	11.2	39.1
Mar. 6	20 22.58	+14 11.8	3.505	2.892	+0.30	+9.6	11.5	45.2
Mar. 16	20 25.02	+15 50.3	3.534	3.024	+0.17	+10.1	11.7	51.9
Mar. 26	20 25.99	+17 33.4	3.545	3.153	+0.01	+10.5	12.0	59.

Comet 37P/Forbes

Epoch = 2024 July 29.0 TT
 T = 2024 Oct. 11.27300 TT
 Peri. = 330.06697 e = 0.5328245
 Node = 314.55068 2000.0 a = 3.4629783 AU
 Incl. = 8.94742 n = 0.15294294
 q = 1.6178186 AU P = 6.44 years

$$m1 = 6.5 + 5 \log(\Delta) + 25.0 \log(r(t+20))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	12 55.73	-12° 44' 7"	2.881	2.912	+0.90 -8.9	20.0	82.0
Jan. 11	13 04.25	-14 12.2	2.687	2.855	+0.79 -8.6	19.6	89.7
Jan. 21	13 11.62	-15 36.7	2.494	2.799	+0.66 -8.2	19.2	97.6
Jan. 31	13 17.58	-16 57.2	2.305	2.742	+0.51 -7.8	18.8	105.8
Feb. 10	13 21.80	-18 12.5	2.122	2.684	+0.31 -7.2	18.4	114.4
Feb. 20	13 23.91	-19 20.7	1.950	2.627	+0.08 -6.3	17.9	123.3
Mar. 1	13 23.59	-20 19.5	1.791	2.569	-0.18 -5.3	17.5	132.7
Mar. 11	13 20.58	-21 05.8	1.649	2.510	-0.45 -3.8	17.1	142.4
Mar. 21	13 14.83	-21 35.8	1.527	2.452	-0.72 -2.0	16.6	152.2
Mar. 31	13 06.67	-21 46.4	1.427	2.394	-0.92 +0.1	16.2	161.1
Apr. 10	12 56.83	-21 35.3	1.352	2.336	-1.03 +2.3	15.8	165.7
Apr. 20	12 46.50	-21 03.9	1.303	2.278	-1.01 +4.1	15.5	161.6
Apr. 30	12 37.08	-20 17.6	1.278	2.221	-0.84 +5.1	15.1	152.6
May 10	12 29.83	-19 24.6	1.275	2.165	-0.56 +5.3	14.8	142.5
May 20	12 25.70	-18 34.3	1.290	2.109	-0.22 +4.6	14.6	132.5
May 30	12 25.13	-17 54.4	1.318	2.055	+0.14 +3.2	14.4	123.1
June 9	12 28.22	-17 29.9	1.356	2.002	+0.51 +1.5	14.1	114.4
June 19	12 34.83	-17 23.5	1.400	1.951	+0.85 -0.4	13.9	106.6
June 29	12 44.69	-17 35.1	1.447	1.902	+1.15 -2.1	13.8	99.6
July 9	12 57.54	-18 03.7	1.496	1.856	+1.44 -3.7	13.6	93.3
July 19	13 13.14	-18 47.0	1.544	1.812	+1.70 -5.0	13.4	87.6
July 29	13 31.24	-19 41.9	1.591	1.772	+1.94 -6.0	13.3	82.4
Aug. 8	13 51.70	-20 45.1	1.638	1.735	+2.17 -6.6	13.2	77.8
Aug. 18	14 14.38	-21 52.7	1.684	1.703	+2.38 -6.8	13.1	73.7
Aug. 28	14 39.13	-23 00.5	1.729	1.675	+2.58 -6.6	13.0	69.8
Sept. 7	15 05.81	-24 04.0	1.775	1.653	+2.77 -5.9	13.0	66.4
Sept. 17	15 34.24	-24 58.8	1.822	1.635	+2.93 -4.8	13.0	63.1
Sept. 27	16 04.17	-25 40.4	1.871	1.624	+3.06 -3.3	13.1	60.1
Oct. 7	16 35.30	-26 04.9	1.924	1.618	+3.17 -1.4	13.2	57.2
Oct. 17	17 07.27	-26 09.4	1.980	1.619	+3.22 +0.8	13.3	54.5
Oct. 27	17 39.63	-25 51.6	2.041	1.625	+3.24 +3.0	13.5	51.7
Nov. 6	18 11.99	-25 10.8	2.107	1.638	+3.22 +5.3	13.7	49.0
Nov. 16	18 43.93	-24 07.6	2.177	1.656	+3.16 +7.5	14.0	46.2
Nov. 26	19 15.12	-22 43.4	2.253	1.679	+3.07 +9.5	14.3	43.4
Dec. 6	19 45.33	-21 00.6	2.333	1.707	+2.96 +11.2	14.6	40.5
Dec. 16	20 14.37	-19 02.2	2.417	1.740	+2.84 +12.6	14.9	37.4
Dec. 26	20 42.17	-16 51.2	2.503	1.777	+2.71 +13.7	15.2	34.2
Jan. 5	21 08.72	-14 30.6	2.592	1.818	+2.59 +14.5	15.6	30.8
Jan. 15	21 34.06	-12 03.2	2.681	1.862	+2.47 +15.0	15.9	27.2
Jan. 25	21 58.24	-09 31.7	2.770	1.909	+2.36 +15.3	16.3	23.6
Feb. 4	22 21.37	-06 58.0	2.857	1.958	+2.26 +15.4	16.6	19.8
Feb. 14	22 43.51	-04 24.3	2.941	2.010	+2.16 +15.3	17.0	15.9
Feb. 24	23 04.76	-01 51.9	3.021	2.063	+2.08 +15.1	17.3	11.9
Mar. 6	23 25.22	+00 37.9	3.095	2.117	+2.00 +14.8	17.7	8.0
Mar. 16	23 44.93	+03 04.0	3.162	2.173	+1.93 +14.4	18.0	5.0
Mar. 26	00 03.98	+05 25.5	3.221	2.229	+1.87 +13.9	18.3	5.1

Comet C/2023 U1 (Fuls)

Epoch = 2024 Feb. 20.0 TT
 T = 2024 Oct. 12.67902 TT
 Peri. = 255.61791
 Node = 305.80944 2000.0
 Incl. = 108.14655
 q = 4.9728443 AU
 e = 0.9979630

$$m1 = 7.1 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	07 09.82	-24 41.1	4.727	5.432	-1.20	-6.3	17.8	131.8
Jan. 11	06 57.62	-25 35.9	4.695	5.402	-1.23	-4.4	17.8	131.9
Jan. 21	06 45.38	-26 10.8	4.694	5.373	-1.20	-2.4	17.8	129.4
Jan. 31	06 33.67	-26 26.5	4.722	5.344	-1.12	-0.6	17.7	124.7
Feb. 10	06 23.00	-26 25.2	4.775	5.317	-0.99	+1.0	17.8	118.5
Feb. 20	06 13.77	-26 10.2	4.849	5.291	-0.83	+2.1	17.8	111.4
Mar. 1	06 06.19	-25 45.6	4.939	5.265	-0.66	+2.8	17.8	103.9
Mar. 11	06 00.36	-25 15.4	5.038	5.241	-0.49	+3.2	17.8	96.3
Mar. 21	05 56.24	-24 43.3	5.142	5.217	-0.32	+3.2	17.8	88.8
Mar. 31	05 53.74	-24 12.4	5.246	5.195	-0.17	+2.9	17.9	81.6
Apr. 10	05 52.69	-23 45.4	5.345	5.173	-0.03	+2.4	17.9	74.8
Apr. 20	05 52.93	-23 24.2	5.436	5.153	+0.09	+1.7	17.9	68.5
Apr. 30	05 54.28	-23 10.5	5.515	5.133	+0.19	+0.9	17.9	62.8
May 10	05 56.56	-23 05.4	5.580	5.115	+0.27	0.0	17.9	57.9
May 20	05 59.62	-23 10.1	5.629	5.098	+0.34	-1.0	17.9	53.8
May 30	06 03.27	-23 25.2	5.661	5.081	+0.39	-2.1	17.9	50.8
June 9	06 07.39	-23 51.5	5.676	5.066	+0.43	-3.3	17.9	48.9
June 19	06 11.83	-24 29.7	5.672	5.052	+0.46	-4.5	17.9	48.2
June 29	06 16.45	-25 20.4	5.651	5.039	+0.47	-5.8	17.9	48.7
July 9	06 21.11	-26 24.0	5.614	5.027	+0.46	-7.1	17.9	50.4
July 19	06 25.66	-27 41.1	5.561	5.016	+0.44	-8.5	17.8	53.0
July 29	06 29.96	-29 12.0	5.495	5.007	+0.41	-9.9	17.8	56.5
Aug. 8	06 33.83	-30 57.0	5.418	4.999	+0.36	-11.3	17.8	60.6
Aug. 18	06 37.09	-32 56.3	5.333	4.991	+0.28	-12.7	17.7	65.1
Aug. 28	06 39.51	-35 09.5	5.241	4.985	+0.19	-14.1	17.7	69.9
Sept. 7	06 40.84	-37 36.0	5.148	4.980	+0.06	-15.3	17.6	74.8
Sept. 17	06 40.77	-40 14.4	5.056	4.977	-0.10	-16.4	17.6	79.8
Sept. 27	06 38.92	-43 02.5	4.969	4.974	-0.30	-17.2	17.5	84.5
Oct. 7	06 34.88	-45 57.0	4.891	4.973	-0.54	-17.6	17.5	88.9
Oct. 17	06 28.14	-48 53.2	4.826	4.973	-0.84	-17.5	17.5	92.7
Oct. 27	06 18.22	-51 45.1	4.775	4.974	-1.19	-16.7	17.5	95.7
Nov. 6	06 04.66	-54 25.2	4.743	4.976	-1.57	-15.0	17.4	97.9
Nov. 16	05 47.26	-56 44.9	4.730	4.980	-1.95	-12.5	17.4	98.9
Nov. 26	05 26.27	-58 35.9	4.737	4.985	-2.27	-9.2	17.5	98.8
Dec. 6	05 02.59	-59 51.2	4.763	4.990	-2.46	-5.4	17.5	97.6
Dec. 16	04 37.80	-60 27.2	4.807	4.997	-2.47	-1.5	17.5	95.4
Dec. 26	04 13.76	-60 25.2	4.867	5.006	-2.29	+2.1	17.5	92.4
Jan. 5	03 52.15	-59 50.1	4.938	5.015	-1.98	+5.0	17.6	88.8
Jan. 15	03 34.00	-58 49.8	5.019	5.026	-1.61	+7.1	17.6	84.8
Jan. 25	03 19.67	-57 32.7	5.104	5.037	-1.23	+8.3	17.7	80.6
Feb. 4	03 09.02	-56 06.5	5.191	5.050	-0.88	+8.9	17.7	76.4
Feb. 14	03 01.64	-54 37.8	5.275	5.064	-0.58	+8.8	17.8	72.4
Feb. 24	02 57.02	-53 11.2	5.353	5.079	-0.33	+8.4	17.8	68.7
Mar. 6	02 54.68	-51 50.5	5.423	5.095	-0.13	+7.6	17.8	65.6
Mar. 16	02 54.16	-50 38.4	5.483	5.112	+0.03	+6.7	17.9	63.2
Mar. 26	02 55.07	-49 36.8	5.530	5.131	+0.16	+5.5	17.9	61.6

Comet P/2012 US27 (Siding Spring)

Epoch = 2024 July 29.0 TT
 T = 2024 Oct. 21.34692 TT
 Peri. = 0.87101 e = 0.6485268
 Node = 49.21065 2000.0 a = 5.1638933 AU
 Incl. = 39.37104 n = 0.08399205
 q = 1.8149701 AU P = 11.73 years

$$m1 = 6.8 + 5 \log(\Delta) + 30.0 \log(r(t-50))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Variation	m1	Mot. /PA	Elong.
2024/25	h m	° ' "			for T=+1 day			
Jan. 1	21 00.40	-49 34.0	3.976	3.255	-0.70 -1.8	.	21.2/ 64	37.8
Jan. 11	21 20.10	-47 58.8	3.952	3.191	-0.70 -2.5	.	22.2/ 64	34.6
Jan. 21	21 39.99	-46 18.5	3.917	3.127	-0.70 -3.2	.	23.1/ 64	32.1
Jan. 31	21 59.96	-44 33.2	3.870	3.063	-0.70 -3.9	.	24.0/ 63	30.5
Feb. 10	22 19.93	-42 42.9	3.813	2.998	-0.70 -4.7	.	24.7/ 63	29.9
Feb. 20	22 39.84	-40 48.1	3.745	2.934	-0.70 -5.4	.	25.4/ 63	30.2
Mar. 1	22 59.63	-38 49.0	3.669	2.869	-0.69 -6.2	.	26.1/ 62	31.3
Mar. 11	23 19.30	-36 46.1	3.585	2.805	-0.69 -7.1	.	26.7/ 62	33.1
Mar. 21	23 38.81	-34 40.1	3.493	2.741	-0.68 -7.9	.	27.2/ 62	35.3
Mar. 31	23 58.14	-32 31.5	3.395	2.677	-0.68 -8.8	.	27.6/ 62	37.9
Apr. 10	00 17.32	-30 20.8	3.291	2.614	-0.68 -9.7	.	28.0/ 62	40.7
Apr. 20	00 36.32	-28 08.9	3.182	2.552	-0.68 -10.6	.	28.3/ 62	43.7
Apr. 30	00 55.13	-25 56.3	3.070	2.490	-0.68 -11.6	.	28.6/ 62	46.7
May 10	01 13.77	-23 43.5	2.954	2.429	-0.68 -12.6	.	28.7/ 63	49.9
May 20	01 32.20	-21 31.1	2.835	2.369	-0.69 -13.7	21.9	28.8/ 63	53.1
May 30	01 50.42	-19 19.5	2.714	2.311	-0.70 -14.8	21.5	28.8/ 63	56.3
June 9	02 08.40	-17 08.9	2.590	2.255	-0.71 -16.0	21.1	28.7/ 63	59.7
June 19	02 26.09	-14 59.6	2.465	2.200	-0.73 -17.3	20.6	28.5/ 63	63.1
June 29	02 43.45	-12 51.2	2.338	2.147	-0.76 -18.6	20.2	28.2/ 63	66.6
July 9	03 00.40	-10 43.2	2.210	2.097	-0.80 -20.0	19.8	27.7/ 63	70.3
July 19	03 16.85	-08 34.7	2.080	2.050	-0.85 -21.6	19.3	27.2/ 62	74.1
July 29	03 32.68	-06 24.1	1.950	2.007	-0.91 -23.3	18.8	26.6/ 60	78.2
Aug. 8	03 47.75	-04 09.3	1.819	1.966	-0.99 -25.1	18.4	25.8/ 58	82.7
Aug. 18	04 01.86	-01 47.0	1.688	1.930	-1.09 -27.2	17.9	25.1/ 54	87.5
Aug. 28	04 14.76	+00 47.2	1.558	1.898	-1.22 -29.4	17.4	24.4/ 48	92.8
Sept. 7	04 26.12	+03 38.9	1.430	1.871	-1.38 -31.7	16.9	24.1/ 40	98.8
Sept. 17	04 35.50	+06 55.6	1.307	1.849	-1.58 -34.2	16.5	24.5/ 29	105.4
Sept. 27	04 42.34	+10 46.2	1.191	1.832	-1.83 -36.8	16.0	26.4/ 17	113.0
Oct. 7	04 45.85	+15 19.8	1.086	1.821	-2.13 -39.2	15.5	30.1/ 4	121.6
Oct. 17	04 45.11	+20 43.0	0.997	1.816	-2.49 -41.4	15.1	35.4/352	131.2
Oct. 27	04 39.06	+26 53.2	0.929	1.816	-2.89 -43.1	14.8	41.0/342	141.5
Nov. 6	04 26.77	+33 31.0	0.890	1.822	-3.27 -44.3	14.6	44.6/334	151.1
Nov. 16	04 08.20	+39 57.8	0.883	1.834	-3.55 -45.1	14.4	43.9/326	156.9
Nov. 26	03 44.98	+45 28.4	0.909	1.851	-3.60 -45.5	14.4	38.5/318	155.0
Dec. 6	03 20.72	+49 34.8	0.966	1.874	-3.37 -45.1	14.5	29.9/312	147.6
Dec. 16	02 59.92	+52 18.8	1.048	1.902	-2.97 -43.6	14.7	20.4/308	138.7
Dec. 26	02 45.73	+54 01.9	1.149	1.934	-2.53 -41.0	14.9	11.8/312	130.0
Jan. 5	02 39.33	+55 08.8	1.264	1.971	-2.18 -37.7	15.2	5.8/342	122.1
Jan. 15	02 40.44	+55 57.8	1.389	2.012	-1.95 -34.2	15.5	6.0/ 43	114.9
Jan. 25	02 48.07	+56 39.0	1.521	2.056	-1.83 -30.8	15.9	9.7/ 66	108.4
Feb. 4	03 01.24	+57 16.6	1.658	2.104	-1.78 -27.4	16.3	13.4/ 74	102.5
Feb. 14	03 19.04	+57 51.2	1.797	2.154	-1.80 -24.2	16.7	16.3/ 78	97.1
Feb. 24	03 40.66	+58 21.1	1.938	2.207	-1.85 -21.2	17.1	18.6/ 82	92.0
Mar. 6	04 05.45	+58 43.8	2.081	2.262	-1.90 -18.3	17.5	20.5/ 85	87.2
Mar. 16	04 32.70	+58 56.8	2.225	2.319	-1.95 -15.6	17.9	21.9/ 88	82.7
Mar. 26	05 01.73	+58 57.5	2.368	2.377	-1.98 -12.9	18.4	23.0/ 91	78.3

Comet 33P/Daniel

Epoch = 2024 July 29.0 TT
 T = 2024 Nov. 11.11186 TT
 Peri. = 20.32585 e = 0.4524421
 Node = 66.28239 2000.0 a = 4.0954865 AU
 Incl. = 22.29571 n = 0.11891751
 q = 2.2425160 AU P = 8.29 years

$$m1 = 12.8 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	23 33.76	-23 12.5	3.432	3.166	+0.86 +11.9	20.5	66.2
Jan. 11	23 42.88	-21 11.6	3.510	3.123	+0.97 +12.3	20.5	59.2
Jan. 21	23 53.08	-19 07.9	3.579	3.080	+1.07 +12.5	20.5	52.5
Jan. 31	00 04.18	-17 02.0	3.638	3.038	+1.15 +12.7	20.4	46.0
Feb. 10	00 16.06	-14 54.5	3.686	2.995	+1.23 +12.8	20.4	39.8
Feb. 20	00 28.63	-12 45.9	3.722	2.953	+1.29 +12.9	20.4	33.8
Mar. 1	00 41.78	-10 36.7	3.747	2.911	+1.35 +12.9	20.3	28.2
Mar. 11	00 55.48	-08 27.5	3.759	2.870	+1.40 +12.9	20.3	22.9
Mar. 21	01 09.65	-06 18.7	3.759	2.829	+1.44 +12.8	20.2	18.1
Mar. 31	01 24.25	-04 10.9	3.747	2.789	+1.48 +12.7	20.1	14.2
Apr. 10	01 39.27	-02 04.4	3.723	2.749	+1.52 +12.5	20.0	11.7
Apr. 20	01 54.67	+00 00.1	3.687	2.710	+1.56 +12.3	20.0	11.5
Apr. 30	02 10.44	+02 02.2	3.641	2.672	+1.60 +12.1	19.9	13.6
May 10	02 26.57	+04 01.4	3.584	2.635	+1.63 +11.7	19.8	17.0
May 20	02 43.03	+05 57.2	3.517	2.598	+1.66 +11.4	19.7	21.1
May 30	02 59.81	+07 49.2	3.441	2.563	+1.70 +11.0	19.6	25.4
June 9	03 16.90	+09 37.2	3.357	2.529	+1.72 +10.5	19.5	30.0
June 19	03 34.26	+11 20.6	3.265	2.497	+1.75 +10.1	19.3	34.6
June 29	03 51.87	+12 59.3	3.166	2.465	+1.77 +9.6	19.2	39.3
July 9	04 09.69	+14 33.3	3.061	2.436	+1.79 +9.1	19.1	44.1
July 19	04 27.64	+16 02.4	2.950	2.408	+1.80 +8.7	19.0	49.0
July 29	04 45.69	+17 27.1	2.834	2.382	+1.81 +8.2	18.8	53.9
Aug. 8	05 03.73	+18 47.7	2.713	2.358	+1.80 +7.9	18.7	59.0
Aug. 18	05 21.65	+20 04.9	2.590	2.336	+1.78 +7.6	18.6	64.3
Aug. 28	05 39.34	+21 19.8	2.464	2.316	+1.75 +7.4	18.4	69.7
Sept. 7	05 56.65	+22 33.9	2.336	2.298	+1.70 +7.4	18.3	75.3
Sept. 17	06 13.37	+23 49.1	2.209	2.282	+1.63 +7.7	18.1	81.2
Sept. 27	06 29.31	+25 07.6	2.082	2.269	+1.54 +8.1	18.0	87.4
Oct. 7	06 44.19	+26 32.3	1.957	2.259	+1.42 +8.9	17.8	94.0
Oct. 17	06 57.68	+28 06.2	1.837	2.251	+1.26 +10.0	17.6	101.0
Oct. 27	07 09.43	+29 52.5	1.724	2.246	+1.06 +11.4	17.5	108.4
Nov. 6	07 18.97	+31 53.9	1.619	2.243	+0.81 +13.0	17.4	116.4
Nov. 16	07 25.80	+34 11.7	1.526	2.243	+0.52 +14.7	17.2	124.8
Nov. 26	07 29.44	+36 44.7	1.448	2.245	+0.17 +16.0	17.1	133.6
Dec. 6	07 29.44	+39 27.9	1.389	2.251	-0.21 +16.5	17.0	142.4
Dec. 16	07 25.68	+42 11.4	1.351	2.259	-0.57 +15.9	17.0	150.2
Dec. 26	07 18.57	+44 42.0	1.337	2.269	-0.86 +13.8	17.0	155.4
Jan. 5	07 09.20	+46 46.2	1.349	2.282	-0.99 +10.5	17.0	155.8
Jan. 15	06 59.40	+48 14.5	1.385	2.297	-0.93 +6.7	17.1	151.3
Jan. 25	06 51.12	+49 05.1	1.445	2.315	-0.68 +3.1	17.2	144.1
Feb. 4	06 45.95	+49 21.8	1.524	2.335	-0.30 +0.1	17.4	135.9
Feb. 14	06 44.79	+49 12.2	1.620	2.357	+0.11 -2.1	17.6	127.7
Feb. 24	06 47.72	+48 43.4	1.729	2.381	+0.51 -3.7	17.8	119.8
Mar. 6	06 54.42	+48 01.0	1.850	2.407	+0.86 -4.8	18.0	112.2
Mar. 16	07 04.33	+47 08.6	1.978	2.435	+1.14 -5.7	18.1	105.1
Mar. 26	07 16.76	+46 08.3	2.113	2.465	+1.36 -6.4	18.3	98.4

Comet C/2023 G2 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2024 Nov. 16.81376 TT
 Peri. = 357.45750
 Node = 301.00501 2000.0
 Incl. = 48.31841
 q = 2.3684962 AU
 e = 0.9992451

$$m1 = 6.8 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	14 15.63	-59 01.9	4.545	4.116	+1.74	-10.8	16.2	58.4
Jan. 11	14 33.24	-60 50.0	4.392	4.038	+1.78	-10.8	16.1	62.8
Jan. 21	14 51.24	-62 38.2	4.233	3.960	+1.82	-10.8	15.9	67.4
Jan. 31	15 09.55	-64 25.5	4.071	3.883	+1.84	-10.7	15.7	72.1
Feb. 10	15 28.01	-66 11.3	3.906	3.806	+1.85	-10.5	15.6	76.9
Feb. 20	15 46.37	-67 54.7	3.741	3.730	+1.82	-10.2	15.4	81.8
Mar. 1	16 04.27	-69 34.9	3.575	3.654	+1.75	-9.8	15.2	86.7
Mar. 11	16 21.19	-71 11.4	3.411	3.579	+1.61	-9.4	15.0	91.6
Mar. 21	16 36.35	-72 43.3	3.250	3.505	+1.38	-8.9	14.8	96.4
Mar. 31	16 48.76	-74 09.4	3.094	3.431	+1.04	-8.3	14.6	101.2
Apr. 10	16 57.06	-75 28.3	2.943	3.359	+0.54	-7.4	14.4	105.9
Apr. 20	16 59.58	-76 36.9	2.799	3.287	-0.13	-6.1	14.2	110.4
Apr. 30	16 54.75	-77 30.3	2.663	3.217	-0.93	-4.2	14.0	114.7
May 10	16 41.76	-78 00.9	2.538	3.148	-1.72	-1.4	13.8	118.5
May 20	16 22.10	-77 59.1	2.424	3.080	-2.18	+2.3	13.6	121.8
May 30	16 00.12	-77 16.6	2.324	3.015	-2.11	+6.7	13.4	124.4
June 9	15 41.16	-75 49.6	2.238	2.951	-1.56	+11.1	13.2	125.9
June 19	15 28.85	-73 40.3	2.169	2.889	-0.82	+15.0	13.1	126.3
June 29	15 23.93	-70 55.4	2.118	2.829	-0.12	+18.2	12.9	125.3
July 9	15 25.43	-67 42.7	2.086	2.772	+0.45	+20.5	12.8	122.9
July 19	15 31.95	-64 10.7	2.072	2.718	+0.87	+21.9	12.7	119.3
July 29	15 42.13	-60 27.4	2.078	2.667	+1.18	+22.7	12.6	114.7
Aug. 8	15 54.93	-56 39.6	2.103	2.619	+1.39	+22.8	12.6	109.3
Aug. 18	16 09.62	-52 53.3	2.144	2.574	+1.55	+22.4	12.6	103.4
Aug. 28	16 25.60	-49 12.8	2.200	2.533	+1.65	+21.6	12.5	97.2
Sept. 7	16 42.51	-45 40.6	2.270	2.496	+1.73	+20.7	12.6	90.8
Sept. 17	17 00.05	-42 18.0	2.350	2.463	+1.78	+19.7	12.6	84.4
Sept. 27	17 17.99	-39 05.0	2.438	2.435	+1.81	+18.8	12.6	78.0
Oct. 7	17 36.18	-36 00.7	2.532	2.412	+1.83	+18.0	12.6	71.7
Oct. 17	17 54.50	-33 03.9	2.629	2.393	+1.83	+17.3	12.7	65.4
Oct. 27	18 12.84	-30 12.8	2.728	2.380	+1.83	+16.9	12.7	59.3
Nov. 6	18 31.13	-27 25.9	2.827	2.372	+1.82	+16.5	12.8	53.3
Nov. 16	18 49.30	-24 41.5	2.923	2.369	+1.81	+16.4	12.9	47.4
Nov. 26	19 07.28	-21 58.2	3.015	2.371	+1.79	+16.3	12.9	41.7
Dec. 6	19 25.04	-19 14.7	3.102	2.378	+1.76	+16.4	13.0	36.1
Dec. 16	19 42.54	-16 29.9	3.183	2.391	+1.73	+16.6	13.1	30.8
Dec. 26	19 59.73	-13 42.9	3.257	2.408	+1.70	+16.8	13.2	25.7
Jan. 5	20 16.59	-10 53.2	3.323	2.431	+1.67	+17.2	13.3	21.1
Jan. 15	20 33.10	-08 00.2	3.380	2.458	+1.63	+17.5	13.4	17.3
Jan. 25	20 49.22	-05 03.6	3.429	2.490	+1.59	+17.9	13.4	14.8
Feb. 4	21 04.94	-02 03.2	3.470	2.527	+1.55	+18.2	13.5	14.3
Feb. 14	21 20.24	+01 00.8	3.502	2.567	+1.50	+18.6	13.6	15.9
Feb. 24	21 35.08	+04 08.4	3.526	2.611	+1.46	+19.0	13.7	19.1
Mar. 6	21 49.46	+07 19.5	3.542	2.658	+1.41	+19.3	13.8	23.1
Mar. 16	22 03.34	+10 33.7	3.550	2.709	+1.36	+19.6	13.9	27.7
Mar. 26	22 16.68	+13 50.6	3.552	2.763	+1.30	+19.8	14.0	32.5

