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Cometary Apparitions: 2005–2040

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This document gives information on the perihelion passages and orbits of the 286 short-period comets predicted to reach perihelion during the years from 2005 through 2040. It is an update of an earlier paper by Yeomans and Wimberly (1991). Osculating orbital elements near the time of each perihelion passage are presented, along with ancillary information to indicate the quality of the prediction. In addition, for each tabulated apparition, plots are provided that reveal the observability of the perihelion passage from Earth.

The paper also tabulates some planetary encounter information. Table 1 presents the 40 closest Earth approaches during the interval and Table 2 lists the 40 closest Jupiter encounters. Jupiter encounters are generally the cause of the perihelion-to-perihelion orbital variation that is evident in some of the observability plots. The close approach tables show not only the nominal encounter distance, but also uncertainty information in the form of (three-sigma) minimum and maximum encounter distances and Time of Close Approach (TCA) uncertainty (one-sigma). Only encounters with TCA < 7 days have been included in the table.

Table 3 tabulates the 1246 predicted perihelion passages from 2005-2040, sorted according to the date of perihelion. The osculating orbital elements include the perihelion time T_p, eccentricity e, perihelion distance q, argument of perihelion ω, and inclination i. The epoch of osculation is the nearest Modified Julian Day that is a multiple of 40 days[1]. For each perihelion passage, the Table also lists the JPL orbital solution number, the so-called Uncertainty Parameter[2] U and the number of apparitions in the orbital fit. The final column in the table indicates the nongravitational acceleration model used when computing the orbit. Here a dash indicates that nongravitational accelerations were not used. If a "1" is present then the radial acceleration parameter A1 was estimated. Similarly, a 2 or 3 indicate that the transverse (A2) or normal (A3) acceleration parameters were estimated. A "T" indicates that the perihelion delay term (DT) was also estimated. See Marsden et al. (1973) and Yeomans and Chodas (1989) for a complete description of these nongravitational acceleration parameters.

Following Table 3, observing condition plots are presented, with numbered comets in numerical order first, followed by unnumbered comets in order of discovery. These plots use an ecliptic plane coordinate system that is rotating with the Earth's revolution about the sun so that the position of the Earth is fixed in the plane for a given perihelion passage. The sun is at the origin and a 1 AU radius reference circle is plotted. The motion of the comet in the rotating reference frame from 150 days before perihelion to 150 days after is marked by the smooth curve(s) with open circles every 30 days. The point of perihelion is marked by a filled circle. At perihelion passage, the depicted X

[1] For example, the first table entry, for P/2004 F3 (NEAT), lists T_p at 2005-Jan-04.2912, which is MJD 53374.2912. The nearest 40-day multiple gives the epoch of osculation: MJD 53360 = JD 2453360.5.

[2] See `http://cfa-www.harvard.edu/iau/info/UValue.html` for a description.

and Y axes coincide with the conventional non-rotating x and y axes in the ecliptic plane, where the x-direction is the classical First Point of Aries. Thus the position of the Earth, as indicated by a "$\oplus$" and associated year of perihelion, can be used to infer the approximate date of perihelion. For example, if the Earth is on the X-axis then the perihelion passage occurs around Sept. 21. If Earth appears in the second quadrant then perihelion takes place between approximately Dec. 21 and Mar. 21, etc.

The plots allow a quick interpretation of the observability of a particular perihelion passage since it is immediately clear whether the comet will be nearer solar conjunction or nearer opposition as viewed from Earth. Moreover, the geocentric distance during the encounter can be estimated from the plot. For example, the 2008 apparition of Comet 6P/d'Arrest will be particularly favorable, with a close Earth approach of roughly 0.3 AU only days prior to the August perihelion passage. The comet will be near opposition when at perihelion and will be in the night sky for the entire 300 days centered on perihelion. In contrast, the 2015 apparition of d'Arrest will be quite poor, with the comet too close to the sun to be observed until 3-4 months after perihelion when it will be more than 2 AU from the Earth. All of this information is derived solely from the plot. Precise encounter and perihelion information can be obtained from the respective tables.

It is important to note that the plots show *projections* onto the ecliptic plane, and so could be subject to misinterpretation in the case of higher inclination comets. Wherever the inclination is greater than 45° the plot is annotated with the inclination to serving as a warning.

Some of the plots reveal multiple paths for the comet, along with a legend detailing which curve is associated with which apparition. The curves are separated because the apparition-to-apparition orbital variations were judged significant. When multiple apparitions are represented by a single curve, the curve is derived from the average elements for the apparitions, taking care to avoid branch cut problems when averaging the Euler angles.

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Table 1. Earth Close Approaches

Name	Date	V_∞ (km/s)	— Distance (AU) — Nom.	Min.	Max.	TCA Uncert. (min.)
P/2000 G1 (LINEAR)	2016-Mar-22.4411	10.57	0.032516	0.016672	0.049124	2220.67
P/2005 JQ5 (Catalina)	2036-Jun-09.5461	17.16	0.046855	0.045013	0.048719	88.35
P/2004 CB (LINEAR)	2014-May-28.8656	16.88	0.050354	0.046876	0.053826	150.49
73P/Schwassmann-Wachmann 3-B	2006-May-17.4697	14.16	0.051247	0.043654	0.062691	1198.00
45P/Honda-Mrkos-Pajdusakova	2011-Aug-15.2698	24.65	0.060065	0.060065	0.060065	0.43
P/2000 G1 (LINEAR)	2032-Mar-13.6006	10.35	0.066440	0.019542	0.112025	5876.00
73P/Schwassmann-Wachmann 3-C	2006-May-12.8316	14.96	0.075961	0.072600	0.079395	243.30
46P/Wirtanen	2018-Dec-16.6002	10.07	0.077643	0.077624	0.077663	3.77
73P/Schwassmann-Wachmann 3	2006-May-11.8839	15.15	0.082428	0.082420	0.082437	0.56
45P/Honda-Mrkos-Pajdusakova	2017-Feb-11.0140	22.75	0.086875	0.086848	0.086902	1.14
104P/Kowal 2	2038-Dec-27.9868	9.90	0.096201	0.094819	0.097698	534.13
P/2005 JQ5 (Catalina)	2005-Jun-27.5523	13.54	0.103363	0.103363	0.103363	0.00
103P/Hartley 2	2010-Oct-20.7239	11.88	0.120907	0.120845	0.120970	4.24
141P/Machholz 2-A	2036-Dec-17.3955	18.32	0.124608	0.124574	0.124609	454.07
41P/Tuttle-Giacobini-Kresak	2017-Mar-27.3177	9.05	0.136187	0.136184	0.136191	1.59
169P/NEAT	2005-Aug-07.0199	21.25	0.147492	0.147492	0.147493	0.01
169P/NEAT	2026-Aug-11.8136	19.90	0.167162	0.167157	0.167167	0.43
P/2002 O5 (NEAT)	2012-Jul-10.2844	12.41	0.174199	0.171241	0.179110	492.87
15P/Finlay	2034-Aug-13.7952	15.01	0.183832	0.183386	0.184277	22.42
P/2004 X1 (LINEAR)	2009-Aug-13.7918	14.12	0.194101	0.175261	0.217618	5421.33
169P/NEAT	2010-Jan-12.1073	18.92	0.194354	0.194352	0.194356	0.08
P/2002 O5 (NEAT)	2007-Jul-14.2704	12.36	0.201757	0.196152	0.207618	240.75
169P/NEAT	2031-Jan-13.2150	18.72	0.203149	0.203141	0.203157	0.44
P/2005 JQ5 (Catalina)	2027-Oct-23.3146	22.39	0.241799	0.240131	0.243468	46.33
P/2001 J1 (NEAT)	2024-Mar-07.1034	19.23	0.245151	0.161211	0.346497	3287.47
162P/Siding Spring	2031-Oct-21.3698	15.94	0.245601	0.245576	0.245626	0.76
8P/Tuttle	2008-Jan-01.8441	31.91	0.251735	0.251715	0.251755	0.38
P/2004 CB (LINEAR)	2009-Apr-10.1098	15.48	0.262720	0.261739	0.263706	117.18
2P/Encke	2030-Jul-11.5465	35.68	0.274143	0.274141	0.274145	0.06
P/2003 KV2 (LINEAR)	2008-May-08.7301	19.89	0.296380	0.285191	0.307540	288.15
P/2001 WF2 (LONEOS)	2007-Feb-11.4972	11.80	0.297873	0.293900	0.301897	466.83
P/2004 R1 (McNaught)	2015-Sep-14.0229	19.85	0.298550	0.188941	0.406853	2904.17
96P/Machholz 1	2028-Jun-16.4474	44.04	0.319661	0.319643	0.319680	1.79
2P/Encke	2040-Jun-15.0843	20.42	0.342992	0.342989	0.342995	0.09
6P/d'Arrest	2008-Aug-09.4944	11.05	0.353755	0.353752	0.353758	0.02
22P/Kopff	2028-Jul-13.3976	4.65	0.355772	0.355768	0.355777	0.53
45P/Honda-Mrkos-Pajdusakova	2032-Nov-07.1052	21.63	0.366594	0.366584	0.366605	11.27
141P/Machholz 2-D	2031-Aug-08.8212	25.14	0.367942	0.312389	0.435372	2150.50
2P/Encke	2036-Nov-26.6686	19.20	0.375637	0.375634	0.375640	0.09
P/2002 O5 (NEAT)	2017-Jul-18.0036	12.68	0.378977	0.353307	0.404840	356.27

Table 2. Jupiter Close Approaches

Name	Date	V_∞ (km/s)	— Distance (AU) — Nom.	Min.	Max.	TCA Uncert. (min.)
78P/Gehrels 2	2029-Sep-15.4156	3.34	0.018315	0.018311	0.018319	27.17
P/2003 A1 (LINEAR)	2006-Sep-10.4257	8.93	0.060028	0.054039	0.067340	14.08
43P/Wolf-Harrington	2019-Mar-06.8541	5.85	0.065136	0.065132	0.065140	0.99
P/2003 H4 (LINEAR)	2012-Apr-14.7214	5.42	0.077259	0.075217	0.079304	214.02
149P/Mueller 4	2021-Jul-28.4633	7.93	0.097486	0.097419	0.097554	8.87
70P/Kojima	2033-Mar-17.4038	4.17	0.110556	0.110553	0.110559	3.55
69P/Taylor	2008-Jun-27.6758	5.17	0.158911	0.158898	0.158923	3.48
45P/Honda-Mrkos-Pajdusakova	2030-Aug-02.4669	7.21	0.166690	0.166679	0.166700	5.19
P/2004 R3 (LINEAR-NEAT)	2014-Aug-03.7650	4.09	0.169392	0.157019	0.181815	1555.10
119P/Parker-Hartley	2019-Aug-24.6395	2.71	0.174626	0.174616	0.174636	3.73
53P/Van Biesbroeck	2039-Aug-15.2468	8.10	0.179062	0.179047	0.179078	1.65
87P/Bus	2023-Feb-24.7028	3.10	0.181373	0.181331	0.181415	23.48
54P/de Vico-Swift-NEAT	2028-Aug-27.7298	3.08	0.206122	0.200358	0.211934	1699.07
68P/Klemola	2028-Nov-25.2040	8.16	0.206376	0.206361	0.206391	4.84
172P/Yeung	2011-Sep-02.5117	3.69	0.238632	0.238605	0.238660	3.98
P/2002 X2 (NEAT)	2007-Jul-10.4872	5.42	0.251854	0.251812	0.251897	44.89
121P/Shoemaker-Holt 2	2008-Jan-15.6564	4.66	0.255162	0.255132	0.255193	2.57
157P/Tritton	2020-Feb-11.0259	5.11	0.264401	0.264390	0.264413	4.62
7P/Pons-Winnecke	2037-Jul-10.9895	7.59	0.267509	0.267504	0.267515	0.71
62P/Tsuchinshan 1	2020-Apr-22.1701	5.77	0.270037	0.270024	0.270051	3.89
143P/Kowal-Mrkos	2024-Sep-02.3465	4.88	0.275487	0.275409	0.275564	5.59
128P/Shoemaker-Holt 1-B	2029-Jul-05.4114	4.03	0.284861	0.283224	0.286498	17.33
129P/Shoemaker-Levy 3	2009-Jun-23.0361	0.83	0.285904	0.285900	0.285908	16.36
75P/Kohoutek	2032-Jan-15.3796	4.69	0.296671	0.296379	0.296962	19.83
104P/Kowal 2	2007-Jul-02.0200	5.28	0.296837	0.296767	0.296907	13.24
73P/Schwassmann-Wachmann 3-B	2025-Mar-09.4409	6.13	0.308040	0.289591	0.326841	7337.00
32P/Comas Sola	2007-Apr-04.8925	8.05	0.310585	0.310580	0.310590	0.44
160P/LINEAR	2015-Sep-17.6368	4.91	0.311248	0.311001	0.311496	33.63
152P/Helin-Lawrence	2037-Dec-13.2211	4.53	0.320595	0.320586	0.320604	1.24
60P/Tsuchinshan 2	2008-Dec-19.9855	4.60	0.328289	0.328215	0.328363	23.57
74P/Smirnova-Chernykh	2030-Jul-18.8170	0.00	0.330562	0.330542	0.330583	40.54
132P/Helin-Roman-Alu 2	2017-Jan-27.4815	4.75	0.330986	0.330961	0.331011	3.13
16P/Brooks 2	2016-Dec-31.8860	4.25	0.333161	0.333140	0.333183	1.36
73P/Schwassmann-Wachmann 3-C	2025-Apr-02.0053	6.11	0.333404	0.330248	0.336592	1480.90
73P/Schwassmann-Wachmann 3	2025-Apr-03.4407	6.11	0.335008	0.335002	0.335014	1.48
104P/Kowal 2	2019-Jun-04.8673	5.33	0.353275	0.353233	0.353317	15.72
P/1998 U4 (Spahr)	2010-Oct-12.2714	8.51	0.356953	0.356844	0.357065	61.98
108P/Ciffreo	2018-Jul-12.7868	4.64	0.359785	0.359743	0.359826	32.45
156P/Russell-LINEAR	2018-Mar-01.7567	5.61	0.361217	0.361184	0.361250	5.00
98P/Takamizawa	2026-Apr-17.8204	7.58	0.363959	0.363109	0.364808	45.23

Table 3. Osculating Elements Near Perihelion

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2004 F3 (NEAT)	2005-Jan-04.2912	0.2866	2.8641	78.8313	176.1232	15.9880	36	3	1	-
P/2004 WR9 (LINEAR)	2005-Jan-11.5121	0.6837	1.9172	25.4486	70.6440	5.0484	14	4	1	-
56P/Slaughter-Burnham	2005-Jan-15.0257	0.5039	2.5352	346.2719	44.0963	8.1555	K053/28	0	3	-
163P/NEAT	2005-Jan-31.3028	0.4759	1.9199	103.7474	347.1770	12.4646	28	3	3	12
P/2005 R2 (Van Ness)	2005-Feb-10.1704	0.3793	2.1280	312.7426	3.0874	10.2380	4	5	1	-
10P/Tempel 2	2005-Feb-15.0385	0.5354	1.4269	117.8486	195.5587	12.0178	K0512/19	0	12	123
49P/Arend-Rigaux	2005-Feb-24.5584	0.6116	1.3685	121.6477	330.7024	18.3020	56	0	9	12
141P/Machholz 2-A	2005-Feb-28.2485	0.7501	0.7528	246.1617	149.2839	12.7951	75	2	3	123
P/2004 V5-A (LINEAR-Hill)	2005-Feb-28.6117	0.4452	4.4109	47.8589	87.6734	19.3582	33	3	1	-
P/2004 V5-B (LINEAR-Hill)	2005-Feb-28.8116	0.4452	4.4109	47.8587	87.6692	19.3582	26	3	1	-
141P/Machholz 2-D	2005-Mar-02.5612	0.7502	0.7530	246.1592	149.2586	12.7959	11	-	2	12
P/2005 E1 (Tubbiolo)	2005-Mar-16.9725	0.3842	4.4460	4.4126	170.6380	5.1552	9	5	1	-
32P/Comas Sola	2005-Apr-01.3376	0.5692	1.8330	60.7960	45.8244	12.9269	K053/18	1	3	123
P/2005 J1 (McNaught)	2005-Apr-17.3050	0.5710	1.5301	268.8411	338.9219	31.7655	9	4	1	-
P/1998 X1 (ODAS)	2005-May-02.4924	0.4470	1.9810	358.7486	69.0304	1.3495	20	4	1	-
119P/Parker-Hartley	2005-May-24.3363	0.2907	3.0445	244.0940	181.4101	5.1879	K052/7	0	2	-
129P/Shoemaker-Levy 3	2005-Jun-04.6872	0.2494	2.8070	303.6321	181.6728	5.0120	K052/10	0	2	-
72P/Denning-Fujikawa	2005-Jun-19.9948	0.8169	0.7967	36.3674	337.5909	9.1080	17	0	11	12
P/2005 JN (Spacewatch)	2005-Jun-20.3667	0.3494	2.2755	70.8016	153.6516	8.8564	7	5	1	-
161P/Hartley-IRAS	2005-Jun-20.8442	0.8351	1.2751	1.3975	47.0754	95.6980	54	0	2	-
91P/Russell 3	2005-Jun-26.8118	0.3308	2.6019	247.8974	354.6990	14.0924	23	1	3	12
21P/Giacobini-Zinner	2005-Jul-02.7596	0.7057	1.0379	195.4297	172.5417	31.8112	K054/12	1	4	123T
9P/Tempel 1	2005-Jul-05.3143	0.5175	1.5062	68.9381	178.8379	10.5301	K051/17	1	1	123
P/2000 G1 (LINEAR)	2005-Jul-13.8756	0.6731	0.9985	190.9812	343.3476	10.3951	20	5	1	-
138P/Shoemaker-Levy 7	2005-Jul-19.9175	0.5295	1.7073	309.4432	95.6500	10.0793	7	-	-	-
P/2005 JQ5 (Catalina)	2005-Jul-28.0340	0.6936	0.8256	95.8614	222.6837	5.6959	20	3	1	-
37P/Forbes	2005-Aug-01.7506	0.5414	1.5724	315.0996	329.2575	8.9582	K055/12	1	5	123T
P/2005 JD108 (Catalina-NEAT)	2005-Aug-10.3084	0.3745	4.0287	224.3075	90.2994	3.2753	9	4	1	-
P/2005 K3 (McNaught)	2005-Aug-11.4097	0.5915	1.5091	352.0008	15.5911	15.7121	15	4	1	-
P/2005 GF8 (LONEOS)	2005-Aug-17.5533	0.5169	2.8295	315.1687	285.3401	1.1893	11	4	1	-
C/2005 N5 (Catalina)	2005-Aug-22.6816	0.9433	1.6274	156.4118	207.7648	21.3790	13	4	1	-
P/2005 L4 (Christensen)	2005-Aug-24.6312	0.4248	2.3668	284.0768	24.7215	17.0429	9	4	1	-
P/2004 VR8 (LONEOS)	2005-Sep-02.5086	0.5099	2.3757	71.2164	63.0988	20.1165	26	3	1	-
171P/Spahr	2005-Sep-03.2186	0.5095	1.7297	101.9200	346.8441	21.9542	19	0	2	-
C/2005 O2 (Christensen)	2005-Sep-08.4180	0.8591	3.3335	280.7718	263.8285	148.8923	8	5	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
105P/Singer Brewster	2005-Sep-11.3263	0.4109	2.0413	192.4712	46.6515	9.1793	30	1	3	123T
169P/NEAT	2005-Sep-17.8587	0.7675	0.6053	176.2460	217.9269	11.3190	47	0	4	-
P/2005 Q4 (LINEAR)	2005-Sep-28.2809	0.5994	1.7518	11.3309	50.9430	17.6327	2	8	1	-
P/2005 R1 (NEAT)	2005-Oct-08.4122	0.6279	2.0468	259.0619	117.9550	15.3941	5	6	1	-
168P/Hergenrother	2005-Nov-02.4736	0.6075	1.4258	356.5029	13.8750	21.8938	33	0	1	-
P/2005 N3 (Larson)	2005-Dec-10.5858	0.3881	2.1971	298.6042	58.5086	6.3251	8	4	1	-
P/2005 L1 (McNaught)	2005-Dec-13.3075	0.2092	3.1427	138.3279	149.6023	7.7371	13	4	1	-
117P/Helin-Roman-Alu 1	2005-Dec-19.9127	0.2556	3.0370	58.9383	222.6725	8.7081	K052/13	0	2	-
60P/Tsuchinshan 2	2005-Dec-24.0636	0.5071	1.7664	288.1245	203.3531	6.7184	J995/7	2	5	123T
101P/Chernykh	2005-Dec-25.3256	0.5939	2.3505	130.2736	263.1657	5.0790	K052/4	1	1	-
P/2005 S3 (Read)	2005-Dec-26.8937	0.4185	2.8567	273.8213	136.9495	3.4653	4	9	1	-
170P/Christensen	2006-Jan-26.7095	0.3038	2.9299	143.0353	225.4371	10.1260	10	2	1	-
132P/Helin-Roman-Alu 2	2006-Feb-14.9776	0.5300	1.9242	178.3879	221.0994	5.7659	19	0	2	-
P/2005 JY126 (Catalina)	2006-Feb-21.3187	0.4335	2.1259	207.9858	117.5885	20.2359	11	4	1	-
98P/Takamizawa	2006-Mar-06.4727	0.5621	1.6628	114.7652	157.8801	10.5568	13	2	2	12
83P/Russell 1	2006-Apr-07.6984	0.4390	2.1717	226.4197	333.7778	17.7663	7	1	2	-
P/1999 RO28 (LONEOS)	2006-May-13.8293	0.6515	1.2278	148.3709	219.9667	8.1854	12	5	1	-
73P/Schwassmann-Wachmann 3	2006-Jun-06.6612	0.6932	0.9391	69.8943	198.8113	11.3950	J954/19	0	4	12
71P/Clark	2006-Jun-07.1552	0.4998	1.5621	59.6540	208.7524	9.4881	K002/6	-	2	12
73P/Schwassmann-Wachmann 3-C	2006-Jun-07.1718	0.6932	0.9391	69.8953	198.8058	11.3964	K012/19	2	2	123
102P/Shoemaker 1	2006-Jun-07.3247	0.4723	1.9736	339.9442	18.5581	26.2530	21	2	1	-
73P/Schwassmann-Wachmann 3-B	2006-Jun-09.4951	0.6936	0.9392	69.8890	198.8114	11.4006	9	0	2	12
73P/Schwassmann-Wachmann 3-E	2006-Jun-09.5795	0.6934	0.9393	69.8851	198.7983	11.4003	K013/11	0	3	12
41P/Tuttle-Giacobini-Kresak	2006-Jun-11.3482	0.6604	1.0478	141.0866	62.1979	9.2291	K013/19	0	3	12
45P/Honda-Mrkos-Pajdusakova	2006-Jun-29.7850	0.8245	0.5302	89.1108	326.1166	4.2533	K013/6	0	3	12
P/1999 X1 (Hug-Bell)	2006-Jul-06.7780	0.4710	1.9470	103.6483	296.8744	10.9631	8	5	1	-
84P/Giclas	2006-Aug-07.4565	0.4924	1.8517	112.4739	276.3277	7.2809	29	0	10	-
52P/Harrington-Abell	2006-Aug-14.7751	0.5429	1.7571	337.1778	139.0846	10.2205	J994/2	0	4	12
114P/Wiseman-Skiff	2006-Sep-13.2048	0.5551	1.5776	271.0433	172.8998	18.2655	26	0	3	-
80P/Peters-Hartley	2006-Sep-25.8175	0.5962	1.6336	259.8824	338.6093	29.8957	15	3	2	123
112P/Urata-Niijima	2006-Oct-29.5731	0.5865	1.4647	31.9282	21.4476	24.1675	14	0	2	-
P/2000 C1 (Hergenrother)	2006-Nov-06.9016	0.4077	2.0883	127.0064	51.2919	6.1080	15	4	1	-
4P/Faye	2006-Nov-15.4579	0.5667	1.6674	199.3081	205.0162	9.0316	J993/10	-	3	12
P/1991 V1 (Shoemaker-Levy 6)	2006-Nov-16.6883	0.7062	1.1281	37.8764	333.5406	16.9221	10	6	1	-
76P/West-Kohoutek-Ikemura	2006-Nov-19.8299	0.5385	1.6034	84.1075	0.1288	30.4583	K004/2	2	4	12

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2000 R2 (LINEAR)	2006-Dec-14.7099	0.5653	1.4551	163.1259	172.2224	10.9774	8	6	1	-
99P/Kowal 1	2007-Jan-15.7067	0.2272	4.7183	28.3981	172.8273	4.3453	K072/3	1	1	-
P/2001 WF2 (LONEOS)	2007-Feb-06.1864	0.6659	0.9797	75.0605	51.4476	16.9052	46	4	1	-
P/2001 Q2 (Petriew)	2007-Feb-24.6123	0.6981	0.9376	214.1027	181.9216	13.9747	28	4	1	-
106P/Schuster	2007-Apr-02.2228	0.5868	1.5561	50.6122	355.8291	20.1113	13	-	4	12
96P/Machholz 1	2007-Apr-04.6195	0.9587	0.1246	94.5506	14.6180	59.9553	41	0	4	12
2P/Encke	2007-Apr-19.3116	0.8470	0.3393	334.5687	186.5255	11.7541	K033/15	1	3	123
17P/Holmes	2007-May-04.5001	0.4324	2.0532	326.8675	24.2586	19.1132	K006/9	-	6	12
P/1998 QP54 (LONEOS-Tucker)	2007-May-12.3079	0.5520	1.8799	341.8108	30.3339	17.7114	20	4	1	-
135P/Shoemaker-Levy 8	2007-May-30.9936	0.2911	2.7112	213.2976	22.3169	6.0541	11	-	-	-
128P/Shoemaker-Holt 1-A	2007-Jun-13.6342	0.3199	3.0689	214.4206	210.4435	4.3552	10	1	1	-
128P/Shoemaker-Holt 1-B	2007-Jun-13.6493	0.3199	3.0689	214.4207	210.4476	4.3554	17	-	-	-
156P/Russell-LINEAR	2007-Jun-17.3643	0.5576	1.5931	39.0499	357.6776	20.7480	14	0	3	-
87P/Bus	2007-Jul-07.2375	0.3764	2.1733	182.1879	24.2429	2.5769	8	-	3	12
P/1998 U2 (Mueller)	2007-Jul-07.8518	0.5206	2.0319	336.1209	49.7256	2.1899	13	-	-	-
108P/Ciffreo	2007-Jul-18.0468	0.5415	1.7191	53.7390	357.9762	13.0783	15	-	3	12
P/2002 O5 (NEAT)	2007-Jul-26.3170	0.5978	1.1734	282.2010	15.2714	20.4022	33	5	1	-
125P/Spacewatch	2007-Aug-10.7352	0.5127	1.5236	153.1997	87.3379	9.9856	10	0	2	-
70P/Kojima	2007-Oct-05.9374	0.4532	2.0119	119.2593	2.1086	6.5956	16	0	5	-
136P/Mueller 3	2007-Oct-22.2418	0.2930	2.9607	137.5611	224.8651	9.4273	16	1	2	-
50P/Arend	2007-Nov-01.1826	0.5292	1.9244	355.3371	49.0415	19.1549	31	0	6	12
75P/Kohoutek	2007-Nov-04.2321	0.4946	1.7956	269.6828	175.6184	5.9013	J873/16	-	2	12
P/1995 A1 (Jedicke)	2007-Dec-03.0755	0.3079	4.0869	115.8516	295.4595	19.8744	3	4	1	-
P/1990 V1 (Shoemaker-Levy 1)	2007-Dec-10.4509	0.7732	1.4658	51.6599	312.6719	24.5563	3	5	1	-
P/1998 S1 (LINEAR-Mueller)	2007-Dec-16.1104	0.4159	2.5521	359.1500	26.4352	10.5462	25	3	1	-
93P/Lovas 1	2007-Dec-17.3496	0.6118	1.7047	339.9246	74.6678	12.2180	36	0	3	123T
8P/Tuttle	2008-Jan-26.9542	0.8199	1.0271	270.3414	207.5061	54.9827	J943/10	-	2	12
46P/Wirtanen	2008-Feb-02.4906	0.6581	1.0575	82.1734	356.3492	11.7396	K023/22	0	3	123T
110P/Hartley 3	2008-Feb-03.4880	0.3125	2.4885	287.7457	167.8004	11.6795	31	1	3	12
P/2000 U6 (Tichy)	2008-Feb-07.3013	0.4338	2.1379	24.3422	11.7180	19.3788	18	4	1	-
44P/Reinmuth 2	2008-Feb-18.2773	0.4283	2.1064	286.6003	58.0690	5.9047	K014/2	0	4	12
P/2001 Q5 (LINEAR-NEAT)	2008-Feb-20.9739	0.3961	2.1555	335.2607	8.2684	10.7051	17	4	1	-
P/2000 B3 (LINEAR)	2008-Feb-26.0490	0.5742	1.7087	352.0648	130.6398	11.1180	47	5	1	-
113P/Spitaler	2008-Mar-23.4244	0.4230	2.1285	14.4734	49.8526	5.7753	25	0	16	-
26P/Grigg-Skjellerup	2008-Mar-23.6886	0.6330	1.1167	211.7062	1.7149	22.3565	J978/18	-	8	12

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
16P/Brooks 2	2008-Apr-12.5933	0.5627	1.4666	159.3691	219.4754	4.2579	K013/4	0	3	12
139P/Vaisala-Oterma	2008-Apr-19.2976	0.2465	3.4028	242.4527	165.5205	2.3292	20	-	-	-
124P/Mrkos	2008-Apr-27.2109	0.5423	1.4686	1.3522	181.3696	31.3407	18	1	2	-
11P/Tempel-Swift-LINEAR	2008-May-04.5785	0.5449	1.5536	240.5256	163.8974	13.5533	K0116/15	0	15	12
P/1999 DN3 (Korlevic-Juric)	2008-May-11.0731	0.1359	3.8947	5.8427	161.7767	18.7308	10	4	1	-
P/2003 KV2 (LINEAR)	2008-May-18.2895	0.6299	1.0604	66.3910	188.7944	25.5538	24	5	1	-
P/1993 W1 (Mueller 5)	2008-May-19.4316	0.2612	4.2146	100.5696	29.8267	16.4959	26	4	1	-
86P/Wild 3	2008-May-20.0020	0.3660	2.3012	72.5835	179.1530	15.4479	12	0	4	12
146P/Shoemaker-LINEAR	2008-May-21.3923	0.6479	1.4177	53.5681	316.8394	23.0786	15	0	3	-
148P/Anderson-LINEAR	2008-May-22.7726	0.5379	1.7026	89.8008	6.6927	3.6784	12	0	6	-
P/1998 VS24 (LINEAR)	2008-May-25.8356	0.2422	3.4226	159.1778	244.4909	5.0260	9	4	1	-
P/2001 K1 (NEAT)	2008-May-26.9636	0.3577	2.4687	84.7531	94.9083	16.9135	17	4	1	-
79P/du Toit-Hartley	2008-May-28.4513	0.5940	1.2305	307.8395	253.2785	2.8930	K035/3	0	4	12
51P/Harrington-A	2008-Jun-18.0477	0.5443	1.6875	83.7624	269.1879	5.4304	K013/32	0	3	12
51P/Harrington	2008-Jun-18.7404	0.5443	1.6878	83.8051	269.1615	5.4306	J943/5	1	3	12
15P/Finlay	2008-Jun-22.5549	0.7214	0.9700	13.8142	347.4835	6.8158	K024/10	0	4	12
33P/Daniel	2008-Jul-20.3572	0.4619	2.1697	66.5719	18.9765	22.3753	K004/3	-	3	12
19P/Borrelly	2008-Jul-22.4298	0.6245	1.3548	75.4443	353.3793	30.3243	K012/142	0	2	12
P/2001 R1 (LONEOS)	2008-Aug-05.5573	0.6117	1.3450	35.2991	24.9623	7.0326	23	5	1	-
6P/d'Arrest	2008-Aug-14.9642	0.6128	1.3535	138.9357	178.1249	19.5147	K024/45	-	3	12T
P/1997 V1 (Larsen)	2008-Aug-26.8761	0.3334	3.2720	234.8151	133.7713	12.1218	11	4	1	-
61P/Shajn-Schaldach	2008-Sep-06.1016	0.4265	2.1080	163.1186	221.6220	6.0091	K015/12	0	5	12
147P/Kushida-Muramatsu	2008-Sep-22.9567	0.2759	2.7564	93.7396	346.8800	2.3672	K012/1	1	1	-
7P/Pons-Winnecke	2008-Sep-26.6341	0.6349	1.2533	93.4228	172.3293	22.3102	K027/23	0	7	123T
P/1999 J5 (LINEAR)	2008-Oct-07.3645	0.1706	3.6935	111.9980	131.9916	13.7337	12	4	1	-
P/2001 CV8 (LINEAR)	2008-Oct-11.1254	0.4441	2.1599	359.8927	151.6195	9.0353	21	4	1	-
172P/Yeung	2008-Oct-12.8362	0.3618	2.2405	40.0884	178.9977	11.5180	9	1	2	-
P/2001 J1 (NEAT)	2008-Nov-06.8519	0.7572	0.9441	200.6713	271.1758	10.1515	46	5	1	-
P/1999 XN120 (Catalina)	2008-Nov-12.6058	0.2109	3.3041	285.4474	161.6167	5.0264	32	4	1	-
150P/LONEOS	2008-Nov-26.0005	0.5459	1.7677	272.4292	245.6704	18.5003	18	0	4	-
P/2001 TU80 (LINEAR-NEAT)	2008-Dec-09.5672	0.4706	1.9403	109.1066	355.0348	6.5814	14	4	1	-
85P/Boethin	2008-Dec-16.3577	0.7753	1.1475	343.4511	53.5816	4.2170	12	0	1	-
57P/duToit-Neujmin-Delporte-A	2008-Dec-25.9325	0.5002	1.7238	188.8254	115.2941	2.8481	K023/3	1	3	123
57P/duToit-Neujmin-Delporte	2008-Dec-25.9695	0.5002	1.7238	188.8227	115.3066	2.8479	J964/1	2	5	123
P/2002 CW134 (LINEAR)	2009-Jan-05.9207	0.4888	1.8438	348.2595	190.2670	15.2139	10	5	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2003 K2 (Christensen)	2009-Jan-08.6066	0.8329	0.5340	93.8466	345.9244	10.2221	9	7	1	-
68P/Klemola	2009-Jan-20.9741	0.6406	1.7590	175.3298	153.9791	11.1441	19	0	4	12
P/2002 JN16 (LINEAR)	2009-Jan-25.1026	0.4873	1.7837	230.0337	39.6986	11.4187	34	4	1	-
144P/Kushida	2009-Jan-26.9172	0.6278	1.4390	245.5628	216.0990	4.1092	3	2	1	-
P/2003 O3 (LINEAR)	2009-Jan-30.0937	0.5985	1.2467	341.4897	0.6907	8.3656	17	4	1	-
47P/Ashbrook-Jackson	2009-Jan-31.9690	0.3192	2.7991	356.9827	357.6861	13.0527	40	0	8	12
P/2001 X2 (Scotti)	2009-Feb-07.1229	0.3309	2.5269	194.5788	255.5529	2.1849	41	4	1	-
14P/Wolf	2009-Feb-27.2523	0.3580	2.7241	202.1193	158.9886	27.9434	K007/18	0	7	-
67P/Churyumov-Gerasimenko	2009-Feb-28.3672	0.6402	1.2465	50.1994	12.6971	7.0409	K023/22	1	3	123T
59P/Kearns-Kwee	2009-Mar-07.6560	0.4751	2.3556	313.0367	127.5364	9.3410	J993/27	-	2	12
P/2002 Q1 (Van Ness)	2009-Mar-22.2192	0.5641	1.5512	173.9996	185.0240	36.2824	5	6	1	-
145P/Shoemaker-Levy 5	2009-Mar-26.6112	0.5421	1.8914	26.9035	10.1393	11.2994	13	0	2	-
P/2005 S2 (Skiff)	2009-Apr-02.3489	0.2524	5.4816	166.1076	299.3783	3.6924	2	8	1	-
P/1994 J3 (Shoemaker 4)	2009-Apr-11.5151	0.5081	2.9353	92.9478	191.9308	24.7634	2	4	1	-
P/2004 CB (LINEAR)	2009-Apr-15.8171	0.6890	0.9137	66.4492	149.7297	19.1476	32	3	1	-
137P/Shoemaker-Levy 2	2009-May-13.5669	0.5745	1.9153	233.1210	140.8116	4.8537	11	0	2	-
22P/Kopff	2009-May-25.4032	0.5443	1.5776	120.8985	162.8160	4.7239	K023/85	1	3	12
143P/Kowal-Mrkos	2009-Jun-12.1976	0.4098	2.5382	245.3678	320.7609	4.6899	21	1	3	-
P/2003 A1 (LINEAR)	2009-Jun-12.3740	0.5026	1.9032	54.0753	340.2863	44.3000	11	6	1	-
64P/Swift-Gehrels	2009-Jun-14.2943	0.6895	1.3770	300.7412	96.3047	8.9515	14	0	4	12
P/2003 H4 (LINEAR)	2009-Jun-22.4281	0.4903	1.7015	226.7437	10.6037	18.1518	10	4	1	-
77P/Longmore	2009-Jul-07.8489	0.3581	2.3103	14.9168	196.6948	24.3982	11	0	4	12
116P/Wild 4	2009-Jul-18.9368	0.3746	2.1749	21.0297	173.5976	3.6126	88	1	3	123T
P/1999 XB69 (LINEAR)	2009-Jul-25.9088	0.6308	1.6521	256.0529	220.3257	11.3058	9	4	1	-
74P/Smirnova-Chernykh	2009-Jul-30.3353	0.1476	3.5577	77.1005	87.2429	6.6474	K093/1	0	2	-
24P/Schaumasse	2009-Aug-09.6277	0.7036	1.2139	79.7183	57.9996	11.7292	K014/19	1	3	12
89P/Russell 2	2009-Aug-17.1628	0.3995	2.2799	42.3849	249.3241	12.0315	13	0	4	-
P/2002 T1 (LINEAR)	2009-Aug-25.5032	0.6393	1.3147	14.2249	3.8270	21.3964	31	4	1	-
P/2004 X1 (LINEAR)	2009-Sep-03.7530	0.7273	0.7802	7.1147	345.4474	5.1482	9	6	1	-
P/2001 MD7 (LINEAR)	2009-Sep-08.9023	0.6896	1.2240	125.6217	246.7447	12.8814	49	3	1	-
88P/Howell	2009-Oct-12.4685	0.5620	1.3635	56.7561	235.9633	4.3816	K043/13	1	3	123
127P/Holt-Olmstead	2009-Oct-21.3683	0.3624	2.1957	13.6846	6.5392	14.3215	8	1	3	-
54P/de Vico-Swift-NEAT	2009-Nov-28.4314	0.4267	2.1720	358.8530	1.9133	6.0684	18	0	15	12
169P/NEAT	2009-Nov-30.3044	0.7668	0.6077	176.1911	217.9590	11.2998	47	0	4	-
100P/Hartley 1	2009-Dec-06.1504	0.4186	1.9824	37.8448	181.7088	25.6542	K033/11	0	2	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2004 K2 (McNaught)	2009-Dec-15.4950	0.5027	1.5486	150.1181	180.7578	8.1327	18	4	1	-
P/2005 JQ5 (Catalina)	2009-Dec-28.8468	0.6942	0.8231	95.8324	222.7430	5.6954	20	3	1	-
118P/Shoemaker-Levy 4	2010-Jan-02.3256	0.4273	1.9839	151.8050	302.1472	8.5088	38	1	3	123T
82P/Gehrels 3	2010-Jan-12.0801	0.1222	3.6334	239.5091	226.2680	1.1261	12	0	4	-
P/2003 XD10 (LINEAR-NEAT)	2010-Feb-01.1107	0.4163	1.9899	40.5290	16.0893	13.4360	5	5	1	-
P/1999 WJ7 (Korlevic)	2010-Feb-08.5717	0.3152	3.1822	290.5650	154.5507	2.9758	45	3	1	-
149P/Mueller 4	2010-Feb-19.2022	0.3885	2.6509	145.2657	43.7657	29.7349	7	1	2	-
157P/Tritton	2010-Feb-20.5381	0.6011	1.3602	300.1089	148.7475	7.2774	19	0	5	-
81P/Wild 2	2010-Feb-22.7196	0.5374	1.5981	136.0973	41.7931	3.2372	K033/48	0	3	123T
126P/IRAS	2010-Feb-22.7946	0.6966	1.7134	357.7607	356.7305	45.8302	9	0	2	-
P/2004 R1 (McNaught)	2010-Feb-24.7156	0.6829	0.9857	295.9622	0.6898	4.8939	13	6	1	-
65P/Gunn	2010-Mar-02.1336	0.3194	2.4404	68.3560	196.6374	10.3868	K034/21	0	4	123T
P/2002 LZ11 (LINEAR)	2010-Mar-06.0969	0.3533	2.3643	231.0513	107.7638	11.5211	19	4	1	-
162P/Siding Spring	2010-Mar-08.4225	0.5961	1.2331	31.2401	356.3065	27.8168	45	0	3	-
P/2001 R6 (LINEAR-Skiff)	2010-Mar-26.0096	0.4777	2.1787	67.3242	308.4444	17.3862	16	4	1	-
94P/Russell 4	2010-Mar-29.7572	0.3631	2.2403	70.9157	92.8453	6.1823	26	2	4	12
30P/Reinmuth 1	2010-Apr-19.5448	0.5010	1.8841	119.7545	13.2067	8.1222	K027/19	0	7	12
104P/Kowal 2	2010-May-04.6568	0.6381	1.1798	235.4982	200.5627	10.2611	K043/16	2	2	123T
141P/Machholz 2-A	2010-May-24.4897	0.7489	0.7578	246.0862	149.3701	12.8022	75	2	3	123
141P/Machholz 2-D	2010-May-29.7477	0.7491	0.7578	246.0847	149.3300	12.8032	11	-	2	12
142P/Ge-Wang	2010-May-30.5264	0.5000	2.4881	176.5193	175.7304	12.3067	12	2	1	-
P/2002 O8 (NEAT)	2010-Jun-08.3091	0.2012	3.2134	75.4411	222.4555	12.7900	11	3	1	-
43P/Wolf-Harrington	2010-Jul-01.7431	0.5945	1.3576	249.8959	191.4689	15.9663	K043/34	0	3	12T
10P/Tempel 2	2010-Jul-04.9072	0.5363	1.4227	117.8251	195.6607	12.0224	K0512/19	0	12	123
P/1999 U3 (LINEAR)	2010-Jul-18.5200	0.6110	1.9214	305.9743	110.1572	20.8839	17	4	1	-
2P/Encke	2010-Aug-06.5032	0.8483	0.3359	334.5648	186.5510	11.7828	K033/15	1	3	123
P/2002 S1 (Skiff)	2010-Aug-14.6025	0.4169	2.4201	346.8248	37.8489	27.0551	18	4	1	-
P/2004 EW38 (Catalina-LINEAR)	2010-Sep-03.6780	0.5000	1.7948	49.8839	90.1348	6.5248	6	4	1	-
P/2003 UY275 (LINEAR)	2010-Sep-09.5000	0.5092	1.8312	245.6702	119.3327	16.3313	6	4	1	-
31P/Schwassmann-Wachmann 2	2010-Sep-29.4907	0.1928	3.4243	114.1901	17.9322	4.5468	K023/8	0	2	12
P/2002 X2 (NEAT)	2010-Oct-04.9599	0.4495	2.1275	74.9790	351.8598	23.5382	11	4	1	-
103P/Hartley 2	2010-Oct-28.2561	0.6951	1.0587	219.7593	181.2017	13.6184	49	1	3	123T
P/2000 G1 (LINEAR)	2010-Nov-13.8934	0.6728	1.0001	190.9973	343.3000	10.3900	20	5	1	-
P/2004 HC18 (LINEAR)	2010-Dec-29.5945	0.5091	1.7140	219.4856	30.9840	23.4931	19	3	1	-
9P/Tempel 1	2011-Jan-12.3046	0.5165	1.5103	68.9074	178.9221	10.5223	K051/17	1	1	123

