THE COMET HANDBOOK FOR 2008

彗 星 年 表

2008

Calculated by Kenji Muraoka

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INDEX TO EPHEMERIDES

Comet P/2002 R1 = 2008 A3 (SOHO)
Epoch 2008 Jan. 15.0 TT = JDT 2454480.5
T 2008 Jan. 15.74726 TT Muraoka

q	0.0486755	(2000.0)	P	Q
n	0.18348176	Peri. 33.75519	-0.19247193	-0.91404101
a	3.0671908	Node 69.64365	+0.79497261	-0.35855092
e	0.9841303	Incl. 22.38526	+0.57530262	+0.18965831

P 5.37 (dP = +/- 0.01 day)
From 41 observations 2002-2008, mean residual 8".85.

Comet C/2005 L3 (McNaught)
Epoch 2008 Jan. 15.0 TT = JDT 2454480.5
T 2008 Jan. 16.00786 TT Muraoka

q	5.5932600	(2000.0)	P	Q
z	+0.0000171	Peri. 47.09712	-0.30837509	-0.72516181
+/-	0.0000007	Node 288.73906	-0.94495691	+0.30792949
e	0.9999045	Incl. 139.44869	+0.10936746	+0.61588942

From 1497 observations 2004 July 16-2007 Nov. 25, mean residual 0".52.

Comet 8P/Tuttle
Epoch 2008 Jan. 15.0 TT = JDT 2454480.5
T 2008 Jan. 27.02274 TT Muraoka

q	1.0271362	(2000.0)	P	Q
n	0.07239175	Peri. 207.50631	-0.27029912	-0.50619295
a	5.7017741	Node 270.34155	+0.96276264	-0.13756494
e	0.8198567	Incl. 54.98298	+0.00514592	-0.85137805

P 13.61
From 703 observations 1967-2007, mean residual 0".88. Nongravitational parameters A1 = +0.08 +/- 0.01, A2 = +0.0139 +/- 0.0000.

Comet 46P/Wirtanen
Epoch 2008 Jan. 15.0 TT = JDT 2454480.5
T 2008 Feb. 2.49359 TT Muraoka

q	1.0574865	(2000.0)	P	Q
n	0.18116979	Peri. 356.34733	+0.19766845	-0.95932223
a	3.0932299	Node 82.17485	+0.90445650	+0.09919422
e	0.6581287	Incl. 11.73928	+0.37800216	+0.26431300

P 5.44
From 811 observations 1995-2008, mean residual 0".79. Nongravitational parameters A1 = +0.37 +/- 0.00, A2 = -0.1386 +/- 0.0001.

Comet 110P/Hartley
Epoch 2008 Jan. 15.0 TT = JDT 2454480.5
T 2008 Feb. 3.48890 TT Muraoka

q	2.4884583	(2000.0)	P	Q
n	0.14311262	Peri. 167.79959	-0.10079979	-0.97604614
a	3.6197960	Node 287.74570	+0.89494741	-0.00429371
e	0.3125419	Incl. 11.67945	+0.43463609	-0.21752127

P 6.89
From 663 observations 1988-2007, mean residual 0".73. Nongravitational parameters A1 = -0.60 +/- 0.08, A2 = -0.0546 +/- 0.0011.

Comet 196P/Tichy
Epoch 2008 Feb. 24.0 TT = JDT 2454520.5
T 2008 Feb. 7.15339 TT Muraoka

q	2.1378693	(2000.0)	P	Q
n	0.13432444	Peri. 11.71550	+0.81316797	-0.56573235
a	3.7760061	Node 24.34203	+0.50361150	+0.56611014
e	0.4338279	Incl. 19.37852	+0.29177614	+0.59955502

P 7.34
From 209 observations 2000-2008, mean residual 0".59.

Comet 44P/Reinmuth
Epoch 2008 Feb. 24.0 TT = JDT 2454520.5
T 2008 Feb. 18.25680 TT Muraoka

q	2.1063833	(2000.0)	P	Q
n	0.13936145	Peri. 58.06835	+0.10007920	-0.93165468
a	3.6844638	Node 286.60040	+0.85654286	-0.09795605
e	0.4283067	Incl. 5.90475	+0.50627905	+0.34989165

P 7.07
From 421 observations 1993-2007, mean residual 0".70. Nongravitational parameters A1 = -0.03 +/- 0.02, A2 = -0.0517 +/- 0.0011.

Comet P/2006 F1 (Kowalski)
Epoch 2008 Feb. 24.0 TT = JDT 2454520.5
T 2008 Feb. 19.86586 TT Muraoka
q 4.1194279 (2000.0) P Q
n 0.09718905 Peri. 186.86971 +0.65759703 +0.69191139
a 4.6851606 Node 124.75825 -0.67279596 +0.71736335
e 0.1207499 Incl. 21.27009 -0.33898636 -0.08153805
P 10.14 (dP = +/- 0.04 day)
From 205 observations 2005 May 10-2007 Sept. 1, mean residual 0".70.

Comet 193P/LINEAR-NEAT
Epoch 2008 Feb. 24.0 TT = JDT 2454520.5
T 2008 Feb. 20.49585 TT Muraoka
q 2.1557467 (2000.0) P Q
n 0.14619231 Peri. 8.28609 +0.95798382 +0.27608608
a 3.5687793 Node 335.25707 -0.27265336 +0.79243757
e 0.3959428 Incl. 10.70411 -0.08903454 +0.54389261
P 6.74
From 233 observations 2001 Aug. 17-2007 Oct. 22, mean residual 0".69.

Comet 194P/LINEAR
Epoch 2008 Feb. 24.0 TT = JDT 2454520.5
T 2008 Feb. 26.19120 TT Muraoka
q 1.7087529 (2000.0) P Q
n 0.12259673 Peri. 130.64089 -0.54228245 -0.83977436
a 4.0131320 Node 352.06428 +0.70088164 -0.43466398
e 0.5742096 Incl. 11.11809 +0.46335156 -0.32534021
P 8.04
From 139 observations 2000 Jan. 27-2007 Dec. 18, mean residual 0".56.

Comet C/2007 Y1 (LINEAR)
T 2008 Mar. 19.3083 TT Muraoka
q 3.340799 (2000.0) P Q
Peri. 357.1216 -0.6949698 +0.2172010
Node 133.0931 +0.6770359 -0.1233770
e 1.0 Incl. 110.1727 +0.2421555 +0.9682984
From 111 observations 2007 Dec. 16-2008 Feb. 2, mean residual 0".70.

Comet 186P/Garradd
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Mar. 20.46602 TT Muraoka
q 4.2634655 (2000.0) P Q
n 0.09267461 Peri. 278.73975 -0.33198518 +0.90768962
a 4.8361028 Node 327.85520 -0.55706107 -0.40825306
e 0.1184088 Incl. 28.84416 -0.76122848 -0.09710306
P 10.64
From 129 observations 1975-2007, mean residual 0".56.

Comet 113P/Spitaler
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Mar. 23.41701 TT Muraoka
q 2.1284903 (2000.0) P Q
n 0.13909469 Peri. 49.85040 +0.43425338 -0.90043960
a 3.6891730 Node 14.47347 +0.79284523 +0.36881319
e 0.4230441 Incl. 5.77536 +0.42757508 +0.23061951
P 7.09
From 166 observations 1986-2002, mean residual 0".75.

Comet 26P/Grigg-Skjellerup
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Mar. 23.68921 TT Muraoka
q 1.1167141 (2000.0) P Q
n 0.18568994 Peri. 1.71502 -0.83582631 +0.51130347
a 3.0428261 Node 211.70619 -0.50811202 -0.85836116
e 0.6330010 Incl. 22.35651 -0.20788590 +0.04224785
P 5.31
From 201 observations 1961-1997, mean residual 0".81. Nongravitational
parameters A1 = +0.00 +/- 0.00, A2 = -0.0011 +/- 0.0000.

Comet D/1894 F1 (Denning) [Orbit 3]
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Mar. 29.29533 TT Muraoka

q	1.2956356	(2000.0)	P	Q
n	0.12161218	Peri. 179.04876	-0.60829700	-0.79350455
a	4.0347627	Node 308.41745	+0.72806213	-0.54879196
e	0.6788818	Incl. 1.31904	+0.31607009	-0.26301696

P 8.10 (dP = +/- 4.62 days, 1894 orbit.)
From 141 observations 1894 Mar. 27-June 5, mean residual 2".73.

Comet C/2007 Y2 (McNaught)
T 2008 Apr. 7.8177 TT Muraoka

q	4.211386	(2000.0)	P	Q
		Peri. 257.6053	+0.0021892	+0.5655135
		Node 303.4949	+0.6216982	-0.6467505
e	1.0	Incl. 98.5180	-0.7832538	-0.5117698

From 39 observations 2007 Dec. 31-2008 Jan. 28, mean residual 0".54.

Comet 16P/Brooks
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Apr. 12.59587 TT Muraoka

q	1.4666148	(2000.0)	P	Q
n	0.16048572	Peri. 219.47076	+0.94577455	-0.32376901
a	3.3536041	Node 159.37480	+0.31363242	+0.88926896
e	0.5626750	Incl. 4.25832	+0.08452934	+0.32307019

P 6.14
From 390 observations 1987-2007, mean residual 0".85. Nongravitational parameters A1 = +0.35 +/- 0.03, A2 = -0.1309 +/- 0.0002.

Comet C/2008 C1 (Chen-Gao)
T 2008 Apr. 16.8974 TT Muraoka

q	1.263250	(2000.0)	P	Q
		Peri. 180.9100	-0.6178854	-0.3638602
		Node 307.7364	+0.7268403	+0.0737603
e	1.0	Incl. 61.8068	+0.2998679	-0.9285285

From 78 observations 2008 Feb. 2-8, mean residual 0".57.

Comet 139P/Vaisala-Oterma
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Apr. 19.34780 TT Muraoka

q	3.4027909	(2000.0)	P	Q
n	0.10270137	Peri. 165.52197	-0.99895432	+0.04404070
a	4.5159786	Node 242.45252	-0.03542272	-0.57571706
e	0.2464998	Incl. 2.32966	-0.02890481	-0.81639153

P 9.60
From 241 observations 1939-2007, mean residual 0".69.

Comet C/2007 K3 (Siding Spring)
Epoch 2008 Apr. 4.0 TT = JDT 2454560.5
T 2008 Apr. 21.65734 TT Muraoka

q	2.0508306	(2000.0)	P	Q
z	-0.0007009	Peri. 23.57803	+0.27361313	+0.92057057
	+/-0.0001311	Node 263.25474	-0.92109554	+0.16733215
e	1.0014374	Incl. 16.29985	-0.27698170	+0.35291609

From 41 observations 2007 Apr. 18-July 18, mean residual 0".70.

Comet 124P/Mrkos
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 Apr. 27.20778 TT Muraoka

q	1.4685712	(2000.0)	P	Q
n	0.17146229	Peri. 181.36931	-0.99895432	+0.04404070
a	3.2089058	Node 1.35230	-0.03542272	-0.57571706
e	0.5423452	Incl. 31.34072	-0.02890481	-0.81639153

P 5.75
From 115 observations 1991-2007, mean residual 0".75.

Comet 11P/Tempel-Swift-LINEAR [Orbit 1]
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 4.57949 TT Muraoka

q	1.5535858	(2000.0)	P	Q
n	0.15624284	Peri. 163.89758	+0.70746526	-0.67666001
a	3.4140454	Node 240.52561	+0.61982579	+0.73273979
e	0.5449428	Incl. 13.55334	+0.33957164	+0.07227470
P	6.31			

From 66 observations 1908-2000, mean residual 1".39. Nongravitational parameters A1 = +0.17 +/- 0.01, A2 = -0.0129 +/- 0.0004.

Comet 11P/Tempel-Swift-LINEAR [Orbit 2]
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 4.69232 TT Muraoka

q	1.5535839	(2000.0)	P	Q
n	0.15623443	Peri. 163.89814	+0.70746148	-0.67666360
a	3.4141679	Node 240.52538	+0.61983007	+0.73273686
e	0.5449597	Incl. 13.55346	+0.33957170	+0.07227072
P	6.31 (dP = +/- 0.26 day)			

From 36 observations 2001 Sept. 10-2002 Jan. 11, mean residual 1".39.

Comet 183P/Korlevic-Juric
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 8.75026 TT Muraoka

q	3.8937315	(2000.0)	P	Q
n	0.10304675	Peri. 161.63916	-0.97453045	-0.22185976
a	4.5058825	Node 5.84304	+0.14339697	-0.72856987
e	0.1358560	Incl. 18.73005	+0.17241724	-0.64804644
P	9.56 (dP = +/- 0.06 day)			

From 45 observations 1999 Mar. 24-2006 Dec. 22, mean residual 0".78.

Comet P/2003 KV2 (LINEAR)
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 18.25256 TT Muraoka

q	1.0604219	(2000.0)	P	Q
n	0.20320541	Peri. 188.79430	-0.26939566	+0.87818059
a	2.8653601	Node 66.39110	-0.85525509	-0.02950578
e	0.6299167	Incl. 25.55372	-0.44267901	-0.47741832
P	4.85 (dP = +/- 0.16 day)			

From 157 observations 2003 May 23-Aug. 2, mean residual 0".72.

Comet 173P/Mueller
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 18.49747 TT Muraoka

q	4.2144860	(2000.0)	P	Q
n	0.07234765	Peri. 29.83293	-0.62802567	-0.72640983
a	5.7040906	Node 100.56964	+0.64592888	-0.68664017
e	0.2611467	Incl. 16.49585	+0.43400419	-0.02922394
P	13.62			

From 267 observations 1992-2006, mean residual 0".72.

Comet 86P/Wild
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 20.00027 TT Muraoka

q	2.3011598	(2000.0)	P	Q
n	0.14254051	Peri. 179.15226	-0.31288912	+0.91515489
a	3.6294753	Node 72.58354	-0.87297506	-0.17167751
e	0.3659800	Incl. 15.44783	-0.37418570	-0.36471683
P	6.91			

From 90 observations 1980-2001, mean residual 0".98. Nongravitational parameters A1 = +0.86 +/- 0.17, A2 = +0.1130 +/- 0.0012.

Comet 146P/Shoemaker-LINEAR
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 21.39262 TT Muraoka

q	1.4177061	(2000.0)	P	Q
n	0.12196931	Peri. 316.83937	+0.93950103	-0.13367900
a	4.0268829	Node 53.56817	+0.30223183	+0.75683998
e	0.6479396	Incl. 23.07869	-0.16122571	+0.63978369
P	8.08			

From 49 observations 1984 Nov. 18-2001 Feb. 20, mean residual 0".98.

Comet 148P/Anderson-LINEAR
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 22.77121 TT Muraoka
q 1.7026304 (2000.0) P Q
n 0.13934166 Peri. 6.69239 -0.11285330 -0.99153827
a 3.6848125 Node 89.80127 +0.90862100 -0.12911373
e 0.5379330 Incl. 3.67842 +0.40208458 +0.01347248
P 7.07
From 67 observations 1963-2001, mean residual 0″.91.

Comet C/2007 T5 (Gibbs)
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 24.08310 TT Muraoka
q 4.0496649 (2000.0) P Q
n 0.00308729 Peri. 34.38825 -0.65173024 -0.35125501
a 46.7108555 Node 109.84269 +0.42859018 -0.90178155
e 0.9133036 Incl. 45.61375 +0.62574607 +0.25181334
P 319.25
From 151 observations 2007 Oct. 13-2008 Jan. 5, mean residual 0″.64.

Comet P/1998 VS24 (LINEAR)
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 25.83496 TT Muraoka
q 3.4226137 (2000.0) P Q
n 0.10268016 Peri. 244.49082 +0.72211188 -0.69107496
a 4.5166006 Node 159.17780 +0.66198443 +0.67724422
e 0.2422147 Incl. 5.02604 +0.20082591 +0.25249885
P 9.60 (dP = +/- 0.18 day)
From 47 observations 1998 Oct. 14-1999 Jan. 14, mean residual 0″.66.

Comet 180P/NEAT
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 26.70629 TT Muraoka
q 2.4687033 (2000.0) P Q
n 0.13082004 Peri. 94.91308 -0.95706846 -0.00951174
a 3.8431430 Node 84.75330 -0.11357135 -0.90724467
e 0.3576343 Incl. 16.91333 +0.26668617 -0.42049571
P 7.53
From 85 observations 1955-2006, mean residual 0″.71.

Comet 79P/du Toit-Hartley
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 May 28.45386 TT Muraoka
q 1.2304815 (2000.0) P Q
n 0.18679309 Peri. 253.28059 -0.93186501 +0.36060899
a 3.0308342 Node 307.83923 -0.31067189 -0.84987180
e 0.5940123 Incl. 2.89304 -0.18737817 -0.38429036
P 5.28
From 54 observations 1982-2003, mean residual 0″.89. Nongravitational
parameters A1 = +0.17 +/- 0.09, A2 = +0.0109 +/- 0.0003.

Comet C/2007 W3 (LINEAR)
Epoch 2008 May 14.0 TT = JDT 2454600.5
T 2008 June 2.81549 TT Muraoka
q 1.7761879 (2000.0) P Q
z +0.0000643 Peri. 112.64668 -0.28565407 -0.19645726
+/-0.0000393 Node 73.06419 -0.64943343 -0.68006499
e 0.9998858 Incl. 78.66729 +0.70472546 -0.70633997
From 124 observations 2007 Nov. 29-2008 Feb. 2, mean residual 0″.59.

Comet C/2006 U6 (Spacewatch)
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 June 5.48400 TT Muraoka
q 2.4983098 (2000.0) P Q
z +0.0005202 Peri. 276.60133 -0.11524595 -0.99333178
+/-0.0000020 Node 180.18496 +0.47458397 -0.05790396
e 0.9987005 Incl. 84.87826 -0.87263305 +0.09969502
From 243 observations 2006 Sept. 15-007 Dec. 30, mean residual 0″.49.

Comet P/2008 A2 (LINEAR)
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 June 11.99925 TT Muraoka
q 1.3053584 (2000.0) P Q
n 0.17266008 Peri. 233.15263 -0.95750644 +0.17420758
a 3.1940479 Node 315.52938 -0.00504712 -0.80696547
e 0.5913153 Incl. 19.15404 -0.28836772 -0.56432123
P 5.71 (dP = +/- 1.03 days)
From 98 observations 2008 Jan. 13-Feb. 2, mean residual 0".47.

Comet 51P/Harrington - A
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 June 18.95396 TT Muraoka
q 1.6876376 (2000.0) P Q
n 0.13825197 Peri. 269.18873 +0.98799459 +0.12258456
a 3.7041495 Node 83.76634 -0.07446289 +0.91109433
e 0.5443927 Incl. 5.42709 -0.13535869 +0.39354815
P 7.13
From 276 observations 1994-2002, mean residual 0".77. Nongravitational parameters A1 = +1.62 +/- 0.08, A2 = +0.7376 +/- 0.0519.

Comet 51P/Harrington - D
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 June 19.29347 TT Muraoka
q 1.6878876 (2000.0) P Q
n 0.13823439 Peri. 269.16647 +0.98799130 +0.12262228
a 3.7044635 Node 83.78632 -0.07450818 +0.91110451
e 0.5443638 Incl. 5.42603 -0.13535775 +0.39351282
P 7.13
From 275 observations 1994-2002, mean residual 0".82. Nongravitational parameters A1 = +2.77 +/- 0.07, A2 = +0.8698 +/- 0.0532.

Comet 15P/Finlay
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 June 22.51487 TT Muraoka
q 0.9699667 (2000.0) P Q
n 0.15177480 Peri. 347.50819 +0.99938322 -0.02080125
a 3.4807242 Node 13.77808 +0.03218166 +0.86495377
e 0.7213319 Incl. 6.82271 -0.01405454 +0.50142027
P 6.49
From 74 observations 1981-2002, mean residual 0".82. Nongravitational parameters A1 = +1.31 +/- 0.08, A2 = +0.0245 +/- 0.0003.

Comet C/2007 W1 (Boattini)
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 June 24.89083 TT Muraoka
q 0.8497396 (2000.0) P Q
z -0.0002261 Peri. 306.55089 +0.19722497 +0.97757102
+/-0.0000276 Node 334.52394 -0.83562950 +0.12822616
e 1.0001921 Incl. 9.88924 -0.51266525 +0.16707170
From 207 observations 2007 Nov. 20-2008 Feb. 10, mean residual 0".52.

Comet C/2006 Q1 (McNaught)
Epoch 2008 June 23.0 TT = JDT 2454640.5
T 2008 July 3.85182 TT Muraoka
q 2.7636463 (2000.0) P Q
z +0.0000601 Peri. 344.37943 -0.95390052 -0.08802076
+/-0.0000015 Node 199.54653 -0.08403010 -0.83945952
e 0.9998340 Incl. 59.04687 -0.28811933 +0.53624627
From 303 observations 2006 Aug. 20-2007 Dec. 29, mean residual 0".45.

Comet 25D/Neujmin [Orbit 1]
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 July 14.74487 TT Muraoka
q 1.2781848 (2000.0) P Q
n 0.18385929 Peri. 212.83505 -0.95203801 -0.29569829
a 3.0629905 Node 309.76211 +0.29814607 -0.83869987
e 0.5827004 Incl. 5.87264 +0.06879358 -0.45732379
P 5.36
From 80 observations 1916-1927, mean residual 1".81. Nongravitational parameters A1 = +3.20 +/- 0.31, A2 = -0.7940 +/- 0.0925.

Comet 33P/Daniel
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 July 20.35847 TT Muraoka
q 2.1697274 (2000.0) P Q
n 0.12172604 Peri. 18.97671 +0.10007920 -0.93165468
a 4.0322463 Node 66.57184 +0.85654286 -0.09795605
e 0.4619060 Incl. 22.37539 +0.50627905 +0.34989165
P 8.10
From 74 observations 1964-2001, mean residual 1".10. Nongravitational parameters A1 = +0.24 +/- 0.03, A2 = +0.0718 +/- 0.0003.

Comet 19P/Borrelly
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 July 22.33191 TT Muraoka
q 1.3547790 (2000.0) P Q
n 0.14383090 Peri. 353.37834 +0.34597877 -0.80092533
a 3.6077346 Node 75.44472 +0.88232045 +0.10060775
e 0.6244793 Incl. 30.32429 +0.31907572 +0.59025139
P 6.85
From 1243 observations 1994-2007, mean residual 0".74. Nongravitational parameters A1 = +0.29 +/- 0.01, A2 = -0.0458 +/- 0.0005.

Comet P/2001 R1 (LONEOS)
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 Aug. 5.17790 TT Muraoka
q 1.3450086 (2000.0) P Q
n 0.15290555 Peri. 24.96208 +0.49785903 -0.86436726
a 3.4635427 Node 35.30060 +0.77372732 +0.40583418
e 0.6116668 Incl. 7.03259 +0.39176833 +0.29693072
P 6.45 (dP = +/- 0.16 day)
From 114 observations 2001 Aug. 19-2002 Mar. 11, mean residual 0".80.

Comet C/2007 U1 (LINEAR)
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 Aug. 6.98152 TT Muraoka
q 3.3293230 (2000.0) P Q
z -0.0006709 Peri. 0.91500 +0.65352382 +0.69925154
+/-0.0000706 Node 50.03840 +0.69202426 -0.70705915
e 1.0022336 Incl. 157.78850 +0.30660894 +0.10542600
From 172 observations 2007 Oct. 19-2008 Jan. 3, mean residual 0".48.

Comet C/2007 M1 (McNaught)
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 Aug. 11.65953 TT Muraoka
q 7.4741335 (2000.0) P Q
z +0.0005821 Peri. 52.63302 +0.17595875 -0.91857185
+/-0.0001139 Node 326.80801 -0.97475816 -0.11239310
e 0.9956493 Incl. 139.72136 +0.13742288 +0.37893739
From 91 observations 2007 June 16-Sept. 8, mean residual 0".65.

Comet 6P/d'Arrest
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 Aug. 14.99102 TT Muraoka
q 1.3535096 (2000.0) P Q
n 0.15079409 Peri. 178.12189 +0.73327574 +0.64354719
a 3.4957994 Node 138.93572 -0.62809884 +0.76472243
e 0.6128183 Incl. 19.51481 -0.26038154 -0.03235150
P 6.54
From 337 observations 1989-2001, mean residual 0".70. Nongravitational parameters A1 = +0.59 +/- 0.04, A2 = +0.1163 +/- 0.0006.

Comet C/2007 B2 (Skiff)
Epoch 2008 Aug. 2.0 TT = JDT 2454680.5
T 2008 Aug. 20.87242 TT Muraoka
q 2.9748668 (2000.0) P Q
z +0.0013956 Peri. 206.00425 -0.76886391 +0.62834020
+/-0.0000034 Node 14.86937 -0.47595725 -0.43867420
e 0.9958484 Incl. 27.49627 -0.42698125 -0.64245898
From 366 observations 2007 Jan. 23-2008 Jan. 5, mean residual 0".50.

Comet P/1997 V1 (Larsen)
Epoch 2008 Sept. 11.0 TT = JDT 2454720.5
T 2008 Aug. 27.04527 TT Muraoka

q	3.2720613	(2000.0)	P	Q
n	0.09063692	Peri.	133.77704	+0.97561950	-0.13679057
a	4.9083174	Node	234.81501	+0.08526978	+0.95682018
e	0.3333640	Incl.	12.12180	+0.20222674	+0.25648292

P 10.87 (dP = +/- 0.30 day)
from 260 observations 1997 Nov. 3-1998 Feb. 19, mean residual 0".47.

Comet 61P/Shajn-Schaldach
Epoch 2008 Sept. 11.0 TT = JDT 2454720.5
T 2008 Sept. 6.10859 TT Muraoka

q	2.1080211	(2000.0)	P	Q
n	0.13985373	Peri.	221.62300	+0.90714591	-0.41971670
a	3.6758125	Node	163.11843	+0.40844365	+0.86078514
e	0.4265156	Incl.	6.00914	+0.10129205	+0.28790075

P 7.05
From 127 observations 1978-2001, mean residual 0".83. Nongravitational parameters A1 = +0.16 +/- 0.16, A2 = -0.1058 +/- 0.0033.

Comet D/1892 R2 (Giacobini)
Epoch 2008 Sept. 11.0 TT = JDT 2454720.5
T 2008 Sept. 9.8916 TT Muraoka

q	1.529964	(2000.0)	P	Q
n	0.1479342	Peri.	154.2322	+0.8977063	+0.4405908
a	3.540710	Node	179.6123	-0.4359445	+0.8888127
e	0.567894	Incl.	15.3168	-0.0638421	+0.1260628

P 6.66
From 60 observations 1896 Sept. 4-1897 Jan. 5, mean residual is not availble.
From Belyaev, Emel'yanenko and Goryajnova orbit(1974).

Comet C/2007 S2 (Lemmon)
Epoch 2008 Sept. 11.0 TT = JDT 2454720.5
T 2008 Sept. 14.38079 TT Muraoka

q	5.5586692	(2000.0)	P	Q
n	0.02218833	Peri.	210.41883	-0.81600484	-0.51619363
a	12.5425619	Node	296.25212	+0.57136305	-0.65203441
e	0.5568155	Incl.	16.86236	+0.08763766	-0.55533348

P 44.42 (dP = +/- 1.31 days)
From 193 observations 2007 Sept. 25-2008 Feb. 3, mean residual 0".44.

Comet C/2006 OF2 (Broughton)
Epoch 2008 Sept. 11.0 TT = JDT 2454720.5
T 2008 Sept. 15.68231 TT Muraoka

q	2.4314005	(2000.0)	P	Q
z	-0.0003525	Peri.	95.61306	+0.49676296	-0.80147695
	+/-0.0000011	Node	318.50778	+0.45179721	+0.56637419
e	1.0008570	Incl.	30.16983	+0.74101676	+0.19197648

from 1343 observations 2006 June 23-2007 Dec. 28, mean residual 0".47.

Comet 147P/Kushida-Muramatu
Epoch 2008 Sept. 11.0 TT = JDT 2454720.5
T 2008 Sept. 22.95676 TT Muraoka

q	2.7564150	(2000.0)	P	Q
n	0.13270460	Peri.	346.88055	+0.16279493	-0.98579866
a	3.8066714	Node	93.73906	+0.90893124	+0.13358730
e	0.2758989	Incl.	2.36725	+0.38385130	+0.10176166

P 7.43
From 61 observations 1994 Dec. 8-2002 Mar. 20, mean residual 1".03.

Comet 7P/Pons-Winnecke
Epoch 2008 Sept.11.0 TT = JDT 2454720.5
T 2008 Sept. 26.63432 TT Muraoka

q	1.2532653	(2000.0)	P	Q
n	0.15497286	Peri.	172.32932	-0.06409501	+0.92319733
a	3.4326718	Node	93.42294	-0.93457044	+0.07763230
e	0.6349009	Incl.	22.31022	-0.34995703	-0.37640391

P 6.36
From 154 observations 1970-2007, mean residual 0".82. Nongravitational parameters A1 = +0.01 +/- 0.01, A2 = +0.0021 +/- 0.0001.

Comet C/2008 A1 (McNaught)
T 2008 Sept. 29.0925 TT Muraoka
q 1.072675 (2000.0) P Q
Peri. 348.4980 +0.1082291 +0.1535035
Node 277.8549 -0.8152289 -0.5517297
e 1.0 Incl. 82.5269 -0.5689361 +0.8197750
From 89 observations 2008 Jan. 10-Feb. 7, mean residual 0″.42.

Comet 187P/LINEAR
Epoch 2008 Oct. 21.0 TT = JDT 2454760.5
T 2008 Oct. 6.23049 TT Muraoka
q 3.6932593 (2000.0) P Q
n 0.10490085 Peri. 131.94773 -0.41943348 +0.88070065
a 4.4526310 Node 112.00294 -0.88720315 -0.34635583
e 0.1705445 Incl. 13.73227 -0.19221373 -0.32311608
P 9.40
From 71 observations 1999 May 12-2007 Apr. 7, mean residual 0″.63.

Comet P/2001 CV8 (LINEAR)
Epoch 2008 Oct. 21.0 TT = JDT 2454760.5
T 2008 Oct. 11.22373 TT Muraoka
q 2.1599329 (2000.0) P Q
n 0.12867206 Peri. 151.62378 -0.87896506 -0.47688608
a 3.8857949 Node 359.89267 +0.40245361 -0.74144478
e 0.4441464 Incl. 9.03542 +0.25583494 -0.47205857
P 7.66 (dP = +/- 0.09 day)
From 135 observations 2001 Feb. 1-May 16, mean residual 0″.76.

Comet 172P/Yeung
Epoch 2008 Oct. 21.0 TT = JDT 2454760.5
T 2008 Oct. 12.83532 TT Muraoka
q 2.2404662 (2000.0) P Q
n 0.14983754 Peri. 178.99782 -0.77597191 +0.61752206
a 3.5106616 Node 40.08834 -0.58009818 -0.61860079
e 0.3618108 Incl. 11.51802 -0.24769681 -0.48579787
P 6.78
From 148 observations 1993-2007, mean residual 0″.55.

Comet 25D/Neujmin [Orbit 2]
Epoch 2008 Oct. 21.0 TT = JDT 2454760.5
T 2008 Oct. 14.96680 TT Muraoka
q 1.2722649 (2000.0) P Q
n 0.18280710 Peri. 214.88486 -0.95266460 -0.29492246
a 3.0747326 Node 307.79216 +0.29584878 -0.84336384
e 0.5862193 Incl. 5.36084 +0.07002621 -0.44917499
P 5.39
From 80 observations 1916-1927, mean residual 2″.08.

Comet P/2001 J1 (NEAT)
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Nov. 6.82825 TT Muraoka
q 0.9441464 (2000.0) P Q
n 0.12854892 Peri. 271.17650 -0.36659261 -0.92829897
a 3.8882761 Node 200.66978 +0.90825387 -0.34257504
e 0.7571812 Incl. 10.15196 +0.20170463 -0.14457993
P 7.67 (dP = +/- 0.63 day)
From 54 observations 2000 Oct. 7-2001 May 27, mean residual 0″.84.