Comet 305P/Skiff

Epoch = 2024 July 29.0 TT
 T = 2024 Nov. 17.17312 TT
 Peri. = 147.42289 e = 0.6939423
 Node = 240.10704 2000.0 a = 4.6351606 AU
 Incl. = 11.67132 n = 0.09876587
 q = 1.4186266 AU P = 9.98 years

$$m1 = 12.8 + 5 \log(\Delta) + 25.0 \log(r(t-40))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	18 11.26	-18° 43' 7"	4.441	3.471	+1.37	+1.4	.	8.4
Jan. 11	18 25.09	-18 26.4	4.344	3.402	+1.40	+2.1	.	14.7
Jan. 21	18 39.15	-18 02.6	4.229	3.332	+1.41	+2.8	.	21.3
Jan. 31	18 53.34	-17 32.0	4.098	3.261	+1.42	+3.4	.	28.0
Feb. 10	19 07.60	-16 54.3	3.952	3.189	+1.43	+4.2	.	34.6
Feb. 20	19 21.84	-16 09.3	3.793	3.117	+1.42	+4.9	.	41.1
Mar. 1	19 35.98	-15 16.9	3.622	3.044	+1.41	+5.6	.	47.6
Mar. 11	19 49.97	-14 17.1	3.442	2.970	+1.39	+6.4	.	54.1
Mar. 21	20 03.71	-13 09.8	3.254	2.896	+1.36	+7.1	.	60.5
Mar. 31	20 17.14	-11 55.1	3.060	2.821	+1.32	+7.9	.	66.9
Apr. 10	20 30.18	-10 32.9	2.862	2.745	+1.28	+8.6	.	73.2
Apr. 20	20 42.73	-09 03.5	2.662	2.669	+1.23	+9.3	.	79.5
Apr. 30	20 54.71	-07 26.8	2.463	2.593	+1.16	+10.1	.	85.9
May 10	21 06.01	-05 42.9	2.266	2.516	+1.09	+10.8	.	92.2
May 20	21 16.47	-03 52.2	2.073	2.439	+1.00	+11.4	.	98.7
May 30	21 25.97	-01 54.9	1.886	2.362	+0.89	+12.1	.	105.1
June 9	21 34.30	+00 08.5	1.706	2.286	+0.76	+12.6	.	111.7
June 19	21 41.21	+02 17.0	1.537	2.209	+0.61	+13.1	.	118.4
June 29	21 46.48	+04 29.2	1.379	2.133	+0.42	+13.3	.	125.1
July 9	21 49.78	+06 42.5	1.234	2.058	+0.21	+13.2	.	132.0
July 19	21 50.87	+08 52.7	1.103	1.983	-0.02	+12.7	22.0	138.7
July 29	21 49.60	+10 54.2	0.989	1.911	-0.26	+11.4	21.4	144.9
Aug. 8	21 46.00	+12 38.9	0.891	1.841	-0.47	+9.2	20.8	150.0
Aug. 18	21 40.59	+13 57.6	0.811	1.773	-0.60	+6.1	20.2	152.8
Aug. 28	21 34.39	+14 41.9	0.748	1.709	-0.61	+2.3	19.6	152.3
Sept. 7	21 28.90	+14 46.5	0.702	1.648	-0.44	-1.7	19.1	148.7
Sept. 17	21 25.95	+14 12.9	0.670	1.593	-0.09	-5.2	18.6	143.2
Sept. 27	21 27.11	+13 08.5	0.652	1.544	+0.39	-7.7	18.1	136.9
Oct. 7	21 33.46	+11 44.7	0.644	1.501	+0.95	-8.9	17.7	130.8
Oct. 17	21 45.52	+10 14.9	0.645	1.467	+1.52	-8.9	17.3	125.2
Oct. 27	22 03.10	+08 50.3	0.656	1.441	+2.04	-7.8	16.9	120.4
Nov. 6	22 25.65	+07 40.1	0.676	1.425	+2.50	-5.9	16.7	116.2
Nov. 16	22 52.25	+06 51.2	0.705	1.419	+2.84	-3.6	16.5	112.7
Nov. 26	23 21.72	+06 26.3	0.746	1.423	+3.06	-1.1	16.3	109.6
Dec. 6	23 52.92	+06 25.9	0.798	1.437	+3.17	+1.3	16.3	106.8
Dec. 16	00 24.79	+06 47.9	0.864	1.460	+3.19	+3.3	16.3	104.2
Dec. 26	00 56.46	+07 27.5	0.943	1.493	+3.13	+4.8	16.5	101.5
Jan. 5	01 27.39	+08 20.2	1.036	1.533	+3.04	+5.8	16.7	98.8
Jan. 15	01 57.28	+09 20.6	1.142	1.581	+2.92	+6.3	17.0	95.8
Jan. 25	02 25.98	+10 24.1	1.260	1.635	+2.80	+6.4	17.4	92.7
Feb. 4	02 53.52	+11 27.1	1.390	1.694	+2.69	+6.1	17.9	89.3
Feb. 14	03 19.97	+12 26.4	1.530	1.757	+2.59	+5.6	18.4	85.7
Feb. 24	03 45.39	+13 19.7	1.678	1.824	+2.49	+4.9	18.9	81.9
Mar. 6	04 09.92	+14 05.5	1.834	1.894	+2.41	+4.1	19.5	77.9
Mar. 16	04 33.60	+14 42.7	1.996	1.966	+2.32	+3.2	20.0	73.8
Mar. 26	04 56.51	+15 10.6	2.162	2.040	+2.25	+2.3	20.6	69.5

Comet C/2023 H1 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 Nov. 28.23150 TT
 Peri. = 333.84132
 Node = 292.62904 2000.0
 Incl. = 21.77963
 q = 4.4420775 AU
 e = 0.9973278

$$m1 = 8.2 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	14 55.27	-35 55.1	5.755	5.183	+0.99	-5.2	19.1	50.3
Jan. 11	15 05.00	-36 46.6	5.601	5.143	+0.95	-5.1	19.1	57.7
Jan. 21	15 14.17	-37 36.9	5.437	5.104	+0.88	-5.0	19.0	65.3
Jan. 31	15 22.63	-38 25.7	5.265	5.066	+0.80	-4.8	18.9	73.0
Feb. 10	15 30.22	-39 12.5	5.088	5.028	+0.70	-4.6	18.7	81.0
Feb. 20	15 36.76	-39 56.8	4.909	4.992	+0.59	-4.3	18.6	89.1
Mar. 1	15 42.09	-40 37.9	4.731	4.956	+0.46	-3.9	18.5	97.3
Mar. 11	15 46.05	-41 15.2	4.557	4.921	+0.31	-3.5	18.4	105.8
Mar. 21	15 48.51	-41 47.3	4.392	4.888	+0.16	-2.9	18.3	114.4
Mar. 31	15 49.39	-42 13.1	4.238	4.855	0.00	-2.2	18.2	123.0
Apr. 10	15 48.71	-42 30.9	4.099	4.823	-0.15	-1.3	18.1	131.7
Apr. 20	15 46.56	-42 39.2	3.978	4.793	-0.29	-0.2	18.0	140.1
Apr. 30	15 43.20	-42 36.4	3.879	4.763	-0.39	+0.9	17.9	148.0
May 10	15 38.99	-42 21.8	3.804	4.735	-0.45	+2.1	17.9	154.4
May 20	15 34.38	-41 55.2	3.755	4.708	-0.46	+3.3	17.8	157.9
May 30	15 29.89	-41 17.6	3.732	4.682	-0.42	+4.3	17.8	156.9
June 9	15 26.00	-40 30.9	3.736	4.657	-0.34	+5.1	17.7	152.1
June 19	15 23.14	-39 38.0	3.765	4.633	-0.22	+5.5	17.7	144.9
June 29	15 21.62	-38 42.0	3.817	4.611	-0.07	+5.7	17.7	136.8
July 9	15 21.61	-37 45.7	3.889	4.590	+0.09	+5.5	17.8	128.4
July 19	15 23.20	-36 51.8	3.979	4.570	+0.25	+5.2	17.8	119.8
July 29	15 26.37	-36 01.9	4.083	4.552	+0.40	+4.7	17.8	111.3
Aug. 8	15 31.07	-35 17.1	4.198	4.535	+0.55	+4.2	17.9	103.0
Aug. 18	15 37.18	-34 38.1	4.320	4.519	+0.69	+3.6	17.9	94.8
Aug. 28	15 44.60	-34 04.6	4.446	4.505	+0.81	+3.1	18.0	86.9
Sept. 7	15 53.19	-33 36.3	4.573	4.492	+0.92	+2.6	18.0	79.1
Sept. 17	16 02.83	-33 12.3	4.699	4.481	+1.02	+2.2	18.1	71.4
Sept. 27	16 13.38	-32 51.9	4.820	4.471	+1.10	+1.9	18.1	63.9
Oct. 7	16 24.74	-32 34.0	4.935	4.462	+1.18	+1.7	18.2	56.5
Oct. 17	16 36.80	-32 17.7	5.041	4.455	+1.24	+1.6	18.2	49.3
Oct. 27	16 49.42	-32 02.0	5.137	4.450	+1.29	+1.6	18.2	42.1
Nov. 6	17 02.52	-31 46.0	5.222	4.446	+1.33	+1.6	18.3	35.0
Nov. 16	17 15.98	-31 28.9	5.293	4.443	+1.36	+1.8	18.3	27.9
Nov. 26	17 29.69	-31 10.1	5.349	4.442	+1.38	+2.0	18.3	21.1
Dec. 6	17 43.55	-30 49.0	5.390	4.443	+1.39	+2.3	18.3	14.4
Dec. 16	17 57.44	-30 25.1	5.415	4.444	+1.39	+2.5	18.3	8.7
Dec. 26	18 11.26	-29 58.3	5.423	4.448	+1.37	+2.9	18.4	6.8
Jan. 5	18 24.91	-29 28.3	5.414	4.453	+1.35	+3.2	18.4	11.0
Jan. 15	18 38.27	-28 55.1	5.389	4.459	+1.32	+3.5	18.3	17.3
Jan. 25	18 51.26	-28 18.9	5.347	4.467	+1.27	+3.8	18.3	24.2
Feb. 4	19 03.75	-27 39.9	5.289	4.476	+1.22	+4.0	18.3	31.3
Feb. 14	19 15.66	-26 58.5	5.216	4.487	+1.15	+4.3	18.3	38.6
Feb. 24	19 26.87	-26 15.1	5.130	4.499	+1.08	+4.4	18.3	46.0
Mar. 6	19 37.30	-25 30.2	5.031	4.513	+0.99	+4.6	18.3	53.5
Mar. 16	19 46.83	-24 44.3	4.922	4.528	+0.90	+4.6	18.2	61.2
Mar. 26	19 55.38	-23 58.1	4.804	4.544	+0.80	+4.6	18.2	69.1

Comet 333P/LINEAR

Epoch = 2024 July 29.0 TT
 T = 2024 Nov. 29.30101 TT
 Peri. = 26.01777 e = 0.7362855
 Node = 115.70558 2000.0 a = 4.2202890 AU
 Incl. = 132.02165 n = 0.11368176
 q = 1.1129514 AU P = 8.67 years

$$m1 = 15.8 + 5 \log(\Delta) + 7.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	14 52.57	-58 05.9	4.144	3.646	+0.50 -9.6	.	53.5
Jan. 11	14 56.77	-59 47.3	3.968	3.576	+0.31 -10.8	.	59.8
Jan. 21	14 58.62	-61 41.5	3.778	3.504	+0.02 -12.1	.	66.5
Jan. 31	14 56.99	-63 48.4	3.578	3.431	-0.41 -13.4	.	73.5
Feb. 10	14 50.13	-66 06.6	3.373	3.357	-1.07 -14.3	.	80.7
Feb. 20	14 35.19	-68 31.3	3.167	3.282	-2.09 -14.4	.	87.8
Mar. 1	14 07.99	-70 50.3	2.967	3.206	-3.59 -12.8	22.0	94.8
Mar. 11	13 23.66	-72 37.9	2.778	3.129	-5.49 -7.5	21.7	101.4
Mar. 21	12 21.71	-73 10.4	2.607	3.050	-6.81 +2.8	21.5	107.0
Mar. 31	11 14.20	-71 44.4	2.461	2.971	-6.31 +15.8	21.3	111.1
Apr. 10	10 18.68	-68 12.2	2.346	2.890	-4.53 +27.2	21.1	113.1
Apr. 20	09 41.56	-63 04.7	2.266	2.808	-2.80 +34.4	20.9	112.5
Apr. 30	09 19.50	-57 03.2	2.223	2.725	-1.58 +37.7	20.8	109.1
May 10	09 07.63	-50 43.1	2.216	2.640	-0.77 +37.9	20.7	103.5
May 20	09 02.41	-44 31.6	2.239	2.555	-0.26 +35.9	20.6	96.2
May 30	09 01.49	-38 46.5	2.287	2.468	+0.08 +32.6	20.5	88.0
June 9	09 03.44	-33 37.0	2.349	2.381	+0.32 +28.8	20.5	79.4
June 19	09 07.35	-29 06.6	2.419	2.292	+0.47 +24.9	20.4	70.7
June 29	09 12.58	-25 13.8	2.487	2.203	+0.58 +21.4	20.4	62.1
July 9	09 18.75	-21 54.8	2.548	2.113	+0.66 +18.2	20.3	53.8
July 19	09 25.54	-19 05.0	2.595	2.022	+0.71 +15.6	20.2	45.8
July 29	09 32.75	-16 39.2	2.623	1.931	+0.74 +13.4	20.0	38.3
Aug. 8	09 40.25	-14 32.6	2.627	1.840	+0.76 +11.8	19.9	31.5
Aug. 18	09 47.91	-12 40.2	2.604	1.749	+0.77 +10.6	19.7	25.8
Aug. 28	09 55.67	-10 57.3	2.552	1.660	+0.78 +10.0	19.5	22.1
Sept. 7	10 03.49	-09 18.9	2.467	1.572	+0.79 +9.8	19.2	21.4
Sept. 17	10 11.37	-07 39.5	2.348	1.487	+0.79 +10.2	18.9	24.0
Sept. 27	10 19.37	-05 52.3	2.194	1.406	+0.81 +11.5	18.6	29.1
Oct. 7	10 27.65	-03 48.5	2.006	1.331	+0.85 +13.8	18.2	35.8
Oct. 17	10 36.48	-01 14.5	1.785	1.263	+0.93 +17.8	17.8	43.4
Oct. 27	10 46.52	+02 11.6	1.535	1.205	+1.11 +24.8	17.3	51.7
Nov. 6	10 59.04	+07 11.7	1.262	1.159	+1.48 +37.9	16.8	60.5
Nov. 16	11 17.14	+15 13.6	0.980	1.128	+2.37 +64.3	16.1	69.9
Nov. 26	11 50.39	+29 31.0	0.720	1.114	+5.13 118.3	15.4	79.8
Dec. 6	13 23.46	+53 54.3	0.554	1.117	+18.61 158.8	14.9	88.4
Dec. 16	18 23.00	+65 02.2	0.590	1.137	+27.36 -70.4	15.1	88.8
Dec. 26	20 57.10	+50 24.2	0.799	1.173	+6.78 -78.4	15.8	81.6
Jan. 5	21 42.73	+40 01.5	1.073	1.223	+2.85 -45.4	16.6	72.9
Jan. 15	22 05.02	+33 59.4	1.358	1.285	+1.69 -27.1	17.3	64.2
Jan. 25	22 19.45	+30 19.2	1.631	1.355	+1.21 -16.9	17.9	56.0
Feb. 4	22 30.36	+28 00.8	1.883	1.433	+0.97 -10.7	18.3	48.4
Feb. 14	22 39.32	+26 33.7	2.107	1.515	+0.82 -6.6	18.8	41.5
Feb. 24	22 47.01	+25 41.2	2.299	1.601	+0.71 -3.8	19.1	35.6
Mar. 6	22 53.72	+25 13.6	2.459	1.690	+0.62 -1.7	19.5	31.2
Mar. 16	22 59.53	+25 04.4	2.584	1.780	+0.53 -0.1	19.7	28.9
Mar. 26	23 04.43	+25 09.3	2.676	1.870	+0.44 +1.1	20.0	29.3

Comet C/2023 Q1 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2024 Dec. 1.16684 TT
 Peri. = 84.40527
 Node = 7.14433 2000.0
 Incl. = 36.64550
 q = 2.5758078 AU
 e = 1.0052285

$$m1 = 9.1 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	23 51.04	+03 08.4	4.339	4.271	+0.33	+5.9	18.6	79.5
Jan. 11	23 54.93	+04 11.2	4.418	4.197	+0.46	+6.7	18.6	70.7
Jan. 21	00 00.02	+05 20.9	4.489	4.123	+0.57	+7.4	18.5	62.2
Jan. 31	00 06.20	+06 37.4	4.549	4.049	+0.67	+8.0	18.5	54.0
Feb. 10	00 13.35	+08 00.1	4.596	3.976	+0.76	+8.6	18.4	46.2
Feb. 20	00 21.37	+09 28.7	4.627	3.904	+0.85	+9.2	18.3	38.6
Mar. 1	00 30.18	+11 02.9	4.642	3.832	+0.92	+9.7	18.3	31.5
Mar. 11	00 39.69	+12 42.5	4.641	3.761	+0.99	+10.2	18.2	24.7
Mar. 21	00 49.86	+14 27.0	4.622	3.691	+1.05	+10.7	18.1	18.5
Mar. 31	01 00.63	+16 16.3	4.586	3.622	+1.11	+11.2	18.0	13.3
Apr. 10	01 11.97	+18 10.1	4.535	3.553	+1.16	+11.6	17.9	10.3
Apr. 20	01 23.85	+20 08.3	4.467	3.486	+1.22	+12.0	17.8	11.0
Apr. 30	01 36.27	+22 10.6	4.385	3.420	+1.27	+12.5	17.6	14.7
May 10	01 49.22	+24 17.0	4.289	3.355	+1.32	+12.9	17.5	19.6
May 20	02 02.72	+26 27.3	4.181	3.291	+1.38	+13.2	17.4	24.9
May 30	02 16.77	+28 41.5	4.063	3.230	+1.44	+13.6	17.2	30.4
June 9	02 31.41	+30 59.4	3.935	3.169	+1.50	+14.0	17.1	35.9
June 19	02 46.68	+33 20.9	3.800	3.111	+1.56	+14.4	16.9	41.3
June 29	03 02.61	+35 46.0	3.660	3.055	+1.63	+14.7	16.8	46.7
July 9	03 19.27	+38 14.6	3.516	3.000	+1.71	+15.0	16.6	52.1
July 19	03 36.71	+40 46.2	3.369	2.949	+1.79	+15.3	16.4	57.4
July 29	03 55.00	+43 20.8	3.223	2.899	+1.88	+15.6	16.3	62.6
Aug. 8	04 14.22	+45 57.8	3.078	2.853	+1.97	+15.8	16.1	67.8
Aug. 18	04 34.41	+48 36.6	2.936	2.809	+2.08	+15.9	15.9	72.9
Aug. 28	04 55.65	+51 16.3	2.798	2.769	+2.18	+16.0	15.8	77.9
Sept. 7	05 17.97	+53 55.9	2.667	2.732	+2.29	+15.9	15.6	82.9
Sept. 17	05 41.36	+56 34.0	2.544	2.699	+2.40	+15.7	15.4	87.8
Sept. 27	06 05.77	+59 09.1	2.429	2.669	+2.49	+15.3	15.3	92.5
Oct. 7	06 30.99	+61 39.5	2.325	2.643	+2.55	+14.7	15.2	97.2
Oct. 17	06 56.65	+64 03.5	2.230	2.621	+2.57	+14.0	15.0	101.7
Oct. 27	07 22.20	+66 19.3	2.147	2.603	+2.52	+13.1	14.9	106.0
Nov. 6	07 46.71	+68 25.8	2.075	2.590	+2.35	+12.1	14.8	110.2
Nov. 16	08 08.96	+70 21.5	2.016	2.581	+2.04	+10.9	14.7	114.0
Nov. 26	08 27.37	+72 05.3	1.968	2.576	+1.56	+9.7	14.7	117.5
Dec. 6	08 40.00	+73 34.9	1.932	2.576	+0.87	+8.0	14.6	120.5
Dec. 16	08 45.04	+74 46.3	1.909	2.581	+0.04	+5.9	14.6	123.0
Dec. 26	08 41.44	+75 32.9	1.899	2.590	-0.83	+3.0	14.6	124.8
Jan. 5	08 29.98	+75 46.0	1.903	2.603	-1.46	-0.9	14.7	125.7
Jan. 15	08 14.24	+75 17.9	1.921	2.620	-1.62	-5.2	14.7	125.8
Jan. 25	07 59.08	+74 05.8	1.954	2.642	-1.32	-9.5	14.8	124.8
Feb. 4	07 48.30	+72 13.5	2.002	2.668	-0.76	-13.2	14.9	122.8
Feb. 14	07 43.35	+69 48.9	2.065	2.697	-0.18	-15.9	15.0	119.9
Feb. 24	07 43.74	+67 01.6	2.144	2.731	+0.29	-17.7	15.1	116.3
Mar. 6	07 48.37	+63 59.6	2.239	2.768	+0.65	-18.7	15.3	112.0
Mar. 16	07 56.10	+60 49.7	2.348	2.808	+0.90	-19.2	15.4	107.2
Mar. 26	08 05.94	+57 37.1	2.470	2.851	+1.07	-19.3	15.6	102.1

Comet 276P/Vorobjov

Epoch = 2024 July 29.0 TT
 T = 2024 Dec. 11.01106 TT
 Peri. = 199.29119 e = 0.2701794
 Node = 211.34196 2000.0 a = 5.3419325 AU
 Incl. = 14.80879 n = 0.07982823
 q = 3.8986524 AU P = 12.35 years

$$m1 = -12.5 + 5 \log(\Delta) + 45.0 \log(r(t+105))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	°			m	'		°
Jan. 1	23 16.78	+02 31.1	4.394	4.187	+0.75	+1.6	18.0	71.5
Jan. 11	23 24.70	+02 51.2	4.520	4.171	+0.84	+2.4	18.0	63.3
Jan. 21	23 33.42	+03 18.9	4.637	4.156	+0.91	+3.2	18.0	55.3
Jan. 31	23 42.79	+03 53.3	4.742	4.142	+0.97	+3.8	18.0	47.6
Feb. 10	23 52.73	+04 33.3	4.834	4.128	+1.02	+4.3	18.0	40.0
Feb. 20	00 03.12	+05 18.0	4.912	4.114	+1.06	+4.7	18.0	32.6
Mar. 1	00 13.89	+06 06.4	4.973	4.100	+1.09	+5.0	18.0	25.4
Mar. 11	00 24.96	+06 57.7	5.018	4.087	+1.12	+5.2	18.0	18.3
Mar. 21	00 36.27	+07 50.9	5.046	4.074	+1.14	+5.4	17.9	11.5
Mar. 31	00 47.73	+08 45.2	5.056	4.062	+1.15	+5.5	17.9	5.2
Apr. 10	00 59.30	+09 39.7	5.048	4.050	+1.16	+5.4	17.9	4.2
Apr. 20	01 10.92	+10 33.8	5.023	4.038	+1.16	+5.3	17.8	10.1
Apr. 30	01 22.52	+11 26.5	4.982	4.027	+1.16	+5.2	17.8	16.7
May 10	01 34.06	+12 17.4	4.923	4.016	+1.15	+4.9	17.7	23.3
May 20	01 45.45	+13 05.5	4.850	4.006	+1.13	+4.6	17.7	30.0
May 30	01 56.64	+13 50.4	4.761	3.996	+1.10	+4.3	17.6	36.8
June 9	02 07.54	+14 31.4	4.659	3.986	+1.07	+3.9	17.5	43.7
June 19	02 18.05	+15 07.9	4.544	3.977	+1.03	+3.4	17.4	50.6
June 29	02 28.09	+15 39.3	4.418	3.969	+0.97	+2.8	17.4	57.7
July 9	02 37.53	+16 05.2	4.283	3.961	+0.91	+2.3	17.3	64.9
July 19	02 46.23	+16 24.8	4.141	3.953	+0.83	+1.6	17.2	72.4
July 29	02 54.07	+16 37.9	3.993	3.946	+0.73	+0.9	17.1	80.1
Aug. 8	03 00.88	+16 43.8	3.841	3.939	+0.62	+0.2	17.0	88.0
Aug. 18	03 06.49	+16 42.0	3.690	3.933	+0.49	-0.6	16.9	96.4
Aug. 28	03 10.74	+16 32.3	3.542	3.927	+0.34	-1.4	16.8	105.0
Sept. 7	03 13.48	+16 14.1	3.400	3.922	+0.19	-2.3	16.8	114.2
Sept. 17	03 14.59	+15 47.5	3.269	3.918	+0.02	-3.1	16.7	123.7
Sept. 27	03 14.05	+15 12.5	3.153	3.913	-0.15	-3.9	16.6	133.8
Oct. 7	03 11.89	+14 29.9	3.055	3.910	-0.30	-4.6	16.5	144.2
Oct. 17	03 08.31	+13 40.9	2.980	3.907	-0.43	-5.2	16.5	155.0
Oct. 27	03 03.62	+12 47.8	2.932	3.904	-0.51	-5.4	16.5	165.9
Nov. 6	02 58.28	+11 53.2	2.914	3.902	-0.55	-5.4	16.5	174.8
Nov. 16	02 52.84	+11 00.7	2.925	3.900	-0.53	-5.0	16.5	169.0
Nov. 26	02 47.84	+10 13.4	2.966	3.899	-0.46	-4.3	16.6	158.1
Dec. 6	02 43.76	+09 34.1	3.035	3.899	-0.34	-3.4	16.6	147.0
Dec. 16	02 41.00	+09 04.9	3.129	3.899	-0.19	-2.3	16.7	136.2
Dec. 26	02 39.76	+08 46.6	3.243	3.899	-0.03	-1.2	16.8	125.7
Jan. 5	02 40.16	+08 39.1	3.373	3.900	+0.13	-0.2	16.9	115.6
Jan. 15	02 42.21	+08 41.7	3.514	3.902	+0.29	+0.8	17.1	106.0
Jan. 25	02 45.80	+08 53.1	3.663	3.904	+0.44	+1.6	17.2	96.8
Feb. 4	02 50.85	+09 11.9	3.815	3.907	+0.58	+2.2	17.3	88.0
Feb. 14	02 57.19	+09 36.4	3.966	3.910	+0.70	+2.7	17.5	79.6
Feb. 24	03 04.68	+10 05.1	4.114	3.913	+0.81	+3.0	17.6	71.5
Mar. 6	03 13.18	+10 36.5	4.255	3.918	+0.90	+3.2	17.7	63.7
Mar. 16	03 22.56	+11 09.4	4.388	3.922	+0.98	+3.3	17.8	56.2
Mar. 26	03 32.69	+11 42.4	4.511	3.927	+1.05	+3.3	17.9	48.9