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2003 S2 (NEAT)	2011-Mar-03.5703	0.3599	2.4561	87.7015	283.9025	7.6348	20	3	1	-
P/2004 T1 (LINEAR-NEAT)	2011-Apr-24.9323	0.5082	1.7078	51.4396	336.4059	11.0449	19	4	1	-
P/2003 CP7 (LINEAR-NEAT)	2011-May-17.0900	0.2466	3.0329	133.0993	42.4728	12.3265	10	4	1	-
164P/Christensen	2011-Jun-02.3422	0.5414	1.6753	88.3270	325.8503	16.2607	20	1	2	-
P/2005 R2 (Van Ness)	2011-Jun-18.8544	0.3801	2.1224	312.6854	3.3360	10.2406	4	5	1	-
130P/McNaught-Hughes	2011-Jun-24.7720	0.4067	2.0981	89.8142	224.3636	7.3073	29	1	2	12
62P/Tsuchinshan 1	2011-Jun-30.3940	0.5974	1.3836	90.3064	30.2351	9.7125	K044/15	0	4	123T
123P/West-Hartley	2011-Jul-04.4891	0.4484	2.1289	46.5997	102.8291	15.3569	56	1	3	123
69P/Taylor	2011-Jul-17.9951	0.4147	2.2712	104.8869	343.4863	22.0478	K043/15	2	3	123T
27P/Crommelin	2011-Aug-03.8045	0.9187	0.7479	250.6381	195.9801	28.9568	J843/16	-	3	12
97P/Metcalf-Brewington	2011-Aug-21.0455	0.4593	2.5966	185.2084	228.2099	17.8872	26	-	9	12
P/2001 YX127 (LINEAR)	2011-Aug-24.1455	0.1772	3.4305	31.0662	114.7927	7.9154	18	3	1	-
45P/Honda-Mrkos-Pajdusakova	2011-Sep-28.7061	0.8246	0.5296	89.0069	326.2460	4.2532	K013/6	0	3	12
48P/Johnson	2011-Sep-29.3049	0.3677	2.3011	117.2718	207.9573	13.6622	41	0	8	12
115P/Maury	2011-Oct-06.9784	0.5210	2.0351	176.6028	120.0667	11.7063	12	0	3	-
73P/Schwassmann-Wachmann 3	2011-Oct-16.6639	0.6922	0.9428	69.8435	198.8703	11.3782	J954/19	0	4	12
73P/Schwassmann-Wachmann 3-C	2011-Oct-17.3444	0.6923	0.9428	69.8447	198.8628	11.3798	K012/19	2	2	123
P/1996 R2 (Lagerkvist)	2011-Oct-17.3965	0.3107	2.6119	40.1997	333.9949	2.6037	17	4	1	-
49P/Arend-Rigaux	2011-Oct-19.0766	0.6004	1.4238	118.8766	332.7900	19.0502	56	0	9	12
73P/Schwassmann-Wachmann 3-E	2011-Oct-22.1245	0.6925	0.9430	69.8338	198.8511	11.3835	K013/11	0	3	12
73P/Schwassmann-Wachmann 3-B	2011-Oct-23.2757	0.6927	0.9430	69.8376	198.8793	11.3838	9	0	2	12
41P/Tuttle-Giacobini-Kresak	2011-Nov-10.8343	0.6600	1.0494	141.0570	62.1865	9.2261	K013/19	0	3	12
P/2004 H3 (Larsen)	2011-Nov-23.3660	0.3726	2.4503	220.9470	346.4886	25.1288	6	5	1	-
P/2004 R3 (LINEAR-NEAT)	2011-Nov-28.8302	0.4428	2.1324	318.7284	5.5458	7.9748	10	5	1	-
37P/Forbes	2011-Dec-11.0162	0.5407	1.5753	315.0312	329.3889	8.9557	K055/12	1	5	123T
71P/Clark	2011-Dec-16.8657	0.4986	1.5675	59.6073	208.8338	9.4788	K002/6	-	2	12
36P/Whipple	2011-Dec-29.5879	0.2609	3.0879	182.3911	201.5972	9.9310	K037/37	0	6	12
P/2005 JN (Spacewatch)	2012-Jan-06.0019	0.3477	2.2857	70.7913	153.5709	8.8500	7	5	1	-
131P/Mueller 2	2012-Jan-07.3754	0.3439	2.4181	214.2185	179.5233	7.3561	26	2	3	123
78P/Gehrels 2	2012-Jan-12.9404	0.4628	2.0086	210.5587	192.7989	6.2553	K043/37	1	3	123
P/2005 J1 (McNaught)	2012-Jan-15.6892	0.5698	1.5371	268.8046	338.9738	31.7340	9	4	1	-
P/2000 Y3 (Scotti)	2012-Jan-20.7732	0.2000	3.9179	354.1592	92.6032	2.2590	46	3	1	-
21P/Giacobini-Zinner	2012-Feb-11.7994	0.7070	1.0305	195.3969	172.6020	31.9108	K054/12	1	4	123T
P/1998 X1 (ODAS)	2012-Feb-13.9290	0.4446	1.9969	358.6213	68.9400	1.3432	20	4	1	-
105P/Singer Brewster	2012-Feb-26.1627	0.4093	2.0509	192.4181	46.6714	9.1703	30	1	3	123T

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2001 WF2 (LONEOS)	2012-Mar-05.5338	0.6595	1.0085	72.8692	53.7609	16.2496	46	4	1	-
P/1998 U4 (Spahr)	2012-Apr-03.5431	0.2789	3.9801	180.7730	247.6727	32.4820	24	3	1	-
58P/Jackson-Neujmin	2012-Apr-10.0043	0.6626	1.3744	160.6348	200.4875	13.4898	6	0	4	12
163P/NEAT	2012-Apr-12.7322	0.4534	2.0567	102.1182	349.6338	12.7171	28	3	3	12
171P/Spahr	2012-Apr-30.6473	0.5033	1.7646	101.7200	347.0860	21.9489	19	0	2	-
60P/Tsuchinshan 2	2012-May-13.5131	0.5384	1.6181	267.6850	216.3800	3.6107	J995/7	2	5	123T
P/2003 O2 (LINEAR)	2012-Jun-10.5727	0.6469	1.4989	344.7404	32.8548	14.6900	23	4	1	-
138P/Shoemaker-Levy 7	2012-Jun-11.7559	0.5307	1.7006	309.4084	95.6228	10.0833	7	-	-	-
152P/Helin-Lawrence	2012-Jul-09.2101	0.3074	3.1165	91.9098	163.8005	9.8673	31	0	2	-
96P/Machholz 1	2012-Jul-14.7794	0.9592	0.1238	94.3243	14.7559	58.2990	41	0	4	12
P/2002 O5 (NEAT)	2012-Jul-21.2707	0.5969	1.1772	282.1526	15.3543	20.3758	33	5	1	-
P/2001 Q2 (Petriew)	2012-Aug-13.6137	0.6995	0.9319	214.0910	181.9447	14.0076	28	4	1	-
P/2005 K3 (McNaught)	2012-Sep-12.5016	0.5935	1.4971	351.9616	15.6948	15.7356	15	4	1	-
160P/LINEAR	2012-Sep-18.5224	0.4791	2.0665	337.0018	18.1976	17.2759	14	1	2	-
158P/Kowal-LINEAR	2012-Sep-27.4771	0.0307	4.5764	137.3044	232.8492	7.9073	8	1	3	-
P/2005 N3 (Larson)	2012-Sep-29.3988	0.3896	2.1870	298.4807	58.8190	6.3256	8	4	1	-
168P/Hergenrother	2012-Oct-01.6904	0.6094	1.4149	356.4686	13.9682	21.9296	33	0	1	-
P/1994 X1 (McNaught-Russell)	2012-Dec-04.1972	0.8154	1.2799	218.0113	171.1934	29.0790	4	4	1	-
P/1999 D1 (Hermann)	2012-Dec-19.3271	0.7138	1.6438	348.7847	173.9601	21.3478	10	-	-	-
P/1999 RO28 (LONEOS)	2012-Dec-21.6970	0.6531	1.2194	148.3211	220.0830	8.1903	12	5	1	-
P/2004 F3 (NEAT)	2013-Jan-28.8657	0.2851	2.8798	78.7804	176.1875	15.9719	36	3	1	-
111P/Helin-Roman-Crockett	2013-Jan-30.6608	0.1096	3.7043	89.7942	3.3791	4.2288	6	0	2	-
P/2000 R2 (LINEAR)	2013-Feb-01.1801	0.5649	1.4567	163.0665	172.3767	10.9795	8	6	1	-
125P/Spacewatch	2013-Feb-16.9611	0.5123	1.5255	153.1891	87.2272	9.9858	10	0	2	-
120P/Mueller 1	2013-Feb-22.4322	0.3390	2.7290	4.4497	30.1124	8.7967	14	0	3	-
P/2004 F1 (NEAT)	2013-Feb-27.9240	0.4558	2.4169	109.5027	27.8708	18.1013	5	4	1	-
91P/Russell 3	2013-Mar-01.1448	0.3291	2.6168	247.8709	354.6370	14.0757	23	1	3	12
P/2003 HT15 (LINEAR)	2013-Mar-17.2876	0.4188	2.6899	81.4472	124.1021	27.6365	17	4	1	-
P/2003 KV2 (LINEAR)	2013-Mar-23.4309	0.6297	1.0615	66.3919	188.7407	25.5412	24	5	1	-
63P/Wild 1	2013-Apr-10.7696	0.6507	1.9505	358.0112	169.0035	19.7818	25	-	4	12
76P/West-Kohoutek-Ikemura	2013-May-07.7948	0.5390	1.6003	84.1238	0.0633	30.4829	K004/2	2	4	12
114P/Wiseman-Skiff	2013-May-13.8925	0.5556	1.5749	271.0549	172.8484	18.2840	26	0	3	-
P/2000 C1 (Hergenrother)	2013-May-23.9412	0.4322	1.9459	123.5684	56.0123	6.0777	15	4	1	-
P/2005 JY126 (Catalina)	2013-Jun-04.6360	0.4328	2.1290	207.8672	117.8137	20.2447	11	4	1	-
112P/Urata-Niijima	2013-Jun-24.2893	0.5881	1.4553	31.9271	21.4513	24.2029	14	0	2	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2003 U2 (LINEAR)	2013-Jun-29.9563	0.6236	1.6908	186.3874	177.4644	24.6023	8	5	1	-
26P/Grigg-Skjellerup	2013-Jul-06.0159	0.6401	1.0859	211.5526	2.1540	22.4238	J978/18	-	8	12
P/1997 C1 (Gehrels)	2013-Jul-08.3874	0.4750	3.6017	225.2927	210.9350	2.8550	23	-	-	-
46P/Wirtanen	2013-Jul-09.3840	0.6593	1.0521	82.1622	356.3420	11.7576	K023/22	0	3	123T
84P/Giclas	2013-Jul-23.2241	0.4943	1.8396	112.3839	276.4805	7.2866	29	0	10	-
P/1999 X1 (Hug-Bell)	2013-Jul-23.5015	0.4730	1.9337	103.5761	296.9634	10.9758	8	5	1	-
98P/Takamizawa	2013-Aug-05.3682	0.5607	1.6736	114.7407	157.8882	10.5438	13	2	2	12
79P/du Toit-Hartley	2013-Aug-23.3537	0.6185	1.1238	280.6246	281.7065	3.1457	K035/3	0	4	12
102P/Shoemaker 1	2013-Sep-02.2465	0.4730	1.9682	339.8537	18.8038	26.2484	21	2	1	-
121P/Shoemaker-Holt 2	2013-Sep-08.2584	0.1876	3.7548	94.2256	12.5172	20.1663	33	0	3	-
83P/Russell 1	2013-Nov-05.8228	0.4431	2.1391	226.3680	334.1631	17.8273	7	1	2	-
2P/Encke	2013-Nov-21.6965	0.8482	0.3361	334.5713	186.5373	11.7787	K033/15	1	3	123
P/2005 L1 (McNaught)	2013-Nov-24.5819	0.2075	3.1594	138.2637	149.7643	7.7314	13	4	1	-
P/2004 H2 (Larsen)	2013-Dec-11.6349	0.4175	2.6361	131.5070	104.6046	11.7728	8	4	1	-
154P/Brewington	2013-Dec-12.2387	0.6705	1.6079	343.4953	49.0335	17.8328	24	0	1	-
P/2003 S1 (NEAT)	2013-Dec-16.1104	0.4308	2.5909	241.0423	176.0731	5.9566	19	4	1	-
87P/Bus	2013-Dec-19.5710	0.3888	2.1018	181.9016	24.7184	2.6006	8	-	3	12
P/2005 L4 (Christensen)	2014-Jan-06.2821	0.4237	2.3760	283.9529	24.8639	17.0218	9	4	1	-
P/1998 Y2 (Li)	2014-Feb-03.7417	0.5879	2.5223	91.8645	319.0532	24.3569	13	4	1	-
129P/Shoemaker-Levy 3	2014-Feb-11.3144	0.0877	3.9154	184.9146	309.4619	3.4376	K052/10	0	2	-
169P/NEAT	2014-Feb-15.2713	0.7667	0.6079	176.1138	218.0723	11.2908	47	0	4	-
52P/Harrington-Abell	2014-Mar-07.5425	0.5406	1.7731	336.8528	139.6133	10.2306	J994/2	0	4	12
P/1998 U3 (Jager)	2014-Mar-14.6015	0.6487	2.1562	303.4251	180.7277	19.0561	30	-	-	-
117P/Helin-Roman-Alu 1	2014-Mar-27.1461	0.2539	3.0563	58.8977	222.6858	8.6974	K052/13	0	2	-
17P/Holmes	2014-Mar-27.4791	0.4319	2.0566	326.7649	24.5147	19.0916	K006/9	-	6	12
119P/Parker-Hartley	2014-Apr-02.5972	0.2925	3.0265	244.1001	181.3059	5.1958	K052/7	0	2	-
124P/Mrkos	2014-Apr-09.6167	0.5039	1.6453	0.4146	183.7105	31.5291	18	1	2	-
156P/Russell-LINEAR	2014-Apr-16.5606	0.5590	1.5849	38.9818	357.8058	20.7783	14	0	3	-
P/2004 CB (LINEAR)	2014-May-06.0125	0.6726	0.9694	62.8232	152.3957	21.2460	32	3	1	-
P/2002 AR2 (LINEAR)	2014-May-16.5425	0.6165	2.0486	7.6675	73.4155	21.1048	2	6	1	-
134P/Kowal-Vavrova	2014-May-21.4608	0.5873	2.5713	202.1226	18.5806	4.3489	12	-	-	-
132P/Helin-Roman-Alu 2	2014-May-21.6932	0.5321	1.9078	178.3695	221.1292	5.7773	19	0	2	-
P/1991 V1 (Shoemaker-Levy 6)	2014-May-29.5897	0.7070	1.1239	37.6859	333.7759	16.9772	10	6	1	-
4P/Faye	2014-May-29.6573	0.5685	1.6550	199.2748	205.0649	9.0498	J993/10	-	3	12
P/2005 JQ5 (Catalina)	2014-May-29.9733	0.6935	0.8259	95.8076	222.7399	5.6916	20	3	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
16P/Brooks 2	2014-Jun-07.6751	0.5628	1.4663	159.3049	219.6556	4.2581	K013/4	0	3	12
P/2004 X1 (LINEAR)	2014-Jul-09.7376	0.7262	0.7843	7.1210	345.4603	5.1372	9	6	1	-
75P/Kohoutek	2014-Jul-10.9079	0.4964	1.7850	269.6571	175.6025	5.9128	J873/16	-	2	12
72P/Denning-Fujikawa	2014-Jul-11.4275	0.8191	0.7842	36.1154	337.8403	9.1684	17	0	11	12
106P/Schuster	2014-Jul-20.1470	0.5884	1.5460	50.5438	355.9155	20.1487	13	-	4	12
P/2003 O3 (LINEAR)	2014-Jul-24.8777	0.5971	1.2532	341.4619	0.7477	8.3489	17	4	1	-
11P/Tempel-Swift-LINEAR	2014-Aug-26.7622	0.5459	1.5486	240.4367	164.0640	13.5758	K0116/15	0	15	12
P/2001 BB50 (LINEAR-NEAT)	2014-Sep-03.5570	0.5873	2.3625	351.1844	193.4831	10.3673	35	4	1	-
170P/Christensen	2014-Sep-18.1606	0.3046	2.9206	142.9198	225.8394	10.1284	10	2	1	-
P/2003 K2 (Christensen)	2014-Sep-23.6813	0.8337	0.5305	93.7860	345.9774	10.2473	9	7	1	-
P/2003 U3 (NEAT)	2014-Oct-14.4728	0.5090	2.4877	348.0225	357.0028	7.0037	10	5	1	-
32P/Comas Sola	2014-Oct-17.5832	0.5563	2.0012	57.8491	53.3364	9.9698	K053/18	1	3	123
108P/Ciffreo	2014-Oct-18.4232	0.5431	1.7088	53.6707	358.0737	13.0975	15	-	3	12
70P/Kojima	2014-Oct-20.7683	0.4541	2.0068	119.2724	1.9907	6.6003	16	0	5	-
135P/Shoemaker-Levy 8	2014-Nov-01.5944	0.2951	2.6797	213.1035	21.9473	6.0620	11	-	-	-
80P/Peters-Hartley	2014-Nov-10.0516	0.5990	1.6127	259.8901	339.1333	29.9222	15	3	2	123
P/2005 Q4 (LINEAR)	2014-Nov-10.3088	0.6008	1.7384	11.2992	51.0151	17.6489	2	8	1	-
P/1996 A1 (Jedicke)	2014-Nov-15.3394	0.4431	4.0794	248.7175	223.3754	6.6023	13	-	-	-
40P/Vaisala 1	2014-Nov-15.8132	0.6316	1.8196	133.8402	47.2723	11.4928	K045/7	0	5	123
P/2004 V1 (Skiff)	2014-Nov-19.1427	0.6958	1.4031	241.9937	144.9898	11.5322	14	5	1	-
P/2001 Q5 (LINEAR-NEAT)	2014-Nov-25.8193	0.3945	2.1661	335.1968	8.4421	10.6878	17	4	1	-
110P/Hartley 3	2014-Dec-17.7852	0.3145	2.4754	287.7143	167.7520	11.6935	31	1	3	12
15P/Finlay	2014-Dec-27.0874	0.7202	0.9759	13.7800	347.5524	6.7979	K024/10	0	4	12
P/2001 R1 (LONEOS)	2015-Jan-16.1837	0.6129	1.3392	35.2354	25.0593	7.0334	23	5	1	-
7P/Pons-Winnecke	2015-Jan-30.5285	0.6375	1.2392	93.4158	172.5067	22.3348	K027/23	0	7	123T
92P/Sanguin	2015-Mar-01.2456	0.6595	1.8255	181.4579	163.8027	19.4436	24	1	3	123
6P/d'Arrest	2015-Mar-02.4269	0.6114	1.3615	138.9322	178.1217	19.4815	K024/45	-	3	12T
44P/Reinmuth 2	2015-Mar-24.1993	0.4265	2.1186	286.4649	58.2835	5.8952	K014/2	0	4	12
86P/Wild 3	2015-Apr-03.3403	0.3719	2.2635	72.4098	179.1391	15.4724	12	0	4	12
88P/Howell	2015-Apr-06.2079	0.5630	1.3586	56.6935	235.9279	4.3821	K043/13	1	3	123
42P/Neujmin 3	2015-Apr-08.2416	0.5841	2.0279	150.2802	147.1363	3.9845	K044/16	2	4	12T
113P/Spitaler	2015-Apr-23.7458	0.4245	2.1188	14.3868	50.0192	5.7760	25	0	16	-
P/2003 H4 (LINEAR)	2015-Apr-24.2488	0.6216	1.1717	172.4981	63.2026	2.5961	10	4	1	-
P/1997 T3 (Lagerkvist-Carsenty)	2015-May-08.5807	0.3634	4.2258	63.1303	334.0639	4.8477	21	-	-	-
57P/duToit-Neujmin-Delporte-A	2015-May-22.2235	0.4993	1.7288	188.8068	115.2080	2.8480	K023/3	1	3	123