Comet P/1999 XN120 (Catalina)
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Nov. 12.53089 TT Muraoka
q 3.3040768 (2000.0) P Q
n 0.11504705 Peri. 161.61184 +0.05011957 -0.99516662
a 4.1868339 Node 285.44824 +0.90498439 +0.08101939
e 0.2108412 Incl. 5.02630 +0.42248229 -0.05549099
P 8.57 (dP = +/- 0.15 day)
From 71 observations 1999 Nov. 3-2000 Mar. 30, mean residual 0″.62.

```
Comet C/2007 G1 (LINEAR)
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Nov. 16.31724 TT                                        Muraoka
q   2.6472041            (2000.0)            P                Q
z  -0.0006550      Peri.  223.98193     -0.11751672     +0.15313804
 +/-0.0000031      Node    78.99445     -0.37547086     +0.90784340
e   1.0017340      Incl.   88.33131     -0.91935383     -0.39034484
From 1247 observations  2007 Apr. 10-Nov. 25,mean residual 0".52.

Comet 150P/LONEOS
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Nov. 26.00060 TT                                        Muraoka
q   1.7676927            (2000.0)            P                Q
n   0.12834699     Peri.  245.67081     -0.88079016     -0.35171679
a   3.8923534      Node   272.42919     +0.45904993     -0.79844601
e   0.5458550      Incl.   18.50025     -0.11611141     -0.48865045
P   7.68
From 255 observations 1978-2007, mean residual 0".52.

Comet P/2001 TU80 (LINEAR-NEAT)
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Dec. 9.58509 TT                                         Muraoka
q   1.9402579            (2000.0)            P                Q
n   0.14047268     Peri.  355.03455     -0.24485012     -0.96349327
a   3.6650070      Node   109.10658     +0.89345436     -0.26759961
e   0.4705991      Incl.    6.58143     +0.37654710     +0.00843611
P   7.02 (dP = +/- 0.05 day)
From 430 observations 1990-2006, mean residual 0".74.

Comet C/2007 M2 (Catalina)
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Dec. 8.61077 TT                                         Muraoka
q   3.5405869            (2000.0)            P                Q
z  +0.0002917      Peri.  220.68111     -0.76235433     +0.64546520
 +/-0.0000267      Node   357.28358     +0.19511384     +0.16028643
e   0.9989671      Incl.   80.95395     -0.61704656     -0.74678172
From 67 observations 2007 June 20-Dec. 19, mean residual 0".57.

Comet 85P/Boethin
Epoch 2008 Nov. 30.0 TT = JDT 2454800.5
T 2008 Dec. 16.36095 TT                                        Muraoka
q   1.1474653            (2000.0)            P                Q
n   0.08541699     Peri.   53.58171     +0.79766924     -0.60273136
a   5.1063024      Node   343.45119     +0.52712141     +0.71363785
e   0.7752845      Incl.    4.21700     +0.29303038     +0.35698168
P  11.54
From 46 observations 1975-1986, mean residual 1".24.

Comet 57P/du Toit-Neujmin-Delporte - A
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2008 Dec. 25.93135 TT                                        Muraoka
q   1.7237855            (2000.0)            P                Q
n   0.15385569     Peri.  115.29032     +0.56073835     +0.82795794
a   3.4492686      Node   188.82842     -0.77641957     +0.52258956
e   0.5002461      Incl.    2.84799     -0.28765457     +0.20343501
P   6.41
From 520 observations  1989-2002, mean residual 0".68.  Nongravitational
   parameters A1 = +1.94 +/- 0.05, A2 = -0.0156 +/- 0.0011.

Comet P/2003 K2 (Cristensen)
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 5.23005 TT                                         Muraoka
q   0.5341698            (2000.0)            P                Q
n   0.17280019     Peri.  345.90658     +0.17404681     -0.96869059
a   3.1923211      Node    93.84582     +0.91979638     +0.09570925
e   0.8326704      Incl.   10.22117     +0.35168498     +0.22908139
P   5.70 (dP = +/- 8.41 days)
From 213 observations 2003 May 26-June 29, mean residual 0".77.
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Comet P/2002 CW134 (LINEAR)
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 5.91046 TT　　Muraoka
q　1.8437727　　(2000.0)　　P　　Q
n　0.14391125　　Peri.　190.26726　　-0.99839841　　-0.01869102
a　3.6063916　　Node　348.25961　　+0.04780396　　-0.78348602
e　0.4887486　　Incl.　15.21390　　-0.03025566　　-0.62112825
P　6.85 (dP = +/- 0.15 day)
From 109 observations 2002 Feb. 7-May 12, mean residual 0".59.

Comet C/2007 N3 (Lulin)
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 10.66448 TT　　Muraoka
q　1.2125106　　(2000.0)　　P　　Q
z　+0.0000107　　Peri.　136.85596　　-0.92916926　　-0.36950849
 +/-0.0000103　　Node　338.53463　　-0.34640690　　+0.86057851
e　0.9999870　　Incl.　178.37290　　-0.12902228　　+0.35052547
From 437 observations 2007 July 11-Nov. 7, mean residual 0".45.

Comet 68P/Klemola
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 20.97422 TT　　Muraoka
q　1.7590287　　(2000.0)　　P　　Q
n　0.09101457　　Peri.　153.97910　　+0.86060515　　+0.50902961
a　4.8947302　　Node　175.32981　　-0.49445485　　+0.84256543
e　0.6406281　　Incl.　11.14413　　-0.12195566　　+0.17598966
P　10.83
From 222 observations 1965-1998, mean residual 0".91.　Nongravitational
　parameters A1 = -0.03 +/- 0.02, A2 = -0.0016 +/- 0.0002.

Comet 195P/Hill
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 21.09074 TT　　Muraoka
q　4.4385820　　(2000.0)　　P　　Q
n　0.05977247　　Peri.　249.61836　　-0.51732481　　-0.67236879
a　6.4784125　　Node　243.24960　　+0.81814000　　-0.57004261
e　0.3148658　　Incl.　36.36178　　-0.25104178　　-0.47219872
P　16.49
from 110 observations 1993-2007, mean residual 0".60.

Comet P/2002 JN16 (LINEAR)
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 25.09504 TT　　Muraoka
q　1.7836997　　(2000.0)　　P　　Q
n　0.15188765　　Peri.　39.69881　　-0.01435948　　+0.98831712
a　3.4789998　　Node　230.03364　　-0.96032320　　-0.05590094
e　0.4872953　　Incl.　11.41866　　-0.27851957　　+0.14178984
P　6.49 (dP = +/- 0.06 day)
From 153 observations 2002 Apr. 14-Sept. 1, mean residual 0".56.

Comet 144P/Kushida
Epoch 2009 Jan. 9.0 TT = JDT 2454840.5
T 2009 Jan. 26.93089 TT　　Muraoka
q　1.4390100　　(2000.0)　　P　　Q
n　0.12964403　　Peri.　216.09999　　-0.20076551　　-0.97746467
a　3.8663488　　Node　245.56240　　+0.91476077　　-0.16322148
e　0.6278117　　Incl.　4.10922　　+0.35057945　　-0.13387146
P　7.60
From 303 observations 1994-2000, mean residual 0".73.

Comet P/2003 O3 (LINEAR)
Epoch 2009 Feb. 18.0 TT = JDT 2454880.5
T 2009 Jan. 29.99255 TT　　Muraoka
q　1.2467431　　(2000.0)　　P　　Q
n　0.18015366　　Peri.　0.69070　　+0.95198329　　+0.30264562
a　3.1048503　　Node　341.48956　　-0.28158014　　+0.80634096
e　0.5984531　　Incl.　8.36555　　-0.12016838　　+0.50815341
P　5.47 (dP = +/- 0.06 day)
From 260 observations 2003 July 30-Dec. 15, mean residual 0".65.

Comet 47P/Ashbrook-Jackson
Epoch 2009 Feb. 18.0 TT = JDT 2454880.5
T 2009 Jan. 31.97027 TT Muraoka

q	2.7990797	(2000.0)	P	Q
n	0.11822758	Peri. 357.68615	+0.99572924	+0.09155301
a	4.1114043	Node 356.98270	-0.08066226	+0.80009643
e	0.3191913	Incl. 13.05272	-0.04490968	+0.59284378
P	8.34			

From 757 observations 1948-2007, mean residual 0″.99. Nongravitational parameters A1 = +0.14 +/- 0.01, A2 = -0.0044 +/- 0.0002.

Comet P/2001 X2 (Scotti)
Epoch 2009 Feb. 18.0 TT = JDT 2454880.5
T 2009 Feb. 7.12893 TT Muraoka

q	2.5269480	(2000.0)	P	Q
n	0.13430080	Peri. 255.55607	-0.00214689	-0.99995166
a	3.7764493	Node 194.57709	+0.93154019	+0.00148935
e	0.3308667	Incl. 2.18491	+0.36363203	-0.00971908
P	7.34 (dP = +/- 0.12 day)			

From 121 observations 2001 Dec. 14-2002 Mar. 18, mean residual 0″.65.

Comet 14P/Wolf
Epoch 2009 Feb. 18.0 TT = JDT 2454880.5
T 2009 Feb. 27.25220 TT Muraoka

q	2.7241241	(2000.0)	P	Q
n	0.11277499	Peri. 158.98857	+0.98407255	+0.02164645
a	4.2428809	Node 202.11929	-0.01356350	+0.99880805
e	0.3579541	Incl. 27.94339	+0.17724910	-0.04374828
P	8.74			

From 146 observations 1950-2007, mean residual 0″.72.

Comet 67P/Churyumov-Gerasimenko
Epoch 2009 Mar. 30.0 TT = JDT 2454920.5
T 2009 Feb. 28.36325 TT Muraoka

q	1.2465183	(2000.0)	P	Q
n	0.15285478	Peri. 12.69966	+0.45686457	-0.88453754
a	3.4643096	Node 50.19738	+0.80503991	+0.36611019
e	0.6401828	Incl. 7.04088	+0.37839862	+0.28906170
P	6.45			

From 1121 observations 1975-2004, mean residual 0″.86. Nongravitational parameters A1 = +0.06 +/- 0.00, A2 = +0.0094 +/- 0.0000.

Comet 59P/Kearns-Kwee
Epoch 2009 Feb. 18.0 TT = JDT 2454880.5
T 2009 Mar. 7.65523 TT Muraoka

q	2.3555525	(2000.0)	P	Q
n	0.10368492	Peri. 127.53231	+0.15617355	-0.98057928
a	4.4873744	Node 313.03671	+0.84729798	+0.19472838
e	0.4750711	Incl. 9.34094	+0.50763762	-0.02334818
P	9.51			

from 266 observations 1981-2000, mean residual 0″.81. Nongravitational parameters A1 = +0.48 +/- 0.07, A2 = -0.2369 +/- 0.0006.

Comet P/2002 Q1 (Van Ness)
Epoch 2009 Mar. 30.0 TT = JDT 2454920.5
T 2009 Mar. 22.60762 TT Muraoka

q	1.5512631	(2000.0)	P	Q
n	0.14681191	Peri. 185.02572	+0.99808050	-0.00320112
a	3.5587313	Node 174.00104	-0.01046168	+0.97559577
e	0.5640966	Incl. 36.28335	-0.06103982	-0.21955100
P	6.71 (dP = +/- 1.30 days)			

From 57 observations 2002 Aug. 17-Oct. 14, mean residual 1″.12.

Comet 145P/Shoemaker-Levy
Epoch 2009 Mar. 30.0 TT = JDT 2454920.5
T 2009 Mar. 26.61110 TT Muraoka

q	1.8913502	(2000.0)	P	Q
n	0.11740747	Peri. 10.13931	+0.79973089	-0.59377618
a	4.1305280	Node 26.90338	+0.53618790	+0.63998899
e	0.5421045	Incl. 11.29941	+0.27006119	+0.48769246
P	8.39			

From 121 observations 1991-2001,, mean residual 0″.70.

```
Comet P/1994 J3 (Shoemaker)
Epoch 2009 Mar. 30.0 TT = JDT 2454920.5
T 2009 Apr. 11.54445 TT                                        Muraoka
q   2.9353202            (2000.0)            P               Q
n   0.06760558     Peri.  191.93084     +0.23778492     +0.87662209
a   5.9678010      Node    92.94765     -0.85317291     +0.39435646
e   0.5081404      Incl.   24.76356     -0.46427827     -0.27571124
P  14.58 (dP = +/- 0.35 day)
From 117 observations 1994 May 14-Sept. 18, mean residual 0".73.

Comet P/2004 CB (LINEAR)
Epoch 2009 Mar. 30.0 TT = JDT 2454920.5
T 2009 Apr. 15.82418 TT                                        Muraoka
q   0.9137061            (2000.0)            P               Q
n   0.19575727     Peri.  149.72967     -0.78161341     +0.54650736
a   2.9375873      Node    66.44920     -0.61758889     -0.61037221
e   0.6889604      Incl.   19.14764     -0.08754676     -0.57338945
P   5.03 (dP = +/- 0.01 day)
From 329 observations 2004 Feb. 3-Aug. 25, mean residual 0".40.

Comet 18D/Perrine-Mrkos
Epoch 2009 Mar. 30.0 TT = JDT 2454920.5
T 2009 Apr. 17.28332 TT                                        Muraoka
q   1.6361380            (2000.0)            P               Q
n   0.12582765     Peri.  156.80479     +0.80604410     -0.53817792
a   3.9441370      Node   238.06744     +0.48732792     +0.83963858
e   0.5851721      Incl.   16.87014     +0.33586369     +0.07329108
P   7.83
From 22 observations 1961 Nov. 29-1968 Dec. 26, mean residual 2".39.

Comet C/2006 W3 (Christensen)
Epoch 2009 June 18.0 TT = JDT 2455000.5
T 2009 July  6.65875 TT                                        Muraoka
q   3.1261634            (2000.0)            P               Q
z  -0.0000104      Peri.  133.51962     +0.67604647     -0.09048557
 +/-0.0000027      Node   113.57274     -0.64880498     -0.54355404
e   1.0000326      Incl.  127.07366     +0.34930397     -0.83448270
From 488 observations 2006 Oct. 29-2008 Jan. 29, mean residual 0".53.

Comet P/2003 A1 (LINEAR)
Epoch 2009 June 18.0 TT = JDT 2455000.5
T 2009 June 16.14821 TT                                        Muraoka
q   1.9165254            (2000.0)            P               Q
n   0.13139961     Peri.  340.26412     +0.74784450     -0.34707884
a   3.8318339      Node    54.07595     +0.66318160     +0.35165034
e   0.4998412      Incl.   44.33421     +0.03031124     +0.86941263
P   7.50 (dP = +/- 0.72 day)
From 144 observations 2003 Jan. 5-Apr. 6, mean residual 0".62.

Comet 77P/Longmore
Epoch 2009 June 18.0 TT = JDT 2455000.5
T 2009 July 7.84734 TT                                         Muraoka
q   2.3103259            (2000.0)            P               Q
n   0.14433855     Peri.  196.69449     -0.85822856     +0.50213269
a   3.5992706      Node    14.91668     -0.41095391     -0.54812660
e   0.3581127      Incl.   24.39832     -0.30750712     -0.66889460
P   6.83
From 297 observations 1975-2008, mean residual 0".86.  Nongravitational
   parameters A1 = +0.12 +/- 0.05, A2 = -0.0570 +/- 0.0010.