Comet 242P/Spahr

Epoch = 2024 July 29.0 TT
 T = 2024 Dec. 23.13682 TT
 Peri. = 244.86391 e = 0.2821717
 Node = 180.34052 2000.0 a = 5.5328397 AU
 Incl. = 32.44508 n = 0.07573244
 q = 3.9716289 AU P = 13.01 years

$$m1 = 7.5 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	00 19.97	-07 38.0	4.307	4.281	+0.52 +1.4	18.6	81.9
Jan. 11	00 25.69	-07 20.2	4.443	4.266	+0.63 +2.2	18.6	73.3
Jan. 21	00 32.44	-06 55.3	4.572	4.250	+0.73 +2.8	18.7	65.0
Jan. 31	00 40.08	-06 24.9	4.691	4.235	+0.81 +3.3	18.7	57.0
Feb. 10	00 48.51	-05 50.2	4.798	4.220	+0.88 +3.7	18.7	49.2
Feb. 20	00 57.61	-05 12.5	4.891	4.206	+0.94 +3.9	18.7	41.8
Mar. 1	01 07.28	-04 32.9	4.968	4.192	+0.99 +4.0	18.8	34.7
Mar. 11	01 17.44	-03 52.5	5.029	4.178	+1.04 +4.0	18.8	28.0
Mar. 21	01 27.99	-03 12.4	5.073	4.164	+1.07 +4.0	18.8	21.8
Mar. 31	01 38.87	-02 33.5	5.099	4.151	+1.10 +3.8	18.8	16.5
Apr. 10	01 50.01	-01 56.7	5.108	4.139	+1.13 +3.5	18.8	13.2
Apr. 20	02 01.34	-01 23.1	5.099	4.127	+1.14 +3.2	18.7	13.1
Apr. 30	02 12.79	+00 53.3	5.073	4.115	+1.15 +2.7	18.7	16.2
May 10	02 24.31	+00 28.3	5.030	4.103	+1.15 +2.2	18.7	21.1
May 20	02 35.83	+00 08.8	4.971	4.092	+1.15 +1.6	18.6	26.7
May 30	02 47.26	+00 04.4	4.897	4.082	+1.14 +0.9	18.6	32.8
June 9	02 58.56	+00 10.6	4.809	4.072	+1.12 +0.2	18.5	39.1
June 19	03 09.61	+00 09.0	4.709	4.062	+1.09 -0.6	18.5	45.5
June 29	03 20.34	+00 01.1	4.598	4.053	+1.05 -1.5	18.4	52.1
July 9	03 30.65	+00 20.1	4.477	4.044	+1.00 -2.4	18.3	58.8
July 19	03 40.42	+00 48.8	4.348	4.036	+0.94 -3.4	18.3	65.6
July 29	03 49.52	-01 27.4	4.214	4.028	+0.87 -4.4	18.2	72.6
Aug. 8	03 57.81	-02 16.3	4.076	4.021	+0.78 -5.5	18.1	79.7
Aug. 18	04 05.14	-03 15.6	3.937	4.014	+0.67 -6.5	18.0	87.0
Aug. 28	04 11.37	-04 24.8	3.799	4.008	+0.55 -7.5	17.9	94.5
Sept. 7	04 16.31	-05 43.5	3.666	4.002	+0.42 -8.3	17.8	102.2
Sept. 17	04 19.82	-07 10.0	3.541	3.996	+0.27 -9.0	17.8	109.9
Sept. 27	04 21.78	-08 42.5	3.427	3.992	+0.11 -9.5	17.7	117.6
Oct. 7	04 22.09	-10 18.0	3.327	3.987	-0.06 -9.6	17.6	125.2
Oct. 17	04 20.76	-11 52.5	3.245	3.984	-0.22 -9.2	17.6	132.2
Oct. 27	04 17.90	-13 21.5	3.184	3.980	-0.36 -8.4	17.5	138.1
Nov. 6	04 13.73	-14 40.3	3.146	3.978	-0.48 -7.1	17.5	142.4
Nov. 16	04 08.63	-15 43.9	3.133	3.975	-0.54 -5.4	17.5	144.0
Nov. 26	04 03.09	-16 29.0	3.144	3.974	-0.56 -3.4	17.5	142.6
Dec. 6	03 57.64	-16 53.2	3.180	3.972	-0.52 -1.2	17.5	138.6
Dec. 16	03 52.80	-16 56.3	3.238	3.972	-0.43 +0.8	17.5	132.7
Dec. 26	03 49.02	-16 39.7	3.316	3.972	-0.31 +2.7	17.6	125.7
Jan. 5	03 46.62	-16 05.9	3.411	3.972	-0.16 +4.2	17.7	118.3
Jan. 15	03 45.80	-15 18.2	3.519	3.973	+0.01 +5.4	17.7	110.6
Jan. 25	03 46.61	-14 20.2	3.637	3.974	+0.17 +6.3	17.8	102.9
Feb. 4	03 49.03	-13 14.9	3.761	3.976	+0.33 +6.8	17.9	95.4
Feb. 14	03 52.99	-12 05.6	3.889	3.979	+0.47 +7.1	17.9	88.0
Feb. 24	03 58.34	-10 54.7	4.017	3.982	+0.61 +7.1	18.0	80.9
Mar. 6	04 04.96	-09 44.2	4.142	3.986	+0.73 +7.0	18.1	74.0
Mar. 16	04 12.69	-08 36.0	4.264	3.990	+0.83 +6.6	18.2	67.5
Mar. 26	04 21.39	-07 31.3	4.379	3.994	+0.92 +6.2	18.2	61.2

Comet C/2023 T3 (Fuls)

Epoch = 2024 Feb. 20.0 TT
 T = 2025 Jan. 25.35235 TT
 Peri. = 302.84638
 Node = 246.00035 2000.0
 Incl. = 27.22184
 q = 3.5483912 AU
 e = 0.9952051

$$m1 = 7.0 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	08 11.25	-08 32.7	4.133	4.941	-0.41	-3.8	17.0	141.6
Jan. 11	08 06.77	-09 05.0	4.026	4.884	-0.48	-2.6	16.9	147.4
Jan. 21	08 01.78	-09 25.1	3.947	4.827	-0.51	-1.3	16.8	150.4
Jan. 31	07 56.68	-09 32.4	3.894	4.770	-0.50	0.0	16.7	149.7
Feb. 10	07 51.86	-09 27.5	3.868	4.714	-0.45	+1.1	16.7	145.5
Feb. 20	07 47.75	-09 11.8	3.867	4.659	-0.36	+2.1	16.6	139.1
Mar. 1	07 44.70	-08 47.6	3.889	4.605	-0.24	+2.8	16.6	131.4
Mar. 11	07 42.94	-08 17.5	3.929	4.551	-0.10	+3.2	16.6	123.3
Mar. 21	07 42.64	-07 44.4	3.986	4.498	+0.05	+3.4	16.5	115.0
Mar. 31	07 43.88	-07 11.0	4.054	4.446	+0.21	+3.3	16.5	106.7
Apr. 10	07 46.63	-06 39.6	4.129	4.394	+0.36	+3.0	16.5	98.7
Apr. 20	07 50.83	-06 12.2	4.209	4.344	+0.50	+2.5	16.5	91.0
Apr. 30	07 56.39	-05 50.2	4.290	4.295	+0.63	+1.9	16.5	83.5
May 10	08 03.19	-05 34.8	4.370	4.247	+0.74	+1.1	16.5	76.3
May 20	08 11.11	-05 26.8	4.446	4.199	+0.85	+0.4	16.5	69.5
May 30	08 20.00	-05 26.8	4.515	4.153	+0.94	-0.4	16.5	62.9
June 9	08 29.77	-05 35.0	4.578	4.108	+1.02	-1.3	16.4	56.7
June 19	08 40.29	-05 51.8	4.632	4.065	+1.09	-2.1	16.4	50.7
June 29	08 51.46	-06 17.1	4.677	4.023	+1.15	-3.0	16.4	45.0
July 9	09 03.19	-06 50.7	4.711	3.982	+1.20	-3.8	16.4	39.7
July 19	09 15.38	-07 32.5	4.735	3.942	+1.24	-4.6	16.3	34.7
July 29	09 27.97	-08 22.2	4.748	3.905	+1.28	-5.4	16.3	30.3
Aug. 8	09 40.89	-09 19.4	4.750	3.868	+1.31	-6.1	16.3	26.4
Aug. 18	09 54.07	-10 23.7	4.740	3.834	+1.33	-6.8	16.2	23.5
Aug. 28	10 07.46	-11 34.6	4.720	3.801	+1.35	-7.4	16.2	21.8
Sept. 7	10 20.99	-12 51.5	4.688	3.770	+1.36	-8.0	16.1	21.6
Sept. 17	10 34.63	-14 13.8	4.645	3.740	+1.37	-8.5	16.1	22.9
Sept. 27	10 48.32	-15 40.7	4.592	3.713	+1.37	-8.9	16.0	25.5
Oct. 7	11 02.00	-17 11.5	4.528	3.687	+1.37	-9.3	15.9	29.1
Oct. 17	11 15.62	-18 45.5	4.454	3.664	+1.36	-9.5	15.9	33.4
Oct. 27	11 29.13	-20 21.7	4.371	3.642	+1.34	-9.7	15.8	38.2
Nov. 6	11 42.45	-21 59.3	4.278	3.623	+1.32	-9.8	15.7	43.4
Nov. 16	11 55.49	-23 37.3	4.177	3.606	+1.29	-9.8	15.7	49.0
Nov. 26	12 08.17	-25 14.6	4.068	3.591	+1.24	-9.7	15.6	54.8
Dec. 6	12 20.36	-26 50.4	3.953	3.578	+1.19	-9.4	15.5	60.8
Dec. 16	12 31.94	-28 23.2	3.832	3.567	+1.12	-9.1	15.4	67.2
Dec. 26	12 42.76	-29 52.1	3.707	3.559	+1.03	-8.6	15.4	73.7
Jan. 5	12 52.63	-31 15.6	3.579	3.553	+0.93	-8.0	15.3	80.6
Jan. 15	13 01.37	-32 32.1	3.450	3.550	+0.80	-7.2	15.2	87.7
Jan. 25	13 08.78	-33 40.1	3.323	3.548	+0.66	-6.3	15.1	95.1
Feb. 4	13 14.66	-34 37.6	3.198	3.549	+0.50	-5.1	15.0	102.8
Feb. 14	13 18.86	-35 22.4	3.081	3.553	+0.32	-3.7	14.9	110.8
Feb. 24	13 21.27	-35 52.0	2.972	3.559	+0.14	-2.0	14.9	119.0
Mar. 6	13 21.92	-36 04.1	2.876	3.567	-0.03	-0.1	14.8	127.4
Mar. 16	13 20.95	-35 56.4	2.796	3.577	-0.17	+1.9	14.8	135.8
Mar. 26	13 18.70	-35 27.7	2.735	3.590	-0.28	+4.0	14.7	143.9

Comet P/2023 S1

Epoch = 2024 Feb. 20.0 TT
 T = 2025 Feb. 23.97652 TT
 Peri. = 180.23231 e = 0.3191512
 Node = 317.30809 2000.0 a = 3.8480591 AU
 Incl. = 9.15358 n = 0.13056942
 q = 2.6199464 AU P = 7.55 years

$$m1 = 4.7 + 5 \log(\Delta) + 20.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	° ' "			m		°
Jan. 1	01 40.16	+21 47.9	2.997	3.474	+0.22 -1.9	17.9	111.0
Jan. 11	01 43.22	+21 34.1	3.108	3.444	+0.41 -0.8	17.9	101.6
Jan. 21	01 48.16	+21 31.3	3.224	3.415	+0.59 +0.3	17.9	92.7
Jan. 31	01 54.82	+21 38.6	3.341	3.385	+0.75 +1.3	17.9	84.1
Feb. 10	02 03.01	+21 55.0	3.455	3.356	+0.90 +2.1	17.9	76.0
Feb. 20	02 12.57	+22 19.3	3.564	3.326	+1.02 +2.8	17.9	68.2
Mar. 1	02 23.34	+22 49.8	3.666	3.297	+1.14 +3.3	17.9	60.8
Mar. 11	02 35.19	+23 25.2	3.758	3.268	+1.24 +3.8	17.9	53.6
Mar. 21	02 48.02	+24 04.0	3.839	3.239	+1.33 +4.0	17.8	46.8
Mar. 31	03 01.71	+24 44.8	3.909	3.210	+1.41 +4.1	17.8	40.1
Apr. 10	03 16.19	+25 26.1	3.966	3.182	+1.49 +4.1	17.7	33.8
Apr. 20	03 31.39	+26 06.9	4.009	3.153	+1.55 +4.0	17.7	27.6
Apr. 30	03 47.21	+26 45.8	4.039	3.125	+1.61 +3.8	17.6	21.7
May 10	04 03.61	+27 21.9	4.055	3.098	+1.67 +3.4	17.6	16.1
May 20	04 20.50	+27 54.2	4.058	3.070	+1.71 +3.0	17.5	10.9
May 30	04 37.83	+28 21.7	4.047	3.043	+1.75 +2.5	17.4	7.0
June 9	04 55.52	+28 43.8	4.023	3.017	+1.79 +1.9	17.3	6.6
June 19	05 13.48	+28 59.8	3.986	2.991	+1.81 +1.2	17.2	10.0
June 29	05 31.65	+29 09.1	3.937	2.965	+1.82 +0.6	17.1	14.8
July 9	05 49.92	+29 11.5	3.875	2.940	+1.83 -0.2	17.0	20.0
July 19	06 08.21	+29 06.7	3.802	2.916	+1.83 -0.9	16.9	25.3
July 29	06 26.41	+28 54.6	3.719	2.892	+1.81 -1.6	16.8	30.7
Aug. 8	06 44.43	+28 35.5	3.624	2.869	+1.79 -2.3	16.7	36.2
Aug. 18	07 02.14	+28 09.5	3.521	2.847	+1.75 -3.0	16.5	41.8
Aug. 28	07 19.45	+27 37.3	3.408	2.825	+1.70 -3.6	16.4	47.5
Sept. 7	07 36.24	+26 59.3	3.288	2.805	+1.64 -4.1	16.2	53.3
Sept. 17	07 52.37	+26 16.5	3.160	2.785	+1.57 -4.5	16.1	59.3
Sept. 27	08 07.72	+25 29.8	3.027	2.766	+1.49 -4.8	15.9	65.5
Oct. 7	08 22.14	+24 40.4	2.889	2.748	+1.38 -5.0	15.8	71.9
Oct. 17	08 35.45	+23 49.7	2.747	2.731	+1.26 -5.1	15.6	78.6
Oct. 27	08 47.49	+22 59.0	2.603	2.715	+1.12 -5.0	15.5	85.7
Nov. 6	08 58.01	+22 10.1	2.460	2.701	+0.96 -4.7	15.3	93.1
Nov. 16	09 06.78	+21 24.5	2.318	2.687	+0.77 -4.3	15.1	100.9
Nov. 26	09 13.55	+20 43.7	2.181	2.674	+0.55 -3.7	14.9	109.3
Dec. 6	09 18.00	+20 09.4	2.052	2.663	+0.31 -3.0	14.8	118.2
Dec. 16	09 19.91	+19 42.3	1.934	2.653	+0.04 -2.3	14.6	127.8
Dec. 26	09 19.12	+19 22.8	1.830	2.644	-0.23 -1.6	14.5	138.0
Jan. 5	09 15.62	+19 10.2	1.745	2.637	-0.49 -1.0	14.3	148.9
Jan. 15	09 09.73	+19 02.4	1.684	2.631	-0.70 -0.6	14.2	160.4
Jan. 25	09 02.09	+18 56.7	1.647	2.626	-0.83 -0.6	14.2	172.2
Feb. 4	08 53.66	+18 49.8	1.639	2.623	-0.84 -0.9	14.1	175.3
Feb. 14	08 45.61	+18 39.0	1.658	2.621	-0.74 -1.4	14.2	163.6
Feb. 24	08 38.97	+18 22.7	1.704	2.620	-0.55 -2.0	14.2	152.1
Mar. 6	08 34.53	+18 00.3	1.773	2.621	-0.30 -2.6	14.3	141.1
Mar. 16	08 32.74	+17 31.9	1.862	2.623	-0.03 -3.2	14.4	130.8
Mar. 26	08 33.65	+16 57.9	1.967	2.626	+0.24 -3.7	14.6	121.2

Comet C/2024 A1 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2025 June 15.70289 TT
 Peri. = 353.40773
 Node = 112.23890 2000.0
 Incl. = 94.42453
 q = 3.8783852 AU
 e = 0.9910119

$$m1 = 7.0 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	' "		°
Jan. 1	07 08.85	-65 49.9	5.783	5.882	-1.57	+3.2	18.5	90.9
Jan. 11	06 53.25	-65 06.3	5.694	5.824	-1.52	+5.8	18.4	92.7
Jan. 21	06 38.65	-63 57.1	5.612	5.766	-1.37	+8.3	18.4	94.1
Jan. 31	06 25.99	-62 23.6	5.538	5.709	-1.13	+10.6	18.3	95.0
Feb. 10	06 15.87	-60 28.5	5.474	5.652	-0.86	+12.6	18.2	95.3
Feb. 20	06 08.53	-58 15.8	5.421	5.595	-0.58	+14.1	18.1	95.0
Mar. 1	06 03.92	-55 49.7	5.379	5.539	-0.32	+15.2	18.1	94.1
Mar. 11	06 01.82	-53 14.8	5.350	5.482	-0.08	+15.8	18.0	92.4
Mar. 21	06 01.93	-50 35.2	5.332	5.427	+0.12	+16.1	18.0	90.2
Mar. 31	06 03.93	-47 54.9	5.325	5.371	+0.29	+15.9	17.9	87.3
Apr. 10	06 07.50	-45 17.1	5.327	5.317	+0.43	+15.5	17.9	84.0
Apr. 20	06 12.38	-42 44.8	5.337	5.262	+0.55	+14.8	17.8	80.4
Apr. 30	06 18.31	-40 20.2	5.352	5.208	+0.64	+14.0	17.8	76.4
May 10	06 25.08	-38 05.0	5.371	5.155	+0.72	+12.9	17.8	72.3
May 20	06 32.51	-36 00.7	5.391	5.102	+0.77	+11.8	17.7	68.2
May 30	06 40.42	-34 08.0	5.409	5.050	+0.81	+10.6	17.7	64.1
June 9	06 48.69	-32 27.4	5.424	4.999	+0.84	+9.4	17.7	60.3
June 19	06 57.18	-30 59.1	5.432	4.948	+0.86	+8.1	17.6	56.7
June 29	07 05.78	-29 43.2	5.433	4.898	+0.86	+6.9	17.6	53.6
July 9	07 14.38	-28 39.2	5.423	4.848	+0.86	+5.7	17.5	51.0
July 19	07 22.87	-27 46.9	5.401	4.799	+0.84	+4.6	17.5	49.2
July 29	07 31.15	-27 05.6	5.366	4.751	+0.81	+3.5	17.4	48.3
Aug. 8	07 39.14	-26 34.8	5.316	4.704	+0.78	+2.5	17.4	48.4
Aug. 18	07 46.70	-26 13.7	5.252	4.658	+0.73	+1.6	17.3	49.5
Aug. 28	07 53.74	-26 01.4	5.171	4.612	+0.67	+0.8	17.2	51.6
Sept. 7	08 00.13	-25 57.1	5.075	4.568	+0.60	0.0	17.1	54.7
Sept. 17	08 05.73	-25 59.6	4.964	4.524	+0.51	-0.6	17.0	58.7
Sept. 27	08 10.39	-26 07.5	4.838	4.482	+0.41	-1.0	16.9	63.5
Oct. 7	08 13.95	-26 19.5	4.699	4.440	+0.29	-1.3	16.8	69.0
Oct. 17	08 16.21	-26 33.6	4.548	4.400	+0.15	-1.4	16.7	75.2
Oct. 27	08 16.99	-26 47.3	4.389	4.361	-0.01	-1.3	16.6	81.9
Nov. 6	08 16.08	-26 58.0	4.224	4.323	-0.19	-0.8	16.5	89.1
Nov. 16	08 13.29	-27 01.7	4.057	4.286	-0.39	+0.2	16.4	96.7
Nov. 26	08 08.50	-26 54.4	3.894	4.251	-0.59	+1.5	16.2	104.6
Dec. 6	08 01.66	-26 31.0	3.738	4.217	-0.79	+3.4	16.1	112.7
Dec. 16	07 52.87	-25 46.1	3.596	4.184	-0.98	+5.9	16.0	120.6
Dec. 26	07 42.44	-24 35.0	3.475	4.153	-1.12	+8.7	15.9	128.0
Jan. 5	07 30.85	-22 54.3	3.379	4.123	-1.20	+11.8	15.8	134.0
Jan. 15	07 18.79	-20 43.1	3.315	4.095	-1.20	+14.7	15.7	137.6
Jan. 25	07 07.02	-18 04.1	3.285	4.068	-1.13	+17.2	15.7	137.8
Feb. 4	06 56.26	-15 03.0	3.291	4.043	-1.00	+19.0	15.7	134.4
Feb. 14	06 47.07	-11 48.2	3.332	4.019	-0.82	+19.9	15.7	128.3
Feb. 24	06 39.81	-08 28.1	3.406	3.998	-0.61	+20.0	15.7	120.3
Mar. 6	06 34.65	-05 10.6	3.507	3.978	-0.40	+19.4	15.7	111.4
Mar. 16	06 31.58	-02 01.3	3.629	3.959	-0.20	+18.3	15.8	102.1
Mar. 26	06 30.47	+00 55.9	3.766	3.943	-0.01	+17.0	15.8	92.8

Comet 65P/Gunn

Epoch = 2024 July 29.0 TT
 T = 2025 June 16.72436 TT
 Peri. = 213.73130 e = 0.2481224
 Node = 61.97643 2000.0 a = 3.8914472 AU
 Incl. = 9.17598 n = 0.12839182
 q = 2.9258920 AU P = 7.68 years

$$m1 = 13.4 + 5 \log(\Delta) + 2.5 \log(r(t+20))$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° ' "			m	'		°
Jan. 1	13 05.41	+02 01.8	3.713	3.765	+0.62	-2.3	17.7	85.5
Jan. 11	13 11.07	+01 42.6	3.541	3.743	+0.50	-1.4	17.6	94.1
Jan. 21	13 15.42	+01 32.8	3.372	3.721	+0.35	-0.4	17.5	103.1
Jan. 31	13 18.26	+01 32.7	3.208	3.699	+0.20	+0.5	17.3	112.5
Feb. 10	13 19.45	+01 42.5	3.054	3.676	+0.02	+1.5	17.2	122.2
Feb. 20	13 18.84	+02 01.7	2.914	3.654	-0.16	+2.4	17.1	132.3
Mar. 1	13 16.44	+02 28.8	2.793	3.632	-0.34	+3.1	17.0	142.8
Mar. 11	13 12.34	+03 01.9	2.694	3.609	-0.50	+3.5	16.9	153.3
Mar. 21	13 06.81	+03 37.7	2.621	3.587	-0.62	+3.6	16.9	163.3
Mar. 31	13 00.30	+04 12.5	2.577	3.565	-0.68	+3.3	16.8	170.0
Apr. 10	12 53.37	+04 42.3	2.561	3.543	-0.69	+2.6	16.8	166.3
Apr. 20	12 46.67	+05 03.5	2.575	3.520	-0.63	+1.5	16.8	156.8
Apr. 30	12 40.80	+05 13.5	2.614	3.498	-0.52	+0.3	16.8	146.4
May 10	12 36.22	+05 10.9	2.677	3.476	-0.37	-1.0	16.9	136.1
May 20	12 33.27	+04 55.2	2.760	3.455	-0.20	-2.3	16.9	126.1
May 30	12 32.11	+04 27.3	2.857	3.433	-0.02	-3.4	17.0	116.6
June 9	12 32.75	+03 48.1	2.965	3.411	+0.16	-4.5	17.1	107.6
June 19	12 35.13	+02 58.9	3.080	3.390	+0.33	-5.4	17.2	99.0
June 29	12 39.13	+02 01.2	3.198	3.369	+0.48	-6.2	17.2	90.8
July 9	12 44.61	+00 56.1	3.317	3.348	+0.62	-6.9	17.3	83.0
July 19	12 51.41	+00 15.1	3.433	3.327	+0.75	-7.4	17.4	75.5
July 29	12 59.39	-01 31.2	3.545	3.307	+0.86	-7.9	17.4	68.3
Aug. 8	13 08.42	-02 51.5	3.651	3.287	+0.96	-8.2	17.5	61.3
Aug. 18	13 18.39	-04 14.8	3.748	3.267	+1.04	-8.5	17.5	54.6
Aug. 28	13 29.20	-05 40.4	3.836	3.248	+1.12	-8.6	17.6	48.0
Sept. 7	13 40.78	-07 07.4	3.913	3.228	+1.20	-8.7	17.6	41.5
Sept. 17	13 53.05	-08 35.0	3.979	3.210	+1.26	-8.8	17.7	35.2
Sept. 27	14 05.96	-10 02.4	4.032	3.191	+1.32	-8.7	17.7	28.9
Oct. 7	14 19.44	-11 29.0	4.072	3.173	+1.38	-8.6	17.7	22.6
Oct. 17	14 33.46	-12 54.0	4.099	3.156	+1.43	-8.4	17.7	16.5
Oct. 27	14 47.95	-14 16.5	4.112	3.139	+1.47	-8.1	17.7	10.3
Nov. 6	15 02.89	-15 36.1	4.110	3.122	+1.52	-7.8	17.7	4.3
Nov. 16	15 18.20	-16 51.8	4.094	3.106	+1.55	-7.4	17.7	2.6
Nov. 26	15 33.83	-18 03.3	4.064	3.091	+1.58	-6.9	17.7	8.4
Dec. 6	15 49.73	-19 10.0	4.019	3.076	+1.60	-6.4	17.6	14.6
Dec. 16	16 05.81	-20 11.3	3.961	3.061	+1.61	-5.8	17.6	20.8
Dec. 26	16 21.98	-21 07.1	3.890	3.048	+1.62	-5.3	17.6	27.1
Jan. 5	16 38.16	-21 57.1	3.806	3.035	+1.61	-4.7	17.5	33.5
Jan. 15	16 54.23	-22 41.4	3.710	3.022	+1.60	-4.1	17.4	39.9
Jan. 25	17 10.07	-23 20.0	3.604	3.010	+1.57	-3.6	17.4	46.4
Feb. 4	17 25.55	-23 53.4	3.488	2.999	+1.52	-3.1	17.3	52.9
Feb. 14	17 40.51	-24 22.1	3.364	2.989	+1.46	-2.6	17.2	59.6
Feb. 24	17 54.81	-24 47.0	3.233	2.979	+1.39	-2.3	17.1	66.5
Mar. 6	18 08.26	-25 09.1	3.097	2.970	+1.29	-2.1	17.0	73.5
Mar. 16	18 20.67	-25 29.5	2.957	2.962	+1.18	-2.0	16.9	80.6
Mar. 26	18 31.85	-25 49.7	2.815	2.955	+1.04	-2.1	16.8	88.1

Comet C/2023 H5 (Lemmon)