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
57P/duToit-Neujmin-Delporte	2015-May-22.3129	0.4993	1.7289	188.8038	115.2261	2.8478	J964/1	2	5	123
19P/Borrelly	2015-May-29.1771	0.6254	1.3490	75.3767	353.4594	30.3681	K012/142	0	2	12
148P/Anderson-LINEAR	2015-Jun-13.8021	0.5395	1.6919	89.7778	6.7078	3.6820	12	0	6	-
P/2004 K2 (McNaught)	2015-Jun-13.8827	0.5014	1.5540	150.1136	180.6701	8.1253	18	4	1	-
P/2000 U6 (Tichy)	2015-Jun-15.1399	0.4344	2.1351	24.2563	11.9617	19.3780	18	4	1	-
162P/Siding Spring	2015-Jul-11.9908	0.5951	1.2374	31.2129	356.4095	27.7863	45	0	3	-
P/2002 JN16 (LINEAR)	2015-Jul-12.0241	0.4918	1.7583	229.7562	39.9483	11.4234	34	4	1	-
P/2004 FY140 (LINEAR)	2015-Jul-24.8360	0.1703	4.0593	326.7856	241.9648	2.1370	3	4	1	-
140P/Bowell-Skiff	2015-Aug-08.6361	0.6920	1.9878	343.4033	172.9335	3.8209	25	-	-	-
51P/Harrington-A	2015-Aug-11.5593	0.5424	1.6993	83.6798	269.3116	5.4262	K013/32	0	3	12
51P/Harrington	2015-Aug-12.9414	0.5424	1.6996	83.7226	269.2892	5.4264	J943/5	1	3	12
67P/Churyumov-Gerasimenko	2015-Aug-13.0930	0.6409	1.2432	50.1383	12.7928	7.0404	K023/22	1	3	123T
P/2004 R1 (McNaught)	2015-Aug-14.3407	0.6850	0.9767	295.9399	0.7548	4.9006	13	6	1	-
141P/Machholz 2-A	2015-Aug-24.9057	0.7482	0.7609	246.0143	149.4847	12.8090	75	2	3	123
141P/Machholz 2-D	2015-Sep-03.4837	0.7485	0.7611	246.0129	149.4346	12.8098	11	-	2	12
61P/Shajn-Schaldach	2015-Oct-02.2282	0.4258	2.1139	163.0243	221.9068	6.0051	K015/12	0	5	12
151P/Helin	2015-Oct-08.1170	0.5722	2.4738	143.1570	216.2714	4.7197	16	0	1	-
P/2001 H5 (NEAT)	2015-Oct-21.7611	0.6003	2.4357	328.6939	224.7328	8.3815	9	5	1	-
P/1994 N2 (McNaught-Hartley)	2015-Oct-24.5149	0.6743	2.4480	35.7222	313.2326	17.8713	3	4	1	-
22P/Kopff	2015-Oct-25.0200	0.5477	1.5582	120.8794	162.8922	4.7374	K023/85	1	3	12
P/2002 CW134 (LINEAR)	2015-Nov-13.3060	0.4876	1.8515	348.2670	190.2452	15.2058	10	5	1	-
10P/Tempel 2	2015-Nov-14.2596	0.5374	1.4177	117.8048	195.5461	12.0290	K0512/19	0	12	123
P/2003 WC7 (LINEAR-Catalina)	2015-Dec-04.8539	0.6797	1.6596	88.7752	342.3795	21.4614	6	5	1	-
P/2001 TU80 (LINEAR-NEAT)	2015-Dec-12.2240	0.4722	1.9296	109.0692	355.0810	6.5889	14	4	1	-
P/2001 K1 (NEAT)	2015-Dec-13.1895	0.3552	2.4892	84.5844	94.8655	16.8695	17	4	1	-
P/2002 Q1 (Van Ness)	2015-Dec-13.4279	0.5626	1.5603	173.9633	185.0966	36.2148	5	6	1	-
P/1998 QP54 (LONEOS-Tucker)	2015-Dec-26.2308	0.5513	1.8866	341.5992	30.6150	17.6493	20	4	1	-
116P/Wild 4	2016-Jan-11.7918	0.3725	2.1871	20.9886	173.3230	3.6086	88	1	3	123T
50P/Arend	2016-Feb-08.1789	0.5302	1.9188	355.1775	49.2225	19.1392	31	0	6	12
147P/Kushida-Muramatsu	2016-Feb-27.9250	0.2772	2.7465	93.7068	347.0997	2.3677	K012/1	1	1	-
P/2000 B3 (LINEAR)	2016-Mar-02.1772	0.5755	1.6977	351.9940	130.7129	11.1380	47	5	1	-
P/2000 G1 (LINEAR)	2016-Mar-15.5576	0.6733	0.9961	190.9519	343.3189	10.4253	20	5	1	-
127P/Holt-Olmstead	2016-Mar-17.8170	0.3606	2.2059	13.6497	6.7052	14.3028	8	1	3	-
104P/Kowal 2	2016-Mar-26.1824	0.6381	1.1796	235.4316	200.6799	10.2605	K043/16	2	2	123T
100P/Hartley 1	2016-Apr-02.0296	0.4135	2.0106	37.7251	181.8631	25.5892	K033/11	0	2	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/1998 U2 (Mueller)	2016-Apr-07.1681	0.5208	2.0331	335.5565	50.4111	2.1727	13	-	-	-
53P/Van Biesbroeck	2016-Apr-29.9327	0.5516	2.4271	148.9230	134.1969	6.6084	52	0	4	12T
77P/Longmore	2016-May-13.6404	0.3537	2.3377	14.8039	196.7271	24.3458	11	0	4	12
P/2003 XD10 (LINEAR-NEAT)	2016-May-25.2901	0.4159	1.9937	40.4756	16.3188	13.4259	5	5	1	-
P/2001 CV8 (LINEAR)	2016-May-31.2200	0.4455	2.1497	359.8742	151.5731	9.0477	21	4	1	-
136P/Mueller 3	2016-May-31.2390	0.2912	2.9791	137.4507	225.1712	9.4157	16	1	2	-
157P/Tritton	2016-Jun-10.3877	0.6015	1.3581	299.9997	148.9052	7.2849	19	0	5	-
P/2001 X2 (Scotti)	2016-Jun-11.2497	0.3321	2.5182	194.5236	255.7386	2.1882	41	4	1	-
118P/Shoemaker-Levy 4	2016-Jun-17.0156	0.4281	1.9801	151.7237	302.3441	8.5134	38	1	3	123T
146P/Shoemaker-LINEAR	2016-Jun-30.2863	0.6460	1.4301	53.4548	316.9839	23.0719	15	0	3	-
P/2001 J1 (NEAT)	2016-Jul-02.4791	0.7582	0.9374	200.5427	271.2859	10.1622	46	5	1	-
56P/Slaughter-Burnham	2016-Jul-18.4378	0.5066	2.5086	345.9855	44.2203	8.1478	K053/28	0	3	-
81P/Wild 2	2016-Jul-20.3634	0.5384	1.5922	136.1234	41.6995	3.2389	K033/48	0	3	123T
150P/LONEOS	2016-Jul-24.9385	0.5470	1.7597	272.4268	245.6777	18.5062	18	0	4	-
9P/Tempel 1	2016-Aug-02.3973	0.5096	1.5425	68.7497	179.2044	10.4737	K051/17	1	1	123
P/2002 T1 (LINEAR)	2016-Aug-16.9045	0.6376	1.3245	14.1819	3.9241	21.3350	31	4	1	-
43P/Wolf-Harrington	2016-Aug-19.6525	0.5945	1.3579	249.8334	191.5967	15.9651	K043/34	0	3	12T
33P/Daniel	2016-Aug-22.4858	0.4630	2.1602	66.4908	19.0705	22.3942	K004/3	-	3	12
144P/Kushida	2016-Aug-31.1431	0.6289	1.4314	245.4920	216.1558	4.1150	3	2	1	-
P/1999 V1 (Catalina)	2016-Aug-31.2054	0.5507	2.9530	294.3753	186.9399	15.5648	32	4	1	-
P/1997 G1 (Montani)	2016-Oct-08.9978	0.4170	4.2338	267.7056	213.7455	3.9787	18	-	-	-
94P/Russell 4	2016-Oct-27.6887	0.3648	2.2300	70.8817	92.7762	6.1855	26	2	4	12
P/2005 S3 (Read)	2016-Nov-01.9429	0.4203	2.8351	273.5158	137.0896	3.4756	4	9	1	-
P/2004 VR8 (LONEOS)	2016-Dec-07.8449	0.5172	2.4207	69.5537	67.1917	17.9148	26	3	1	-
P/2003 A1 (LINEAR)	2016-Dec-14.1480	0.5014	1.9123	54.0171	340.4678	44.2703	11	6	1	-
89P/Russell 2	2016-Dec-14.7200	0.4080	2.2205	41.4450	250.1535	12.0766	13	0	4	-
45P/Honda-Mrkos-Pajdusakova	2016-Dec-30.9634	0.8239	0.5326	89.0074	326.2670	4.2504	K013/6	0	3	12
128P/Shoemaker-Holt 1-A	2017-Jan-10.7814	0.3212	3.0559	214.2921	210.5722	4.3644	10	1	1	-
128P/Shoemaker-Holt 1-B	2017-Jan-10.7919	0.3212	3.0559	214.2922	210.5763	4.3645	17	-	-	-
P/2003 SQ215 (NEAT-LONEOS)	2017-Jan-30.7393	0.5838	2.2802	257.2397	137.5423	5.5820	15	6	1	-
P/1998 S1 (LINEAR-Mueller)	2017-Feb-17.0079	0.4149	2.5651	358.9816	26.7717	10.5113	25	3	1	-
P/2002 LZ11 (LINEAR)	2017-Feb-21.3422	0.3525	2.3652	231.0252	107.4097	11.5290	19	4	1	-
93P/Lovas 1	2017-Mar-01.4563	0.6127	1.7002	339.6279	74.8983	12.2043	36	0	3	123T
2P/Encke	2017-Mar-10.0940	0.8483	0.3359	334.5588	186.5641	11.7782	K033/15	1	3	123
172P/Yeung	2017-Mar-13.0626	0.2072	3.3369	30.8901	209.1251	11.2374	9	1	2	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
73P/Schwassmann-Wachmann 3	2017-Mar-16.7406	0.6855	0.9722	69.6628	199.3921	11.2357	J954/19	0	4	12
73P/Schwassmann-Wachmann 3-C	2017-Mar-17.5004	0.6856	0.9721	69.6657	199.3786	11.2384	K012/19	2	2	123
73P/Schwassmann-Wachmann 3-E	2017-Mar-24.7528	0.6861	0.9713	69.6640	199.3381	11.2481	K013/11	0	3	12
73P/Schwassmann-Wachmann 3-B	2017-Mar-27.8867	0.6865	0.9711	69.6696	199.3811	11.2494	9	0	2	12
41P/Tuttle-Giacobini-Kresak	2017-Apr-11.2868	0.6611	1.0451	141.0625	62.1580	9.2288	K013/19	0	3	12
P/2001 WF2 (LONEOS)	2017-Apr-11.7817	0.6596	1.0083	72.7948	53.8796	16.2408	46	4	1	-
54P/de Vico-Swift-NEAT	2017-Apr-15.2727	0.4245	2.1848	358.8533	1.8598	6.0572	18	0	15	12
103P/Hartley 2	2017-Apr-20.4858	0.6935	1.0659	219.7232	181.3023	13.5939	49	1	3	123T
P/2001 F1 (NEAT)	2017-May-05.6917	0.3596	4.1845	92.6534	80.5148	19.0540	25	3	1	-
47P/Ashbrook-Jackson	2017-Jun-10.1579	0.3171	2.8182	356.9744	357.6669	13.0303	40	0	8	12
P/1999 XN120 (Catalina)	2017-Jun-12.6031	0.2116	3.2972	285.2921	162.0382	5.0288	32	4	1	-
90P/Gehrels 1	2017-Jun-19.1771	0.5097	2.9750	13.2518	29.2538	9.6354	20	0	3	-
P/2004 EW38 (Catalina-LINEAR)	2017-Jun-22.1360	0.5011	1.7879	49.8000	90.2614	6.5272	6	4	1	-
P/2000 S1 (Skiff)	2017-Jun-24.9659	0.6174	2.5361	28.1573	309.0923	21.0183	22	4	1	-
71P/Clark	2017-Jul-01.7915	0.4945	1.5862	59.4433	208.9317	9.4431	K002/6	-	2	12
P/2001 MD7 (LINEAR)	2017-Jul-16.4376	0.6878	1.2354	125.4541	246.9540	12.8562	49	3	1	-
P/2004 HC18 (LINEAR)	2017-Jul-16.6846	0.5059	1.7325	219.4063	31.1487	23.4214	19	3	1	-
P/2002 O5 (NEAT)	2017-Aug-07.2054	0.5883	1.2132	281.7542	16.2067	20.0684	33	5	1	-
30P/Reinmuth 1	2017-Aug-19.1706	0.5021	1.8767	119.7036	13.2923	8.1288	K027/19	0	7	12
145P/Shoemaker-Levy 5	2017-Aug-31.9311	0.5408	1.9041	26.8107	10.3678	11.2599	13	0	2	-
P/2005 R2 (Van Ness)	2017-Sep-29.2501	0.4087	1.9796	311.2975	5.6570	10.3788	4	5	1	-
P/2004 T1 (LINEAR-NEAT)	2017-Oct-13.3939	0.5065	1.7160	51.4590	336.3452	11.0329	19	4	1	-
65P/Gunn	2017-Oct-16.8333	0.2500	2.9101	62.0197	213.5414	9.1849	K034/21	0	4	123T
96P/Machholz 1	2017-Oct-27.9519	0.9592	0.1239	94.2544	14.7928	58.1377	41	0	4	12
P/1999 DN3 (Korlevic-Juric)	2017-Nov-14.5025	0.1373	3.8730	5.8459	161.3582	18.7529	10	4	1	-
62P/Tsuchinshan 1	2017-Nov-16.1932	0.5975	1.3838	90.2420	30.3533	9.7077	K044/15	0	4	123T
24P/Schaumasse	2017-Nov-16.8490	0.7046	1.2063	79.6299	58.0579	11.7346	K014/19	1	3	12
P/2003 UY275 (LINEAR)	2017-Nov-21.4783	0.5080	1.8373	245.6708	119.2623	16.3329	6	4	1	-
14P/Wolf	2017-Dec-02.0009	0.3560	2.7430	202.1161	159.0239	27.9031	K007/18	0	7	-
139P/Vaisala-Oterma	2017-Dec-10.7346	0.2463	3.4143	242.2072	166.0681	2.3325	20	-	-	-
P/1998 VS24 (LINEAR)	2018-Jan-19.1919	0.2417	3.4387	159.0530	244.9501	5.0224	9	4	1	-
130P/McNaught-Hughes	2018-Jan-21.7715	0.4608	1.8236	70.2461	245.9167	6.0647	29	1	2	12
P/2003 KV2 (LINEAR)	2018-Jan-26.7315	0.6300	1.0599	66.3955	188.6833	25.5551	24	5	1	-
74P/Smirnova-Chernykh	2018-Jan-26.7341	0.1493	3.5365	77.0556	87.1360	6.6539	K093/1	0	2	-
P/2001 Q2 (Petriew)	2018-Jan-27.6763	0.6989	0.9338	214.0995	181.9195	13.9942	28	4	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
169P/NEAT	2018-Apr-29.6015	0.7680	0.6036	176.0864	218.0887	11.2956	47	0	4	-
37P/Forbes	2018-May-04.0908	0.5341	1.6103	314.5909	329.9798	8.9563	K055/12	1	5	123T
143P/Kowal-Mrkos	2018-May-07.3027	0.4107	2.5323	245.3027	320.8685	4.6959	21	1	3	-
66P/du Toit	2018-May-19.1447	0.7869	1.2901	21.8963	257.2133	18.6748	48	0	5	12
P/2002 X2 (NEAT)	2018-May-19.4805	0.4484	2.1376	74.9311	352.0367	23.5195	11	4	1	-
159P/LONEOS	2018-May-22.8007	0.3816	3.6252	55.0241	4.7623	23.4627	23	1	2	-
P/1999 J5 (LINEAR)	2018-May-27.5608	0.1562	3.8797	109.9929	133.2341	13.6042	12	4	1	-
164P/Christensen	2018-May-31.3852	0.5397	1.6853	88.3052	325.9315	16.2526	20	1	2	-
P/2001 T3 (NEAT)	2018-Jun-10.5525	0.6145	2.4853	55.1634	356.7818	19.3974	18	4	1	-
P/2002 EJ57 (LINEAR)	2018-Jun-18.4121	0.5934	2.6272	330.4324	167.0246	4.9768	4	5	1	-
82P/Gehrels 3	2018-Jun-28.6093	0.1225	3.6342	239.3129	227.1950	1.1282	12	0	4	-
49P/Arend-Rigaux	2018-Jul-15.4943	0.5994	1.4296	118.8242	332.8880	19.0432	56	0	9	12
P/2005 JN (Spacewatch)	2018-Jul-23.1989	0.3494	2.2770	70.7665	153.4215	8.8569	7	5	1	-
105P/Singer Brewster	2018-Aug-10.3155	0.4105	2.0445	192.4287	46.4756	9.1747	30	1	3	123T
48P/Johnson	2018-Aug-12.1983	0.4270	2.0045	110.1337	216.5613	12.2070	41	0	8	12
P/2003 S2 (NEAT)	2018-Aug-26.5441	0.3594	2.4543	87.6597	283.5414	7.6414	20	3	1	-
125P/Spacewatch	2018-Aug-27.9154	0.5135	1.5202	153.1781	87.1785	9.9888	10	0	2	-
P/2005 R1 (NEAT)	2018-Sep-09.5300	0.6256	2.0674	257.9731	118.8083	15.4832	5	6	1	-
21P/Giacobini-Zinner	2018-Sep-10.5266	0.7105	1.0128	195.3927	172.8616	31.9979	K054/12	1	4	123T
79P/du Toit-Hartley	2018-Sep-13.4374	0.6192	1.1209	280.5089	281.8668	3.1478	K035/3	0	4	12
59P/Kearns-Kwee	2018-Sep-16.7826	0.4753	2.3588	312.8281	127.7134	9.3393	J993/27	-	2	12
26P/Grigg-Skjellerup	2018-Oct-01.8190	0.6410	1.0823	211.5340	2.2006	22.4498	J978/18	-	8	12
P/2001 R6 (LINEAR-Skiff)	2018-Oct-03.9591	0.4759	2.1911	67.3357	308.4714	17.3791	16	4	1	-
P/2005 J1 (McNaught)	2018-Oct-12.7528	0.5704	1.5334	268.7959	338.9246	31.7685	9	4	1	-
P/2005 JQ5 (Catalina)	2018-Nov-02.2117	0.6915	0.8328	95.6738	222.8544	5.6761	20	3	1	-
64P/Swift-Gehrels	2018-Nov-03.7262	0.6875	1.3932	299.9947	97.1518	8.9487	14	0	4	12
38P/Stephan-Oterma	2018-Nov-10.9712	0.8593	1.5886	77.9997	359.5816	18.3530	10	-	4	12
P/1998 X1 (ODAS)	2018-Dec-10.6457	0.4429	2.0062	358.5083	69.0499	1.3405	20	4	1	-
60P/Tsuchinshan 2	2018-Dec-11.2070	0.5378	1.6226	267.5836	216.5504	3.6065	J995/7	2	5	123T
46P/Wirtanen	2018-Dec-12.9679	0.6588	1.0554	82.1586	356.3530	11.7468	K023/22	0	3	123T
137P/Shoemaker-Levy 2	2018-Dec-13.3891	0.5729	1.9302	233.0797	141.0169	4.8538	11	0	2	-
P/1999 XB69 (LINEAR)	2019-Jan-10.8577	0.6311	1.6495	255.9080	220.3793	11.3055	9	4	1	-
171P/Spahr	2019-Jan-14.0580	0.5020	1.7723	101.6962	347.1511	21.9329	19	0	2	-
131P/Mueller 2	2019-Jan-24.2144	0.3433	2.4175	214.1920	179.0761	7.3540	26	2	3	123
P/2002 S1 (Skiff)	2019-Jan-27.4344	0.4154	2.4309	346.7929	37.8259	27.0139	18	4	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
123P/West-Hartley	2019-Feb-05.1380	0.4486	2.1269	46.5002	103.0192	15.3594	56	1	3	123
P/1996 R2 (Lagerkvist)	2019-Feb-11.9290	0.3135	2.5902	40.0535	333.2916	2.6008	17	4	1	-
149P/Mueller 4	2019-Feb-16.9841	0.3899	2.6335	145.2339	43.7940	29.7709	7	1	2	-
29P/Schwassmann-Wachmann 1	2019-Mar-07.7493	0.0430	5.7668	312.3947	47.7739	9.3683	K043/7	0	3	-
69P/Taylor	2019-Mar-17.9192	0.4135	2.2819	104.8374	343.6342	22.0338	K043/15	2	3	123T
78P/Gehrels 2	2019-Apr-02.7701	0.4616	2.0138	210.5483	192.6863	6.2488	K043/37	1	3	123
138P/Shoemaker-Levy 7	2019-May-02.8084	0.5301	1.7028	309.3313	95.6145	10.0896	7	-	-	-
P/2004 X1 (LINEAR)	2019-Jun-11.7842	0.7148	0.8272	6.8276	346.1902	5.0944	9	6	1	-
P/2004 CB (LINEAR)	2019-Jun-12.6028	0.6733	0.9675	62.7698	152.5048	21.2605	32	3	1	-
P/2003 CP7 (LINEAR-NEAT)	2019-Jun-15.0519	0.2476	3.0226	133.0294	42.7516	12.3342	10	4	1	-
P/2000 R2 (LINEAR)	2019-Jun-16.2491	0.5311	1.6244	160.2770	176.5289	11.6918	8	6	1	-
P/2005 N3 (Larson)	2019-Jun-19.1911	0.4228	2.0131	291.1185	67.1599	6.0745	8	4	1	-
P/1999 RO28 (LONEOS)	2019-Jul-01.6708	0.6723	1.1232	136.9298	232.2101	7.5156	12	5	1	-
31P/Schwassmann-Wachmann 2	2019-Jul-06.1652	0.1929	3.4254	114.1133	18.3531	4.5471	K023/8	0	2	12
P/1997 V1 (Larsen)	2019-Jul-31.3939	0.3319	3.2972	234.8008	134.0213	12.1064	11	4	1	-
168P/Hergenrother	2019-Aug-04.3643	0.6204	1.3591	355.4789	15.0182	21.6159	33	0	1	-
163P/NEAT	2019-Aug-05.2026	0.4520	2.0666	102.0924	349.6975	12.7075	28	3	3	12
P/2004 H3 (Larsen)	2019-Aug-08.1060	0.3740	2.4387	220.9032	346.5780	25.1586	6	5	1	-
P/2005 K3 (McNaught)	2019-Sep-09.9220	0.6088	1.4167	349.3559	18.3889	15.0525	15	4	1	-
P/2000 S4 (LINEAR-Spacewatch)	2019-Sep-23.3715	0.6813	2.2654	173.7987	173.0876	28.3775	7	5	1	-
P/2005 GF8 (LONEOS)	2019-Sep-30.6956	0.5172	2.8309	314.8882	285.4004	1.1923	11	4	1	-
P/2000 C1 (Hergenrother)	2019-Oct-01.0360	0.4322	1.9459	123.5110	56.2220	6.0770	15	4	1	-
76P/West-Kohoutek-Ikemura	2019-Oct-26.1756	0.5382	1.6048	84.1254	0.0286	30.4566	K004/2	2	4	12
68P/Klemola	2019-Nov-09.0455	0.6375	1.7938	175.0824	153.0590	11.1108	19	0	4	12
P/2003 F2 (NEAT)	2019-Nov-11.9799	0.5419	2.9700	359.0912	191.8252	11.6060	4	5	1	-
155P/Shoemaker 3	2019-Nov-15.1995	0.7266	1.8018	97.1979	14.6667	6.3959	31	0	2	-
P/2002 O8 (NEAT)	2019-Nov-19.9799	0.1670	3.6082	56.7343	262.0319	10.5887	11	3	1	-
160P/LINEAR	2019-Dec-02.1891	0.5261	1.7873	333.3687	12.6402	15.6159	14	1	2	-
101P/Chernykh	2020-Jan-12.7380	0.5955	2.3449	116.2236	277.7125	5.0529	K052/4	1	1	-
114P/Wiseman-Skiff	2020-Jan-14.0858	0.5548	1.5794	271.0599	172.8190	18.2723	26	0	3	-
P/2003 O3 (LINEAR)	2020-Jan-23.0339	0.5932	1.2699	341.3840	0.8008	8.3105	17	4	1	-
112P/Urata-Niijima	2020-Feb-07.9209	0.5897	1.4466	31.8500	21.5014	24.1907	14	0	2	-
P/1999 WJ7 (Korlevic)	2020-Mar-05.7394	0.3150	3.1998	290.3492	154.8837	2.9733	45	3	1	-
P/2001 YX127 (LINEAR)	2020-Mar-11.3378	0.1770	3.4359	30.9889	115.3025	7.9096	18	3	1	-
P/2004 WR9 (LINEAR)	2020-Apr-03.0509	0.6830	1.9503	24.8850	72.0071	4.9293	14	4	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
124P/Mrkos	2020-Apr-26.8920	0.5035	1.6475	0.3708	183.8554	31.5129	18	1	2	-
87P/Bus	2020-May-09.2270	0.3892	2.0999	181.8631	24.9415	2.6022	8	-	3	12
58P/Jackson-Neujmin	2020-May-25.0505	0.6625	1.3775	159.0638	200.4638	13.1017	6	0	4	12
36P/Whipple	2020-May-31.6303	0.2684	3.0216	181.8635	200.7697	9.9527	K037/37	0	6	12
P/2003 K2 (Christensen)	2020-Jun-02.1354	0.8348	0.5256	93.7945	346.0942	10.2781	9	7	1	-
84P/Giclas	2020-Jun-03.8193	0.5154	1.7189	108.1759	281.5616	7.5524	29	0	10	-
2P/Encke	2020-Jun-25.8455	0.8480	0.3367	334.5509	186.5631	11.7647	K033/15	1	3	123
P/2003 L1 (Scotti)	2020-Jul-11.4712	0.2528	5.0166	226.0596	355.0010	9.0219	3	4	1	-
P/1999 X1 (Hug-Bell)	2020-Jul-17.2728	0.4818	1.8812	102.8718	297.7927	11.0905	8	5	1	-
85P/Boethin	2020-Jul-29.5030	0.7758	1.1290	333.0185	65.3070	4.1735	12	0	1	-
115P/Maury	2020-Jul-29.8223	0.5191	2.0569	176.0192	121.0200	11.6743	12	0	3	-
P/2005 JY126 (Catalina)	2020-Sep-11.1511	0.4308	2.1424	207.7380	117.6488	20.2217	11	4	1	-
88P/Howell	2020-Sep-26.4697	0.5643	1.3531	56.6751	235.9278	4.3829	K043/13	1	3	123
P/2003 H4 (LINEAR)	2020-Oct-05.5708	0.6219	1.1702	172.4493	63.3225	2.5968	10	4	1	-
91P/Russell 3	2020-Nov-09.3842	0.3306	2.6041	247.8274	354.7880	14.0917	23	1	3	12
156P/Russell-LINEAR	2020-Nov-17.8744	0.6147	1.3330	35.3696	0.4276	17.2635	14	0	3	-
11P/Tempel-Swift-LINEAR	2020-Nov-25.9967	0.5769	1.3890	238.9198	167.9354	14.4188	K0116/15	0	15	12
162P/Siding Spring	2020-Dec-07.8196	0.5829	1.2891	30.9111	357.1343	27.5549	45	0	3	-
P/2004 K2 (McNaught)	2020-Dec-10.8233	0.5018	1.5524	150.1025	180.5319	8.1288	18	4	1	-
141P/Machholz 2-A	2020-Dec-16.0333	0.7357	0.8080	241.8416	153.5616	13.9460	75	2	3	123
141P/Machholz 2-D	2020-Dec-31.3578	0.7363	0.8074	242.0635	153.3180	13.8488	11	-	2	12
98P/Takamizawa	2021-Jan-04.8881	0.5622	1.6631	114.7110	157.9219	10.5613	13	2	2	12
102P/Shoemaker 1	2021-Jan-23.4849	0.4574	2.0691	339.3657	20.5389	25.8879	21	2	1	-
P/2004 R1 (McNaught)	2021-Jan-26.7215	0.6861	0.9719	295.9248	0.7817	4.9102	13	6	1	-
P/2003 O2 (LINEAR)	2021-Feb-08.6883	0.6474	1.4990	342.9244	33.4256	14.3645	23	4	1	-
17P/Holmes	2021-Feb-19.7269	0.4278	2.0807	326.6205	24.4689	19.0319	K006/9	-	6	12
P/2004 F3 (NEAT)	2021-Feb-23.1425	0.2869	2.8639	78.7473	176.2986	15.9869	36	3	1	-
75P/Kohoutek	2021-Mar-06.9817	0.4983	1.7750	269.6050	175.5434	5.9211	J873/16	-	2	12
28P/Neujmin 1	2021-Mar-11.8844	0.7739	1.5783	346.3325	347.4110	14.3117	23	0	3	-
10P/Tempel 2	2021-Mar-24.2850	0.5386	1.4125	117.8094	195.5073	12.0398	K0512/19	0	12	123
16P/Brooks 2	2021-Apr-18.4395	0.4863	1.8780	138.9110	245.1347	3.0132	K013/4	0	3	12
120P/Mueller 1	2021-May-07.1222	0.3745	2.4778	358.6690	36.5593	8.4895	14	0	3	-
158P/Kowal-LINEAR	2021-May-10.9058	0.0355	4.7991	135.5246	172.1595	8.0169	8	1	3	-
142P/Ge-Wang	2021-May-12.8111	0.4977	2.5131	175.9341	173.9665	12.2511	12	2	1	-
83P/Russell 1	2021-May-23.2545	0.4426	2.1419	226.2884	334.3678	17.8276	7	1	2	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
7P/Pons-Winnecke	2021-May-27.1118	0.6385	1.2342	93.3750	172.5957	22.3634	K027/23	0	7	123T
P/2001 R1 (LONEOS)	2021-May-28.8374	0.6371	1.2171	19.1069	42.1611	5.6969	23	5	1	-
111P/Helin-Roman-Crockett	2021-Jun-15.6552	0.1060	3.7076	89.7665	0.9940	4.2269	6	0	2	-
P/2000 G1 (LINEAR)	2021-Jul-11.1261	0.6720	1.0006	190.9454	343.3080	10.4117	20	5	1	-
15P/Finlay	2021-Jul-13.6543	0.7171	0.9920	13.7168	347.8221	6.7963	K024/10	0	4	12
P/1999 U3 (LINEAR)	2021-Jul-26.2439	0.6099	1.9174	305.4837	111.4301	21.1069	17	4	1	-
106P/Schuster	2021-Aug-18.7594	0.5937	1.5286	48.8859	353.6665	19.5364	13	-	4	12
P/2001 Q5 (LINEAR-NEAT)	2021-Aug-27.0475	0.3945	2.1678	335.1778	8.1077	10.6894	17	4	1	-
8P/Tuttle	2021-Aug-27.6066	0.8202	1.0260	270.2038	207.4880	54.9109	J943/10	-	2	12
4P/Faye	2021-Sep-08.8964	0.5766	1.6188	192.9368	206.9893	8.0088	J993/10	-	3	12
108P/Ciffreo	2021-Sep-10.1079	0.5558	1.6603	50.2923	354.4161	11.4381	15	-	3	12
P/2004 R3 (LINEAR-NEAT)	2021-Sep-12.1957	0.2613	3.5237	305.5355	37.5631	12.7169	10	5	1	-
6P/d'Arrest	2021-Sep-17.7886	0.6128	1.3546	138.9344	178.1039	19.5120	K024/45	-	3	12T
52P/Harrington-Abell	2021-Oct-05.1845	0.5401	1.7772	336.8377	139.5904	10.2317	J994/2	0	4	12
57P/duToit-Neujmin-Delporte-A	2021-Oct-17.3333	0.5010	1.7201	188.7778	115.2377	2.8509	K023/3	1	3	123
57P/duToit-Neujmin-Delporte	2021-Oct-17.4940	0.5010	1.7202	188.7743	115.2628	2.8507	J964/1	2	5	123
110P/Hartley 3	2021-Oct-18.2841	0.3183	2.4557	287.5355	167.4477	11.7068	31	1	3	12
67P/Churyumov-Gerasimenko	2021-Nov-02.0632	0.6497	1.2106	36.3479	22.1178	3.8722	K023/22	1	3	123T
P/2005 L1 (McNaught)	2021-Nov-02.8425	0.2099	3.1426	138.2482	149.7435	7.7385	13	4	1	-
70P/Kojima	2021-Nov-03.1203	0.4537	2.0090	119.2682	1.8282	6.5980	16	0	5	-
132P/Helin-Roman-Alu 2	2021-Nov-13.1564	0.5647	1.6918	173.9975	216.3487	5.3826	19	0	2	-
P/2002 T5 (LINEAR)	2021-Dec-15.3917	0.4387	3.9379	123.0914	326.7336	30.8516	49	2	1	-
P/2002 JN16 (LINEAR)	2021-Dec-18.6413	0.4927	1.7531	229.7018	40.1176	11.4277	34	4	1	-
P/1993 W1 (Mueller 5)	2021-Dec-18.7232	0.2611	4.2172	100.4003	29.1742	16.4926	26	4	1	-
P/1991 V1 (Shoemaker-Levy 6)	2021-Dec-23.0004	0.7002	1.1603	35.2524	336.3159	17.5254	10	6	1	-
P/2005 JD108 (Catalina-NEAT)	2021-Dec-30.6190	0.3804	4.0647	223.6634	89.8260	3.2762	9	4	1	-
104P/Kowal 2	2022-Jan-08.4936	0.6650	1.0724	208.0767	226.5781	5.8279	K043/16	2	2	123T
152P/Helin-Lawrence	2022-Jan-13.6234	0.3086	3.0949	91.8579	163.9444	9.8804	31	0	2	-
19P/Borrelly	2022-Feb-02.4183	0.6375	1.3069	74.2495	351.9068	29.3148	K012/142	0	2	12
86P/Wild 3	2022-Feb-07.6411	0.3722	2.2607	72.3558	179.4060	15.4753	12	0	4	12
97P/Metcalf-Brewington	2022-Feb-15.8269	0.4600	2.5701	184.0770	229.9675	17.9533	26	-	9	12
9P/Tempel 1	2022-Mar-04.5731	0.5091	1.5442	68.7145	179.3469	10.4696	K051/17	1	1	123
22P/Kopff	2022-Mar-17.9489	0.5487	1.5524	120.8389	163.0160	4.7425	K023/85	1	3	12
P/1997 B1 (Kobayashi)	2022-Mar-28.7568	0.7605	2.0562	328.8822	183.3168	12.3392	11	3	1	-
135P/Shoemaker-Levy 8	2022-Apr-07.3472	0.2949	2.6801	213.0248	22.3229	6.0631	11	-	-	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
99P/Kowal 1	2022-Apr-12.6496	0.2292	4.7061	28.0978	174.9371	4.3398	K072/3	1	1	-
44P/Reinmuth 2	2022-Apr-23.3837	0.4278	2.1127	286.4716	58.0883	5.8959	K014/2	0	4	12
45P/Honda-Mrkos-Pajdusakova	2022-Apr-26.0200	0.8175	0.5573	87.6998	327.9154	4.3242	K013/6	0	3	12
P/2001 WF2 (LONEOS)	2022-May-12.4196	0.6632	0.9937	72.4598	54.2355	16.2270	46	4	1	-
P/2005 L4 (Christensen)	2022-May-12.9456	0.4257	2.3610	283.9556	24.8572	17.0439	9	4	1	-
P/1995 A1 (Jedicke)	2022-May-30.6558	0.3058	4.1179	115.5129	296.9262	19.8983	3	4	1	-
113P/Spitaler	2022-Jun-01.4178	0.4197	2.1417	306.6718	115.5180	5.2901	25	0	16	-
148P/Anderson-LINEAR	2022-Jun-13.7104	0.5498	1.6286	89.2032	8.0410	3.6579	12	0	6	-
117P/Helin-Roman-Alu 1	2022-Jul-07.7169	0.2555	3.0396	58.8424	222.9525	8.7040	K052/13	0	2	-
169P/NEAT	2022-Jul-09.6831	0.7683	0.6028	176.1066	218.0441	11.2990	47	0	4	-
116P/Wild 4	2022-Jul-17.4560	0.3706	2.1970	20.9755	173.2996	3.6042	88	1	3	123T
P/2004 F1 (NEAT)	2022-Jul-18.9963	0.4548	2.4324	109.4698	27.8767	18.0739	5	4	1	-
127P/Holt-Olmstead	2022-Aug-10.5063	0.3600	2.2112	13.6046	6.2910	14.3010	8	1	3	-
100P/Hartley 1	2022-Aug-10.9696	0.4121	2.0176	37.6870	181.9750	25.5662	K033/11	0	2	-
119P/Parker-Hartley	2022-Aug-11.9621	0.3882	2.3270	104.5989	322.0410	7.3888	K052/7	0	2	-
73P/Schwassmann-Wachmann 3	2022-Aug-25.8250	0.6853	0.9730	69.6113	199.4908	11.2266	J954/19	0	4	12
73P/Schwassmann-Wachmann 3-C	2022-Aug-26.6836	0.6854	0.9729	69.6144	199.4761	11.2293	K012/19	2	2	123
P/2002 O5 (NEAT)	2022-Aug-30.5576	0.5888	1.2114	281.7186	16.3232	20.0707	33	5	1	-
P/2002 Q1 (Van Ness)	2022-Sep-03.9055	0.5634	1.5560	173.9855	185.0343	36.2516	5	6	1	-
73P/Schwassmann-Wachmann 3-E	2022-Sep-06.2162	0.6860	0.9722	69.6120	199.4295	11.2386	K013/11	0	3	12
157P/Tritton	2022-Sep-09.8365	0.5564	1.5724	287.5489	155.0588	12.4299	19	0	5	-
41P/Tuttle-Giacobini-Kresak	2022-Sep-11.1841	0.6599	1.0502	140.9855	62.2077	9.2205	K013/19	0	3	12
73P/Schwassmann-Wachmann 3-B	2022-Sep-12.1638	0.6864	0.9721	69.6174	199.4889	11.2398	9	0	2	12
P/2002 CW134 (LINEAR)	2022-Sep-27.0973	0.4860	1.8610	348.2497	190.1827	15.1838	10	5	1	-
P/2003 XD10 (LINEAR-NEAT)	2022-Sep-30.9370	0.4059	2.0461	40.0415	16.6580	13.3064	5	5	1	-
51P/Harrington-A	2022-Oct-01.5915	0.5437	1.6923	83.6586	269.2809	5.4277	K013/32	0	3	12
51P/Harrington	2022-Oct-03.7777	0.5437	1.6926	83.7014	269.2631	5.4279	J943/5	1	3	12
61P/Shajn-Schaldach	2022-Oct-23.9779	0.4241	2.1258	162.9737	221.6491	5.9987	K015/12	0	5	12
P/2000 U6 (Tichy)	2022-Oct-29.7709	0.4284	2.1753	24.1119	12.0582	19.3016	18	4	1	-
P/2000 Y3 (Scotti)	2022-Nov-17.7258	0.1994	3.9201	353.9930	93.1262	2.2593	46	3	1	-
P/2001 TU80 (LINEAR-NEAT)	2022-Nov-17.7411	0.4879	1.8338	108.4941	356.6662	6.5959	14	4	1	-
118P/Shoemaker-Levy 4	2022-Nov-24.3990	0.4534	1.8290	142.0911	314.8476	10.0909	38	1	3	123T
129P/Shoemaker-Levy 3	2022-Nov-30.6477	0.0846	3.9260	184.8161	307.3980	3.4425	K052/10	0	2	-
P/2003 KV2 (LINEAR)	2022-Dec-04.9460	0.6292	1.0630	66.3640	188.7510	25.5270	24	5	1	-
80P/Peters-Hartley	2022-Dec-08.8948	0.5986	1.6153	259.7972	339.2506	29.9220	15	3	2	123

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
81P/Wild 2	2022-Dec-15.7457	0.5373	1.5984	136.0962	41.6344	3.2365	K033/48	0	3	123T
P/2003 U2 (LINEAR)	2023-Jan-14.7742	0.6189	1.7193	185.5102	178.4284	25.0364	8	5	1	-
71P/Clark	2023-Jan-25.0955	0.4938	1.5888	59.3904	209.0882	9.4360	K002/6	-	2	12
96P/Machholz 1	2023-Jan-31.0752	0.9616	0.1164	93.9541	14.7484	57.5029	41	0	4	12
P/2003 HT15 (LINEAR)	2023-Mar-12.0577	0.4180	2.7003	81.3316	124.1742	27.6189	17	4	1	-
77P/Longmore	2023-Apr-03.1095	0.3519	2.3488	14.7688	196.7301	24.3185	11	0	4	12
P/2005 JQ5 (Catalina)	2023-Apr-11.3368	0.6917	0.8321	95.6244	222.9537	5.6741	20	3	1	-
170P/Christensen	2023-Apr-20.2444	0.3055	2.9238	142.9082	225.4057	10.1185	10	2	1	-
P/2003 S1 (NEAT)	2023-May-05.3339	0.4349	2.5648	237.6507	173.5483	6.3109	19	4	1	-
94P/Russell 4	2023-May-21.1017	0.3655	2.2271	70.8548	92.4213	6.1876	26	2	4	12
72P/Denning-Fujikawa	2023-Jun-15.4358	0.8187	0.7810	26.7048	346.7249	10.9463	17	0	11	12
121P/Shoemaker-Holt 2	2023-Jun-28.6859	0.1863	3.7302	94.1156	11.6610	20.1643	33	0	3	-
126P/IRAS	2023-Jul-05.6791	0.6965	1.7105	357.8718	356.5950	45.8756	9	0	2	-
39P/Oterma	2023-Jul-11.5792	0.2105	5.7072	296.0088	103.0349	1.5470	14	0	4	-
P/2001 Q2 (Petriew)	2023-Jul-12.8508	0.6997	0.9303	214.1143	181.8896	14.0147	28	4	1	-
P/2001 K1 (NEAT)	2023-Jul-12.8622	0.3535	2.5007	84.5665	94.6626	16.8598	17	4	1	-
P/2004 H2 (Larsen)	2023-Aug-05.9163	0.4172	2.6403	131.3804	104.7456	11.7725	8	4	1	-
P/2002 T1 (LINEAR)	2023-Aug-07.9784	0.6386	1.3188	14.2045	3.9125	21.3665	31	4	1	-
P/1994 J3 (Shoemaker 4)	2023-Aug-11.6560	0.5053	2.9103	92.3440	191.7890	24.9389	2	4	1	-
P/2005 E1 (Tubbiolo)	2023-Sep-29.8290	0.3762	4.4034	335.5231	193.8745	4.2608	9	5	1	-
79P/du Toit-Hartley	2023-Sep-30.4932	0.6192	1.1210	280.5008	281.8022	3.1488	K035/3	0	4	12
P/2005 Q4 (LINEAR)	2023-Oct-12.4915	0.6071	1.6982	10.2444	50.2729	17.3189	2	8	1	-
103P/Hartley 2	2023-Oct-12.4979	0.6938	1.0640	219.7482	181.3032	13.6107	49	1	3	123T
2P/Encke	2023-Oct-22.5245	0.8469	0.3396	334.0177	187.2892	11.3365	K033/15	1	3	123
P/2005 R2 (Van Ness)	2023-Nov-17.1111	0.4092	1.9765	311.2412	5.8895	10.3814	4	5	1	-
P/2004 V3 (Siding Spring)	2023-Nov-30.4861	0.4460	3.9497	356.1265	322.6417	50.4436	9	6	1	-
147P/Kushida-Muramatsu	2023-Dec-07.2117	0.2129	3.1588	91.6467	348.5783	2.3099	K012/1	1	1	-
62P/Tsuchinshan 1	2023-Dec-25.3005	0.6245	1.2649	68.6474	47.3220	4.7346	K044/15	0	4	123T
26P/Grigg-Skjellerup	2023-Dec-25.3409	0.6406	1.0839	211.5406	2.1461	22.4330	J978/18	-	8	12
P/2001 CV8 (LINEAR)	2024-Jan-06.9645	0.4487	2.1270	359.7992	151.7088	9.0627	21	4	1	-
144P/Kushida	2024-Jan-25.6921	0.6349	1.3989	242.9203	216.3374	3.9316	3	2	1	-
P/2001 J1 (NEAT)	2024-Feb-02.6481	0.7584	0.9382	198.1607	272.9827	10.2017	46	5	1	-
P/2000 B3 (LINEAR)	2024-Feb-03.8423	0.5631	1.8001	349.5194	128.5524	11.8095	47	5	1	-
P/2004 HC18 (LINEAR)	2024-Feb-13.4745	0.5045	1.7413	219.3418	31.2193	23.3872	19	3	1	-
P/2002 LZ11 (LINEAR)	2024-Feb-14.9437	0.3540	2.3548	230.9534	107.6299	11.5404	19	4	1	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2001 Q6 (NEAT)	2024-Feb-29.2116	0.8237	1.4058	22.1858	42.9175	56.9091	47	4	1	-
125P/Spacewatch	2024-Mar-07.2358	0.5121	1.5267	153.1505	87.1403	9.9848	10	0	2	-
P/2004 EW38 (Catalina-LINEAR)	2024-Mar-08.1952	0.5274	1.6237	36.8240	105.5535	7.5075	6	4	1	-
150P/LONEOS	2024-Mar-12.4649	0.5489	1.7456	272.0592	246.1123	18.5475	18	0	4	-
89P/Russell 2	2024-Mar-26.6563	0.4078	2.2218	41.3453	250.4051	12.0721	13	0	4	-
P/2004 T1 (LINEAR-NEAT)	2024-Apr-02.5689	0.5081	1.7068	51.4324	336.3452	11.0478	19	4	1	-
130P/McNaught-Hughes	2024-Apr-14.8972	0.4609	1.8230	70.1686	246.1342	6.0629	29	1	2	12
32P/Comas Sola	2024-Apr-20.5960	0.5552	2.0246	54.5281	54.6733	9.9212	K053/18	1	3	123
12P/Pons-Brooks	2024-Apr-21.0044	0.9546	0.7808	255.8560	198.9902	74.1915	15	-	3	12
50P/Arend	2024-May-12.7571	0.5300	1.9223	355.1704	49.3473	19.0987	31	0	6	12
P/2001 X2 (Scotti)	2024-May-16.9646	0.2523	3.0673	177.4113	274.3943	2.1412	41	4	1	-
46P/Wirtanen	2024-May-19.1893	0.6588	1.0548	82.1631	356.3215	11.7502	K023/22	0	3	123T
P/2004 X1 (LINEAR)	2024-May-21.1811	0.7152	0.8256	6.7824	346.2746	5.0969	9	6	1	-
P/2004 DO29 (Spacewatch-LINEAR)	2024-Jun-03.6287	0.4423	4.0776	147.3749	40.4048	14.5252	13	4	1	-
P/1990 V1 (Shoemaker-Levy 1)	2024-Jun-06.4673	0.7729	1.4701	51.6204	312.9228	24.5850	3	5	1	-
P/2003 A1 (LINEAR)	2024-Jun-11.5869	0.5023	1.9054	54.0161	340.4224	44.3269	11	6	1	-
154P/Brewington	2024-Jun-13.1156	0.6763	1.5531	343.0204	47.9828	17.6357	24	0	1	-
13P/Olbers	2024-Jun-30.4652	0.9303	1.1755	85.8480	64.4126	44.6656	10	-	3	12
P/2004 CB (LINEAR)	2024-Jul-14.4027	0.6741	0.9644	62.7681	152.4981	21.2844	32	3	1	-
P/2002 T6 (NEAT-LINEAR)	2024-Jul-16.1306	0.5671	3.3896	205.9978	218.9514	10.8357	34	3	1	-
P/1998 QP54 (LONEOS-Tucker)	2024-Jul-31.1659	0.5528	1.8734	341.6075	30.6600	17.6736	20	4	1	-
146P/Shoemaker-LINEAR	2024-Aug-05.7679	0.6474	1.4196	53.3768	317.0788	23.1223	15	0	3	-
30P/Reinmuth 1	2024-Aug-17.1769	0.5143	1.8136	117.2353	9.4870	8.0530	K027/19	0	7	12
54P/de Vico-Swift-NEAT	2024-Sep-03.6451	0.4263	2.1719	358.7976	1.9857	6.0642	18	0	15	12
37P/Forbes	2024-Oct-11.2079	0.5328	1.6178	314.5512	330.0662	8.9474	K055/12	1	5	123T
33P/Daniel	2024-Nov-11.0473	0.4523	2.2427	66.2814	20.2898	22.2945	K004/3	-	3	12
P/2004 V1 (Skiff)	2024-Nov-16.0109	0.6940	1.4187	240.0976	147.4368	11.6719	14	5	1	-
P/1998 U2 (Mueller)	2024-Dec-23.0994	0.5223	2.0195	335.5058	50.5134	2.1747	13	-	-	-
P/1998 U4 (Spahr)	2024-Dec-23.7496	0.2827	3.9717	180.2975	244.8989	32.4284	24	3	1	-
136P/Mueller 3	2025-Jan-03.3576	0.2931	2.9584	137.4188	225.2826	9.4273	16	1	2	-
105P/Singer Brewster	2025-Jan-22.7605	0.4091	2.0521	192.3959	46.3332	9.1672	30	1	3	123T
P/2005 JN (Spacewatch)	2025-Feb-01.7973	0.3489	2.2791	70.7696	153.0482	8.8540	7	5	1	-
P/2003 UY275 (LINEAR)	2025-Feb-05.7903	0.5093	1.8279	245.5687	119.4145	16.3554	6	4	1	-
48P/Johnson	2025-Mar-02.6439	0.4266	2.0066	110.0642	216.7753	12.2018	41	0	8	12
21P/Giacobini-Zinner	2025-Mar-25.9600	0.7111	1.0089	195.3325	172.9352	32.0506	K054/12	1	4	123T

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
49P/Arend-Rigaux	2025-Apr-10.6127	0.5991	1.4313	118.7915	332.9335	19.0590	56	0	9	12
P/2001 MD7 (LINEAR)	2025-May-24.7436	0.6891	1.2264	125.3716	247.0384	12.8654	49	3	1	-
164P/Christensen	2025-May-27.3652	0.5413	1.6751	88.2683	325.9530	16.2772	20	1	2	-
65P/Gunn	2025-Jun-16.5364	0.2481	2.9263	61.9777	213.6748	9.1749	K034/21	0	4	123T
P/2005 J1 (McNaught)	2025-Jul-11.4343	0.5694	1.5393	268.8302	338.8816	31.7335	9	4	1	-
60P/Tsuchinshan 2	2025-Jul-20.5750	0.5338	1.6457	267.3970	216.9084	3.5799	J995/7	2	5	123T
P/2003 O3 (LINEAR)	2025-Aug-01.8751	0.5926	1.2730	341.3404	0.9100	8.3018	17	4	1	-
43P/Wolf-Harrington	2025-Aug-05.1181	0.4363	2.4420	243.9593	223.8481	9.2871	K043/34	0	3	12T
P/2003 QX29 (NEAT)	2025-Aug-06.9099	0.4713	4.2293	264.4842	37.6987	11.4000	8	4	1	-
171P/Spahr	2025-Sep-25.7279	0.5030	1.7664	101.6947	347.0849	21.9548	19	0	2	-
P/1998 X1 (ODAS)	2025-Oct-04.6452	0.4446	1.9951	358.4107	69.1069	1.3412	20	4	1	-
47P/Ashbrook-Jackson	2025-Oct-27.9897	0.3181	2.8074	356.8807	357.9177	13.0392	40	0	8	12
172P/Yeung	2025-Nov-02.2719	0.2051	3.3581	30.8812	208.8685	11.2222	9	1	2	-
P/1999 RO28 (LONEOS)	2025-Nov-05.9399	0.6726	1.1216	136.8400	232.3312	7.5136	12	5	1	-
40P/Vaisala 1	2025-Nov-12.0185	0.6311	1.8238	128.9006	52.0575	11.6404	K045/7	0	5	123
P/2000 R2 (LINEAR)	2025-Dec-01.7147	0.5303	1.6292	160.2216	176.6621	11.6862	8	6	1	-
P/1999 XN120 (Catalina)	2025-Dec-21.0707	0.2128	3.2981	285.2686	161.4577	5.0299	32	4	1	-
P/2002 X2 (NEAT)	2025-Dec-26.5063	0.4499	2.1253	74.9178	352.0198	23.5523	11	4	1	-
P/2005 N3 (Larson)	2025-Dec-27.9690	0.4227	2.0139	291.0042	67.4213	6.0719	8	4	1	-
24P/Schaumasse	2026-Jan-08.1524	0.7083	1.1839	78.2730	58.4814	11.5013	K014/19	1	3	12
42P/Neujmin 3	2026-Jan-14.9454	0.5841	2.0296	150.1561	147.1222	3.9883	K044/16	2	4	12T
145P/Shoemaker-Levy 5	2026-Feb-01.0032	0.5424	1.8897	26.7673	10.4228	11.2784	13	0	2	-
P/2003 K2 (Christensen)	2026-Feb-02.1357	0.8357	0.5221	93.7515	346.1376	10.3039	9	7	1	-
131P/Mueller 2	2026-Feb-15.6791	0.3446	2.4078	214.1326	179.2679	7.3626	26	2	3	123
P/2003 U3 (NEAT)	2026-Feb-21.8079	0.5101	2.4683	347.9087	357.0617	7.0167	10	5	1	-
P/2003 S2 (NEAT)	2026-Feb-26.4151	0.3601	2.4479	87.5756	283.7773	7.6443	20	3	1	-
74P/Smirnova-Chernykh	2026-Feb-26.4856	0.0641	4.8370	50.0410	57.7629	5.8852	K093/1	0	2	-
P/2003 H4 (LINEAR)	2026-Mar-06.3121	0.6310	1.1291	171.1296	65.0184	2.6008	10	4	1	-
88P/Howell	2026-Mar-18.4510	0.5633	1.3578	56.6570	235.8870	4.3807	K043/13	1	3	123
138P/Shoemaker-Levy 7	2026-Mar-24.4098	0.5314	1.6943	309.2194	95.7596	10.0984	7	-	-	-
P/1998 S1 (LINEAR-Mueller)	2026-Apr-13.3248	0.4164	2.5461	358.9113	26.8567	10.5262	25	3	1	-
76P/West-Kohoutek-Ikemura	2026-Apr-13.6541	0.5395	1.5968	84.1094	0.0343	30.4971	K004/2	2	4	12
141P/Machholz 2-A	2026-Apr-22.7313	0.7358	0.8075	241.7627	153.6694	13.9615	75	2	3	123
93P/Lovas 1	2026-May-02.9601	0.6138	1.6884	339.5504	75.0461	12.2103	36	0	3	123T
141P/Machholz 2-D	2026-May-15.1497	0.7365	0.8072	241.9848	153.4120	13.8637	11	-	2	12