Comet 116P/Wild 4
Epoch 2009 July 28.0 TT = JDT 2455040.5
T 2009 July 18.88923 TT                                        Muraoka
q   2.1748887            (2000.0)            P               Q
n   0.15200347     Peri.  173.59917     -0.96749112     +0.25189180
a   3.4772324      Node    21.03229     -0.23474067     -0.86112796
e   0.3745346      Incl.    3.61285     -0.09411565     -0.44159841
P   6.48
From 891 observations 2001 Sept. 16-2008 Feb. 8, mean residual 0".74.
  Nongravitational parameters A1 = -0.88 +/- 0.24, A2 = -2.8541 +/- 0.1480.
```

Comet 74P/Smirnova-Chernykh
Epoch 2009 July 28.0 TT = JDT 2455040.5
T 2009 July 30.31999 TT Muraoka
q 3.5576575 (2000.0) P Q
n 0.11559991 Peri. 87.24236 -0.95634812 -0.26956627
a 4.1734741 Node 77.10042 +0.20024321 -0.88571913
e 0.1475549 Incl. 6.64740 +0.21284014 -0.37793603
P 8.53
From 1181 observations 1967-2008, mean residual 0".82. Nongravitational parameters Y1 = +0.06 +/- 0.01, Y2 = -0.0122 +/- 0.0001.

Comet C/2007 Q3 (Siding Spring)
Epoch 2009 Oct. 16.0 TT = JDT 2455120.5
T 2009 Oct. 7.31269 TT Muraoka
q 2.2517846 (2000.0) P Q
z -0.0000775 Peri. 2.09199 -0.86794367 -0.17823447
+/-0.0000215 Node 149.41316 +0.44142755 -0.70462490
e 1.0001745 Incl. 65.65025 +0.22763018 +0.68683056
From 125 observations 2007 Aug. 25-2008 Feb. 1, mean residual 0".36.

Comet 118P/Shoemaker-Levy
Epoch 2010 Jan. 4.0 TT = JDT 2455200.5
T 2010 Jan. 2.32480 TT Muraoka
q 1.9839244 (2000.0) P Q
n 0.15284427 Peri. 302.14496 -0.07332589 -0.99485485
a 3.4644684 Node 151.80713 +0.95760011 -0.08981586
e 0.4273510 Incl. 8.50943 +0.27861326 +0.04687161
P 6.45
From 771 observations 1991-2004, mean residual 0".77. Nongravitational parameters A1 = -0.03 +/- 0.02, A2 = -0.1400 +/- 0.0008.

Comet 81P/Wild
Epoch 2010 Feb. 13.0 TT = JDT 2455240.5
T 2010 Feb. 22.71853 TT Muraoka
q 1.5980584 (2000.0) P Q
n 0.15350996 Peri. 41.79375 -0.99858484 -0.03598147
a 3.4544454 Node 136.09691 +0.01950108 -0.93282211
e 0.5373908 Incl. 3.23749 +0.04947760 -0.35853625
P 6.42
From 1822 observations 1985-2005, mean residual 0".72. Nongravitational parameters A1 = +0.11 +/- 0.00, A2 = +0.0084 +/- 0.0001.

Comet 65P/Gunn
Epoch 2010 Feb. 13.0 TT = JDT 2455240.5
T 2010 Mar. 2.15063 TT Muraoka
q 2.4403765 (2000.0) P Q
n 0.14517234 Peri. 196.63612 -0.09162712 +0.98159171
a 3.5854758 Node 68.35750 -0.89186325 -0.00604068
e 0.3193716 Incl. 10.38648 -0.44292710 -0.19089587
P 6.79
From 1407 observations 1993-2007, mean residual 1".01 Nongravitational parameters Y1 = +0.24 +/- 0.01, Y2 = +0.0262 +/- 0.0014.

Comet P/1999 R1 = 2003 R5 = 2007 R5 (SOHO)
Epoch 2011 Aug. 27.0 TT = JDT 2455800.5
T 2011 Sept. 7.15705 TT Muraoka
q 0.0532203 (2000.0) P Q
n 0.24718242 Peri. 48.55916 +0.66252654 -0.74903841
a 2.5145348 Node 359.94667 +0.60431834 +0.53468343
e 0.9788349 Incl. 12.76660 +0.44255839 +0.39122256
P 3.99 (dP = +/- 0.001 day)
From 52 observations 1999-2007, mean residual 10".21.

Comet C/2006 S3 (LONEOS)
Epoch 2012 Apr. 23.0 TT = JDT 2456040.5
T 2012 Apr. 16.35634 TT Muraoka
q 5.1307004 (2000.0) P Q
z -0.0006642 Peri. 140.13231 -0.21567421 -0.96490279
+/-0.0000189 Node 38.36666 -0.94611848 +0.24445182
e 1.0034078 Incl. 166.03185 -0.24154599 -0.09594750
From 123 observations 2006 Aug. 29-2008 Feb. 2, mean residual 0".72.

Comet 27P/Crommelin [Orbit 1]
Epoch 2011 July 18.0 TT = JDT 2455760.5
T 2011 Aug. 3.80820 TT Muraoka

q	0.7478719		(2000.0)	P	Q
n	0.03529425	Peri.	195.98065	+0.09145127	-0.88487453
a	9.2044981	Node	250.63807	+0.95843618	+0.20269667
e	0.9187493	Incl.	28.95655	+0.27025313	-0.41941761

P 27.93
From 244 observations 1873-1984, mean residual 1".57. Nongravitational parameters A1 = -0.05 +/- 0.06, A2 = -0.0570 +/- 0.0010.

Comet 27P/Crommelin [Orbit 2]
Epoch 2011 July 18.0 TT = JDT 2455760.5
T 2011 Aug. 3.79926 TT Muraoka

q	0.7478702		(2000.0)	P	Q
n	0.03530090	Peri.	195.97902	+0.09146901	-0.88487095
a	9.2033421	Node	250.63852	+0.95843121	+0.20271805
e	0.9187393	Incl.	28.95670	+0.27026475	-0.41941481

P 27.92
From 237 observations 1873-1984, mean residual 1".52. Nongravitational parameters A1 = +0.24 +/- 0.18, A2 = -0.0004 +/- 0.0001.

Remarks.

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

Orbital elements of the original reference to the following sites.

http://www.comet-web.net/~oaa-comet-ml/chb/original_elem.html

Comet C/2005 L3 (McNaught)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Jan. 16.28501 TT
q = 5.5934976 AU Peri. = 47.12767
z = +0.0000878 Node = 288.73993 2000.0
e = 0.9995088 Incl. = 139.44917

m1 = 1.5 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	17 08.85	+01 27.7	6.355	5.594	+0.26	+4.9	14.9	36.4
Jan. 15	17 11.41	+02 16.3	6.258	5.594	+0.20	+5.7	14.8	44.1
Jan. 25	17 13.41	+03 13.2	6.139	5.594	+0.13	+6.6	14.8	52.4
Feb. 4	17 14.69	+04 18.9	6.003	5.595	+0.04	+7.5	14.7	61.2
Feb. 14	17 15.06	+05 33.4	5.855	5.597	-0.07	+8.3	14.7	70.2
Feb. 24	17 14.35	+06 56.8	5.698	5.601	-0.20	+9.2	14.6	79.4
Mar. 5	17 12.40	+08 28.5	5.538	5.605	-0.34	+9.9	14.6	88.7
Mar. 15	17 09.02	+10 07.6	5.382	5.610	-0.49	+10.5	14.5	98.1
Mar. 25	17 04.10	+11 52.4	5.236	5.616	-0.65	+10.8	14.5	107.4
Apr. 4	16 57.55	+13 40.6	5.106	5.623	-0.82	+10.8	14.4	116.4
Apr. 14	16 49.36	+15 28.9	4.999	5.631	-0.97	+10.4	14.4	124.7
Apr. 24	16 39.64	+17 13.2	4.918	5.639	-1.10	+9.6	14.3	131.8
May 4	16 28.62	+18 49.2	4.870	5.649	-1.20	+8.4	14.3	136.9
May 14	16 16.65	+20 12.8	4.857	5.660	-1.25	+6.8	14.3	139.1
May 24	16 04.19	+21 20.4	4.879	5.671	-1.24	+5.0	14.4	137.9
June 3	15 51.77	+22 10.3	4.935	5.683	-1.19	+3.2	14.4	133.7
June 13	15 39.89	+22 41.9	5.024	5.697	-1.09	+1.4	14.5	127.3
June 23	15 28.99	+22 56.3	5.139	5.711	-0.96	-0.1	14.5	119.7
July 3	15 19.37	+22 55.7	5.276	5.726	-0.81	-1.3	14.6	111.4
July 13	15 11.24	+22 43.0	5.430	5.742	-0.66	-2.2	14.7	102.8
July 23	15 04.66	+22 21.1	5.594	5.759	-0.51	-2.8	14.7	94.2
Aug. 2	14 59.61	+21 52.9	5.763	5.776	-0.36	-3.2	14.8	85.7
Aug. 12	14 56.00	+21 20.9	5.931	5.794	-0.23	-3.3	14.9	77.4
Aug. 22	14 53.72	+20 47.4	6.093	5.814	-0.11	-3.3	15.0	69.3
Sept. 1	14 52.61	+20 14.2	6.245	5.834	-0.01	-3.1	15.1	61.6
Sept.11	14 52.53	+19 42.8	6.383	5.855	+0.08	-2.8	15.1	54.4
Sept.21	14 53.32	+19 14.6	6.504	5.876	+0.15	-2.4	15.2	47.7
Oct. 1	14 54.84	+18 50.6	6.605	5.899	+0.21	-1.9	15.2	42.0
Oct. 11	14 56.93	+18 32.0	6.683	5.922	+0.25	-1.2	15.3	37.4
Oct. 21	14 59.46	+18 19.6	6.738	5.946	+0.28	-0.5	15.3	34.6
Oct. 31	15 02.30	+18 14.2	6.769	5.970	+0.30	+0.3	15.4	33.9
Nov. 10	15 05.30	+18 16.7	6.775	5.996	+0.30	+1.1	15.4	35.4
Nov. 20	15 08.33	+18 27.9	6.756	6.022	+0.29	+2.1	15.4	39.1
Nov. 30	15 11.24	+18 48.5	6.715	6.048	+0.26	+3.1	15.4	44.3
Dec. 10	15 13.88	+19 19.2	6.652	6.076	+0.22	+4.1	15.4	50.7
Dec. 20	15 16.11	+20 00.4	6.571	6.104	+0.16	+5.2	15.4	57.8
Dec. 30	15 17.76	+20 52.7	6.474	6.133	+0.09	+6.3	15.4	65.6
Jan. 9	15 18.64	+21 56.1	6.366	6.162	0.00	+7.4	15.4	73.7
Jan. 19	15 18.60	+23 10.4	6.251	6.192	-0.12	+8.5	15.4	82.1
Jan. 29	15 17.45	+24 35.0	6.134	6.223	-0.24	+9.4	15.4	90.6
Feb. 8	15 15.02	+26 08.5	6.022	6.254	-0.39	+10.0	15.4	99.1
Feb. 18	15 11.15	+27 48.8	5.919	6.286	-0.54	+10.4	15.3	107.4
Feb. 28	15 05.73	+29 33.1	5.832	6.319	-0.70	+10.4	15.3	115.3
Mar. 10	14 58.72	+31 17.6	5.766	6.352	-0.86	+10.0	15.3	122.3
Mar. 20	14 50.16	+32 58.0	5.725	6.386	-0.99	+9.2	15.4	127.9
Mar. 30	14 40.21	+34 29.7	5.712	6.420	-1.10	+7.9	15.4	131.7

Comet 8P/Tuttle

Epoch = 2008 Aug. 2.0 TT
T = 2008 Jan. 27.01933 TT
Peri. = 207.50958 e = 0.8197934
Node = 270.34172 2000.0 a = 5.7002735 AU
Incl. = 54.98238 n = 0.07242034
q = 1.0272269 AU P = 13.61 years

m1 = 9.5 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	01 50.29	+10 07.1	0.259	1.081	+2.75	-181.7	7.0	105.3
Jan. 15	02 17.75	-20 10.3	0.346	1.044	+2.07	-92.6	7.4	90.2
Jan. 25	02 38.46	-35 36.1	0.479	1.028	+1.68	-49.7	8.1	81.3
Feb. 4	02 55.30	-43 53.0	0.620	1.035	+1.52	-30.5	8.6	76.5
Feb. 14	03 10.48	-48 58.4	0.753	1.063	+1.53	-21.1	9.2	74.0
Feb. 24	03 25.80	-52 29.0	0.872	1.112	+1.71	-15.9	9.8	73.1
Mar. 5	03 42.90	-55 07.9	0.973	1.177	+2.04	-13.0	10.3	73.6
Mar. 15	04 03.35	-57 17.8	1.057	1.255	+2.51	-11.3	10.9	75.3
Mar. 25	04 28.47	-59 10.9	1.126	1.342	+3.11	-10.0	11.4	78.1
Apr. 4	04 59.56	-60 50.8	1.183	1.435	+3.82	-8.4	11.8	81.7
Apr. 14	05 37.74	-62 15.0	1.232	1.533	+4.56	-6.0	12.3	85.9
Apr. 24	06 23.32	-63 14.8	1.280	1.633	+5.19	-2.2	12.7	90.4
May 4	07 15.25	-63 36.8	1.331	1.735	+5.54	+2.7	13.1	94.8
May 14	08 10.64	-63 10.2	1.391	1.838	+5.46	+7.8	13.5	98.6
May 24	09 05.29	-61 52.6	1.465	1.941	+5.04	+12.0	13.9	101.6
June 3	09 55.72	-59 52.3	1.557	2.044	+4.46	+14.7	14.3	103.3
June 13	10 40.30	-57 25.5	1.669	2.146	+3.86	+15.6	14.8	103.5
June 23	11 18.94	-54 49.1	1.800	2.248	+3.35	+15.3	15.2	102.3
July 3	11 52.47	-52 16.2	1.951	2.348	+2.94	+14.1	15.6	99.8
July 13	12 21.90	-49 55.5	2.119	2.448	+2.62	+12.4	16.0	96.2
July 23	12 48.13	-47 51.2	2.301	2.546	+2.38	+10.7	16.4	91.9
Aug. 2	13 11.92	-46 04.5	2.495	2.643	+2.19	+9.0	16.8	86.9
Aug. 12	13 33.84	-44 34.9	2.698	2.738	+2.05	+7.4	17.1	81.5
Aug. 22	13 54.30	-43 20.8	2.905	2.833	+1.93	+6.1	17.5	75.8
Sept. 1	14 13.64	-42 20.1	3.115	2.926	+1.84	+4.9	17.8	69.9
Sept.11	14 32.08	-41 30.9	3.324	3.018	+1.77	+4.0	18.1	63.8
Sept.21	14 49.78	-40 51.0	3.529	3.109	+1.71	+3.2	18.4	57.6
Oct. 1	15 06.87	-40 18.7	3.727	3.198	+1.66	+2.6	18.7	51.3
Oct. 11	15 23.43	-39 52.5	3.916	3.287	+1.61	+2.2	18.9	45.0
Oct. 21	15 39.49	-39 30.8	4.093	3.374	+1.56	+1.8	19.2	38.6
Oct. 31	15 55.09	-39 12.6	4.257	3.460	+1.51	+1.6	19.4	32.4
Nov. 10	16 10.23	-38 56.9	4.404	3.545	+1.47	+1.4	19.6	26.4
Nov. 20	16 24.89	-38 43.0	4.533	3.628	+1.41	+1.3	19.8	21.1
Nov. 30	16 39.03	-38 30.2	4.642	3.711	+1.36	+1.2	20.0	17.1
Dec. 10	16 52.60	-38 18.3	4.731	3.792	+1.29	+1.1	20.1	15.8
Dec. 20	17 05.55	-38 06.9	4.798	3.873	+1.22	+1.1	20.3	17.8
Dec. 30	17 17.79	-37 56.0	4.843	3.952	+1.15	+1.1	20.4	22.5
Jan. 9	17 29.24	-37 45.5	4.866	4.031	+1.06	+1.0	20.5	28.7
Jan. 19	17 39.80	-37 35.5	4.868	4.108	+0.96	+0.9	20.6	35.6
Jan. 29	17 49.37	-37 26.2	4.849	4.185	+0.84	+0.8	20.7	43.2
Feb. 8	17 57.82	-37 17.8	4.811	4.261	+0.72	+0.7	20.8	51.1
Feb. 18	18 05.02	-37 10.7	4.756	4.335	+0.58	+0.6	20.8	59.3
Feb. 28	18 10.84	-37 04.8	4.686	4.409	+0.43	+0.4	20.9	67.9
Mar. 10	18 15.13	-37 00.4	4.605	4.482	+0.26	+0.3	21.0	76.7
Mar. 20	18 17.75	-36 57.2	4.517	4.554	+0.08	+0.2	21.0	85.9
Mar. 30	18 18.57	-36 54.9	4.425	4.626	-0.11	+0.2	21.0	95.3

Comet 46P/Wirtanen

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 2.48579 TT
Peri. = 356.33948 e = 0.6581052
Node = 82.17246 2000.0 a = 3.0927873 AU
Incl. = 11.73918 n = 0.18120868
q = 1.0574079 AU P = 5.44 years

m1 = 9.5 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	23 43.66	-09 59.7	1.013	1.125	+2.88	+32.6	10.5	68.6
Jan. 15	00 12.50	-04 33.3	0.983	1.087	+3.18	+36.1	10.2	67.1
Jan. 25	00 44.29	+01 27.5	0.955	1.064	+3.51	+38.7	9.9	66.5
Feb. 4	01 19.43	+07 54.3	0.932	1.058	+3.90	+39.7	9.8	66.9
Feb. 14	01 58.47	+14 31.4	0.919	1.069	+4.34	+38.2	9.9	68.1
Feb. 24	02 41.84	+20 53.7	0.922	1.097	+4.77	+33.7	10.1	69.9
Mar. 5	03 29.56	+26 31.0	0.943	1.139	+5.12	+26.3	10.5	72.1
Mar. 15	04 20.81	+30 54.4	0.985	1.194	+5.28	+17.1	11.0	74.2
Mar. 25	05 13.57	+33 45.6	1.049	1.258	+5.17	+7.7	11.6	75.8
Apr. 4	06 05.24	+35 03.0	1.133	1.330	+4.83	-0.4	12.2	76.9
Apr. 14	06 53.52	+34 59.5	1.235	1.407	+4.35	-6.4	12.9	77.2
Apr. 24	07 37.06	+33 55.2	1.353	1.488	+3.85	-10.5	13.6	76.7
May 4	08 15.60	+32 10.1	1.486	1.571	+3.40	-13.0	14.3	75.4
May 14	08 49.57	+30 00.0	1.630	1.656	+3.00	-14.4	14.9	73.5
May 24	09 19.61	+27 36.5	1.783	1.742	+2.68	-15.0	15.6	71.1
June 3	09 46.46	+25 06.9	1.944	1.827	+2.43	-15.1	16.2	68.1
June 13	10 10.76	+22 35.9	2.109	1.912	+2.22	-15.0	16.8	64.8
June 23	10 33.00	+20 06.3	2.278	1.997	+2.06	-14.6	17.3	61.1
July 3	10 53.62	+17 39.9	2.448	2.080	+1.93	-14.2	17.8	57.1
July 13	11 12.93	+15 17.5	2.618	2.163	+1.83	-13.8	18.3	52.9
July 23	11 31.19	+13 00.0	2.785	2.244	+1.74	-13.3	18.7	48.5
Aug. 2	11 48.60	+10 47.4	2.947	2.324	+1.67	-12.7	19.2	43.8
Aug. 12	12 05.32	+08 40.2	3.104	2.402	+1.61	-12.2	19.6	39.0
Aug. 22	12 21.44	+06 38.4	3.253	2.480	+1.56	-11.6	19.9	34.0
Sept. 1	12 37.08	+04 42.2	3.392	2.555	+1.52	-11.1	20.3	28.9
Sept.11	12 52.30	+02 51.7	3.521	2.630	+1.48	-10.5	20.6	23.6
Sept.21	13 07.13	+01 07.1	3.637	2.703	+1.45	-9.9	20.9	18.4
Oct. 1	13 21.63	-00 31.5	3.739	2.775	+1.42	-9.2	21.2	13.3
Oct. 11	13 35.78	-02 04.0	3.827	2.845	+1.38	-8.6	21.5	8.9
Oct. 21	13 49.60	-03 30.0	3.898	2.913	+1.35	-7.9	21.7	7.4
Oct. 31	14 03.07	-04 49.5	3.952	2.981	+1.31	-7.3	22.0	10.4
Nov. 10	14 16.14	-06 02.2	3.988	3.047	+1.26	-6.6	22.2	15.7
Nov. 20	14 28.77	-07 07.9	4.007	3.111	+1.21	-5.9	22.4	21.9
Nov. 30	14 40.90	-08 06.5	4.006	3.175	+1.15	-5.1	22.5	28.5
Dec. 10	14 52.44	-08 57.7	3.988	3.237	+1.08	-4.4	22.7	35.4
Dec. 20	15 03.29	-09 41.6	3.953	3.298	+1.00	-3.6	22.8	42.7
Dec. 30	15 13.34	-10 18.0	3.900	3.357	+0.91	-2.9	23.0	50.2
Jan. 9	15 22.43	-10 46.9	3.833	3.415	+0.80	-2.1	23.1	58.0
Jan. 19	15 30.43	-11 08.3	3.752	3.472	+0.67	-1.4	23.2	66.1
Jan. 29	15 37.17	-11 22.3	3.661	3.528	+0.53	-0.7	23.3	74.5
Feb. 8	15 42.45	-11 29.1	3.561	3.582	+0.37	0.0	23.3	83.3
Feb. 18	15 46.12	-11 28.9	3.458	3.636	+0.19	+0.7	23.4	92.4
Feb. 28	15 48.00	-11 22.0	3.353	3.688	0.00	+1.3	23.5	101.9
Mar. 10	15 47.96	-11 09.0	3.253	3.739	-0.20	+1.9	23.5	111.9
Mar. 20	15 45.93	-10 50.4	3.163	3.789	-0.40	+2.3	23.6	122.2
Mar. 30	15 41.95	-10 27.2	3.087	3.838	-0.58	+2.6	23.6	133.0

Comet 110P/Hartley

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 3.40792 TT
Peri. = 167.77627 e = 0.3125137
Node = 287.74540 2000.0 a = 3.6195101 AU
Incl. = 11.67949 n = 0.14312958
q = 2.4883636 AU P = 6.89 years

m1 = 7.0 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	05 01.83	+29 16.6	1.580	2.495	-0.41	-7.1	15.9	152.6
Jan. 15	04 57.71	+28 05.1	1.643	2.491	-0.10	-6.6	16.0	141.8
Jan. 25	04 56.68	+26 59.0	1.725	2.489	+0.21	-5.8	16.1	131.5
Feb. 4	04 58.73	+26 01.1	1.824	2.488	+0.50	-4.9	16.2	121.8
Feb. 14	05 03.71	+25 12.1	1.935	2.489	+0.76	-4.1	16.4	112.7
Feb. 24	05 11.27	+24 31.0	2.056	2.492	+0.98	-3.5	16.5	104.3
Mar. 5	05 21.04	+23 56.2	2.181	2.495	+1.16	-3.1	16.6	96.4
Mar. 15	05 32.69	+23 25.2	2.311	2.501	+1.32	-2.9	16.8	89.1
Mar. 25	05 45.87	+22 55.9	2.441	2.507	+1.44	-3.0	16.9	82.1
Apr. 4	06 00.28	+22 26.1	2.571	2.515	+1.54	-3.2	17.1	75.6
Apr. 14	06 15.68	+21 54.1	2.698	2.525	+1.62	-3.6	17.2	69.3
Apr. 24	06 31.84	+21 18.3	2.822	2.536	+1.67	-4.1	17.3	63.4
May 4	06 48.56	+20 37.8	2.942	2.548	+1.71	-4.6	17.5	57.6
May 14	07 05.69	+19 51.5	3.056	2.562	+1.74	-5.2	17.6	52.0
May 24	07 23.06	+18 59.0	3.165	2.576	+1.75	-5.9	17.7	46.6
June 3	07 40.57	+18 00.1	3.266	2.592	+1.75	-6.6	17.8	41.3
June 13	07 58.10	+16 54.5	3.360	2.609	+1.75	-7.2	18.0	36.1
June 23	08 15.56	+15 42.5	3.446	2.628	+1.73	-7.8	18.1	31.0
July 3	08 32.89	+14 24.3	3.523	2.647	+1.71	-8.4	18.2	25.9
July 13	08 50.04	+13 00.1	3.591	2.667	+1.69	-8.9	18.3	20.9
July 23	09 06.94	+11 30.6	3.650	2.688	+1.66	-9.4	18.4	16.1
Aug. 2	09 23.57	+09 56.3	3.698	2.710	+1.63	-9.9	18.5	11.3
Aug. 12	09 39.91	+08 17.6	3.735	2.733	+1.60	-10.2	18.6	7.3
Aug. 22	09 55.91	+06 35.4	3.761	2.757	+1.57	-10.5	18.7	5.7
Sept. 1	10 11.56	+04 50.1	3.776	2.781	+1.53	-10.8	18.8	8.2
Sept.11	10 26.84	+03 02.5	3.779	2.806	+1.49	-10.9	18.8	12.8
Sept.21	10 41.72	+01 13.2	3.770	2.832	+1.45	-11.0	18.9	18.0
Oct. 1	10 56.18	-00 37.1	3.748	2.858	+1.40	-11.1	19.0	23.5
Oct. 11	11 10.18	-02 27.7	3.714	2.885	+1.35	-11.0	19.1	29.2
Oct. 21	11 23.66	-04 17.9	3.668	2.912	+1.29	-10.9	19.1	35.2
Oct. 31	11 36.57	-06 07.0	3.610	2.939	+1.23	-10.7	19.2	41.4
Nov. 10	11 48.82	-07 54.3	3.540	2.967	+1.15	-10.5	19.2	47.8
Nov. 20	12 00.33	-09 39.1	3.460	2.996	+1.06	-10.2	19.2	54.5
Nov. 30	12 10.98	-11 20.6	3.370	3.024	+0.96	-9.7	19.2	61.4
Dec. 10	12 20.61	-12 58.0	3.271	3.053	+0.85	-9.2	19.3	68.6
Dec. 20	12 29.07	-14 30.3	3.166	3.082	+0.71	-8.6	19.3	76.1
Dec. 30	12 36.16	-15 56.6	3.056	3.111	+0.55	-7.9	19.3	84.0
Jan. 9	12 41.68	-17 15.6	2.944	3.141	+0.37	-7.0	19.3	92.3
Jan. 19	12 45.41	-18 25.7	2.833	3.171	+0.18	-6.0	19.3	100.9
Jan. 29	12 47.16	-19 25.2	2.726	3.200	-0.04	-4.7	19.3	110.0
Feb. 8	12 46.80	-20 12.0	2.628	3.230	-0.25	-3.2	19.3	119.5
Feb. 18	12 44.31	-20 43.9	2.542	3.260	-0.45	-1.5	19.3	129.3
Feb. 28	12 39.83	-20 58.8	2.474	3.289	-0.61	+0.3	19.3	139.3
Mar. 10	12 33.71	-20 55.6	2.427	3.319	-0.72	+2.1	19.3	149.2
Mar. 20	12 26.51	-20 34.3	2.404	3.349	-0.76	+3.7	19.4	158.0
Mar. 30	12 18.93	-19 57.1	2.410	3.378	-0.72	+4.9	19.5	163.3

Comet 196P/Tichy

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 7.16025 TT
Peri. = 11.71930 e = 0.4339478
Node = 24.33888 2000.0 a = 3.7767766 AU
Incl. = 19.37757 n = 0.13428334
q = 2.1378527 AU P = 7.34 years

m1 = 11.2 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl.	Delta	r	Daily motion m		m1	Elong.
Jan. 5	23 51.70	-01°09'	2.211	2.153	+1.42	+16'	19.6	73°
Jan. 15	00 05.93	+01 38	2.312	2.145	+1.53	+16	19.6	67
Jan. 25	00 21.25	+04 27	2.411	2.140	+1.63	+16	19.7	62
Feb. 4	00 37.52	+07 15	2.507	2.138	+1.72	+16	19.8	57
Feb. 14	00 54.68	+10 02	2.600	2.139	+1.80	+16	19.9	52
Feb. 24	01 12.65	+12 46	2.688	2.142	+1.87	+16	20.0	47
Mar. 5	01 31.38	+15 26	2.773	2.148	+1.95	+15	20.1	42
Mar. 15	01 50.86	+18 02	2.853	2.157	+2.02	+14	20.2	37
Mar. 25	02 11.05	+20 31	2.928	2.168	+2.09	+14	20.3	33
Apr. 4	02 31.94	+22 52	2.999	2.182	+2.16	+13	20.4	29
Apr. 14	02 53.51	+25 05	3.064	2.199	+2.22	+12	20.5	25
Apr. 24	03 15.72	+27 07	3.124	2.218	+2.28	+11	20.6	21
May 4	03 38.52	+28 59	3.178	2.239	+2.33	+9	20.7	17
May 14	04 01.85	+30 38	3.226	2.263	+2.38	+8	20.8	14
May 24	04 25.60	+32 05	3.268	2.288	+2.41	+7	21.0	12
June 3	04 49.67	+33 18	3.303	2.316	+2.43	+6	21.1	11
June 13	05 13.93	+34 18	3.332	2.345	+2.43	+4	21.2	11
June 23	05 38.22	+35 04	3.354	2.376	+2.42	+3	21.3	13
July 3	06 02.38	+35 37	3.368	2.409	+2.39	+2	21.5	16
July 13	06 26.25	+35 57	3.374	2.442	+2.34	+0	21.6	19
July 23	06 49.65	+36 06	3.372	2.478	+2.28	-0	21.7	23
Aug. 2	07 12.46	+36 05	3.362	2.514	+2.21	-0	21.8	28
Aug. 12	07 34.53	+35 56	3.342	2.551	+2.12	-1	22.0	32
Aug. 22	07 55.73	+35 40	3.314	2.589	+2.03	-2	22.1	37
Sept. 1	08 15.99	+35 19	3.276	2.628	+1.92	-2	22.2	42
Sept.11	08 35.17	+34 55	3.230	2.668	+1.80	-2	22.3	48
Sept.21	08 53.21	+34 31	3.174	2.708	+1.68	-2	22.4	54
Oct. 1	09 10.02	+34 09	3.110	2.749	+1.55	-1	22.4	59
Oct. 11	09 25.48	+33 50	3.039	2.790	+1.40	-1	22.5	66
Oct. 21	09 39.48	+33 37	2.960	2.832	+1.24	-0	22.6	72
Oct. 31	09 51.88	+33 32	2.876	2.874	+1.06	+0	22.7	79
Nov. 10	10 02.49	+33 37	2.789	2.916	+0.86	+1	22.7	87
Nov. 20	10 11.13	+33 54	2.701	2.959	+0.64	+2	22.8	95
Nov. 30	10 17.53	+34 23	2.614	3.001	+0.39	+4	22.8	103
Dec. 10	10 21.45	+35 05	2.532	3.044	+0.12	+5	22.9	112
Dec. 20	10 22.64	+35 58	2.460	3.087	-0.17	+6	22.9	121
Dec. 30	10 20.95	+36 58	2.401	3.129	-0.46	+6	23.0	130
Jan. 9	10 16.35	+38 01	2.360	3.172	-0.72	+5	23.1	139
Jan. 19	10 09.12	+38 59	2.342	3.214	-0.93	+4	23.2	147
Jan. 29	09 59.83	+39 46	2.348	3.257	-1.04	+2	23.3	153
Feb. 8	09 49.42	+40 13	2.382	3.299	-1.04	+0	23.5	154
Feb. 18	09 38.98	+40 19	2.443	3.341	-0.94	-1	23.6	150
Feb. 28	09 29.58	+40 02	2.531	3.382	-0.75	-3	23.8	143
Mar. 10	09 22.04	+39 26	2.643	3.424	-0.52	-5	24.0	135
Mar. 20	09 16.84	+38 33	2.775	3.465	-0.27	-6	24.2	126
Mar. 30	09 14.11	+37 29	2.924	3.506	-0.03	-7	24.4	118

Comet 44P/Reinmuth

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 18.28703 TT
Peri. = 58.08003 e = 0.4283481
Node = 286.60016 2000.0 a = 3.6848342 AU
Incl. = 5.90476 n = 0.13934043
q = 2.1064425 AU P = 7.07 years

m1 = 11.2 + 5 log(Delta) + 10.0 log(r(tt-160))

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m				m			
Jan. 5	21 03.10	-13°52.1	2.924	2.134	+2.18	+10.9	17.7	30°.4
Jan. 15	21 24.89	-12 03.2	2.965	2.123	+2.18	+11.8	17.6	25.8
Jan. 25	21 46.67	-10 05.2	3.000	2.115	+2.17	+12.6	17.6	21.4
Feb. 4	22 08.39	-07 59.2	3.031	2.109	+2.16	+13.2	17.5	17.1
Feb. 14	22 30.00	-05 46.7	3.057	2.107	+2.15	+13.7	17.5	12.9
Feb. 24	22 51.47	-03 29.3	3.079	2.107	+2.13	+14.1	17.5	8.9