Epoch = 2024 Feb. 20.0 TT
 T = 2025 June 30.17963 TT
 Peri. = 60.08072
 Node = 159.48216 2000.0
 Incl. = 97.86183
 q = 4.3129835 AU
 e = 1.0003329

$$m1 = 2.3 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	11 09.49	-01 29.1	5.721	6.137	-0.15	+5.1	17.9	110.6
Jan. 11	11 07.45	+00 33.0	5.510	6.083	-0.27	+6.3	17.8	121.6
Jan. 21	11 04.25	+00 34.9	5.317	6.030	-0.38	+7.4	17.6	132.9
Jan. 31	10 59.94	+01 54.4	5.147	5.977	-0.49	+8.6	17.5	144.6
Feb. 10	10 54.65	+03 24.5	5.007	5.925	-0.58	+9.5	17.4	156.5
Feb. 20	10 48.59	+05 03.2	4.901	5.873	-0.64	+10.2	17.3	168.7
Mar. 1	10 42.04	+06 47.6	4.831	5.822	-0.67	+10.6	17.2	178.3
Mar. 11	10 35.34	+08 34.2	4.799	5.770	-0.66	+10.6	17.1	166.7
Mar. 21	10 28.85	+10 19.3	4.804	5.720	-0.62	+10.3	17.1	154.6
Mar. 31	10 22.92	+11 59.4	4.843	5.670	-0.55	+9.6	17.0	142.7
Apr. 10	10 17.83	+13 32.0	4.910	5.620	-0.45	+8.8	17.0	131.1
Apr. 20	10 13.80	+14 55.3	5.002	5.571	-0.34	+7.8	17.0	119.9
Apr. 30	10 10.96	+16 08.5	5.110	5.522	-0.22	+6.8	17.0	109.1
May 10	10 09.38	+17 11.6	5.230	5.474	-0.09	+5.8	17.0	98.7
May 20	10 09.04	+18 05.0	5.354	5.426	+0.03	+4.8	17.0	88.7
May 30	10 09.90	+18 49.8	5.478	5.379	+0.15	+4.0	17.0	79.1
June 9	10 11.88	+19 26.8	5.597	5.333	+0.26	+3.3	16.9	69.8
June 19	10 14.88	+19 57.2	5.706	5.287	+0.35	+2.7	16.9	60.9
June 29	10 18.79	+20 22.1	5.801	5.242	+0.44	+2.2	16.9	52.3
July 9	10 23.51	+20 42.7	5.880	5.198	+0.51	+1.9	16.9	44.0
July 19	10 28.94	+21 00.0	5.940	5.154	+0.58	+1.6	16.9	36.1
July 29	10 34.98	+21 15.2	5.980	5.111	+0.63	+1.4	16.8	28.6
Aug. 8	10 41.54	+21 29.3	5.997	5.069	+0.68	+1.4	16.8	21.8
Aug. 18	10 48.54	+21 43.4	5.990	5.027	+0.72	+1.5	16.7	16.4
Aug. 28	10 55.89	+21 58.8	5.961	4.987	+0.75	+1.6	16.6	14.1
Sept. 7	11 03.53	+22 16.5	5.907	4.947	+0.78	+2.0	16.6	16.2
Sept. 17	11 11.38	+22 38.0	5.831	4.909	+0.79	+2.4	16.5	21.4
Sept. 27	11 19.36	+23 04.7	5.732	4.871	+0.80	+3.0	16.4	28.1
Oct. 7	11 27.41	+23 38.1	5.612	4.834	+0.81	+3.8	16.3	35.6
Oct. 17	11 35.44	+24 20.0	5.474	4.798	+0.80	+4.7	16.2	43.4
Oct. 27	11 43.37	+25 12.2	5.319	4.763	+0.78	+5.9	16.1	51.5
Nov. 6	11 51.09	+26 16.7	5.151	4.730	+0.76	+7.2	16.0	59.8
Nov. 16	11 58.50	+27 35.6	4.973	4.697	+0.72	+8.8	15.9	68.2
Nov. 26	12 05.46	+29 10.9	4.790	4.665	+0.67	+10.5	15.7	76.9
Dec. 6	12 11.82	+31 04.5	4.606	4.635	+0.60	+12.4	15.6	85.6
Dec. 16	12 17.39	+33 17.9	4.427	4.606	+0.51	+14.5	15.5	94.3
Dec. 26	12 21.95	+35 51.7	4.257	4.578	+0.39	+16.5	15.4	102.9
Jan. 5	12 25.24	+38 45.4	4.104	4.551	+0.25	+18.4	15.2	111.1
Jan. 15	12 26.94	+41 56.7	3.972	4.526	+0.07	+19.9	15.1	118.5
Jan. 25	12 26.72	+45 21.2	3.867	4.502	-0.14	+20.9	15.0	124.7
Feb. 4	12 24.20	+48 52.3	3.792	4.479	-0.39	+21.2	15.0	129.0
Feb. 14	12 19.05	+52 21.4	3.749	4.457	-0.67	+20.4	14.9	130.8
Feb. 24	12 11.05	+55 39.0	3.739	4.437	-0.96	+18.8	14.9	129.7
Mar. 6	12 00.19	+58 35.8	3.760	4.419	-1.23	+16.2	14.9	126.2
Mar. 16	11 46.90	+61 04.4	3.809	4.402	-1.43	+13.1	14.9	120.8
Mar. 26	11 32.04	+63 00.6	3.880	4.386	-1.53	+9.8	14.9	114.3

Comet C/2022 N2 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2025 July 31.65264 TT
 Peri. = 75.37399
 Node = 319.73990 2000.0
 Incl. = 5.50289
 q = 3.8257490 AU
 e = 1.0035968

$$m1 = 0.8 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	21 05.96	-16 40.2	6.951	6.164	+0.71	+3.4	16.9	34.3
Jan. 11	21 13.21	-16 04.4	6.972	6.103	+0.75	+3.7	16.8	25.9
Jan. 21	21 20.83	-15 25.8	6.973	6.043	+0.78	+4.0	16.7	17.7
Jan. 31	21 28.71	-14 44.7	6.952	5.983	+0.80	+4.2	16.7	9.6
Feb. 10	21 36.79	-14 01.3	6.910	5.923	+0.81	+4.4	16.6	1.5
Feb. 20	21 44.96	-13 16.1	6.845	5.864	+0.82	+4.6	16.5	6.5
Mar. 1	21 53.14	-12 29.3	6.759	5.805	+0.82	+4.7	16.4	14.4
Mar. 11	22 01.27	-11 41.5	6.652	5.746	+0.81	+4.8	16.3	22.3
Mar. 21	22 09.25	-10 53.1	6.526	5.687	+0.79	+4.9	16.2	30.1
Mar. 31	22 17.02	-10 04.6	6.383	5.629	+0.76	+4.8	16.1	38.0
Apr. 10	22 24.50	-09 16.5	6.223	5.571	+0.73	+4.8	16.0	45.8
Apr. 20	22 31.60	-08 29.4	6.048	5.513	+0.69	+4.6	15.8	53.7
Apr. 30	22 38.24	-07 43.9	5.862	5.456	+0.64	+4.4	15.7	61.6
May 10	22 44.34	-07 00.6	5.667	5.399	+0.58	+4.2	15.6	69.6
May 20	22 49.81	-06 20.1	5.465	5.342	+0.51	+3.9	15.4	77.7
May 30	22 54.55	-05 43.2	5.259	5.286	+0.43	+3.5	15.3	86.0
June 9	22 58.47	-05 10.5	5.053	5.231	+0.34	+3.0	15.1	94.5
June 19	23 01.47	-04 42.7	4.849	5.176	+0.25	+2.5	14.9	103.2
June 29	23 03.48	-04 20.5	4.652	5.121	+0.14	+1.9	14.8	112.1
July 9	23 04.41	-04 04.3	4.464	5.068	+0.03	+1.3	14.6	121.3
July 19	23 04.23	-03 54.6	4.291	5.014	-0.08	+0.6	14.5	130.8
July 29	23 02.95	-03 51.4	4.135	4.962	-0.19	0.0	14.3	140.6
Aug. 8	23 00.65	-03 54.7	4.000	4.910	-0.28	-0.7	14.2	150.7
Aug. 18	22 57.46	-04 03.6	3.890	4.858	-0.36	-1.2	14.0	161.0
Aug. 28	22 53.62	-04 17.0	3.806	4.808	-0.41	-1.5	13.9	171.4
Sept. 7	22 49.43	-04 33.4	3.752	4.758	-0.42	-1.7	13.8	176.3
Sept. 17	22 45.26	-04 50.7	3.726	4.709	-0.40	-1.7	13.7	166.4
Sept. 27	22 41.47	-05 06.9	3.728	4.660	-0.34	-1.5	13.7	155.7
Oct. 7	22 38.42	-05 20.0	3.757	4.613	-0.25	-1.1	13.6	145.2
Oct. 17	22 36.39	-05 28.2	3.810	4.567	-0.14	-0.5	13.6	134.8
Oct. 27	22 35.60	-05 30.2	3.881	4.521	-0.01	+0.2	13.6	124.7
Nov. 6	22 36.17	-05 25.0	3.969	4.477	+0.13	+0.9	13.6	114.8
Nov. 16	22 38.14	-05 12.1	4.068	4.433	+0.27	+1.7	13.5	105.3
Nov. 26	22 41.49	-04 51.3	4.174	4.391	+0.41	+2.5	13.5	96.2
Dec. 6	22 46.16	-04 22.6	4.284	4.350	+0.54	+3.3	13.5	87.3
Dec. 16	22 52.04	-03 46.2	4.393	4.310	+0.65	+4.0	13.5	78.7
Dec. 26	22 59.02	-03 02.7	4.498	4.271	+0.75	+4.7	13.5	70.5
Jan. 5	23 06.97	-02 12.3	4.598	4.234	+0.84	+5.4	13.5	62.4
Jan. 15	23 15.78	-01 15.6	4.689	4.198	+0.92	+6.0	13.5	54.7
Jan. 25	23 25.34	+00 13.4	4.770	4.163	+0.99	+6.5	13.5	47.1
Feb. 4	23 35.53	+00 53.9	4.839	4.130	+1.05	+7.0	13.5	39.8
Feb. 14	23 46.27	+02 05.6	4.895	4.098	+1.10	+7.4	13.4	32.6
Feb. 24	23 57.47	+03 20.8	4.937	4.068	+1.14	+7.7	13.4	25.7
Mar. 6	00 09.06	+04 39.1	4.965	4.039	+1.18	+8.0	13.4	18.9
Mar. 16	00 20.97	+05 59.6	4.978	4.012	+1.21	+8.1	13.3	12.4
Mar. 26	00 33.13	+07 21.6	4.977	3.987	+1.23	+8.3	13.3	6.3

Comet 195P/Hill

Epoch = 2024 Feb. 20.0 TT
 T = 2025 Aug. 2.97396 TT
 Peri. = 250.28620 e = 0.3130188
 Node = 243.11394 2000.0 a = 6.4669458 AU
 Incl. = 36.42537 n = 0.05993151
 q = 4.4426702 AU P = 16.45 years

$$m1 = 6.3 + 5 \log(\Delta) + 12.5 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	m1	Elong.
2024/25	h m	°			m		°
Jan. 1	04 03.31	+15 45.6	4.305	5.115	-0.36 -4.3	18.3	141.9
Jan. 11	04 00.23	+15 05.8	4.397	5.096	-0.24 -3.6	18.4	130.9
Jan. 21	03 58.47	+14 32.5	4.508	5.076	-0.10 -3.0	18.4	120.3
Jan. 31	03 58.08	+14 05.9	4.635	5.056	+0.04 -2.3	18.4	110.0
Feb. 10	03 59.08	+13 45.8	4.770	5.037	+0.17 -1.7	18.5	100.0
Feb. 20	04 01.41	+13 31.3	4.911	5.018	+0.30 -1.2	18.5	90.5
Mar. 1	04 04.98	+13 21.5	5.051	4.999	+0.42 -0.8	18.6	81.4
Mar. 11	04 09.67	+13 15.4	5.187	4.980	+0.53 -0.4	18.6	72.5
Mar. 21	04 15.37	+13 11.9	5.316	4.962	+0.62 -0.3	18.6	64.1
Mar. 31	04 21.94	+13 09.9	5.434	4.943	+0.70 -0.2	18.7	55.9
Apr. 10	04 29.28	+13 08.2	5.539	4.925	+0.77 -0.2	18.7	48.0
Apr. 20	04 37.27	+13 06.1	5.629	4.907	+0.83 -0.3	18.7	40.4
Apr. 30	04 45.80	+13 02.5	5.703	4.890	+0.88 -0.5	18.7	33.1
May 10	04 54.78	+12 56.8	5.759	4.872	+0.92 -0.7	18.7	26.1
May 20	05 04.10	+12 48.3	5.796	4.855	+0.95 -1.0	18.7	19.6
May 30	05 13.67	+12 36.2	5.814	4.838	+0.97 -1.4	18.7	14.2
June 9	05 23.41	+12 20.2	5.813	4.821	+0.98 -1.8	18.7	11.1
June 19	05 33.22	+11 59.7	5.793	4.805	+0.98 -2.3	18.6	12.2
June 29	05 43.03	+11 34.3	5.755	4.789	+0.98 -2.8	18.6	16.5
July 9	05 52.74	+11 03.7	5.698	4.773	+0.96 -3.4	18.6	22.4
July 19	06 02.27	+10 27.7	5.623	4.757	+0.94 -3.9	18.5	28.8
July 29	06 11.52	+09 46.1	5.532	4.742	+0.91 -4.5	18.5	35.5
Aug. 8	06 20.40	+08 58.6	5.425	4.727	+0.86 -5.1	18.4	42.5
Aug. 18	06 28.80	+08 05.3	5.305	4.713	+0.81 -5.6	18.3	49.6
Aug. 28	06 36.61	+07 06.3	5.173	4.698	+0.75 -6.2	18.3	56.9
Sept. 7	06 43.73	+06 01.5	5.030	4.684	+0.67 -6.8	18.2	64.4
Sept. 17	06 50.01	+04 51.2	4.880	4.670	+0.58 -7.3	18.1	72.1
Sept. 27	06 55.35	+03 36.0	4.725	4.657	+0.48 -7.8	18.0	80.0
Oct. 7	06 59.59	+02 16.4	4.569	4.644	+0.36 -8.2	17.9	88.1
Oct. 17	07 02.61	+00 53.3	4.413	4.631	+0.23 -8.5	17.8	96.4
Oct. 27	07 04.30	+00 32.0	4.263	4.619	+0.09 -8.6	17.8	104.9
Nov. 6	07 04.56	-01 57.8	4.122	4.607	-0.06 -8.5	17.7	113.5
Nov. 16	07 03.34	-03 21.9	3.994	4.596	-0.20 -8.2	17.6	122.1
Nov. 26	07 00.69	-04 42.0	3.883	4.585	-0.34 -7.7	17.5	130.4
Dec. 6	06 56.72	-05 55.0	3.793	4.574	-0.46 -6.8	17.4	138.1
Dec. 16	06 51.66	-06 58.0	3.727	4.563	-0.55 -5.7	17.4	144.3
Dec. 26	06 45.87	-07 48.7	3.688	4.553	-0.60 -4.3	17.4	148.1
Jan. 5	06 39.78	-08 25.1	3.677	4.544	-0.61 -2.8	17.3	148.4
Jan. 15	06 33.85	-08 46.7	3.693	4.535	-0.56 -1.4	17.3	145.1
Jan. 25	06 28.56	-08 53.9	3.734	4.526	-0.48 0.0	17.4	139.2
Feb. 4	06 24.28	-08 48.5	3.799	4.517	-0.36 +1.2	17.4	131.9
Feb. 14	06 21.32	-08 32.8	3.884	4.509	-0.22 +2.0	17.4	123.9
Feb. 24	06 19.83	-08 09.7	3.985	4.502	-0.06 +2.6	17.5	115.6
Mar. 6	06 19.89	-07 42.1	4.097	4.495	+0.09 +2.9	17.5	107.4
Mar. 16	06 21.48	-07 12.5	4.218	4.488	+0.24 +3.0	17.6	99.4
Mar. 26	06 24.52	-06 43.3	4.342	4.482	+0.38 +2.8	17.6	91.6

Comet C/2022 R6 (PANSTARRS)

Epoch = 2024 July 29.0 TT
 T = 2025 Aug. 25.68034 TT
 Peri. = 319.87458
 Node = 150.78115 2000.0
 Incl. = 57.02036
 q = 6.5661148 AU
 e = 1.0047960

$$m1 = -0.3 + 5 \log(\Delta) + 15.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	04 52.34	-40 17.6	7.270	7.688	-0.33	+3.6	17.3	111.7
Jan. 11	04 49.35	-39 36.1	7.287	7.654	-0.26	+4.8	17.3	108.4
Jan. 21	04 47.16	-38 44.0	7.315	7.621	-0.17	+5.7	17.3	104.5
Jan. 31	04 45.92	-37 43.2	7.352	7.588	-0.07	+6.5	17.2	100.2
Feb. 10	04 45.70	-36 35.6	7.396	7.556	+0.04	+7.0	17.2	95.6
Feb. 20	04 46.53	-35 23.5	7.447	7.524	+0.14	+7.4	17.2	90.7
Mar. 1	04 48.41	-34 08.8	7.500	7.493	+0.24	+7.5	17.2	85.8
Mar. 11	04 51.28	-32 53.6	7.555	7.462	+0.34	+7.5	17.2	80.8
Mar. 21	04 55.08	-31 39.4	7.610	7.431	+0.43	+7.3	17.2	75.9
Mar. 31	04 59.71	-30 27.8	7.662	7.401	+0.51	+7.0	17.2	71.2
Apr. 10	05 05.08	-29 20.0	7.710	7.371	+0.57	+6.5	17.1	66.7
Apr. 20	05 11.10	-28 17.0	7.752	7.341	+0.63	+6.0	17.1	62.4
Apr. 30	05 17.68	-27 19.7	7.787	7.312	+0.68	+5.4	17.1	58.6
May 10	05 24.71	-26 28.7	7.813	7.284	+0.73	+4.7	17.1	55.2
May 20	05 32.12	-25 44.5	7.830	7.255	+0.76	+4.0	17.1	52.3
May 30	05 39.79	-25 07.6	7.837	7.228	+0.78	+3.3	17.1	50.0
June 9	05 47.66	-24 38.0	7.834	7.201	+0.79	+2.5	17.0	48.5
June 19	05 55.64	-24 16.0	7.818	7.174	+0.80	+1.8	17.0	47.7
June 29	06 03.64	-24 01.6	7.791	7.148	+0.80	+1.0	17.0	47.8
July 9	06 11.58	-23 54.8	7.752	7.122	+0.79	+0.3	16.9	48.7
July 19	06 19.38	-23 55.5	7.702	7.096	+0.77	-0.5	16.9	50.4
July 29	06 26.95	-24 03.3	7.639	7.072	+0.74	-1.2	16.9	52.8
Aug. 8	06 34.20	-24 17.9	7.566	7.047	+0.70	-1.8	16.8	55.9
Aug. 18	06 41.05	-24 39.0	7.482	7.024	+0.66	-2.4	16.8	59.6
Aug. 28	06 47.41	-25 06.0	7.388	7.000	+0.61	-3.0	16.7	63.8
Sept. 7	06 53.19	-25 38.1	7.286	6.978	+0.54	-3.5	16.7	68.4
Sept. 17	06 58.27	-26 14.4	7.177	6.956	+0.47	-3.8	16.6	73.3
Sept. 27	07 02.59	-26 54.0	7.062	6.934	+0.39	-4.1	16.6	78.6
Oct. 7	07 06.03	-27 35.4	6.943	6.913	+0.29	-4.2	16.5	84.2
Oct. 17	07 08.52	-28 17.3	6.822	6.892	+0.19	-4.1	16.4	89.9
Oct. 27	07 10.00	-28 57.8	6.702	6.873	+0.09	-3.9	16.4	95.7
Nov. 6	07 10.42	-29 34.9	6.586	6.853	-0.02	-3.4	16.3	101.5
Nov. 16	07 09.78	-30 06.5	6.475	6.834	-0.12	-2.8	16.3	107.3
Nov. 26	07 08.13	-30 30.3	6.374	6.816	-0.22	-1.9	16.2	112.7
Dec. 6	07 05.57	-30 44.0	6.284	6.799	-0.30	-0.7	16.2	117.7
Dec. 16	07 02.26	-30 45.8	6.209	6.782	-0.36	+0.5	16.1	122.0
Dec. 26	06 58.44	-30 34.1	6.150	6.765	-0.40	+2.0	16.1	125.2
Jan. 5	06 54.37	-30 08.0	6.110	6.749	-0.41	+3.4	16.1	127.2
Jan. 15	06 50.36	-29 27.5	6.089	6.734	-0.39	+4.8	16.0	127.6
Jan. 25	06 46.69	-28 33.4	6.089	6.720	-0.34	+6.1	16.0	126.4
Feb. 4	06 43.62	-27 27.3	6.109	6.706	-0.26	+7.2	16.0	123.6
Feb. 14	06 41.37	-26 11.5	6.149	6.693	-0.17	+8.0	16.0	119.6
Feb. 24	06 40.08	-24 48.5	6.207	6.680	-0.07	+8.6	16.0	114.6
Mar. 6	06 39.83	-23 20.9	6.280	6.668	+0.03	+8.9	16.0	108.9
Mar. 16	06 40.65	-21 51.6	6.367	6.657	+0.14	+8.9	16.1	102.7
Mar. 26	06 42.52	-20 22.8	6.464	6.646	+0.24	+8.8	16.1	96.2

Comet C/2022 QE78 (ATLAS)

Epoch = 2024 July 29.0 TT
 T = 2025 Sept. 10.39317 TT
 Peri. = 0.41709
 Node = 119.92914 2000.0
 Incl. = 36.55722
 q = 5.4785886 AU
 e = 1.0042401

$$m1 = 3.4 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	04 34.55	-11 41.5	6.345	7.055	-0.31	+3.6	15.9	133.2
Jan. 11	04 31.78	-11 01.6	6.389	7.012	-0.24	+4.4	15.9	126.0
Jan. 21	04 29.79	-10 14.2	6.451	6.969	-0.15	+5.1	15.9	118.1
Jan. 31	04 28.67	-09 20.9	6.529	6.927	-0.06	+5.6	15.9	109.9
Feb. 10	04 28.51	-08 23.2	6.619	6.884	+0.04	+6.0	15.9	101.5
Feb. 20	04 29.33	-07 22.6	6.716	6.843	+0.14	+6.2	15.9	93.2
Mar. 1	04 31.11	-06 20.8	6.816	6.801	+0.23	+6.2	15.9	84.9
Mar. 11	04 33.83	-05 18.8	6.917	6.760	+0.32	+6.2	15.9	76.8
Mar. 21	04 37.41	-04 17.8	7.013	6.720	+0.40	+6.0	15.9	68.9
Mar. 31	04 41.78	-03 18.8	7.102	6.679	+0.48	+5.8	15.9	61.3
Apr. 10	04 46.86	-02 22.5	7.181	6.640	+0.54	+5.5	15.9	53.8
Apr. 20	04 52.56	-01 29.5	7.248	6.600	+0.60	+5.1	15.9	46.7
Apr. 30	04 58.81	+00 40.3	7.301	6.561	+0.65	+4.7	15.9	40.0
May 10	05 05.50	+00 04.7	7.338	6.523	+0.69	+4.3	15.9	33.8
May 20	05 12.57	+00 45.3	7.358	6.485	+0.72	+3.8	15.9	28.3
May 30	05 19.91	+01 21.4	7.360	6.447	+0.75	+3.3	15.8	24.0
June 9	05 27.47	+01 52.7	7.344	6.410	+0.76	+2.9	15.8	21.5
June 19	05 35.14	+02 19.3	7.309	6.374	+0.77	+2.4	15.8	21.4
June 29	05 42.86	+02 41.3	7.255	6.338	+0.77	+1.9	15.7	23.8
July 9	05 50.54	+02 58.6	7.183	6.303	+0.76	+1.5	15.7	27.9
July 19	05 58.09	+03 11.5	7.092	6.268	+0.75	+1.1	15.6	33.3
July 29	06 05.44	+03 20.2	6.985	6.234	+0.72	+0.7	15.6	39.4
Aug. 8	06 12.50	+03 25.1	6.862	6.200	+0.69	+0.3	15.5	46.0
Aug. 18	06 19.16	+03 26.5	6.724	6.167	+0.64	0.0	15.4	52.9
Aug. 28	06 25.34	+03 25.0	6.573	6.134	+0.59	-0.3	15.4	60.2
Sept. 7	06 30.94	+03 21.0	6.411	6.102	+0.52	-0.5	15.3	67.8
Sept. 17	06 35.85	+03 15.4	6.241	6.071	+0.45	-0.6	15.2	75.7
Sept. 27	06 39.98	+03 09.0	6.066	6.041	+0.37	-0.7	15.1	83.8
Oct. 7	06 43.22	+03 02.7	5.888	6.011	+0.27	-0.6	15.0	92.2
Oct. 17	06 45.48	+02 57.7	5.711	5.981	+0.17	-0.4	15.0	101.0
Oct. 27	06 46.70	+02 55.1	5.540	5.953	+0.06	-0.1	14.9	110.0
Nov. 6	06 46.83	+02 56.2	5.378	5.925	-0.05	+0.4	14.8	119.2
Nov. 16	06 45.87	+03 02.3	5.230	5.898	-0.15	+0.9	14.7	128.6
Nov. 26	06 43.87	+03 14.6	5.100	5.871	-0.25	+1.6	14.6	138.1
Dec. 6	06 40.96	+03 33.9	4.993	5.846	-0.33	+2.4	14.6	147.3
Dec. 16	06 37.34	+04 01.0	4.911	5.821	-0.39	+3.1	14.5	155.5
Dec. 26	06 33.25	+04 35.9	4.858	5.797	-0.42	+3.9	14.5	160.9
Jan. 5	06 29.00	+05 18.2	4.836	5.773	-0.42	+4.6	14.4	160.8
Jan. 15	06 24.93	+06 07.0	4.844	5.751	-0.38	+5.2	14.4	155.1
Jan. 25	06 21.36	+07 00.8	4.880	5.729	-0.32	+5.6	14.4	146.7
Feb. 4	06 18.55	+07 58.3	4.944	5.708	-0.23	+5.9	14.4	137.3
Feb. 14	06 16.72	+08 57.8	5.031	5.688	-0.12	+6.0	14.5	127.6
Feb. 24	06 16.01	+09 57.6	5.138	5.669	-0.01	+6.0	14.5	117.9
Mar. 6	06 16.50	+10 56.6	5.259	5.651	+0.12	+5.8	14.5	108.4
Mar. 16	06 18.21	+11 53.6	5.390	5.633	+0.24	+5.6	14.6	99.1
Mar. 26	06 21.08	+12 47.7	5.527	5.617	+0.35	+5.2	14.6	90.0

Comet C/2023 X2 (Lemmon)

Epoch = 2024 July 29.0 TT
 T = 2025 Dec. 26.47510 TT
 Peri. = 64.55128
 Node = 66.31343 2000.0
 Incl. = 77.00302
 q = 5.0954634 AU
 e = 1.0019323

$$m1 = 6.6 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	03 57.57	+17 11.5	6.582	7.372	-0.49	+2.7	19.4	141.0
Jan. 11	03 52.99	+17 39.4	6.653	7.323	-0.41	+2.9	19.4	129.9
Jan. 21	03 49.31	+18 09.3	6.745	7.273	-0.31	+3.1	19.4	119.0
Jan. 31	03 46.63	+18 41.2	6.853	7.224	-0.21	+3.3	19.4	108.4
Feb. 10	03 44.99	+19 15.1	6.971	7.175	-0.11	+3.5	19.4	98.0
Feb. 20	03 44.40	+19 51.2	7.094	7.126	0.00	+3.7	19.4	87.9
Mar. 1	03 44.82	+20 29.1	7.216	7.077	+0.10	+3.9	19.4	78.0
Mar. 11	03 46.19	+21 08.9	7.332	7.029	+0.19	+4.1	19.4	68.5
Mar. 21	03 48.43	+21 50.3	7.439	6.981	+0.27	+4.2	19.4	59.2
Mar. 31	03 51.44	+22 33.2	7.531	6.933	+0.34	+4.4	19.4	50.2
Apr. 10	03 55.14	+23 17.4	7.606	6.886	+0.40	+4.5	19.4	41.3
Apr. 20	03 59.43	+24 02.8	7.662	6.839	+0.46	+4.6	19.4	32.7
Apr. 30	04 04.22	+24 49.1	7.697	6.792	+0.50	+4.7	19.4	24.4
May 10	04 09.41	+25 36.4	7.708	6.745	+0.54	+4.8	19.3	16.3
May 20	04 14.91	+26 24.6	7.697	6.699	+0.56	+4.9	19.3	9.0
May 30	04 20.63	+27 13.6	7.661	6.653	+0.58	+5.0	19.3	5.7
June 9	04 26.48	+28 03.6	7.602	6.608	+0.59	+5.1	19.2	10.9
June 19	04 32.37	+28 54.7	7.519	6.563	+0.59	+5.2	19.2	18.4
June 29	04 38.19	+29 47.0	7.414	6.518	+0.58	+5.3	19.1	26.3
July 9	04 43.85	+30 40.9	7.288	6.473	+0.55	+5.5	19.0	34.3
July 19	04 49.23	+31 36.5	7.142	6.429	+0.52	+5.7	19.0	42.5
July 29	04 54.21	+32 34.3	6.979	6.386	+0.47	+5.9	18.9	50.8
Aug. 8	04 58.67	+33 34.6	6.802	6.343	+0.41	+6.2	18.8	59.2
Aug. 18	05 02.46	+34 37.9	6.613	6.300	+0.34	+6.5	18.7	67.8
Aug. 28	05 05.41	+35 44.3	6.416	6.258	+0.24	+6.8	18.6	76.5
Sept. 7	05 07.35	+36 54.2	6.214	6.216	+0.13	+7.2	18.5	85.5
Sept. 17	05 08.08	+38 07.4	6.012	6.175	0.00	+7.5	18.4	94.6
Sept. 27	05 07.44	+39 23.7	5.814	6.134	-0.15	+7.8	18.3	104.0
Oct. 7	05 05.21	+40 42.3	5.626	6.094	-0.32	+7.9	18.2	113.5
Oct. 17	05 01.26	+42 01.7	5.453	6.054	-0.49	+7.9	18.1	123.1
Oct. 27	04 55.49	+43 19.9	5.299	6.015	-0.68	+7.7	18.0	132.5
Nov. 6	04 47.93	+44 34.3	5.170	5.977	-0.85	+7.1	17.9	141.4
Nov. 16	04 38.75	+45 41.9	5.069	5.939	-0.99	+6.3	17.9	149.1
Nov. 26	04 28.30	+46 40.0	4.999	5.901	-1.10	+5.2	17.8	153.9
Dec. 6	04 17.10	+47 26.4	4.962	5.865	-1.14	+4.0	17.8	154.1
Dec. 16	04 05.80	+48 00.3	4.958	5.829	-1.11	+2.7	17.7	149.7
Dec. 26	03 55.07	+48 22.5	4.985	5.793	-1.02	+1.6	17.7	142.2
Jan. 5	03 45.52	+48 34.9	5.039	5.758	-0.87	+0.8	17.7	133.3
Jan. 15	03 37.62	+48 40.5	5.117	5.724	-0.69	+0.3	17.7	123.9
Jan. 25	03 31.62	+48 42.7	5.213	5.691	-0.49	+0.1	17.7	114.4
Feb. 4	03 27.64	+48 44.4	5.322	5.658	-0.29	+0.3	17.8	105.0
Feb. 14	03 25.68	+48 48.2	5.438	5.626	-0.09	+0.6	17.8	95.9
Feb. 24	03 25.62	+48 56.0	5.556	5.595	+0.09	+1.1	17.8	87.1
Mar. 6	03 27.32	+49 09.1	5.673	5.565	+0.26	+1.6	17.8	78.7
Mar. 16	03 30.62	+49 28.2	5.782	5.535	+0.41	+2.3	17.8	70.8
Mar. 26	03 35.34	+49 53.6	5.883	5.506	+0.55	+2.9	17.9	63.3