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
168P/Hergenrother	2026-May-16.9006	0.6206	1.3587	355.4022	15.1309	21.6063	33	0	1	-
162P/Siding Spring	2026-May-17.8458	0.5828	1.2895	30.8673	357.2522	27.5524	45	0	3	-
P/2004 FY140 (LINEAR)	2026-May-27.7721	0.1693	4.0821	326.7915	241.9312	2.1339	3	4	1	-
P/2004 K2 (McNaught)	2026-Jun-14.3790	0.5004	1.5593	150.0843	180.5646	8.1208	18	4	1	-
P/1996 R2 (Lagerkvist)	2026-Jun-16.3752	0.3140	2.5869	39.9881	333.5711	2.5997	17	4	1	-
124P/Mrkos	2026-Jun-23.6019	0.4863	1.7350	359.9469	185.1216	31.4060	18	1	2	-
78P/Gehrels 2	2026-Jun-25.2242	0.4628	2.0045	210.4946	192.7956	6.2577	K043/37	1	3	123
63P/Wild 1	2026-Jul-06.1099	0.6507	1.9750	357.7381	168.7361	19.6202	25	-	4	12
P/2004 R1 (McNaught)	2026-Jul-09.7216	0.6851	0.9747	295.8859	0.8293	4.9099	13	6	1	-
128P/Shoemaker-Holt 1-A	2026-Jul-17.0958	0.3223	3.0368	214.3058	210.5680	4.3715	10	1	1	-
128P/Shoemaker-Holt 1-B	2026-Jul-17.1021	0.3223	3.0368	214.3059	210.5721	4.3716	17	-	-	-
P/2002 AR2 (LINEAR)	2026-Jul-26.1345	0.6177	2.0255	7.3762	73.0839	21.0882	2	6	1	-
10P/Tempel 2	2026-Aug-02.1235	0.5375	1.4177	117.7971	195.4680	12.0274	K0512/19	0	12	123
P/2005 K3 (McNaught)	2026-Aug-04.9592	0.6086	1.4180	349.2716	18.5136	15.0397	15	4	1	-
P/2000 C1 (Hergenrother)	2026-Sep-03.0248	0.3744	2.3062	109.7980	74.6016	4.9315	15	4	1	-
114P/Wiseman-Skiff	2026-Sep-14.9973	0.5561	1.5707	271.0212	172.8554	18.3036	26	0	3	-
14P/Wolf	2026-Sep-19.0400	0.3564	2.7385	202.0073	159.2065	27.9201	K007/18	0	7	-
169P/NEAT	2026-Sep-21.3858	0.7679	0.6043	176.0255	218.1406	11.2863	47	0	4	-
112P/Urata-Niijima	2026-Sep-21.7954	0.5907	1.4412	31.7940	21.5905	24.2041	14	0	2	-
123P/West-Hartley	2026-Sep-21.9043	0.4447	2.1588	45.8482	103.8884	15.2812	56	1	3	123
P/1999 D1 (Hermann)	2026-Oct-11.8186	0.7137	1.6600	348.7256	173.7906	21.2519	10	-	-	-
P/2000 G1 (LINEAR)	2026-Nov-08.3920	0.6713	1.0037	190.9001	343.3752	10.4223	20	5	1	-
11P/Tempel-Swift-LINEAR	2026-Nov-09.8420	0.5772	1.3877	238.8543	168.0672	14.4288	K0116/15	0	15	12
69P/Taylor	2026-Nov-10.9493	0.4151	2.2688	104.8134	343.6181	22.0626	K043/15	2	3	123T
82P/Gehrels 3	2026-Nov-14.6234	0.1245	3.6242	239.2539	226.2661	1.1280	12	0	4	-
163P/NEAT	2026-Nov-23.9774	0.4536	2.0546	102.0673	349.6958	12.7237	28	3	3	12
161P/Hartley-IRAS	2026-Nov-27.5101	0.8362	1.2652	1.4750	47.0684	95.7921	54	0	2	-
143P/Kowal-Mrkos	2026-Dec-28.5257	0.3764	2.9568	241.9645	304.9873	5.3942	21	1	3	-
149P/Mueller 4	2026-Dec-29.5131	0.3210	2.8135	143.6939	30.4421	34.2705	7	1	2	-
2P/Encke	2027-Feb-10.2168	0.8473	0.3386	334.0185	187.2897	11.3477	K033/15	1	3	123
84P/Giclas	2027-Feb-12.7401	0.5154	1.7200	108.0800	281.7413	7.5527	29	0	10	-
P/2004 H3 (Larsen)	2027-Mar-30.9000	0.3375	2.6700	218.9147	341.9142	25.5719	6	5	1	-
160P/LINEAR	2027-Apr-07.0408	0.5249	1.7968	333.3077	12.7505	15.5892	14	1	2	-
P/2001 R6 (LINEAR-Skiff)	2027-Apr-25.1869	0.4761	2.1894	67.2131	308.6058	17.3856	16	4	1	-
156P/Russell-LINEAR	2027-Apr-30.6489	0.6145	1.3345	35.3099	0.5366	17.2552	14	0	3	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2001 WF2 (LONEOS)	2027-Jun-05.5892	0.6641	0.9899	72.4219	54.2810	16.2306	46	4	1	-
P/1999 X1 (Hug-Bell)	2027-Jun-22.3828	0.4819	1.8815	102.7776	297.9763	11.0927	8	5	1	-
92P/Sanguin	2027-Jul-15.4972	0.6600	1.8189	181.3215	163.7525	19.4751	24	1	3	123
P/2001 R1 (LONEOS)	2027-Jul-23.1821	0.6373	1.2165	19.0132	42.2972	5.6915	23	5	1	-
139P/Vaisala-Oterma	2027-Jul-23.4040	0.2475	3.3924	242.0974	166.1686	2.3386	20	-	-	-
P/2002 S1 (Skiff)	2027-Jul-25.1213	0.4158	2.4287	346.6822	37.9754	27.0094	18	4	1	-
P/2004 A1 (LONEOS)	2027-Jul-25.8021	0.2153	5.3123	122.8808	40.0220	10.8577	30	3	1	-
P/2003 CP7 (LINEAR-NEAT)	2027-Jul-31.3023	0.2394	3.0990	132.7219	42.5940	12.2793	10	4	1	-
P/2004 V5-A (LINEAR-Hill)	2027-Aug-04.2307	0.4532	4.4333	47.6439	87.1395	19.3131	33	3	1	-
P/2004 V5-B (LINEAR-Hill)	2027-Aug-04.9419	0.4532	4.4333	47.6448	87.1356	19.3133	26	3	1	-
P/2005 S3 (Read)	2027-Aug-08.5926	0.4214	2.8117	273.3993	137.1747	3.4856	4	9	1	-
P/1999 DN3 (Korlevic-Juric)	2027-Aug-13.8974	0.1047	4.2353	2.7068	159.2660	18.8942	10	4	1	-
7P/Pons-Winnecke	2027-Aug-25.9779	0.6598	1.1331	92.5512	174.5634	21.8278	K027/23	0	7	123T
45P/Honda-Mrkos-Pajdusakova	2027-Aug-29.7661	0.8172	0.5586	87.6611	327.9666	4.3246	K013/6	0	3	12
P/1998 VS24 (LINEAR)	2027-Sep-08.5052	0.2428	3.4194	158.9838	245.0242	5.0294	9	4	1	-
P/2005 JQ5 (Catalina)	2027-Sep-13.6840	0.6933	0.8263	95.5729	222.9762	5.6745	20	3	1	-
P/2002 O5 (NEAT)	2027-Sep-14.2915	0.5929	1.1945	281.6290	16.3895	20.1102	33	5	1	-
P/2003 WC7 (LINEAR-Catalina)	2027-Sep-24.3397	0.6784	1.6639	87.6347	343.6936	21.7256	6	5	1	-
104P/Kowal 2	2027-Oct-03.5502	0.6650	1.0721	207.9873	226.7056	5.8267	K043/16	2	2	123T
75P/Kohoutek	2027-Nov-02.2608	0.4992	1.7697	269.5269	175.6635	5.9272	J873/16	-	2	12
P/2004 VR8 (LONEOS)	2027-Nov-18.0732	0.5227	2.3557	68.6045	66.0423	17.7392	26	3	1	-
P/2003 KV2 (LINEAR)	2027-Nov-19.9181	0.6156	1.1200	65.9115	190.1138	25.0801	24	5	1	-
56P/Slaughter-Burnham	2027-Dec-19.4455	0.5077	2.4912	345.8578	44.2171	8.1560	K053/28	0	3	-
73P/Schwassmann-Wachmann 3	2027-Dec-23.7160	0.6997	0.9188	52.0541	214.7983	6.2090	J954/19	0	4	12
73P/Schwassmann-Wachmann 3-C	2027-Dec-24.4053	0.6998	0.9186	52.0372	214.7848	6.1862	K012/19	2	2	123
P/2005 JY126 (Catalina)	2028-Jan-01.9953	0.4290	2.1537	207.7286	117.6288	20.2091	11	4	1	-
73P/Schwassmann-Wachmann 3-E	2028-Jan-04.0657	0.7007	0.9168	51.8656	214.6978	5.9216	K013/11	0	3	12
73P/Schwassmann-Wachmann 3-B	2028-Jan-11.3503	0.7014	0.9160	51.8763	214.6600	5.8057	9	0	2	12
17P/Holmes	2028-Jan-31.4772	0.4261	2.0920	326.5937	24.5091	19.0034	K006/9	-	6	12
15P/Finlay	2028-Feb-10.2840	0.7159	0.9986	13.7244	347.8381	6.7816	K024/10	0	4	12
P/1999 J5 (LINEAR)	2028-Feb-11.3641	0.1568	3.8261	109.8441	132.7313	13.6711	12	4	1	-
41P/Tuttle-Giacobini-Kresak	2028-Feb-11.9660	0.6601	1.0494	140.9732	62.1897	9.2157	K013/19	0	3	12
9P/Tempel 1	2028-Feb-12.2754	0.4633	1.7724	66.5635	184.8269	10.4556	K051/17	1	1	123
57P/duToit-Neujmin-Delporte-A	2028-Mar-03.3453	0.5031	1.7073	188.6496	115.2663	2.8610	K023/3	1	3	123
57P/duToit-Neujmin-Delporte	2028-Mar-03.5942	0.5031	1.7074	188.6459	115.2973	2.8609	J964/1	2	5	123

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
59P/Kearns-Kwee	2028-Mar-15.8814	0.4765	2.3418	312.7174	127.7765	9.3564	J993/27	-	2	12
31P/Schwassmann-Wachmann 2	2028-Mar-19.9048	0.1945	3.4081	114.1107	18.1752	4.5493	K023/8	0	2	12
64P/Swift-Gehrels	2028-Mar-31.1210	0.6878	1.3900	299.7604	97.2945	8.9532	14	0	4	12
6P/d'Arrest	2028-Mar-31.6169	0.6132	1.3522	138.9568	178.1135	19.5077	K024/45	-	3	12T
P/2002 JN16 (LINEAR)	2028-Apr-06.0452	0.5195	1.6208	219.8128	48.8590	10.2679	34	4	1	-
67P/Churyumov-Gerasimenko	2028-Apr-09.6329	0.6492	1.2132	36.2847	22.2210	3.8663	K023/22	1	3	123T
16P/Brooks 2	2028-Apr-21.6404	0.4850	1.8872	138.8437	245.2766	3.0115	K013/4	0	3	12
98P/Takamizawa	2028-Apr-27.2117	0.6037	1.4132	113.8311	163.2825	10.4891	13	2	2	12
96P/Machholz 1	2028-May-12.0888	0.9617	0.1160	93.9141	14.7675	57.4899	41	0	4	12
P/2001 BB50 (LINEAR-NEAT)	2028-May-21.9289	0.5877	2.3803	351.1398	193.1823	10.3259	35	4	1	-
P/2001 Q5 (LINEAR-NEAT)	2028-Jun-03.4221	0.3928	2.1763	335.1801	7.9839	10.6773	17	4	1	-
P/1999 XB69 (LINEAR)	2028-Jun-18.9222	0.6314	1.6430	255.8588	220.5464	11.3056	9	4	1	-
22P/Kopff	2028-Jun-28.1822	0.5945	1.3205	119.7537	167.0455	5.2312	K023/85	1	3	12
102P/Shoemaker 1	2028-Jul-11.8165	0.4560	2.0810	339.3348	20.6012	25.8452	21	2	1	-
137P/Shoemaker-Levy 2	2028-Jul-29.6900	0.5725	1.9364	232.9122	141.1215	4.8552	11	0	2	-
110P/Hartley 3	2028-Aug-23.0244	0.3187	2.4527	287.4555	167.7230	11.7100	31	1	3	12
58P/Jackson-Neujmin	2028-Sep-01.8685	0.6613	1.3875	158.9970	200.5581	13.0727	6	0	4	12
P/2001 YX127 (LINEAR)	2028-Sep-07.1929	0.1789	3.4175	30.9444	115.1316	7.9196	18	3	1	-
71P/Clark	2028-Sep-30.7352	0.4762	1.6738	58.1334	211.3047	9.1238	K002/6	-	2	12
79P/du Toit-Hartley	2028-Oct-16.3916	0.6204	1.1166	280.3967	281.8736	3.1510	K035/3	0	4	12
91P/Russell 3	2028-Oct-26.7087	0.2466	3.1362	240.9156	357.3871	15.8374	23	1	3	12
36P/Whipple	2028-Nov-04.9062	0.2674	3.0366	181.7865	201.0394	9.9441	K037/37	0	6	12
70P/Kojima	2028-Nov-21.3795	0.4547	2.0020	119.2184	1.9291	6.6028	16	0	5	-
P/2002 O8 (NEAT)	2028-Nov-25.3189	0.1651	3.6272	56.7191	261.8435	10.5793	11	3	1	-
83P/Russell 1	2028-Nov-30.6132	0.4426	2.1432	226.2111	334.3578	17.8481	7	1	2	-
108P/Ciffreo	2028-Dec-09.0575	0.5548	1.6680	50.2486	354.5143	11.4245	15	-	3	12
106P/Schuster	2028-Dec-12.3420	0.5927	1.5360	48.8402	353.7547	19.5124	13	-	4	12
19P/Borrelly	2028-Dec-13.1801	0.6370	1.3106	74.1945	351.9982	29.2966	K012/142	0	2	12
100P/Hartley 1	2028-Dec-15.4028	0.4119	2.0190	37.6687	181.7647	25.5734	K033/11	0	2	-
53P/Van Biesbroeck	2028-Dec-24.7256	0.5515	2.4227	148.8645	134.9915	6.6221	52	0	4	12T
P/2001 Q2 (Petriew)	2028-Dec-26.4195	0.6988	0.9345	214.1105	181.8957	13.9929	28	4	1	-
127P/Holt-Olmstead	2029-Jan-10.2947	0.3581	2.2200	13.5989	6.2066	14.2873	8	1	3	-
118P/Shoemaker-Levy 4	2029-Jan-11.2530	0.4531	1.8307	142.0254	315.0370	10.0923	38	1	3	123T
116P/Wild 4	2029-Jan-17.5973	0.3723	2.1885	20.9573	173.1299	3.6064	88	1	3	123T
86P/Wild 3	2029-Jan-23.0814	0.3557	2.3616	71.7087	180.7228	15.3928	12	0	4	12

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2003 XD10 (LINEAR-NEAT)	2029-Feb-25.1949	0.4045	2.0543	40.0079	16.7816	13.2931	5	5	1	-
P/1998 Y2 (Li)	2029-Mar-01.9997	0.5891	2.5036	90.8696	319.6306	24.3063	13	4	1	-
4P/Faye	2029-Mar-09.7093	0.5754	1.6279	192.8607	207.1056	7.9966	J993/10	-	3	12
26P/Grigg-Skjellerup	2029-Mar-18.8917	0.6417	1.0795	211.5398	2.1219	22.4690	J978/18	-	8	12
120P/Mueller 1	2029-Apr-05.3433	0.3732	2.4912	358.6117	36.7202	8.4764	14	0	3	-
P/2004 X1 (LINEAR)	2029-Apr-23.8750	0.7179	0.8154	6.7042	346.3788	5.1125	9	6	1	-
148P/Anderson-LINEAR	2029-May-05.3578	0.5497	1.6297	89.1589	8.1479	3.6567	12	0	6	-
52P/Harrington-Abell	2029-May-10.2659	0.5407	1.7720	336.7264	139.7123	10.2406	J994/2	0	4	12
81P/Wild 2	2029-May-14.7320	0.5387	1.5905	136.1033	41.6628	3.2390	K033/48	0	3	123T
115P/Maury	2029-May-18.5885	0.5258	1.9899	175.2046	123.2465	12.0945	12	0	3	-
157P/Tritton	2029-May-18.9183	0.5558	1.5767	287.4828	155.1912	12.4254	19	0	5	-
44P/Reinmuth 2	2029-May-20.3203	0.4277	2.1111	286.3882	57.9738	5.8955	K014/2	0	4	12
P/2002 Q1 (Van Ness)	2029-May-25.3851	0.5631	1.5576	174.0027	185.0014	36.2250	5	6	1	-
87P/Bus	2029-Jun-11.4839	0.1811	3.6988	174.2572	59.9149	3.9222	8	-	3	12
113P/Spitaler	2029-Jul-11.6262	0.4185	2.1511	306.5976	115.6965	5.2853	25	0	16	-
132P/Helin-Roman-Alu 2	2029-Jul-19.7629	0.5632	1.7029	173.9325	216.4555	5.3740	19	0	2	-
P/1998 U3 (Jager)	2029-Jul-26.4983	0.6279	2.3062	302.5741	182.0851	19.9835	30	-	-	-
P/1991 V1 (Shoemaker-Levy 6)	2029-Aug-08.9447	0.6992	1.1669	35.2853	336.3497	17.5029	10	6	1	-
P/2002 CW134 (LINEAR)	2029-Aug-13.2095	0.4875	1.8513	348.2127	190.2642	15.1937	10	5	1	-
P/2004 CB (LINEAR)	2029-Aug-14.2388	0.6752	0.9600	62.7161	152.5398	21.3205	32	3	1	-
151P/Helin	2029-Aug-18.2287	0.5724	2.4728	143.0432	216.0589	4.7213	16	0	1	-
135P/Shoemaker-Levy 8	2029-Aug-31.1366	0.2930	2.6948	212.9272	21.7503	6.0651	11	-	-	-
P/2001 TU80 (LINEAR-NEAT)	2029-Sep-01.8958	0.4876	1.8359	108.4415	356.8133	6.5950	14	4	1	-
125P/Spacewatch	2029-Sep-15.5625	0.5128	1.5238	153.1515	86.9993	9.9851	10	0	2	-
46P/Wirtanen	2029-Oct-27.7473	0.6577	1.0594	82.1541	356.3415	11.7362	K023/22	0	3	123T
P/2004 F3 (NEAT)	2029-Oct-28.6480	0.2010	3.4776	72.4743	184.4924	17.0250	36	3	1	-
P/2003 SQ215 (NEAT-LONEOS)	2029-Nov-11.8807	0.5842	2.2749	257.0397	137.4630	5.5897	15	6	1	-
P/2005 S2 (Skiff)	2029-Nov-15.4771	0.2673	5.3065	153.2274	321.1749	4.5273	2	8	1	-
51P/Harrington-A	2029-Nov-15.8799	0.5444	1.6865	83.5558	269.3707	5.4340	K013/32	0	3	12
51P/Harrington	2029-Nov-18.8907	0.5445	1.6866	83.5967	269.3596	5.4343	J943/5	1	3	12
61P/Shajn-Schaldach	2029-Nov-25.5383	0.4226	2.1346	162.9492	221.5860	5.9930	K015/12	0	5	12
P/2003 O2 (LINEAR)	2029-Nov-25.8948	0.6463	1.5096	342.8478	33.5588	14.3255	23	4	1	-
111P/Helin-Roman-Crockett	2029-Dec-09.3857	0.1059	3.7110	89.6968	1.8000	4.2261	6	0	2	-
94P/Russell 4	2029-Dec-17.7466	0.3665	2.2209	70.7834	92.6384	6.1901	26	2	4	12
134P/Kowal-Vavrova	2030-Jan-05.4254	0.5877	2.5988	202.0251	18.4132	4.3322	12	-	-	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2005 L1 (McNaught)	2030-Jan-09.4258	0.3040	2.5602	121.0309	183.5482	10.4018	13	4	1	-
119P/Parker-Hartley	2030-Jan-19.5901	0.3869	2.3385	104.5582	322.1816	7.3839	K052/7	0	2	-
77P/Longmore	2030-Feb-18.5318	0.3539	2.3377	14.7617	196.6063	24.3390	11	0	4	12
62P/Tsuchinshan 1	2030-Mar-05.6355	0.6239	1.2682	68.5725	47.4421	4.7297	K044/15	0	4	123T
P/2000 U6 (Tichy)	2030-Apr-03.7711	0.4268	2.1858	24.1107	12.0220	19.2775	18	4	1	-
103P/Hartley 2	2030-Apr-05.4751	0.6930	1.0680	219.7619	181.3001	13.5914	49	1	3	123T
P/2005 R2 (Van Ness)	2030-Apr-07.5378	0.4187	1.9487	307.1220	15.9778	9.5844	4	5	1	-
P/1999 WJ7 (Korlevic)	2030-Apr-11.6398	0.3151	3.1969	290.1470	154.9958	2.9740	45	3	1	-
2P/Encke	2030-Jun-01.0762	0.8471	0.3392	333.9948	187.3236	11.3335	K033/15	1	3	123
P/2005 L4 (Christensen)	2030-Jun-14.3827	0.4420	2.2538	280.2458	25.1852	16.2145	9	4	1	-
P/2002 T1 (LINEAR)	2030-Jul-23.9341	0.6393	1.3146	14.2075	3.9636	21.3545	31	4	1	-
P/2004 EW38 (Catalina-LINEAR)	2030-Jul-25.3823	0.5271	1.6253	36.7395	105.7257	7.5066	6	4	1	-
P/1997 V1 (Larsen)	2030-Aug-09.8784	0.3311	3.3237	234.7282	134.1897	12.0859	11	4	1	-
P/1997 C1 (Gehrels)	2030-Aug-18.3787	0.4691	3.5291	222.9097	209.9597	2.9258	23	-	-	-
P/2004 HC18 (LINEAR)	2030-Sep-09.8612	0.5055	1.7357	219.3660	31.0718	23.4072	19	3	1	-
130P/McNaught-Hughes	2030-Sep-12.5427	0.4344	1.9621	65.8890	251.7618	5.8202	29	1	2	12
P/2004 T1 (LINEAR-NEAT)	2030-Sep-13.6792	0.5090	1.7018	51.4177	336.2191	11.0539	19	4	1	-
P/2001 H5 (NEAT)	2030-Oct-19.9539	0.6011	2.4238	328.6415	224.8888	8.3739	9	5	1	-
68P/Klemola	2030-Nov-04.3646	0.6345	1.9204	163.2747	159.9090	6.7511	19	0	4	12
117P/Helin-Roman-Alu 1	2030-Nov-26.4766	0.2386	3.1697	58.0959	223.4601	8.6348	K052/13	0	2	-
169P/NEAT	2030-Dec-01.3445	0.7723	0.5905	175.6825	218.5653	11.2530	47	0	4	-
P/1994 X1 (McNaught-Russell)	2030-Dec-15.3755	0.8157	1.2694	217.8267	171.0774	29.1897	4	4	1	-
80P/Peters-Hartley	2030-Dec-28.3012	0.5992	1.6101	259.7634	339.2851	29.9830	15	3	2	123
P/2001 K1 (NEAT)	2031-Feb-20.3999	0.3543	2.4931	84.4537	94.9496	16.8733	17	4	1	-
P/2002 LZ11 (LINEAR)	2031-Mar-02.4479	0.3613	2.3103	222.8686	117.8400	12.1295	19	4	1	-
37P/Forbes	2031-Mar-19.5433	0.5323	1.6200	314.5200	329.9555	8.9477	K055/12	1	5	123T
P/2003 O3 (LINEAR)	2031-Mar-29.4502	0.5728	1.3611	340.6653	2.4977	8.0931	17	4	1	-
55P/Tempel-Tuttle	2031-May-20.9797	0.9078	0.9644	235.6107	172.8676	162.5750	J985/69	-	4	12
89P/Russell 2	2031-Jul-01.3066	0.4058	2.2347	41.2837	250.1352	12.0516	13	0	4	-
152P/Helin-Lawrence	2031-Jul-09.3760	0.3089	3.1102	91.7570	163.9319	9.8826	31	0	2	-
105P/Singer Brewster	2031-Jul-11.6718	0.4112	2.0416	192.3850	46.3518	9.1743	30	1	3	123T
P/2003 H4 (LINEAR)	2031-Jul-12.9655	0.6323	1.1240	171.1413	65.0573	2.6027	10	4	1	-
144P/Kushida	2031-Aug-02.4277	0.6336	1.4077	242.8268	216.4461	3.9229	3	2	1	-
P/2001 CV8 (LINEAR)	2031-Aug-11.8565	0.4481	2.1307	359.7171	151.8947	9.0574	21	4	1	-
141P/Machholz 2-A	2031-Aug-19.4387	0.7437	0.7744	240.9937	154.8331	14.5191	75	2	3	123

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2005 JN (Spacewatch)	2031-Aug-21.6655	0.3507	2.2697	70.7193	153.2478	8.8621	7	5	1	-
21P/Giacobini-Zinner	2031-Aug-31.5110	0.6992	1.0693	194.4387	170.8544	31.6870	K054/12	1	4	123T
88P/Howell	2031-Sep-07.6918	0.5640	1.3549	56.6557	235.7798	4.3810	K043/13	1	3	123
P/2005 R1 (NEAT)	2031-Sep-14.0545	0.6255	2.0703	257.8088	119.1782	15.5122	5	6	1	-
141P/Machholz 2-D	2031-Sep-19.2498	0.7455	0.7696	240.9641	154.8971	14.6055	11	-	2	12
48P/Johnson	2031-Sep-29.6119	0.4195	2.0443	109.7333	216.9782	12.1454	41	0	8	12
P/2003 K2 (Christensen)	2031-Oct-01.3334	0.8358	0.5214	93.7676	346.1666	10.3069	9	7	1	-
P/2001 J1 (NEAT)	2031-Oct-05.9186	0.7575	0.9444	198.0128	273.1313	10.1942	46	5	1	-
140P/Bowell-Skiff	2031-Oct-07.5212	0.6932	1.9650	343.1101	172.3602	3.6389	25	-	-	-
162P/Siding Spring	2031-Oct-17.5904	0.5992	1.2214	30.3356	358.5602	27.7569	45	0	3	-
150P/LONEOS	2031-Oct-28.3944	0.5485	1.7485	271.9131	246.2922	18.5367	18	0	4	-
170P/Christensen	2031-Oct-29.7827	0.3128	2.8567	142.3381	225.2830	10.1411	10	2	1	-
129P/Shoemaker-Levy 3	2031-Nov-07.1792	0.0839	3.9351	184.7263	308.4780	3.4428	K052/10	0	2	-
30P/Reinmuth 1	2031-Nov-11.0925	0.5130	1.8225	117.1911	9.5683	8.0446	K027/19	0	7	12
P/2003 A1 (LINEAR)	2031-Nov-30.4484	0.5047	1.8894	54.0089	340.5436	44.4031	11	6	1	-
85P/Boethin	2031-Nov-30.6268	0.7764	1.1249	331.9093	66.7559	4.1793	12	0	1	-
54P/de Vico-Swift-NEAT	2031-Nov-30.7012	0.4832	1.8481	197.4543	163.9011	4.7011	18	0	15	12
P/2004 R3 (LINEAR-NEAT)	2031-Dec-10.9214	0.2665	3.4218	304.2936	39.3473	12.7303	10	5	1	-
10P/Tempel 2	2031-Dec-11.3978	0.5374	1.4178	117.7879	195.3421	12.0292	K0512/19	0	12	123
P/2004 R1 (McNaught)	2031-Dec-16.5479	0.6858	0.9717	295.8889	0.7838	4.9170	13	6	1	-
P/2004 K2 (McNaught)	2031-Dec-18.6087	0.4984	1.5679	150.0250	180.4409	8.1115	18	4	1	-
147P/Kushida-Muramatsu	2031-Dec-19.2819	0.2107	3.1735	91.6492	348.3132	2.3091	K012/1	1	1	-
P/2004 F1 (NEAT)	2031-Dec-26.7598	0.4545	2.4356	109.3496	27.9584	18.0668	5	4	1	-
78P/Gehrels 2	2032-Jan-08.6010	0.2718	4.1265	194.1356	112.2024	5.4935	K043/37	1	3	123
49P/Arend-Rigaux	2032-Jan-08.7934	0.5981	1.4369	118.8103	332.8813	19.0437	56	0	9	12
P/1999 RO28 (LONEOS)	2032-Jan-17.8361	0.6800	1.0896	96.2661	269.9046	5.2448	12	5	1	-
P/2005 JQ5 (Catalina)	2032-Feb-13.9105	0.6938	0.8249	95.5815	222.9276	5.6765	20	3	1	-
60P/Tsuchinshan 2	2032-Mar-10.7887	0.5323	1.6539	267.3315	216.9591	3.5738	J995/7	2	5	123T
P/2000 G1 (LINEAR)	2032-Mar-12.7535	0.6701	1.0074	190.8508	343.4600	10.4245	20	5	1	-
P/2005 J1 (McNaught)	2032-Apr-11.1626	0.5709	1.5311	268.7658	338.9613	31.8009	9	4	1	-
P/2003 UY275 (LINEAR)	2032-Apr-17.6434	0.4987	1.8804	241.3490	121.9699	16.9315	6	4	1	-
P/1997 T3 (Lagerkvist-Carsenty)	2032-May-03.7259	0.3640	4.2203	63.0224	333.4004	4.8467	21	-	-	-
164P/Christensen	2032-May-10.1818	0.5444	1.6566	88.1880	326.0655	16.3335	20	1	2	-
72P/Denning-Fujikawa	2032-May-14.0456	0.8167	0.7954	26.5729	346.2618	10.7784	17	0	11	12
90P/Gehrels 1	2032-May-19.5414	0.5099	2.9787	13.1016	29.0788	9.6260	20	0	3	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2000 R2 (LINEAR)	2032-May-23.1411	0.5268	1.6480	160.1316	176.6754	11.6694	8	6	1	-
171P/Spahr	2032-Jun-04.5249	0.5026	1.7684	101.7048	346.9504	21.9457	19	0	2	-
142P/Ge-Wang	2032-Jun-20.4936	0.4969	2.5585	172.4696	174.5553	11.5660	12	2	1	-
P/2000 B3 (LINEAR)	2032-Jun-24.7091	0.5618	1.8117	349.4721	128.6076	11.7954	47	5	1	-
P/2001 WF2 (LONEOS)	2032-Jun-26.1966	0.6635	0.9923	72.4037	54.2499	16.2244	46	4	1	-
P/1999 U3 (LINEAR)	2032-Jul-06.2171	0.6093	1.9284	305.3906	111.6705	21.1039	17	4	1	-
P/1998 X1 (ODAS)	2032-Jul-17.4995	0.4471	1.9812	358.1840	69.0962	1.3416	20	4	1	-
P/2003 U2 (LINEAR)	2032-Jul-18.9057	0.6198	1.7230	184.8525	177.9086	24.6310	8	5	1	-
97P/Metcalf-Brewington	2032-Jul-20.0606	0.4594	2.5850	184.0165	230.1834	17.9230	26	-	9	12
P/2005 N3 (Larson)	2032-Jul-28.1361	0.4098	2.0820	289.5232	68.9462	6.0089	8	4	1	-
159P/LONEOS	2032-Jul-28.7506	0.3818	3.6358	54.8947	4.4236	23.4412	23	1	2	-
50P/Arend	2032-Aug-07.7632	0.5323	1.9040	354.7803	49.7987	19.1015	31	0	6	12
146P/Shoemaker-LINEAR	2032-Aug-15.7893	0.6414	1.4531	52.3324	316.5966	23.4580	15	0	3	-
P/2001 X2 (Scotti)	2032-Sep-03.7383	0.2502	3.0816	177.3556	274.1760	2.1399	41	4	1	-
124P/Mrkos	2032-Sep-10.1486	0.4853	1.7395	359.8975	185.2656	31.3760	18	1	2	-
P/2002 O5 (NEAT)	2032-Sep-21.6351	0.5941	1.1901	281.6310	16.3734	20.1330	33	5	1	-
76P/West-Kohoutek-Ikemura	2032-Sep-22.2371	0.5406	1.5914	84.1033	359.9698	30.5102	K004/2	2	4	12
P/2005 Q4 (LINEAR)	2032-Oct-06.3766	0.6072	1.6973	10.0346	50.6562	17.3028	2	8	1	-
11P/Tempel-Swift-LINEAR	2032-Oct-13.4606	0.6074	1.2420	237.2545	172.1117	15.3451	K0116/15	0	15	12
45P/Honda-Mrkos-Pajdusakova	2032-Nov-09.9638	0.7990	0.6278	67.5915	344.0698	11.8426	K013/6	0	3	12
P/2003 KV2 (LINEAR)	2032-Nov-10.5858	0.6163	1.1173	65.8854	190.2196	25.0903	24	5	1	-
P/2003 S1 (NEAT)	2032-Dec-28.9616	0.4353	2.5579	237.6591	173.8215	6.3097	19	4	1	-
P/1998 QP54 (LONEOS-Tucker)	2033-Jan-01.9225	0.5581	1.8417	339.7542	30.3360	17.2328	20	4	1	-
138P/Shoemaker-Levy 7	2033-Jan-18.7185	0.5423	1.6250	300.7360	104.3149	10.8604	7	-	-	-
P/2001 MD7 (LINEAR)	2033-Feb-11.3387	0.6923	1.2084	122.2428	248.7205	12.4772	49	3	1	-
65P/Gunn	2033-Feb-11.7161	0.2507	2.9102	61.9505	213.5759	9.1806	K034/21	0	4	123T
33P/Daniel	2033-Feb-19.5207	0.4517	2.2470	66.2797	20.2046	22.2738	K004/3	-	3	12
P/2003 HT15 (LINEAR)	2033-Mar-03.9583	0.4183	2.6880	81.1156	124.4730	27.6894	17	4	1	-
P/2004 H2 (Larsen)	2033-Mar-14.5284	0.4197	2.6139	131.2246	104.9515	11.7924	8	4	1	-
112P/Urata-Niijima	2033-Apr-03.4054	0.6063	1.3696	30.1279	22.6014	23.5682	14	0	2	-
C/2002 B1 (LINEAR)	2033-Apr-14.9351	0.7701	2.2721	58.1495	76.0132	51.0405	32	4	1	-
66P/du Toit	2033-Apr-18.5937	0.7866	1.2933	21.8677	257.4152	18.6622	48	0	5	12
168P/Hergenrother	2033-Apr-23.9510	0.6069	1.4363	355.1131	16.4742	21.3173	33	0	1	-
73P/Schwassmann-Wachmann 3	2033-May-01.5288	0.7006	0.9153	51.9862	214.9163	6.2049	J954/19	0	4	12
73P/Schwassmann-Wachmann 3-C	2033-May-02.3504	0.7007	0.9151	51.9702	214.9005	6.1823	K012/19	2	2	123