Mar. 5	23 12.80	-01 08.4	3.095	2.110	+2.12	+14.3	17.4	5.4
Mar. 15	23 33.97	+01 14.4	3.107	2.116	+2.10	+14.3	17.4	3.7
Mar. 25	23 55.00	+03 37.4	3.114	2.125	+2.09	+14.2	17.3	5.8
Apr. 4	00 15.88	+05 59.1	3.117	2.136	+2.08	+13.9	17.2	9.3
Apr. 14	00 36.63	+08 17.9	3.114	2.150	+2.06	+13.5	17.2	13.2
Apr. 24	00 57.24	+10 32.5	3.106	2.167	+2.05	+12.9	17.1	17.3
May 4	01 17.71	+12 41.7	3.093	2.186	+2.03	+12.3	17.1	21.5
May 14	01 38.01	+14 44.3	3.073	2.207	+2.01	+11.5	17.0	25.7
May 24	01 58.11	+16 39.2	3.048	2.231	+1.99	+10.7	17.0	30.1
June 3	02 17.96	+18 25.8	3.017	2.256	+1.95	+9.8	16.9	34.6
June 13	02 37.50	+20 03.4	2.979	2.284	+1.91	+8.8	16.9	39.2
June 23	02 56.63	+21 31.5	2.934	2.313	+1.86	+7.9	16.8	44.0
July 3	03 15.25	+22 50.1	2.882	2.344	+1.80	+6.9	16.8	49.0
July 13	03 33.21	+23 59.0	2.824	2.377	+1.72	+5.9	16.7	54.2
July 23	03 50.37	+24 58.5	2.758	2.411	+1.62	+5.1	16.6	59.7
Aug. 2	04 06.54	+25 49.0	2.686	2.446	+1.50	+4.2	16.6	65.5
Aug. 12	04 21.50	+26 31.1	2.609	2.483	+1.35	+3.5	16.5	71.6
Aug. 22	04 35.02	+27 05.7	2.526	2.520	+1.18	+2.8	16.5	78.1
Sept. 1	04 46.84	+27 33.5	2.439	2.558	+0.98	+2.2	16.4	85.1
Sept.11	04 56.66	+27 55.4	2.351	2.597	+0.75	+1.7	16.4	92.5
Sept.21	05 04.18	+28 12.1	2.262	2.637	+0.49	+1.2	16.3	100.5
Oct. 1	05 09.11	+28 24.2	2.176	2.678	+0.21	+0.7	16.2	109.2
Oct. 11	05 11.18	+28 31.5	2.096	2.718	-0.09	+0.2	16.2	118.5
Oct. 21	05 10.27	+28 33.6	2.027	2.760	-0.39	-0.4	16.2	128.6
Oct. 31	05 06.40	+28 29.2	1.973	2.801	-0.65	-1.2	16.2	139.3
Nov. 10	04 59.91	+28 17.0	1.939	2.843	-0.84	-2.1	16.2	150.6
Nov. 20	04 51.48	+27 56.1	1.929	2.886	-0.94	-2.9	16.2	162.2
Nov. 30	04 42.07	+27 26.9	1.947	2.928	-0.93	-3.6	16.3	173.0
Dec. 10	04 32.80	+26 51.2	1.994	2.970	-0.81	-3.9	16.4	171.0
Dec. 20	04 24.71	+26 12.6	2.070	3.013	-0.62	-3.8	16.5	159.8
Dec. 30	04 18.53	+25 35.1	2.174	3.055	-0.38	-3.3	16.7	148.4
Jan. 9	04 14.74	+25 02.0	2.302	3.098	-0.13	-2.7	16.9	137.4
Jan. 19	04 13.44	+24 35.4	2.449	3.140	+0.11	-1.9	17.1	126.9
Jan. 29	04 14.56	+24 16.1	2.612	3.182	+0.33	-1.2	17.3	117.0
Feb. 8	04 17.88	+24 03.9	2.787	3.224	+0.53	-0.6	17.5	107.6
Feb. 18	04 23.14	+23 57.9	2.968	3.266	+0.69	-0.1	17.7	98.6
Feb. 28	04 30.06	+23 56.6	3.154	3.308	+0.83	+0.2	17.9	90.1
Mar. 10	04 38.39	+23 58.7	3.340	3.349	+0.95	+0.4	18.1	82.0
Mar. 20	04 47.89	+24 02.7	3.523	3.390	+1.05	+0.5	18.3	74.2
Mar. 30	04 58.34	+24 07.5	3.702	3.431	+1.12	+0.4	18.5	66.7

Comet P/2006 F1 (Kowalski)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 19.98393 TT
Peri. = 186.88505 e = 0.1199583
Node = 124.76157 2000.0 a = 4.6810115 AU
Incl. = 21.27438 n = 0.09731830
q = 4.1194853 AU P = 10.13 years

m1 = 4.5 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	20 15.93	-20 07.3	5.047	4.122	+1.22	+1.8	18.8	17.8
Jan. 15	20 28.13	-19 48.9	5.084	4.121	+1.23	+2.2	18.8	10.4
Jan. 25	20 40.39	-19 27.0	5.102	4.120	+1.22	+2.5	18.8	3.3
Feb. 4	20 52.64	-19 02.2	5.102	4.120	+1.21	+2.7	18.8	4.4
Feb. 14	21 04.79	-18 35.1	5.082	4.120	+1.20	+2.9	18.8	11.5
Feb. 24	21 16.74	-18 06.6	5.044	4.120	+1.17	+2.9	18.8	18.7
Mar. 5	21 28.44	-17 37.4	4.989	4.120	+1.14	+2.9	18.8	26.0
Mar. 15	21 39.80	-17 08.6	4.916	4.120	+1.09	+2.7	18.7	33.2
Mar. 25	21 50.75	-16 41.2	4.827	4.121	+1.05	+2.5	18.7	40.5
Apr. 4	22 01.21	-16 16.0	4.725	4.122	+0.99	+2.2	18.6	47.9
Apr. 14	22 11.10	-15 54.3	4.609	4.123	+0.92	+1.7	18.6	55.4
Apr. 24	22 20.33	-15 37.1	4.483	4.124	+0.85	+1.1	18.5	62.9
May 4	22 28.81	-15 25.7	4.348	4.125	+0.76	+0.4	18.5	70.7
May 14	22 36.44	-15 21.2	4.207	4.127	+0.67	-0.4	18.4	78.6
May 24	22 43.10	-15 24.9	4.062	4.129	+0.56	-1.3	18.3	86.7
June 3	22 48.68	-15 37.6	3.916	4.131	+0.44	-2.3	18.2	95.0
June 13	22 53.05	-16 00.5	3.774	4.133	+0.30	-3.3	18.2	103.7
June 23	22 56.09	-16 33.9	3.637	4.135	+0.16	-4.4	18.1	112.6
July 3	22 57.70	-17 18.0	3.511	4.138	+0.01	-5.4	18.0	121.8
July 13	22 57.81	-18 12.2	3.399	4.141	-0.14	-6.3	18.0	131.3
July 23	22 56.43	-19 14.8	3.305	4.144	-0.28	-6.8	17.9	141.0
Aug. 2	22 53.62	-20 23.3	3.233	4.147	-0.40	-7.1	17.9	150.6
Aug. 12	22 49.59	-21 34.1	3.186	4.151	-0.49	-6.9	17.8	159.5
Aug. 22	22 44.67	-22 43.0	3.167	4.154	-0.54	-6.3	17.8	165.6
Sept. 1	22 39.27	-23 45.9	3.177	4.158	-0.54	-5.3	17.8	164.5
Sept.11	22 33.89	-24 39.0	3.215	4.162	-0.48	-4.1	17.9	157.3
Sept.21	22 29.05	-25 19.6	3.281	4.166	-0.39	-2.7	17.9	148.0
Oct. 1	22 25.17	-25 46.5	3.371	4.171	-0.26	-1.3	18.0	138.2
Oct. 11	22 22.59	-25 59.4	3.482	4.175	-0.11	0.0	18.1	128.4
Oct. 21	22 21.52	-25 59.1	3.609	4.180	+0.05	+1.2	18.2	118.7
Oct. 31	22 22.04	-25 47.1	3.750	4.185	+0.21	+2.3	18.2	109.3
Nov. 10	22 24.13	-25 24.5	3.899	4.190	+0.36	+3.1	18.3	100.2
Nov. 20	22 27.71	-24 53.2	4.052	4.195	+0.49	+3.9	18.4	91.4
Nov. 30	22 32.64	-24 14.3	4.207	4.201	+0.61	+4.5	18.5	82.9
Dec. 10	22 38.77	-23 29.1	4.358	4.206	+0.72	+5.0	18.6	74.6
Dec. 20	22 45.94	-22 38.9	4.504	4.212	+0.81	+5.4	18.7	66.6
Dec. 30	22 53.99	-21 44.4	4.642	4.218	+0.88	+5.8	18.8	58.8
Jan. 9	23 02.79	-20 46.7	4.769	4.224	+0.94	+6.0	18.8	51.3
Jan. 19	23 12.18	-19 46.6	4.883	4.230	+0.99	+6.2	18.9	44.0
Jan. 29	23 22.07	-18 44.8	4.982	4.237	+1.03	+6.3	19.0	36.9
Feb. 8	23 32.33	-17 42.2	5.066	4.243	+1.05	+6.3	19.0	30.2
Feb. 18	23 42.88	-16 39.4	5.133	4.250	+1.08	+6.2	19.0	24.0
Feb. 28	23 53.64	-15 37.3	5.183	4.257	+1.09	+6.1	19.1	18.7
Mar. 10	00 04.51	-14 36.5	5.215	4.263	+1.09	+5.9	19.1	14.9
Mar. 20	00 15.45	-13 37.8	5.230	4.271	+1.09	+5.6	19.1	14.1
Mar. 30	00 26.38	-12 41.8	5.226	4.278	+1.09	+5.2	19.1	16.5

Comet 193P/LINEAR-NEAT

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 20.52904 TT
Peri. = 8.29915 e = 0.3959713
Node = 335.25615 2000.0 a = 3.5690451 AU
Incl. = 10.70397 n = 0.14617598
q = 2.1558057 AU P = 6.74 years

m1 = 9.0 + 5 log(Delta) + 22.5 log(r(tt-50))

0h TT 2008/09	R.A.(2000) h m	Decl.	Delta	r	Daily motion m		m1	Elong.
Jan. 5	21 06.31	-17°49.4	2.980	2.183	+2.10	+12.7	19.4	29.9
Jan. 15	21 27.34	-15 42.6	3.023	2.173	+2.09	+13.5	19.3	25.1
Jan. 25	21 48.24	-13 27.9	3.060	2.165	+2.07	+14.2	19.3	20.4
Feb. 4	22 08.99	-11 06.4	3.091	2.159	+2.06	+14.7	19.2	15.9
Feb. 14	22 29.56	-08 39.0	3.116	2.156	+2.04	+15.2	19.2	11.4
Feb. 24	22 49.92	-06 07.2	3.135	2.156	+2.02	+15.5	19.1	7.0
Mar. 5	23 10.09	-03 32.2	3.148	2.158	+2.00	+15.7	19.1	3.0
Mar. 15	23 30.08	-00 55.3	3.155	2.163	+1.98	+15.7	19.0	2.9
Mar. 25	23 49.88	+01 42.2	3.157	2.170	+1.96	+15.7	19.0	6.8
Apr. 4	00 09.53	+04 19.0	3.153	2.179	+1.95	+15.5	19.0	11.0
Apr. 14	00 29.03	+06 53.9	3.143	2.191	+1.94	+15.2	19.0	15.3
Apr. 24	00 48.39	+09 25.7	3.127	2.205	+1.92	+14.8	19.0	19.7
May 4	01 07.63	+11 53.4	3.105	2.222	+1.91	+14.3	19.0	24.0
May 14	01 26.72	+14 16.0	3.076	2.240	+1.89	+13.7	19.0	28.5
May 24	01 45.65	+16 32.7	3.042	2.261	+1.87	+13.0	19.0	33.0
June 3	02 04.39	+18 42.7	3.001	2.284	+1.85	+12.3	19.1	37.7
June 13	02 22.87	+20 45.7	2.954	2.308	+1.81	+11.5	19.1	42.4
June 23	02 41.02	+22 41.0	2.900	2.334	+1.77	+10.8	19.1	47.3
July 3	02 58.74	+24 28.7	2.840	2.361	+1.72	+10.0	19.1	52.4
July 13	03 15.89	+26 08.7	2.774	2.390	+1.64	+9.2	19.2	57.7
July 23	03 32.32	+27 41.2	2.702	2.421	+1.55	+8.5	19.2	63.2
Aug. 2	03 47.84	+29 06.6	2.624	2.452	+1.44	+7.9	19.3	69.1
Aug. 12	04 02.19	+30 25.6	2.542	2.485	+1.29	+7.3	19.3	75.2
Aug. 22	04 15.13	+31 38.8	2.456	2.519	+1.12	+6.8	19.3	81.8
Sept. 1	04 26.34	+32 47.0	2.368	2.553	+0.91	+6.4	19.4	88.7
Sept.11	04 35.45	+33 50.9	2.279	2.589	+0.67	+6.0	19.4	96.2
Sept.21	04 42.13	+34 50.5	2.192	2.625	+0.39	+5.5	19.5	104.2
Oct. 1	04 45.99	+35 45.7	2.109	2.662	+0.07	+4.9	19.5	112.7
Oct. 11	04 46.72	+36 35.0	2.035	2.699	-0.25	+4.1	19.6	121.9
Oct. 21	04 44.18	+37 15.8	1.973	2.737	-0.57	+2.9	19.6	131.6
Oct. 31	04 38.48	+37 44.6	1.928	2.775	-0.83	+1.3	19.7	141.6
Nov. 10	04 30.14	+37 57.3	1.903	2.814	-1.00	-0.6	19.8	151.5
Nov. 20	04 20.11	+37 51.4	1.903	2.852	-1.05	-2.5	20.0	160.1
Nov. 30	04 09.61	+37 26.5	1.931	2.891	-0.96	-4.1	20.1	163.9
Dec. 10	03 59.97	+36 45.8	1.987	2.930	-0.77	-5.1	20.3	159.7
Dec. 20	03 52.25	+35 55.1	2.070	2.970	-0.52	-5.4	20.6	151.2
Dec. 30	03 47.08	+35 01.0	2.178	3.009	-0.23	-5.2	20.8	141.3
Jan. 9	03 44.76	+34 09.0	2.307	3.048	+0.04	-4.6	21.1	131.4
Jan. 19	03 45.20	+33 23.2	2.455	3.087	+0.30	-3.8	21.3	121.7
Jan. 29	03 48.19	+32 45.3	2.616	3.127	+0.52	-2.9	21.6	112.4
Feb. 8	03 53.43	+32 15.8	2.786	3.166	+0.71	-2.2	21.9	103.5
Feb. 18	04 00.57	+31 54.1	2.962	3.204	+0.88	-1.5	22.1	95.1
Feb. 28	04 09.33	+31 39.0	3.141	3.243	+1.01	-1.0	22.4	86.9
Mar. 10	04 19.43	+31 29.0	3.320	3.282	+1.12	-0.6	22.6	79.2
Mar. 20	04 30.62	+31 22.6	3.496	3.320	+1.21	-0.4	22.9	71.7
Mar. 30	04 42.71	+31 18.4	3.666	3.358	+1.28	-0.3	23.1	64.4

Comet 194P/LINEAR

Epoch = 2008 Aug. 2.0 TT
T = 2008 Feb. 26.17649 TT
Peri. = 130.63600 e = 0.5740936
Node = 352.06250 2000.0 a = 4.0119745 AU
Incl. = 11.11885 n = 0.12264980
q = 1.7087256 AU P = 8.04 years

m1 = 14.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m		m1	Elong. °
Jan. 5	05 26.67	+46 06.8	0.865	1.785	-0.31	-6.9	17.5	149.9
Jan. 15	05 23.58	+44 57.6	0.873	1.759	+0.19	-9.4	17.4	142.8
Jan. 25	05 25.51	+43 23.3	0.896	1.738	+0.72	-10.9	17.4	135.2
Feb. 4	05 32.67	+41 34.2	0.933	1.723	+1.20	-11.7	17.4	127.8
Feb. 14	05 44.63	+39 37.2	0.982	1.713	+1.59	-12.1	17.5	120.9
Feb. 24	06 00.55	+37 36.0	1.040	1.709	+1.89	-12.5	17.6	114.6
Mar. 5	06 19.44	+35 31.5	1.109	1.711	+2.10	-12.8	17.7	108.9
Mar. 15	06 40.46	+33 23.2	1.185	1.718	+2.24	-13.3	17.9	103.7
Mar. 25	07 02.83	+31 10.7	1.270	1.731	+2.31	-13.7	18.1	98.8
Apr. 4	07 25.90	+28 53.4	1.362	1.750	+2.33	-14.2	18.3	94.3
Apr. 14	07 49.23	+26 31.3	1.462	1.773	+2.32	-14.6	18.6	90.0
Apr. 24	08 12.45	+24 05.1	1.568	1.802	+2.29	-15.0	18.8	85.9
May 4	08 35.32	+21 35.4	1.681	1.835	+2.24	-15.2	19.1	81.9
May 14	08 57.71	+19 03.1	1.800	1.872	+2.18	-15.4	19.4	78.0
May 24	09 19.52	+16 29.3	1.924	1.913	+2.12	-15.4	19.6	74.1
June 3	09 40.72	+13 54.9	2.053	1.957	+2.06	-15.4	19.9	70.1
June 13	10 01.34	+11 20.7	2.186	2.004	+2.00	-15.3	20.2	66.2
June 23	10 21.37	+08 47.6	2.321	2.054	+1.95	-15.1	20.5	62.2
July 3	10 40.88	+06 16.2	2.458	2.105	+1.90	-14.9	20.8	58.1
July 13	10 59.91	+03 47.2	2.596	2.159	+1.86	-14.6	21.1	53.9
July 23	11 18.50	+01 20.9	2.733	2.214	+1.82	-14.3	21.4	49.6
Aug. 2	11 36.72	-01 02.1	2.869	2.271	+1.79	-13.9	21.6	45.2
Aug. 12	11 54.60	-03 21.5	3.001	2.328	+1.76	-13.5	21.9	40.7
Aug. 22	12 12.19	-05 36.9	3.129	2.387	+1.73	-13.1	22.1	36.1
Sept. 1	12 29.53	-07 48.1	3.251	2.446	+1.71	-12.7	22.4	31.3
Sept.11	12 46.65	-09 54.7	3.366	2.505	+1.69	-12.2	22.6	26.4
Sept.21	13 03.57	-11 56.5	3.473	2.565	+1.67	-11.7	22.8	21.5
Oct. 1	13 20.31	-13 53.2	3.570	2.625	+1.66	-11.1	23.1	16.5
Oct. 11	13 36.87	-15 44.7	3.656	2.685	+1.64	-10.6	23.2	11.5
Oct. 21	13 53.23	-17 30.7	3.730	2.745	+1.62	-10.0	23.4	7.2
Oct. 31	14 09.40	-19 11.1	3.791	2.806	+1.59	-9.5	23.6	5.9
Nov. 10	14 25.32	-20 45.8	3.838	2.866	+1.56	-8.9	23.8	9.3
Nov. 20	14 40.95	-22 14.6	3.871	2.925	+1.53	-8.3	23.9	14.6
Nov. 30	14 56.24	-23 37.8	3.888	2.985	+1.49	-7.7	24.1	20.6
Dec. 10	15 11.10	-24 55.2	3.890	3.044	+1.43	-7.2	24.2	26.9
Dec. 20	15 25.43	-26 07.2	3.876	3.103	+1.37	-6.7	24.3	33.4
Dec. 30	15 39.12	-27 13.9	3.847	3.161	+1.29	-6.2	24.4	40.3
Jan. 9	15 52.03	-28 15.9	3.803	3.219	+1.20	-5.8	24.5	47.3
Jan. 19	16 04.02	-29 13.4	3.746	3.276	+1.09	-5.4	24.6	54.7
Jan. 29	16 14.92	-30 07.2	3.676	3.333	+0.96	-5.0	24.7	62.2
Feb. 8	16 24.52	-30 57.6	3.596	3.390	+0.81	-4.8	24.7	70.1
Feb. 18	16 32.63	-31 45.3	3.509	3.446	+0.64	-4.5	24.8	78.2
Feb. 28	16 39.03	-32 30.5	3.415	3.501	+0.45	-4.3	24.8	86.7
Mar. 10	16 43.50	-33 13.4	3.320	3.556	+0.23	-4.0	24.9	95.5
Mar. 20	16 45.85	-33 53.8	3.227	3.610	+0.01	-3.7	24.9	104.7
Mar. 30	16 45.91	-34 30.8	3.139	3.664	-0.23	-3.2	24.9	114.2

Comet C/2007 Y1 (LINEAR)

T = 2008 Mar. 19.30835 TT
q = 3.3407986 AU Peri. = 357.12159
Node = 133.09311 2000.0
e = 1.0 Incl. = 110.17273

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	09 48.14	-11 22.5	2.734	3.413	-1.24	+16.8	17.9	126.6
Jan. 15	09 35.70	-08 34.6	2.587	3.395	-1.47	+20.7	17.8	139.4
Jan. 25	09 20.98	-05 07.6	2.477	3.380	-1.62	+24.1	17.7	152.2
Feb. 4	09 04.74	-01 07.0	2.414	3.367	-1.67	+26.1	17.6	162.4
Feb. 14	08 48.07	+03 14.4	2.403	3.356	-1.59	+26.5	17.6	162.2
Feb. 24	08 32.16	+07 39.0	2.444	3.349	-1.41	+25.1	17.6	151.8
Mar. 5	08 18.03	+11 50.1	2.533	3.344	-1.16	+22.7	17.7	138.8
Mar. 15	08 06.42	+15 36.6	2.663	3.341	-0.88	+19.7	17.8	125.6
Mar. 25	07 57.64	+18 53.8	2.822	3.341	-0.59	+16.8	17.9	113.1
Apr. 4	07 51.71	+21 42.1	3.001	3.344	-0.33	+14.3	18.0	101.3
Apr. 14	07 48.45	+24 04.8	3.190	3.350	-0.09	+12.1	18.2	90.3
Apr. 24	07 47.58	+26 06.0	3.382	3.358	+0.12	+10.4	18.3	80.0
May 4	07 48.77	+27 49.7	3.571	3.368	+0.30	+9.0	18.4	70.4
May 14	07 51.74	+29 19.7	3.750	3.382	+0.44	+7.9	18.6	61.2
May 24	07 56.18	+30 39.0	3.915	3.397	+0.57	+7.1	18.7	52.6
June 3	08 01.85	+31 50.2	4.065	3.416	+0.67	+6.5	18.8	44.5
June 13	08 08.57	+32 55.5	4.194	3.436	+0.76	+6.1	18.9	36.9
June 23	08 16.13	+33 56.7	4.303	3.459	+0.83	+5.9	19.0	29.9
July 3	08 24.39	+34 55.6	4.390	3.485	+0.88	+5.8	19.0	23.9
July 13	08 33.22	+35 53.9	4.453	3.512	+0.93	+5.9	19.1	19.7
July 23	08 42.52	+36 53.0	4.493	3.542	+0.97	+6.2	19.2	18.2
Aug. 2	08 52.18	+37 54.7	4.509	3.574	+0.99	+6.6	19.2	20.2
Aug. 12	09 02.12	+39 00.5	4.503	3.608	+1.01	+7.2	19.2	24.7
Aug. 22	09 12.26	+40 12.3	4.476	3.643	+1.03	+8.0	19.3	30.7
Sept. 1	09 22.53	+41 32.0	4.429	3.681	+1.03	+9.0	19.3	37.6
Sept.11	09 32.84	+43 01.7	4.364	3.721	+1.03	+10.2	19.3	44.9
Sept.21	09 43.12	+44 43.5	4.285	3.762	+1.02	+11.6	19.3	52.6
Oct. 1	09 53.29	+46 39.7	4.195	3.804	+0.99	+13.3	19.3	60.6
Oct. 11	10 03.22	+48 52.4	4.098	3.849	+0.96	+15.1	19.3	68.7
Oct. 21	10 12.78	+51 23.7	3.998	3.895	+0.90	+17.1	19.3	76.9
Oct. 31	10 21.80	+54 14.8	3.900	3.942	+0.82	+19.1	19.3	85.1
Nov. 10	10 29.98	+57 26.1	3.811	3.990	+0.70	+21.1	19.3	93.1
Nov. 20	10 36.94	+60 56.7	3.737	4.040	+0.51	+22.7	19.3	100.8
Nov. 30	10 42.06	+64 43.6	3.682	4.091	+0.22	+23.8	19.3	107.7
Dec. 10	10 44.26	+68 41.5	3.651	4.143	-0.26	+24.1	19.4	113.5
Dec. 20	10 41.7	+72 42.9	3.649	4.196	-1.12	+23.5	19.4	117.6
Dec. 30	10 30.5	+76 37.4	3.677	4.250	-2.75	+21.3	19.5	119.6
Jan. 9	10 02.9	+80 10.6	3.736	4.305	-5.96	+16.9	19.6	119.4
Jan. 19	09 03.4	+82 59.1	3.823	4.361	-10.56	+8.4	19.7	117.1
Jan. 29	07 17.8	+84 23.1	3.936	4.418	-10.99	-2.4	19.8	113.2
Feb. 8	05 27.9	+83 59.2	4.071	4.475	-6.48	-8.6	20.0	108.0
Feb. 18	04 23.1	+82 32.9	4.221	4.534	-2.98	-9.9	20.1	102.2
Feb. 28	03 53.4	+80 54.0	4.383	4.593	-1.15	-9.1	20.2	96.0
Mar. 10	03 41.9	+79 23.3	4.550	4.652	-0.19	-7.6	20.4	89.7
Mar. 20	03 40.0	+78 07.6	4.719	4.712	+0.37	-5.9	20.5	83.6
Mar. 30	03 43.7	+77 08.4	4.885	4.773	+0.72	-4.3	20.6	77.7

Comet 186P/Garradd

Epoch = 2008 Aug. 2.0 TT
T = 2008 Mar. 21.44296 TT
Peri. = 278.86957 e = 0.1189549
Node = 327.83662 2000.0 a = 4.8392350 AU
Incl. = 28.84706 n = 0.09258465
q = 4.2635843 AU P = 10.65 years

m1 = 5.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	15 56.53	-45 41.5	4.927	4.269	+1.39	-6.1	17.9	43.6
Jan. 15	16 10.47	-46 42.9	4.836	4.268	+1.34	-6.1	17.9	49.8
Jan. 25	16 23.91	-47 43.9	4.734	4.267	+1.28	-6.1	17.8	56.3
Feb. 4	16 36.69	-48 44.7	4.621	4.266	+1.19	-6.1	17.8	63.0
Feb. 14	16 48.57	-49 45.7	4.500	4.265	+1.08	-6.1	17.7	70.0
Feb. 24	16 59.33	-50 46.8	4.374	4.264	+0.94	-6.2	17.7	77.2
Mar. 5	17 08.73	-51 48.4	4.244	4.264	+0.77	-6.2	17.6	84.5
Mar. 15	17 16.46	-52 50.2	4.113	4.264	+0.58	-6.2	17.5	91.9
Mar. 25	17 22.24	-53 51.8	3.984	4.264	+0.35	-6.0	17.4	99.5
Apr. 4	17 25.77	-54 52.2	3.860	4.264	+0.10	-5.7	17.4	107.1
Apr. 14	17 26.78	-55 49.7	3.745	4.264	-0.17	-5.2	17.3	114.8
Apr. 24	17 25.09	-56 41.6	3.642	4.265	-0.44	-4.3	17.3	122.3
May 4	17 20.68	-57 24.7	3.553	4.265	-0.69	-3.0	17.2	129.4
May 14	17 13.77	-57 55.1	3.482	4.266	-0.89	-1.4	17.2	135.9
May 24	17 04.90	-58 09.1	3.432	4.267	-1.00	+0.5	17.1	141.0
June 3	16 54.89	-58 04.2	3.405	4.269	-1.01	+2.5	17.1	144.2
June 13	16 44.78	-57 39.5	3.401	4.270	-0.92	+4.3	17.1	144.7
June 23	16 35.61	-56 56.6	3.420	4.272	-0.74	+5.8	17.1	142.5
July 3	16 28.19	-55 58.6	3.463	4.274	-0.51	+6.9	17.2	138.1
July 13	16 23.07	-54 50.0	3.528	4.276	-0.26	+7.4	17.2	132.1
July 23	16 20.49	-53 35.6	3.612	4.278	-0.01	+7.6	17.3	125.2
Aug. 2	16 20.42	-52 19.5	3.713	4.281	+0.23	+7.5	17.3	117.8
Aug. 12	16 22.74	-51 04.9	3.827	4.283	+0.45	+7.1	17.4	110.2
Aug. 22	16 27.20	-49 54.0	3.952	4.286	+0.63	+6.6	17.5	102.5
Sept. 1	16 33.55	-48 48.1	4.084	4.289	+0.80	+6.1	17.5	94.9
Sept.11	16 41.55	-47 47.5	4.220	4.292	+0.94	+5.5	17.6	87.3
Sept.21	16 50.94	-46 52.2	4.357	4.296	+1.06	+5.1	17.7	79.9
Oct. 1	17 01.53	-46 01.5	4.492	4.299	+1.16	+4.7	17.8	72.5
Oct. 11	17 13.11	-45 14.9	4.623	4.303	+1.24	+4.3	17.8	65.3
Oct. 21	17 25.52	-44 31.4	4.747	4.307	+1.31	+4.1	17.9	58.2
Oct. 31	17 38.59	-43 50.2	4.862	4.311	+1.36	+4.0	18.0	51.2
Nov. 10	17 52.19	-43 10.5	4.966	4.315	+1.40	+3.9	18.0	44.4
Nov. 20	18 06.16	-42 31.6	5.057	4.320	+1.42	+3.9	18.1	37.8
Nov. 30	18 20.40	-41 52.9	5.134	4.324	+1.44	+3.9	18.1	31.5
Dec. 10	18 34.76	-41 14.1	5.195	4.329	+1.44	+3.9	18.1	25.7
Dec. 20	18 49.15	-40 34.8	5.239	4.334	+1.43	+4.0	18.1	20.8
Dec. 30	19 03.45	-39 54.8	5.266	4.339	+1.41	+4.1	18.2	17.6
Jan. 9	19 17.56	-39 14.2	5.274	4.344	+1.38	+4.1	18.2	17.1
Jan. 19	19 31.37	-38 33.1	5.264	4.349	+1.34	+4.1	18.2	19.5
Jan. 29	19 44.80	-37 51.9	5.236	4.355	+1.29	+4.1	18.2	24.0
Feb. 8	19 57.74	-37 10.9	5.191	4.361	+1.24	+4.0	18.2	29.6
Feb. 18	20 10.12	-36 30.6	5.128	4.366	+1.17	+3.9	18.2	35.9
Feb. 28	20 21.84	-35 51.6	5.049	4.372	+1.10	+3.7	18.1	42.7
Mar. 10	20 32.80	-35 14.6	4.955	4.378	+1.01	+3.4	18.1	49.7
Mar. 20	20 42.92	-34 40.2	4.847	4.385	+0.92	+3.1	18.1	57.0
Mar. 30	20 52.09	-34 09.3	4.728	4.391	+0.81	+2.7	18.0	64.4

Comet 113P/Spitaler

Epoch = 2008 Aug. 2.0 TT
T = 2008 Mar. 23.40772 TT
Peri. = 49.84950 e = 0.4231102
Node = 14.47002 2000.0 a = 3.6895433 AU
Incl. = 5.77522 n = 0.13907375
q = 2.1284599 AU P = 7.09 years

m1 = 12.0 + 5 log(Delta) + 15.0 log(r)

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m				m			
Jan. 5	00 29.42	+05°34.4	2.066	2.211	+1.34	+10.0	18.7	85.1
Jan. 15	00 42.86	+07 14.2	2.162	2.191	+1.50	+10.6	18.8	78.6
Jan. 25	00 57.83	+09 00.6	2.257	2.175	+1.63	+11.1	18.8	72.5
Feb. 4	01 14.14	+10 51.4	2.349	2.160	+1.75	+11.3	18.9	66.8
Feb. 14	01 31.67	+12 44.8	2.439	2.149	+1.86	+11.4	18.9	61.4
Feb. 24	01 50.30	+14 38.7	2.525	2.140	+1.96	+11.2	19.0	56.2
Mar. 5	02 09.93	+16 31.0	2.608	2.133	+2.06	+10.9	19.0	51.3
Mar. 15	02 30.50	+18 19.7	2.687	2.129	+2.14	+10.3	19.1	46.6
Mar. 25	02 51.92	+20 02.9	2.762	2.128	+2.22	+9.6	19.1	42.0
Apr. 4	03 14.11	+21 38.6	2.834	2.130	+2.29	+8.7	19.2	37.6
Apr. 14	03 37.00	+23 05.2	2.901	2.135	+2.35	+7.6	19.3	33.3
Apr. 24	04 00.48	+24 20.9	2.965	2.142	+2.40	+6.4	19.3	29.1
May 4	04 24.44	+25 24.5	3.024	2.152	+2.43	+5.0	19.4	25.0
May 14	04 48.76	+26 15.0	3.079	2.165	+2.45	+3.6	19.5	20.9
May 24	05 13.28	+26 51.4	3.129	2.180	+2.46	+2.2	19.6	16.9
June 3	05 37.86	+27 13.6	3.174	2.197	+2.45	+0.8	19.6	13.0
June 13	06 02.34	+27 21.4	3.214	2.217	+2.42	-0.6	19.7	9.1
June 23	06 26.55	+27 15.2	3.248	2.239	+2.38	-2.0	19.8	5.7
July 3	06 50.37	+26 55.7	3.276	2.263	+2.33	-3.2	19.9	4.0
July 13	07 13.66	+26 23.8	3.298	2.289	+2.26	-4.3	20.0	5.9
July 23	07 36.30	+25 40.8	3.312	2.317	+2.19	-5.3	20.1	9.7
Aug. 2	07 58.23	+24 47.8	3.319	2.347	+2.11	-6.1	20.2	13.9
Aug. 12	08 19.36	+23 46.5	3.318	2.378	+2.03	-6.8	20.2	18.4
Aug. 22	08 39.65	+22 38.4	3.308	2.410	+1.94	-7.3	20.3	23.1
Sept. 1	08 59.05	+21 25.0	3.289	2.444	+1.85	-7.7	20.4	28.0
Sept.11	09 17.53	+20 08.0	3.260	2.479	+1.75	-7.9	20.5	33.1
Sept.21	09 35.06	+18 48.9	3.222	2.515	+1.65	-8.0	20.6	38.5
Oct. 1	09 51.60	+17 29.3	3.174	2.553	+1.55	-7.8	20.6	44.1
Oct. 11	10 07.11	+16 10.8	3.117	2.591	+1.44	-7.6	20.7	50.0
Oct. 21	10 21.52	+14 55.0	3.050	2.629	+1.32	-7.2	20.7	56.2
Oct. 31	10 34.76	+13 43.4	2.974	2.669	+1.20	-6.6	20.8	62.7
Nov. 10	10 46.71	+12 37.7	2.890	2.708	+1.05	-5.8	20.8	69.6
Nov. 20	10 57.26	+11 39.3	2.799	2.749	+0.90	-4.9	20.8	76.9
Nov. 30	11 06.25	+10 50.0	2.704	2.790	+0.72	-3.9	20.8	84.6
Dec. 10	11 13.47	+10 11.3	2.606	2.831	+0.53	-2.7	20.9	92.8