Comet C/2023 R1 (PANSTARRS)

Epoch = 2024 Feb. 20.0 TT
 T = 2026 Apr. 13.73286 TT
 Peri. = 144.29132
 Node = 62.55321 2000.0
 Incl. = 149.31602
 q = 3.5694950 AU
 e = 1.0015204

$$m1 = 5.3 + 5 \log(\Delta) + 10.0 \log(r)$$

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2024/25	h m	° '			m	'		°
Jan. 1	23 54.40	+24 43.2	7.699	7.752	-0.11	-3.2	18.6	89.5
Jan. 11	23 53.73	+24 14.3	7.802	7.688	-0.02	-2.5	18.6	79.7
Jan. 21	23 53.91	+23 52.7	7.900	7.623	+0.06	-1.8	18.6	70.2
Jan. 31	23 54.83	+23 38.4	7.987	7.559	+0.13	-1.0	18.6	61.0
Feb. 10	23 56.37	+23 31.4	8.060	7.495	+0.18	-0.3	18.6	52.1
Feb. 20	23 58.42	+23 31.5	8.113	7.430	+0.23	+0.4	18.6	43.7
Mar. 1	00 00.86	+23 38.1	8.145	7.366	+0.26	+1.0	18.5	35.9
Mar. 11	00 03.58	+23 50.8	8.153	7.302	+0.28	+1.6	18.5	29.1
Mar. 21	00 06.47	+24 09.2	8.136	7.237	+0.29	+2.1	18.4	24.0
Mar. 31	00 09.41	+24 32.5	8.092	7.173	+0.29	+2.6	18.4	21.6
Apr. 10	00 12.30	+25 00.4	8.022	7.108	+0.28	+3.0	18.3	22.7
Apr. 20	00 15.02	+25 32.2	7.925	7.044	+0.26	+3.4	18.3	26.8
Apr. 30	00 17.46	+26 07.3	7.804	6.979	+0.22	+3.7	18.2	32.9
May 10	00 19.51	+26 45.2	7.659	6.915	+0.18	+3.9	18.1	39.9
May 20	00 21.02	+27 25.3	7.492	6.850	+0.12	+4.1	18.0	47.6
May 30	00 21.87	+28 06.7	7.307	6.786	+0.04	+4.2	17.9	55.6
June 9	00 21.92	+28 48.8	7.106	6.722	-0.04	+4.2	17.8	63.9
June 19	00 21.02	+29 30.4	6.892	6.657	-0.15	+4.1	17.7	72.5
June 29	00 19.02	+30 10.6	6.671	6.593	-0.27	+3.9	17.6	81.2
July 9	00 15.77	+30 47.7	6.446	6.529	-0.40	+3.5	17.5	90.2
July 19	00 11.14	+31 20.0	6.223	6.465	-0.54	+2.9	17.4	99.3
July 29	00 05.05	+31 45.4	6.006	6.401	-0.69	+2.1	17.3	108.5
Aug. 8	23 57.47	+32 01.6	5.802	6.337	-0.84	+1.0	17.1	117.7
Aug. 18	23 48.45	+32 05.9	5.616	6.273	-0.97	-0.3	17.0	126.6
Aug. 28	23 38.19	+31 56.0	5.454	6.209	-1.08	-1.8	16.9	135.0
Sept. 7	23 26.98	+31 30.3	5.320	6.145	-1.16	-3.5	16.8	142.0
Sept. 17	23 15.25	+30 47.8	5.219	6.082	-1.18	-5.1	16.7	146.4
Sept. 27	23 03.51	+29 49.4	5.152	6.018	-1.16	-6.6	16.7	147.1
Oct. 7	22 52.25	+28 37.3	5.121	5.955	-1.08	-7.8	16.6	143.6
Oct. 17	22 41.94	+27 15.1	5.125	5.892	-0.96	-8.6	16.6	136.9
Oct. 27	22 32.92	+25 47.1	5.159	5.829	-0.82	-8.9	16.5	128.4
Nov. 6	22 25.40	+24 17.9	5.221	5.767	-0.66	-8.8	16.5	119.0
Nov. 16	22 19.47	+22 51.7	5.303	5.704	-0.51	-8.3	16.5	109.1
Nov. 26	22 15.12	+21 31.7	5.399	5.642	-0.35	-7.6	16.5	99.2
Dec. 6	22 12.24	+20 20.3	5.503	5.580	-0.21	-6.6	16.5	89.3
Dec. 16	22 10.71	+19 19.2	5.609	5.518	-0.09	-5.5	16.5	79.7
Dec. 26	22 10.35	+18 29.0	5.710	5.457	+0.02	-4.4	16.5	70.3
Jan. 5	22 10.98	+17 50.1	5.800	5.395	+0.11	-3.3	16.4	61.2
Jan. 15	22 12.43	+17 22.1	5.875	5.335	+0.18	-2.2	16.4	52.6
Jan. 25	22 14.52	+17 04.7	5.932	5.274	+0.24	-1.2	16.4	44.5
Feb. 4	22 17.08	+16 57.2	5.966	5.214	+0.28	-0.2	16.4	37.1
Feb. 14	22 19.95	+16 59.0	5.976	5.154	+0.30	+0.7	16.3	31.0
Feb. 24	22 22.99	+17 09.2	5.959	5.095	+0.31	+1.5	16.2	26.8
Mar. 6	22 26.04	+17 27.3	5.916	5.036	+0.30	+2.2	16.2	25.2
Mar. 16	22 28.94	+17 52.3	5.845	4.978	+0.28	+2.9	16.1	26.8
Mar. 26	22 31.56	+18 23.6	5.748	4.920	+0.24	+3.4	16.0	31.0

Comet 95P/(2060) Chiron

Epoch = 2024 Feb. 20.0 TT
 T = 2046 Aug. 27.95112 TT
 Peri. = 339.27024
 Node = 209.30593 2000.0
 Incl. = 6.91816
 q = 8.5369321 AU

e = 0.3772006
 a = 13.7073544 AU
 n = 0.01942109
 P = 50.75 years

H = 5.3 , G = 0.15

Oh TT	R. A. (2000)	Decl.	Delta	r	Daily motion	V	Elong.
2024/25	h m	° ' "	' "	' "	m	' "	°
Jan. 1	00 53.61	+07 12.6	18.605	18.723	+0.02	0.0	95.4
Jan. 11	00 53.99	+07 13.4	18.775	18.720	+0.06	+0.2	85.3
Jan. 21	00 54.70	+07 16.3	18.942	18.717	+0.09	+0.4	75.3
Jan. 31	00 55.73	+07 21.3	19.102	18.714	+0.12	+0.6	65.4
Feb. 10	00 57.05	+07 28.1	19.250	18.711	+0.15	+0.8	55.6
Feb. 20	00 58.62	+07 36.6	19.381	18.707	+0.17	+0.9	45.9
Mar. 1	01 00.41	+07 46.5	19.493	18.704	+0.19	+1.1	36.4
Mar. 11	01 02.38	+07 57.5	19.581	18.701	+0.20	+1.2	26.9
Mar. 21	01 04.48	+08 09.4	19.645	18.697	+0.22	+1.2	17.5
Mar. 31	01 06.66	+08 22.0	19.682	18.694	+0.22	+1.3	8.2
Apr. 10	01 08.88	+08 34.8	19.692	18.691	+0.22	+1.3	1.6
Apr. 20	01 11.10	+08 47.6	19.674	18.687	+0.22	+1.3	10.4
Apr. 30	01 13.26	+09 00.2	19.630	18.684	+0.21	+1.2	19.5
May 10	01 15.34	+09 12.2	19.560	18.680	+0.20	+1.2	28.7
May 20	01 17.27	+09 23.5	19.466	18.677	+0.18	+1.1	37.8
May 30	01 19.03	+09 33.7	19.351	18.673	+0.17	+1.0	46.9
June 9	01 20.58	+09 42.7	19.217	18.669	+0.14	+0.8	56.1
June 19	01 21.89	+09 50.3	19.068	18.666	+0.12	+0.7	65.3
June 29	01 22.91	+09 56.2	18.907	18.662	+0.09	+0.5	74.6
July 9	01 23.64	+10 00.4	18.739	18.658	+0.06	+0.3	83.9
July 19	01 24.05	+10 02.8	18.568	18.655	+0.02	+0.1	93.3
July 29	01 24.13	+10 03.2	18.399	18.651	-0.01	-0.1	102.8
Aug. 8	01 23.89	+10 01.6	18.236	18.647	-0.04	-0.3	112.5
Aug. 18	01 23.32	+09 58.1	18.084	18.643	-0.07	-0.5	122.2
Aug. 28	01 22.45	+09 52.7	17.947	18.639	-0.10	-0.6	132.1
Sept. 7	01 21.32	+09 45.6	17.830	18.636	-0.13	-0.8	142.1
Sept. 17	01 19.95	+09 37.1	17.737	18.632	-0.15	-0.9	152.2
Sept. 27	01 18.42	+09 27.4	17.670	18.628	-0.16	-1.0	162.3
Oct. 7	01 16.76	+09 16.8	17.632	18.624	-0.17	-1.1	172.6
Oct. 17	01 15.07	+09 05.8	17.625	18.620	-0.17	-1.1	176.8
Oct. 27	01 13.39	+08 54.8	17.648	18.616	-0.16	-1.1	166.5
Nov. 6	01 11.81	+08 44.3	17.701	18.612	-0.15	-1.0	156.1
Nov. 16	01 10.40	+08 34.6	17.782	18.607	-0.13	-0.9	145.7
Nov. 26	01 09.21	+08 26.1	17.889	18.603	-0.11	-0.8	135.3
Dec. 6	01 08.29	+08 19.2	18.018	18.599	-0.08	-0.6	124.9
Dec. 16	01 07.68	+08 14.2	18.164	18.595	-0.04	-0.4	114.6
Dec. 26	01 07.40	+08 11.2	18.323	18.591	-0.01	-0.2	104.3
Jan. 5	01 07.47	+08 10.3	18.490	18.586	+0.03	0.0	94.1
Jan. 15	01 07.89	+08 11.5	18.659	18.582	+0.06	+0.2	84.0
Jan. 25	01 08.65	+08 14.9	18.824	18.578	+0.09	+0.4	74.1
Feb. 4	01 09.72	+08 20.2	18.982	18.574	+0.12	+0.6	64.2
Feb. 14	01 11.09	+08 27.3	19.126	18.569	+0.15	+0.8	54.4
Feb. 24	01 12.70	+08 36.0	19.254	18.565	+0.17	+0.9	44.8
Mar. 6	01 14.54	+08 46.0	19.362	18.560	+0.19	+1.1	35.2
Mar. 16	01 16.54	+08 57.2	19.447	18.556	+0.21	+1.2	25.8
Mar. 26	01 18.68	+09 09.1	19.506	18.551	+0.22	+1.2	16.4

Orbital elements:

Comet 29P/Schwassmann-Wachmann

Epoch 2019 Mar. 18.0 TT = JDT 2458560.5

T 2019 Mar. 7.75636 TT

			P	Sato	Q
q	5.7668223	(2000.0)			
n	0.06662628	Peri.	47.77436	+0.99270158	-0.00956861
a	6.0261373	Node	312.39459	-0.05135208	+0.86841757
e	0.0430317	Incl.	9.36833	+0.10911707	+0.49574122
P	14.79				

From 41912 observations 1949 Apr. 13–2024 Jan. 28, mean residual 0".62.

Comet C/2019 L3 (ATLAS)

Epoch 2022 Jan. 21.0 TT = JDT 2459600.5

T 2022 Jan. 9.62119 TT

			P	Sato	Q
q	3.5545032	(2000.0)			
z	-0.0004480	Peri.	171.61108	-0.26052084	-0.66630591
+/-	-0.0000001	Node	290.78989	+0.83676258	+0.20517667
e	1.0015926	Incl.	48.36130	+0.48161943	-0.71689536

From 5987 observations 2019 June 10–2024 Jan. 19, mean residual 0".46.

Comet C/2019 T4 (ATLAS)

Epoch 2022 May 21.0 TT = JDT 2459720.5

T 2022 June 9.13739 TT

			P	Sato	Q
q	4.2424208	(2000.0)			
z	+0.0009915	Peri.	351.20116	-0.95992766	+0.05605312
+/-	-0.0000002	Node	199.93895	-0.18196645	-0.86982523
e	0.9957938	Incl.	53.62865	-0.21313636	+0.49016540

From 4055 observations 2019 Feb. 5–2024 Jan. 15, mean residual 0".40.

Comet C/2020 Y2 (ATLAS)

Epoch 2022 June 30.0 TT = JDT 2459760.5

T 2022 June 17.69083 TT

			P	Sato	Q
q	3.1324841	(2000.0)			
z	+0.0009225	Peri.	266.10350	-0.14806214	+0.88681058
+/-	-0.0000002	Node	26.51441	+0.52179883	+0.44607461
e	0.9971103	Incl.	101.29770	-0.84012117	+0.12076607

From 1707 observations 2020 Mar. 25–2024 Jan. 21, mean residual 0".56.

Comet 117P/Helin-Roman-Alu

Epoch 2022 June 30.0 TT = JDT 2459760.5

T 2022 July 7.79573 TT

			P	Sato	Q
q	3.0396861	(2000.0)			
n	0.11944956	Peri.	222.94503	+0.19755406	+0.97170084
a	4.0833162	Node	58.84164	-0.85340138	+0.23547789
e	0.2555839	Incl.	8.70396	-0.48236758	-0.01864493
P	8.25				

From 4208 observations 2012 Dec. 7–2024 Jan. 13, mean residual 0".60.

Nongravitational parameters Y1 = -2.24, Y2 = -0.6660.

Comet C/2020 F2 (ATLAS)

Epoch 2022 June 30.0 TT = JDT 2459760.5

T 2022 July 15.71860 TT

			P	Sato	Q
q	8.8170971	(2000.0)			
z	-0.0005838	Peri.	48.35624	-0.89905768	-0.34775764
+/-	-0.0000004	Node	250.27261	-0.43588819	+0.76809183
e	1.0051473	Incl.	163.58498	+0.04119177	+0.53767980

From 1790 observations 2019 May 27–2024 Jan. 21, mean residual 0".39.

Comet C/2020 R7 (ATLAS)

Epoch 2022 Sept. 18.0 TT = JDT 2459840.5

T 2022 Sept. 16.23841 TT

			P	Sato	Q
q	2.9559915	(2000.0)			
z	-0.0000458	Peri.	347.83765	+0.05932835	-0.41757758
+/-	-0.0000003	Node	268.28204	-0.82290465	-0.53462207
e	1.0001352	Incl.	114.89101	-0.56507353	+0.73471641

From 1686 observations 2019 Dec. 3–2024 Jan. 5, mean residual 0".64.

Comet C/2017 K2 (PANSTARRS)

Epoch 2022 Dec. 7.0 TT = JDT 2459920.5

T 2022 Dec. 19.68488 TT

		(2000.0)	P	Sato	Q
q	1.7969441				
z	-0.0003902	Peri.	236.19597	+0.01818676	+0.04923232
	+/-0.0000009	Node	88.23552	-0.18096898	+0.98245237
e	1.0007012	Incl.	87.56288	-0.98332063	-0.17989862

From 11198 observations 2015 Nov. 23–2024 Jan. 26, mean residual 0".53.

Nongravitational parameters Y1 = +2.78, Y2 = +0.1988, Y3 = -0.3078.

Comet C/2022 E3 (ZTF)

Epoch 2023 Jan. 16.0 TT = JDT 2459960.5

T 2023 Jan. 12.78461 TT

		(2000.0)	P	Sato	Q
q	1.1122439				
z	-0.0002915	Peri.	145.81486	-0.60064963	-0.07340584
	+/-0.0000002	Node	302.55559	+0.33751528	+0.87941575
e	1.0003242	Incl.	109.16915	+0.72477821	-0.47036106

From 6220 observations 2021 July 10–2024 Jan. 12, mean residual 0".62.

Comet C/2023 RN3 (ATLAS)

Epoch 2023 Jan. 16.0 TT = JDT 2459960.5

T 2023 Jan. 16.46384 TT

		(2000.0)	P	Sato	Q
q	5.1710659				
n	0.03062221	Peri.	130.13884	+0.91630538	+0.39203171
a	10.1183968	Node	207.07756	-0.39978756	+0.88341119
e	0.4889441	Incl.	10.35584	-0.02354469	+0.25670180

P 32.19

From 590 observations 2023 Aug. 26–2024 Jan. 11, mean residual 0".31.

Comet C/2022 A2 (PANSTARRS)

Epoch 2023 Feb. 25.0 TT = JDT 2460000.5

T 2023 Feb. 18.26464 TT

		(2000.0)	P	Sato	Q
q	1.7353215				
z	-0.0001976	Peri.	88.36539	+0.01737255	+0.99011813
	+/-0.0000003	Node	171.57937	-0.09144886	-0.13701981
e	1.0003430	Incl.	108.14682	+0.99565822	-0.02986083

From 2743 observations 2022 Jan. 9–2024 Jan. 9, mean residual 0".70.

Comet C/2019 U5 (PANSTARRS)

Epoch 2023 Apr. 6.0 TT = JDT 2460040.5

T 2023 Mar. 29.84004 TT

		(2000.0)	P	Sato	Q
q	3.6242031				
z	-0.0004021	Peri.	181.49486	-0.99907986	+0.00770313
	+/-0.0000002	Node	2.63734	-0.02314641	+0.73133375
e	1.0014572	Incl.	113.51999	-0.03610653	-0.68197625

From 4341 observations 2019 Oct. 11–2024 Jan. 24, mean residual 0".45.

Comet 170P/Christensen

Epoch 2023 Apr. 6.0 TT = JDT 2460040.5

T 2023 Apr. 19.54155 TT

		(2000.0)	P	Sato	Q
q	2.9238119				
n	0.11410621	Peri.	225.38229	+0.98287199	-0.15078992
a	4.2098168	Node	142.90879	+0.17394261	+0.94898049
e	0.3054777	Incl.	10.11806	-0.06088199	+0.27694482

P 8.64

From 842 observations 2008 Jan. 11–2024 Jan. 18, mean residual 0".69.

Nongravitational parameters Y1 = +0.29, Y2 = -0.4730.

Comet C/2022 JK5 (PANSTARRS)

Epoch 2023 May 16.0 TT = JDT 2460080.5

T 2023 Apr. 28.81787 TT

		(2000.0)	P	Sato	Q
q	2.6869353				
n	0.00347786	Peri.	247.15917	+0.56511874	+0.78625987
a	43.1447186	Node	59.65250	-0.61010099	+0.60215877
e	0.9377227	Incl.	16.83084	-0.55535358	+0.13856492

P 283.39

From 851 observations 2022 May 9–2024 Jan. 10, mean residual 0".35.

Comet C/2020 V2 (ZTF)

Epoch 2023 May 16.0 TT = JDT 2460080.5

T 2023 May 8.56053 TT

q	2.2278807	(2000.0)	P	Sato	Q
z	-0.0005327	Peri.	162.42692	+0.69783321	+0.59395959
	+/-0.0000002	Node	212.37126	+0.53387408	-0.05874628
e	1.0011867	Incl.	131.61169	+0.47750109	-0.80234710

From 4880 observations 2020 Apr. 18–2024 Jan. 18, mean residual 0".66.

Comet C/2020 K1 (PANSTARRS)

Epoch 2023 May 16.0 TT = JDT 2460080.5

T 2023 May 9.08163 TT

q	3.0733550	(2000.0)	P	Sato	Q
z	+0.0000019	Peri.	213.98357	+0.06617488	-0.03769889
	+/-0.0000003	Node	94.35547	-0.53601749	+0.84151277
e	0.9999943	Incl.	89.67080	-0.84160925	-0.53892027

From 3216 observations 2020 Apr. 17–2024 Jan. 19, mean residual 0".53.

Comet 237P/LINEAR

Epoch 2023 May 16.0 TT = JDT 2460080.5

T 2023 May 14.67943 TT

q	1.9870417	(2000.0)	P	Sato	Q
n	0.14983760	Peri.	25.26145	-0.00072057	+0.97546675
a	3.5106606	Node	245.35898	-0.95368179	-0.06689379
e	0.4339978	Incl.	14.01648	-0.30081644	+0.20973754
P	6.58				

From 2181 observations 2002 May 17–2024 Jan. 14, mean residual 0".63.

Nongravitational parameters A1 = +0.03, A2 = -0.0422.

Comet C/2021 X1 (Maury–Attard)

Epoch 2023 May 16.0 TT = JDT 2460080.5

T 2023 May 27.41960 TT

q	3.2336489	(2000.0)	P	Sato	Q
z	-0.0002895	Peri.	334.61836	+0.82765929	+0.54872804
	+/-0.0000002	Node	10.58688	+0.55827546	-0.78344690
e	1.0009360	Incl.	140.11939	-0.05752056	+0.29173359

From 2497 observations 2021 Oct. 22–2024 Jan. 19, mean residual 0".45.

Comet 126P/IRAS

Epoch 2023 June 25.0 TT = JDT 2460120.5

T 2023 July 5.32556 TT

q	1.7105291	(2000.0)	P	Sato	Q
n	0.07365526	Peri.	356.59447	+0.99600877	+0.08517898
a	5.6363790	Node	357.87110	-0.05497897	+0.35014390
e	0.6965199	Incl.	45.87556	-0.07031240	+0.93281498
P	13.38				

From 1588 observations 1996 Aug. 8–2024 Jan. 18, mean residual 0".62.

Nongravitational parameters A1 = -0.12, A2 = -0.0838.

Comet C/2021 T4 (Lemmon)

Epoch 2023 Aug. 4.0 TT = JDT 2460160.5

T 2023 July 31.53768 TT

q	1.4832779	(2000.0)	P	Sato	Q
z	+0.0001086	Peri.	329.82147	+0.28266158	-0.90358944
	+/-0.0000003	Node	257.88466	-0.80103027	-0.40697723
e	0.9998390	Incl.	160.77691	-0.52768640	+0.13377466

From 1405 observations 2021 Aug. 7–2024 Jan. 18, mean residual 0".59.

Comet C/2023 K1 (ATLAS)

Epoch 2023 Sept. 13.0 TT = JDT 2460200.5

T 2023 Sept. 7.74174 TT

q	2.0395617	(2000.0)	P	Sato	Q
z	+0.0013170	Peri.	337.46943	-0.47097142	-0.75127625
	+/-0.0000047	Node	223.70591	-0.67242284	-0.03351017
e	0.9973139	Incl.	137.99864	-0.57099339	+0.65913661

From 206 observations 2023 May 27–2024 Jan. 16, mean residual 0".59.

Comet C/2023 P1 (Nishimura)

Epoch 2023 Sept. 13.0 TT = JDT 2460200.5

T 2023 Sept. 17.64112 TT

		(2000.0)	P	Sato	Q
q	0.2251497				
z	+0.0170076	Peri.	116.29726	+0.38230947	-0.62772238
	+/-0.0000147	Node	66.83478	-0.85522087	-0.51825807
e	0.9961707	Incl.	132.47650	+0.34990960	-0.58083834

From 665 observations 2023 Jan. 19–2024 Jan. 19, mean residual 0".62.

Nongravitational parameters A1 = -1.64, A2 = -0.2741.

Comet 103P/Hartley

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Oct. 12.51278 TT

		(2000.0)	P	Sato	Q
q	1.0640879				
n	0.15211896	Peri.	181.30223	+0.75452596	-0.63878686
a	3.4754722	Node	219.74941	+0.60422345	+0.76566675
e	0.6938293	Incl.	13.61061	+0.25613392	+0.07553651
P	6.48				

From 2425 observations 2011 Dec. 29–2024 Jan. 27, mean residual 0".54.

Nongravitational parameters A1 = +0.14, A2 = +0.0485.

Comet C/2023 X1 (Leonard)

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Oct. 18.09253 TT

		(2000.0)	P	Sato	Q
q	0.9505402				
z	+0.0060238	Peri.	321.47686	-0.72162536	-0.26801852
	+/-0.0002573	Node	137.01217	+0.57436318	+0.28293704
e	0.9942742	Incl.	110.58776	-0.38647611	+0.92093035

From 216 observations 2023 Dec. 4–2024 Jan. 11, mean residual 0".53.

Comet C/2022 V2 (Lemmon)

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Nov. 1.92506 TT

		(2000.0)	P	Sato	Q
q	2.0635770				
n	0.00440498	Peri.	168.94883	-0.88700800	-0.10131710
a	36.8558949	Node	332.87082	+0.31105391	+0.58994689
e	0.9440096	Incl.	98.90517	+0.34126568	-0.80106024
P	223.75				

From 539 observations 2022 July 20–2024 Jan. 24, mean residual 0".41.

Comet 404P/Bressi

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Nov. 4.14775 TT

		(2000.0)	P	Sato	Q
q	4.1326904				
n	0.09561133	Peri.	169.36826	+0.34907490	-0.92199904
a	4.7365611	Node	260.03902	+0.84680299	+0.38692235
e	0.1274914	Incl.	9.79297	+0.40133702	-0.01445239
P	10.31				

From 465 observations 2011 Oct. 24–2024 Jan. 15, mean residual 0".76.

Nongravitational parameters Y1 = +0.70, Y2 = -0.5668.

Comet C/2019 E3 (ATLAS)

Epoch 2023 Dec. 2.0 TT = JDT 2460280.5

T 2023 Nov. 15.27353 TT

		(2000.0)	P	Sato	Q
q	10.3129585				
z	+0.0001258	Peri.	280.69931	+0.15949397	+0.96239814
	+/-0.0000005	Node	347.23323	+0.26394251	-0.25620407
e	0.9987027	Incl.	84.29879	-0.95126023	+0.09027347

From 701 observations 2015 Jan. 22–2024 Jan. 19, mean residual 0".46.