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
114P/Wiseman-Skiff	2033-May-03.6075	0.5600	1.5494	270.9479	173.0187	18.3523	26	0	3	-
121P/Shoemaker-Holt 2	2033-May-05.5404	0.1853	3.7556	94.0870	11.6358	20.1380	33	0	3	-
73P/Schwassmann-Wachmann 3-E	2033-May-17.3288	0.7016	0.9135	51.7954	214.8160	5.9172	K013/11	0	3	12
73P/Schwassmann-Wachmann 3-B	2033-May-28.3998	0.7024	0.9127	51.8019	214.8045	5.8016	9	0	2	12
104P/Kowal 2	2033-Jun-09.3446	0.6853	0.9816	194.2538	241.3397	5.3725	K043/16	2	2	123T
P/1998 U2 (Mueller)	2033-Jun-18.3607	0.5211	2.0325	320.6126	61.0314	1.9196	13	-	-	-
P/2005 GF8 (LONEOS)	2033-Jun-27.3042	0.5163	2.7696	312.5534	285.8617	1.1713	11	4	1	-
P/2002 X2 (NEAT)	2033-Jul-14.0846	0.4585	2.0702	74.6653	352.5820	23.6066	11	4	1	-
P/1996 A1 (Jedicke)	2033-Jul-15.3265	0.4332	4.0155	241.5542	225.6403	7.0793	13	-	-	-
41P/Tuttle-Giacobini-Kresak	2033-Jul-19.0264	0.6588	1.0544	140.8702	62.3059	9.2070	K013/19	0	3	12
P/2005 K3 (McNaught)	2033-Jul-19.1749	0.6029	1.4515	349.1829	18.9238	14.9221	15	4	1	-
P/2001 R1 (LONEOS)	2033-Aug-13.6999	0.6403	1.2061	320.8303	97.8265	3.9644	23	5	1	-
96P/Machholz 1	2033-Aug-16.4398	0.9635	0.1104	93.6234	15.0160	57.0033	41	0	4	12
P/1999 V1 (Catalina)	2033-Sep-10.9963	0.5501	2.9862	292.9819	188.7362	15.7052	32	4	1	-
P/2003 S2 (NEAT)	2033-Sep-12.1511	0.3487	2.5218	86.9354	283.9730	7.6114	20	3	1	-
2P/Encke	2033-Sep-18.8424	0.8474	0.3383	333.9934	187.3168	11.3431	K033/15	1	3	123
7P/Pons-Winnecke	2033-Sep-23.6025	0.6608	1.1284	92.4975	174.6801	21.8601	K027/23	0	7	123T
P/2000 Y3 (Scotti)	2033-Oct-05.4641	0.1991	3.9478	354.0138	93.1433	2.2546	46	3	1	-
P/2000 C1 (Hergenrother)	2033-Oct-06.9012	0.3725	2.3175	109.7433	74.7178	4.9289	15	4	1	-
136P/Mueller 3	2033-Oct-22.2764	0.2687	3.1600	136.0205	226.5781	9.3009	16	1	2	-
P/1996 R2 (Lagerkvist)	2033-Oct-22.7162	0.3041	2.6474	39.7024	333.0371	2.5815	17	4	1	-
79P/du Toit-Hartley	2033-Nov-03.3691	0.6191	1.1215	280.3346	281.9344	3.1499	K035/3	0	4	12
84P/Giclas	2033-Nov-17.8491	0.5045	1.7812	106.7461	283.2710	7.5185	29	0	10	-
156P/Russell-LINEAR	2033-Nov-29.0874	0.5982	1.4194	34.7785	1.9024	17.2626	14	0	3	-
C/2002 CE10 (LINEAR)	2033-Dec-28.9853	0.7902	2.0545	147.5579	126.0854	145.4398	29	2	1	-
131P/Mueller 2	2034-Jan-05.0493	0.3136	2.5784	197.2606	212.7679	6.5469	26	2	3	123
101P/Chernykh	2034-Jan-11.2976	0.5955	2.4331	114.9772	276.0443	5.1834	K052/4	1	1	-
145P/Shoemaker-Levy 5	2034-Jan-11.3502	0.5538	1.8009	24.1717	7.3638	11.9759	13	0	2	-
32P/Comas Sola	2034-Jan-15.3417	0.5545	2.0354	54.4629	54.8410	9.9077	K053/18	1	3	123
9P/Tempel 1	2034-Feb-16.4126	0.4632	1.7726	66.5157	185.0672	10.4508	K051/17	1	1	123
163P/NEAT	2034-Feb-22.6727	0.4609	2.0083	101.8644	350.0933	12.7618	28	3	3	12
47P/Ashbrook-Jackson	2034-Mar-04.4174	0.3162	2.8300	356.8056	357.3303	13.0290	40	0	8	12
24P/Schaumasse	2034-Mar-16.4362	0.7075	1.1898	78.1785	58.6246	11.4872	K014/19	1	3	12
P/2004 X1 (LINEAR)	2034-Mar-21.8374	0.7188	0.8121	6.6834	346.3900	5.1197	9	6	1	-
22P/Kopff	2034-May-14.9639	0.5953	1.3161	119.7087	167.1655	5.2369	K023/85	1	3	12

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
75P/Kohoutek	2034-May-16.3204	0.5736	1.3842	253.8367	196.6623	3.6928	J873/16	-	2	12
123P/West-Hartley	2034-May-22.7463	0.4432	2.1694	45.8450	103.7720	15.2713	56	1	3	123
P/1999 XN120 (Catalina)	2034-Jun-09.4506	0.2216	3.2296	284.6960	160.2887	5.0305	32	4	1	-
26P/Grigg-Skjellerup	2034-Jun-12.4048	0.6404	1.0847	211.5164	2.1372	22.4316	J978/18	-	8	12
69P/Taylor	2034-Jun-12.4581	0.4271	2.1882	104.4347	344.7112	22.1653	K043/15	2	3	123T
P/1999 X1 (Hug-Bell)	2034-Jun-13.9054	0.4731	1.9339	101.9421	298.8089	11.0792	8	5	1	-
P/2001 Q2 (Petriew)	2034-Jun-14.4962	0.6980	0.9380	214.1174	181.8875	13.9848	28	4	1	-
74P/Smirnova-Chernykh	2034-Jun-16.9579	0.1489	3.8307	268.6748	119.2612	5.5003	K093/1	0	2	-
P/2002 JN16 (LINEAR)	2034-Jun-20.0340	0.5201	1.6181	219.7149	49.0985	10.2644	34	4	1	-
71P/Clark	2034-Jun-21.5262	0.4764	1.6728	58.0709	211.5255	9.1173	K002/6	-	2	12
57P/duToit-Neujmin-Delporte-A	2034-Jul-15.9246	0.5046	1.6995	188.5896	115.3818	2.8645	K023/3	1	3	123
57P/duToit-Neujmin-Delporte	2034-Jul-16.2818	0.5046	1.6996	188.5854	115.4190	2.8644	J964/1	2	5	123
172P/Yeung	2034-Jul-19.0487	0.2056	3.3522	30.7676	209.6036	11.2175	9	1	2	-
43P/Wolf-Harrington	2034-Aug-02.1981	0.4364	2.4374	243.8499	223.9910	9.2837	K043/34	0	3	12T
160P/LINEAR	2034-Aug-07.6933	0.5261	1.7897	333.3248	12.6850	15.6043	14	1	2	-
P/2000 S1 (Skiff)	2034-Aug-14.8607	0.6176	2.5563	28.1042	309.0734	21.0045	22	4	1	-
15P/Finlay	2034-Sep-09.0964	0.7165	0.9951	13.7197	347.8647	6.7921	K024/10	0	4	12
P/2004 CB (LINEAR)	2034-Sep-14.3668	0.6740	0.9648	62.7308	152.5142	21.2939	32	3	1	-
P/2004 V1 (Skiff)	2034-Oct-04.3277	0.6944	1.4139	239.4402	147.3837	11.7991	14	5	1	-
6P/d'Arrest	2034-Oct-11.5664	0.6145	1.3450	138.9240	178.1701	19.5385	K024/45	-	3	12T
P/2001 T3 (NEAT)	2034-Oct-15.1835	0.6164	2.4999	54.0074	357.0078	19.2108	18	4	1	-
67P/Churyumov-Gerasimenko	2034-Nov-02.8935	0.6367	1.2798	36.0164	23.3188	3.6923	K023/22	1	3	123T
154P/Brewington	2034-Nov-14.7439	0.6771	1.5475	342.6688	47.7204	17.5538	24	0	1	-
P/2002 EJ57 (LINEAR)	2034-Nov-19.4940	0.5934	2.6372	330.1716	167.1598	4.9756	4	5	1	-
17P/Holmes	2035-Jan-10.6463	0.4277	2.0824	326.5924	24.4477	19.0206	K006/9	-	6	12
98P/Takamizawa	2035-Jan-23.4613	0.6043	1.4099	113.7435	163.4536	10.5033	13	2	2	12
169P/NEAT	2035-Feb-02.0046	0.7729	0.5885	175.7021	218.5381	11.2626	47	0	4	-
29P/Schwassmann-Wachmann 1	2035-Feb-13.4640	0.0345	5.7081	311.2562	77.9390	9.3070	K043/7	0	3	-
82P/Gehrels 3	2035-Mar-04.6403	0.1427	3.5099	236.8816	225.6681	1.1660	12	0	4	-
P/2001 Q5 (LINEAR-NEAT)	2035-Mar-13.5046	0.3946	2.1656	335.1539	8.0037	10.6883	17	4	1	-
125P/Spacewatch	2035-Mar-31.2519	0.5111	1.5311	153.0680	87.1054	9.9815	10	0	2	-
P/2001 F1 (NEAT)	2035-Apr-10.7089	0.3490	4.4510	89.6901	90.2816	20.4302	25	3	1	-
46P/Wirtanen	2035-Apr-15.3333	0.6541	1.0751	82.1130	356.4524	11.7103	K023/22	0	3	123T
8P/Tuttle	2035-Apr-18.0537	0.8206	1.0283	270.0230	207.4677	54.7792	J943/10	-	2	12
16P/Brooks 2	2035-Apr-23.0277	0.4857	1.8842	138.8522	245.1620	3.0113	K013/4	0	3	12

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2005 JY126 (Catalina)	2035-Apr-27.0674	0.4306	2.1422	207.6655	117.7194	20.2327	11	4	1	-
100P/Hartley 1	2035-Apr-28.5942	0.4100	2.0290	37.6423	181.7512	25.5390	K033/11	0	2	-
93P/Lovas 1	2035-May-06.6860	0.6174	1.6653	337.5721	75.5395	11.9965	36	0	3	123T
P/2004 H3 (Larsen)	2035-May-09.7741	0.3354	2.6873	218.8685	341.9392	25.5372	6	5	1	-
118P/Shoemaker-Levy 4	2035-May-13.3426	0.4141	2.0243	135.3286	322.1937	11.0018	38	1	3	123T
149P/Mueller 4	2035-Jun-06.6346	0.3193	2.8285	143.6771	30.2467	34.2306	7	1	2	-
127P/Holt-Olmstead	2035-Jun-12.3048	0.3597	2.2130	13.5959	6.0216	14.2963	8	1	3	-
14P/Wolf	2035-Jun-19.7839	0.3573	2.7309	202.0195	159.0807	27.9464	K007/18	0	7	-
P/2004 WR9 (LINEAR)	2035-Jun-27.1486	0.6839	2.0503	18.1530	74.9867	5.4394	14	4	1	-
P/1998 S1 (LINEAR-Mueller)	2035-Jun-28.1247	0.4122	2.5947	358.8508	27.4856	10.4671	25	3	1	-
116P/Wild 4	2035-Jul-20.3091	0.3709	2.1955	20.9520	172.8552	3.6026	88	1	3	123T
P/2003 XD10 (LINEAR-NEAT)	2035-Jul-22.4821	0.4034	2.0617	39.9811	16.5018	13.2841	5	5	1	-
P/1993 W1 (Mueller 5)	2035-Sep-01.5300	0.2616	4.2497	100.3106	28.9976	16.4606	26	4	1	-
70P/Kojima	2035-Sep-28.1985	0.4356	2.1033	330.5320	141.4468	8.4376	16	0	5	-
81P/Wild 2	2035-Oct-04.2448	0.5395	1.5863	136.0773	41.6137	3.2389	K033/48	0	3	123T
P/2003 CP7 (LINEAR-NEAT)	2035-Oct-12.0419	0.2372	3.1118	132.6910	42.0563	12.2685	10	4	1	-
19P/Borrelly	2035-Oct-31.6979	0.6341	1.3263	74.1319	352.2132	29.3144	K012/142	0	2	12
P/2001 R6 (LINEAR-Skiff)	2035-Nov-02.9362	0.4768	2.1837	67.1761	308.6616	17.4024	16	4	1	-
110P/Hartley 3	2035-Nov-24.3403	0.2558	2.8164	283.5703	175.0173	11.4039	31	1	3	12
102P/Shoemaker 1	2035-Dec-29.0384	0.4575	2.0694	339.3163	20.6375	25.8750	21	2	1	-
P/2002 S1 (Skiff)	2036-Jan-08.4773	0.4167	2.4232	346.7006	37.9506	27.0076	18	4	1	-
157P/Tritton	2036-Feb-04.4227	0.5518	1.5998	287.2271	155.5456	12.4403	19	0	5	-
86P/Wild 3	2036-Feb-06.2139	0.3538	2.3740	71.6597	180.9122	15.3718	12	0	4	12
P/2002 Q1 (Van Ness)	2036-Feb-14.1733	0.5642	1.5505	173.9757	185.0605	36.2714	5	6	1	-
108P/Ciffreo	2036-Mar-06.7042	0.5554	1.6643	50.2643	354.5039	11.4346	15	-	3	12
106P/Schuster	2036-Apr-05.0007	0.5933	1.5317	48.8548	353.7707	19.5351	13	-	4	12
P/1997 G1 (Montani)	2036-May-01.9836	0.4176	4.2371	267.4583	214.0257	3.9856	18	-	-	-
148P/Anderson-LINEAR	2036-May-19.2805	0.5361	1.7133	88.9485	9.3582	3.6450	12	0	6	-
P/1994 N2 (McNaught-Hartley)	2036-May-22.4352	0.6735	2.4477	35.6303	313.3359	17.8891	3	4	1	-
P/2005 R2 (Van Ness)	2036-May-30.7531	0.4189	1.9475	307.0522	16.1941	9.5845	4	5	1	-
83P/Russell 1	2036-Jun-13.4125	0.4415	2.1505	226.2351	334.2048	17.8336	7	1	2	-
P/2002 CW134 (LINEAR)	2036-Jun-15.3225	0.4908	1.8316	348.0817	190.4164	15.1932	10	5	1	-
44P/Reinmuth 2	2036-Jun-19.2532	0.4289	2.1025	286.2990	58.1470	5.8997	K014/2	0	4	12
94P/Russell 4	2036-Jun-22.6376	0.3807	2.1401	69.6890	94.0526	6.2253	26	2	4	12
62P/Tsuchinshan 1	2036-Jul-17.9107	0.6073	1.3565	66.1820	51.0403	4.3845	K044/15	0	4	123T

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2005 JQ5 (Catalina)	2036-Jul-18.7352	0.6930	0.8267	95.4978	223.0731	5.6770	20	3	1	-
P/2001 TU80 (LINEAR-NEAT)	2036-Jul-18.7535	0.4768	1.9023	108.0587	357.6426	6.6057	14	4	1	-
113P/Spitaler	2036-Aug-16.6652	0.4194	2.1469	306.5481	115.6071	5.2884	25	0	16	-
4P/Faye	2036-Sep-04.7865	0.5766	1.6194	192.8892	207.1001	8.0058	J993/10	-	3	12
P/2003 F2 (NEAT)	2036-Sep-06.8462	0.5319	3.0922	358.7063	193.0545	11.4255	4	5	1	-
31P/Schwassmann-Wachmann 2	2036-Sep-09.0334	0.2597	2.9017	108.2567	29.1326	4.4993	K023/8	0	2	12
155P/Shoemaker 3	2036-Sep-22.9304	0.7273	1.8169	96.7570	14.3307	6.3698	31	0	2	-
103P/Hartley 2	2036-Sep-27.0237	0.6942	1.0618	219.7577	181.3202	13.6193	49	1	3	123T
P/1995 A1 (Jedicke)	2036-Oct-06.4073	0.3108	4.1403	115.1078	295.2045	19.9498	3	4	1	-
126P/IRAS	2036-Oct-11.3030	0.6958	1.7021	357.8253	356.4879	46.0219	9	0	2	-
42P/Neujmin 3	2036-Oct-13.9307	0.5854	2.0153	150.0502	147.0982	3.9976	K044/16	2	4	12T
158P/Kowal-LINEAR	2036-Nov-08.8065	0.1015	5.2263	123.9681	238.5787	7.4718	8	1	3	-
P/2003 H4 (LINEAR)	2036-Nov-12.8965	0.6322	1.1241	171.0832	65.0665	2.6034	10	4	1	-
141P/Machholz 2-A	2036-Nov-17.7409	0.7444	0.7712	240.9269	154.9140	14.5479	75	2	3	123
40P/Vaisala 1	2036-Nov-22.7744	0.6308	1.8268	128.5226	52.7863	11.6382	K045/7	0	5	123
P/2003 O3 (LINEAR)	2036-Dec-07.3722	0.5728	1.3611	340.6068	2.6212	8.0910	17	4	1	-
58P/Jackson-Neujmin	2036-Dec-10.7072	0.6623	1.3785	158.9613	200.5913	13.0921	6	0	4	12
141P/Machholz 2-D	2036-Dec-21.8441	0.7462	0.7666	240.8946	154.9687	14.6345	11	-	2	12
52P/Harrington-Abell	2036-Dec-27.4453	0.5311	1.8324	329.0270	146.8285	10.8698	J994/2	0	4	12
77P/Longmore	2036-Dec-29.8344	0.3541	2.3355	14.7271	196.3018	24.3321	11	0	4	12
61P/Shajn-Schaldach	2036-Dec-30.0622	0.4240	2.1231	162.9294	221.6463	5.9990	K015/12	0	5	12
51P/Harrington-A	2036-Dec-30.1720	0.5452	1.6806	83.4645	269.4910	5.4359	K013/32	0	3	12
51P/Harrington	2037-Jan-03.0579	0.5453	1.6808	83.5051	269.4845	5.4362	J943/5	1	3	12
2P/Encke	2037-Jan-07.6270	0.8466	0.3406	333.9793	187.3391	11.3062	K033/15	1	3	123
P/2001 YX127 (LINEAR)	2037-Jan-15.9264	0.2180	3.1147	27.6989	121.0169	8.0243	18	3	1	-
135P/Shoemaker-Levy 8	2037-Feb-05.5159	0.2905	2.7094	212.8873	21.5153	6.0572	11	-	-	-
P/2005 L1 (McNaught)	2037-Feb-06.2982	0.3035	2.5659	120.9655	183.8613	10.3999	13	4	1	-
139P/Vaisala-Oterma	2037-Feb-09.0359	0.2480	3.3901	242.1010	166.1287	2.3412	20	-	-	-
162P/Siding Spring	2037-Feb-10.2762	0.5998	1.2183	30.2983	358.6472	27.7762	45	0	3	-
P/2004 EW38 (Catalina-LINEAR)	2037-Feb-11.3050	0.5047	1.7513	21.5769	121.2658	7.5823	6	4	1	-
P/2004 T1 (LINEAR-NEAT)	2037-Feb-23.4182	0.5102	1.6942	51.3644	336.3184	11.0659	19	4	1	-
120P/Mueller 1	2037-Feb-28.3193	0.3749	2.4762	358.5788	36.7616	8.4847	14	0	3	-
88P/Howell	2037-Mar-03.1979	0.5626	1.3614	56.5559	235.9149	4.3742	K043/13	1	3	123
130P/McNaught-Hughes	2037-Mar-05.0202	0.4340	1.9658	65.7995	251.9721	5.8152	29	1	2	12
132P/Helin-Roman-Alu 2	2037-Mar-24.9331	0.5646	1.6920	173.9292	216.4810	5.3813	19	0	2	-

Table 3—Continued

Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/1991 V1 (Shoemaker-Levy 6)	2037-Mar-26.4553	0.7001	1.1603	35.2039	336.4269	17.5362	10	6	1	-
P/1998 VS24 (LINEAR)	2037-Apr-01.7503	0.2436	3.4082	158.9861	245.0118	5.0306	9	4	1	-
36P/Whipple	2037-Apr-05.1201	0.2689	3.0176	181.7607	201.1000	9.9564	K037/37	0	6	12
P/2004 HC18 (LINEAR)	2037-Apr-08.3652	0.5041	1.7440	219.3250	31.0364	23.3705	19	3	1	-
10P/Tempel 2	2037-Apr-26.1691	0.5364	1.4227	117.7522	195.4331	12.0172	K0512/19	0	12	123
91P/Russell 3	2037-May-01.0049	0.2441	3.1592	240.8777	357.3236	15.8107	23	1	3	12
143P/Kowal-Mrkos	2037-May-01.3292	0.3754	2.9682	241.9662	305.1795	5.3921	21	1	3	-
99P/Kowal 1	2037-May-06.4645	0.2257	4.7528	27.7733	174.0740	4.3162	K072/3	1	1	-
P/2004 FY140 (LINEAR)	2037-May-07.2745	0.1675	4.1220	326.7411	241.7773	2.1275	3	4	1	-
P/2003 K2 (Christensen)	2037-May-26.7253	0.8366	0.5182	93.7427	346.2089	10.3313	9	7	1	-
P/2004 R1 (McNaught)	2037-May-27.9552	0.6846	0.9769	295.8655	0.8436	4.9054	13	6	1	-
P/2003 U3 (NEAT)	2037-May-28.5365	0.5107	2.4511	347.8328	357.1580	7.0293	10	5	1	-
P/1998 U4 (Spahr)	2037-Jun-10.2696	0.2860	3.8736	179.6361	240.1232	32.5495	24	3	1	-
119P/Parker-Hartley	2037-Jun-24.3539	0.3885	2.3270	104.5445	322.1375	7.3916	K052/7	0	2	-
P/2004 K2 (McNaught)	2037-Jul-01.1511	0.4975	1.5721	149.9840	180.5584	8.1090	18	4	1	-
P/2002 T1 (LINEAR)	2037-Jul-06.9384	0.6401	1.3094	14.1483	4.0382	21.3738	31	4	1	-
P/2001 WF2 (LONEOS)	2037-Jul-18.0469	0.6638	0.9912	72.4089	54.2172	16.2213	46	4	1	-
P/1999 DN3 (Korlevic-Juric)	2037-Jul-28.6068	0.1030	4.1617	2.4372	155.2852	18.9679	10	4	1	-
64P/Swift-Gehrels	2037-Aug-19.6206	0.6883	1.3839	299.5333	97.6619	8.9551	14	0	4	12
P/2000 G1 (LINEAR)	2037-Aug-23.2358	0.6532	1.0793	187.5190	347.3655	11.2722	20	5	1	-
37P/Forbes	2037-Sep-02.9170	0.5305	1.6304	314.5007	330.0196	8.9398	K055/12	1	5	123T
P/2000 U6 (Tichy)	2037-Sep-09.1117	0.4281	2.1743	24.0636	12.1200	19.2966	18	4	1	-
P/1999 XB69 (LINEAR)	2037-Sep-22.4457	0.6353	1.6141	255.4424	219.7327	11.2597	9	4	1	-
P/2002 O5 (NEAT)	2037-Sep-29.9511	0.5930	1.1945	281.6064	16.3855	20.1014	33	5	1	-
59P/Kearns-Kwee	2037-Oct-05.1106	0.4735	2.3744	311.6675	129.6181	9.3374	J993/27	-	2	12
P/1994 J3 (Shoemaker 4)	2037-Oct-16.0413	0.5066	2.8892	92.2074	191.6486	24.9746	2	4	1	-
P/2003 KV2 (LINEAR)	2037-Oct-26.7619	0.6179	1.1107	65.8633	190.2071	25.1077	24	5	1	-
P/1999 J5 (LINEAR)	2037-Oct-27.5032	0.1545	3.8591	109.7979	132.8338	13.6522	12	4	1	-
105P/Singer Brewster	2037-Dec-16.2402	0.4130	2.0303	192.2812	46.2041	9.1812	30	1	3	123T
P/2002 O8 (NEAT)	2037-Dec-27.1903	0.1655	3.6287	56.6144	262.3057	10.5719	11	3	1	-
115P/Maury	2038-Jan-01.0588	0.5257	1.9952	174.9186	123.5883	12.1081	12	0	3	-
P/2002 LZ11 (LINEAR)	2038-Jan-23.6706	0.3608	2.3153	222.7669	118.0787	12.1261	19	4	1	-
P/2005 JN (Spacewatch)	2038-Feb-15.5290	0.3599	2.2167	70.3710	153.4302	8.9003	7	5	1	-
137P/Shoemaker-Levy 2	2038-Mar-09.8866	0.5733	1.9243	232.8016	141.1968	4.8676	11	0	2	-
P/2005 S3 (Read)	2038-Apr-21.4023	0.4215	2.8015	273.2666	137.6534	3.4927	4	9	1	-

Table 3—Continued

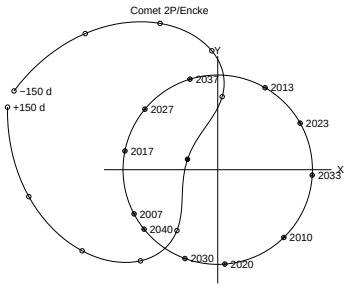
Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
P/2003 L1 (Scotti)	2038-Apr-24.3135	0.2364	5.1675	223.8951	0.9038	9.2622	3	4	1	-
P/1999 RO28 (LONEOS)	2038-May-04.3806	0.6796	1.0918	96.1553	270.0301	5.2435	12	5	1	-
111P/Helin-Roman-Crockett	2038-May-06.5038	0.1081	3.6986	89.7015	0.8065	4.2268	6	0	2	-
48P/Johnson	2038-May-15.0881	0.4184	2.0527	109.6787	217.1128	12.1319	41	0	8	12
21P/Giacobini-Zinner	2038-May-17.7551	0.6989	1.0711	194.3707	170.9234	31.6840	K054/12	1	4	123T
45P/Honda-Mrkos-Pajdusakova	2038-May-19.9538	0.7992	0.6267	67.5363	344.1304	11.8535	K013/6	0	3	12
11P/Tempel-Swift-LINEAR	2038-Jun-01.2035	0.6077	1.2405	237.2009	172.2182	15.3547	K0116/15	0	15	12
P/2002 AR2 (LINEAR)	2038-Aug-01.3659	0.6203	1.9904	7.0413	72.6578	21.0557	2	6	1	-
P/2005 L4 (Christensen)	2038-Aug-07.8100	0.4413	2.2650	280.1536	25.4028	16.1808	9	4	1	-
73P/Schwassmann-Wachmann 3	2038-Aug-29.0607	0.7046	0.8980	51.4318	215.6247	6.1729	J954/19	0	4	12
73P/Schwassmann-Wachmann 3-C	2038-Aug-29.9906	0.7047	0.8976	51.4090	215.6159	6.1500	K012/19	2	2	123
54P/de Vico-Swift-NEAT	2038-Sep-10.1497	0.4825	1.8530	197.3707	164.0469	4.7014	18	0	15	12
P/2004 VR8 (LONEOS)	2038-Sep-16.3843	0.5251	2.3363	68.1872	65.2714	17.6988	26	3	1	-
P/2003 O2 (LINEAR)	2038-Sep-17.1889	0.6468	1.5048	342.7268	33.6204	14.3254	23	4	1	-
73P/Schwassmann-Wachmann 3-E	2038-Sep-19.0765	0.7064	0.8933	51.0763	215.7243	5.8756	K013/11	0	3	12
P/2000 S4 (LINEAR-Spacewatch)	2038-Oct-02.4957	0.6811	2.2697	173.8000	173.2886	28.3705	7	5	1	-
73P/Schwassmann-Wachmann 3-B	2038-Oct-03.2287	0.7075	0.8907	50.9640	215.8652	5.7533	9	0	2	12
49P/Arend-Rigaux	2038-Oct-08.6668	0.5994	1.4287	118.7598	332.9416	19.0770	56	0	9	12
89P/Russell 2	2038-Oct-18.6445	0.4037	2.2478	41.1862	250.2317	12.0368	13	0	4	-
60P/Tsuchinshan 2	2038-Oct-29.3498	0.5337	1.6461	267.3595	216.9035	3.5779	J995/7	2	5	123T
P/2001 K1 (NEAT)	2038-Nov-10.8621	0.3432	2.5898	81.5432	97.4478	16.4838	17	4	1	-
96P/Machholz 1	2038-Nov-20.4184	0.9638	0.1095	93.6487	15.0088	57.1522	41	0	4	12
P/2000 R2 (LINEAR)	2038-Nov-26.3348	0.5257	1.6554	160.0927	176.7529	11.6620	8	6	1	-
P/2004 F3 (NEAT)	2038-Nov-26.7138	0.1987	3.4977	72.4671	184.2854	17.0021	36	3	1	-
79P/du Toit-Hartley	2038-Nov-27.8067	0.6157	1.1358	279.7983	282.5034	3.1430	K035/3	0	4	12
124P/Mrkos	2038-Dec-06.8483	0.4811	1.7630	359.8301	185.4537	31.3088	18	1	2	-
104P/Kowal 2	2038-Dec-13.4831	0.6857	0.9797	194.1594	241.4660	5.3730	K043/16	2	2	123T
P/2005 J1 (McNaught)	2038-Dec-24.0322	0.5815	1.4690	268.5950	340.1266	32.0593	9	4	1	-
87P/Bus	2038-Dec-28.6984	0.1791	3.7013	174.1851	59.5368	3.9227	8	-	3	12
80P/Peters-Hartley	2038-Dec-31.8713	0.6120	1.5308	259.4540	340.9461	29.7372	15	3	2	123
41P/Tuttle-Giacobini-Kresak	2039-Jan-07.5673	0.6539	1.0770	140.2586	63.1366	9.1063	K013/19	0	3	12
30P/Reinmuth 1	2039-Jan-31.0559	0.5143	1.8141	117.2088	9.5427	8.0536	K027/19	0	7	12
144P/Kushida	2039-Feb-05.8478	0.6350	1.3982	242.8352	216.4630	3.9296	3	2	1	-
171P/Spahr	2039-Feb-14.5102	0.5038	1.7604	101.6578	347.0394	21.9723	19	0	2	-
P/2004 X1 (LINEAR)	2039-Feb-17.3046	0.7181	0.8151	6.6953	346.3803	5.1132	9	6	1	-

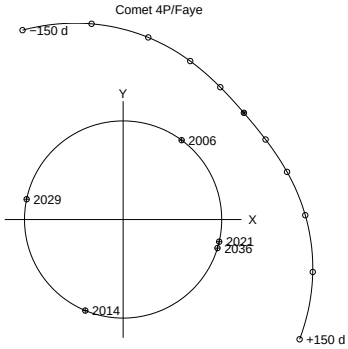
Table 3—Continued

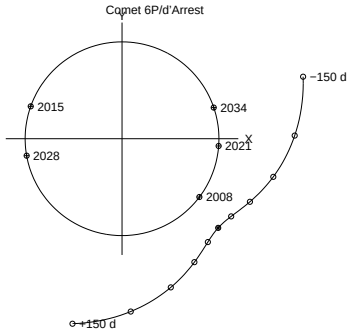
Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
76P/West-Kohoutek-Ikemura	2039-Mar-04.0183	0.5415	1.5858	84.0575	0.0665	30.5376	K004/2	2	4	12
P/2001 CV8 (LINEAR)	2039-Mar-14.3298	0.4475	2.1370	359.6429	151.9822	9.0640	21	4	1	-
128P/Shoemaker-Holt 1-A	2039-Mar-14.8860	0.2368	4.1264	207.5352	249.2499	6.7448	10	1	1	-
128P/Shoemaker-Holt 1-B	2039-Mar-16.3979	0.2367	4.1274	207.5313	249.3019	6.7494	17	-	-	-
P/2005 N3 (Larson)	2039-Mar-19.7999	0.4086	2.0905	289.4386	69.1019	6.0018	8	4	1	-
169P/NEAT	2039-Apr-06.3987	0.7722	0.5906	175.6390	218.6096	11.2475	47	0	4	-
164P/Christensen	2039-Apr-18.7460	0.5446	1.6547	88.1058	326.1954	16.3432	20	1	2	-
56P/Slaughter-Burnham	2039-Apr-21.8597	0.5082	2.4756	345.7493	44.2849	8.1635	K053/28	0	3	-
P/1998 X1 (ODAS)	2039-May-01.5756	0.4477	1.9769	358.0362	69.3419	1.3403	20	4	1	-
P/2003 A1 (LINEAR)	2039-May-16.5747	0.5044	1.8907	53.9280	340.6638	44.4041	11	6	1	-
117P/Helin-Roman-Alu 1	2039-May-24.9140	0.2362	3.1868	58.0439	223.3837	8.6227	K052/13	0	2	-
27P/Crommelin	2039-May-27.2313	0.9191	0.7404	250.6738	195.9704	29.3258	J843/16	-	3	12
P/2001 J1 (NEAT)	2039-Jun-07.6786	0.7585	0.9380	197.8875	273.3007	10.2015	46	5	1	-
150P/LONEOS	2039-Jun-16.2521	0.5482	1.7532	271.8349	246.5265	18.4764	18	0	4	-
P/2003 WC7 (LINEAR-Catalina)	2039-Jul-03.9783	0.6771	1.6676	86.4500	345.0165	22.0158	6	5	1	-
28P/Neujmin 1	2039-Jul-23.3847	0.7736	1.5785	346.3278	347.3291	14.3088	23	0	3	-
P/2003 UY275 (LINEAR)	2039-Jul-30.7673	0.4976	1.8890	241.2576	122.0895	16.9205	6	4	1	-
7P/Pons-Winnecke	2039-Aug-28.5753	0.6976	0.9819	89.2284	177.4836	17.1927	K027/23	0	7	123T
26P/Grigg-Skjellerup	2039-Sep-09.0430	0.6389	1.0910	211.5041	2.1501	22.4101	J978/18	-	8	12
138P/Shoemaker-Levy 7	2039-Oct-02.7234	0.5417	1.6286	300.6182	104.4873	10.8579	7	-	-	-
112P/Urata-Niijima	2039-Oct-03.9226	0.6061	1.3718	30.0521	22.7161	23.5458	14	0	2	-
P/2001 R1 (LONEOS)	2039-Oct-08.2534	0.6399	1.2083	320.6805	98.0179	3.9631	23	5	1	-
P/2004 CB (LINEAR)	2039-Oct-17.5873	0.6729	0.9689	62.7044	152.5201	21.2919	32	3	1	-
92P/Sanguin	2039-Nov-15.8101	0.6602	1.8165	181.1954	163.6440	19.4911	24	1	3	123
P/2001 Q2 (Petriew)	2039-Dec-07.6565	0.6970	0.9424	214.0882	181.9330	13.9644	28	4	1	-
114P/Wiseman-Skiff	2039-Dec-14.0638	0.5604	1.5471	270.8787	173.1486	18.3626	26	0	3	-
63P/Wild 1	2039-Dec-14.4932	0.6509	1.9818	357.8203	168.5567	19.6044	25	-	4	12
147P/Kushida-Muramatsu	2040-Jan-10.3935	0.2115	3.1619	91.6124	348.5891	2.3094	K012/1	1	1	-
22P/Kopff	2040-Mar-03.8687	0.6223	1.1901	119.0959	169.1720	5.4546	K023/85	1	3	12
75P/Kohoutek	2040-Mar-25.8797	0.5737	1.3846	253.7591	196.7935	3.6919	J873/16	-	2	12
168P/Hergenrother	2040-Apr-23.6808	0.6059	1.4437	355.0721	16.5242	21.2805	33	0	1	-
P/1999 WJ7 (Korlevic)	2040-Apr-27.3644	0.3161	3.1737	290.0451	155.1222	2.9813	45	3	1	-
2P/Encke	2040-Apr-30.0767	0.8469	0.3399	333.9696	187.3632	11.3120	K033/15	1	3	123
170P/Christensen	2040-May-02.0947	0.3119	2.8706	142.2606	225.4197	10.1330	10	2	1	-
9P/Tempel 1	2040-May-10.1306	0.4343	1.9276	65.4410	187.9654	10.2917	K051/17	1	1	123

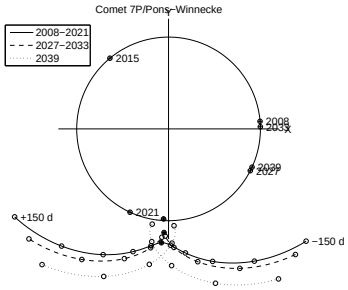
Table 3—Continued

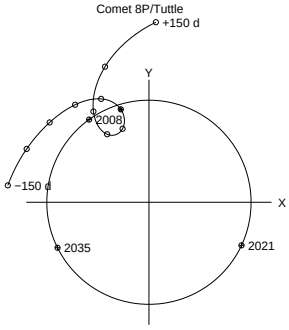
Name	T_p	e	q (AU)	Ω (°)	ω (°)	i (°)	Soln ID	U	No. Apps.	Nongrav.
C/2000 S3 (LONEOS)	2040-Jun-07.5103	0.7730	2.6573	40.6873	298.5464	25.0862	7	4	1	-
71P/Clark	2040-Jun-24.3538	0.4604	1.7703	45.9232	227.0114	6.8241	K002/6	-	2	12
P/2005 K3 (McNaught)	2040-Jul-18.6967	0.6018	1.4588	349.1524	18.9611	14.8963	15	4	1	-
156P/Russell-LINEAR	2040-Jul-25.0132	0.5970	1.4268	34.7440	1.9594	17.2365	14	0	3	-
65P/Gunn	2040-Aug-01.8782	0.2864	2.6772	59.4673	215.3501	9.1234	K034/21	0	4	123T
P/2002 T5 (LINEAR)	2040-Aug-22.6950	0.4388	3.9388	123.0930	327.2279	30.8727	49	2	1	-
P/1990 V1 (Shoemaker-Levy 1)	2040-Sep-10.4829	0.7729	1.4603	51.1304	312.8790	24.6225	3	5	1	-
84P/Giclas	2040-Sep-16.1762	0.5031	1.7906	106.6992	283.3370	7.5136	29	0	10	-
129P/Shoemaker-Levy 3	2040-Sep-17.1250	0.0857	3.9098	184.7244	308.2961	3.4482	K052/10	0	2	-
152P/Helin-Lawrence	2040-Sep-18.2560	0.3687	2.6120	73.1156	187.0879	6.1520	31	0	2	-
P/1999 D1 (Hermann)	2040-Sep-22.4771	0.7140	1.6579	348.8339	173.7671	21.2670	10	-	-	-
46P/Wirtanen	2040-Oct-10.3223	0.6532	1.0790	82.0866	356.5186	11.6988	K023/22	0	3	123T
125P/Spacewatch	2040-Oct-13.4156	0.5097	1.5372	153.0084	87.0145	9.9751	10	0	2	-
C/1998 G1 (LINEAR)	2040-Oct-17.0703	0.8236	2.1400	341.4336	236.1005	109.6191	15	5	1	-
146P/Shoemaker-LINEAR	2040-Oct-19.5877	0.6403	1.4622	52.2822	316.6545	23.4382	15	0	3	-
57P/duToit-Neujmin-Delporte-A	2040-Oct-30.0163	0.5218	1.6088	185.5521	118.9633	3.0113	K023/3	1	3	123
57P/duToit-Neujmin-Delporte	2040-Oct-30.4981	0.5218	1.6088	185.5499	119.0040	3.0112	J964/1	2	5	123
50P/Arend	2040-Nov-01.8505	0.5316	1.9113	354.6618	49.9090	19.0768	31	0	6	12
P/2000 C1 (Hergenrother)	2040-Nov-03.4860	0.3742	2.3076	109.7337	74.5283	4.9302	15	4	1	-
P/2000 B3 (LINEAR)	2040-Nov-13.4456	0.5630	1.8004	349.3525	128.7279	11.8159	47	5	1	-
P/2001 MD7 (LINEAR)	2040-Nov-30.4889	0.6914	1.2157	122.1299	248.8450	12.4588	49	3	1	-



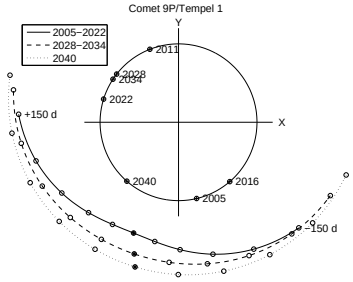


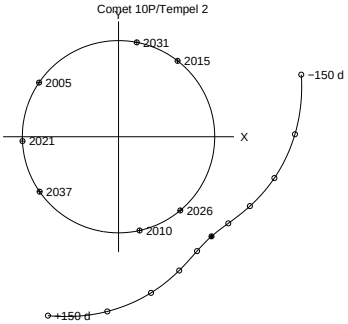


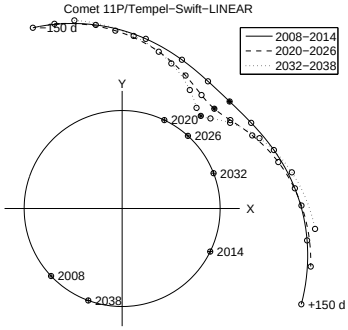


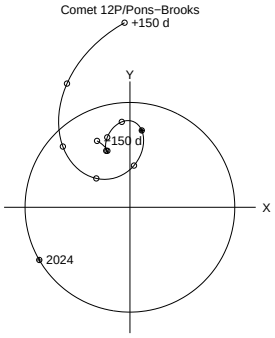


NOTE: Inclination is 54.9 deg.