Dec. 20	11 18.75	+09 44.5	2.508	2.872	+0.31	-1.4	20.9	101.6
Dec. 30	11 21.88	+09 30.8	2.414	2.914	+0.08	0.0	20.9	110.9
Jan. 9	11 22.70	+09 30.6	2.327	2.955	-0.16	+1.3	20.9	120.9
Jan. 19	11 21.14	+09 43.6	2.254	2.997	-0.39	+2.5	20.9	131.5
Jan. 29	11 17.26	+10 08.4	2.197	3.039	-0.59	+3.4	21.0	142.6
Feb. 8	11 11.37	+10 41.9	2.163	3.081	-0.74	+3.8	21.0	154.1
Feb. 18	11 03.98	+11 19.9	2.155	3.122	-0.82	+3.8	21.1	165.7
Feb. 28	10 55.82	+11 57.6	2.176	3.164	-0.81	+3.2	21.2	175.1
Mar. 10	10 47.74	+12 30.1	2.227	3.206	-0.72	+2.4	21.3	168.3
Mar. 20	10 40.52	+12 53.8	2.307	3.247	-0.58	+1.3	21.5	157.1
Mar. 30	10 34.76	+13 06.7	2.413	3.288	-0.39	+0.1	21.7	145.9

Comet 26P/Grigg-Skjellerup

Epoch = 2008 Aug. 2.0 TT
T = 2008 Mar. 23.68976 TT
Peri. = 1.71821 e = 0.6330368
Node = 211.70024 2000.0 a = 3.0430095 AU
Incl. = 22.35591 n = 0.18567315
q = 1.1166725 AU P = 5.31 years

m1 = 13.2 + 5 log(Delta) + 17.5 log(r(t-20))

0h TT 2008/09	R.A.(2000) h m	Decl.	Delta	r	Daily motion m		m1	Elong.
Jan. 5	11 51.44	-30°50.6	1.073	1.482	+3.39	-23.1	17.1	92°.1
Jan. 15	12 25.36	-34 41.8	0.959	1.408	+4.04	-20.4	16.5	92.9
Jan. 25	13 05.71	-38 05.6	0.857	1.340	+4.83	-14.8	15.9	93.1
Feb. 4	13 53.96	-40 33.5	0.768	1.277	+5.62	-5.1	15.2	92.6
Feb. 14	14 50.16	-41 24.8	0.692	1.221	+6.13	+8.8	14.6	91.6
Feb. 24	15 51.49	-39 56.5	0.632	1.176	+6.08	+25.2	14.1	90.2
Mar. 5	16 52.34	-35 44.9	0.589	1.142	+5.47	+39.9	13.6	88.7
Mar. 15	17 47.03	-29 05.5	0.565	1.122	+4.59	+49.4	13.2	87.5
Mar. 25	18 32.90	-20 51.4	0.559	1.117	+3.70	+52.4	12.9	86.9
Apr. 4	19 09.95	-12 07.0	0.570	1.126	+2.93	+50.3	12.9	87.2
Apr. 14	19 39.20	-03 43.6	0.592	1.150	+2.26	+45.4	12.9	88.4
Apr. 24	20 01.83	+03 50.7	0.622	1.187	+1.68	+39.6	13.1	90.5
May 4	20 18.64	+10 26.3	0.655	1.235	+1.14	+33.6	13.3	93.4
May 14	20 29.99	+16 01.8	0.688	1.292	+0.62	+27.7	13.7	97.2
May 24	20 36.14	+20 38.5	0.721	1.357	+0.11	+21.8	14.1	101.7
June 3	20 37.23	+24 16.5	0.752	1.427	-0.37	+15.6	14.5	106.8
June 13	20 33.53	+26 52.5	0.783	1.501	-0.77	+9.0	15.0	112.5
June 23	20 25.83	+28 22.3	0.817	1.579	-1.05	+2.1	15.5	118.5
July 3	20 15.32	+28 42.9	0.856	1.658	-1.16	-4.8	15.9	124.3
July 13	20 03.72	+27 54.9	0.903	1.738	-1.09	-10.8	16.5	129.6
July 23	19 52.84	+26 07.3	0.962	1.818	-0.88	-15.3	17.0	133.6
Aug. 2	19 44.09	+23 34.7	1.035	1.899	-0.57	-18.0	17.5	135.7
Aug. 12	19 38.35	+20 35.0	1.125	1.979	-0.25	-18.9	18.0	135.4
Aug. 22	19 35.88	+17 26.0	1.232	2.059	+0.06	-18.5	18.5	133.0
Sept. 1	19 36.51	+14 21.3	1.355	2.138	+0.34	-17.1	19.0	128.8
Sept.11	19 39.94	+11 30.7	1.495	2.216	+0.58	-15.1	19.6	123.5
Sept.21	19 45.72	+08 59.6	1.648	2.292	+0.77	-12.9	20.1	117.5
Oct. 1	19 53.41	+06 50.3	1.815	2.368	+0.93	-10.7	20.5	111.2
Oct. 11	20 02.68	+05 03.4	1.992	2.443	+1.05	-8.5	21.0	104.6
Oct. 21	20 13.16	+03 38.2	2.177	2.516	+1.14	-6.5	21.4	98.0
Oct. 31	20 24.59	+02 33.2	2.368	2.588	+1.22	-4.6	21.9	91.3
Nov. 10	20 36.75	+01 46.9	2.562	2.658	+1.27	-2.9	22.3	84.6
Nov. 20	20 49.43	+01 17.4	2.757	2.728	+1.31	-1.4	22.6	77.9
Nov. 30	21 02.48	+01 03.0	2.952	2.796	+1.33	-0.1	23.0	71.3
Dec. 10	21 15.78	+01 02.2	3.142	2.863	+1.34	+1.1	23.3	64.6
Dec. 20	21 29.20	+01 13.1	3.327	2.928	+1.35	+2.1	23.6	58.0
Dec. 30	21 42.67	+01 34.5	3.504	2.992	+1.34	+3.0	23.9	51.4
Jan. 9	21 56.11	+02 04.9	3.672	3.055	+1.33	+3.8	24.2	44.9
Jan. 19	22 09.45	+02 43.0	3.827	3.116	+1.32	+4.5	24.4	38.4
Jan. 29	22 22.64	+03 27.5	3.968	3.177	+1.30	+5.0	24.7	32.0
Feb. 8	22 35.64	+04 17.5	4.095	3.236	+1.27	+5.4	24.9	25.8
Feb. 18	22 48.38	+05 11.7	4.205	3.294	+1.25	+5.8	25.1	19.9
Feb. 28	23 00.86	+06 09.3	4.298	3.350	+1.21	+6.0	25.3	14.8
Mar. 10	23 13.00	+07 09.3	4.373	3.406	+1.18	+6.2	25.5	11.5
Mar. 20	23 24.79	+08 10.8	4.429	3.460	+1.14	+6.2	25.6	11.8
Mar. 30	23 36.18	+09 13.0	4.465	3.513	+1.09	+6.2	25.8	15.4

Comet D/1894 F1 (Denning) [Orbit 3]

Epoch = 2008 Aug. 2.0 TT
T = 2008 Mar. 29.29081 TT
Peri. = 178.04720 e = 0.6788281
Node = 308.41635 2000.0 a = 4.0340727 AU
Incl. = 1.31900 n = 0.12164338
q = 1.2956308 AU P = 8.10 years

m1 = 10.5 + 5 log(Delta) + 15.0 log(r)

0h TT	R.A.(2000)	Decl.	Delta	r	Variation for T=+1 day		m1	Mot./PA	Elong.
2008/09	h m	° ′						″ / °	°
Jan. 5	01 47.79	+13 02.6	1.079	1.645	-1.72	-10.1	13.9	15.7/ 74	105.8
Jan. 15	01 58.10	+13 46.2	1.101	1.578	-1.70	-9.5	13.7	22.1/ 73	98.2
Jan. 25	02 12.63	+14 49.7	1.122	1.514	-1.73	-9.0	13.5	27.9/ 73	91.7
Feb. 4	02 31.17	+16 08.5	1.140	1.457	-1.81	-8.5	13.2	33.4/ 74	86.2
Feb. 14	02 53.60	+17 37.6	1.155	1.406	-1.93	-8.0	13.0	38.4/ 75	81.6
Feb. 24	03 19.77	+19 10.2	1.168	1.363	-2.08	-7.3	12.9	42.9/ 77	77.9
Mar. 5	03 49.56	+20 38.9	1.179	1.330	-2.27	-6.2	12.7	47.0/ 79	75.0
Mar. 15	04 22.76	+21 55.3	1.191	1.308	-2.47	-4.8	12.6	50.5/ 82	72.9
Mar. 25	04 58.98	+22 50.3	1.207	1.297	-2.66	-2.8	12.6	53.3/ 85	71.4
Apr. 4	05 37.55	+23 16.0	1.229	1.298	-2.81	-0.3	12.6	55.3/ 89	70.4
Apr. 14	06 17.62	+23 06.1	1.259	1.310	-2.91	+2.5	12.8	56.2/ 93	69.7
Apr. 24	06 58.12	+22 18.3	1.301	1.334	-2.92	+5.4	12.9	56.2/ 97	69.3
May 4	07 37.98	+20 54.0	1.355	1.369	-2.86	+8.0	13.2	55.3/100	69.0
May 14	08 16.36	+18 58.4	1.423	1.413	-2.73	+10.0	13.5	53.7/104	68.5
May 24	08 52.67	+16 38.9	1.506	1.464	-2.55	+11.4	13.9	51.5/106	67.9
June 3	09 26.63	+14 03.5	1.602	1.523	-2.35	+12.2	14.3	49.1/109	66.9
June 13	09 58.24	+11 19.3	1.711	1.587	-2.14	+12.3	14.7	46.5/110	65.5
June 23	10 27.61	+08 32.3	1.832	1.655	-1.95	+12.1	15.1	44.0/112	63.7
July 3	10 54.99	+05 46.5	1.963	1.727	-1.76	+11.5	15.5	41.6/113	61.5
July 13	11 20.63	+03 04.9	2.102	1.801	-1.59	+10.7	15.9	39.4/113	58.9
July 23	11 44.78	+00 29.4	2.248	1.877	-1.45	+9.8	16.4	37.4/113	55.9
Aug. 2	12 07.68	-01 58.9	2.397	1.955	-1.31	+8.9	16.8	35.6/113	52.6
Aug. 12	12 29.54	-04 19.4	2.550	2.033	-1.20	+8.0	17.2	34.0/113	49.0
Aug. 22	12 50.51	-06 31.8	2.703	2.112	-1.10	+7.1	17.5	32.6/113	45.0
Sept. 1	13 10.76	-08 36.0	2.854	2.191	-1.01	+6.3	17.9	31.3/112	40.8
Sept.11	13 30.40	-10 31.9	3.002	2.271	-0.93	+5.5	18.2	30.1/111	36.3
Sept.21	13 49.52	-12 19.5	3.145	2.349	-0.86	+4.8	18.6	29.0/111	31.6
Oct. 1	14 08.18	-13 59.0	3.281	2.428	-0.79	+4.2	18.9	28.0/110	26.6
Oct. 11	14 26.43	-15 30.4	3.409	2.506	-0.74	+3.6	19.1	27.0/109	21.4
Oct. 21	14 44.30	-16 53.6	3.525	2.583	-0.69	+3.1	19.4	26.1/107	16.0
Oct. 31	15 01.80	-18 08.8	3.630	2.660	-0.64	+2.7	19.7	25.2/106	10.4
Nov. 10	15 18.92	-19 16.2	3.722	2.736	-0.60	+2.3	19.9	24.3/105	4.6
Nov. 20	15 35.61	-20 15.8	3.798	2.811	-0.56	+1.9	20.1	23.4/104	1.7
Nov. 30	15 51.86	-21 07.9	3.859	2.885	-0.53	+1.6	20.3	22.4/102	7.7
Dec. 10	16 07.59	-21 52.7	3.904	2.958	-0.50	+1.3	20.5	21.4/101	14.1
Dec. 20	16 22.73	-22 30.6	3.931	3.031	-0.47	+1.0	20.7	20.3/100	20.7
Dec. 30	16 37.21	-23 01.9	3.941	3.102	-0.44	+0.8	20.9	19.0/ 98	27.5
Jan. 9	16 50.90	-23 27.3	3.933	3.173	-0.42	+0.6	21.0	17.7/ 97	34.6
Jan. 19	17 03.72	-23 47.3	3.909	3.243	-0.40	+0.5	21.1	16.3/ 96	41.8
Jan. 29	17 15.53	-24 02.5	3.869	3.311	-0.38	+0.3	21.2	14.6/ 95	49.2
Feb. 8	17 26.19	-24 13.7	3.815	3.379	-0.37	+0.2	21.3	12.8/ 94	56.9
Feb. 18	17 35.57	-24 21.7	3.747	3.446	-0.36	+0.1	21.4	10.9/ 93	64.9
Feb. 28	17 43.51	-24 27.3	3.669	3.512	-0.36	+0.0	21.5	8.6/ 93	73.2
Mar. 10	17 49.84	-24 31.2	3.582	3.577	-0.36	-0.0	21.6	6.2/ 93	81.7
Mar. 20	17 54.41	-24 34.1	3.491	3.642	-0.36	-0.1	21.6	3.6/ 94	90.7
Mar. 30	17 57.07	-24 36.5	3.399	3.705	-0.37	-0.1	21.7	0.9/104	100.0

Comet C/2007 Y2 (McNaught)

T = 2008 Apr. 7.81766 TT
q = 4.2113857 AU Peri. = 257.60532
Node = 303.49489 2000.0
e = 1.0 Incl. = 98.51801

m1 = 9.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	06 35.83	-51 21.6	3.912	4.284	-2.16	-5.4	18.3	105.7
Jan. 15	06 14.21	-52 15.4	3.925	4.269	-2.09	-1.5	18.3	103.9
Jan. 25	05 53.33	-52 30.6	3.958	4.257	-1.88	+1.8	18.3	101.0
Feb. 4	05 34.53	-52 12.7	4.006	4.245	-1.58	+4.3	18.3	97.3
Feb. 14	05 18.73	-51 29.9	4.065	4.235	-1.24	+5.9	18.3	93.1
Feb. 24	05 06.31	-50 31.2	4.132	4.227	-0.91	+6.6	18.3	88.7
Mar. 5	04 57.23	-49 24.9	4.201	4.221	-0.60	+6.7	18.4	84.4
Mar. 15	04 51.22	-48 17.6	4.269	4.216	-0.33	+6.3	18.4	80.3
Mar. 25	04 47.87	-47 14.8	4.333	4.213	-0.11	+5.4	18.4	76.5
Apr. 4	04 46.78	-46 20.4	4.390	4.212	+0.08	+4.3	18.5	73.2
Apr. 14	04 47.57	-45 37.3	4.437	4.212	+0.23	+3.0	18.5	70.6
Apr. 24	04 49.90	-45 07.7	4.474	4.214	+0.36	+1.5	18.5	68.7
May 4	04 53.48	-44 53.1	4.499	4.217	+0.46	-0.2	18.5	67.5
May 14	04 58.07	-44 55.0	4.513	4.222	+0.54	-1.9	18.5	67.0
May 24	05 03.44	-45 14.3	4.514	4.229	+0.60	-3.8	18.5	67.4
June 3	05 09.41	-45 51.8	4.505	4.238	+0.64	-5.7	18.5	68.4
June 13	05 15.81	-46 48.4	4.485	4.248	+0.66	-7.6	18.5	70.1
June 23	05 22.44	-48 04.7	4.458	4.259	+0.67	-9.6	18.5	72.2
July 3	05 29.16	-49 40.9	4.425	4.273	+0.66	-11.7	18.5	74.8
July 13	05 35.75	-51 37.5	4.389	4.288	+0.62	-13.7	18.5	77.6
July 23	05 41.98	-53 54.0	4.353	4.304	+0.56	-15.6	18.5	80.5
Aug. 2	05 47.58	-56 29.8	4.319	4.322	+0.45	-17.4	18.5	83.4
Aug. 12	05 52.13	-59 23.6	4.290	4.341	+0.29	-18.9	18.5	86.1
Aug. 22	05 55.05	-62 33.0	4.271	4.362	+0.04	-20.2	18.6	88.4
Sept. 1	05 55.47	-65 54.8	4.264	4.385	-0.36	-21.0	18.6	90.2
Sept.11	05 51.90	-69 24.6	4.270	4.409	-1.01	-21.1	18.6	91.3
Sept.21	05 41.8	-72 55.7	4.292	4.434	-2.12	-20.3	18.6	91.5
Oct. 1	05 20.6	-76 18.4	4.331	4.460	-4.07	-17.7	18.7	90.9
Oct. 11	04 39.8	-79 15.8	4.386	4.488	-7.07	-12.2	18.7	89.4
Oct. 21	03 29.1	-81 18.2	4.457	4.517	-9.47	-2.8	18.8	87.1
Oct. 31	01 54.4	-81 46.6	4.542	4.548	-8.24	+7.2	18.9	84.1
Nov. 10	00 32.0	-80 34.8	4.639	4.579	-5.11	+13.2	18.9	80.4
Nov. 20	23 40.9	-78 22.4	4.745	4.612	-2.76	+15.7	19.0	76.3
Nov. 30	23 13.3	-75 45.7	4.856	4.646	-1.38	+16.2	19.1	72.0
Dec. 10	22 59.5	-73 03.8	4.969	4.681	-0.60	+15.8	19.2	67.5
Dec. 20	22 53.5	-70 25.8	5.081	4.717	-0.13	+15.0	19.3	63.0
Dec. 30	22 52.22	-67 55.8	5.188	4.755	+0.16	+14.0	19.3	58.9
Jan. 9	22 53.84	-65 36.2	5.287	4.793	+0.34	+12.8	19.4	55.1
Jan. 19	22 57.28	-63 28.1	5.376	4.832	+0.46	+11.6	19.5	51.9
Jan. 29	23 01.90	-61 32.0	5.452	4.872	+0.53	+10.4	19.6	49.6
Feb. 8	23 07.22	-59 48.5	5.513	4.913	+0.57	+9.1	19.6	48.4
Feb. 18	23 12.92	-58 17.6	5.557	4.955	+0.58	+7.8	19.7	48.3
Feb. 28	23 18.76	-56 59.8	5.585	4.998	+0.58	+6.5	19.7	49.4
Mar. 10	23 24.53	-55 55.1	5.596	5.041	+0.55	+5.1	19.8	51.7
Mar. 20	23 30.04	-55 03.9	5.589	5.086	+0.51	+3.8	19.8	55.1
Mar. 30	23 35.13	-54 26.3	5.567	5.131	+0.45	+2.4	19.8	59.4

Comet 16P/Brooks

Epoch = 2008 Aug. 2.0 TT
T = 2008 Apr. 12.60022 TT
Peri. = 219.47436 e = 0.5627297
Node = 159.37341 2000.0 a = 3.3540277 AU
Incl. = 4.25829 n = 0.16045531
q = 1.4666167 AU P = 6.14 years

m1 = 12.0 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	20 35.96	-17 36.2	2.648	1.784	+2.63	+8.9	17.3	23.0
Jan. 15	21 02.23	-16 06.9	2.629	1.730	+2.70	+10.7	17.1	19.2
Jan. 25	21 29.19	-14 20.3	2.606	1.680	+2.76	+12.3	16.9	15.8
Feb. 4	21 56.77	-12 17.0	2.581	1.633	+2.81	+13.9	16.7	12.6
Feb. 14	22 24.88	-09 58.0	2.555	1.591	+2.86	+15.3	16.6	9.8
Feb. 24	22 53.45	-07 25.4	2.531	1.554	+2.90	+16.4	16.4	7.2
Mar. 5	23 22.46	-04 41.6	2.509	1.523	+2.94	+17.2	16.3	4.9
Mar. 15	23 51.87	-01 49.8	2.490	1.498	+2.98	+17.6	16.2	2.9
Mar. 25	00 21.67	+01 06.1	2.477	1.480	+3.02	+17.6	16.1	1.4
Apr. 4	00 51.82	+04 02.1	2.469	1.469	+3.05	+17.2	16.1	1.7
Apr. 14	01 22.30	+06 53.7	2.467	1.467	+3.07	+16.3	16.0	3.2
Apr. 24	01 53.03	+09 36.6	2.471	1.472	+3.09	+15.0	16.1	4.8
May 4	02 23.95	+12 06.8	2.482	1.484	+3.10	+13.4	16.1	6.5
May 14	02 54.92	+14 20.7	2.497	1.504	+3.09	+11.5	16.2	8.2
May 24	03 25.79	+16 15.8	2.517	1.531	+3.06	+9.4	16.3	10.2
June 3	03 56.38	+17 50.2	2.540	1.564	+3.01	+7.3	16.5	12.2
June 13	04 26.48	+19 03.1	2.565	1.602	+2.94	+5.1	16.6	14.5
June 23	04 55.88	+19 54.6	2.590	1.646	+2.85	+3.1	16.8	17.1
July 3	05 24.40	+20 25.5	2.614	1.694	+2.75	+1.2	16.9	19.9
July 13	05 51.85	+20 37.3	2.636	1.745	+2.62	-0.5	17.1	22.9
July 23	06 18.09	+20 32.0	2.653	1.800	+2.49	-2.0	17.3	26.3
Aug. 2	06 43.02	+20 11.8	2.665	1.857	+2.35	-3.3	17.5	30.0
Aug. 12	07 06.56	+19 39.1	2.670	1.916	+2.21	-4.3	17.7	34.0
Aug. 22	07 28.63	+18 56.5	2.668	1.976	+2.06	-5.0	17.8	38.3
Sept. 1	07 49.22	+18 06.1	2.656	2.038	+1.90	-5.6	18.0	43.0
Sept.11	08 08.26	+17 10.4	2.636	2.101	+1.75	-5.9	18.1	48.1
Sept.21	08 25.73	+16 11.6	2.606	2.164	+1.59	-6.0	18.3	53.5
Oct. 1	08 41.59	+15 11.9	2.565	2.228	+1.41	-5.8	18.4	59.3
Oct. 11	08 55.74	+14 13.5	2.516	2.292	+1.24	-5.5	18.5	65.6
Oct. 21	09 08.09	+13 18.5	2.458	2.356	+1.04	-5.0	18.6	72.4
Oct. 31	09 18.52	+12 29.0	2.392	2.420	+0.83	-4.2	18.7	79.7
Nov. 10	09 26.84	+11 47.3	2.320	2.483	+0.60	-3.2	18.8	87.5
Nov. 20	09 32.89	+11 15.5	2.245	2.546	+0.36	-2.0	18.8	96.0
Nov. 30	09 36.45	+10 55.7	2.171	2.609	+0.09	-0.6	18.9	105.2
Dec. 10	09 37.35	+10 49.9	2.100	2.671	-0.18	+0.9	18.9	115.1
Dec. 20	09 35.51	+10 58.8	2.039	2.733	-0.45	+2.4	19.0	125.7
Dec. 30	09 30.97	+11 22.9	1.992	2.794	-0.69	+3.7	19.1	137.0
Jan. 9	09 24.05	+12 00.3	1.966	2.854	-0.87	+4.7	19.2	149.0
Jan. 19	09 15.34	+12 47.8	1.964	2.913	-0.97	+5.3	19.3	161.4
Jan. 29	09 05.67	+13 40.7	1.991	2.972	-0.96	+5.3	19.4	173.6
Feb. 8	08 56.07	+14 33.8	2.049	3.030	-0.86	+4.9	19.6	172.6
Feb. 18	08 47.48	+15 22.4	2.138	3.088	-0.69	+4.1	19.8	160.6
Feb. 28	08 40.62	+16 03.6	2.254	3.144	-0.47	+3.2	20.0	148.9
Mar. 10	08 35.95	+16 35.5	2.395	3.200	-0.24	+2.2	20.2	137.6
Mar. 20	08 33.59	+16 57.8	2.556	3.254	-0.01	+1.3	20.4	127.1
Mar. 30	08 33.49	+17 10.8	2.732	3.308	+0.20	+0.4	20.7	117.1

Comet C/2008 C1 (Chen-Gao)

T = 2008 Apr. 16.89737 TT
q = 1.2632504 AU Peri. = 180.90996
Node = 307.73636 2000.0
e = 1.0 Incl. = 61.80680

m1 = 10.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	20 53.63	+61 31.8	1.746	1.963	+3.86	+2.0	14.1	87.3
Jan. 15	21 32.20	+61 51.9	1.651	1.860	+4.78	+2.1	13.8	85.9
Jan. 25	22 19.99	+62 12.8	1.558	1.761	+5.80	-0.5	13.4	84.5
Feb. 4	23 17.98	+62 07.8	1.473	1.666	+6.66	-6.7	13.1	82.7
Feb. 14	00 24.53	+61 00.6	1.400	1.576	+6.95	-16.5	12.7	80.6
Feb. 24	01 34.01	+58 15.2	1.345	1.494	+6.51	-27.9	12.4	78.0
Mar. 5	02 39.11	+53 36.6	1.311	1.421	+5.61	-37.6	12.1	74.7
Mar. 15	03 35.25	+47 20.5	1.303	1.359	+4.65	-43.8	11.9	71.1
Mar. 25	04 21.74	+40 02.6	1.323	1.311	+3.84	-46.1	11.8	67.1
Apr. 4	05 00.10	+32 21.6	1.368	1.279	+3.22	-45.4	11.7	63.1
Apr. 14	05 32.30	+24 47.8	1.434	1.264	+2.78	-42.9	11.8	59.4
Apr. 24	06 00.06	+17 39.0	1.514	1.268	+2.47	-39.7	11.9	56.1
May 4	06 24.75	+11 02.2	1.605	1.290	+2.27	-36.5	12.1	53.4
May 14	06 47.41	+04 57.3	1.700	1.329	+2.14	-33.7	12.4	51.3
May 24	07 08.77	-00 39.3	1.797	1.383	+2.06	-31.3	12.7	49.9
June 3	07 29.42	-05 52.7	1.894	1.450	+2.03	-29.5	13.0	49.1
June 13	07 49.76	-10 47.8	1.990	1.527	+2.03	-28.1	13.3	48.9
June 23	08 10.07	-15 28.9	2.085	1.613	+2.05	-27.0	13.7	49.1
July 3	08 30.57	-19 58.8	2.179	1.705	+2.09	-26.1	14.0	49.5
July 13	08 51.43	-24 19.8	2.275	1.802	+2.13	-25.3	14.3	50.2
July 23	09 12.75	-28 32.8	2.373	1.903	+2.19	-24.5	14.7	50.9
Aug. 2	09 34.64	-32 37.8	2.474	2.006	+2.26	-23.7	15.0	51.5
Aug. 12	09 57.19	-36 34.7	2.579	2.112	+2.33	-22.8	15.3	52.0
Aug. 22	10 20.48	-40 22.3	2.688	2.218	+2.41	-21.7	15.6	52.3
Sept. 1	10 44.61	-43 59.6	2.802	2.326	+2.50	-20.6	15.9	52.3
Sept.11	11 09.66	-47 25.5	2.921	2.434	+2.61	-19.3	16.2	52.0
Sept.21	11 35.72	-50 38.8	3.043	2.542	+2.72	-18.0	16.5	51.5
Oct. 1	12 02.89	-53 38.4	3.168	2.650	+2.83	-16.5	16.7	50.7
Oct. 11	12 31.23	-56 23.5	3.295	2.758	+2.96	-15.0	17.0	49.8
Oct. 21	13 00.79	-58 53.3	3.421	2.866	+3.08	-13.4	17.2	48.9
Oct. 31	13 31.58	-61 07.3	3.546	2.973	+3.19	-11.8	17.5	47.9
Nov. 10	14 03.53	-63 05.2	3.669	3.080	+3.29	-10.2	17.7	47.0
Nov. 20	14 36.45	-64 47.0	3.786	3.186	+3.37	-8.6	17.9	46.4
Nov. 30	15 10.11	-66 13.0	3.897	3.292	+3.40	-7.1	18.1	46.2
Dec. 10	15 44.11	-67 24.2	4.000	3.397	+3.39	-5.8	18.3	46.4
Dec. 20	16 18.00	-68 21.8	4.094	3.501	+3.33	-4.6	18.5	47.2
Dec. 30	16 51.31	-69 07.8	4.178	3.604	+3.22	-3.6	18.7	48.6
Jan. 9	17 23.52	-69 44.2	4.251	3.707	+3.07	-2.9	18.8	50.7
Jan. 19	17 54.2	-70 13.7	4.312	3.810	+2.89	-2.5	19.0	53.5
Jan. 29	18 23.1	-70 38.9	4.362	3.911	+2.68	-2.4	19.1	56.8
Feb. 8	18 49.9	-71 02.6	4.401	4.012	+2.45	-2.5	19.3	60.7
Feb. 18	19 14.4	-71 27.2	4.429	4.112	+2.21	-2.8	19.4	65.1
Feb. 28	19 36.5	-71 55.1	4.448	4.212	+1.95	-3.3	19.5	69.9
Mar. 10	19 56.0	-72 28.2	4.458	4.311	+1.67	-4.0	19.6	75.1
Mar. 20	20 12.6	-73 08.1	4.462	4.409	+1.36	-4.8	19.7	80.5
Mar. 30	20 26.2	-73 55.7	4.463	4.506	+1.00	-5.6	19.8	86.1

Comet 139P/Vaisala-Oterma

Epoch = 2008 Aug. 2.0 TT
T = 2008 Apr. 19.32692 TT
Peri. = 165.51738 e = 0.2466547
Node = 242.45298 2000.0 a = 4.5168944 AU
Incl. = 2.32954 n = 0.10267014
q = 3.4027812 AU P = 9.60 years

m1 = 8.5 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	00 45.87	+06 21.1	3.309	3.437	+0.72	+3.8	19.1	89.1
Jan. 15	00 53.10	+06 59.1	3.448	3.431	+0.84	+4.6	19.2	80.8
Jan. 25	01 01.55	+07 44.7	3.583	3.426	+0.95	+5.2	19.3	72.9
Feb. 4	01 11.05	+08 36.6	3.714	3.421	+1.04	+5.7	19.4	65.2
Feb. 14	01 21.48	+09 33.5	3.838	3.416	+1.12	+6.1	19.4	57.8
Feb. 24	01 32.69	+10 34.0	3.952	3.412	+1.19	+6.3	19.5	50.7
Mar. 5	01 44.59	+11 37.0	4.056	3.409	+1.25	+6.4	19.5	43.8
Mar. 15	01 57.09	+12 41.4	4.148	3.407	+1.30	+6.5	19.6	37.0
Mar. 25	02 10.09	+13 46.0	4.227	3.405	+1.34	+6.4	19.6	30.4
Apr. 4	02 23.53	+14 50.0	4.293	3.404	+1.38	+6.2	19.6	24.0
Apr. 14	02 37.33	+15 52.5	4.345	3.403	+1.41	+6.0	19.7	17.6
Apr. 24	02 51.43	+16 52.6	4.383	3.403	+1.43	+5.7	19.7	11.4
May 4	03 05.77	+17 49.7	4.406	3.403	+1.45	+5.3	19.7	5.2
May 14	03 20.30	+18 43.1	4.415	3.405	+1.46	+4.9	19.7	1.0
May 24	03 34.92	+19 32.3	4.410	3.407	+1.47	+4.4	19.7	7.0
June 3	03 49.60	+20 16.8	4.390	3.409	+1.46	+3.9	19.7	13.0
June 13	04 04.24	+20 56.2	4.355	3.412	+1.45	+3.4	19.7	19.1
June 23	04 18.77	+21 30.4	4.308	3.416	+1.43	+2.9	19.7	25.2
July 3	04 33.10	+21 59.1	4.247	3.420	+1.40	+2.3	19.7	31.4
July 13	04 47.12	+22 22.4	4.173	3.425	+1.36	+1.8	19.6	37.7
July 23	05 00.74	+22 40.3	4.087	3.431	+1.31	+1.3	19.6	44.0
Aug. 2	05 13.84	+22 53.0	3.991	3.437	+1.24	+0.8	19.5	50.6
Aug. 12	05 26.27	+23 01.0	3.884	3.444	+1.16	+0.4	19.5	57.3
Aug. 22	05 37.90	+23 04.5	3.768	3.451	+1.07	0.0	19.4	64.2
Sept. 1	05 48.57	+23 04.4	3.645	3.459	+0.95	-0.3	19.4	71.4
Sept.11	05 58.09	+23 01.1	3.516	3.467	+0.82	-0.6	19.3	79.0
Sept.21	06 06.29	+22 55.5	3.384	3.476	+0.67	-0.7	19.3	86.8
Oct. 1	06 12.96	+22 48.3	3.251	3.486	+0.49	-0.8	19.2	95.1
Oct. 11	06 17.89	+22 40.5	3.121	3.496	+0.30	-0.8	19.1	103.8
Oct. 21	06 20.92	+22 32.6	2.996	3.506	+0.10	-0.7	19.1	113.0
Oct. 31	06 21.89	+22 25.4	2.880	3.518	-0.12	-0.6	19.0	122.8
Nov. 10	06 20.73	+22 19.0	2.778	3.529	-0.32	-0.6	18.9	133.0
Nov. 20	06 17.53	+22 13.5	2.695	3.541	-0.50	-0.5	18.9	143.8
Nov. 30	06 12.52	+22 08.5	2.635	3.554	-0.64	-0.5	18.9	155.1
Dec. 10	06 06.15	+22 03.9	2.601	3.567	-0.71	-0.5	18.9	166.7
Dec. 20	05 59.05	+21 59.0	2.597	3.580	-0.71	-0.5	18.9	178.0
Dec. 30	05 51.94	+21 54.1	2.623	3.594	-0.64	-0.5	18.9	169.5
Jan. 9	05 45.55	+21 49.4	2.678	3.608	-0.51	-0.4	19.0	157.9
Jan. 19	05 40.50	+21 45.6	2.761	3.623	-0.33	-0.3	19.1	146.5
Jan. 29	05 37.19	+21 43.1	2.868	3.638	-0.13	-0.1	19.2	135.6
Feb. 8	05 35.86	+21 42.2	2.995	3.653	+0.07	+0.1	19.3	125.1
Feb. 18	05 36.54	+21 43.1	3.138	3.669	+0.26	+0.2	19.5	115.2
Feb. 28	05 39.18	+21 45.3	3.291	3.685	+0.44	+0.3	19.6	105.8
Mar. 10	05 43.61	+21 48.3	3.451	3.702	+0.60	+0.3	19.7	96.8
Mar. 20	05 49.63	+21 51.3	3.614	3.718	+0.74	+0.2	19.8	88.2
Mar. 30	05 57.04	+21 53.5	3.777	3.735	+0.86	+0.1	20.0	80.0

Comet C/2007 K3 (Siding Spring)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Apr. 21.63014 TT
q = 2.0507758 AU Peri. = 23.56884
z = -0.0005942 Node = 263.25192 2000.0
e = 1.0012186 Incl. = 16.29901

m1 = 9.8 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	16 47.29	-26 58.6	3.211	2.415	+2.44	+0.5	16.2	30.4
Jan. 15	17 11.72	-26 53.8	3.092	2.356	+2.49	+2.2	16.0	35.1
Jan. 25	17 36.60	-26 32.2	2.972	2.301	+2.52	+4.0	15.8	39.6
Feb. 4	18 01.75	-25 52.2	2.851	2.250	+2.52	+5.9	15.6	44.1
Feb. 14	18 26.94	-24 52.9	2.731	2.204	+2.50	+7.9	15.4	48.5
Feb. 24	18 51.94	-23 33.7	2.614	2.164	+2.46	+9.9	15.2	52.8
Mar. 5	19 16.51	-21 54.7	2.500	2.129	+2.39	+11.8	15.1	57.0
Mar. 15	19 40.42	-19 56.5	2.390	2.100	+2.30	+13.6	14.9	61.2