Comet 471P

Epoch 2023 Dec. 2.0 TT = JDT 2460280.5

T 2023 Dec. 20.30624 TT

		(2000.0)	P	Sato	Q
q	2.1232462				
n	0.07227245	Peri.	94.96888	+0.94598778	-0.31385267
a	5.7080469	Node	283.34046	+0.25439148	+0.87397538
e	0.6280258	Incl.	4.79071	+0.20097786	+0.37103037
P	13.64				

From 855 observations 1996 June 23–2024 Jan. 26, mean residual 0".47.

Nongravitational parameters Y1 = -0.52, Y2 = -0.0325.

Comet C/2023 T2 (Borisov)

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2023 Dec. 22.79353 TT

		(2000.0)	P	Sato	Q
q	1.9954416				
z	+0.0043333	Peri.	111.19464	+0.14962379	-0.84920125
	+/-0.0000068	Node	317.53286	+0.36309384	+0.52359937
e	0.9913531	Incl.	48.59720	+0.91966058	-0.06856334

From 307 observations 2023 Oct. 14–2024 Jan. 18, mean residual 0".47.

Comet 62P/Tsuchinshan

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2023 Dec. 25.11167 TT

		(2000.0)	P	Sato	Q
q	1.2649325				
n	0.15941623	Peri.	47.29773	-0.43550907	-0.89689066
a	3.3685864	Node	68.66892	+0.79987966	-0.42477191
e	0.6244916	Incl.	4.73763	+0.41294598	-0.12310959
P	6.18				

From 1722 observations 2017 Aug. 10–2024 Jan. 27, mean residual 0".71.

Nongravitational parameters A1 = +0.41, A2 = -0.3326.

Comet 26P/Grigg-Skjellerup

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2023 Dec. 25.34562 TT

		(2000.0)	P	Sato	Q
q	1.0838990				
n	0.18815623	Peri.	2.14586	-0.83356690	+0.51509132
a	3.0161781	Node	211.54065	-0.51234818	-0.85597834
e	0.6406383	Incl.	22.43298	-0.20655643	+0.04451988
P	5.24				

From 565 observations 1986 Aug. 12–2024 Jan. 23, mean residual 0".62.

Nongravitational parameters A1 = +0.01, A2 = -0.0009.

Comet P/2018 P3 = 2023 V8 (PANSTARRS)

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2023 Dec. 26.76268 TT

		(2000.0)	P	Sato	Q
q	1.7507220				
n	0.18927696	Peri.	306.02095	+0.98752628	-0.08419033
a	3.0042602	Node	59.15935	+0.13729236	+0.87414193
e	0.4172535	Incl.	8.91499	-0.07708860	+0.47831776
P	5.21				

From 312 observations 2013 July 14–2024 Jan. 11, mean residual 0".62.

Nongravitational parameters A1 = -1.50, A2 = +0.0141.

Comet 226P/Pigott-LINEAR-Kowalski

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2023 Dec. 27.21811 TT

		(2000.0)	P	Sato	Q
q	1.7737403				
n	0.13475588	Peri.	341.06556	+0.74454214	-0.35945225
a	3.7679423	Node	54.01184	+0.66619261	+0.34585389
e	0.5292549	Incl.	44.04580	+0.04294657	+0.86670593
P	7.31				

From 1528 observations 2009 Sept. 10–2024 Jan. 26, mean residual 0".64.

Nongravitational parameters A1 = +0.36, A2 = +0.0321.

Comet C/2021 S4 (Tsuchinshan)

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2024 Jan. 2.63479 TT

q	6.6892695	(2000.0)	P	Sato	Q
z	0.0061082	Peri.	72.89581	+0.20557359	-0.97822000
	+/-0.0000013	Node	5.48809	+0.74420042	+0.13719806
e	0.9591401	Incl.	17.47865	+0.63553539	+0.15576370

From 699 observations 2021 Sept. 8–2024 Jan. 26, mean residual 0".38.

Comet 216P/LINEAR

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2024 Jan. 6.86775 TT

q	2.1270691	(2000.0)	P	Sato	Q
n	0.13007214	Peri.	151.73118	-0.87908475	-0.47666518
a	3.8578605	Node	359.79848	+0.40226619	-0.74125063
e	0.4486402	Incl.	9.06321	+0.25571842	-0.47258630
P	7.58				

From 181 observations 2001 Feb. 1–2024 Jan. 11, mean residual 0".75.

Comet C/2023 S3 (Lemmon)

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2024 Jan. 19.62355 TT

q	0.8301616	(2000.0)	P	Sato	Q
z	+0.0351254	Peri.	281.57115	+0.49189182	-0.70308577
	+/-0.0000315	Node	233.83373	-0.30996975	-0.69259124
e	0.9708403	Incl.	140.49827	-0.81360998	-0.16120723

From 464 observations 2023 Sept. 25–Dec. 2, mean residual 0".39.

Comet 144P/Kushida

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2024 Jan. 25.76855 TT

q	1.3988791	(2000.0)	P	Sato	Q
n	0.13140597	Peri.	216.31910	-0.15940254	-0.98532372
a	3.8317103	Node	242.92518	+0.92113931	-0.12620247
e	0.6349204	Incl.	3.93197	+0.35509605	-0.11493522
P	7.50				

From 1617 observations 2016 July 31–2024 Jan. 27, mean residual 0".48.

Nongravitational parameters A1 = +0.71, A2 = +0.0839.

Comet 207P/NEAT

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Jan. 31.81429 TT

q	0.9382205	(2000.0)	P	Sato	Q
n	0.12881942	Peri.	272.98537	-0.35578938	-0.93293498
a	3.8828311	Node	198.15838	+0.91230496	-0.33389525
e	0.7583669	Incl.	10.20097	+0.20276483	-0.13470815
P	7.65				

From 439 observations 2001 May 11–2024 Jan. 27, mean residual 0".57.

Nongravitational parameters A1 = -0.11, A2 = +0.0006.

Comet 219P/LINEAR

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 13.82204 TT

q	2.3548405	(2000.0)	P	Sato	Q
n	0.14163391	Peri.	107.62492	+0.91595513	+0.36998275
a	3.6449469	Node	230.95339	-0.39979694	+0.87465706
e	0.3539438	Incl.	11.54001	+0.03447628	+0.31318969
P	6.96				

From 1020 observations 2002 June 5–2023 Nov. 13, mean residual 0".71.

Nongravitational parameters A1 = +0.91, A2 = -0.1122.

Comet C/2021 S3 (PANSTARRS)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 14.71183 TT

		(2000.0)	P	Sato Q
q	1.3202020			
z	-0.0002203	Peri. 6.85616	-0.77078202	+0.39889357
	+/-0.0000006	Node 215.62084	-0.61751571	-0.65959914
e	1.0002909	Incl. 58.53296	-0.15674638	+0.63703445

From 1026 observations 2020 Dec. 6–2024 Jan. 11, mean residual 0".42.

Comet C/2022 T1 (Lemmon)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 17.47388 TT

		(2000.0)	P	Sato Q
q	3.4449104			
z	+0.0000218	Peri. 324.30968	-0.89479253	+0.31008158
	+/-0.0000026	Node 236.91848	-0.26555837	-0.94800819
e	0.9999249	Incl. 22.54386	-0.35892212	-0.07162325

From 263 observations 2022 Oct. 3–2024 Jan. 9, mean residual 0".50.

Comet P/2001 Q6 = 2023 W1 (NEAT)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 26.24264 TT

		(2000.0)	P	Sato Q
q	1.4057881			
n	0.04379160	Peri. 42.91742	+0.53773698	-0.78151167
a	7.9715384	Node 22.18501	+0.34263075	-0.14027456
e	0.8236491	Incl. 56.90846	+0.77035259	+0.60791657

P 22.51

From 485 observations 2001 Aug. 18–2024 Jan. 27, mean residual 0".68.

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 26.24268 TT

		(2000.0)	P	Sato Q
q	1.4057881			
n	0.04379160	Peri. 42.91743	+0.53773681	-0.78151179
a	7.9715385	Node 22.18501	+0.34263074	-0.14027460
e	0.8236491	Incl. 56.90845	+0.77035271	+0.60791640

P 22.51

From 482 observations 2001 Aug. 18–2024 Jan. 20, mean residual 0".68.

Comet 125P/Spacewatch

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Mar. 7.29477 TT

		(2000.0)	P	Sato Q
q	1.5266922			
n	0.17803927	Peri. 87.13986	-0.48876894	+0.86889157
a	3.1293839	Node 153.15074	-0.85337992	-0.45752797
e	0.5121429	Incl. 9.98482	-0.18123919	-0.18893281

P 5.54

From 783 observations 1991 Sept. 8–2024 Jan. 20, mean residual 0".63.

Nongravitational parameters A1 = +0.03, A2 = +0.0074.

Comet 227P/Catalina-LINEAR

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Mar. 8.24730 TT

		(2000.0)	P	Sato Q
q	1.6236284			
n	0.15476018	Peri. 105.56704	-0.78709107	-0.61184753
a	3.4358160	Node 36.80955	+0.50395290	-0.71104272
e	0.5274402	Incl. 7.50870	+0.35569526	-0.34649799

P 6.37

From 462 observations 1997 Jan. 15–2024 Jan. 26, mean residual 0".42.

Comet C/2022 L2 (ATLAS)

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 12.25810 TT

		(2000.0)	P	Sato Q
q	2.6927332			
z	-0.0004826	Peri. 199.91641	-0.86469607	-0.11298994
	+/-0.0000036	Node 39.24125	-0.28747739	+0.91033275
e	1.0012996	Incl. 129.31419	-0.41189496	-0.39815520

From 2206 observations 2022 May 20–2024 Jan. 16, mean residual 0".46.

Nongravitational parameters Y1 = +2.92, Y2 = -0.9291.

Comet 150P/LONEOS

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 12.46202 TT

		(2000.0)	P	Sato	Q
q	1.7455860				
n	0.12946202	Peri.	246.11292	-0.88084442	-0.35080389
a	3.8699718	Node	272.05903	+0.45839636	-0.79977309
e	0.5489409	Incl.	18.54737	-0.11826195	-0.48713410
P	7.61				

From 864 observations 1978 Mar. 6–2024 Jan. 27, mean residual 0".43.

Nongravitational parameters A1 = -0.00, A2 = -0.0004.

Comet C/2021 Q6 (PANSTARRS)

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 25.03835 TT

		(2000.0)	P	Sato	Q
q	8.7078378				
z	-0.0001313	Peri.	141.02228	+0.96878109	-0.10222390
	+/-0.0000012	Node	133.53683	-0.21726696	-0.78886535
e	1.0011431	Incl.	161.84658	+0.11940797	-0.60600473

From 313 observations 2021 Jan. 2–2023 Nov. 19, mean residual 0".41.

Comet C/2022 U1 (Leonard)

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 25.87098 TT

		(2000.0)	P	Sato	Q
q	4.2020870				
z	+0.0001447	Peri.	78.58450	+0.63698628	-0.17770860
	+/-0.0000015	Node	72.52636	-0.30022128	-0.95342656
e	0.9993920	Incl.	128.14962	+0.71001103	-0.24371593

From 471 observations 2022 Sept. 23–2024 Jan. 16, mean residual 0".53.C

Comet 130P/McNaught–Hughes

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Apr. 14.88236 TT

		(2000.0)	P	Sato	Q
q	1.8229860				
n	0.15851952	Peri.	246.12765	+0.71822795	+0.68867512
a	3.3812781	Node	70.17847	-0.59378620	+0.68108628
e	0.4608589	Incl.	6.06360	-0.36272106	+0.24869271
P	6.22				

From 1149 observations 1991 Sept. 14–2023 July 17, mean residual 0".66.

Comet 32P/Comas Sola

Epoch 2024 Apr. 20.0 TT = JDT 2460420.5

T 2024 Apr. 20.61049 TT

		(2000.0)	P	Sato	Q
q	2.0245979				
n	0.10147867	Peri.	54.67130	-0.31894863	-0.93732803
a	4.5521811	Node	54.52976	+0.80403610	-0.34597867
e	0.5552466	Incl.	9.92083	+0.50179450	-0.04141166
P	9.71				

From 2880 observations 2005 Dec. 28–2024 Jan. 27, mean residual 0".72.

Nongravitational parameters A1 = +0.73, A2 = -0.0898.

Comet 12P/Pons–Brooks

Epoch 2024 Apr. 20.0 TT = JDT 2460420.5

T 2024 Apr. 21.12489 TT

		(2000.0)	P	Sato	Q
q	0.7807678				
n	0.01381931	Peri.	198.99052	+0.14509891	-0.32930252
a	17.1980188	Node	255.85596	+0.98566606	+0.13014439
e	0.9546013	Incl.	74.19161	+0.08607400	-0.93521243
P	71.32				

From 6186 observations 1953 July 18–2024 Jan. 29, mean residual 0".58.

Nongravitational parameters A1 = -0.16, A2 = -0.1429.

Comet 212P/NEAT

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 Apr. 25.09584 TT

		(2000.0)	P	Sato	Q
q	1.6124454				
n	0.12791605	Peri.	14.02302	-0.35687243	-0.85629430
a	3.9010906	Node	97.97534	+0.81662179	-0.48005464
e	0.5866680	Incl.	22.14875	+0.45361981	+0.19054559
P	7.71				

From 138 observations 2000 Dec. 1–2024 Jan. 30, mean residual 0".71.

Comet 299P/Catalina–PANSTARRS

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 Apr. 30.34623 TT

		(2000.0)	P	Sato	Q
q	3.1563676				
n	0.10716842	Peri.	323.68699	-0.55987487	+0.80842750
a	4.3895988	Node	271.58179	-0.71096946	-0.58128989
e	0.2809440	Incl.	10.46805	-0.42551446	-0.09245017
P	9.20				

From 368 observations 1987 Jan. 31–2024 Jan. 11, mean residual 0".62.

Nongravitational parameters Y1 = -0.11, Y2 = -0.0014.

Comet P/2023 Y3 = 2017 BQ100 (ATLAS)

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 1.97329 TT

		(2000.0)	P	Sato	Q
q	2.3936068				
n	0.14158508	Peri.	13.18073	-0.76677557	-0.61828124
a	3.6457850	Node	127.27151	+0.56752496	-0.77858297
e	0.3434592	Incl.	12.52521	+0.29995107	-0.10740980
P	6.96				

From 441 observations 2015 Sept. 18–2024 Jan. 26, mean residual 0".42.

Comet P/2011 N01 = 2023 WM26 (Elenin)

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 5.24380 TT

		(2000.0)	P	Sato	Q
q	1.2437047				
n	0.07391141	Peri.	263.52555	-0.91136064	+0.33512370
a	5.6233492	Node	295.83313	-0.18492484	-0.85208185
e	0.7788320	Incl.	15.39781	-0.36772895	-0.40205549
P	13.33				

From 243 observations 2011 June 12–2024 Jan. 27, mean residual 0".47.

Comet 50P/Arend

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 12.77834 TT

		(2000.0)	P	Sato	Q
q	1.9223222				
n	0.11914991	Peri.	49.34593	+0.70954988	-0.70411624
a	4.0901594	Node	355.16909	+0.50632539	+0.53664879
e	0.5300129	Incl.	19.09875	+0.49007507	+0.46500364
P	8.27				

From 1593 observations 1959 July 6–2023 Oct. 4, mean residual 0".64.

Nongravitational parameters A1 = +0.34, A2 = -0.0203.

Comet 222P/LINEAR

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 12.89293 TT

		(2000.0)	P	Sato	Q
q	0.8267000				
n	0.19982464	Peri.	346.30222	+0.99258201	+0.12112550
a	2.8975884	Node	6.76684	-0.10149410	+0.87294462
e	0.7146938	Incl.	5.09679	-0.06693212	+0.47254238
P	4.93				

From 228 observations 2004 Dec. 7–2019 May 26, mean residual 0".66.

Nongravitational parameters A1 = +0.01, A2 = -0.0006.

Comet 46P/Wirtanen

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 19.10770 TT

		(2000.0)	P	Sato	Q
q	1.0548278				
n	0.18129368	Peri.	356.32200	+0.19831018	-0.95915398
a	3.0918205	Node	82.16199	+0.90437658	+0.09971626
e	0.6588328	Incl.	11.74971	+0.37785721	+0.26472685
P	5.44				

From 3669 observations 2018 Dec. 1–2023 Dec. 10, mean residual 0".57.

Comet C/2023 V4 (Camarasa–Duszanowicz)

Epoch 2024 June 19.0 TT = JDT 2460480.5

T 2024 May 30.36589 TT

		(2000.0)	P	Sato	Q
q	1.1217973				
z	-0.0009122	Peri.	50.85025	-0.02247971	-0.53611624
+/-	-0.0000122	Node	66.32396	+0.35730232	-0.79261992
e	1.0010233	Incl.	67.13137	+0.93371822	+0.29040153

From 307 observations 2023 Nov. 5–2024 Jan. 24, mean residual 0".53.

Comet P/2004 D029 = 2023 V7 (Spacewatch–LINEAR)

Epoch 2024 June 19.0 TT = JDT 2460480.5

T 2024 June 1.61649 TT

		(2000.0)	P	Sato	Q
q	4.0774759				
n	0.04987159	Peri.	40.39522	-0.97965031	+0.14832808
a	7.3097167	Node	147.37520	-0.17269488	-0.96622779
e	0.4421841	Incl.	14.52523	+0.10228270	-0.21071933
P	19.76				

From 103 observations 2004 Feb. 11–2024 Jan. 19, mean residual 0".56.

Comet 154P/Brewington

Epoch 2024 June 19.0 TT = JDT 2460480.5

T 2024 June 12.91125 TT

		(2000.0)	P	Sato	Q
q	1.5529657				
n	0.09380233	Peri.	47.96016	+0.84722153	-0.52381367
a	4.7972641	Node	343.01183	+0.35203042	+0.67835569
e	0.6762810	Incl.	17.63506	+0.39785710	+0.51522112
P	10.51				

From 2633 observations 2013 July 6–2015 Jan. 22, mean residual 0".52.

Nongravitational parameters A1 = +3.74, A2 = +0.6047, A3 = -1.337.

Comet C/2023 Q2 (PANSTARRS)

Epoch 2024 June 19.0 TT = JDT 2460480.5

T 2024 June 24.06198 TT

		(2000.0)	P	Sato	Q
q	3.2093853				
z	-0.0028781	Peri.	171.72017	+0.08119761	-0.23339008
+/-	-0.0000154	Node	92.67905	-0.96099346	+0.23955183
e	0.9907632	Incl.	104.05871	-0.26438326	-0.94241392

From 127 observations 2023 July 6–Nov. 14, mean residual 0".37.

Comet 472P/NEAT–LINEAR

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 15.54540 TT

		(2000.0)	P	Sato	Q
q	3.3895597				
n	0.04498430	Peri.	218.95092	+0.42836790	-0.89983952
a	7.8300060	Node	205.99618	+0.86893006	+0.43523281
e	0.5671064	Incl.	10.83577	+0.24791430	+0.02934679
P	21.91				

From 496 observations 2002 Sept. 15–2024 Jan. 15, mean residual 0".66.

Comet 13P/Olbers

Epoch 2024 June 19.0 TT = JDT 2460480.5

T 2024 June 30.04852 TT

		(2000.0)	P	Sato	Q
q	1.1754878				
n	0.01422609	Peri.	64.41641	-0.60854086	-0.37162659
a	16.8685993	Node	85.84779	+0.18556046	-0.92570319
e	0.9303150	Incl.	44.66552	+0.77152144	-0.07047899
P	69.28				

From 741 observations 1955 Nov. 12–2024 Jan. 27, mean residual 0".45.

Nongravitational parameters A1 = +0.18, A2 = +0.1039.

Comet C/2022 S4 (Lemmon)

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 18.74804 TT

		(2000.0)	P	Sato	Q
q	2.7618074				
z	+0.0008243	Peri.	268.55565	+0.14475220	-0.76067796
	+/-0.0000013	Node	220.17435	+0.26859818	-0.58529777
e	0.9977233	Incl.	101.22073	-0.95231393	-0.28070547

From 662 observations 2022 Aug. 26–2024 Jan. 14, mean residual 0".49.

Comet 362P/(457175)

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 20.13714 TT

		(2000.0)	P	Sato	Q
q	2.8661488				
n	0.12443389	Peri.	53.48053	-0.41276366	+0.90897460
a	3.9735340	Node	192.54238	-0.89767440	-0.41679657
e	0.2786903	Incl.	15.55509	-0.15429461	-0.00676678
P	7.92				

From 693 observations 2001 Oct. 15–2024 Jan. 3, mean residual 0".54.

Comet P/2010 WK (LINEAR)

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 21.10527 TT

		(2000.0)	P	Sato	Q
q	1.7822714				
n	0.07116239	Peri.	41.00397	+0.61368043	-0.78859987
a	5.7672536	Node	11.32418	+0.66297310	+0.48797419
e	0.6909671	Incl.	11.40077	+0.42879249	+0.37415429
P	13.85				

From 584 observations 2010 Nov. 17–2011 Apr. 21, mean residual 0".57.

From CHB 2022.

Comet C/2022 U3 (Bok)

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 28.51130 TT

		(2000.0)	P	Sato	Q
q	4.8263201				
z	-0.0003865	Peri.	189.10652	-0.17955269	-0.81322365
	+/-0.0000010	Node	272.78454	+0.93386773	+0.03600352
e	1.0018655	Incl.	33.65659	+0.30927640	-0.58083650

From 515 observations 2021 June 23–2024 Jan. 26, mean residual 0".43.

Comet C/2023 R2 (PANSTARRS)

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 Aug. 12.14830 TT

		(2000.0)	P	Sato	Q
q	0.9051743				
z	-0.0002341	Peri.	337.30173	-0.96282479	-0.25828963
	+/-0.0000098	Node	188.91397	+0.24796032	-0.96123820
e	1.0002120	Incl.	30.69077	-0.10716390	+0.09647588

From 288 observations 2023 Sept. 10–2024 Jan. 14, mean residual 0".47.

Comet 30P/Reinmuth

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 Aug. 17.18430 TT

		(2000.0)	P	Sato	Q
q	1.8136460				
n	0.13657412	Peri.	9.48637	-0.59649116	-0.79289529
a	3.7344253	Node	117.23587	+0.72690005	-0.59947529
e	0.5143440	Incl.	8.05321	+0.34031546	-0.10929980
P	7.22				

From 2132 observations 2009 Aug. 20–2024 Jan. 24, mean residual 0".66.

Nongravitational parameters A1 = -0.28, A2 = +0.0030.

Comet P/2014 MG4 (Spacewatch-PANSTARRS)

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Sept. 6.72808 TT

		(2000.0)	P	Sato	Q
q	3.7168881				
n	0.08778285	Peri.	298.93844	-0.32294680	+0.93858446
a	5.0141379	Node	311.69220	-0.80178941	-0.33954409
e	0.2587184	Incl.	9.36496	-0.50283110	-0.06139237
P	11.23				

From 189 observations 2014 June 20–2016 Nov. 6, mean residual 0".48.

From CHB 2022.

Comet C/2021 G2 (ATLAS)

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Sept. 9.20899 TT

		(2000.0)	P	Sato	Q
q	4.9823846				
z	-0.0000550	Peri.	343.27849	-0.84713590	+0.20051699
+/-	-0.0000004	Node	221.09493	-0.35999536	-0.89773355
e	1.0002739	Incl.	48.47320	-0.39085050	+0.39225936

From 1000 observations 2020 Nov. 3–2024 Jan. 28, mean residual 0".33.

Comet C/2022 E2 (ATLAS)

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Sept. 14.13332 TT

		(2000.0)	P	Sato	Q
q	3.6662650				
z	-0.0002904	Peri.	41.72581	-0.03434064	+0.83133354
+/-	-0.0000005	Node	125.37585	+0.63732047	-0.40932383
e	1.0010647	Incl.	137.13153	+0.76983332	+0.37595019

From 1572 observations 2022 Feb. 23–2024 Jan. 26, mean residual 0".44.

Comet C/2023 A3 (Tsuchinshan-ATLAS)

Epoch 2024 Oct. 17.0 TT = JDT 2460600.5

T 2024 Sept. 27.75161 TT

		(2000.0)	P	Sato	Q
q	0.3914130				
z	-0.0002187	Peri.	308.49475	+0.36146842	+0.90081778
+/-	-0.0000016	Node	21.56017	+0.91851872	-0.29970791
e	1.0000856	Incl.	139.10937	-0.16019968	+0.31416952

From 2311 observations 2022 Apr. 9–2024 Jan. 24, mean residual 0".33.

Comet 37P/Forbes

Epoch 2024 Oct. 17.0 TT = JDT 2460600.5

T 2024 Oct. 11.26987 TT

		(2000.0)	P	Sato	Q
q	1.6178284				
n	0.15295904	Peri.	330.06598	+0.25665850	+0.96012569
a	3.4627352	Node	314.54952	-0.85301331	+0.17110815
e	0.5327889	Incl.	8.94757	-0.45441689	+0.22108969
P	6.44				

From 1525 observations 1999 June 14–2018 Dec. 14, mean residual 0".67.

Nongravitational parameters Y1 = +0.31, Y2 = -0.0457.

Comet C/2023 U1 (Fuls)

Epoch 2024 Oct. 17.0 TT = JDT 2460600.5

T 2024 Oct. 12.74488 TT

		(2000.0)	P	Sato	Q
q	4.9728156				
z	+0.0004084	Peri.	255.62607	+0.09942094	+0.62947065
+/-	-0.0000308	Node	305.80897	+0.71282320	-0.58542060
e	0.9979692	Incl.	108.14641	-0.69426117	-0.51092995

From 68 observations 2023 Oct. 16–2024 Jan. 21, mean residual 0".53.

Comet P/2012 US27 (Siding Spring)

Epoch 2024 Oct. 17.0 TT = JDT 2460600.5

T 2024 Oct. 21.33408 TT

		(2000.0)	P	Sato	Q
q	1.8149892				
n	0.08394292	Peri.	0.86483	+0.64436510	-0.59509785
a	5.1659078	Node	49.21111	+0.69775163	+0.20052023
e	0.6486602	Incl.	39.37007	+0.31294772	+0.77823530
P	11.74				

From 297 observations 2012 Oct. 17–2013 Apr. 18, mean residual 0".43.
From CHB 2022.

Comet 33P/Daniel

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 11.00501 TT

		(2000.0)	P	Sato	Q
q	2.2426611				
n	0.11893720	Peri.	20.28764	+0.08356812	-0.93401255
a	4.0950347	Node	66.28190	+0.85394840	-0.11252099
e	0.4523462	Incl.	22.29477	+0.51360344	+0.33905689
P	8.29				

From 406 observations 1992 July 29–2017 Mar. 30, mean residual 0".76.
Nongravitational parameters A1 = +0.61, A2 = +0.0719.

Comet C/2023 C2 (ATLAS)

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 16.81175 TT

		(2000.0)	P	Sato	Q
q	2.3685065				
z	+0.0003475	Peri.	357.45700	+0.48930418	+0.59225749
	+/-0.0000067	Node	301.00416	-0.78638881	-0.01773646
e	0.9991769	Incl.	48.32011	-0.37705976	+0.80555353

From 178 observations 2023 Feb. 1–Dec. 20, mean residual 0".46.

Comet 305P/Skiff

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 17.17599 TT

		(2000.0)	P	Sato	Q
q	1.4186011				
n	0.09873077	Peri.	147.42658	+0.87709404	-0.44715464
a	4.6362591	Node	240.10645	+0.38588233	+0.87341643
e	0.6940203	Incl.	11.67130	+0.28600853	+0.19286387
P	9.98				

From 516 observations 2004 Oct. 7–2015 Mar. 9, mean residual 0".79.

Comet C/2023 H1 (PANSTARRS)

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 28.18515 TT

		(2000.0)	P	Sato	Q
q	4.4421219				
z	+0.0006231	Peri.	333.83646	-0.03263661	+0.93895112
	+/-0.0004476	Node	292.62658	-0.83954180	-0.21169460
e	0.9972320	Incl.	21.78093	-0.54231395	+0.27121243

From 31 observations 2023 Apr. 17–May 16, mean residual 0".22.