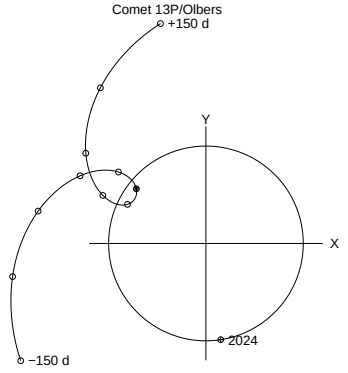


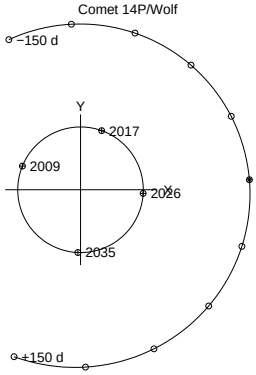


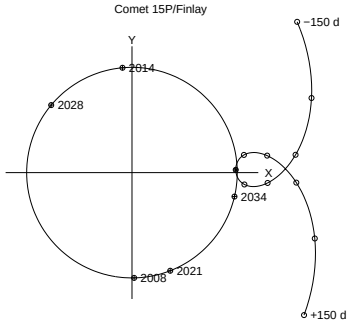


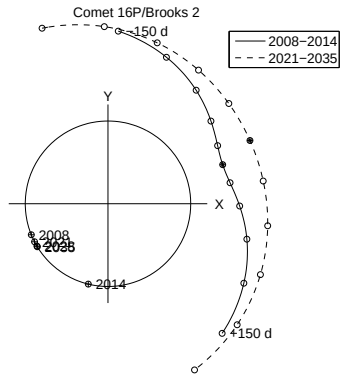


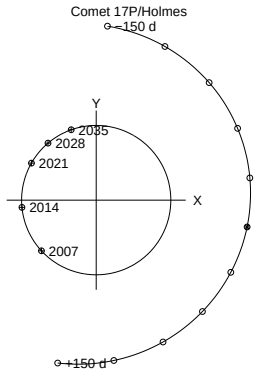
NOTE: Inclination is 74.2 deg.

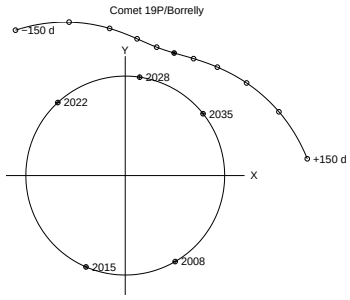


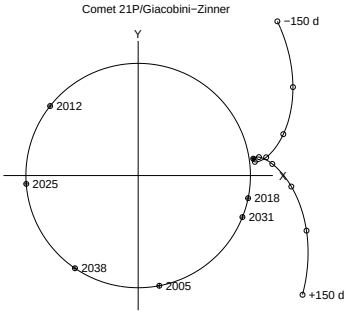


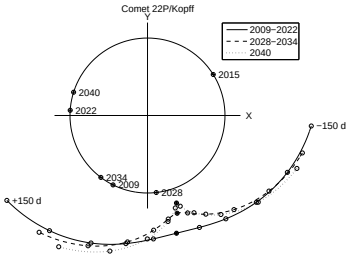


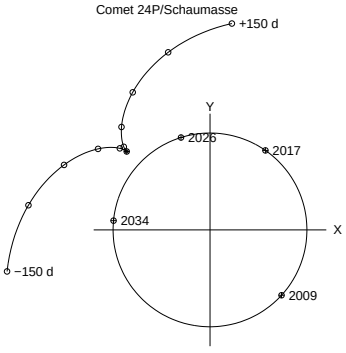

Comet 16P/Brooks 2
2008−2014
2021−2035
−150 d
+150 d
Y
X
2008
2014

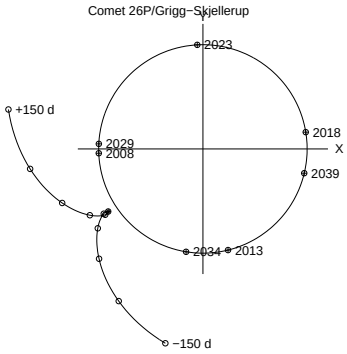

Comet 17P/Holmes
−150 d
+150 d
Y
X
2035
2028
2021
2014
2007

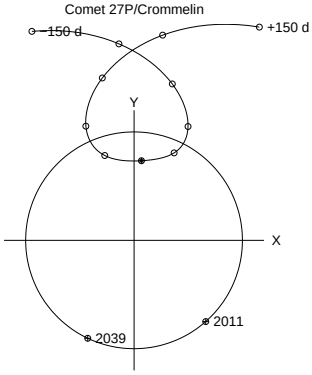

Comet 19P/Borrelly
−150 d
+150 d
Y
X
2028
2022
2035
2015
2008

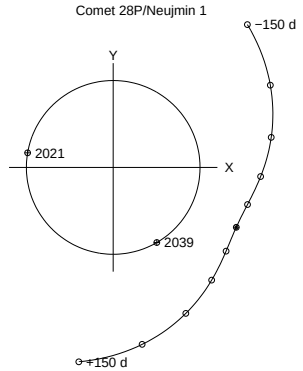

Comet 21P/Giacobini−Zinner
−150 d
+150 d
Y
X
2012
2025
2018
2031
2038
2005

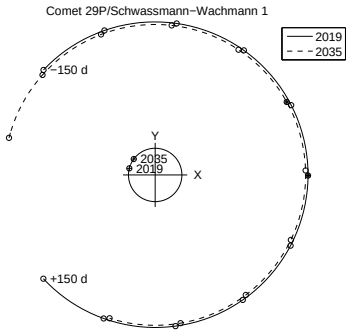

Comet 22P/Kopff
2009−2022
2028−2034
2040
−150 d
+150 d
Y
X
2015
2040
2022
2034
2009
2028

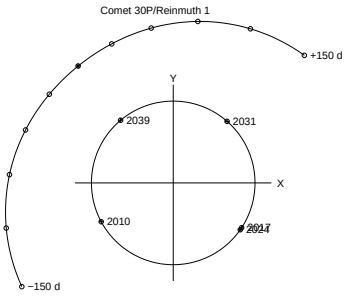

Comet 24P/Schaumasse
+150 d
−150 d
Y
X
2026
2017
2034
2009

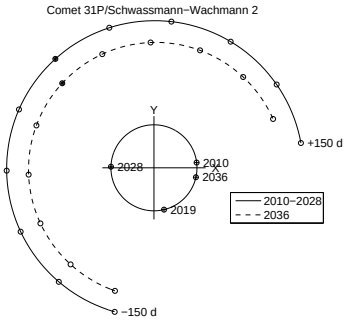

Comet 26P/Grigg−Skjellerup
+150 d
−150 d
Y
X
2023
2018
2029
2008
2039
2034
2013

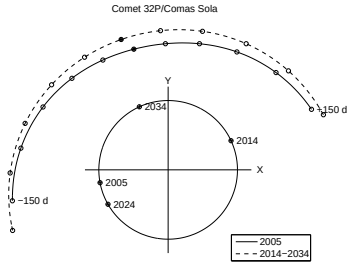

Comet 27P/Crommelin
−150 d
+150 d
Y
X
2039
2011

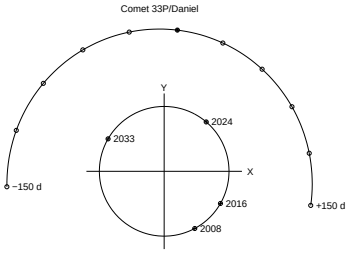

Comet 28P/Neujmin 1
−150 d
+150 d
Y
X
2021
2039

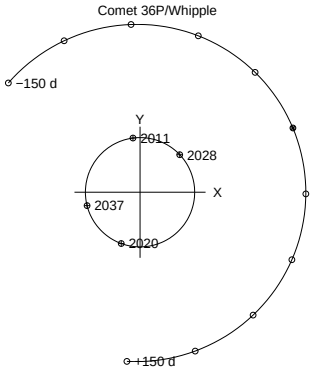

Comet 29P/Schwassmann−Wachmann 1
2019
2035
−150 d
+150 d
Y
X
2035
2019

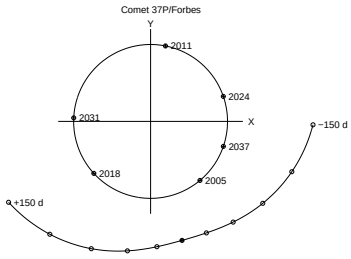

Comet 30P/Reinmuth 1
+150 d
−150 d
Y
X
2039
2031
2010

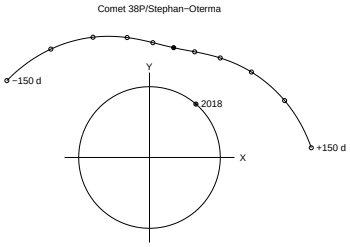

Comet 31P/Schwassmann−Wachmann 2
+150 d
−150 d
Y
X
2028
2010
2036
2019
2010−2028
2036

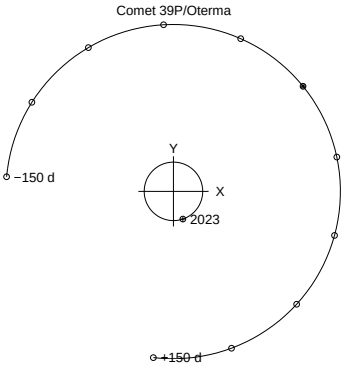

Comet 32P/Comas Sola
Y
X
2034
2014
2005
2024
−150 d
+150 d
2005
2014−2034

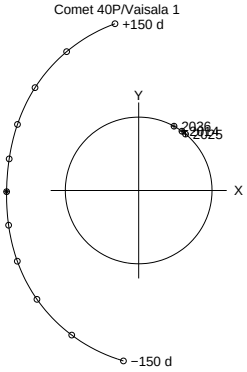

Comet 33P/Daniel
Y
X
2024
2033
2016
2008
−150 d
+150 d

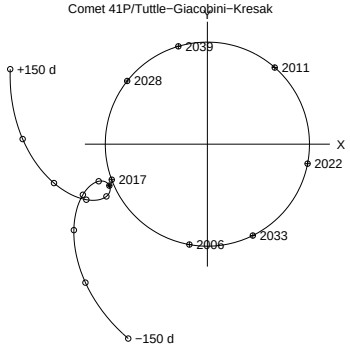

Comet 36P/Whipple
−150 d
Y
X
2011
2028
2037
2020
+150 d

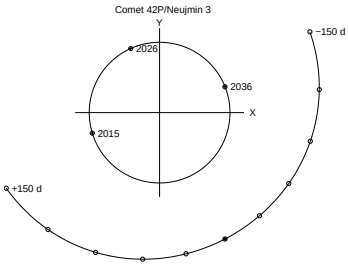

Comet 37P/Forbes
Y
X
2011
2024
2031
2037
2018
2005
−150 d
+150 d

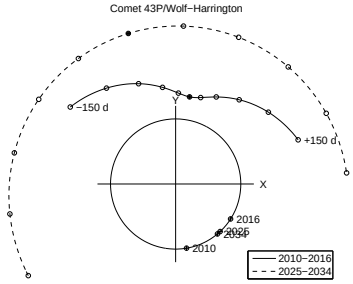

Comet 38P/Stephan−Oterma
−150 d
Y
X
2018
+150 d

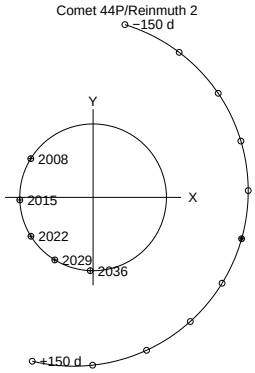

Comet 39P/Oterma
−150 d
Y
X
2023
+150 d

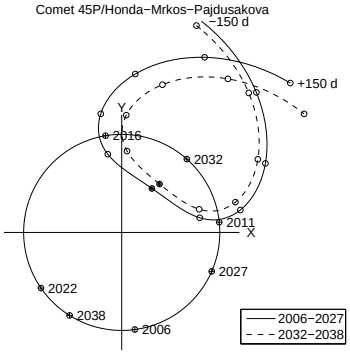

Comet 40P/Vaisala 1
+150 d
Y
X
2026
2025
−150 d

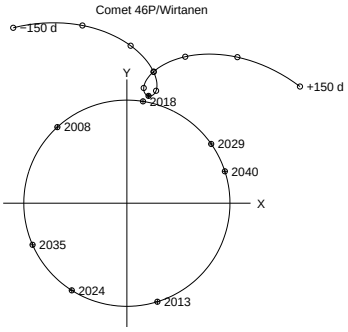

Comet 41P/Tuttle−Giacobini−Kresak
2039
+150 d
2011
2028
X
2022
2017
2033
2006
−150 d

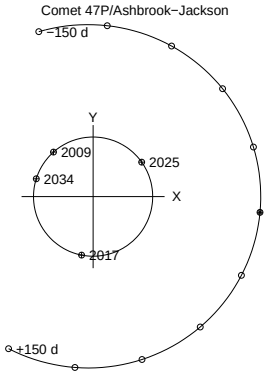

Comet 42P/Neujmin 3
Y
2026
2036
X
2015
−150 d
+150 d

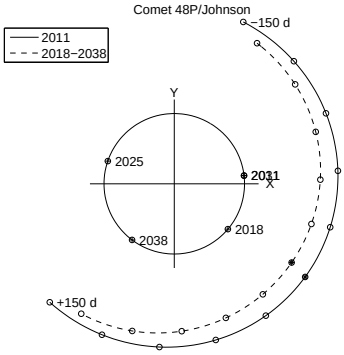

Comet 43P/Wolf−Harrington
−150 d
Y
+150 d
X
2016
2026
2034
2010
2010−2016
2025−2034

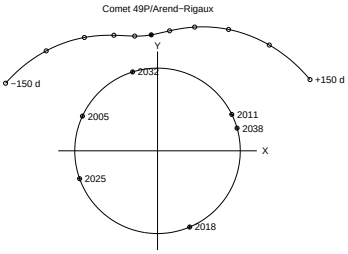

Comet 44P/Reinmuth 2
−150 d
Y
2008
2015
X
2022
2029
2036
+150 d

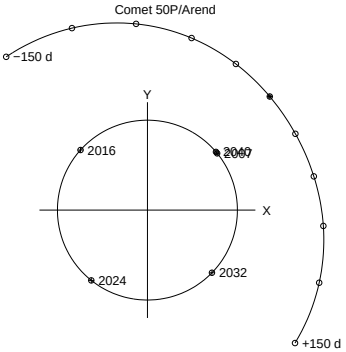

Comet 45P/Honda−Mrkos−Pajdusakova
−150 d
+150 d
Y
2016
2032
2011
X
2027
2022
2038
2006
2006−2027
2032−2038

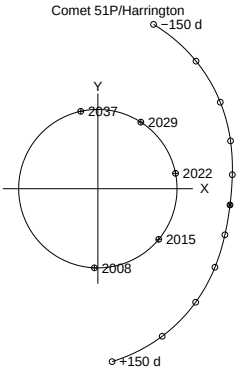


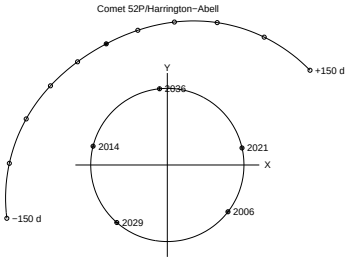


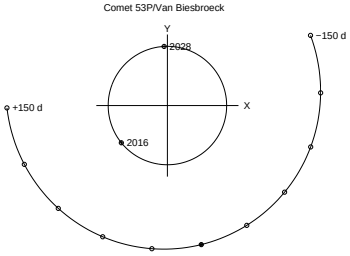


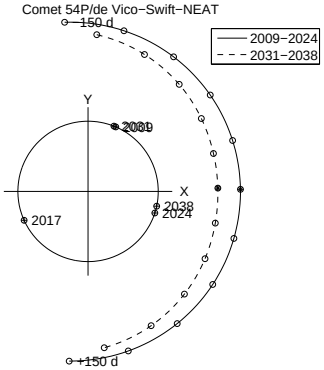


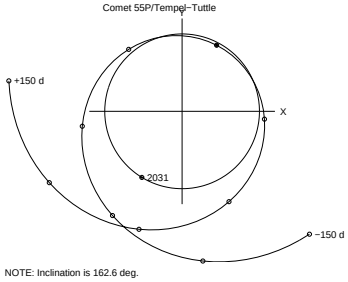




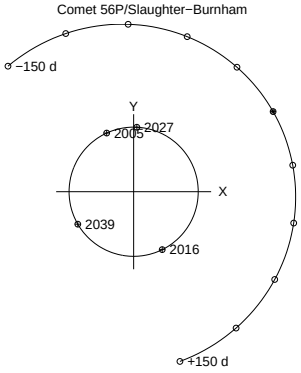


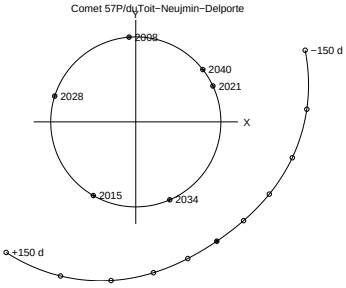


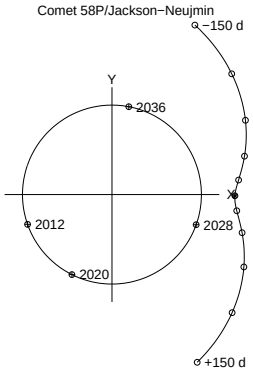


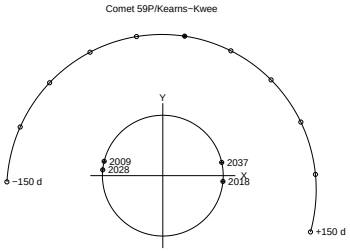


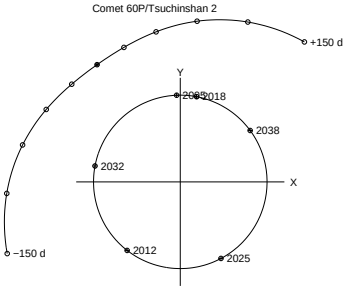
NOTE: Inclination is 162.6 deg.

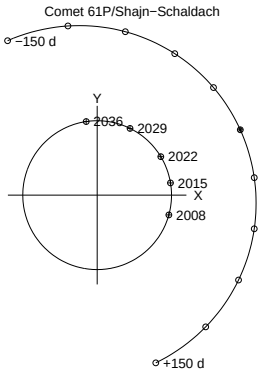


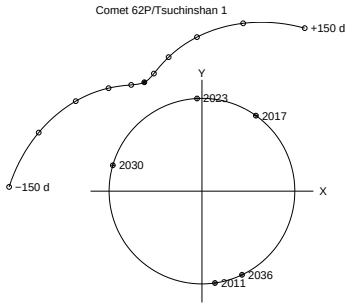


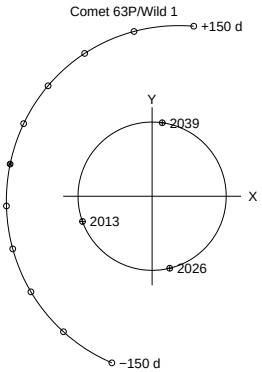

Comet 58P/Jackson−Neujmin
−150 d
Y
2036
X
2012
2028
2020
+150 d

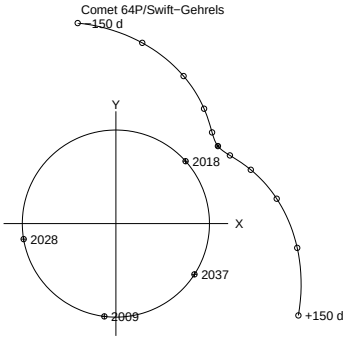

Comet 59P/Kearns−Kwee
Y
2009
2028
2037
X
2018
−150 d
+150 d

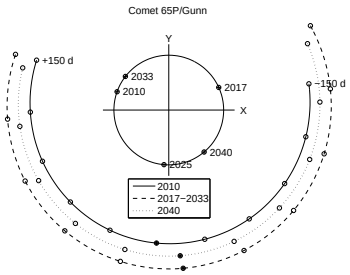

Comet 60P/Tsuchinshan 2
+150 d
Y
2018
2038
2032
X
−150 d
2012
2025

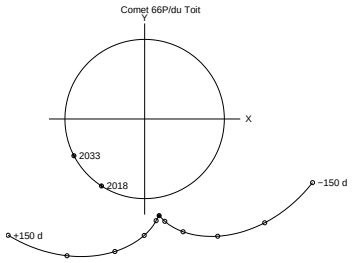

Comet 61P/Shajn−Schaldach
−150 d
Y
2036
2029
2022
2015
X
2008
+150 d

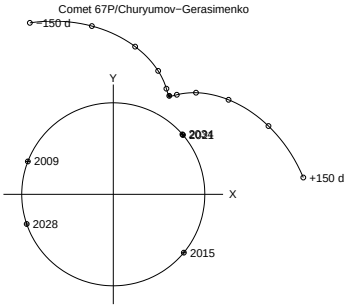

Comet 62P/Tsuchinshan 1
+150 d
Y
2023
2017
2030
X
−150 d
2036
2011

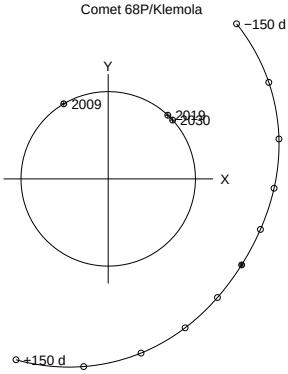

Comet 63P/Wild 1
+150 d
Y
2039
X
2013
2026
−150 d

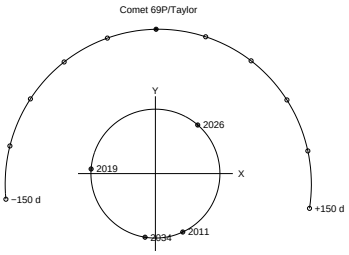

Comet 64P/Swift−Gehrels
−150 d
Y
2018
X
2028
2037
2009
+150 d

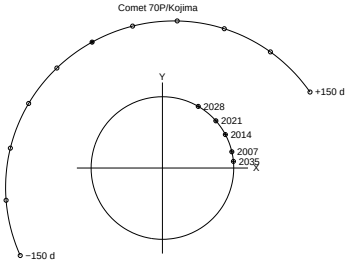

Comet 65P/Gunn
+150 d
Y
2033
2017
2010
X
−150 d
2040
2025
2010
2017−2033
2040

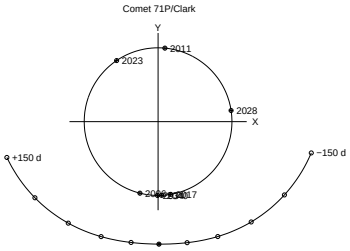

Comet 66P/du Toit
Y
X
2033
2018
−150 d
+150 d

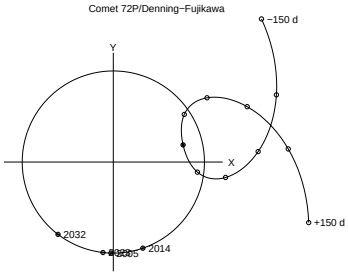

Comet 67P/Churyumov−Gerasimenko
−150 d
Y
2009
X
2028
2015
+150 d

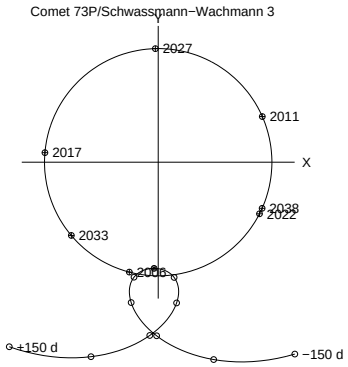

Comet 68P/Klemola
−150 d
Y
2009
2019
2030
X
+150 d

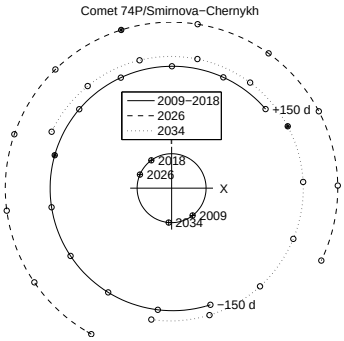

Comet 69P/Taylor
Y
2026
2019
X
−150 d
+150 d
2034
2011

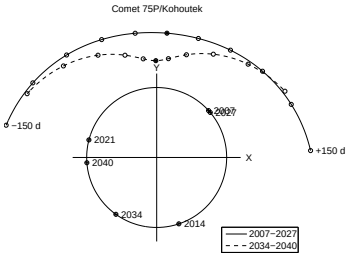

Comet 70P/Kojima
+150 d
−150 d
Y
X
2028
2021
2014
2007
2035

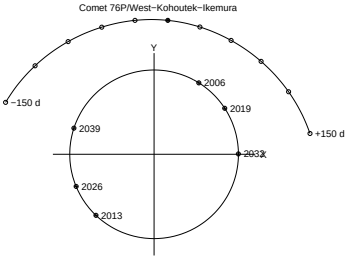

Comet 71P/Clark
+150 d
−150 d
Y
X
2011
2023
2028

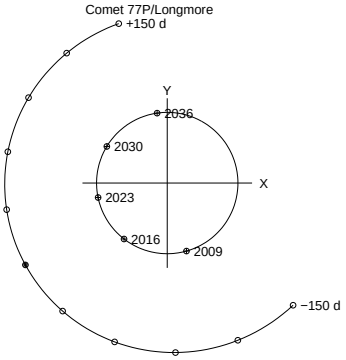

Comet 72P/Denning−Fujikawa
−150 d
+150 d
Y
X
2032
2014

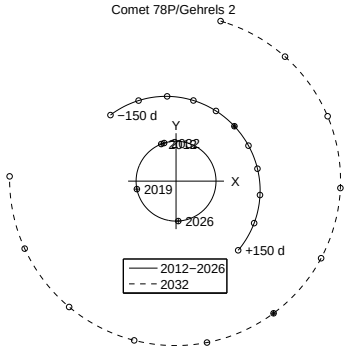

Comet 73P/Schwassmann−Wachmann 3
+150 d
−150 d
Y
X
2027
2011
2017
2038
2022
2033

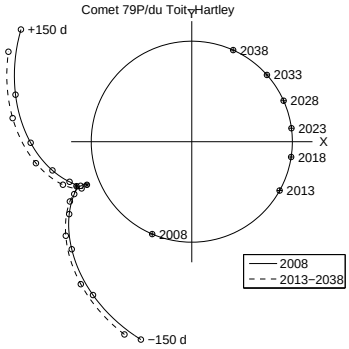

Comet 74P/Smirnova−Chernykh
2009−2018
2026
2034
+150 d
−150 d
X
2018
2026
2009
2034

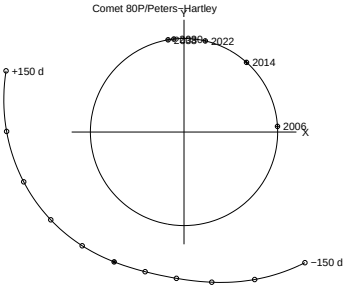

Comet 75P/Kohoutek
−150 d
+150 d
Y
X
2021
2040
2034
2014
2007−2027
2034−2040

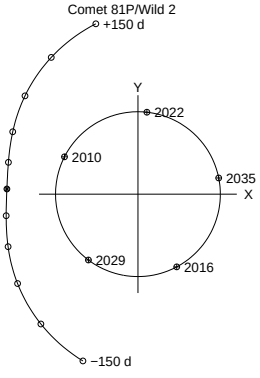

Comet 76P/West−Kohoutek−Ikemura
−150 d
+150 d
Y
X
2006
2019
2039
2026
2013

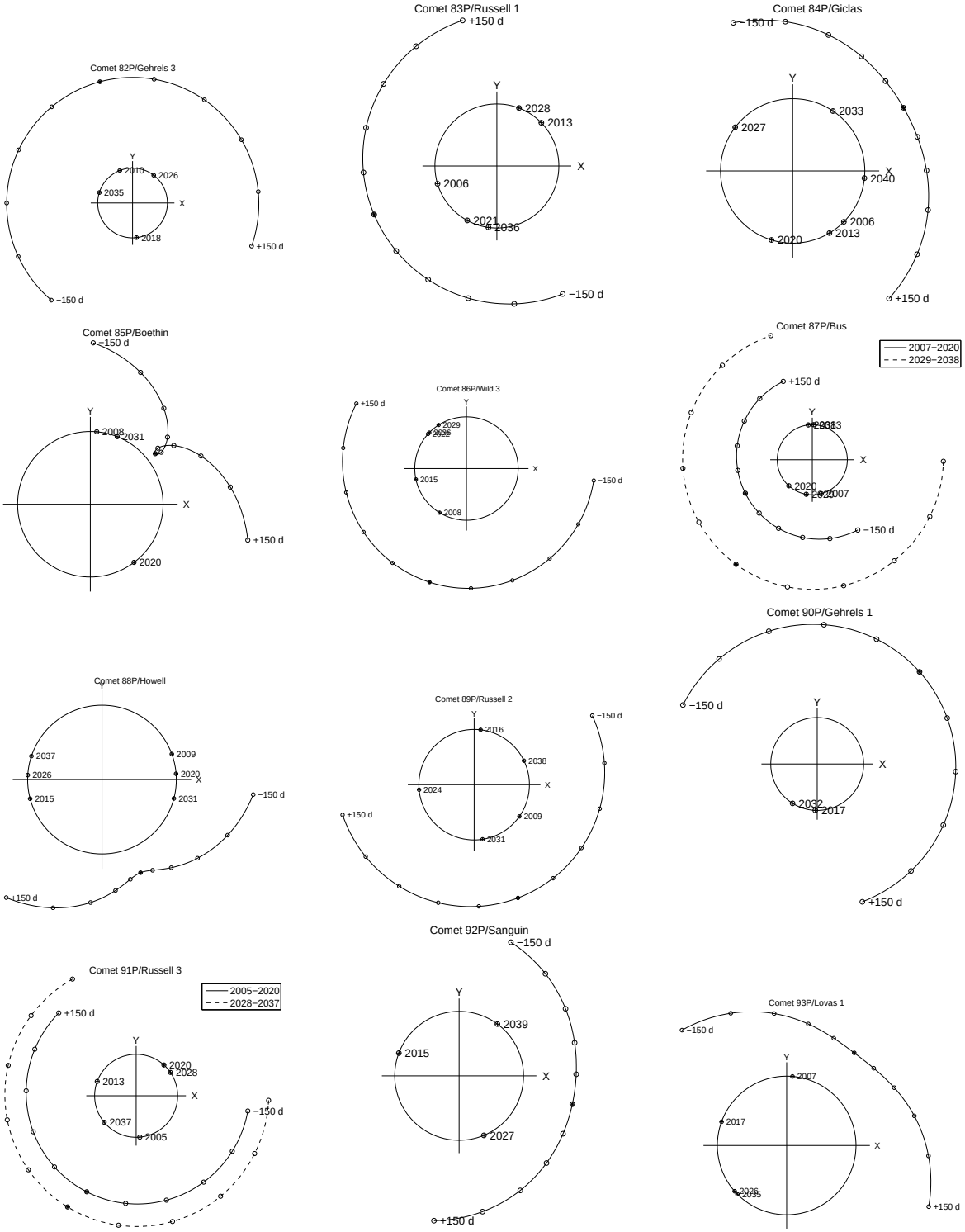

Comet 77P/Longmore
+150 d
−150 d
Y
X
2036
2030
2023
2016
2009

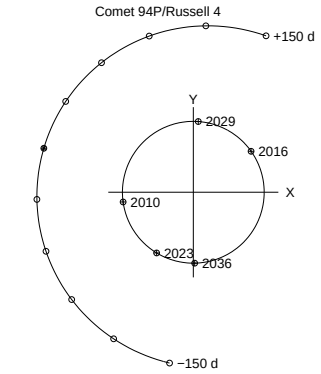

Comet 78P/Gehrels 2
−150 d
+150 d
Y
X
2019
2026
2012−2026
2032

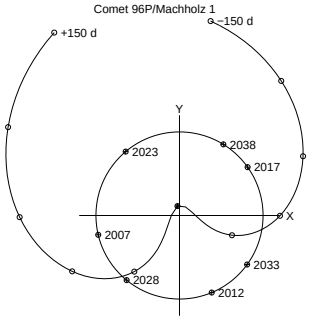

Comet 79P/du Toit−Hartley
+150 d
−150 d
Y
X
2038
2033
2028
2023
2018
2013
2008
2008
2013−2038


Comet 80P/Peters−Hartley
+150 d
−150 d
Y
X
2022
2014
2006

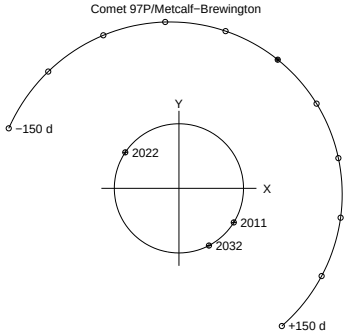

Comet 81P/Wild 2
+150 d
−150 d
Y
X
2022
2010
2035
2029
2016

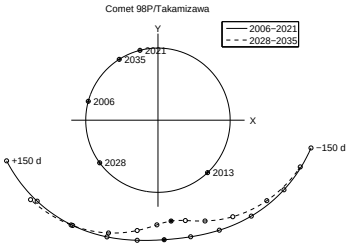

Comet 82P/Gehrels 3
Y
X
2010
2026
2035
2018
+150 d
−150 d
Comet 83P/Russell 1
+150 d
Y
X
2028
2013
2006
2021
2036
−150 d
Comet 84P/Giclas
−150 d
Y
X
2033
2027
2040
2006
2013
2020
+150 d
Comet 85P/Boethin
−150 d
Y
X
2008
2031
2020
+150 d
Comet 86P/Wild 3
+150 d
Y
X
2029
2015
2008
−150 d
Comet 87P/Bus
2007−2020
2029−2038
+150 d
Y
X
2020
2007
−150 d
Comet 88P/Howell
Y
X
2037
2009
2026
2020
2015
2031
−150 d
+150 d
Comet 89P/Russell 2
Y
X
2016
2038
2024
2009
2031
−150 d
+150 d
Comet 90P/Gehrels 1
−150 d
Y
X
2032
2017
+150 d
Comet 91P/Russell 3
2005−2020
2028−2037
+150 d
Y
X
2020
2028
2013
2037
2005
−150 d
Comet 92P/Sanguin
−150 d
Y
X
2039
2015
2027
+150 d
Comet 93P/Lovas 1
−150 d
Y
X
2007
2017
2028
2035
+150 d

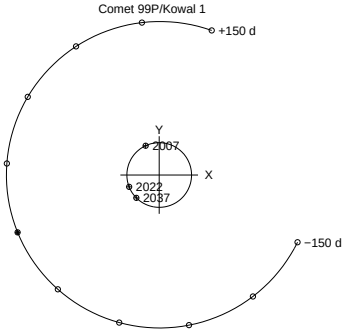


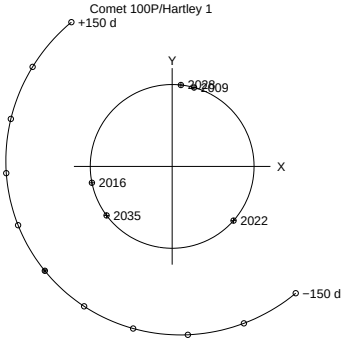


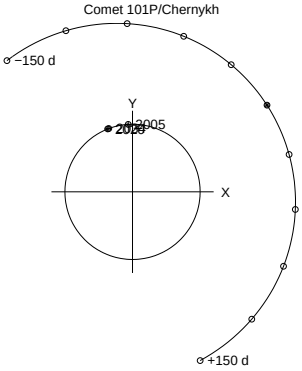
NOTE: Inclination is 57.9 deg.