Mar. 25	20 03.44	-17 40.6	2.285	2.077	+2.20	+15.2	14.8	65.3
Apr. 4	20 25.40	-15 08.9	2.186	2.062	+2.07	+16.5	14.6	69.5
Apr. 14	20 46.09	-12 23.8	2.092	2.053	+1.93	+17.6	14.5	73.8
Apr. 24	21 05.37	-09 28.2	2.005	2.051	+1.77	+18.3	14.4	78.2
May 4	21 23.07	-06 25.2	1.923	2.056	+1.59	+18.7	14.4	82.8
May 14	21 39.01	-03 18.5	1.848	2.068	+1.40	+18.7	14.3	87.6
May 24	21 53.03	-00 11.6	1.778	2.087	+1.19	+18.3	14.2	92.7
June 3	22 04.95	+02 51.7	1.715	2.113	+0.96	+17.5	14.2	98.1
June 13	22 14.54	+05 47.2	1.659	2.144	+0.71	+16.3	14.2	104.0
June 23	22 21.65	+08 30.7	1.610	2.182	+0.45	+14.7	14.2	110.3
July 3	22 26.12	+10 57.6	1.570	2.225	+0.18	+12.5	14.3	117.0
July 13	22 27.91	+13 02.9	1.541	2.273	-0.07	+9.9	14.3	124.2
July 23	22 27.17	+14 42.0	1.524	2.326	-0.29	+6.9	14.4	131.6
Aug. 2	22 24.24	+15 51.0	1.521	2.383	-0.45	+3.7	14.5	139.1
Aug. 12	22 19.73	+16 27.6	1.537	2.444	-0.52	+0.5	14.6	146.1
Aug. 22	22 14.49	+16 32.7	1.572	2.508	-0.51	-2.3	14.8	151.6
Sept. 1	22 09.37	+16 10.1	1.628	2.575	-0.41	-4.4	15.0	154.3
Sept.11	22 05.22	+15 26.3	1.707	2.645	-0.26	-5.7	15.2	153.1
Sept.21	22 02.64	+14 29.6	1.809	2.717	-0.07	-6.2	15.4	148.6
Oct. 1	22 01.95	+13 27.8	1.932	2.791	+0.13	-6.0	15.7	142.1
Oct. 11	22 03.27	+12 27.9	2.075	2.867	+0.32	-5.3	16.0	134.7
Oct. 21	22 06.50	+11 34.8	2.237	2.944	+0.50	-4.3	16.2	126.9
Oct. 31	22 11.47	+10 51.6	2.414	3.023	+0.65	-3.2	16.5	119.0
Nov. 10	22 17.95	+10 20.0	2.605	3.103	+0.77	-1.9	16.8	111.1
Nov. 20	22 25.69	+10 00.7	2.806	3.184	+0.88	-0.7	17.1	103.4
Nov. 30	22 34.46	+09 53.3	3.015	3.265	+0.96	+0.4	17.3	95.8
Dec. 10	22 44.06	+09 57.3	3.229	3.348	+1.02	+1.4	17.6	88.3
Dec. 20	22 54.29	+10 11.6	3.446	3.431	+1.07	+2.3	17.8	80.9
Dec. 30	23 05.02	+10 35.1	3.662	3.515	+1.11	+3.2	18.1	73.7
Jan. 9	23 16.12	+11 06.6	3.876	3.599	+1.13	+3.8	18.3	66.5
Jan. 19	23 27.45	+11 45.0	4.085	3.683	+1.15	+4.4	18.5	59.4
Jan. 29	23 38.95	+12 29.2	4.287	3.768	+1.16	+4.9	18.7	52.4
Feb. 8	23 50.53	+13 18.1	4.479	3.852	+1.16	+5.3	18.9	45.5
Feb. 18	00 02.11	+14 10.7	4.659	3.937	+1.15	+5.5	19.1	38.7
Feb. 28	00 13.64	+15 06.2	4.827	4.022	+1.14	+5.7	19.3	32.1
Mar. 10	00 25.06	+16 03.6	4.979	4.107	+1.13	+5.9	19.4	25.7
Mar. 20	00 36.31	+17 02.2	5.116	4.192	+1.11	+5.9	19.6	19.7
Mar. 30	00 47.36	+18 01.4	5.236	4.277	+1.08	+5.9	19.7	14.7

Comet 124P/Mrkos

Epoch = 2008 Aug. 2.0 TT
M = 16.59467 e = 0.5423499
Peri. = 181.37356 a = 3.2089887 AU
Node = 1.35178 2000.0 n = 0.17145565
Incl. = 31.34047 P = 5.75 years

H = 15.0 G = 0.15

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	V	Elong. °
Jan. 5	11 31.84	+58 40.2	1.150	1.855	+0.35	+7.1	17.9	120.7
Jan. 15	11 35.32	+59 50.9	1.052	1.800	-0.54	+6.1	17.6	124.3
Jan. 25	11 29.95	+60 51.8	0.964	1.747	-1.58	+2.9	17.3	127.4
Feb. 4	11 14.14	+61 20.4	0.886	1.696	-2.56	-3.9	17.1	129.8
Feb. 14	10 48.58	+60 41.5	0.821	1.649	-3.03	-14.4	16.9	131.3
Feb. 24	10 18.28	+58 17.6	0.770	1.606	-2.77	-26.8	16.7	131.5
Mar. 5	09 50.58	+53 49.5	0.735	1.568	-1.98	-38.2	16.6	130.0
Mar. 15	09 30.80	+47 27.9	0.718	1.536	-1.06	-45.9	16.5	126.7
Mar. 25	09 20.17	+39 48.8	0.721	1.509	-0.29	-49.3	16.6	122.0
Apr. 4	09 17.30	+31 36.2	0.743	1.488	+0.31	-48.9	16.7	116.5
Apr. 14	09 20.38	+23 27.1	0.783	1.475	+0.74	-46.1	16.9	110.7
Apr. 24	09 27.79	+15 45.9	0.839	1.469	+1.06	-42.2	17.1	105.2
May 4	09 38.35	+08 43.6	0.907	1.470	+1.30	-38.2	17.3	100.1
May 14	09 51.32	+02 21.6	0.985	1.479	+1.48	-34.4	17.5	95.6
May 24	10 06.17	-03 22.9	1.071	1.495	+1.64	-31.2	17.7	91.7
June 3	10 22.58	-08 34.6	1.162	1.518	+1.78	-28.4	17.9	88.1
June 13	10 40.40	-13 18.7	1.258	1.547	+1.91	-26.1	18.1	85.0
June 23	10 59.49	-17 39.4	1.358	1.581	+2.03	-24.0	18.2	82.2
July 3	11 19.82	-21 39.6	1.461	1.621	+2.16	-22.2	18.4	79.5
July 13	11 41.38	-25 21.9	1.567	1.666	+2.28	-20.6	18.6	77.0
July 23	12 04.15	-28 47.5	1.676	1.714	+2.40	-18.9	18.7	74.6
Aug. 2	12 28.14	-31 56.7	1.788	1.765	+2.52	-17.3	18.9	72.2
Aug. 12	12 53.35	-34 49.9	1.904	1.819	+2.64	-15.6	19.0	69.7
Aug. 22	13 19.75	-37 26.2	2.022	1.876	+2.75	-13.9	19.2	67.1
Sept. 1	13 47.28	-39 45.0	2.143	1.934	+2.86	-12.1	19.3	64.4
Sept.11	14 15.86	-41 45.6	2.267	1.993	+2.95	-10.1	19.5	61.5
Sept.21	14 45.31	-43 27.0	2.392	2.054	+3.01	-8.2	19.6	58.4
Oct. 1	15 15.45	-44 48.8	2.519	2.115	+3.06	-6.2	19.7	55.2
Oct. 11	15 46.02	-45 50.7	2.646	2.176	+3.07	-4.2	19.8	51.9
Oct. 21	16 16.70	-46 32.9	2.773	2.238	+3.05	-2.3	19.9	48.3
Oct. 31	16 47.22	-46 56.0	2.898	2.300	+3.00	-0.5	20.0	44.6
Nov. 10	17 17.25	-47 01.2	3.020	2.362	+2.93	+1.1	20.1	40.9
Nov. 20	17 46.51	-46 50.0	3.138	2.424	+2.83	+2.6	20.2	37.1
Nov. 30	18 14.80	-46 24.1	3.250	2.485	+2.71	+3.8	20.3	33.3
Dec. 10	18 41.93	-45 45.7	3.355	2.546	+2.59	+4.9	20.3	29.7
Dec. 20	19 07.81	-44 56.7	3.451	2.607	+2.46	+5.7	20.4	26.4
Dec. 30	19 32.37	-43 59.3	3.537	2.666	+2.32	+6.4	20.5	23.7
Jan. 9	19 55.60	-42 55.6	3.612	2.726	+2.19	+6.8	20.5	22.0
Jan. 19	20 17.50	-41 47.4	3.675	2.784	+2.06	+7.1	20.6	21.6
Jan. 29	20 38.12	-40 36.6	3.725	2.842	+1.94	+7.2	20.7	22.7
Feb. 8	20 57.48	-39 25.0	3.761	2.899	+1.81	+7.1	20.8	25.2
Feb. 18	21 15.62	-38 14.0	3.783	2.955	+1.70	+6.9	20.9	28.8
Feb. 28	21 32.60	-37 05.2	3.790	3.011	+1.58	+6.5	20.9	33.2
Mar. 10	21 48.42	-36 00.0	3.783	3.066	+1.47	+6.0	21.0	38.3
Mar. 20	22 03.09	-34 59.6	3.761	3.120	+1.35	+5.4	21.1	43.8
Mar. 30	22 16.63	-34 05.5	3.725	3.173	+1.24	+4.7	21.2	49.8

Comet 11P/Tempel-Swift-LINEAR [Orbit 1]

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 4.53594 TT
Peri. = 163.89875 e = 0.5449825
Node = 240.52638 2000.0 a = 3.4143023 AU
Incl. = 13.55297 n = 0.15622521
q = 1.5535673 AU P = 6.31 years

m1 = 14.4 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	21 22.26	-04 58.0	2.620	1.950	+2.21	+8.5	21.6	38.6
Jan. 15	21 44.31	-03 33.0	2.627	1.896	+2.30	+9.7	21.4	34.2
Jan. 25	22 07.29	-01 55.6	2.629	1.845	+2.39	+10.9	21.2	30.1
Feb. 4	22 31.15	-00 06.8	2.625	1.795	+2.47	+11.9	20.9	26.3
Feb. 14	22 55.89	+01 52.0	2.617	1.750	+2.56	+12.7	20.7	22.8
Feb. 24	23 21.48	+03 58.7	2.607	1.707	+2.64	+13.2	20.5	19.5
Mar. 5	23 47.93	+06 11.1	2.596	1.669	+2.73	+13.5	20.4	16.5
Mar. 15	00 15.25	+08 26.1	2.585	1.635	+2.82	+13.4	20.2	13.7
Mar. 25	00 43.43	+10 40.5	2.575	1.607	+2.91	+13.0	20.1	11.0
Apr. 4	01 12.49	+12 50.7	2.566	1.584	+2.99	+12.2	19.9	8.6
Apr. 14	01 42.36	+14 53.0	2.561	1.568	+3.06	+11.0	19.9	6.2
Apr. 24	02 12.97	+16 43.4	2.559	1.557	+3.12	+9.5	19.8	4.1
May 4	02 44.19	+18 18.6	2.561	1.554	+3.16	+7.7	19.8	2.3
May 14	03 15.83	+19 35.5	2.566	1.557	+3.18	+5.6	19.8	2.2
May 24	03 47.65	+20 31.6	2.575	1.566	+3.17	+3.4	19.9	3.9
June 3	04 19.39	+21 05.5	2.587	1.582	+3.14	+1.1	20.0	6.1
June 13	04 50.76	+21 16.7	2.602	1.604	+3.07	-1.1	20.1	8.4
June 23	05 21.45	+21 05.5	2.618	1.632	+2.98	-3.2	20.2	11.0
July 3	05 51.25	+20 33.1	2.635	1.665	+2.87	-5.2	20.4	13.7
July 13	06 19.91	+19 41.3	2.652	1.703	+2.74	-6.9	20.6	16.6
July 23	06 47.30	+18 32.5	2.668	1.745	+2.60	-8.3	20.8	19.7
Aug. 2	07 13.32	+17 09.1	2.680	1.790	+2.46	-9.6	21.0	23.0
Aug. 12	07 37.91	+15 33.5	2.689	1.839	+2.31	-10.5	21.2	26.5
Aug. 22	08 01.04	+13 48.3	2.693	1.890	+2.17	-11.3	21.4	30.3
Sept. 1	08 22.72	+11 55.5	2.692	1.944	+2.02	-11.8	21.6	34.4
Sept.11	08 42.96	+09 57.4	2.683	1.999	+1.88	-12.2	21.8	38.7
Sept.21	09 01.75	+07 55.7	2.666	2.056	+1.74	-12.4	22.0	43.4
Oct. 1	09 19.12	+05 52.2	2.642	2.115	+1.59	-12.4	22.2	48.4
Oct. 11	09 35.01	+03 48.4	2.609	2.174	+1.44	-12.3	22.4	53.8
Oct. 21	09 49.41	+01 45.8	2.567	2.233	+1.28	-12.0	22.6	59.5
Oct. 31	10 02.22	-00 14.2	2.517	2.293	+1.11	-11.6	22.7	65.6
Nov. 10	10 13.34	-02 10.1	2.459	2.354	+0.93	-11.0	22.9	72.2
Nov. 20	10 22.62	-04 00.3	2.395	2.414	+0.73	-10.3	23.0	79.2
Nov. 30	10 29.90	-05 43.0	2.326	2.475	+0.51	-9.3	23.1	86.8
Dec. 10	10 34.96	-07 15.9	2.254	2.535	+0.27	-8.1	23.2	94.8
Dec. 20	10 37.62	-08 36.6	2.183	2.595	+0.01	-6.5	23.3	103.5
Dec. 30	10 37.72	-09 42.1	2.116	2.655	-0.25	-4.7	23.4	112.6
Jan. 9	10 35.20	-10 28.9	2.058	2.714	-0.50	-2.5	23.6	122.3
Jan. 19	10 30.22	-10 54.2	2.013	2.773	-0.71	-0.1	23.7	132.4
Jan. 29	10 23.13	-10 55.4	1.986	2.832	-0.85	+2.3	23.8	142.5
Feb. 8	10 14.60	-10 32.2	1.982	2.889	-0.91	+4.5	24.0	151.8
Feb. 18	10 05.51	-09 47.1	2.005	2.947	-0.87	+6.2	24.1	158.5
Feb. 28	09 56.78	-08 44.8	2.055	3.003	-0.75	+7.2	24.3	159.5
Mar. 10	09 49.27	-07 32.3	2.134	3.059	-0.57	+7.5	24.5	154.3
Mar. 20	09 43.57	-06 16.9	2.239	3.114	-0.36	+7.2	24.8	145.9
Mar. 30	09 40.00	-05 04.7	2.368	3.169	-0.14	+6.4	25.0	136.6

Comet 11P/Tempel-Swift-LINEAR [Orbit 2]

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 4.69361 TT
Peri. = 163.89874 e = 0.5450003
Node = 240.52512 2000.0 a = 3.4144651 AU
Incl. = 13.55323 n = 0.15621404
q = 1.5535806 AU P = 6.31 years

m1 = 14.4 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	21 22.10	-04 58.7	2.621	1.951	+2.20	+8.5	21.6	38.5
Jan. 15	21 44.15	-03 33.8	2.629	1.897	+2.30	+9.7	21.4	34.2
Jan. 25	22 07.12	-01 56.4	2.630	1.845	+2.39	+10.9	21.2	30.1
Feb. 4	22 30.98	-00 07.6	2.626	1.796	+2.47	+11.9	20.9	26.3
Feb. 14	22 55.70	+01 51.2	2.619	1.750	+2.56	+12.7	20.7	22.8
Feb. 24	23 21.28	+03 57.9	2.608	1.708	+2.64	+13.2	20.5	19.5
Mar. 5	23 47.72	+06 10.2	2.597	1.670	+2.73	+13.5	20.4	16.4
Mar. 15	00 15.03	+08 25.3	2.586	1.636	+2.82	+13.4	20.2	13.6
Mar. 25	00 43.21	+10 39.7	2.575	1.607	+2.90	+13.0	20.1	11.0
Apr. 4	01 12.25	+12 50.0	2.567	1.585	+2.99	+12.2	19.9	8.5
Apr. 14	01 42.12	+14 52.4	2.561	1.568	+3.06	+11.1	19.9	6.2
Apr. 24	02 12.72	+16 43.0	2.559	1.557	+3.12	+9.5	19.8	4.1
May 4	02 43.93	+18 18.3	2.561	1.554	+3.16	+7.7	19.8	2.4
May 14	03 15.57	+19 35.4	2.566	1.556	+3.18	+5.6	19.8	2.3
May 24	03 47.40	+20 31.7	2.575	1.566	+3.17	+3.4	19.9	3.9
June 3	04 19.14	+21 05.8	2.587	1.582	+3.14	+1.1	19.9	6.1
June 13	04 50.51	+21 17.1	2.601	1.604	+3.07	-1.1	20.1	8.5
June 23	05 21.22	+21 06.0	2.618	1.632	+2.98	-3.2	20.2	11.0
July 3	05 51.02	+20 33.8	2.635	1.664	+2.87	-5.2	20.4	13.7
July 13	06 19.70	+19 42.1	2.651	1.702	+2.74	-6.9	20.6	16.6
July 23	06 47.10	+18 33.4	2.667	1.744	+2.60	-8.3	20.8	19.7
Aug. 2	07 13.14	+17 10.0	2.679	1.790	+2.46	-9.6	21.0	23.0
Aug. 12	07 37.74	+15 34.5	2.688	1.838	+2.31	-10.5	21.2	26.5
Aug. 22	08 00.88	+13 49.2	2.692	1.890	+2.17	-11.3	21.4	30.3
Sept. 1	08 22.57	+11 56.4	2.690	1.943	+2.02	-11.8	21.6	34.4
Sept.11	08 42.81	+09 58.3	2.681	1.999	+1.88	-12.2	21.8	38.8
Sept.21	09 01.62	+07 56.6	2.665	2.056	+1.74	-12.4	22.0	43.5
Oct. 1	09 18.99	+05 53.0	2.640	2.114	+1.59	-12.4	22.2	48.5
Oct. 11	09 34.89	+03 49.2	2.607	2.173	+1.44	-12.3	22.4	53.8
Oct. 21	09 49.28	+01 46.6	2.565	2.232	+1.28	-12.0	22.5	59.5
Oct. 31	10 02.10	-00 13.5	2.515	2.292	+1.11	-11.6	22.7	65.7
Nov. 10	10 13.22	-02 09.4	2.458	2.353	+0.93	-11.0	22.9	72.2
Nov. 20	10 22.51	-03 59.6	2.393	2.413	+0.73	-10.3	23.0	79.3
Nov. 30	10 29.78	-05 42.4	2.324	2.474	+0.51	-9.3	23.1	86.8
Dec. 10	10 34.83	-07 15.3	2.253	2.534	+0.27	-8.1	23.2	94.9
Dec. 20	10 37.49	-08 36.1	2.182	2.594	+0.01	-6.5	23.3	103.5
Dec. 30	10 37.58	-09 41.5	2.115	2.654	-0.25	-4.7	23.4	112.7
Jan. 9	10 35.06	-10 28.4	2.057	2.713	-0.50	-2.5	23.6	122.4
Jan. 19	10 30.07	-10 53.6	2.012	2.772	-0.71	-0.1	23.7	132.4
Jan. 29	10 22.97	-10 54.8	1.985	2.831	-0.85	+2.3	23.8	142.5
Feb. 8	10 14.43	-10 31.6	1.981	2.889	-0.91	+4.5	23.9	151.8
Feb. 18	10 05.34	-09 46.4	2.004	2.946	-0.87	+6.2	24.1	158.5
Feb. 28	09 56.61	-08 44.0	2.054	3.002	-0.75	+7.3	24.3	159.5
Mar. 10	09 49.11	-07 31.5	2.133	3.058	-0.57	+7.5	24.5	154.2
Mar. 20	09 43.42	-06 16.1	2.239	3.114	-0.36	+7.2	24.8	145.9
Mar. 30	09 39.86	-05 04.0	2.368	3.168	-0.13	+6.4	25.0	136.5

Comet 183P/Korlevic-Juric

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 9.03506 TT
Peri. = 161.66700 e = 0.1356872
Node = 5.84227 2000.0 a = 4.5052856 AU
Incl. = 18.73175 n = 0.10306723
q = 3.8939760 AU P = 9.56 years

m1 = 4.0 + 5 log(Delta) + 20.0 log(r(t-100))

0h TT 2008/09	R.A.(2000) h m	Decl.	Delta	r	Daily motion m		m1	Elong.
Jan. 5	11 24.35	+17°29'	3.351	3.914	-0.07	+0.7	18.6	118°.3
Jan. 15	11 23.67	+17 37.3	3.225	3.911	-0.25	+1.4	18.5	128.3
Jan. 25	11 21.17	+17 51.2	3.115	3.908	-0.42	+1.8	18.4	138.7
Feb. 4	11 16.95	+18 09.2	3.027	3.906	-0.57	+1.9	18.3	149.1
Feb. 14	11 11.23	+18 28.4	2.965	3.904	-0.68	+1.7	18.3	159.2
Feb. 24	11 04.46	+18 44.9	2.931	3.901	-0.73	+1.1	18.2	167.1
Mar. 5	10 57.17	+18 55.5	2.927	3.900	-0.72	+0.2	18.2	167.0
Mar. 15	10 49.99	+18 57.3	2.953	3.898	-0.65	-0.9	18.2	159.1
Mar. 25	10 43.54	+18 48.6	3.007	3.897	-0.53	-2.0	18.3	149.1
Apr. 4	10 38.27	+18 29.0	3.086	3.896	-0.37	-3.0	18.3	138.8
Apr. 14	10 34.54	+17 59.0	3.188	3.895	-0.20	-3.9	18.4	128.7
Apr. 24	10 32.52	+17 19.6	3.306	3.894	-0.03	-4.8	18.4	119.0
May 4	10 32.22	+16 32.0	3.438	3.894	+0.14	-5.5	18.5	109.6
May 14	10 33.58	+15 37.3	3.578	3.894	+0.29	-6.1	18.6	100.7
May 24	10 36.46	+14 36.7	3.723	3.894	+0.42	-6.6	18.7	92.1
June 3	10 40.69	+13 31.0	3.869	3.895	+0.54	-7.0	18.8	84.0
June 13	10 46.10	+12 20.9	4.013	3.896	+0.64	-7.4	18.8	76.1
June 23	10 52.53	+11 07.0	4.153	3.897	+0.73	-7.7	18.9	68.5
July 3	10 59.81	+09 49.7	4.287	3.898	+0.80	-8.0	19.0	61.1
July 13	11 07.83	+08 29.4	4.411	3.900	+0.86	-8.3	19.0	53.9
July 23	11 16.44	+07 06.7	4.525	3.901	+0.91	-8.5	19.1	46.8
Aug. 2	11 25.56	+05 41.7	4.627	3.903	+0.95	-8.7	19.1	39.9
Aug. 12	11 35.10	+04 14.9	4.715	3.906	+0.99	-8.8	19.2	33.1
Aug. 22	11 44.96	+02 46.6	4.789	3.908	+1.01	-8.9	19.2	26.3
Sept. 1	11 55.09	+01 17.2	4.848	3.911	+1.03	-9.0	19.2	19.6
Sept.11	12 05.41	-00 13.1	4.890	3.914	+1.05	-9.1	19.3	12.8
Sept.21	12 15.86	-01 43.7	4.915	3.918	+1.05	-9.1	19.3	6.1
Oct. 1	12 26.40	-03 14.3	4.923	3.921	+1.06	-9.0	19.3	0.8
Oct. 11	12 36.95	-04 44.6	4.913	3.925	+1.05	-9.0	19.3	7.6
Oct. 21	12 47.45	-06 14.1	4.885	3.929	+1.04	-8.8	19.3	14.5
Oct. 31	12 57.85	-07 42.5	4.840	3.934	+1.02	-8.7	19.2	21.6
Nov. 10	13 08.04	-09 09.5	4.778	3.938	+0.99	-8.5	19.2	28.7
Nov. 20	13 17.96	-10 34.5	4.700	3.943	+0.95	-8.3	19.2	36.0
Nov. 30	13 27.51	-11 57.3	4.606	3.948	+0.91	-8.0	19.2	43.4
Dec. 10	13 36.56	-13 17.6	4.498	3.954	+0.84	-7.7	19.1	51.0
Dec. 20	13 44.99	-14 34.9	4.378	3.959	+0.77	-7.4	19.1	58.8
Dec. 30	13 52.67	-15 49.1	4.247	3.965	+0.67	-7.1	19.0	66.8
Jan. 9	13 59.41	-16 59.7	4.108	3.971	+0.56	-6.7	18.9	75.1
Jan. 19	14 05.06	-18 06.4	3.965	3.977	+0.44	-6.2	18.9	83.6
Jan. 29	14 09.43	-19 08.7	3.819	3.983	+0.29	-5.7	18.8	92.4
Feb. 8	14 12.32	-20 06.1	3.674	3.990	+0.13	-5.2	18.7	101.5
Feb. 18	14 13.59	-20 57.8	3.535	3.997	-0.05	-4.5	18.6	110.9
Feb. 28	14 13.11	-21 42.9	3.406	4.004	-0.23	-3.7	18.6	120.7
Mar. 10	14 10.84	-22 20.4	3.291	4.011	-0.40	-2.9	18.5	130.8
Mar. 20	14 06.86	-22 49.1	3.195	4.018	-0.55	-1.9	18.5	141.0
Mar. 30	14 01.38	-23 08.0	3.121	4.026	-0.66	-0.9	18.4	151.3

Comet P/2003 KV2 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 18.24923 TT
Peri. = 188.79191 e = 0.6298760
Node = 66.38959 2000.0 a = 2.8649963 AU
Incl. = 25.55325 n = 0.20324411
q = 1.0604039 AU P = 4.85 years

m1 = 17.4 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		m1	Mot./PA ′/°	Elong. °
Jan. 5	13 33.59	+23 44.4	1.598	1.904	-1.75	+19.4	22.6	31.4/ 91	91.9
Jan. 15	13 56.44	+23 35.0	1.440	1.823	-1.96	+23.0	22.1	32.5/ 89	95.7
Jan. 25	14 20.06	+23 33.0	1.290	1.740	-2.21	+27.4	21.6	33.7/ 88	98.9
Feb. 4	14 44.58	+23 36.7	1.149	1.658	-2.52	+32.6	21.0	35.0/ 88	101.6
Feb. 14	15 10.08	+23 42.7	1.016	1.576	-2.90	+39.1	20.4	36.7/ 88	103.7
Feb. 24	15 36.79	+23 44.4	0.892	1.495	-3.36	+47.0	19.8	38.9/ 90	105.1
Mar. 5	16 05.08	+23 32.9	0.777	1.417	-3.94	+56.8	19.1	42.1/ 94	105.8
Mar. 15	16 35.48	+22 53.7	0.669	1.341	-4.66	+69.0	18.4	47.4/ 99	105.8
Mar. 25	17 08.98	+21 24.1	0.570	1.271	-5.57	+84.3	17.7	56.5/106	105.1
Apr. 4	17 47.16	+18 30.9	0.478	1.207	-6.66	+103.2	17.0	71.9/114	103.7
Apr. 14	18 32.21	+13 22.7	0.398	1.152	-7.86	+124.3	16.3	95.3/121	101.6
Apr. 24	19 26.87	+04 57.8	0.336	1.108	-8.86	+137.6	15.7	121.4/126	98.7
May 4	20 32.55	-06 54.4	0.301	1.077	-8.96	+118.7	15.3	131.6/128	95.0
May 14	21 45.85	-19 44.7	0.302	1.062	-7.45	+56.3	15.2	114.6/125	91.4
May 24	22 57.80	-29 43.6	0.336	1.063	-4.71	-7.7	15.4	85.8/119	89.3
June 3	23 59.48	-35 49.1	0.391	1.081	-2.13	-43.0	15.9	60.8/114	89.0
June 13	00 47.60	-39 17.6	0.454	1.113	-0.47	-57.1	16.4	42.8/111	90.1
June 23	01 23.28	-41 28.7	0.517	1.159	+0.36	-61.9	16.9	30.0/112	92.4
July 3	01 48.65	-43 12.2	0.577	1.216	+0.65	-63.3	17.5	20.4/121	95.5
July 13	02 05.15	-44 52.6	0.631	1.281	+0.58	-63.4	18.0	13.7/141	99.3
July 23	02 13.58	-46 38.1	0.681	1.352	+0.27	-62.8	18.5	11.0/177	103.9
Aug. 2	02 14.08	-48 27.8	0.727	1.428	-0.24	-61.6	19.0	12.7/215	109.0
Aug. 12	02 06.52	-50 10.8	0.773	1.507	-0.93	-59.2	19.5	16.4/240	114.4
Aug. 22	01 51.32	-51 29.4	0.822	1.588	-1.73	-55.2	20.0	20.1/258	119.7
Sept. 1	01 29.93	-52 03.6	0.877	1.670	-2.49	-49.4	20.5	22.9/274	124.4
Sept.11	01 05.37	-51 36.7	0.944	1.752	-3.02	-42.3	20.9	24.4/290	127.9
Sept.21	00 41.54	-50 04.7	1.024	1.835	-3.20	-34.9	21.4	24.7/305	129.6
Oct. 1	00 21.48	-47 37.4	1.120	1.917	-3.07	-28.2	21.9	24.1/319	129.1
Oct. 11	00 06.74	-44 31.3	1.233	1.997	-2.77	-22.8	22.4	23.1/333	126.7
Oct. 21	23 57.39	-41 04.5	1.363	2.077	-2.41	-18.6	22.8	22.1/345	122.7
Oct. 31	23 52.74	-37 30.5	1.508	2.156	-2.07	-15.6	23.3	21.2/357	117.6
Nov. 10	23 51.93	-33 58.4	1.668	2.234	-1.76	-13.3	23.7	20.7/ 8	111.8
Nov. 20	23 54.11	-30 33.3	1.839	2.310	-1.50	-11.6	24.2	20.4/ 17	105.6
Nov. 30	23 58.59	-27 17.6	2.021	2.385	-1.28	-10.2	24.6	20.4/ 25	99.1
Dec. 10	00 04.86	-24 11.9	2.209	2.458	-1.11	-9.1	25.0	20.5/ 31	92.6
Dec. 20	00 12.50	-21 16.6	2.402	2.530	-0.96	-8.2	25.4	20.6/ 37	85.9
Dec. 30	00 21.18	-18 30.8	2.597	2.601	-0.84	-7.5	25.7	20.8/ 41	79.3
Jan. 9	00 30.69	-15 54.1	2.792	2.670	-0.74	-6.8	26.0	20.9/ 45	72.7
Jan. 19	00 40.82	-13 26.0	2.984	2.737	-0.66	-6.3	26.3	20.9/ 48	66.1
Jan. 29	00 51.44	-11 05.8	3.171	2.803	-0.59	-5.8	26.6	21.0/ 51	59.5
Feb. 8	01 02.43	-08 53.2	3.351	2.868	-0.53	-5.4	26.9	20.9/ 53	53.0
Feb. 18	01 13.70	-06 47.8	3.522	2.931	-0.48	-5.0	27.1	20.8/ 55	46.6
Feb. 28	01 25.18	-04 49.4	3.681	2.993	-0.44	-4.6	27.4	20.7/ 57	40.2
Mar. 10	01 36.79	-02 57.7	3.827	3.054	-0.40	-4.3	27.6	20.4/ 59	33.9
Mar. 20	01 48.48	-01 12.8	3.960	3.113	-0.37	-4.1	27.8	20.1/ 61	27.7
Mar. 30	02 00.19	+00 25.7	4.076	3.170	-0.34	-3.8	28.0	19.8/ 62	21.7

Comet 173P/Mueller

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 18.36515 TT
Peri. = 29.81631 e = 0.2610819
Node = 100.56886 2000.0 a = 5.7036226 AU
Incl. = 16.49555 n = 0.07235656
q = 4.2145100 AU P = 13.62 years

m1 = -10.8 + 5 log(Delta) + 40.0 log(r(t+600))

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	07 53.44	+25 36.7	3.288	4.253	-0.60	+4.4	18.4	167.6
Jan. 15	07 47.40	+26 21.1	3.267	4.248	-0.62	+4.1	18.5	174.9
Jan. 25	07 41.25	+27 01.9	3.278	4.243	-0.57	+3.5	18.5	167.0
Feb. 4	07 35.56	+27 37.1	3.318	4.238	-0.47	+2.9	18.6	156.0
Feb. 14	07 30.85	+28 05.7	3.387	4.234	-0.33	+2.2	18.7	145.0
Feb. 24	07 27.55	+28 27.3	3.480	4.230	-0.16	+1.5	18.9	134.3
Mar. 5	07 25.92	+28 42.3	3.592	4.227	+0.02	+0.9	19.0	123.9
Mar. 15	07 26.07	+28 51.2	3.720	4.224	+0.19	+0.3	19.1	114.0
Mar. 25	07 28.01	+28 54.6	3.858	4.221	+0.36	-0.1	19.3	104.6
Apr. 4	07 31.62	+28 53.2	4.003	4.219	+0.52	-0.6	19.4	95.6
Apr. 14	07 36.78	+28 47.3	4.150	4.217	+0.65	-1.0	19.6	86.9
Apr. 24	07 43.31	+28 37.2	4.296	4.216	+0.77	-1.4	19.7	78.7
May 4	07 51.03	+28 23.1	4.438	4.215	+0.87	-1.8	19.8	70.8
May 14	07 59.77	+28 05.2	4.574	4.215	+0.96	-2.2	20.0	63.1
May 24	08 09.36	+27 43.5	4.700	4.215	+1.03	-2.5	20.1	55.8
June 3	08 19.65	+27 18.2	4.816	4.215	+1.09	-2.9	20.2	48.6
June 13	08 30.50	+26 49.3	4.920	4.216	+1.13	-3.2	20.3	41.7
June 23	08 41.79	+26 17.2	5.010	4.217	+1.16	-3.5	20.4	34.9
July 3	08 53.41	+25 42.1	5.086	4.219	+1.19	-3.8	20.5	28.3
July 13	09 05.27	+25 04.2	5.146	4.221	+1.20	-4.0	20.6	22.0
July 23	09 17.28	+24 23.9	5.191	4.224	+1.21	-4.2	20.7	16.1
Aug. 2	09 29.36	+23 41.8	5.219	4.227	+1.21	-4.3	20.8	11.0
Aug. 12	09 41.44	+22 58.3	5.229	4.230	+1.20	-4.4	20.8	8.6
Aug. 22	09 53.45	+22 14.1	5.223	4.234	+1.19	-4.4	20.9	10.8
Sept. 1	10 05.34	+21 29.7	5.200	4.239	+1.17	-4.4	21.0	15.9
Sept.11	10 17.04	+20 45.9	5.161	4.243	+1.14	-4.2	21.0	21.9