Comet 333P/LINEAR

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 29.29920 TT

		(2000.0)	P	Sato	Q
q	1.1129425				
n	0.11366033	Peri.	26.01719	-0.12522055	+0.73230285
a	4.2208194	Node	115.70571	+0.73014169	-0.38877236
e	0.7363207	Incl.	132.02199	+0.67172385	+0.55909622
P	8.67				

From 642 observations 2007 Nov. 4–2017 July 27, mean residual 0".47.

Comet C/2023 Q1 (PANSTARRS)

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Dec. 1.15970 TT

		(2000.0)	P	Sato	Q
q	2.5758444				
z	-0.0019971	Peri.	84.41250	-0.00252974	-0.99724815
	+/-0.0000117	Node	7.13162	+0.50183286	-0.06535372
e	1.0051442	Incl.	36.64135	+0.86496091	+0.03500027

From 99 observations 2023 July 25–2024 Jan. 5, mean residual 0".31.

Comet 276P/Vorobjov

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Dec. 10.77033 TT

		(2000.0)	P	Sato	Q
q	3.8986941				
n	0.07964855	Peri.	199.26574	+0.64038875	-0.75647239
a	5.3499632	Node	211.33690	+0.73394548	+0.65370222
e	0.2712671	Incl.	14.80119	+0.22633223	+0.02056540
P	12.37				

From 431 observations 2000 Dec. 19–2024 Jan. 14, mean residual 0".47.

Comet 242P/Spahr

Epoch 2025 Jan. 5.0 TT = JDT 2460680.5

T 2024 Dec. 23.18285 TT

		(2000.0)	P	Sato	Q
q	3.9716061				
n	0.07565125	Peri.	244.90925	+0.42008425	-0.90748085
a	5.5367976	Node	180.29706	+0.89652059	+0.41453190
e	0.2826889	Incl.	32.42899	-0.14064156	-0.06813084
P	13.03				

From 645 observations 1997 Oct. 29–2024 Jan. 11, mean residual 0".69.

Comet C/2023 T3 (Fuls)

Epoch 2025 Feb. 14.0 TT = JDT 2460720.5

T 2025 Jan. 25.33612 TT

		(2000.0)	P	Sato	Q
q	3.5483904				
z	+0.0012362	Peri.	302.84484	-0.90310084	+0.09888228
	+/-0.0000140	Node	246.00004	-0.02292623	-0.98284230
e	0.9956137	Incl.	27.22180	-0.42881611	-0.15570264

From 204 observations 2023 Oct. 15–2024 Jan. 26, mean residual 0".42.

Comet P/2023 S1

Epoch 2025 Feb. 14.0 TT = JDT 2460720.5

T 2025 Feb. 24.19602 TT

		(2000.0)	P	Sato	Q
q	2.6198232				
n	0.13075943	Peri.	180.30012	-0.73829352	-0.66578523
a	3.8443303	Node	317.28998	+0.61915403	-0.60551615
e	0.3185229	Incl.	9.15740	+0.26752752	-0.43598189
P	7.54				

From 385 observations 2023 Sept. 15–2024 Jan. 26, mean residual 0".43.

Comet C/2024 A1 (ATLAS)

Epoch 2025 June 14.0 TT = JDT 2460840.5

T 2025 June 14.83711 +/- 0.728058 TT

		(2000.0)	P	Sato	Q
q	3.8776947				
z	+0.0008503	Peri.	353.35338	-0.38327944	+0.02774924
	+/-0.0009300	Node	112.17839	+0.88667821	-0.26885232
e	0.9967030	Incl.	94.45478	+0.25864766	+0.96278160

From 96 observations 2024 Jan. 3–22, mean residual 0".41.

Comet 65P/Gunn

Epoch 2025 June 14.0 TT = JDT 2460840.5

T 2025 June 16.47218 TT

		(2000.0)	P	Sato	Q
q	2.9262593				
n	0.12836353	Peri.	213.67379	+0.09218036	+0.98574312
a	3.8920190	Node	61.97572	-0.87479886	+0.14769497
e	0.2481385	Incl.	9.17533	-0.47563613	-0.08060203
P	7.68				

From 1873 observations 2015 Dec. 11–2024 Jan. 24, mean residual 0".61.

Comet C/2023 H5 (Lemmon)

Epoch 2025 June 14.0 TT = JDT 2460840.5

T 2025 June 30.28820 TT

		(2000.0)	P	Sato	Q
q	4.3127016				
z	-0.0000985	Peri.	60.09853	-0.42534261	+0.83575566
	+/-0.0000032	Node	159.47850	-0.07945429	-0.41671115
e	1.0004247	Incl.	97.85503	+0.90153795	+0.35758118

From 180 observations 2022 Dec. 1–2024 Jan. 24, mean residual 0".41.

Comet C/2022 N2 (PANSTARRS)

Epoch 2025 July 24.0 TT = JDT 2460880.5

T 2025 July 31.80123 TT

	(2000.0)	P	Sato	Q
q	3.8252699			
z	-0.0008802	Peri. 75.40169	+0.81485575	-0.57634121
+/-	-0.0000066	Node 319.73931	+0.48805709	+0.73983245
e	1.0033670	Incl. 5.50296	+0.31274652	+0.34710049

From 264 observations 2022 June 2–2023 Dec. 8, mean residual 0".36.

Comet 195P/Hill

Epoch 2025 July 24.0 TT = JDT 2460880.5

T 2025 Aug. 5.73556 TT

	(2000.0)	P	Sato	Q
q	4.4405445			
n	0.06026684	Peri. 250.61658	-0.52676944	-0.66502868
a	6.4429353	Node 243.09545	+0.80945433	-0.58254647
e	0.3107886	Incl. 36.41589	-0.25941789	-0.46730769

P 16.35

From 455 observations 1993 Feb. 26–2024 Jan. 16, mean residual 0".57.

Nongravitational parameters Y1 = +0.51, Y2 = -0.1732.

Comet C/2022 R6 (PANSTARRS)

Epoch 2025 Sept. 2.0 TT = JDT 2460920.5

T 2025 Aug. 26.37677 TT

	(2000.0)	P	Sato	Q
q	6.5651903			
z	-0.0007952	Peri. 319.93473	-0.49692765	-0.76511741
+/-	-0.0000032	Node 150.78331	+0.83807394	-0.30070536
e	1.0052208	Incl. 57.02030	-0.22515545	+0.56936072

From 364 observations 2022 Sept. 14–2024 Jan. 25, mean residual 0".38.

Comet C/2022 QE78 (ATLAS)

Epoch 2025 Sept. 2.0 TT = JDT 2460920.5

T 2025 Sept. 11.93906 TT

	(2000.0)	P	Sato	Q
q	5.4757330			
z	-0.0003047	Peri. 0.62110	-0.50578697	-0.69030668
+/-	-0.0000022	Node 119.88589	+0.78887842	-0.61279422
e	1.0016684	Incl. 36.63429	+0.34907073	+0.38465561

From 979 observations 2022 Aug. 27–2024 Jan. 26, mean residual 0".41.

Comet C/2023 X2 (Lemmon)

Epoch 2025 Dec. 31.0 TT = JDT 2461040.5

T 2025 Dec. 28.38610 TT

	(2000.0)	P	Sato	Q
q	5.0881536			
z	-0.0000242	Peri. 64.79727	-0.01549861	-0.45151296
+/-	-0.0000245	Node 66.30097	+0.08224798	-0.88978909
e	1.0001229	Incl. 76.98030	+0.99649138	+0.06641857

From 113 observations 2023 Aug. 18–2024 Jan. 11, mean residual 0".32.

Comet C/2023 R1 (PANSTARRS)

Epoch 2026 Apr. 30.0 TT = JDT 2461160.5

T 2026 Apr. 13.43232 TT

	(2000.0)	P	Sato	Q
q	3.5703520			
z	-0.0006484	Peri. 144.26047	+0.07195284	-0.88863060
+/-	-0.0000112	Node 62.57109	-0.99185123	-0.01587920
e	1.0023151	Incl. 149.31539	-0.10513762	-0.45834868

From 202 observations 2023 July 29–2024 Jan. 26, mean residual 0".37.

Comet 95P/(2060) Chiron

Epoch 2046 Aug. 3.0 TT = JDT 2468560.5

T 2046 Aug. 3.23905 TT

	(2000.0)	P	Sato	Q
q	8.4622671			
n	0.01964670	Peri. 339.58189	-0.98687458	+0.15029648
a	13.6022146	Node 209.25689	-0.12624928	-0.94614533
e	0.3778758	Incl. 6.94231	-0.10069602	-0.28674027

P 50.17

From 4227 observations 1941 Jan. 23–2024 Jan. 23, mean residual 0".35.

References:

Comet P/2023 M4 (ATLAS)
Epoch 2022 Apr. 11.0 TT = JDT 2459680.5
T 2022 Apr. 15.00458 TT
q 3.9290879 (2000.0) P Sato Q
n 0.07730899 Peri. 320.66171 -0.22064279 +0.96813771
a 5.4573616 Node 296.29875 -0.85825568 -0.25040275
e 0.2800389 Incl. 7.59127 -0.46337236 +0.00279899
P 12.75
From 1079 observations 2021 Mar. 17–2023 Dec. 26, mean residual 0".35.

Comet C/2020 S4 (PANSTARRS)
Epoch 2023 Feb. 25.0 TT = JDT 2460000.5
T 2023 Feb. 9.21854 TT
q 3.3697711 (2000.0) P Sato Q
z -0.0003399 Peri. 20.98672 -0.73114661 -0.60719957
+/-0.0000013 Node 117.72157 +0.56513059 -0.79444116
e 1.0011455 Incl. 20.56979 +0.38216758 +0.01311229
From 1785 observations 2020 Sept. 16–2024 Jan. 11, mean residual 0".48.
Nongravitational parameters Y1 = +4.15, Y2 = -0.9116.

Comet C/2021 Y1 (ATLAS)
Epoch 2023 May 16.0 TT = JDT 2460080.5
T 2023 Apr. 30.70953 TT
q 2.0323921 (2000.0) P Sato Q
z -0.0004220 Peri. 245.81869 -0.00835906 -0.47099414
+/-0.0000004 Node 244.77069 +0.77291138 -0.56273646
e 1.0008577 Incl. 77.19078 -0.63445892 -0.67933217
From 1837 observations 2021 Nov. 8–2023 June 16, mean residual 0".48.

Comet C/2023 E1 (ATLAS)
Epoch 2023 June 25.0 TT = JDT 2460120.5
T 2023 July 1.10759 TT
q 1.0266099 (2000.0) P Sato Q
n 0.01158024 Peri. 105.89443 +0.06327819 +0.98427768
a 19.3489604 Node 164.57435 -0.97143201 +0.02287773
e 0.9469424 Incl. 38.31383 +0.22872628 -0.17514010
P 85.11
From 2945 observations 2022 Dec. 25–2023 Nov. 15, mean residual 0".55.

Comet P/2023 X5 = 2017 04 (Hogan)
Epoch 2023 Aug. 4.0 TT = JDT 2460160.5
T 2023 July 16.76775 TT
q 2.5416089 (2000.0) P Sato Q
n 0.17762681 Peri. 11.45138 +0.78539488 -0.61893480
a 3.1342265 Node 26.79293 +0.56639300 +0.71295351
e 0.1890794 Incl. 1.09787 +0.24970755 +0.32957094
P 5.55
From 117 observations 2005 June 14–2024 Jan. 17, mean residual 0".43.

Comet P/2023 Y2 (Gibbs)
Epoch 2023 Aug. 4.0 TT = JDT 2460160.5
T 2023 Aug. 9.80108 TT
q 2.2758803 (2000.0) P Sato Q
n 0.13606634 Peri. 16.78921 -0.10276514 -0.98748934
a 3.7437104 Node 79.23080 +0.89806588 -0.14380536
e 0.3920790 Incl. 6.99277 +0.42768798 +0.06469017
P 7.24
From 59 observations 2022 Oct. 23–2024 Jan. 15, mean residual 0".53.

Comet C/2022 A3 (Lemmon-ATLAS)
Epoch 2023 Sept. 13.0 TT = JDT 2460200.5
T 2023 Sept. 28.84794 TT
q 3.7035429 (2000.0) P Sato Q
z +0.0011342 Peri. 234.84602 -0.48779469 +0.66421617
+/-0.0000008 Node 325.48002 +0.60658321 -0.20874967
e 0.9957993 Incl. 88.34315 -0.62778432 -0.71780252
From 919 observations 2021 Apr. 30–2024 Jan. 27, mean residual 0".54.

Comet C/2023 S2 (ATLAS)

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Oct. 15.37732 TT

q	1.0677170	(2000.0)	P	Sato	Q
z	+0.0066622	Peri.	78.10920	+0.57705837	+0.77068103
	+/-0.0000384	Node	230.56202	-0.81647542	+0.55219967
e	0.9928866	Incl.	20.48544	+0.01927500	+0.31800358

From 367 observations 2023 Sept. 28-Dec. 7, mean residual 0".62.

Comet 2P/Encke

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Oct. 22.52811 TT

q	0.3395970	(2000.0)	P	Sato	Q
n	0.29824619	Peri.	187.28789	-0.94616546	-0.31201839
a	2.2186363	Node	334.01916	+0.30601020	-0.77556207
e	0.8469344	Incl.	11.33665	+0.10549259	-0.54876954

P 3.30
From 1810 observations 2016 July 8-2023 Oct. 13, mean residual 0".66.
Nongravitational parameters A1 = +0.01, A2 = -0.0003, A3 = -0.0016.

Comet C/2023 H2 (Lemmon)

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Oct. 29.19041 TT

q	0.8944077	(2000.0)	P	Sato	Q
z	+0.0041100	Peri.	150.64988	+0.57677156	+0.60273728
	+/-0.0000074	Node	217.04464	+0.44790972	+0.33114442
e	0.9963240	Incl.	113.75407	+0.68316283	-0.72598288

From 688 observations 2023 Mar. 26-2024 Jan. 13, mean residual 0".67.
Nongravitational parameters A1 = +0.89, A2 = +1.2186.

Comet 213P/Van Ness

Epoch 2023 Oct. 23.0 TT = JDT 2460240.5

T 2023 Nov. 11.96907 TT

q	1.9801728	(2000.0)	P	Sato	Q
n	0.16108217	Peri.	5.76703	+0.73071405	+0.66912335
a	3.3453206	Node	311.28307	-0.63333121	+0.59038919
e	0.4080768	Incl.	10.37977	-0.25485005	+0.45134748

P 6.12
From 340 observations 2017 Apr. 22-2018 Dec. 10, mean residual 0".65.
Nongravitational parameters Y1 = -0.47, Y2 = -0.2286, Y3 = +0.6551.

Comet P/2007 T2 (Kowalski)

Epoch 2023 Dec. 2.0 TT = JDT 2460280.5

T 2023 Nov. 15.40677 TT

q	0.6528640	(2000.0)	P	Sato	Q
n	0.18559444	Peri.	359.67060	+0.99857749	-0.05237512
a	3.0438698	Node	3.38057	+0.04929933	+0.83553073
e	0.7855151	Incl.	9.75625	+0.02031205	+0.54694172

P 5.31
From 114 observations 2007 Oct. 9-2008 Jan. 18, mean residual 0".77.
From CHB 2022.

Comet P/2023 Y1 (Gibbs)

Epoch 2023 Dec. 2.0 TT = JDT 2460280.5

T 2023 Nov. 29.72243 TT

q	2.0799157	(2000.0)	P	Sato	Q
n	0.13573271	Peri.	51.41577	-0.64177584	-0.75909106
a	3.7498425	Node	78.86492	+0.66449859	-0.62145428
e	0.4453325	Incl.	6.38457	+0.38283860	-0.19384359

P 7.26
From 34 observations 2023 Nov. 24-2024 Jan. 11, mean residual 0".45.

Comet C/2021 A9 (PANSTARRS)

Epoch 2023 Dec. 2.0 TT = JDT 2460280.5

T 2023 Dec. 1.91957 TT

		(2000.0)	P	Sato	Q
q	7.7600379				
z	-0.0001703	Peri.	211.47364	-0.25802664	+0.92894549
	+/-0.0000014	Node	314.83553	+0.94583509	+0.29891789
e	1.0013214	Incl.	158.01400	+0.19702343	-0.21842246

From 345 observations 2020 Dec. 12–2024 Jan. 19, mean residual 0".54.

Comet 311P/PANSTARRS

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2024 Jan. 1.95820 TT

		(2000.0)	P	Sato	Q
q	1.9352216				
n	0.30434734	Peri.	144.27737	+0.44479155	-0.89154043
a	2.1888855	Node	279.17388	+0.80029394	+0.43850365
e	0.1158872	Incl.	4.97049	+0.40210707	+0.11344699

P 3.24

From 165 observations 2005 Jan. 17–2024 Jan. 2, mean residual 0".32.

Comet C/2022 H1 (PANSTARRS)

Epoch 2024 Jan. 11.0 TT = JDT 2460320.5

T 2024 Jan. 17.12167 TT

		(2000.0)	P	Sato	Q
q	7.6967930				
z	+0.0013771	Peri.	246.14965	-0.33673685	+0.93780956
	+/-0.0000102	Node	6.33990	-0.30084241	-0.02222931
e	0.9894007	Incl.	49.83686	-0.89224556	-0.34643772

From 62 observations 2022 Mar. 2–2023 Apr. 17, mean residual 0".51.

Comet P/2023 V2 (PANSTARRS)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 4.16126 TT

		(2000.0)	P	Sato	Q
q	3.1044884				
n	0.05046815	Peri.	330.59475	+0.39834464	-0.90118126
a	7.2520000	Node	95.47663	+0.87151053	+0.31378064
e	0.5719128	Incl.	9.88352	+0.28599117	+0.29902181

P 19.53

From 73 observations 2023 Sept. 19–2024 Jan. 11, mean residual 0".19.

Comet 194P/LINEAR

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 4.22443 TT

		(2000.0)	P	Sato	Q
q	1.7995618				
n	0.11787098	Peri.	128.56326	-0.47384321	-0.87982331
a	4.1196924	Node	349.52532	+0.73086267	-0.36935328
e	0.5631805	Incl.	11.80597	+0.49123555	-0.29914727

P 8.36

From 170 observations 2007 Nov. 17–2024 Jan. 16, mean residual 0".68.

Nongravitational parameters A1 = -0.20, A2 = +0.0009.

Comet 251P/LINEAR

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 13.23053 TT

		(2000.0)	P	Sato	Q
q	1.7412709				
n	0.14962851	Peri.	31.21434	-0.35987566	+0.89842574
a	3.5139303	Node	219.34168	-0.91677205	-0.39059661
e	0.5044663	Incl.	23.38687	-0.17325852	+0.20066260

P 6.59

From 404 observations 2004 Apr. 17–2017 Sept. 21, mean residual 0".63.

Nongravitational parameters A1 = +0.45, A2 = +0.0252.

From CHB 2023.

Comet C/2023 H3 (PANSTARRS)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Feb. 18.88948 TT

		(2000.0)	P	Sato	Q
q	5.2328161				
n	0.01959062	Peri.	193.31406	-0.36807118	+0.92911500
a	13.6281603	Node	55.10021	-0.84904463	-0.32024069
e	0.6160292	Incl.	2.48933	-0.37900769	-0.18490868
P	50.31				

From 57 observations 2023 Mar. 16–June 13, mean residual 0".27.

Comet P/2019 A3 (PANSTARRS)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Mar. 2.67395 TT

		(2000.0)	P	Sato	Q
q	2.3071843				
n	0.17680987	Peri.	325.71471	+0.98816498	+0.06755617
a	3.1438734	Node	31.29329	+0.02732707	+0.80590735
e	0.2661332	Incl.	15.37514	-0.15094108	+0.58817472
P	5.57				

From 66 observations 2018 Aug. 8–2022 Apr. 1, mean residual 0".28.

Comet P/2010 T2 (PANSTARRS)

Epoch 2024 Feb. 20.0 TT = JDT 2460360.5

T 2024 Mar. 4.76130 TT

		(2000.0)	P	Sato	Q
q	3.7792461				
n	0.07352819	Peri.	351.32046	+0.64618314	-0.75413780
a	5.6428712	Node	58.33326	+0.70820896	+0.53532832
e	0.3302619	Incl.	7.91129	+0.28440711	+0.38039421
P	13.40				

From 33 observations 2010 Oct. 6–2011 Jan. 2, mean residual 0".73.

From CHB 2022.

Comet P/2013 R3 (Catalina–PANSTARRS)

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 20.51307 TT

		(2000.0)	P	Sato	Q
q	2.1956994				
n	0.18676712	Peri.	11.37955	+0.99323770	+0.11600430
a	3.0311151	Node	341.95690	-0.10766815	+0.90529935
e	0.2756133	Incl.	0.86505	-0.04343311	+0.40862707
P	5.28				

From 314 observations 2013 Sept. 15–2014 Jan. 3, mean residual 0".52.

From CHB 2022.

Comet 89P/Russell

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 26.59686 TT

		(2000.0)	P	Sato	Q
q	2.2218389				
n	0.13563351	Peri.	250.39969	+0.35671858	+0.92393939
a	3.7516708	Node	41.34559	-0.75947312	+0.37292668
e	0.4077735	Incl.	12.07205	-0.54401510	+0.08521558
P	7.27				

From 180 observations 1980 Aug. 9–2023 Apr. 18, mean residual 0".67.

Nongravitational parameters A1 = +1.32, A2 = -0.0806.

Comet 309P/LINEAR

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Mar. 28.99765 TT

		(2000.0)	P	Sato	Q
q	1.6697417				
n	0.10763498	Peri.	49.91259	+0.50506839	-0.86153850
a	4.3769048	Node	10.14253	+0.67565013	+0.35751623
e	0.6185108	Incl.	17.02160	+0.53703149	+0.36046299
P	9.16				

From 425 observations 2005 Aug. 31–2024 Jan. 13, mean residual 0".54.

Comet 355P/LINEAR-NEAT

Epoch 2024 Mar. 31.0 TT = JDT 2460400.5

T 2024 Apr. 1.51045 TT

		(2000.0)	P	Sato	Q
q	1.7068127				
n	0.15249859	Peri.	336.34039	+0.87897090	-0.45272660
a	3.4697018	Node	51.43446	+0.46238718	+0.73225015
e	0.5080809	Incl.	11.04752	+0.11665441	+0.50877141
P	6.46				

From 516 observations 2004 Nov. 30–2018 Mar. 9, mean residual 0".64.

Comet 267P/LONEOS

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 Apr. 24.81427 TT

		(2000.0)	P	Sato	Q
q	1.2379604				
n	0.17145204	Peri.	114.27359	+0.95152746	+0.29691191
a	3.2090337	Node	228.56039	-0.30642025	+0.89268083
e	0.6142264	Incl.	6.14465	-0.02649753	+0.33906378
P	5.75				

From 196 observations 2006 Aug. 29–2018 Nov. 17, mean residual 0".52.

Nongravitational parameters A1 = -0.08 A2 = -0.0071.

Comet 133P/Elst-Pizarro

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 10.32979 TT

		(2000.0)	P	Sato	Q
q	2.6707129				
n	0.17510017	Peri.	131.91863	+0.37498618	+0.92699364
a	3.1643050	Node	160.10022	-0.85755168	+0.35025084
e	0.1559875	Incl.	1.38985	-0.35212282	+0.13419070
P	5.63				

From 902 observations 1979 July 24–2023 May 25, mean residual 0".46.

Comet P/2023 T1 (PANSTARRS)

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 22.89397 TT

		(2000.0)	P	Sato	Q
q	2.8173144				
n	0.11330054	Peri.	202.86092	-0.04008170	-0.99335288
a	4.2297502	Node	249.57506	+0.93361939	+0.00124576
e	0.3339289	Incl.	6.61194	+0.35601726	-0.11510213
P	8.70				

From 121 observations 2023 July 16–2024 Jan. 11, mean residual 0".36.

Comet 192P/Shoemaker-Levy

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 24.38933 TT

		(2000.0)	P	Sato	Q
q	1.4645175				
n	0.06002415	Peri.	313.09080	+0.94472339	-0.03343202
a	6.4602901	Node	51.61230	+0.23383239	+0.76601997
e	0.7733047	Incl.	24.58934	-0.22982631	+0.64194681
P	16.42				

From 128 observations 1990 Nov. 15–2008 Mar. 9, mean residual 0".67.

Comet 349P/Lemmon

Epoch 2024 May 10.0 TT = JDT 2460440.5

T 2024 May 27.09873 TT

		(2000.0)	P	Sato	Q
q	2.5100783				
n	0.14559962	Peri.	255.78766	-0.67299837	+0.73825735
a	3.5784577	Node	331.75029	-0.63637759	-0.60914359
e	0.2985586	Incl.	5.48830	-0.37695724	-0.28968978
P	6.77				

From 118 observations 2010 Mar. 14–2023 Dec. 25, mean residual 0".60.

Nongravitational parameters A1 = +1.97, A2 = -0.1534.

Comet 209P/LINEAR

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 14.49732 TT

		(2000.0)	P	Sato	Q
q	0.9644164				
n	0.19366554	Peri.	152.49379	-0.78849942	+0.52355251
a	2.9587015	Node	62.76971	-0.60960057	-0.59567624
e	0.6740407	Incl.	21.28248	-0.08158311	-0.60914907
P	5.09				

From 2771 observations 2003 Dec. 3–2023 Dec. 31, mean residual 0".47

Comet 328P/LONEOS–Tucker

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 27.61761 TT

		(2000.0)	P	Sato	Q
q	1.8734369				
n	0.11498865	Peri.	30.65748	+0.96957490	-0.22527857
a	4.1882512	Node	341.60960	+0.11240539	+0.75730038
e	0.5526923	Incl.	17.67369	+0.21746156	+0.61298099
P	8.57				

From 341 observations 1998 Aug. 28–2016 Jan. 4, mean residual 0".77.

Nongravitational parameters Y1 = -0.69, Y2 = -0.1448.

Comet P/2014 C1 (TOTAS)

Epoch 2024 July 29.0 TT = JDT 2460520.5

T 2024 July 27.84322 TT

		(2000.0)	P	Sato	Q
q	1.6600778				
n	0.18689356	Peri.	24.09454	-0.97839469	+0.20650762
a	3.0297479	Node	167.81076	-0.19649801	-0.91390572
e	0.4520740	Incl.	2.69334	-0.06428348	-0.34947237
P	5.27				

From 49 observations 2014 Feb. 1–May 8, mean residual 0".54.

Comet 208P/McMillan

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Aug. 23.95758 TT

		(2000.0)	P	Sato	Q
q	2.5286741				
n	0.12145992	Peri.	310.69132	+0.97313972	+0.22565717
a	4.0381339	Node	36.33449	-0.18112050	+0.87267883
e	0.3738013	Incl.	4.41245	-0.14210718	+0.43302482
P	8.11				

From 258 observations 2000 Sept. 23–2017 Jan. 1, mean residual 0".71.

Comet 345P/LINEAR

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Aug. 31.11060 TT

		(2000.0)	P	Sato	Q
q	3.1397046				
n	0.12176585	Peri.	196.78300	+0.98833101	+0.15093799
a	4.0313674	Node	154.50865	-0.13371596	+0.92413137
e	0.2211812	Incl.	2.72785	-0.07295101	+0.35099707
P	8.09				

From 147 observations 2008 Sept. 2–2016 Dec. 27, mean residual 0".58.

Comet 54P/de Vico–Swift–NEAT

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Sept. 3.89395 TT

		(2000.0)	P	Sato	Q
q	2.1718857				
n	0.13380663	Peri.	1.98327	+0.99990305	-0.01374684
a	3.7857415	Node	358.79766	+0.01087285	+0.87026918
e	0.4262985	Incl.	6.06428	+0.00869889	+0.49238459
P	7.37				

From 122 observations 2002 Oct. 4–2009 Dec. 20, mean residual 0".73.