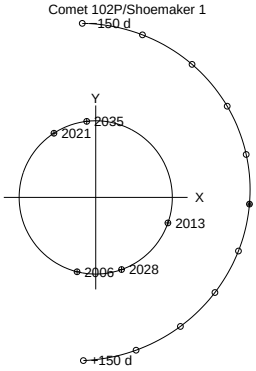


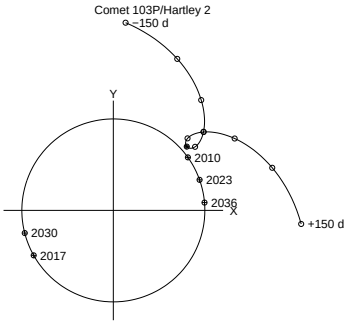


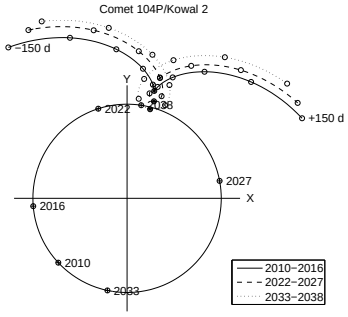


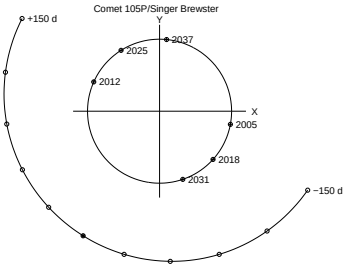


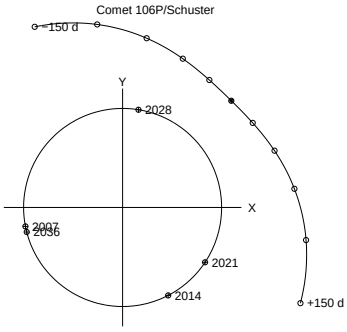


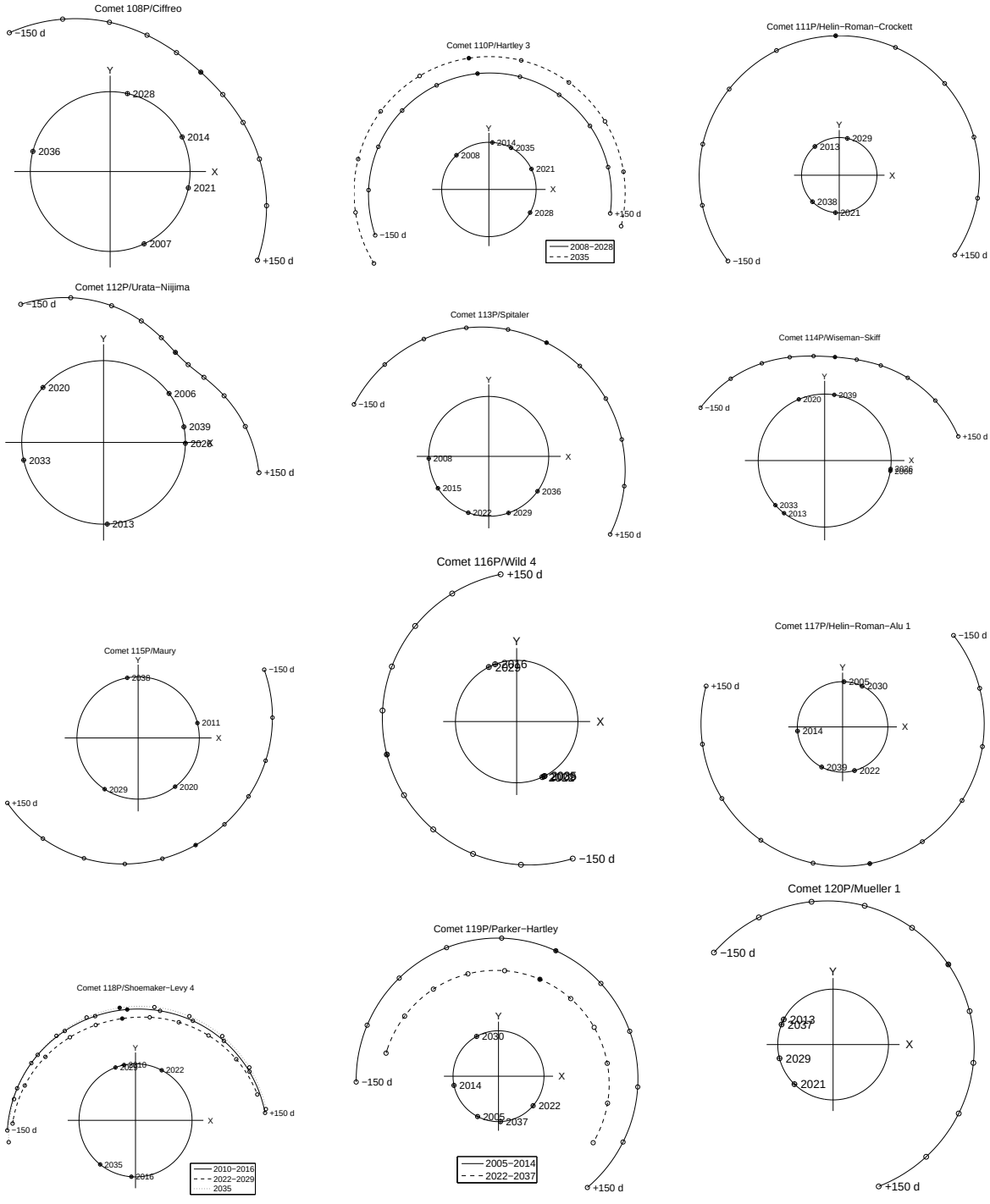


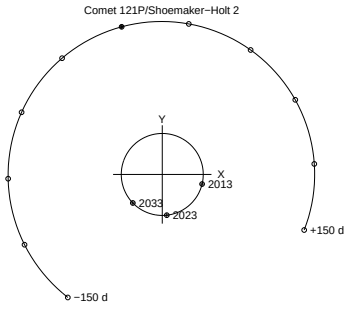


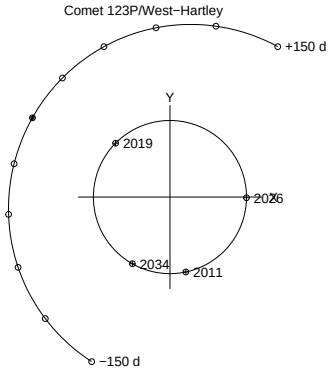


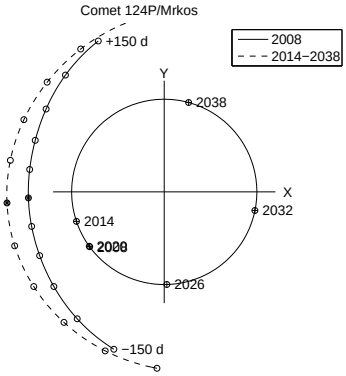


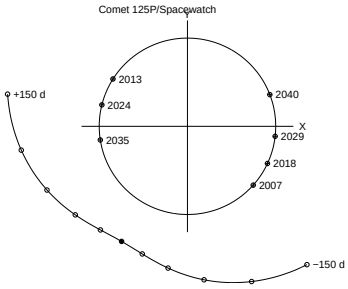


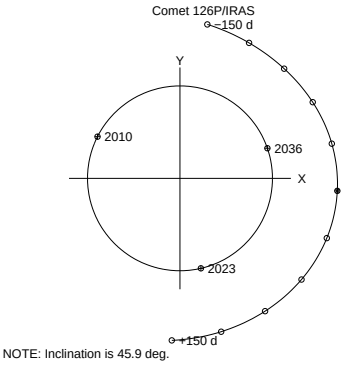

Comet 108P/Ciffreo
−150 d
+150 d
2028
2014
2036
2021
2007
Comet 110P/Hartley 3
2014
2035
2008
2021
2028
−150 d
+150 d
2008−2028
2035
Comet 111P/Helin−Roman−Crockett
2029
2013
2038
2021
−150 d
+150 d
Comet 112P/Urata−Niijima
−150 d
+150 d
2020
2006
2039
2028
2033
2013
Comet 113P/Spitaler
−150 d
+150 d
2008
2015
2036
2022
2029
Comet 114P/Wiseman−Skiff
−150 d
+150 d
2020
2039
2033
2013
Comet 116P/Wild 4
+150 d
−150 d
Comet 115P/Maury
−150 d
+150 d
2038
2011
2029
2020
Comet 117P/Helin−Roman−Alu 1
−150 d
+150 d
2005
2030
2014
2039
2022
Comet 120P/Mueller 1
−150 d
+150 d
2013
2037
2029
2021
Comet 118P/Shoemaker−Levy 4
−150 d
+150 d
2022
2035
2010−2016
2022−2029
2035
Comet 119P/Parker−Hartley
−150 d
+150 d
2030
2014
2022
2005
2037
2005−2014
2022−2037



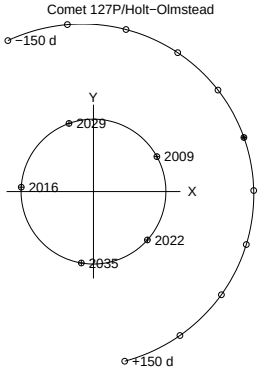


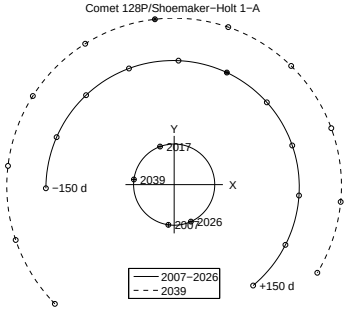


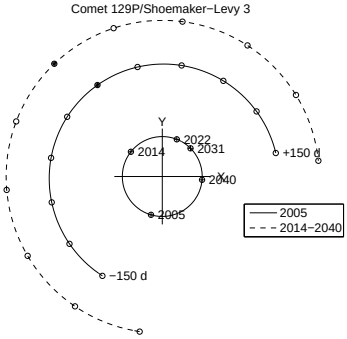


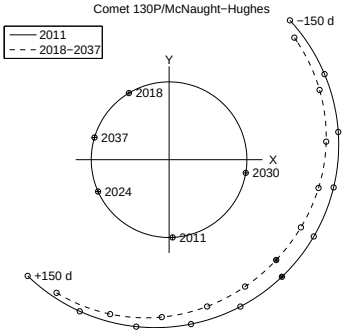


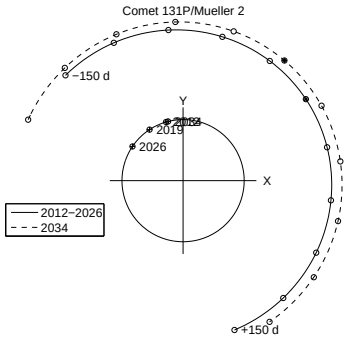
NOTE: Inclination is 45.9 deg.

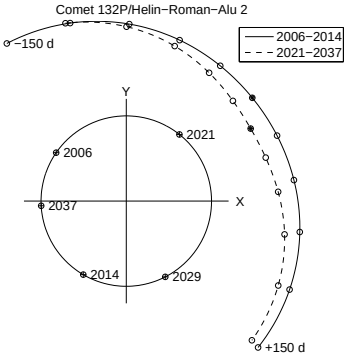


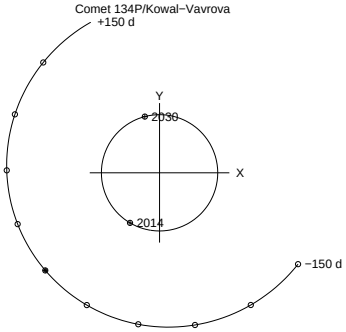


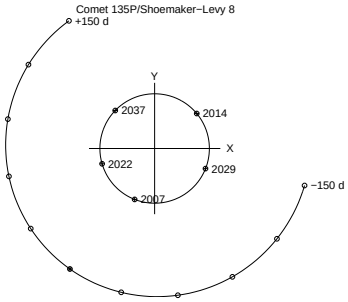


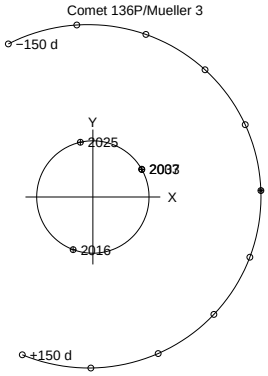


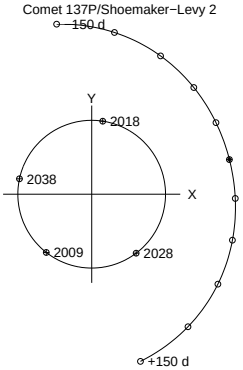


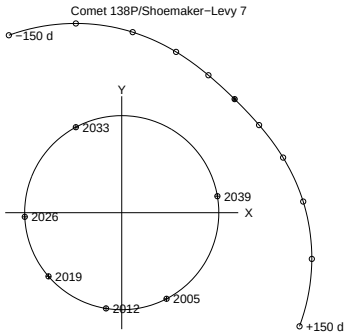


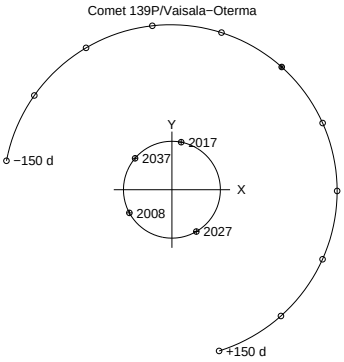


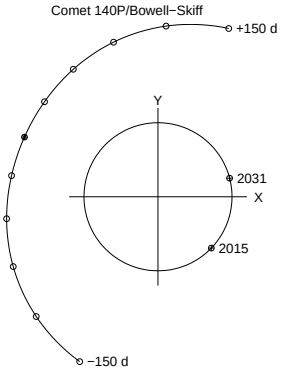

Comet 135P/Shoemaker−Levy 8
+150 d
Y
2037
2014
X
2022
2029
2007
−150 d

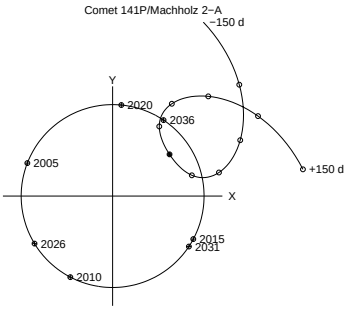

Comet 136P/Mueller 3
−150 d
Y
2025
2037
X
2016
+150 d

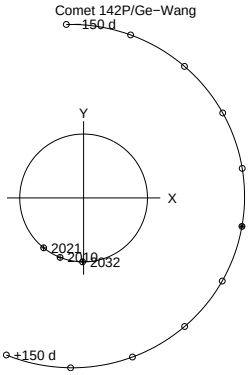

Comet 137P/Shoemaker−Levy 2
−150 d
Y
2018
2038
X
2009
2028
+150 d

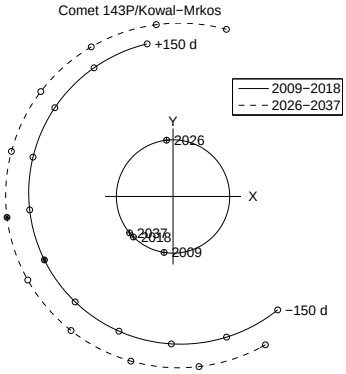

Comet 138P/Shoemaker−Levy 7
−150 d
Y
2033
2039
X
2026
2019
2012
2005
+150 d

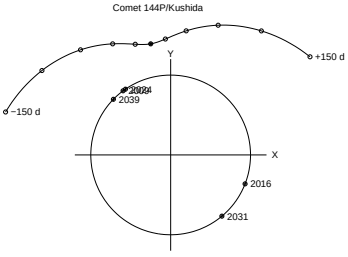

Comet 139P/Vaisala−Oterma
Y
2017
−150 d
2037
X
2008
2027
+150 d

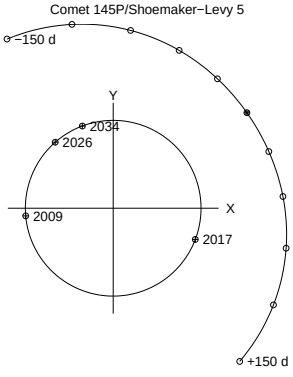

Comet 140P/Bowell−Skiff
+150 d
Y
2031
X
2015
−150 d

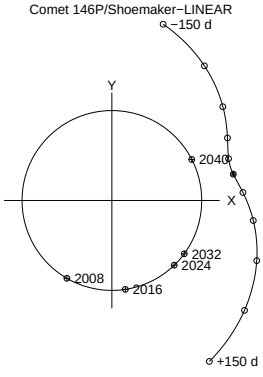

Comet 141P/Machholz 2−A
−150 d
Y
2020
2036
+150 d
2005
X
2026
2015
2031
2010

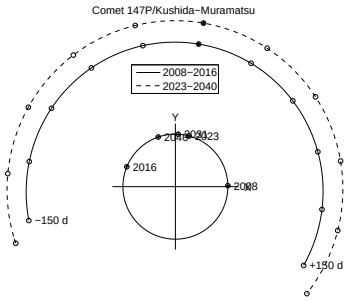

Comet 142P/Ge−Wang
−150 d
Y
X
2021
2019
2032
+150 d

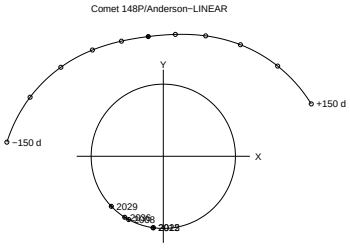

Comet 143P/Kowal−Mrkos
2009−2018
2026−2037
+150 d
Y
2026
X
2037
2018
2009
−150 d

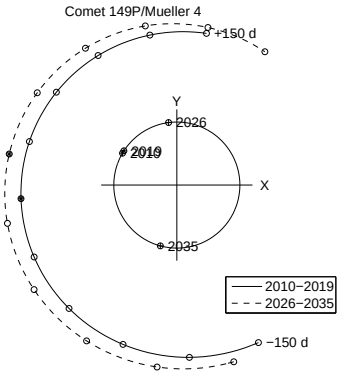

Comet 144P/Kushida
+150 d
Y
2024
2039
−150 d
X
2016
2031

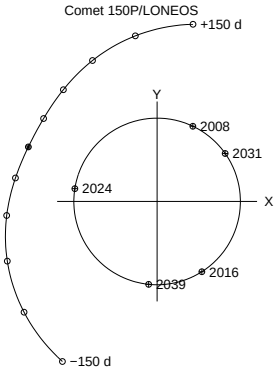

Comet 145P/Shoemaker−Levy 5
−150 d
Y
2034
2026
X
2009
2017
+150 d

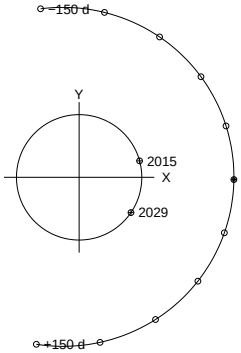

Comet 146P/Shoemaker−LINEAR
−150 d
Y
2040
X
2032
2024
2008
2016
+150 d

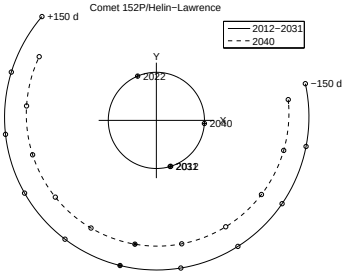

Comet 147P/Kushida−Muramatsu
2008−2016
2023−2040
Y
X
2016
−150 d
+150 d

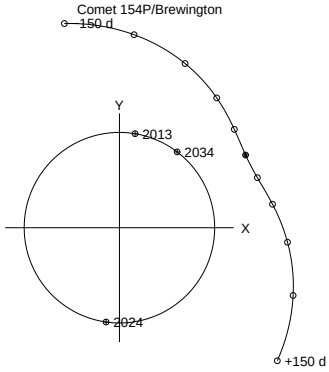

Comet 148P/Anderson−LINEAR
Y
X
−150 d
+150 d
2029

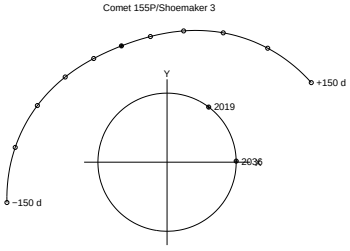

Comet 149P/Mueller 4
+150 d
Y
2026
X
2035
2010−2019
2026−2035
−150 d

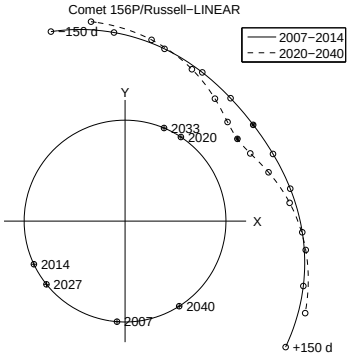

Comet 150P/LONEOS
+150 d
Y
2008
2031
X
2024
2016
2039
−150 d

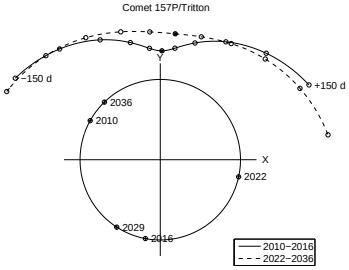

Comet 151P/Helin
−150 d
Y
2015
X
2029
+150 d

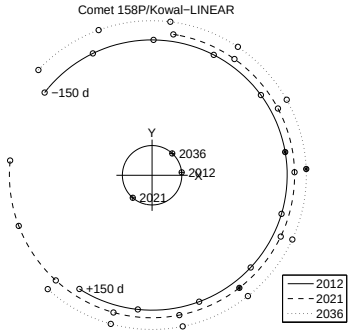

Comet 152P/Helin−Lawrence
+150 d
2012−2031
2040
Y
2022
X
2040
−150 d

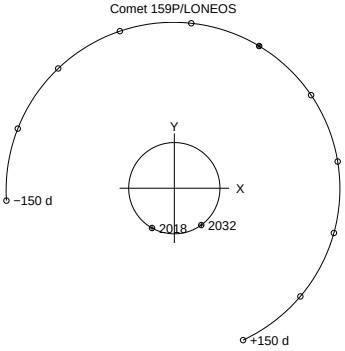

Comet 154P/Brewington
−150 d
Y
2013
2034
X
2024
+150 d

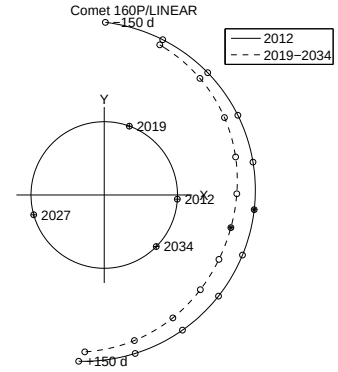

Comet 155P/Shoemaker 3
+150 d
Y
2019
−150 d

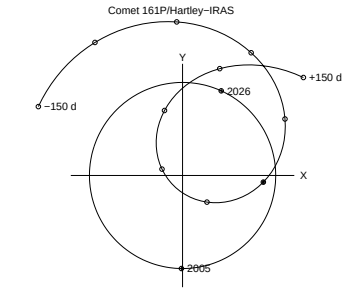

Comet 156P/Russell−LINEAR
−150 d
2007−2014
2020−2040
Y
2033
2020
X
2014
2027
2040
2007
+150 d


Comet 157P/Tritton
−150 d
+150 d
Y
2036
2010
X
2022
2029
2016
2010−2016
2022−2036

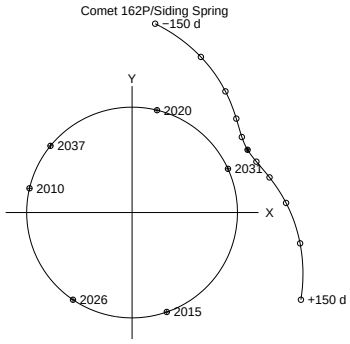

Comet 158P/Kowal−LINEAR
−150 d
Y
2036
2012
2021
+150 d
2012
2021
2036

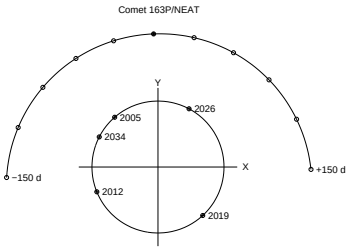

Comet 159P/LONEOS
Y
X
−150 d
2018
2032
+150 d

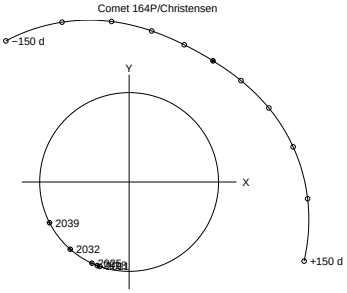


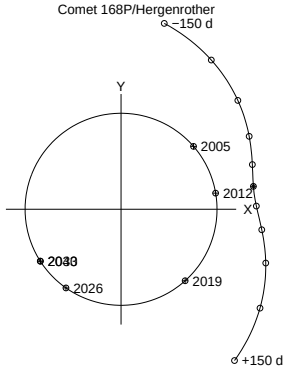


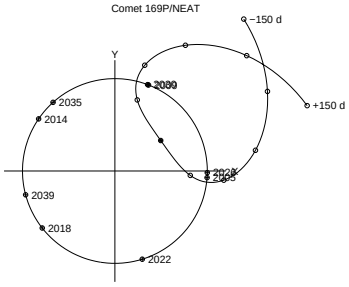
NOTE: Inclination is 95.7 deg.

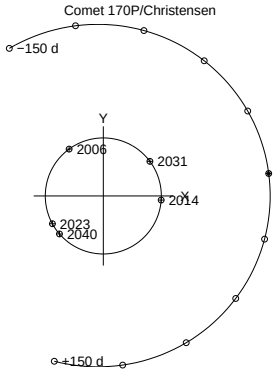


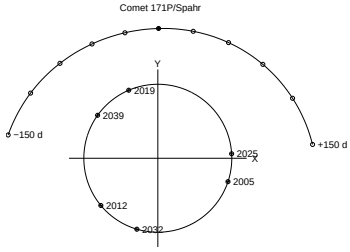


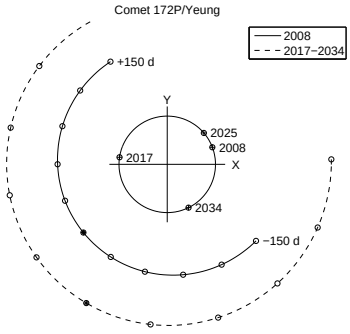


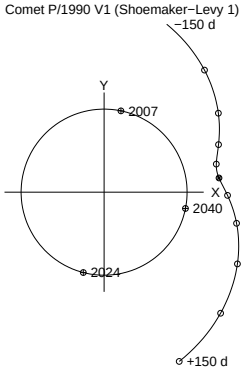


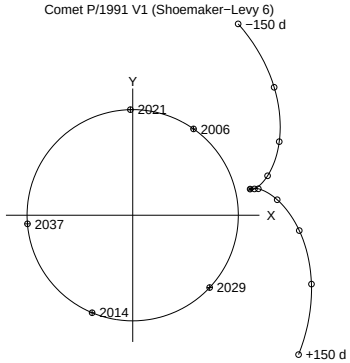


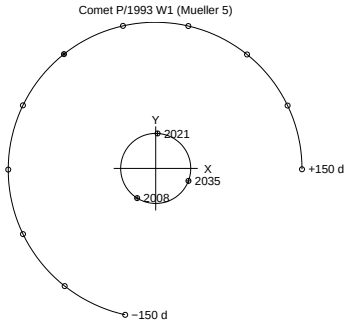


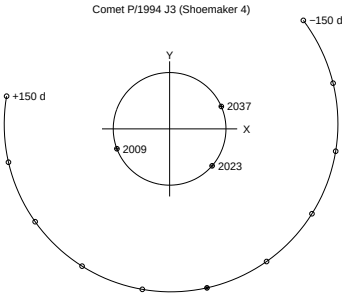


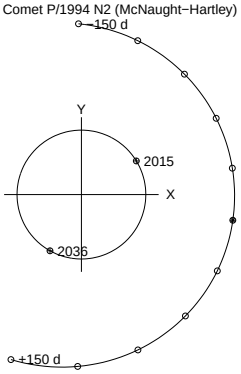


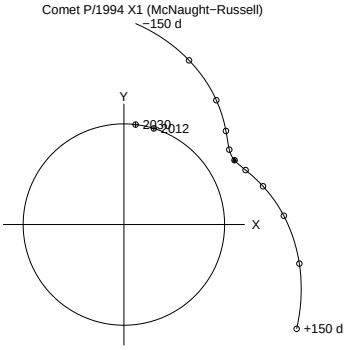


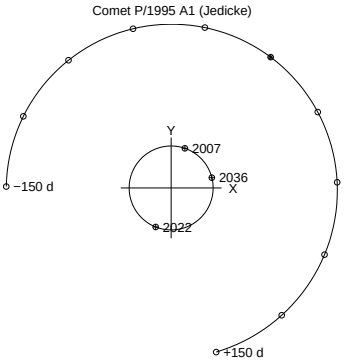


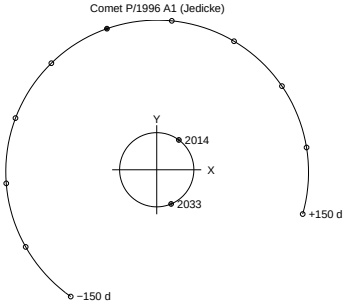

Comet P/1993 W1 (Mueller 5)
Y
2021
X
2035
2008
+150 d
−150 d

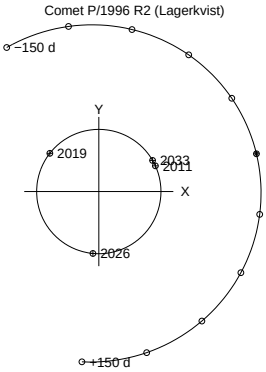

Comet P/1994 J3 (Shoemaker 4)
−150 d
+150 d
Y
2037
X
2009
2023

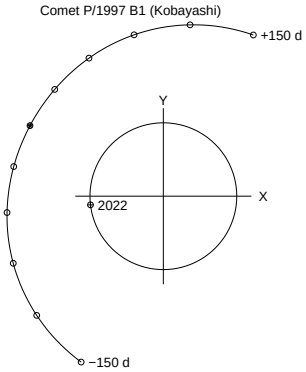

Comet P/1994 N2 (McNaught−Hartley)
−150 d
Y
2015
X
2036
+150 d

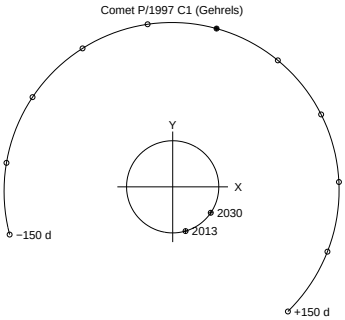

Comet P/1994 X1 (McNaught−Russell)
−150 d
Y
2030
2012
X
+150 d

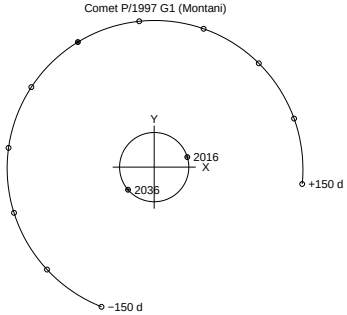

Comet P/1995 A1 (Jedicke)
Y
2007
2036
X
−150 d
2022
+150 d

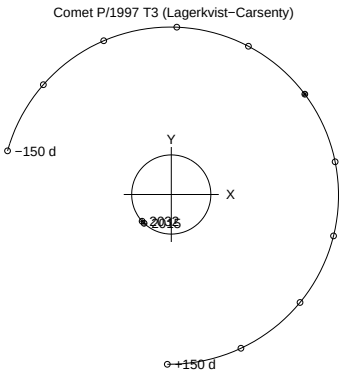

Comet P/1996 A1 (Jedicke)
Y
2014
X
2033
+150 d
−150 d

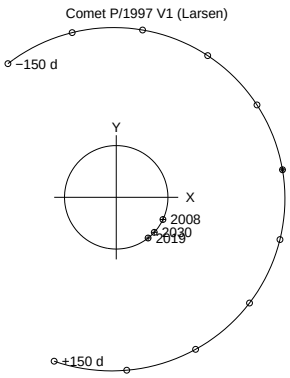

Comet P/1996 R2 (Lagerkvist)
−150 d
Y
2019
2033
2011
X
2026
+150 d

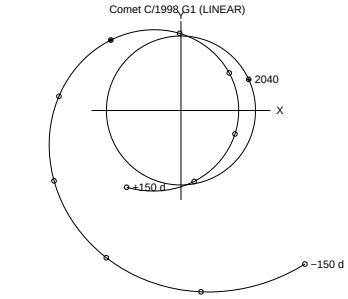

Comet P/1997 B1 (Kobayashi)
+150 d
Y
X
2022
−150 d


Comet P/1997 C1 (Gehrels)
Y
X
2030
2013
−150 d
+150 d

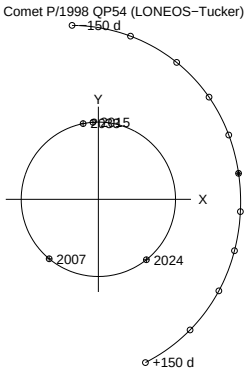

Comet P/1997 G1 (Montani)
Y
2016
X
2036
+150 d
−150 d

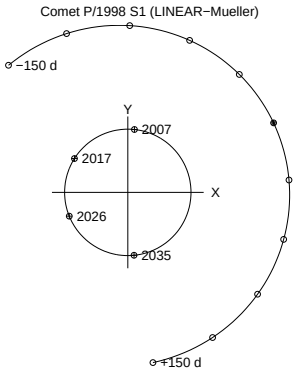

Comet P/1997 T3 (Lagerkvist−Carsenty)
−150 d
Y
X
+150 d

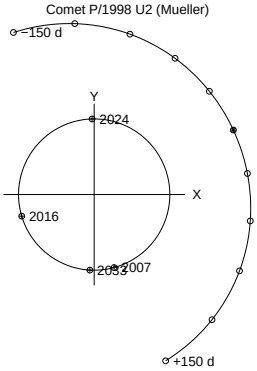

Comet P/1997 V1 (Larsen)
−150 d
Y
X
2008
2030
2019
+150 d

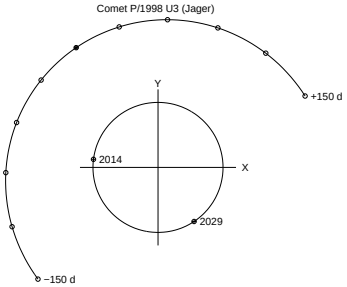


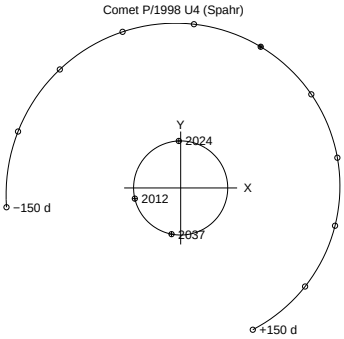
NOTE: Inclination is 109.6 deg.

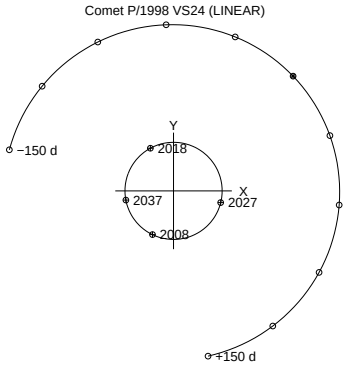


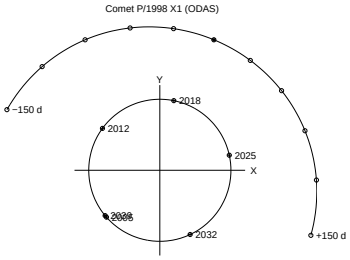


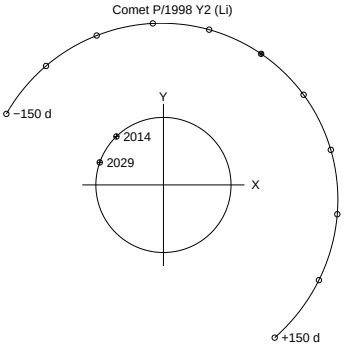


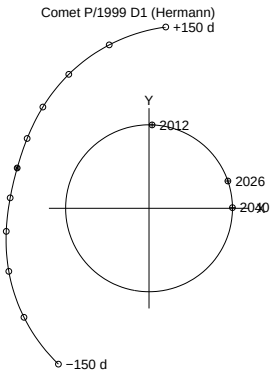


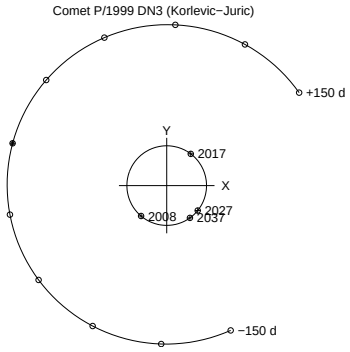


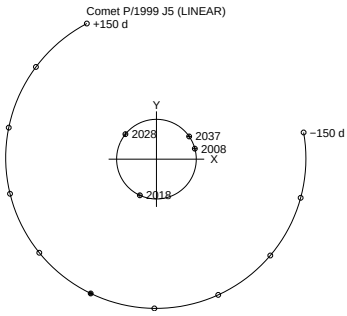


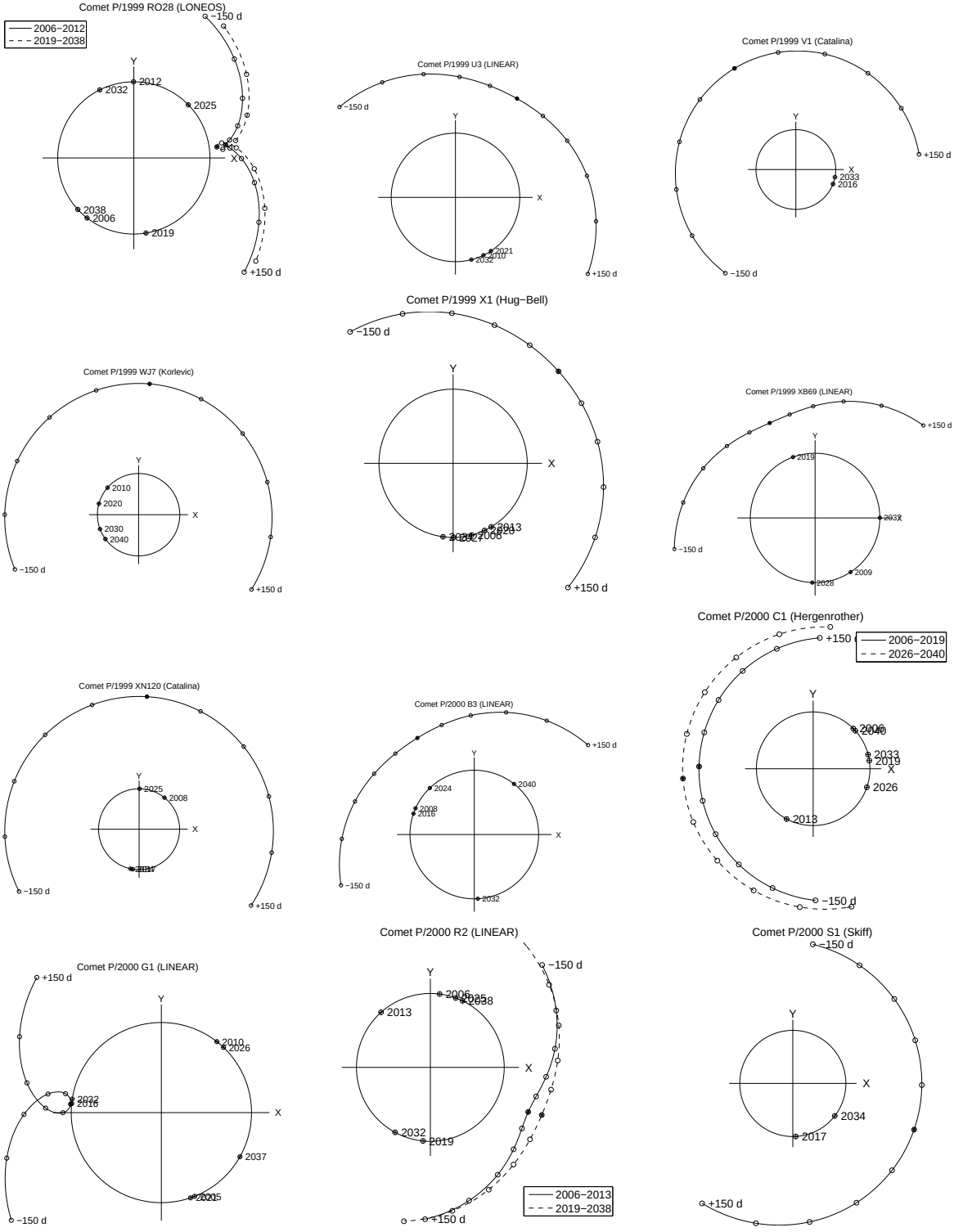


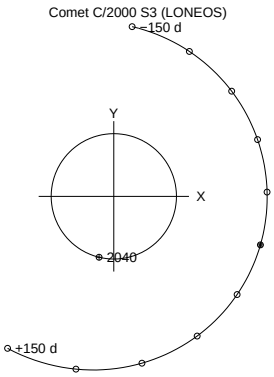


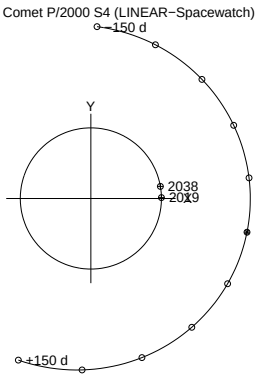


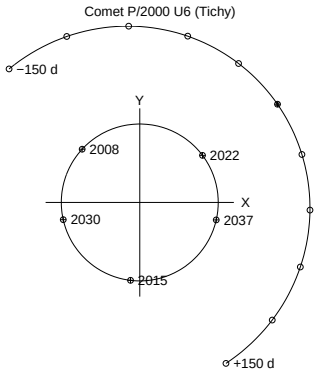


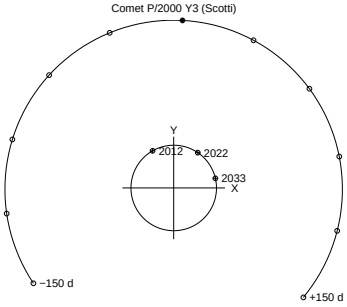


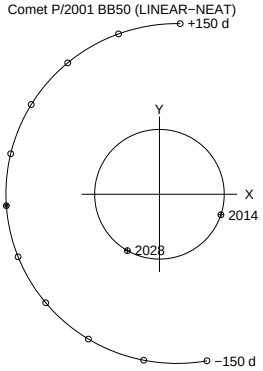

Comet P/1999 RO28 (LONEOS)
2006−2012
2019−2038
−150 d
+150 d
Y
X
2012
2032
2025
2038
2006
2019
Comet P/1999 U3 (LINEAR)
−150 d
+150 d
Y
X
2021
2010
2032
Comet P/1999 V1 (Catalina)
+150 d
−150 d
Y
X
2033
2016
Comet P/1999 X1 (Hug−Bell)
−150 d
+150 d
Y
X
2013
2006
Comet P/1999 WJ7 (Korlevic)
−150 d
+150 d
Y
X
2010
2020
2030
2040
Comet P/1999 XB69 (LINEAR)
+150 d
−150 d
Y
2019
2009
2028
Comet P/2000 C1 (Hergenrother)
+150 d
−150 d
2006−2019
2026−2040
Y
X
2033
2019
2026
2013
Comet P/1999 XN120 (Catalina)
−150 d
+150 d
Y
X
2025
2008
Comet P/2000 B3 (LINEAR)
+150 d
−150 d
Y
X
2024
2040
2008
2016
2032
Comet P/2000 R2 (LINEAR)
−150 d
+150 d
Y
X
2013
2032
2019
2006−2013
2019−2038
Comet P/2000 S1 (Skiff)
−150 d
+150 d
Y
X
2034
2017
Comet P/2000 G1 (LINEAR)
+150 d
−150 d
Y
X
2010
2026
2022
2016
2037