Sept.21	10 28.49	+20 03.5	5.104	4.249	+1.11	-4.0	21.0	28.4
Oct. 1	10 39.62	+19 23.4	5.033	4.254	+1.07	-3.7	21.1	35.2
Oct. 11	10 50.36	+18 46.6	4.946	4.260	+1.03	-3.3	21.1	42.3
Oct. 21	11 00.63	+18 14.0	4.845	4.266	+0.97	-2.7	21.1	49.5
Oct. 31	11 10.35	+17 46.6	4.733	4.273	+0.91	-2.1	21.1	57.0
Nov. 10	11 19.40	+17 25.7	4.609	4.280	+0.83	-1.3	21.2	64.7
Nov. 20	11 27.69	+17 12.2	4.478	4.288	+0.74	-0.5	21.2	72.6
Nov. 30	11 35.08	+17 07.3	4.341	4.296	+0.64	+0.4	21.2	80.9
Dec. 10	11 41.44	+17 11.8	4.201	4.304	+0.52	+1.5	21.1	89.4
Dec. 20	11 46.62	+17 26.3	4.061	4.313	+0.39	+2.5	21.1	98.2
Dec. 30	11 50.50	+17 51.3	3.926	4.322	+0.24	+3.5	21.1	107.3
Jan. 9	11 52.93	+18 26.5	3.800	4.331	+0.09	+4.4	21.1	116.7
Jan. 19	11 53.85	+19 10.9	3.686	4.341	-0.06	+5.2	21.1	126.2
Jan. 29	11 53.20	+20 02.5	3.590	4.351	-0.21	+5.6	21.1	135.9
Feb. 8	11 51.06	+20 58.6	3.515	4.362	-0.35	+5.7	21.1	145.2
Feb. 18	11 47.61	+21 55.4	3.465	4.373	-0.45	+5.3	21.2	153.6
Feb. 28	11 43.12	+22 48.9	3.442	4.384	-0.51	+4.6	21.2	159.5
Mar. 10	11 38.01	+23 34.8	3.448	4.395	-0.53	+3.5	21.3	160.2
Mar. 20	11 32.75	+24 09.9	3.483	4.407	-0.49	+2.2	21.4	155.3
Mar. 30	11 27.82	+24 32.0	3.544	4.419	-0.42	+0.8	21.5	147.5

Comet 86P/Wild

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 19.97695 TT
Peri. = 179.14483 e = 0.3662076
Node = 72.58214 2000.0 a = 3.6307341 AU
Incl. = 15.44610 n = 0.14246638
q = 2.3011317 AU P = 6.92 years

m1 = 11.8 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	15 17.31	-08 52.9	2.905	2.477	+1.68	-7.6	20.0	55.1
Jan. 15	15 34.10	-10 08.7	2.779	2.454	+1.65	-7.0	19.9	60.8
Jan. 25	15 50.57	-11 18.2	2.648	2.432	+1.60	-6.3	19.7	66.6
Feb. 4	16 06.57	-12 21.6	2.515	2.411	+1.53	-5.8	19.5	72.6
Feb. 14	16 21.90	-13 19.4	2.380	2.392	+1.45	-5.3	19.4	78.7
Feb. 24	16 36.37	-14 12.4	2.244	2.375	+1.33	-5.0	19.2	85.1
Mar. 5	16 49.71	-15 01.9	2.110	2.359	+1.19	-4.8	19.0	91.8
Mar. 15	17 01.64	-15 49.6	1.978	2.345	+1.02	-4.8	18.8	98.7
Mar. 25	17 11.84	-16 37.6	1.850	2.333	+0.81	-5.1	18.7	106.1
Apr. 4	17 19.96	-17 28.2	1.729	2.323	+0.57	-5.5	18.5	114.0
Apr. 14	17 25.63	-18 23.6	1.617	2.314	+0.29	-6.2	18.3	122.4
Apr. 24	17 28.53	-19 26.1	1.516	2.308	-0.01	-7.1	18.2	131.4
May 4	17 28.42	-20 36.8	1.430	2.304	-0.32	-7.9	18.0	141.1
May 14	17 25.24	-21 55.5	1.362	2.301	-0.59	-8.4	17.9	151.5
May 24	17 19.35	-23 19.9	1.315	2.301	-0.79	-8.6	17.8	162.4
June 3	17 11.45	-24 45.9	1.292	2.303	-0.88	-8.3	17.8	173.4
June 13	17 02.67	-26 08.7	1.295	2.307	-0.83	-7.6	17.8	173.9
June 23	16 54.39	-27 24.5	1.322	2.313	-0.66	-6.7	17.9	163.0
July 3	16 47.83	-28 31.4	1.373	2.321	-0.39	-5.8	18.0	152.2
July 13	16 43.94	-29 29.6	1.444	2.331	-0.07	-5.1	18.1	142.0
July 23	16 43.19	-30 20.5	1.534	2.342	+0.25	-4.5	18.3	132.4
Aug. 2	16 45.67	-31 05.3	1.638	2.356	+0.56	-4.0	18.5	123.6
Aug. 12	16 51.27	-31 45.2	1.753	2.371	+0.84	-3.5	18.6	115.4
Aug. 22	16 59.67	-32 20.4	1.878	2.388	+1.09	-3.0	18.8	107.7
Sept. 1	17 10.53	-32 50.7	2.009	2.407	+1.30	-2.5	19.0	100.5
Sept.11	17 23.52	-33 15.5	2.145	2.427	+1.48	-1.8	19.2	93.7
Sept.21	17 38.28	-33 34.0	2.284	2.449	+1.62	-1.1	19.4	87.2
Oct. 1	17 54.52	-33 45.2	2.424	2.472	+1.74	-0.3	19.6	80.9
Oct. 11	18 11.96	-33 48.5	2.564	2.497	+1.84	+0.5	19.8	74.9
Oct. 21	18 30.31	-33 43.2	2.703	2.522	+1.90	+1.4	20.0	68.9
Oct. 31	18 49.35	-33 28.9	2.839	2.549	+1.95	+2.3	20.2	63.1
Nov. 10	19 08.86	-33 05.5	2.972	2.577	+1.98	+3.3	20.3	57.4
Nov. 20	19 28.64	-32 32.9	3.100	2.606	+1.99	+4.1	20.5	51.7
Nov. 30	19 48.52	-31 51.4	3.221	2.636	+1.98	+5.0	20.7	46.1
Dec. 10	20 08.36	-31 01.6	3.336	2.666	+1.97	+5.7	20.8	40.6
Dec. 20	20 28.02	-30 04.2	3.442	2.698	+1.94	+6.4	20.9	35.1
Dec. 30	20 47.42	-28 59.9	3.540	2.730	+1.90	+7.0	21.1	29.7
Jan. 9	21 06.46	-27 49.8	3.627	2.762	+1.86	+7.5	21.2	24.5
Jan. 19	21 25.09	-26 34.9	3.703	2.796	+1.82	+7.9	21.3	19.5
Jan. 29	21 43.27	-25 16.3	3.768	2.829	+1.77	+8.1	21.5	15.1
Feb. 8	22 00.95	-23 55.2	3.821	2.863	+1.72	+8.3	21.6	12.0
Feb. 18	22 18.11	-22 32.6	3.861	2.898	+1.66	+8.3	21.7	11.2
Feb. 28	22 34.75	-21 09.6	3.888	2.932	+1.61	+8.2	21.8	13.3
Mar. 10	22 50.83	-19 47.4	3.901	2.967	+1.55	+8.0	21.8	17.3
Mar. 20	23 06.35	-18 27.1	3.901	3.002	+1.49	+7.7	21.9	22.2
Mar. 30	23 21.30	-17 09.6	3.888	3.038	+1.43	+7.4	22.0	27.5

Comet 146P/Shoemaker-LINEAR

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 21.39547 TT
Peri. = 316.84123 e = 0.6479651
Node = 53.56827 2000.0 a = 4.0271893 AU
Incl. = 23.07850 n = 0.12195539
q = 1.4177112 AU P = 8.08 years

m1 = 14.0 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	19 26.25	-35 23.3	3.006	2.065	+2.82	+4.0	20.3	13.9
Jan. 15	19 54.42	-34 43.1	2.936	1.994	+2.91	+6.0	20.1	13.6
Jan. 25	20 23.52	-33 42.7	2.861	1.924	+2.99	+8.3	19.8	14.5
Feb. 4	20 53.38	-32 20.0	2.783	1.856	+3.04	+10.6	19.6	16.2
Feb. 14	21 23.76	-30 33.9	2.703	1.790	+3.07	+13.0	19.3	18.1
Feb. 24	21 54.45	-28 23.5	2.624	1.728	+3.08	+15.5	19.1	20.0
Mar. 5	22 25.25	-25 48.9	2.548	1.668	+3.08	+17.8	18.8	21.8
Mar. 15	22 56.01	-22 51.0	2.477	1.613	+3.06	+19.9	18.6	23.4
Mar. 25	23 26.58	-19 31.9	2.413	1.563	+3.03	+21.7	18.3	24.7
Apr. 4	23 56.89	-15 54.5	2.357	1.519	+3.00	+23.2	18.1	25.7
Apr. 14	00 26.88	-12 02.6	2.309	1.482	+2.97	+24.2	18.0	26.6
Apr. 24	00 56.54	-08 01.0	2.271	1.453	+2.94	+24.6	17.8	27.3
May 4	01 25.90	-03 54.5	2.243	1.432	+2.91	+24.6	17.7	28.0
May 14	01 54.97	+00 11.3	2.222	1.420	+2.88	+24.0	17.6	28.7
May 24	02 23.79	+04 11.5	2.209	1.418	+2.86	+23.0	17.6	29.5
June 3	02 52.41	+08 01.7	2.202	1.425	+2.84	+21.6	17.6	30.6
June 13	03 20.83	+11 38.0	2.199	1.442	+2.82	+20.0	17.7	32.0
June 23	03 49.02	+14 57.6	2.199	1.467	+2.79	+18.1	17.8	33.8
July 3	04 16.95	+17 58.6	2.200	1.501	+2.76	+16.2	17.9	35.9
July 13	04 44.51	+20 40.2	2.201	1.541	+2.71	+14.2	18.1	38.5
July 23	05 11.59	+23 02.5	2.199	1.588	+2.65	+12.4	18.2	41.5
Aug. 2	05 38.05	+25 06.4	2.194	1.641	+2.56	+10.7	18.4	45.0
Aug. 12	06 03.70	+26 53.9	2.185	1.699	+2.47	+9.3	18.6	48.8
Aug. 22	06 28.35	+28 27.3	2.171	1.760	+2.35	+8.2	18.8	53.1
Sept. 1	06 51.83	+29 49.7	2.150	1.824	+2.21	+7.5	18.9	57.8
Sept.11	07 13.91	+31 04.6	2.124	1.891	+2.05	+7.1	19.1	62.9
Sept.21	07 34.42	+32 15.6	2.091	1.960	+1.87	+7.1	19.3	68.5
Oct. 1	07 53.12	+33 26.7	2.053	2.030	+1.66	+7.5	19.4	74.6
Oct. 11	08 09.76	+34 41.8	2.009	2.102	+1.43	+8.3	19.5	81.1
Oct. 21	08 24.09	+36 04.5	1.963	2.174	+1.17	+9.3	19.7	88.2
Oct. 31	08 35.75	+37 37.9	1.916	2.246	+0.86	+10.6	19.8	95.9
Nov. 10	08 44.33	+39 24.1	1.871	2.319	+0.51	+11.9	19.9	104.0
Nov. 20	08 49.41	+41 23.0	1.831	2.392	+0.11	+12.9	20.0	112.7
Nov. 30	08 50.52	+43 32.0	1.801	2.465	-0.32	+13.3	20.2	121.6
Dec. 10	08 47.28	+45 44.8	1.784	2.538	-0.76	+12.7	20.3	130.6
Dec. 20	08 39.66	+47 51.4	1.786	2.610	-1.16	+10.9	20.5	139.0
Dec. 30	08 28.10	+49 40.0	1.811	2.681	-1.43	+7.9	20.6	145.7
Jan. 9	08 13.83	+50 59.2	1.861	2.753	-1.51	+4.3	20.8	149.4
Jan. 19	07 58.73	+51 42.6	1.936	2.823	-1.39	+0.8	21.1	148.6
Jan. 29	07 44.79	+51 50.2	2.037	2.893	-1.12	-2.3	21.3	144.1
Feb. 8	07 33.63	+51 27.5	2.162	2.962	-0.75	-4.5	21.6	137.2
Feb. 18	07 26.12	+50 43.0	2.308	3.031	-0.37	-5.8	21.8	129.2
Feb. 28	07 22.39	+49 44.6	2.470	3.099	-0.02	-6.6	22.1	121.0
Mar. 10	07 22.21	+48 38.7	2.646	3.166	+0.28	-6.9	22.4	112.8
Mar. 20	07 25.03	+47 29.5	2.832	3.232	+0.53	-7.0	22.6	104.7
Mar. 30	07 30.34	+46 19.5	3.025	3.298	+0.73	-7.0	22.9	96.9

Comet 148P/Anderson-LINEAR

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 22.75471 TT
Peri. = 6.68052 e = 0.5378980
Node = 89.80336 2000.0 a = 3.6847651 AU
Incl. = 3.67835 n = 0.13934435
q = 1.7027373 AU P = 7.07 years

m1 = 12.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl.	Delta	r	Daily motion m		m1	Elong.
Jan. 5	00 21.34	-01°13′.2	2.063	2.134	+1.29	+10′.3	18.5	80°.5
Jan. 15	00 34.21	+00 29.4	2.128	2.083	+1.47	+11.2	18.4	74.0
Jan. 25	00 48.89	+02 21.6	2.188	2.034	+1.63	+12.0	18.3	67.9
Feb. 4	01 05.24	+04 21.7	2.243	1.987	+1.79	+12.6	18.2	62.3
Feb. 14	01 23.16	+06 27.8	2.292	1.942	+1.94	+13.0	18.1	57.1
Feb. 24	01 42.57	+08 37.6	2.336	1.900	+2.08	+13.1	18.0	52.3
Mar. 5	02 03.40	+10 49.0	2.375	1.861	+2.23	+13.0	17.9	47.8
Mar. 15	02 25.66	+12 59.4	2.410	1.825	+2.36	+12.7	17.8	43.7
Mar. 25	02 49.29	+15 06.0	2.442	1.794	+2.50	+12.0	17.7	39.8
Apr. 4	03 14.28	+17 05.9	2.470	1.766	+2.63	+11.0	17.7	36.3
Apr. 14	03 40.57	+18 55.9	2.497	1.743	+2.75	+9.7	17.6	33.0
Apr. 24	04 08.08	+20 33.0	2.523	1.725	+2.86	+8.1	17.6	29.9
May 4	04 36.66	+21 54.1	2.549	1.712	+2.95	+6.2	17.5	26.9
May 14	05 06.15	+22 56.5	2.576	1.705	+3.01	+4.2	17.5	24.2
May 24	05 36.27	+23 38.1	2.604	1.703	+3.05	+1.9	17.5	21.5
June 3	06 06.76	+23 57.6	2.634	1.706	+3.05	-0.3	17.6	18.9
June 13	06 37.30	+23 54.4	2.666	1.715	+3.03	-2.5	17.6	16.3
June 23	07 07.57	+23 29.0	2.700	1.729	+2.97	-4.6	17.7	13.7
July 3	07 37.30	+22 42.6	2.735	1.748	+2.90	-6.5	17.8	11.1
July 13	08 06.26	+21 37.3	2.772	1.772	+2.80	-8.2	17.9	8.4
July 23	08 34.27	+20 15.6	2.809	1.801	+2.70	-9.5	18.1	5.6
Aug. 2	09 01.23	+18 40.2	2.846	1.834	+2.59	-10.6	18.2	2.9
Aug. 12	09 27.08	+16 54.1	2.882	1.870	+2.47	-11.4	18.4	2.0
Aug. 22	09 51.82	+14 59.9	2.916	1.910	+2.36	-12.0	18.5	4.6
Sept. 1	10 15.47	+13 00.4	2.947	1.953	+2.26	-12.2	18.7	8.0
Sept.11	10 38.06	+10 58.0	2.973	1.998	+2.16	-12.3	18.9	11.7
Sept.21	10 59.65	+08 54.7	2.994	2.046	+2.06	-12.2	19.0	15.7
Oct. 1	11 20.29	+06 52.5	3.008	2.096	+1.97	-11.9	19.2	20.0
Oct. 11	11 40.01	+04 53.1	3.015	2.147	+1.88	-11.5	19.4	24.6
Oct. 21	11 58.85	+02 57.9	3.012	2.200	+1.80	-11.0	19.5	29.4
Oct. 31	12 16.82	+01 08.1	3.001	2.254	+1.71	-10.3	19.7	34.5
Nov. 10	12 33.89	-00 35.0	2.980	2.309	+1.62	-9.6	19.8	39.9
Nov. 20	12 50.04	-02 10.5	2.948	2.365	+1.52	-8.7	20.0	45.6
Nov. 30	13 05.21	-03 37.5	2.906	2.421	+1.41	-7.8	20.1	51.7
Dec. 10	13 19.30	-04 55.2	2.853	2.478	+1.29	-6.8	20.2	58.1
Dec. 20	13 32.19	-06 03.0	2.792	2.535	+1.15	-5.7	20.3	64.8
Dec. 30	13 43.73	-07 00.1	2.721	2.592	+1.00	-4.6	20.4	72.0
Jan. 9	13 53.73	-07 46.0	2.644	2.649	+0.83	-3.4	20.5	79.6
Jan. 19	14 01.98	-08 20.2	2.562	2.706	+0.63	-2.2	20.5	87.6
Jan. 29	14 08.27	-08 42.2	2.478	2.763	+0.41	-1.0	20.6	96.2
Feb. 8	14 12.35	-08 51.7	2.395	2.820	+0.17	+0.3	20.6	105.3
Feb. 18	14 14.07	-08 48.8	2.316	2.877	-0.08	+1.5	20.7	115.0
Feb. 28	14 13.32	-08 33.6	2.247	2.933	-0.32	+2.6	20.8	125.3
Mar. 10	14 10.12	-08 07.2	2.193	2.989	-0.54	+3.6	20.8	136.1
Mar. 20	14 04.74	-07 31.3	2.157	3.044	-0.71	+4.2	20.9	147.4
Mar. 30	13 57.62	-06 49.0	2.146	3.099	-0.82	+4.5	21.0	159.0

Comet C/2007 T5 (Gibbs)

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 24.05698 TT
Peri. = 34.38424 e = 0.9131715
Node = 109.84243 2000.0 a = 46.6396805 AU
Incl. = 45.61352 n = 0.00309436
q = 4.0496535 AU P = 318.52 years

m1 = 9.0 + 5 log(Delta) + 10.0 log(r)

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m	° ′			m			°
Jan. 5	08 28.96	+29 57.3	3.275	4.207	−0.53	+11.3	17.8	158.9
Jan. 15	08 23.67	+31 50.4	3.224	4.186	−0.60	+10.9	17.8	166.2
Jan. 25	08 17.65	+33 39.2	3.206	4.166	−0.62	+10.0	17.7	165.4
Feb. 4	08 11.45	+35 19.0	3.220	4.148	−0.57	+8.7	17.7	157.4
Feb. 14	08 05.74	+36 46.3	3.265	4.131	−0.46	+7.3	17.7	147.4
Feb. 24	08 01.13	+37 59.2	3.336	4.116	−0.30	+5.8	17.8	137.0
Mar. 5	07 58.09	+38 57.6	3.430	4.102	−0.11	+4.5	17.8	126.8
Mar. 15	07 56.94	+39 42.4	3.540	4.090	+0.09	+3.3	17.9	117.1
Mar. 25	07 57.84	+40 15.2	3.663	4.079	+0.30	+2.3	17.9	107.7
Apr. 4	08 00.80	+40 37.7	3.794	4.070	+0.49	+1.4	18.0	98.9
Apr. 14	08 05.72	+40 51.4	3.929	4.063	+0.67	+0.6	18.1	90.5
Apr. 24	08 12.44	+40 57.7	4.063	4.057	+0.83	0.0	18.1	82.6
May 4	08 20.76	+40 57.5	4.194	4.053	+0.97	−0.6	18.2	75.0
May 14	08 30.51	+40 51.5	4.321	4.050	+1.09	−1.1	18.3	67.9
May 24	08 41.46	+40 40.3	4.439	4.050	+1.20	−1.6	18.3	61.2
June 3	08 53.43	+40 24.3	4.548	4.050	+1.28	−2.0	18.4	54.9
June 13	09 06.25	+40 03.9	4.647	4.053	+1.35	−2.4	18.4	48.9
June 23	09 19.77	+39 39.7	4.735	4.057	+1.41	−2.8	18.5	43.4
July 3	09 33.85	+39 12.0	4.810	4.063	+1.45	−3.1	18.5	38.4
July 13	09 48.37	+38 41.3	4.873	4.070	+1.49	−3.3	18.5	34.0
July 23	10 03.22	+38 08.1	4.923	4.079	+1.51	−3.5	18.6	30.4
Aug. 2	10 18.32	+37 33.2	4.960	4.090	+1.53	−3.6	18.6	27.7
Aug. 12	10 33.58	+36 57.3	4.985	4.102	+1.54	−3.6	18.6	26.4
Aug. 22	10 48.94	+36 21.1	4.996	4.116	+1.54	−3.6	18.6	26.5
Sept. 1	11 04.33	+35 45.5	4.995	4.131	+1.54	−3.4	18.7	28.0
Sept.11	11 19.70	+35 11.5	4.982	4.148	+1.53	−3.1	18.7	30.7
Sept.21	11 34.99	+34 40.2	4.957	4.166	+1.52	−2.8	18.7	34.3
Oct. 1	11 50.15	+34 12.6	4.922	4.186	+1.50	−2.3	18.7	38.5
Oct. 11	12 05.13	+33 49.8	4.877	4.207	+1.47	−1.7	18.7	43.3
Oct. 21	12 19.86	+33 33.0	4.822	4.229	+1.44	−1.0	18.7	48.5
Oct. 31	12 34.28	+33 23.4	4.761	4.253	+1.40	−0.1	18.7	54.0
Nov. 10	12 48.31	+33 22.2	4.692	4.279	+1.35	+0.8	18.7	59.7
Nov. 20	13 01.86	+33 30.2	4.619	4.305	+1.30	+1.8	18.7	65.6
Nov. 30	13 14.83	+33 48.4	4.542	4.333	+1.23	+2.9	18.7	71.6
Dec. 10	13 27.08	+34 17.5	4.465	4.362	+1.14	+4.0	18.6	77.7
Dec. 20	13 38.50	+34 57.8	4.387	4.393	+1.04	+5.1	18.6	83.9
Dec. 30	13 48.91	+35 49.2	4.313	4.424	+0.92	+6.2	18.6	90.0
Jan. 9	13 58.15	+36 51.2	4.243	4.457	+0.79	+7.1	18.6	96.1
Jan. 19	14 06.05	+38 02.4	4.181	4.490	+0.64	+7.9	18.6	102.0
Jan. 29	14 12.42	+39 21.1	4.128	4.525	+0.47	+8.3	18.6	107.7
Feb. 8	14 17.08	+40 44.3	4.087	4.561	+0.29	+8.4	18.6	112.8
Feb. 18	14 19.94	+42 08.6	4.059	4.598	+0.10	+8.1	18.7	117.4
Feb. 28	14 20.89	+43 30.0	4.046	4.636	−0.09	+7.4	18.7	121.1
Mar. 10	14 19.98	+44 44.1	4.050	4.674	−0.26	+6.2	18.7	123.7
Mar. 20	14 17.37	+45 46.4	4.070	4.714	−0.40	+4.7	18.8	125.1
Mar. 30	14 13.34	+46 33.1	4.108	4.755	−0.50	+2.8	18.8	125.2

Comet P/1998 VS24 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
M = 6.99835 e = 0.2423176
Peri. = 244.49184 a = 4.5172113 AU
Node = 159.17561 2000.0 n = 0.10265934
Incl. = 5.02597 P = 9.60 years

H = 14.5 G = 0.15

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		V	Mot./PA ' / °	Elong. °
Jan. 5	00 16.49	-01 41.8	3.530	3.483	+5.77	+28.8	20.8	13.4/ 66	79.2
Jan. 15	00 24.64	-00 47.8	3.663	3.475	+5.60	+28.1	20.9	15.0/ 66	71.3
Jan. 25	00 33.81	+00 12.3	3.791	3.467	+5.45	+27.4	20.9	16.4/ 67	63.6
Feb. 4	00 43.85	+01 17.1	3.910	3.460	+5.33	+26.8	20.9	17.6/ 67	56.2
Feb. 14	00 54.65	+02 25.7	4.020	3.454	+5.24	+26.3	21.0	18.6/ 67	49.0
Feb. 24	01 06.09	+03 36.9	4.118	3.448	+5.17	+25.7	21.0	19.3/ 68	42.1
Mar. 5	01 18.07	+04 49.6	4.205	3.443	+5.12	+25.2	20.9	20.0/ 68	35.3
Mar. 15	01 30.53	+06 02.9	4.278	3.438	+5.09	+24.6	20.9	20.5/ 69	28.7
Mar. 25	01 43.37	+07 15.9	4.337	3.434	+5.07	+23.9	20.9	20.8/ 70	22.2
Apr. 4	01 56.54	+08 27.7	4.382	3.431	+5.07	+23.3	20.8	21.1/ 70	15.9
Apr. 14	02 09.98	+09 37.6	4.412	3.428	+5.08	+22.5	20.7	21.2/ 71	9.8
Apr. 24	02 23.62	+10 44.9	4.427	3.426	+5.11	+21.7	20.6	21.3/ 72	4.5
May 4	02 37.42	+11 48.8	4.428	3.424	+5.15	+20.8	20.6	21.2/ 73	4.6
May 14	02 51.32	+12 48.8	4.415	3.423	+5.20	+19.9	20.7	21.1/ 74	9.8
May 24	03 05.25	+13 44.2	4.386	3.423	+5.25	+19.0	20.8	20.8/ 76	15.7
June 3	03 19.15	+14 34.8	4.344	3.423	+5.32	+17.9	20.8	20.5/ 77	21.7
June 13	03 32.94	+15 20.1	4.289	3.424	+5.40	+16.9	20.9	20.0/ 78	27.8
June 23	03 46.55	+15 59.7	4.220	3.425	+5.49	+15.8	20.9	19.5/ 80	34.0
July 3	03 59.88	+16 33.5	4.140	3.427	+5.59	+14.7	20.9	18.8/ 81	40.2
July 13	04 12.83	+17 01.3	4.048	3.430	+5.69	+13.7	21.0	18.0/ 83	46.6
July 23	04 25.29	+17 23.2	3.945	3.433	+5.82	+12.6	20.9	17.0/ 84	53.1
Aug. 2	04 37.12	+17 39.1	3.833	3.437	+5.96	+11.6	20.9	15.8/ 86	59.8
Aug. 12	04 48.18	+17 49.4	3.713	3.441	+6.11	+10.7	20.9	14.5/ 88	66.7
Aug. 22	04 58.31	+17 54.2	3.586	3.446	+6.29	+9.9	20.8	12.9/ 90	73.9
Sept. 1	05 07.34	+17 54.1	3.455	3.452	+6.49	+9.2	20.8	11.0/ 92	81.4
Sept.11	05 15.06	+17 49.6	3.321	3.458	+6.72	+8.7	20.7	8.9/ 95	89.3
Sept.21	05 21.28	+17 41.2	3.188	3.465	+6.99	+8.3	20.6	6.6/100	97.5
Oct. 1	05 25.81	+17 29.8	3.057	3.472	+7.28	+8.2	20.5	4.0/110	106.2
Oct. 11	05 28.45	+17 16.2	2.933	3.480	+7.60	+8.3	20.4	1.8/148	115.4
Oct. 21	05 29.10	+17 01.2	2.820	3.488	+7.93	+8.7	20.2	2.5/232	125.0
Oct. 31	05 27.69	+16 45.6	2.722	3.497	+8.27	+9.4	20.1	5.1/253	135.2
Nov. 10	05 24.33	+16 30.5	2.643	3.507	+8.58	+10.2	19.9	7.4/259	145.9
Nov. 20	05 19.30	+16 16.7	2.587	3.517	+8.83	+11.3	19.8	9.1/263	156.8
Nov. 30	05 13.05	+16 05.1	2.558	3.527	+8.99	+12.4	19.6	9.9/265	167.4
Dec. 10	05 06.20	+15 56.7	2.559	3.538	+9.02	+13.4	19.5	9.7/268	173.0
Dec. 20	04 59.47	+15 52.5	2.589	3.549	+8.93	+14.2	19.7	8.6/271	165.4
Dec. 30	04 53.54	+15 53.0	2.648	3.561	+8.73	+14.7	19.9	6.6/275	154.6
Jan. 9	04 48.96	+15 58.8	2.734	3.574	+8.43	+14.9	20.1	4.2/285	143.6
Jan. 19	04 46.13	+16 09.8	2.843	3.586	+8.08	+14.6	20.3	2.0/320	133.0
Jan. 29	04 45.22	+16 25.5	2.971	3.600	+7.70	+14.1	20.4	2.5/ 38	122.7
Feb. 8	04 46.29	+16 45.2	3.113	3.613	+7.33	+13.3	20.6	4.8/ 62	112.9
Feb. 18	04 49.24	+17 07.8	3.265	3.627	+6.97	+12.3	20.7	7.2/ 70	103.6
Feb. 28	04 53.93	+17 32.3	3.423	3.642	+6.64	+11.2	20.8	9.3/ 74	94.8
Mar. 10	05 00.20	+17 57.4	3.583	3.657	+6.35	+10.0	20.9	11.1/ 77	86.3
Mar. 20	05 07.82	+18 22.1	3.743	3.672	+6.08	+8.7	21.0	12.7/ 79	78.2
Mar. 30	05 16.64	+18 45.4	3.899	3.687	+5.84	+7.3	21.1	14.1/ 81	70.5

Comet 180P/NEAT

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 26.72794 TT
Peri. = 94.91925 e = 0.3575683
Node = 84.75157 2000.0 a = 3.8427434 AU
Incl. = 16.91377 n = 0.13084044
q = 2.4687002 AU P = 7.53 years

m1 = 10.2 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	11 00.04	+26 50.9	1.934	2.634	+0.31	+8.9	17.9	125.9
Jan. 15	11 03.15	+28 19.5	1.827	2.613	+0.04	+10.0	17.8	134.6
Jan. 25	11 03.60	+29 59.8	1.739	2.593	-0.23	+10.5	17.6	142.9
Feb. 4	11 01.33	+31 44.5	1.673	2.575	-0.47	+9.9	17.5	150.0
Feb. 14	10 56.61	+33 23.6	1.630	2.557	-0.65	+8.2	17.4	154.5
Feb. 24	10 50.12	+34 46.0	1.613	2.541	-0.72	+5.6	17.3	154.4
Mar. 5	10 42.87	+35 42.5	1.619	2.527	-0.68	+2.5	17.3	149.9
Mar. 15	10 36.10	+36 07.1	1.648	2.514	-0.52	-0.8	17.3	142.9
Mar. 25	10 30.92	+35 59.1	1.697	2.502	-0.28	-3.8	17.3	134.8
Apr. 4	10 28.08	+35 21.3	1.763	2.493	-0.01	-6.3	17.4	126.6
Apr. 14	10 27.98	+34 18.3	1.843	2.484	+0.26	-8.3	17.5	118.6
Apr. 24	10 30.61	+32 55.1	1.933	2.478	+0.51	-9.9	17.5	111.0
May 4	10 35.75	+31 16.2	2.031	2.473	+0.73	-11.1	17.6	103.8
May 14	10 43.09	+29 25.2	2.135	2.470	+0.92	-12.0	17.7	97.0
May 24	10 52.26	+27 24.7	2.242	2.469	+1.07	-12.8	17.8	90.5
June 3	11 02.91	+25 17.0	2.351	2.469	+1.19	-13.3	17.9	84.5
June 13	11 14.78	+23 03.6	2.462	2.471	+1.28	-13.8	18.0	78.7
June 23	11 27.59	+20 45.9	2.572	2.475	+1.36	-14.1	18.2	73.1
July 3	11 41.17	+18 25.1	2.681	2.481	+1.42	-14.3	18.3	67.7
July 13	11 55.37	+16 02.1	2.788	2.488	+1.47	-14.4	18.4	62.5
July 23	12 10.05	+13 38.2	2.893	2.497	+1.51	-14.4	18.5	57.4
Aug. 2	12 25.15	+11 14.1	2.994	2.507	+1.54	-14.3	18.6	52.4
Aug. 12	12 40.59	+08 50.8	3.092	2.519	+1.57	-14.2	18.7	47.5
Aug. 22	12 56.32	+06 29.2	3.184	2.533	+1.60	-13.9	18.8	42.5
Sept. 1	13 12.31	+04 10.2	3.272	2.548	+1.62	-13.6	18.9	37.6
Sept.11	13 28.53	+01 54.5	3.353	2.565	+1.64	-13.1	19.0	32.7
Sept.21	13 44.96	-00 16.9	3.428	2.583	+1.66	-12.7	19.1	27.9
Oct. 1	14 01.57	-02 23.4	3.494	2.602	+1.68	-12.1	19.1	23.0
Oct. 11	14 18.36	-04 24.2	3.553	2.623	+1.69	-11.4	19.2	18.2
Oct. 21	14 35.27	-06 18.6	3.602	2.644	+1.70	-10.8	19.3	13.5
Oct. 31	14 52.29	-08 06.2	3.641	2.667	+1.71	-10.0	19.4	9.6
Nov. 10	15 09.37	-09 46.3	3.669	2.691	+1.71	-9.2	19.5	7.6
Nov. 20	15 26.45	-11 18.6	3.687	2.716	+1.70	-8.4	19.5	9.2
Nov. 30	15 43.49	-12 42.7	3.692	2.742	+1.69	-7.6	19.6	13.3
Dec. 10	16 00.40	-13 58.5	3.685	2.769	+1.67	-6.8	19.7	18.5
Dec. 20	16 17.09	-15 06.1	3.666	2.796	+1.64	-5.9	19.7	24.0
Dec. 30	16 33.49	-16 05.5	3.634	2.825	+1.60	-5.2	19.8	29.9
Jan. 9	16 49.45	-16 57.0	3.590	2.854	+1.54	-4.4	19.8	36.0
Jan. 19	17 04.88	-17 41.3	3.533	2.883	+1.48	-3.8	19.8	42.3
Jan. 29	17 19.64	-18 19.0	3.465	2.913	+1.39	-3.2	19.9	48.9
Feb. 8	17 33.57	-18 51.1	3.386	2.944	+1.30	-2.7	19.9	55.6
Feb. 18	17 46.54	-19 18.5	3.298	2.975	+1.18	-2.4	19.9	62.6
Feb. 28	17 58.36	-19 42.6	3.201	3.007	+1.05	-2.2	19.9	69.8
Mar. 10	18 08.86	-20 04.8	3.098	3.039	+0.90	-2.2	19.9	77.4
Mar. 20	18 17.86	-20 26.5	2.990	3.071	+0.73	-2.3	19.9	85.2