Comet 384P/Kowalski

Epoch 2024 Sept. 7.0 TT = JDT 2460560.5

T 2024 Sept. 19.27636 TT

		(2000.0)	P	Sato	Q
q	1.1120862				
n	0.19973352	Peri.	37.71295	+0.84835603	-0.52927109
a	2.8984696	Node	354.19972	+0.44965189	+0.73308903
e	0.6163195	Incl.	7.28339	+0.27947311	+0.42714469
P	4.93				

From 374 observations 2019 July 27–2020 Jan. 20, mean residual 0".45.

Comet P/2019 M2 (ATLAS)

Epoch 2024 Oct. 17.0 TT = JDT 2460600.5

T 2024 Sept. 28.13629 TT

		(2000.0)	P	Sato	Q
q	1.0687598				
n	0.18687005	Peri.	332.52333	+0.18424367	+0.96836286
a	3.0300020	Node	307.60766	-0.85828781	+0.07506765
e	0.6472742	Incl.	12.26623	-0.47895335	+0.23798785
P	5.27				

From 341 observations 2019 June 29–Nov. 2, mean residual 0".43.

Comet P/2015 HG16 = 2023 W2 (PANSTARRS)

Epoch 2024 Oct. 17.0 TT = JDT 2460600.5

T 2024 Oct. 16.48740 TT

		(2000.0)	P	Sato	Q
q	3.1231488				
n	0.09431489	Peri.	46.73188	-0.20506746	-0.93981899
a	4.7798677	Node	57.05886	+0.77691146	-0.32612960
e	0.3466035	Incl.	19.00461	+0.59527802	+0.10188102
P	10.45				

From 59 observations 2015 Jan. 14–2023 Dec. 16, mean residual 0".66.

Comet D/1918 W1 (Schorr)

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 10.39063 TT

		(2000.0)	P	Sato	Q
q	2.8619638				
n	0.11546974	Peri.	326.69589	+0.73225250	-0.67132052
a	4.1766100	Node	75.91372	+0.64780174	+0.63466158
e	0.3147639	Incl.	6.78599	+0.21014084	+0.38279685
P	8.54				

From 18 observations 1918 Nov. 23–Dec. 31, mean residual 1".44.

From Muraoka's orbit (CHB 2006).

Comet 363P/Lemmon

Epoch 2024 Nov. 26.0 TT = JDT 2460640.5

T 2024 Nov. 13.19664 TT

		(2000.0)	P	Sato	Q
q	1.7208644				
n	0.14584871	Peri.	340.74813	-0.60967102	-0.79097800
a	3.5743822	Node	146.75976	+0.73901904	-0.59072091
e	0.5185561	Incl.	5.39388	+0.28662189	-0.15938199
P	6.76				

From 104 observations 2011 Nov. 3–2018 May 14, mean residual 0".64.

Comet 268P/Bernardi

Epoch 2025 Jan. 5.0 TT = JDT 2460680.5

T 2024 Dec. 18.46491 TT

		(2000.0)	P	Sato	Q
q	2.4126304				
n	0.10015800	Peri.	0.01081	-0.58272310	-0.78249268
a	4.5921100	Node	125.63189	+0.74559060	-0.62217846
e	0.4746140	Incl.	15.66107	+0.32330859	+0.02447769
P	9.84				

From 74 observations 2004 Sept. 22–2016 Mar. 5, mean residual 0".19.

Comet 190P/Mueller

Epoch 2025 Jan. 5.0 TT = JDT 2460680.5

T 2024 Dec. 24.14088 TT

		(2000.0)	P	Sato	Q
q	2.0195096				
n	0.11339321	Peri.	50.52523	+0.89836238	-0.43897316
a	4.2274456	Node	335.50104	+0.39046068	+0.81446490
e	0.5222861	Incl.	2.17464	+0.20121005	+0.37940677
P	8.69				

From 322 observations 1998 Sept. 14–2017 Feb. 2, mean residual 0".56.

Comet P/2015 R2 (PANSTARRS)

Epoch 2025 Jan. 5.0 TT = JDT 2460680.5

T 2025 Jan. 21.04216 TT

		(2000.0)	P	Sato	Q
q	2.4633760				
n	0.10275902	Peri.	149.44848	+0.74689921	+0.66278182
a	4.5142896	Node	168.55325	-0.65147850	+0.74551429
e	0.4543159	Incl.	15.63804	-0.13310647	+0.07020467
P	9.59				

From 24 observations 2015 Sept. 9–18, mean residual 0".45.

From CHB 2022.

Comet P/2011 UA134 (Spacewatch–PANSTARRS)

Epoch 2025 Feb. 14.0 TT = JDT 2460720.5

T 2025 Feb. 17.35899 TT

		(2000.0)	P	Sato	Q
q	2.0752749				
n	0.07400458	Peri.	32.41018	+0.30149818	-0.94621077
a	5.6186287	Node	40.38733	+0.83160840	+0.20073105
e	0.6306439	Incl.	10.43936	+0.46639717	+0.25375624
P	13.32				

From 126 observations 2011 Oct. 24–2012 Jan. 27, mean residual 0".60.

From CHB 2022.

Comet P/2019 Y3 (Catalina)

Epoch 2025 Feb. 14.0 TT = JDT 2460720.5

T 2025 Mar. 2.97179 TT

		(2000.0)	P	Sato	Q
q	0.9310259				
n	0.18820582	Peri.	2.54818	-0.78381647	-0.55862778
a	3.0156482	Node	139.30622	+0.56214001	-0.82387161
e	0.6912684	Incl.	24.58165	+0.26387563	+0.09576306
P	5.24				

From 83 observations 2019 Dec. 17–2020 Jan. 27, mean residual 0".61.

Comet P/2010 H2 (Vales)

Epoch 2025 Mar. 26.0 TT = JDT 2460760.5

T 2025 Mar. 10.04193 TT

		(2000.0)	P	Sato	Q
q	3.0758291				
n	0.13129922	Peri.	128.08530	-0.95524957	+0.19541859
a	3.8337867	Node	64.18812	-0.28198074	-0.82837477
e	0.1977047	Incl.	14.28047	+0.08935953	-0.52498269
P	7.51				

From 1606 observations 2010 Apr. 16–Sept. 4, mean residual 0".47.

From CHB 2022.

Comet P/2010 A3 (Hill)

Epoch 2025 Mar. 26.0 TT = JDT 2460760.5

T 2025 Mar. 11.31444 TT

		(2000.0)	P	Sato	Q
q	1.6210416				
n	0.06537984	Peri.	42.24898	-0.25284815	-0.94001593
a	6.1024866	Node	63.58579	+0.80516165	-0.33567662
e	0.7343638	Incl.	14.81426	+0.53645366	+0.06075577
P	15.08				

From 386 observations 2009 Oct. 14–2010 June 12, mean residual 0".51.

From CHB 2022.

Comet P/2018 L5 (Leonard)

Epoch 2025 Mar. 26.0 TT = JDT 2460760.5

T 2025 Apr. 4.00758 TT

		(2000.0)	P	Sato	Q
q	2.3089985				
n	0.14261340	Peri.	93.94757	+0.68121238	+0.73168324
a	3.6282385	Node	219.02745	-0.68604704	+0.62644788
e	0.3636035	Incl.	2.20945	-0.25551744	+0.26870558
P	6.91				

From 197 observations 2018 June 8–2019 Dec. 19, mean residual 0".57.
From CHB 2022.

Comet P/2015 X6 (PANSTARRS)

Epoch 2025 May 5.0 TT = JDT 2460800.5

T 2025 May 11.55862 TT

		(2000.0)	P	Sato	Q
q	2.2737118				
n	0.21577921	Peri.	329.74693	+0.22901940	-0.97043786
a	2.7529373	Node	106.92367	+0.90829285	+0.18490320
e	0.1740779	Incl.	4.56606	+0.35007745	+0.15511665
P	4.57				

From 46 observations 2015 Nov. 12–2016 Mar. 7, mean residual 0".37.

Comet 3D/Biela [Orbit 2]

Epoch 2025 May 25.0 TT = JDT 2460820.5

T 2025 May 25.81817 TT

		(2000.0)	P	Sato	Q
q	0.8208829				
n	0.14816656	Peri.	276.05226	-0.31569802	-0.94839836
a	3.5370070	Node	192.47299	+0.91572916	-0.29635953
e	0.7679160	Incl.	7.87334	+0.24854549	-0.11274564
P	6.65				

From 19 observations 1846–1852, mean residual 3".41.
From Muraoka's orbits (CHB 2010).

Comet P/2005 T5 (Broughton)

Epoch 2025 June 14.0 TT = JDT 2460840.5

T 2025 June 15.01026 TT

		(2000.0)	P	Sato	Q
q	3.2535558				
n	0.05040265	Peri.	304.84620	+0.95209485	+0.00077908
a	7.2582811	Node	56.99973	+0.17682106	+0.81447636
e	0.5517457	Incl.	21.38470	-0.24949893	+0.58019622
P	19.55				

From 93 observations 2005 Aug. 26–2006 Jan. 6, mean residual 0".59.
From CHB 2022.

Comet D/1886 K1 (Brooks)

Epoch 2025 June 14.0 TT = JDT 2460840.5

T 2025 June 18.2191 TT

		(2000.0)	P	Sato	Q
q	1.888547				
n	0.1470741	Peri.	208.3703	-0.3872616	+0.9141618
a	3.554500	Node	39.1832	-0.8060261	-0.2726438
e	0.468688	Incl.	10.9244	-0.4476052	-0.2999559
P	6.70				

From 39 observations 1886 May 25–July 3, mean residual 5".0.
From R. J. Buckley orbit (1979).

Comet P/2003 QX29 (NEAT)

Epoch 2025 July 24.0 TT = JDT 2460880.5

T 2025 Aug. 6.96959 TT

		(2000.0)	P	Sato	Q
q	4.2292330				
n	0.04356572	Peri.	37.69077	+0.52050028	+0.83088587
a	7.9990687	Node	264.48422	-0.82358747	+0.42772517
e	0.4712843	Incl.	11.40010	-0.22535115	+0.35592113
P	22.62				

From 96 observations 2002 June 11–2003 Oct. 20, mean residual 0".64.
From CHB 2022.

Comet 441P/PANSTARRS

Epoch 2025 Sept. 2.0 TT = JDT 2460920.5

T 2025 Sept. 9.33035 TT

		(2000.0)	P	Sato	Q
q	3.3278824				
n	0.11735625	Peri.	178.85856	+0.79283110	+0.60885783
a	4.1317297	Node	143.59120	-0.55950694	+0.74451827
e	0.1945547	Incl.	2.57483	-0.24160054	+0.27383334
P	8.40				

From 106 observations 2009 Sept. 25–2022 Mar. 23, mean residual 0".34.
From CHB 2023.

Comet P/2016 A2 (Christensen)

Epoch 2025 Oct. 12.0 TT = JDT 2460960.5

T 2025 Oct. 25.45726 TT

		(2000.0)	P	Sato	Q
q	3.4705270				
n	0.09471247	Peri.	140.51943	+0.24456550	-0.87507997
a	4.7664817	Node	291.56921	+0.73659280	+0.44777490
e	0.2718892	Incl.	26.68513	+0.63057019	-0.18366457
P	10.41				

From 48 observations 2016 Jan. 2–17, mean residual 0".61.
From CHB 2022.

Comet P/2012 01 (McNaught)

Epoch 2025 Nov. 21.0 TT = JDT 2461000.5

T 2025 Nov. 1.48174 TT

		(2000.0)	P	Sato	Q
q	1.4400850				
n	0.14779466	Peri.	238.32563	+0.86076330	+0.49234670
a	3.5429380	Node	91.88934	-0.41222588	+0.82313660
e	0.5935337	Incl.	7.42488	-0.29859065	+0.28291494
P	6.67				

From 94 observations 2012 July 18–Nov. 18, mean residual 0".59.

Comet P/1999 R028 (LONEOS)

Epoch 2025 Nov. 21.0 TT = JDT 2461000.5

T 2025 Nov. 4.99202 TT

		(2000.0)	P	Sato	Q
q	1.1217905				
n	0.15544780	Peri.	232.19699	+0.98256725	-0.16305615
a	3.4256763	Node	136.97849	+0.18287731	+0.93411751
e	0.6725346	Incl.	7.52070	-0.03342877	+0.31754869
P	6.34				

From 109 observations 1999 Sept. 7–Nov. 13, mean residual 0".73.

Comet P/2018 L1 (PANSTARRS)

Epoch 2025 Nov. 21.0 TT = JDT 2461000.5

T 2025 Nov. 5.73272 TT

		(2000.0)	P	Sato	Q
q	1.8974047				
n	0.14086311	Peri.	17.94046	+0.27915741	+0.94255650
a	3.6582316	Node	268.58177	-0.90196587	+0.19183713
e	0.4813328	Incl.	10.57477	-0.32943697	+0.27346986
P	7.00				

From 69 observations 2018 May 18–Oct. 27, mean residual 0".40.

Comet D/1884 01 (Barnard)

Epoch 2025 Nov. 21.0 TT = JDT 2461000.5

T 2025 Nov. 19.5616 TT

		(2000.0)	P	Sato	Q
q	1.277039				
n	0.1842794	Peri.	338.5316	+0.6841331	+0.7261935
a	3.058334	Node	334.4814	-0.6441467	+0.5579447
e	0.582440	Incl.	9.0629	-0.3421065	+0.4016725
P	5.35				

From 18 observations 1884 July 26–Oct. 23, mean residual 2".04.

Comet P/2015 T019 (Lemmon-PANSTARRS)

Epoch 2025 Nov. 21.0 TT = JDT 2461000.5

T 2025 Nov. 23.58003 TT

		(2000.0)	P	Sato	Q
q	2.9113113				
n	0.10165794	Peri.	89.41031	+0.62507173	-0.77738988
a	4.5468277	Node	321.60815	+0.66351138	+0.57664891
e	0.3597049	Incl.	6.50512	+0.41114229	+0.25127875
P	9.70				

From 54 observations 2015 Sept. 12–2016 Aug. 12, mean residual 0".39.

From CHB 2022.

Comet P/2000 R2 (LINEAR)

Epoch 2025 Nov. 21.0 TT = JDT 2461000.5

T 2025 Dec. 1.34001 TT

		(2000.0)	P	Sato	Q
q	1.6298854				
n	0.15253141	Peri.	176.70583	+0.92025874	+0.38524188
a	3.4692042	Node	160.19905	-0.36349329	+0.90654489
e	0.5301846	Incl.	11.69189	-0.14490161	+0.17252553
P	6.46				

From 54 observations 2000 Sept. 3–Nov. 29, mean residual 0".64.

Comet P/2019 S3 (PANSTARRS)

Epoch 2025 Dec. 31.0 TT = JDT 2461040.5

T 2025 Dec. 19.18481 TT

		(2000.0)	P	Sato	Q
q	1.8070471				
n	0.15627590	Peri.	213.13444	+0.99527121	-0.06134639
a	3.4135639	Node	150.10758	+0.07975067	+0.95870016
e	0.4706274	Incl.	8.69155	-0.05545318	+0.27772400
P	6.31				

From 64 observations 2019 Aug. 27–Nov. 2, mean residual 0".52.

Comet P/1999 XN120 (Catalina)

Epoch 2025 Dec. 31.0 TT = JDT 2461040.5

T 2025 Dec. 20.79275 TT

		(2000.0)	P	Sato	Q
q	3.2980753				
n	0.11492588	Peri.	161.45255	+0.05597837	-0.99484341
a	4.1897762	Node	285.27064	+0.90459314	+0.08638751
e	0.2128278	Incl.	5.02963	+0.42258451	-0.05313927
P	8.58				

From 74 observations 1999 Nov. 3–2007 Dec. 16, mean residual 0".64.

From CHB 2022.

Comet P/2005 SB216 (LONEOS)

Epoch 2025 Dec. 31.0 TT = JDT 2461040.5

T 2026 Jan. 14.31068 TT

		(2000.0)	P	Sato	Q
q	3.8229412				
n	0.05125974	Peri.	83.23316	+0.10070635	-0.99488635
a	7.1771458	Node	1.08109	+0.67217501	+0.06232544
e	0.4673452	Incl.	24.10769	+0.73351141	+0.07947767
P	19.23				

From 468 observations 2005 Sept. 23–2009 June 23, mean residual 0".61.

From CHB 2023.

Comet P/2021 A5 (PANSTARRS)

Epoch 2026 Mar. 21.0 TT = JDT 2461120.5

T 2026 Mar. 16.03877 TT

		(2000.0)	P	Sato	Q
q	2.6212194				
n	0.18507466	Peri.	61.85993	+0.83822992	-0.52065101
a	3.0495663	Node	328.69813	+0.32245579	+0.71303740
e	0.1404616	Incl.	18.18594	+0.43976456	+0.46957448
P	5.33				

From 43 observations 2020 Dec. 16–2021 Jan. 15, mean residual 0".55.

Comet P/2007 C2 (Catalina)

Epoch 2026 Mar. 21.0 TT = JDT 2461120.5

T 2026 Mar. 20.77627 TT

		(2000.0)	P	Sato	Q
q	3.6926489				
n	0.05259233	Peri.	180.06600	-0.09190748	-0.98456777
a	7.0553916	Node	275.20809	+0.91366738	-0.02391339
e	0.4766203	Incl.	8.60054	+0.39593552	-0.17336222
P	18.74				

From 289 observations 2006 Oct. 19–2008 May 3, mean residual 0".61.
From CHB 2023.

Comet P/2012 O2 (McNaught)

Epoch 2026 Mar. 21.0 TT = JDT 2461120.5

T 2026 Apr. 1.41889 TT

		(2000.0)	P	Sato	Q
q	1.7017435				
n	0.14245637	Peri.	183.39740	+0.55535627	+0.75154666
a	3.6309042	Node	120.65336	-0.75290192	+0.63619121
e	0.5313169	Incl.	24.44749	-0.35315451	-0.17446595
P	6.92				

From 81 observations 2012 May 20–Sept. 21, mean residual 0".38.
From CHB 2023.

Comet P/2009 WX51 (Catalina)

Epoch 2026 Apr. 30.0 TT = JDT 2461160.5

T 2026 Apr. 15.11843 TT

		(2000.0)	P	Sato	Q
q	0.8023448				
n	0.18205977	Peri.	118.31348	-0.85793793	-0.50630628
a	3.0831410	Node	31.49885	+0.39327447	-0.75638508
e	0.7397638	Incl.	9.60268	+0.33057177	-0.41416852
P	5.41				

From 113 observations 2009 Nov. 22–2010 Apr. 17, mean residual 0".45.

Comet P/2019 U4 (PANSTARRS)

Epoch 2026 Apr. 30.0 TT = JDT 2461160.5

T 2026 Apr. 28.75080 TT

		(2000.0)	P	Sato	Q
q	1.8447699				
n	0.14939274	Peri.	181.12274	+0.93311373	-0.35284852
a	3.5176264	Node	199.97389	+0.33146961	+0.91871570
e	0.4755640	Incl.	11.69789	+0.13937958	+0.17736792
P	6.60				

From 42 observations 2019 Sept. 24–Oct. 28, mean residual 0".48.

Comet P/2011 V1 (Boattini)

Epoch 2026 Apr. 30.0 TT = JDT 2461160.5

T 2026 Apr. 29.16078 TT

		(2000.0)	P	Sato	Q
q	1.7416896				
n	0.12992522	Peri.	269.36762	+0.71414357	+0.69373598
a	3.8607682	Node	46.70052	-0.58028222	+0.66135988
e	0.5488749	Incl.	7.37588	-0.39149905	+0.28519027
P	7.59				

From 25 observations 2011 Oct. 22–Nov. 20, mean residual 0".40.
From CHB 2023.

Comet P/2004 FY140 (LINEAR)

Epoch 2026 May 20.0 TT = JDT 2461180.5

T 2026 May 27.74127 TT

		(2000.0)	P	Sato	Q
q	4.0820744				
n	0.09048926	Peri.	241.92742	-0.87665671	+0.48068402
a	4.9136554	Node	326.79099	-0.42731672	-0.79740383
e	0.1692388	Incl.	2.13388	-0.22107338	-0.36481503
P	10.89				

From 52 observations 2004 Mar. 27–July 12, mean residual 0".42.
From CHB 2023.

Comet P/2013 T2 (Schwartz)

Epoch 2026 June 9.0 TT = JDT 2461200.5

T 2026 June 11.38240 TT

		(2000.0)	P	Sato	Q
q	1.7464840				
n	0.15094975	Peri.	345.57940	+0.97173131	+0.23607907
a	3.4933958	Node	0.77584	-0.19707675	+0.81630445
e	0.5000612	Incl.	9.44716	-0.12999624	+0.52717522
P	6.53				

From 118 observations 2013 Sept. 14–Dec. 11, mean residual 0".53.

Comet P/1996 R2 (Lagerkvist)

Epoch 2026 June 9.0 TT = JDT 2461200.5

T 2026 June 15.76443 TT

		(2000.0)	P	Sato	Q
q	2.5870259				
n	0.13460630	Peri.	333.56653	+0.97186317	-0.23373572
a	3.7707331	Node	39.98549	+0.22334584	+0.87513255
e	0.3139197	Incl.	2.59981	+0.07482393	+0.42368696
P	7.32				

From 125 observations 1996 Aug. 12–1997 Jan. 12, mean residual 0".62.

From CHB 2023.

Comet P/2009 B1 (Boattini)

Epoch 2026 July 19.0 TT = JDT 2461240.5

T 2026 July 1.02309 TT

		(2000.0)	P	Sato	Q
q	2.4479988				
n	0.05654693	Peri.	129.07287	+0.35289579	-0.87273958
a	6.7224879	Node	297.07226	+0.69795261	+0.48564912
e	0.6358493	Incl.	22.26159	+0.62315866	-0.04970476
P	17.43				

From 108 observations 2008 Nov. 18–2009 Mar. 29, mean residual 0".59.

From CHB 2023.

Comet P/2012 K3 (Gibbs)

Epoch 2026 July 19.0 TT = JDT 2461240.5

T 2026 July 15.72716 TT

		(2000.0)	P	Sato	Q
q	2.1012089				
n	0.14225583	Peri.	172.09786	+0.47086959	+0.86260736
a	3.6343159	Node	125.80235	-0.82136216	+0.50514631
e	0.4218420	Incl.	13.17858	-0.32194105	-0.02712452
P	6.93				

From 136 observations 2012 May 21–Sept. 9, mean residual 0".56.

Comet P/2018 VN2 (Leonard)

Epoch 2026 Aug. 28.0 TT = JDT 2461280.5

T 2026 Aug. 15.78612 TT

		(2000.0)	P	Sato	Q
q	2.1195516				
n	0.12049430	Peri.	138.93231	+0.97167467	-0.06589478
a	4.0596792	Node	226.42615	+0.02473118	+0.98341965
e	0.4779017	Incl.	18.25557	+0.23502492	+0.16894874
P	8.18				

From 104 observations 2018 July 2–Dec. 13, mean residual 0".54.

From CHB 2023.

Comet P/2005 T3 (Read)

Epoch 2026 Aug. 28.0 TT = JDT 2461280.5

T 2026 Aug. 26.96966 TT

		(2000.0)	P	Sato	Q
q	6.2520882				
n	0.04739125	Peri.	7.38349	+0.81993397	-0.57024881
a	7.5625904	Node	27.57349	+0.51951531	+0.70436687
e	0.1732875	Incl.	6.23160	+0.24044152	+0.42270985
P	20.80				

From 42 observations 2005 Sept. 30–Nov. 26, mean residual 0".50.

From CHB 2023.

Comet P/2010 U1 (Boattini)

Epoch 2026 Aug. 28.0 TT = JDT 2461280.5

T 2026 Sept. 9.82728 TT

		(2000.0)	P	Sato	Q
q	4.8753294				
n	0.05975049	Peri.	86.68866	+0.98170800	-0.12834873
a	6.4800008	Node	280.65178	+0.05865540	+0.90657432
e	0.2476344	Incl.	8.22686	+0.18113238	+0.40205672
P	16.50				

From 111 observations 2009 Sept. 17–2011 Dec. 28, mean residual 0".54.

From CHB 2023.

Comet P/2015 X3 (PANSTARRS)

Epoch 2026 Oct. 7.0 TT = JDT 2461320.5

T 2026 Oct. 22.42528 TT

		(2000.0)	P	Sato	Q
q	2.7985671				
n	0.08835480	Peri.	306.94732	+0.84242880	-0.35747096
a	4.9924758	Node	77.25097	+0.52194161	+0.72715462
e	0.4394430	Incl.	24.41472	-0.13375604	+0.58605518
P	11.16				

From 28 observations 2015 Nov. 6–Dec. 10, mean residual 0".40.

From CHB 2023.

Comert D/1894 F1 (Denning) [Orbit 2]

Epoch 2026 Oct. 27.0 TT = JDT 2461340.5

T 2026 Nov. 2.12646 TT

		(2000.0)	P	Sato	Q
q	1.5712712				
n	0.10509074	Peri.	107.43295	-0.60598527	-0.79535405
a	4.4472658	Node	19.88641	+0.71342378	-0.55113648
e	0.6466883	Incl.	2.34549	+0.35186413	-0.25231036
P	9.38				

From 142 observations 1894 Mar. 27–June 5, mean residual 2".72.

From Muraoka's orbit (CHB 2006).

Comet P/2019 X2 (PANSTARRS)

Epoch 2026 Nov. 16.0 TT = JDT 2461360.5

T 2026 Nov. 15.36434 TT

		(2000.0)	P	Sato	Q
q	1.8145942				
n	0.14227961	Peri.	213.54124	-0.22853870	-0.93851659
a	3.6339108	Node	250.84767	+0.94254478	-0.14677572
e	0.5006498	Incl.	15.89775	+0.24367888	-0.31247959
P	6.93				

From 49 observations 2019 Nov. 25–2020 Jan. 9, mean residual 0".52.

Comet P/2009 Y2 (Kowalski)

Epoch 2026 Dec. 26.0 TT = JDT 2461400.5

T 2026 Dec. 10.69747 TT

		(2000.0)	P	Sato	Q
q	2.3698871				
n	0.05894781	Peri.	172.32363	+0.25161928	-0.83168688
a	6.5386927	Node	262.05227	+0.85929416	+0.42728608
e	0.6375595	Incl.	29.98410	+0.44531033	-0.35457516
P	16.72				

From 173 observations 2009 Dec. 20–2010 Apr. 2, mean residual 0".56.

From CHB 2023.

Comet P/2007 K2 (Gibbs)

Epoch 2026 Dec. 26.0 TT = JDT 2461400.5

T 2026 Dec. 25.88227 TT

		(2000.0)	P	Sato	Q
q	2.3209962				
n	0.04904143	Peri.	347.06252	-0.99612281	-0.08600031
a	7.3919773	Node	188.07274	+0.08777822	-0.95758767
e	0.6860115	Incl.	7.58172	+0.00585993	-0.27500874
P	20.10				

From 49 observations 2007 Apr. 11–July 11, mean residual 0".72.

From CHB 2023.

Comet D/1894 F1 (Denning) [Orbit 1]

Epoch 2029 May 24.0 TT = JDT 2462280.5

T 2029 June 12.88617 TT

		(2000.0)	P	Sato	Q
q	1.1676422				
n	0.13199546	Peri. 198.57508	-0.71667985	-0.69705341	
a	3.8202934	Node 297.21312	+0.64295584	-0.64814646	
e	0.6943580	Incl. 1.42124	+0.27014400	-0.30663122	
P	7.47				

From 120 observations 1894 Mar. 27–June 5, mean residual 2".6.

From Williams's orbit (1993).

Comet C/2014 UN271 (Bernardinelli–Bernstein)

Epoch 2031 Jan. 14.0 TT = JDT 2462880.5

T 2031 Jan. 22.88474 TT

		(2000.0)	P	Sato	Q
q	10.9502314				
z	-0.0000686	Peri. 326.32011	-0.81027332	-0.55985509	
	+/-0.0000009	Node 190.02333	+0.03908233	-0.34660264	
e	1.0007507	Incl. 95.45434	-0.58474756	+0.75261470	

From 540 observations 2014 Aug. 14–2023 Dec. 26, mean residual 0".47.

Remarks:

Non-gravitational parameters Y1 and Y2 indicate that the Yabushita-style non-gravitational effect based on CO sublimation is taken into account (MN 283, 347).

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