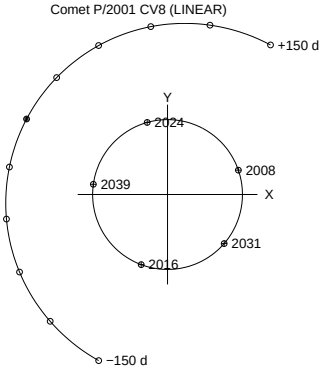

Comet C/2000 S3 (LONEOS)
−150 d
Y
X
2040
+150 d

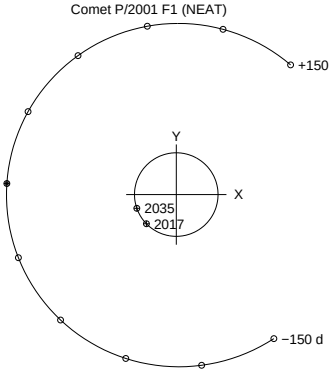

Comet P/2000 S4 (LINEAR−Spacewatch)
−150 d
Y
2038
2039
+150 d

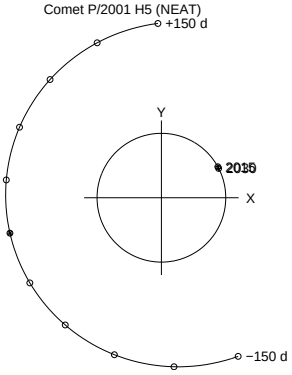

Comet P/2000 U6 (Tichy)
−150 d
Y
2008
2022
X
2030
2037
2015
+150 d

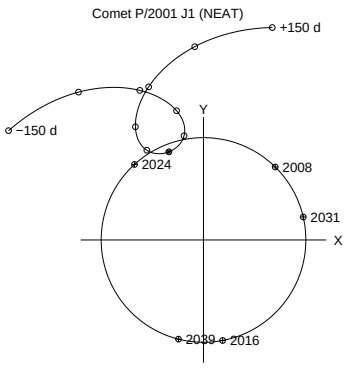

Comet P/2000 Y3 (Scotti)
Y
2012
2022
2033
X
−150 d
+150 d

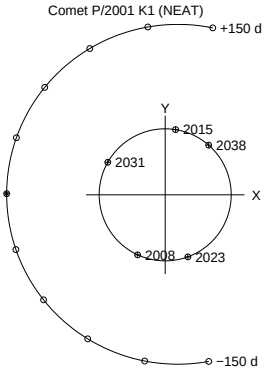

Comet P/2001 BB50 (LINEAR−NEAT)
+150 d
Y
X
2014
2028
−150 d

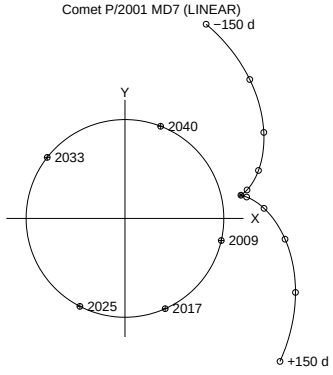

Comet P/2001 CV8 (LINEAR)
+150 d
Y
2024
2008
2039
X
2031
2016
−150 d

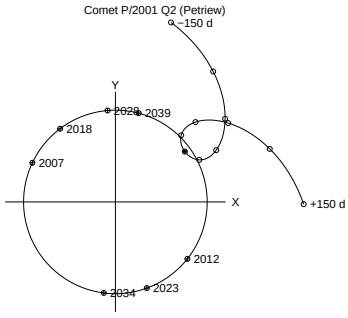

Comet P/2001 F1 (NEAT)
+150 d
Y
X
2035
2017
−150 d

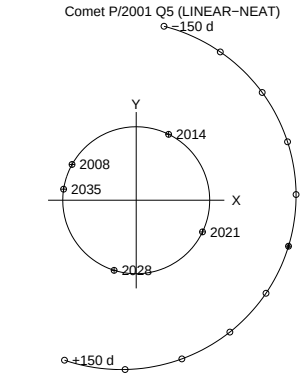

Comet P/2001 H5 (NEAT)
+150 d
Y
X
−150 d

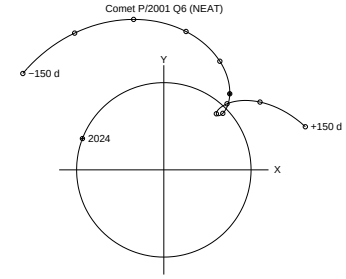

Comet P/2001 J1 (NEAT)
+150 d
−150 d
Y
2024
2008
2031
X
2039
2016


Comet P/2001 K1 (NEAT)
+150 d
Y
2015
2038
2031
X
2008
2023
−150 d

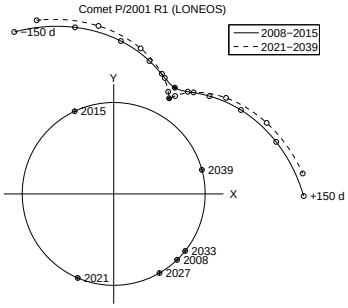

Comet P/2001 MD7 (LINEAR)
−150 d
Y
2040
2033
X
2009
2025
2017
+150 d

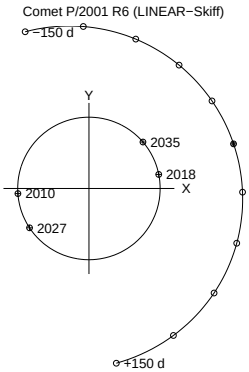

Comet P/2001 Q2 (Petriew)
−150 d
Y
2039
2018
2007
X
+150 d
2012
2034
2023

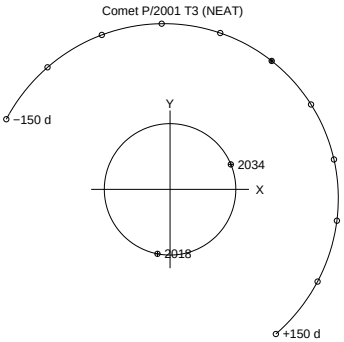


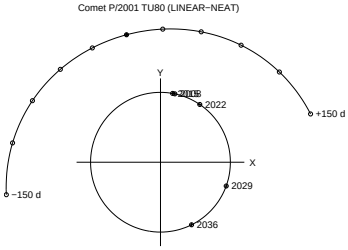


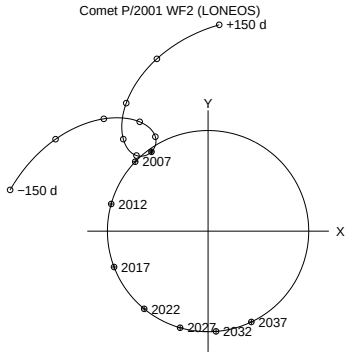
NOTE: Inclination is 56.9 deg.

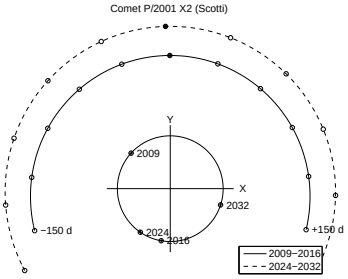


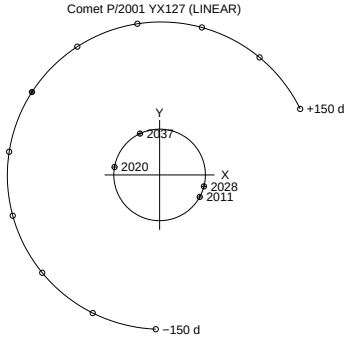


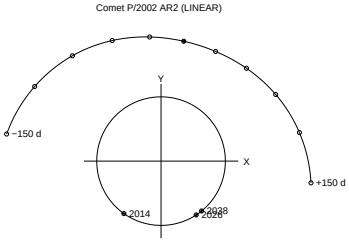


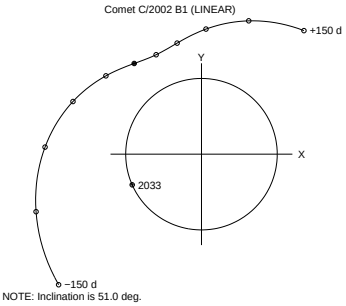




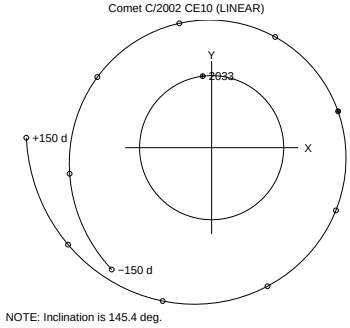




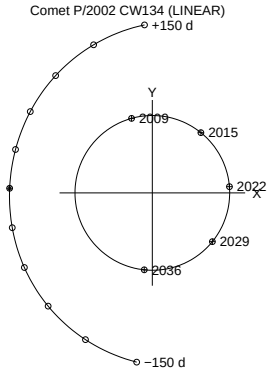


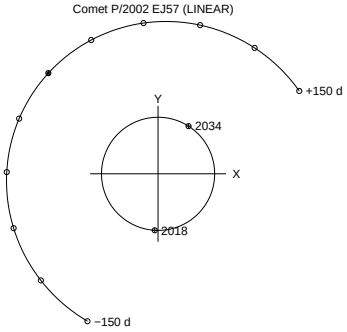


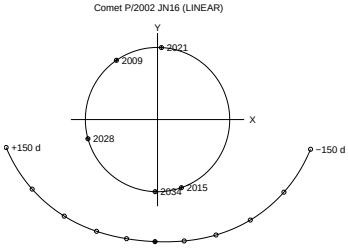
NOTE: Inclination is 51.0 deg.

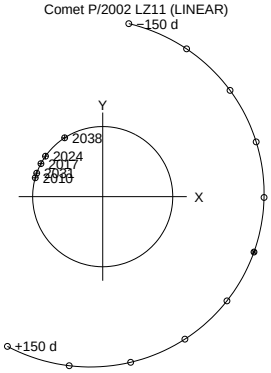


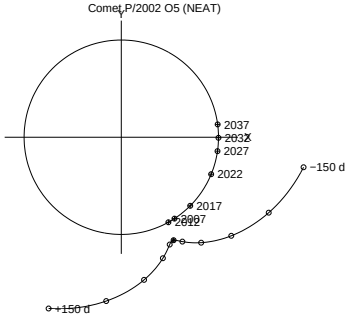
NOTE: Inclination is 145.4 deg.

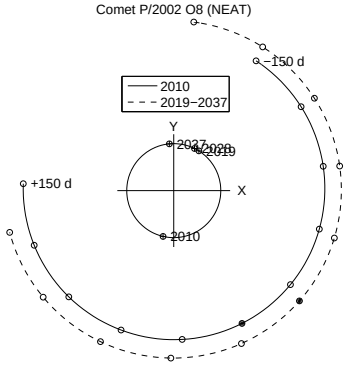

Comet P/2002 CW134 (LINEAR)
+150 d
Y
2009
2015
2022
X
2029
2036
−150 d

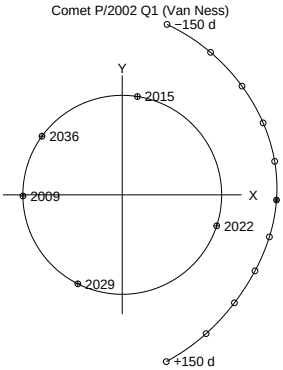

Comet P/2002 EJ57 (LINEAR)
+150 d
Y
2034
X
2018
−150 d

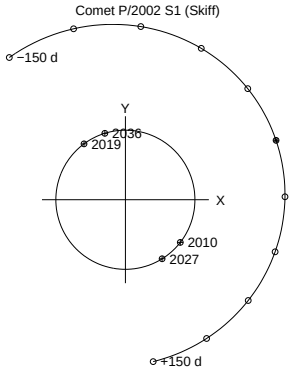

Comet P/2002 JN16 (LINEAR)
Y
2021
2009
X
+150 d
2028
−150 d
2034
2015

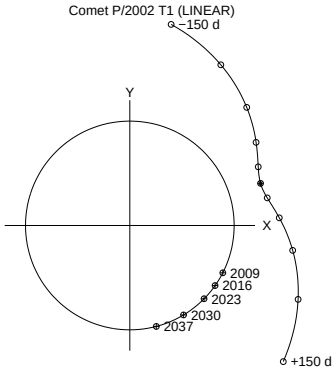

Comet P/2002 LZ11 (LINEAR)
−150 d
Y
2038
2024
2017
2010
X
+150 d

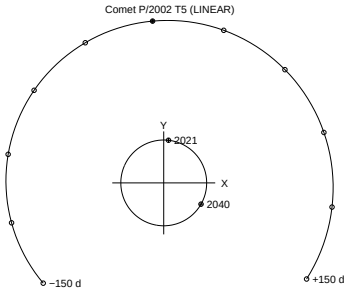

Comet P/2002 O5 (NEAT)
Y
2037
2032
2027
2022
2017
2012
−150 d
+150 d

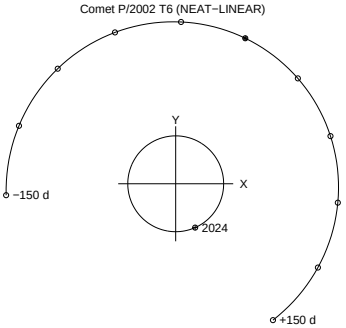

Comet P/2002 O8 (NEAT)
−150 d
2010
2019−2037
Y
2037
2029
+150 d
X
2010

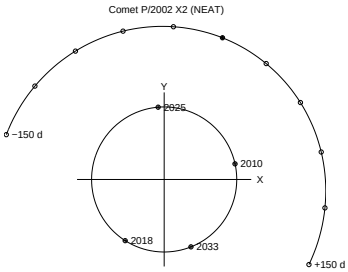

Comet P/2002 Q1 (Van Ness)
−150 d
Y
2015
2036
2009
X
2022
2029
+150 d

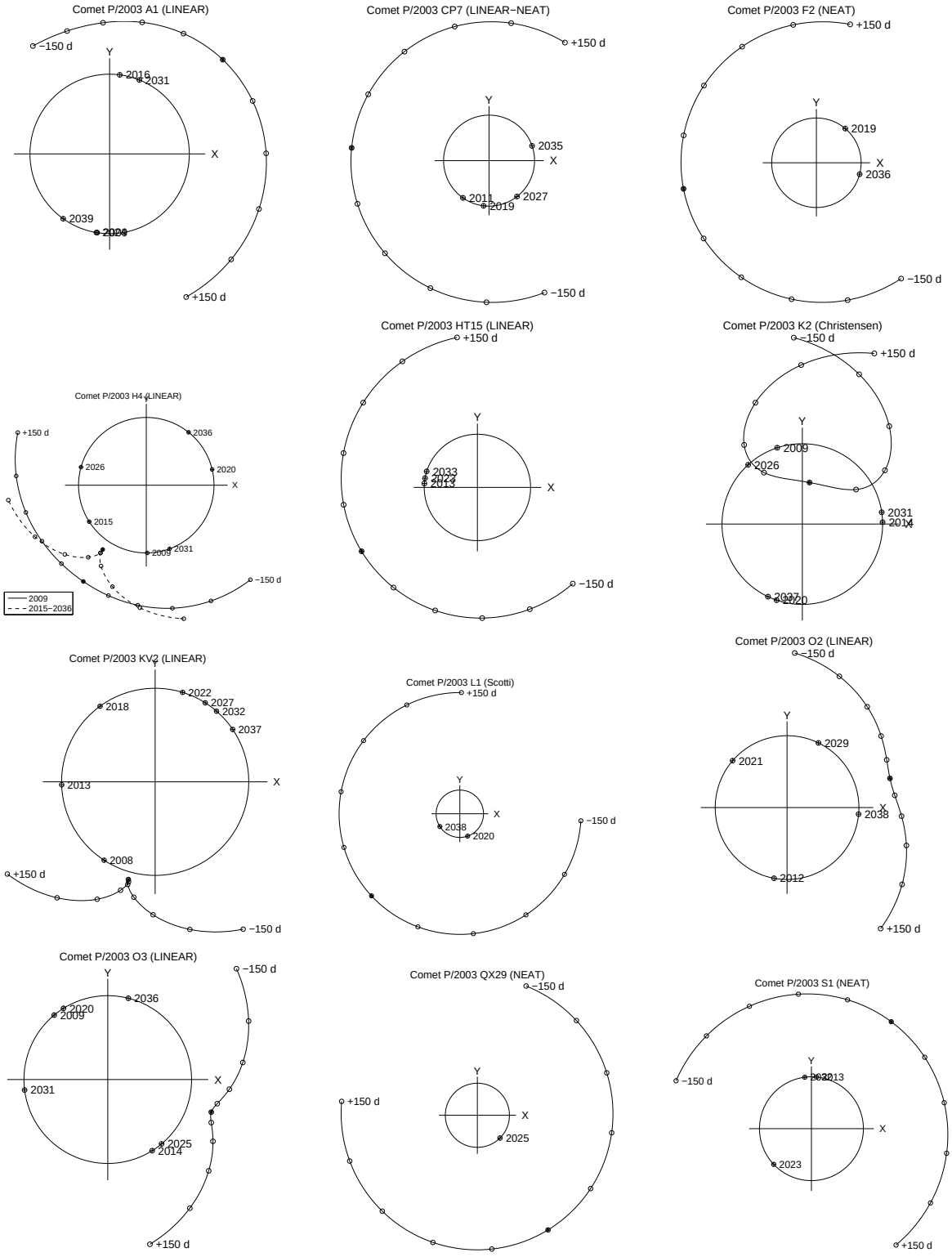

Comet P/2002 S1 (Skiff)
−150 d
Y
2036
2019
X
2010
2027
+150 d

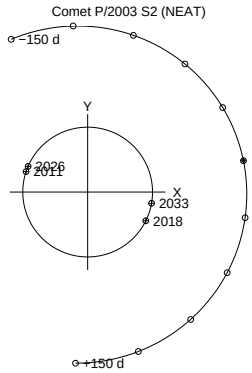

Comet P/2002 T1 (LINEAR)
−150 d
Y
X
2009
2016
2023
2030
2037
+150 d

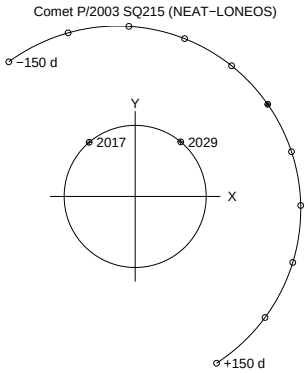

Comet P/2002 T5 (LINEAR)
Y
2021
X
2040
−150 d
+150 d

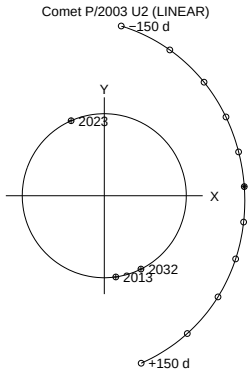

Comet P/2002 T6 (NEAT−LINEAR)
Y
−150 d
X
2024
+150 d

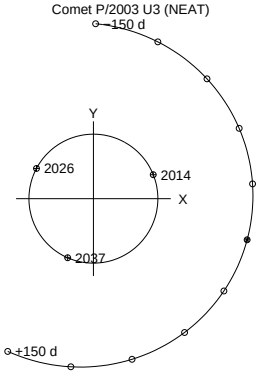

Comet P/2002 X2 (NEAT)
Y
2025
−150 d
2010
X
2018
2033
+150 d

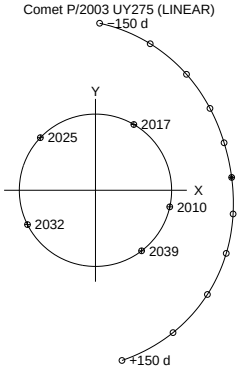

Comet P/2003 A1 (LINEAR)
−150 d
+150 d
2016
2031
2039
Comet P/2003 CP7 (LINEAR−NEAT)
+150 d
−150 d
2035
2011
2019
2027
Comet P/2003 F2 (NEAT)
+150 d
−150 d
2019
2036
Comet P/2003 H4 (LINEAR)
+150 d
−150 d
2036
2026
2020
2015
2009
2031
2009
2015−2036
Comet P/2003 HT15 (LINEAR)
+150 d
−150 d
2033
2013
Comet P/2003 K2 (Christensen)
−150 d
+150 d
2009
2026
2031
2014
2037
2020
Comet P/2003 KV2 (LINEAR)
2022
2027
2032
2037
2018
2013
2008
+150 d
−150 d
Comet P/2003 L1 (Scotti)
+150 d
2038
2020
−150 d
Comet P/2003 O2 (LINEAR)
−150 d
2029
2021
2038
2012
+150 d
Comet P/2003 O3 (LINEAR)
−150 d
2036
2020
2009
2031
2025
2014
+150 d
Comet P/2003 QX29 (NEAT)
−150 d
+150 d
2025
Comet P/2003 S1 (NEAT)
−150 d
2013
2023
+150 d

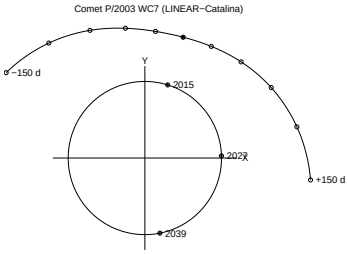

Comet P/2003 S2 (NEAT)
−150 d
Y
2026
2011
X
2033
2018
+150 d

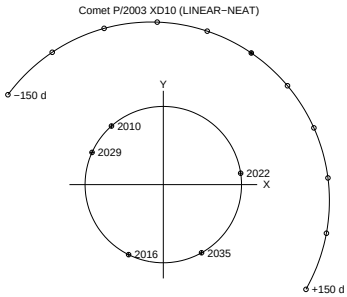

Comet P/2003 SQ215 (NEAT−LONEOS)
−150 d
Y
2017
2029
X
+150 d

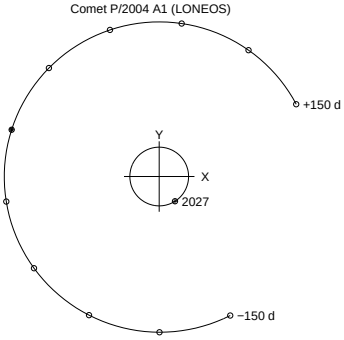

Comet P/2003 U2 (LINEAR)
−150 d
Y
2023
X
2032
2013
+150 d

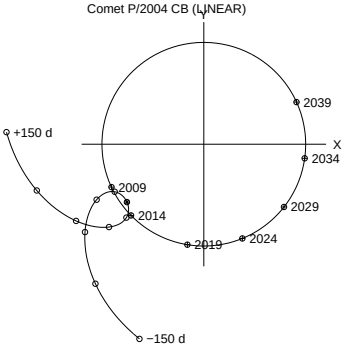

Comet P/2003 U3 (NEAT)
−150 d
Y
2026
2014
X
2037
+150 d

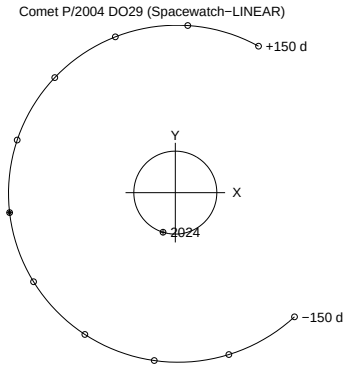

Comet P/2003 UY275 (LINEAR)
−150 d
Y
2017
2025
X
2010
2032
2039
+150 d

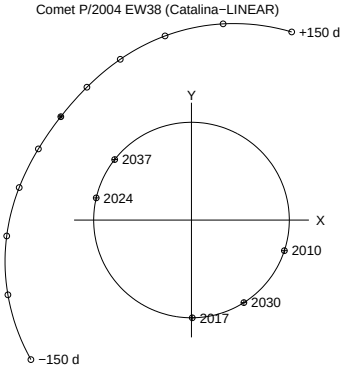

Comet P/2003 WC7 (LINEAR−Catalina)
−150 d
Y
2015
X
2022
+150 d
2039

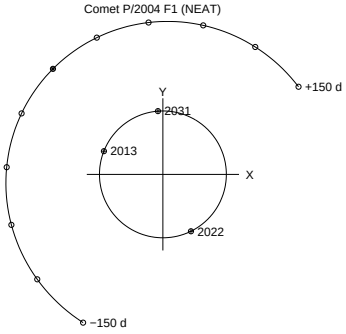

Comet P/2003 XD10 (LINEAR−NEAT)
−150 d
Y
2010
2029
2022
X
2016
2035
+150 d

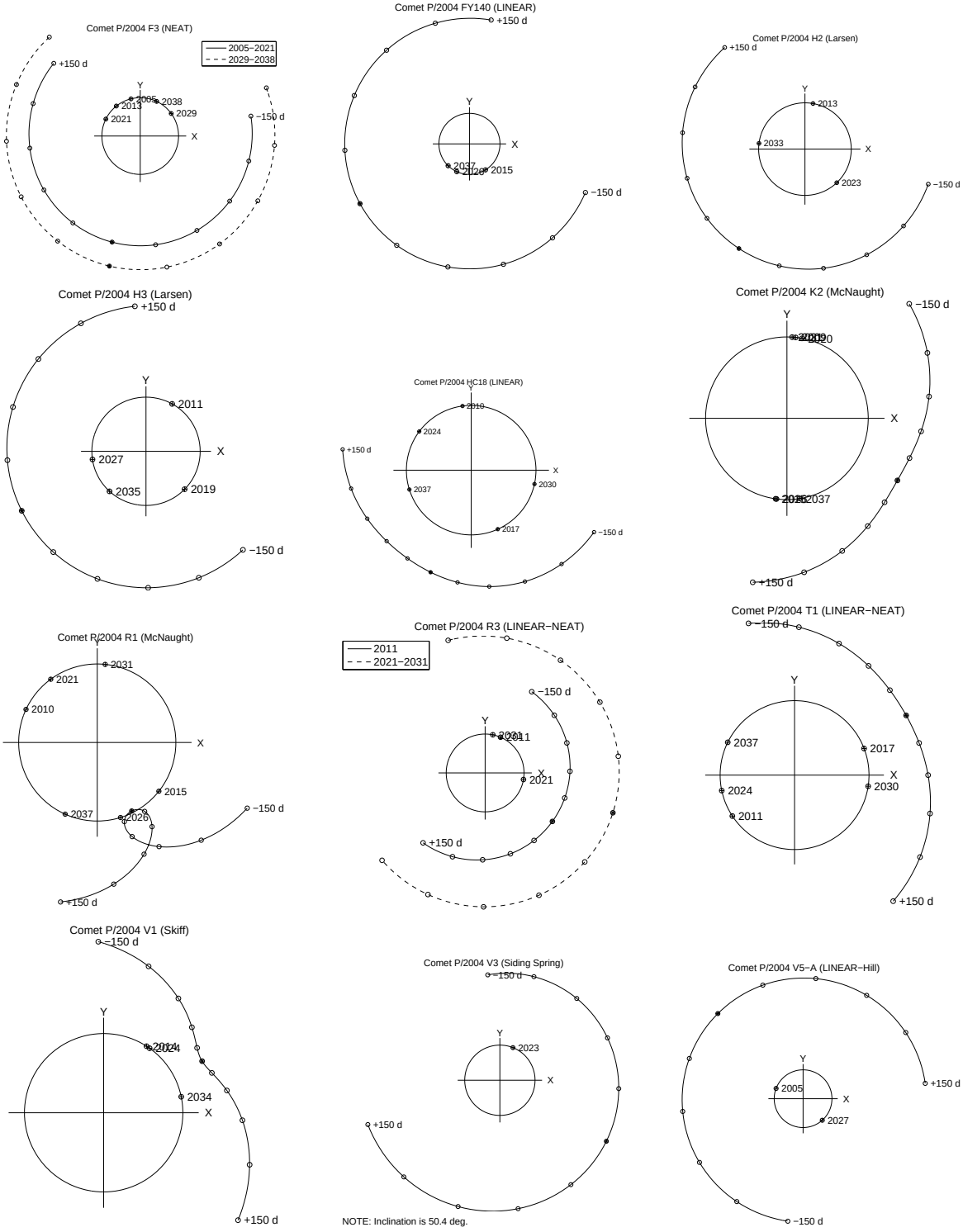

Comet P/2004 A1 (LONEOS)
+150 d
Y
X
2027
−150 d


Comet P/2004 CB (LINEAR)
Y
2039
+150 d
X
2034
2009
2029
2014
2024
2019
−150 d

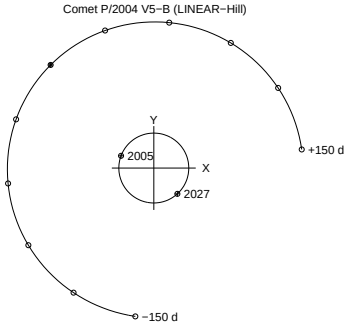

Comet P/2004 DO29 (Spacewatch−LINEAR)
+150 d
Y
X
2024
−150 d

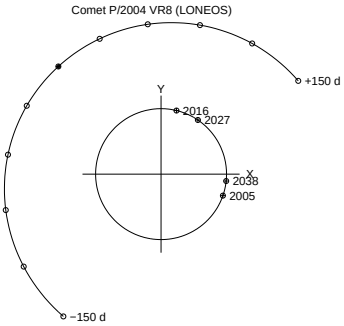

Comet P/2004 EW38 (Catalina−LINEAR)
+150 d
Y
2037
2024
X
2010
2030
2017
−150 d

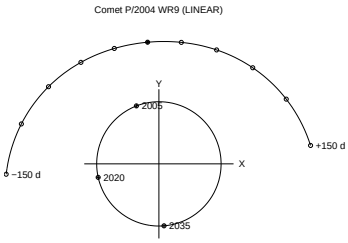

Comet P/2004 F1 (NEAT)
+150 d
Y
2031
2013
X
2022
−150 d

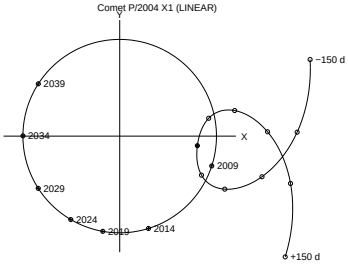


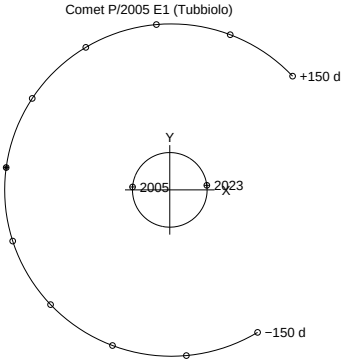
NOTE: Inclination is 50.4 deg.

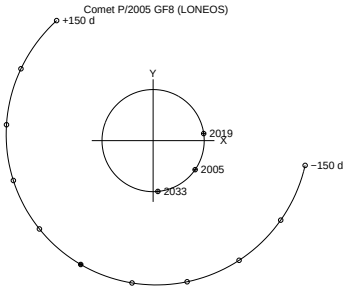

Comet P/2004 V5−B (LINEAR−Hill)
Y
X
2005
2027
+150 d
−150 d

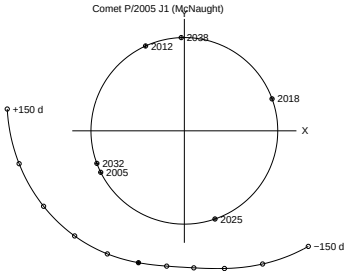

Comet P/2004 VR8 (LONEOS)
Y
X
2016
2027
2038
2005
+150 d
−150 d

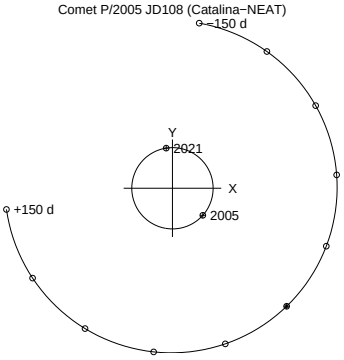

Comet P/2004 WR9 (LINEAR)
Y
X
2005
2020
2035
+150 d
−150 d

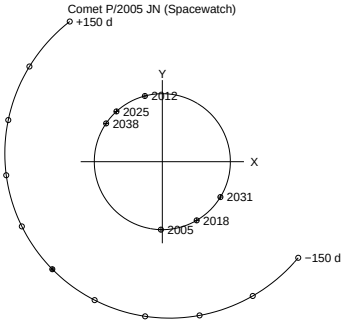

Comet P/2004 X1 (LINEAR)
Y
X
2039
2034
2029
2024
2019
2014
2009
−150 d
+150 d

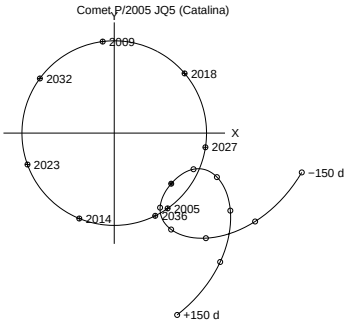

Comet P/2005 E1 (Tubbiolo)
Y
X
2005
2023
+150 d
−150 d

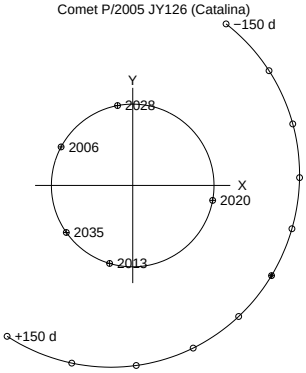

Comet P/2005 GF8 (LONEOS)
Y
X
2019
2005
2033
+150 d
−150 d

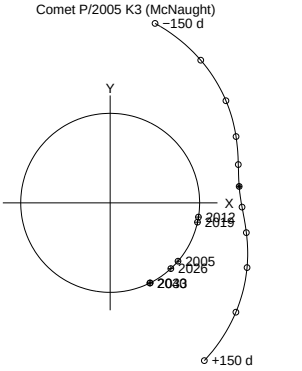

Comet P/2005 J1 (McNaught)
Y
X
2012
2038
2018
2032
2005
2025
+150 d
−150 d

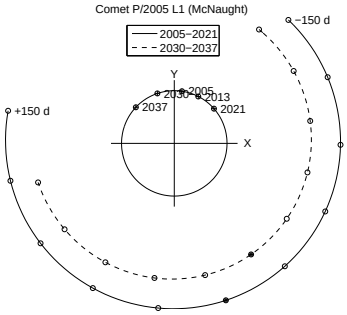

Comet P/2005 JD108 (Catalina−NEAT)
Y
X
2021
2005
−150 d
+150 d

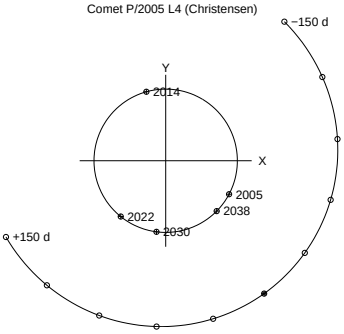

Comet P/2005 JN (Spacewatch)
Y
X
2012
2025
2038
2031
2018
2005
+150 d
−150 d

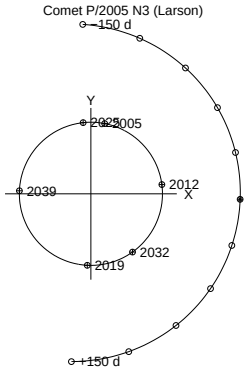

Comet P/2005 JQ5 (Catalina)
Y
X
2009
2032
2018
2027
2023
2014
2005
2036
−150 d
+150 d

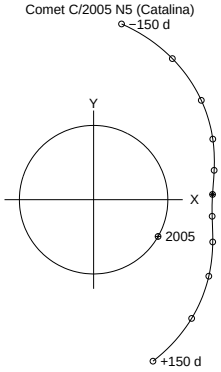

Comet P/2005 JY126 (Catalina)
Y
X
2028
2006
2020
2035
2013
−150 d
+150 d

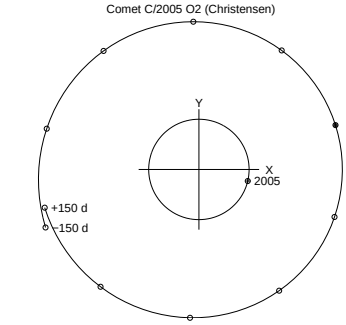

Comet P/2005 K3 (McNaught)
Y
X
2012
2019
2005
2026
−150 d
+150 d











NOTE: Inclination is 148.9 deg.