Mar. 30	18 25.14	-20 49.3	2.880	3.104	+0.54	-2.5	19.9	93.4

Comet 79P/du Toit-Hartley

Epoch = 2008 Aug. 2.0 TT
T = 2008 May 28.47146 TT
Peri. = 253.29434 e = 0.5940553
Node = 307.83961 2000.0 a = 3.0312131 AU
Incl. = 2.89307 n = 0.18675807
q = 1.2305049 AU P = 5.28 years

m1 = 15.2 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	07 49.83	+22 50.6	1.020	1.993	-1.23	+1.3	19.0	168.6
Jan. 15	07 37.53	+23 04.0	0.937	1.920	-1.41	+0.8	18.6	177.7
Jan. 25	07 23.45	+23 11.9	0.879	1.847	-1.37	-0.2	18.3	164.8
Feb. 4	07 09.76	+23 10.0	0.845	1.775	-1.09	-1.3	17.9	151.6
Feb. 14	06 58.85	+22 57.3	0.831	1.704	-0.63	-2.2	17.7	139.0
Feb. 24	06 52.57	+22 35.4	0.831	1.634	-0.08	-2.9	17.5	127.5
Mar. 5	06 51.82	+22 06.9	0.840	1.567	+0.50	-3.5	17.3	117.3
Mar. 15	06 56.82	+21 32.2	0.854	1.502	+1.05	-4.2	17.1	108.5
Mar. 25	07 07.28	+20 49.9	0.867	1.442	+1.54	-5.3	16.9	101.1
Apr. 4	07 22.69	+19 56.8	0.879	1.387	+1.99	-6.8	16.7	94.9
Apr. 14	07 42.54	+18 48.6	0.887	1.338	+2.38	-8.8	16.5	89.9
Apr. 24	08 06.30	+17 20.6	0.892	1.297	+2.72	-11.2	16.4	86.0
May 4	08 33.45	+15 28.7	0.895	1.265	+3.01	-13.9	16.2	83.0
May 14	09 03.57	+13 09.9	0.898	1.243	+3.26	-16.7	16.1	81.0
May 24	09 36.13	+10 22.9	0.902	1.232	+3.45	-19.3	16.1	79.8
June 3	10 10.64	+07 09.7	0.911	1.232	+3.60	-21.5	16.1	79.4
June 13	10 46.64	+03 34.7	0.928	1.244	+3.69	-22.8	16.2	79.5
June 23	11 23.55	-00 13.5	0.955	1.267	+3.73	-23.1	16.4	79.9
July 3	12 00.84	-04 04.9	0.996	1.301	+3.72	-22.4	16.6	80.5
July 13	12 38.03	-07 48.7	1.051	1.343	+3.66	-20.7	16.9	81.0
July 23	13 14.65	-11 15.7	1.122	1.392	+3.57	-18.4	17.2	81.1
Aug. 2	13 50.33	-14 19.4	1.209	1.448	+3.45	-15.7	17.6	80.8
Aug. 12	14 24.86	-16 56.5	1.310	1.509	+3.32	-13.0	18.0	79.9
Aug. 22	14 58.05	-19 06.1	1.425	1.574	+3.18	-10.3	18.4	78.5
Sept. 1	15 29.87	-20 49.3	1.552	1.641	+3.05	-7.9	18.8	76.5
Sept.11	16 00.32	-22 07.9	1.690	1.711	+2.91	-5.6	19.3	74.0
Sept.21	16 29.43	-23 04.4	1.836	1.783	+2.78	-3.7	19.7	71.0
Oct. 1	16 57.27	-23 41.0	1.989	1.855	+2.66	-1.9	20.0	67.6
Oct. 11	17 23.91	-24 00.1	2.147	1.928	+2.55	-0.3	20.4	63.8
Oct. 21	17 49.41	-24 03.5	2.308	2.001	+2.44	+1.0	20.8	59.7
Oct. 31	18 13.84	-23 53.1	2.470	2.073	+2.34	+2.3	21.1	55.3
Nov. 10	18 37.27	-23 30.4	2.632	2.146	+2.25	+3.3	21.4	50.7
Nov. 20	18 59.73	-22 57.0	2.790	2.218	+2.15	+4.3	21.8	45.8
Nov. 30	19 21.27	-22 14.1	2.944	2.289	+2.07	+5.1	22.0	40.7
Dec. 10	19 41.93	-21 22.9	3.091	2.359	+1.98	+5.8	22.3	35.4
Dec. 20	20 01.75	-20 24.6	3.231	2.429	+1.90	+6.4	22.6	30.0
Dec. 30	20 20.75	-19 20.3	3.360	2.497	+1.82	+6.9	22.8	24.4
Jan. 9	20 38.97	-18 10.9	3.477	2.565	+1.74	+7.3	23.0	18.7
Jan. 19	20 56.42	-16 57.6	3.582	2.631	+1.67	+7.6	23.2	12.8
Jan. 29	21 13.12	-15 41.1	3.672	2.697	+1.60	+7.9	23.4	6.9
Feb. 8	21 29.08	-14 22.4	3.747	2.761	+1.52	+8.0	23.6	0.9
Feb. 18	21 44.32	-13 02.5	3.807	2.824	+1.45	+8.0	23.7	5.4
Feb. 28	21 58.84	-11 42.1	3.849	2.886	+1.38	+8.0	23.9	11.7
Mar. 10	22 12.62	-10 22.1	3.875	2.947	+1.30	+7.9	24.0	18.1
Mar. 20	22 25.65	-09 03.3	3.884	3.007	+1.23	+7.7	24.1	24.6
Mar. 30	22 37.93	-07 46.4	3.876	3.065	+1.15	+7.4	24.2	31.2

Comet C/2007 W3 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 2.81988 TT
q = 1.7761961 AU Peri. = 112.64908
z = +0.0000454 Node = 73.06455 2000.0
e = 0.9999194 Incl. = 78.66692

m1 = 12.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	00 56.2	+77 37.6	2.038	2.573	-4.92	-17.2	17.7	111.9
Jan. 15	00 07.1	+74 45.1	2.054	2.489	-2.44	-16.9	17.5	104.5
Jan. 25	23 42.6	+71 56.5	2.082	2.408	-1.16	-13.8	17.4	96.9
Feb. 4	23 31.03	+69 38.2	2.114	2.329	-0.48	-9.8	17.3	89.8
Feb. 14	23 26.22	+67 59.7	2.144	2.253	-0.11	-5.6	17.2	83.3
Feb. 24	23 25.08	+67 03.3	2.166	2.180	+0.08	-1.5	17.1	77.6
Mar. 5	23 25.85	+66 48.2	2.177	2.111	+0.15	+2.6	16.9	72.9
Mar. 15	23 27.35	+67 13.8	2.173	2.047	+0.12	+6.5	16.8	69.4
Mar. 25	23 28.51	+68 19.0	2.153	1.988	-0.03	+10.5	16.6	67.0
Apr. 4	23 28.2	+70 03.6	2.116	1.935	-0.38	+14.5	16.5	65.8
Apr. 14	23 24.3	+72 28.3	2.062	1.888	-1.15	+18.5	16.3	65.8
Apr. 24	23 12.8	+75 32.9	1.995	1.849	-3.04	+22.0	16.2	66.9
May 4	22 42.4	+79 12.5	1.916	1.817	-8.88	+21.9	16.0	69.0
May 14	21 13.6	+82 51.0	1.831	1.795	-20.79	+3.3	15.9	71.8
May 24	17 45.7	+83 24.2	1.746	1.781	-13.62	-30.4	15.7	75.2
June 3	15 29.4	+78 20.3	1.669	1.776	-4.52	-47.1	15.6	78.8
June 13	14 44.3	+70 29.2	1.610	1.781	-1.57	-55.6	15.5	82.1
June 23	14 28.52	+61 13.1	1.578	1.795	-0.45	-60.3	15.5	84.6
July 3	14 24.03	+51 10.4	1.582	1.818	+0.09	-61.2	15.6	85.9
July 13	14 24.97	+40 58.6	1.627	1.850	+0.40	-58.6	15.7	85.5
July 23	14 28.98	+31 12.8	1.712	1.889	+0.59	-53.6	15.9	83.5
Aug. 2	14 34.92	+22 17.3	1.833	1.936	+0.73	-47.4	16.2	80.1
Aug. 12	14 42.25	+14 23.4	1.983	1.990	+0.83	-41.2	16.5	75.6
Aug. 22	14 50.59	+07 31.8	2.155	2.049	+0.92	-35.5	16.8	70.3
Sept. 1	14 59.75	+01 36.6	2.340	2.113	+0.98	-30.7	17.1	64.6
Sept.11	15 09.59	-03 30.3	2.533	2.182	+1.04	-26.7	17.4	58.5
Sept.21	15 19.98	-07 56.8	2.727	2.255	+1.09	-23.3	17.7	52.2
Oct. 1	15 30.86	-11 50.3	2.918	2.332	+1.13	-20.6	18.0	45.7
Oct. 11	15 42.17	-15 16.7	3.102	2.411	+1.16	-18.4	18.3	39.1
Oct. 21	15 53.82	-18 21.0	3.275	2.492	+1.19	-16.6	18.5	32.4
Oct. 31	16 05.76	-21 07.2	3.434	2.576	+1.22	-15.1	18.8	25.7
Nov. 10	16 17.93	-23 38.7	3.577	2.661	+1.23	-13.9	19.0	19.0
Nov. 20	16 30.24	-25 58.1	3.703	2.748	+1.24	-13.0	19.2	12.6
Nov. 30	16 42.64	-28 07.8	3.810	2.835	+1.24	-12.2	19.4	7.6
Dec. 10	16 55.03	-30 09.9	3.896	2.924	+1.23	-11.6	19.6	7.9
Dec. 20	17 07.32	-32 06.1	3.963	3.014	+1.21	-11.2	19.8	13.3
Dec. 30	17 19.42	-33 58.4	4.008	3.104	+1.18	-11.0	19.9	20.1
Jan. 9	17 31.20	-35 48.5	4.034	3.194	+1.13	-10.9	20.1	27.5
Jan. 19	17 42.52	-37 37.9	4.040	3.285	+1.07	-11.1	20.2	35.2
Jan. 29	17 53.25	-39 28.5	4.029	3.376	+0.99	-11.3	20.3	43.0
Feb. 8	18 03.19	-41 21.8	4.002	3.467	+0.90	-11.8	20.4	51.0
Feb. 18	18 12.16	-43 19.4	3.962	3.558	+0.78	-12.3	20.5	59.2
Feb. 28	18 19.91	-45 22.7	3.912	3.650	+0.62	-13.0	20.6	67.5
Mar. 10	18 26.14	-47 32.8	3.855	3.741	+0.44	-13.7	20.7	76.0
Mar. 20	18 30.50	-49 49.9	3.796	3.832	+0.21	-14.4	20.7	84.5
Mar. 30	18 32.56	-52 13.9	3.739	3.923	-0.08	-14.9	20.8	93.2

Comet C/2006 U6 (Spacewatch)

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 5.48663 TT
q = 2.4983143 AU Peri. = 276.60231
z = +0.0005182 Node = 180.18442 2000.0
e = 0.9987053 Incl. = 84.87845

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	00 21.54	-46 54.9	3.225	2.984	+0.69	+1.9	15.6	67.2
Jan. 15	00 28.47	-46 35.6	3.260	2.928	+0.93	+2.2	15.6	61.9
Jan. 25	00 37.81	-46 13.6	3.279	2.875	+1.16	+2.3	15.5	57.6
Feb. 4	00 49.42	-45 50.7	3.283	2.825	+1.38	+2.3	15.5	54.4
Feb. 14	01 03.22	-45 28.1	3.270	2.777	+1.59	+2.1	15.4	52.2
Feb. 24	01 19.14	-45 07.1	3.241	2.732	+1.80	+1.9	15.3	51.2
Mar. 5	01 37.18	-44 48.0	3.200	2.691	+2.02	+1.7	15.2	51.2
Mar. 15	01 57.38	-44 30.8	3.146	2.653	+2.24	+1.5	15.2	52.0
Mar. 25	02 19.80	-44 15.4	3.084	2.619	+2.47	+1.5	15.1	53.6
Apr. 4	02 44.50	-44 00.6	3.017	2.589	+2.70	+1.6	15.0	55.7
Apr. 14	03 11.51	-43 44.9	2.950	2.562	+2.93	+1.9	14.9	57.9
Apr. 24	03 40.77	-43 26.2	2.885	2.541	+3.13	+2.4	14.8	60.2
May 4	04 12.11	-43 01.9	2.829	2.523	+3.31	+3.2	14.8	62.3
May 14	04 45.19	-42 29.5	2.785	2.510	+3.43	+4.3	14.7	63.9
May 24	05 19.45	-41 47.0	2.757	2.502	+3.48	+5.3	14.7	64.9
June 3	05 54.23	-40 53.5	2.748	2.498	+3.46	+6.3	14.7	65.2
June 13	06 28.79	-39 50.2	2.759	2.500	+3.36	+7.1	14.7	64.7
June 23	07 02.41	-38 39.3	2.790	2.506	+3.21	+7.5	14.7	63.4
July 3	07 34.55	-37 24.5	2.841	2.516	+3.03	+7.5	14.8	61.3
July 13	08 04.85	-36 09.8	2.908	2.531	+2.82	+7.1	14.8	58.6
July 23	08 33.09	-34 58.6	2.989	2.551	+2.62	+6.5	14.9	55.3
Aug. 2	08 59.28	-33 53.7	3.078	2.575	+2.42	+5.7	15.0	51.7
Aug. 12	09 23.45	-32 56.9	3.171	2.603	+2.23	+4.8	15.1	47.9
Aug. 22	09 45.74	-32 08.8	3.265	2.635	+2.06	+3.9	15.2	44.2
Sept. 1	10 06.30	-31 29.5	3.355	2.671	+1.90	+3.1	15.3	40.6
Sept.11	10 25.25	-30 58.5	3.437	2.711	+1.75	+2.4	15.4	37.7
Sept.21	10 42.71	-30 34.8	3.509	2.754	+1.61	+1.7	15.5	35.5
Oct. 1	10 58.80	-30 17.4	3.567	2.800	+1.48	+1.2	15.6	34.6
Oct. 11	11 13.56	-30 05.0	3.608	2.849	+1.35	+0.9	15.7	35.1
Oct. 21	11 27.03	-29 56.0	3.633	2.901	+1.22	+0.7	15.8	37.1
Oct. 31	11 39.21	-29 49.1	3.639	2.956	+1.08	+0.6	15.8	40.6
Nov. 10	11 50.06	-29 42.7	3.625	3.013	+0.95	+0.8	15.9	45.3
Nov. 20	11 59.51	-29 34.9	3.593	3.071	+0.80	+1.1	15.9	51.2
Nov. 30	12 07.47	-29 23.9	3.542	3.132	+0.63	+1.6	16.0	57.9
Dec. 10	12 13.79	-29 07.4	3.476	3.195	+0.45	+2.4	16.0	65.5
Dec. 20	12 18.33	-28 42.9	3.395	3.259	+0.26	+3.5	16.0	73.7
Dec. 30	12 20.94	-28 07.5	3.305	3.325	+0.05	+5.0	16.0	82.6
Jan. 9	12 21.46	-27 17.9	3.208	3.392	-0.16	+6.7	16.0	92.2
Jan. 19	12 19.83	-26 10.6	3.112	3.461	-0.38	+8.8	16.0	102.5
Jan. 29	12 16.04	-24 42.2	3.021	3.530	-0.58	+11.2	16.0	113.4
Feb. 8	12 10.24	-22 49.9	2.944	3.600	-0.75	+13.7	16.0	124.9
Feb. 18	12 02.77	-20 32.9	2.888	3.672	-0.86	+16.0	16.0	136.8
Feb. 28	11 54.12	-17 53.1	2.861	3.744	-0.92	+17.8	16.1	148.8
Mar. 10	11 44.96	-14 55.6	2.868	3.817	-0.90	+18.7	16.2	160.0
Mar. 20	11 35.96	-11 48.7	2.914	3.890	-0.82	+18.7	16.2	166.8
Mar. 30	11 27.77	-08 41.9	2.999	3.964	-0.69	+17.7	16.4	162.8

Comet P/2008 A2 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 12.00096 TT
Peri. = 233.15414 e = 0.5913192
Node = 315.52930 2000.0 a = 3.1940913 AU
Incl. = 19.15404 n = 0.17265656
q = 1.3053638 AU P = 5.71 years

m1 = 15.5 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	06 17.81	+44 59.4	1.183	2.119	-1.73	-9.3	19.1	156.1
Jan. 15	06 00.47	+43 26.2	1.141	2.049	-1.41	-13.2	18.9	149.1
Jan. 25	05 46.33	+41 13.8	1.123	1.978	-0.91	-15.8	18.7	139.5
Feb. 4	05 37.20	+38 36.2	1.125	1.908	-0.34	-16.8	18.6	129.2
Feb. 14	05 33.82	+35 48.5	1.142	1.839	+0.22	-16.7	18.4	119.2
Feb. 24	05 35.99	+33 01.8	1.169	1.771	+0.71	-16.1	18.3	110.0
Mar. 5	05 43.08	+30 21.1	1.201	1.704	+1.13	-15.4	18.2	101.6
Mar. 15	05 54.40	+27 46.7	1.235	1.640	+1.49	-15.1	18.1	94.1
Mar. 25	06 09.26	+25 16.1	1.268	1.578	+1.78	-15.1	18.0	87.5
Apr. 4	06 27.05	+22 45.3	1.298	1.521	+2.03	-15.5	17.9	81.7
Apr. 14	06 47.33	+20 10.1	1.324	1.468	+2.23	-16.4	17.8	76.8
Apr. 24	07 09.67	+17 26.3	1.347	1.421	+2.41	-17.5	17.7	72.7
May 4	07 33.75	+14 31.1	1.366	1.380	+2.56	-18.9	17.6	69.2
May 14	07 59.36	+11 22.0	1.382	1.347	+2.69	-20.4	17.5	66.5
May 24	08 26.27	+07 58.5	1.397	1.324	+2.81	-21.7	17.4	64.3
June 3	08 54.38	+04 21.1	1.412	1.310	+2.92	-22.9	17.4	62.8
June 13	09 23.63	+00 31.8	1.430	1.305	+3.03	-23.8	17.4	61.8
June 23	09 53.94	-03 25.8	1.452	1.312	+3.14	-24.1	17.5	61.2
July 3	10 25.29	-07 26.6	1.481	1.328	+3.24	-23.8	17.6	60.9
July 13	10 57.64	-11 25.0	1.519	1.353	+3.32	-22.9	17.7	60.8
July 23	11 30.88	-15 14.1	1.567	1.388	+3.40	-21.4	17.9	60.6
Aug. 2	12 04.85	-18 47.7	1.628	1.429	+3.45	-19.3	18.1	60.3
Aug. 12	12 39.36	-22 00.4	1.702	1.478	+3.47	-16.8	18.4	59.7
Aug. 22	13 14.10	-24 47.9	1.788	1.532	+3.47	-14.0	18.6	58.8
Sept. 1	13 48.79	-27 07.9	1.886	1.590	+3.43	-11.2	18.9	57.5
Sept.11	14 23.11	-28 59.7	1.995	1.652	+3.36	-8.4	19.2	55.7
Sept.21	14 56.74	-30 23.9	2.113	1.717	+3.27	-5.8	19.5	53.5
Oct. 1	15 29.45	-31 22.3	2.240	1.784	+3.16	-3.5	19.8	50.8
Oct. 11	16 01.03	-31 57.3	2.371	1.852	+3.03	-1.4	20.1	47.7
Oct. 21	16 31.35	-32 11.4	2.506	1.922	+2.90	+0.4	20.3	44.2
Oct. 31	17 00.34	-32 07.1	2.642	1.992	+2.76	+2.0	20.6	40.3
Nov. 10	17 27.95	-31 47.1	2.777	2.063	+2.62	+3.4	20.9	36.2
Nov. 20	17 54.19	-31 13.5	2.909	2.133	+2.49	+4.5	21.1	31.7
Nov. 30	18 19.08	-30 28.4	3.036	2.204	+2.36	+5.5	21.3	27.0
Dec. 10	18 42.66	-29 33.6	3.156	2.274	+2.23	+6.3	21.6	22.1
Dec. 20	19 04.97	-28 30.7	3.266	2.343	+2.11	+7.0	21.8	17.0
Dec. 30	19 26.07	-27 21.2	3.366	2.412	+1.99	+7.5	22.0	11.8
Jan. 9	19 46.01	-26 06.3	3.454	2.480	+1.88	+7.9	22.1	6.9
Jan. 19	20 04.82	-24 47.2	3.528	2.548	+1.77	+8.2	22.3	4.4
Jan. 29	20 22.55	-23 25.0	3.587	2.614	+1.67	+8.4	22.4	7.7
Feb. 8	20 39.22	-22 00.8	3.631	2.680	+1.56	+8.5	22.6	13.2
Feb. 18	20 54.86	-20 35.4	3.659	2.745	+1.46	+8.6	22.7	19.2
Feb. 28	21 09.48	-19 09.7	3.671	2.809	+1.36	+8.5	22.8	25.5
Mar. 10	21 23.07	-17 44.7	3.666	2.872	+1.25	+8.4	22.9	31.9
Mar. 20	21 35.61	-16 21.0	3.646	2.933	+1.15	+8.1	23.0	38.6
Mar. 30	21 47.07	-14 59.6	3.610	2.994	+1.03	+7.8	23.1	45.4

Comet 51P/Harrington - A

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 18.95396 TT
Peri. = 269.18873 e = 0.5443977
Node = 83.76630 2000.0 a = 3.7041898 AU
Incl. = 5.42709 n = 0.13824971
q = 1.6876374 AU P = 7.13 years

m1 = 9.3 + 5 log(Delta) + 20.0 log(r(t-40))

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	18 43.55	−24 00.9	3.258	2.278	+2.32	+1.9	19.8	4.1
Jan. 15	19 06.80	−23 42.3	3.189	2.223	+2.38	+3.2	19.6	8.9
Jan. 25	19 30.62	−23 10.4	3.113	2.168	+2.43	+4.6	19.3	13.6
Feb. 4	19 54.96	−22 24.5	3.030	2.115	+2.47	+6.0	19.1	18.1
Feb. 14	20 19.71	−21 24.4	2.942	2.064	+2.51	+7.4	18.8	22.4
Feb. 24	20 44.77	−20 10.0	2.850	2.014	+2.53	+8.8	18.5	26.5
Mar. 5	21 10.08	−18 41.6	2.756	1.966	+2.55	+10.2	18.2	30.4
Mar. 15	21 35.57	−16 59.8	2.662	1.921	+2.56	+11.4	17.9	34.1
Mar. 25	22 01.18	−15 05.5	2.567	1.879	+2.57	+12.6	17.6	37.6
Apr. 4	22 26.88	−12 59.9	2.475	1.839	+2.57	+13.5	17.3	40.9
Apr. 14	22 52.63	−10 44.8	2.385	1.804	+2.58	+14.3	17.1	44.0
Apr. 24	23 18.39	−08 22.2	2.298	1.773	+2.58	+14.8	16.8	47.0
May 4	23 44.16	−05 54.1	2.216	1.746	+2.57	+15.1	16.5	49.9
May 14	00 09.89	−03 23.3	2.138	1.724	+2.56	+15.1	16.2	52.7
May 24	00 35.54	−00 52.6	2.064	1.707	+2.55	+14.8	16.0	55.4
June 3	01 01.05	+01 35.5	1.995	1.695	+2.53	+14.2	15.8	58.1
June 13	01 26.34	+03 57.9	1.930	1.689	+2.49	+13.4	15.6	60.9
June 23	01 51.28	+06 12.2	1.869	1.688	+2.45	+12.4	15.4	63.8
July 3	02 15.74	+08 16.0	1.810	1.693	+2.38	+11.2	15.2	66.9
July 13	02 39.52	+10 07.6	1.753	1.704	+2.29	+9.8	15.1	70.3
July 23	03 02.39	+11 45.8	1.697	1.720	+2.17	+8.4	15.0	73.9
Aug. 2	03 24.09	+13 09.9	1.642	1.741	+2.02	+7.0	14.9	78.0
Aug. 12	03 44.30	+14 20.1	1.587	1.767	+1.84	+5.7	14.9	82.5
Aug. 22	04 02.69	+15 17.2	1.531	1.798	+1.62	+4.5	14.9	87.5
Sept. 1	04 18.88	+16 02.3	1.475	1.832	+1.36	+3.5	14.9	93.1
Sept.11	04 32.43	+16 37.2	1.419	1.871	+1.05	+2.7	14.9	99.5
Sept.21	04 42.94	+17 04.0	1.365	1.912	+0.70	+2.1	14.9	106.7
Oct. 1	04 49.97	+17 24.8	1.314	1.957	+0.32	+1.7	15.0	114.7
Oct. 11	04 53.18	+17 41.6	1.270	2.004	−0.08	+1.4	15.1	123.7
Oct. 21	04 52.41	+17 55.9	1.235	2.054	−0.46	+1.3	15.2	133.8
Oct. 31	04 47.83	+18 08.4	1.215	2.105	−0.78	+1.1	15.4	144.8
Nov. 10	04 40.06	+18 19.6	1.213	2.158	−0.98	+1.0	15.6	156.5
Nov. 20	04 30.31	+18 29.6	1.235	2.212	−1.03	+1.0	15.8	168.7
Nov. 30	04 20.03	+18 39.1	1.282	2.268	−0.93	+1.1	16.1	176.8
Dec. 10	04 10.77	+18 49.7	1.356	2.324	−0.71	+1.3	16.4	165.9
Dec. 20	04 03.68	+19 03.1	1.456	2.381	−0.43	+1.8	16.8	154.2
Dec. 30	03 59.38	+19 20.8	1.579	2.438	−0.13	+2.3	17.2	143.1
Jan. 9	03 58.11	+19 43.3	1.721	2.496	+0.16	+2.7	17.6	132.7
Jan. 19	03 59.69	+20 10.4	1.880	2.553	+0.41	+3.1	18.0	123.0
Jan. 29	04 03.84	+20 41.1	2.052	2.611	+0.64	+3.3	18.4	113.9
Feb. 8	04 10.21	+21 14.2	2.233	2.669	+0.82	+3.4	18.8	105.3
Feb. 18	04 18.43	+21 48.4	2.421	2.727	+0.98	+3.4	19.2	97.2
Feb. 28	04 28.18	+22 22.2	2.612	2.785	+1.10	+3.2	19.5	89.5
Mar. 10	04 39.20	+22 54.5	2.805	2.842	+1.20	+3.0	19.9	82.0
Mar. 20	04 51.21	+23 24.3	2.996	2.900	+1.28	+2.6	20.2	74.9
Mar. 30	05 04.03	+23 50.7	3.183	2.956	+1.34	+2.2	20.5	67.9

Comet 51P/Harrington - D

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 19.29179 TT
Peri. = 269.16551 e = 0.5443730
Node = 83.78628 2000.0 a = 3.7045324 AU
Incl. = 5.42603 n = 0.13823053
q = 1.6878850 AU P = 7.13 years

m1 = 9.3 + 5 log(Delta) + 20.0 log(r(t-40))

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m	° ′			m	′		°
Jan. 5	18 43.26	-24 00.7	3.260	2.280	+2.32	+1.8	19.9	4.1
Jan. 15	19 06.48	-23 42.4	3.191	2.225	+2.38	+3.2	19.6	9.0
Jan. 25	19 30.29	-23 10.7	3.114	2.170	+2.43	+4.6	19.3	13.7
Feb. 4	19 54.60	-22 25.0	3.031	2.117	+2.47	+6.0	19.1	18.2
Feb. 14	20 19.33	-21 25.2	2.943	2.065	+2.50	+7.4	18.8	22.5
Feb. 24	20 44.37	-20 11.1	2.851	2.016	+2.53	+8.8	18.5	26.6
Mar. 5	21 09.66	-18 42.9	2.757	1.968	+2.55	+10.2	18.2	30.5
Mar. 15	21 35.14	-17 01.4	2.662	1.923	+2.56	+11.4	17.9	34.2
Mar. 25	22 00.73	-15 07.5	2.567	1.880	+2.57	+12.5	17.6	37.7
Apr. 4	22 26.42	-13 02.2	2.475	1.841	+2.57	+13.5	17.4	41.0
Apr. 14	22 52.15	-10 47.4	2.384	1.805	+2.58	+14.2	17.1	44.2
Apr. 24	23 17.90	-08 25.0	2.297	1.774	+2.58	+14.8	16.8	47.2
May 4	23 43.66	-05 57.2	2.215	1.747	+2.57	+15.1	16.5	50.0
May 14	00 09.38	-03 26.6	2.136	1.725	+2.56	+15.1	16.2	52.8
May 24	00 35.01	-00 56.0	2.062	1.707	+2.55	+14.8	16.0	55.5
June 3	01 00.52	+01 32.0	1.993	1.695	+2.53	+14.2	15.8	58.3
June 13	01 25.80	+03 54.3	1.927	1.689	+2.49	+13.4	15.6	61.1
June 23	01 50.73	+06 08.6	1.866	1.688	+2.45	+12.4	15.4	64.0
July 3	02 15.19	+08 12.5	1.807	1.693	+2.38	+11.2	15.2	67.1
July 13	02 38.95	+10 04.1	1.749	1.704	+2.29	+9.8	15.1	70.4
July 23	03 01.82	+11 42.4	1.694	1.720	+2.17	+8.4	15.0	74.1
Aug. 2	03 23.51	+13 06.7	1.638	1.741	+2.02	+7.0	14.9	78.1
Aug. 12	03 43.71	+14 17.0	1.583	1.766	+1.84	+5.7	14.9	82.6
Aug. 22	04 02.09	+15 14.1	1.527	1.797	+1.62	+4.5	14.8	87.6
Sept. 1	04 18.26	+15 59.3	1.471	1.831	+1.35	+3.5	14.8	93.3
Sept.11	04 31.79	+16 34.2	1.416	1.870	+1.05	+2.7	14.9	99.7
Sept.21	04 42.27	+17 01.1	1.361	1.911	+0.70	+2.1	14.9	106.8
Oct. 1	04 49.27	+17 21.9	1.311	1.956	+0.32	+1.7	15.0	114.9
Oct. 11	04 52.43	+17 38.6	1.266	2.003	-0.08	+1.4	15.1	123.9
Oct. 21	04 51.62	+17 52.8	1.232	2.052	-0.46	+1.2	15.2	134.0
Oct. 31	04 46.99	+18 05.2	1.212	2.103	-0.78	+1.1	15.3	145.0
Nov. 10	04 39.20	+18 16.2	1.211	2.156	-0.98	+1.0	15.5	156.7
Nov. 20	04 29.43	+18 26.1	1.233	2.210	-1.03	+0.9	15.8	168.9
Nov. 30	04 19.17	+18 35.6	1.280	2.266	-0.92	+1.1	16.1	176.7
Dec. 10	04 09.95	+18 46.3	1.355	2.322	-0.70	+1.4	16.4	165.7
Dec. 20	04 02.91	+18 59.8	1.455	2.379	-0.42	+1.8	16.8	154.1
Dec. 30	03 58.68	+19 17.7	1.578	2.436	-0.12	+2.3	17.2	143.0
Jan. 9	03 57.46	+19 40.5	1.721	2.494	+0.16	+2.7	17.6	132.6
Jan. 19	03 59.11	+20 07.8	1.880	2.552	+0.42	+3.1	18.0	122.9
Jan. 29	04 03.31	+20 38.8	2.052	2.610	+0.64	+3.3	18.4	113.8
Feb. 8	04 09.73	+21 12.2	2.233	2.668	+0.83	+3.4	18.8	105.2
Feb. 18	04 17.99	+21 46.6	2.421	2.725	+0.98	+3.4	19.2	97.1
Feb. 28	04 27.77	+22 20.6	2.612	2.783	+1.10	+3.3	19.5	89.4
Mar. 10	04 38.82	+22 53.2	2.804	2.841	+1.20	+3.0	19.9	81.9
Mar. 20	04 50.86	+23 23.2	2.995	2.898	+1.28	+2.7	20.2	74.8
Mar. 30	05 03.70	+23 49.8	3.183	2.955	+1.35	+2.2	20.5	67.8

Comet 15P/Finlay

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 22.51360 TT
Peri. = 347.50623 e = 0.7213492
Node = 13.77801 2000.0 a = 3.4809152 AU
Incl. = 6.82270 n = 0.15176230
q = 0.9699598 AU P = 6.49 years

m1 = 15.4 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	17 09.71	-27 01.3	3.164	2.315	+2.23	-3.0	23.4	25.4
Jan. 15	17 32.04	-27 31.0	3.016	2.226	+2.36	-1.9	23.0	30.6
Jan. 25	17 55.65	-27 50.3	2.859	2.135	+2.50	-0.7	22.6	35.5
Feb. 4	18 20.65	-27 57.1	2.696	2.043	+2.65	+0.8	22.2	40.1
Feb. 14	18 47.14	-27 48.7	2.529	1.949	+2.81	+2.7	21.8	44.3
Feb. 24	19 15.23	-27 22.2	2.362	1.854	+2.98	+4.8	21.3	48.1
Mar. 5	19 45.05	-26 33.7	2.197	1.759	+3.17	+7.5	20.8	51.5
Mar. 15	20 16.71	-25 18.9	2.036	1.663	+3.36	+10.6	20.3	54.2
Mar. 25	20 50.32	-23 32.8	1.884	1.567	+3.56	+14.3	19.7	56.2
Apr. 4	21 25.94	-21 09.8	1.744	1.472	+3.76	+18.5	19.1	57.5
Apr. 14	22 03.57	-18 05.1	1.619	1.379	+3.95	+22.9	18.5	57.9
Apr. 24	22 43.10	-14 15.7	1.513	1.289	+4.13	+27.3	18.0	57.4
May 4	23 24.35	-09 42.6	1.431	1.204	+4.27	+30.9	17.4	56.0
May 14	00 07.01	-04 33.3	1.375	1.128	+4.37	+33.1	16.9	53.8
May 24	00 50.71	+00 57.8	1.346	1.062	+4.44	+33.3	16.4	51.2
June 3	01 35.10	+06 30.7	1.344	1.012	+4.47	+31.3	16.1	48.4
June 13	02 19.76	+11 44.2	1.366	0.980	+4.45	+27.6	15.9	45.7
June 23	03 04.25	+16 20.1	1.408	0.970	+4.38	+22.7	15.9	43.6
July 3	03 48.05	+20 06.7	1.462	0.982	+4.25	+17.2	16.1	42.1
July 13	04 30.52	+22 59.1	1.524	1.016	+4.05	+12.0	16.4	41.4
July 23	05 10.99	+24 59.0	1.589	1.068	+3.79	+7.3	16.8	41.5
Aug. 2	05 48.91	+26 12.5	1.652	1.135	+3.50	+3.6	17.3	42.5
Aug. 12	06 23.87	+26 48.0	1.709	1.212	+3.18	+0.7	17.8	44.3
Aug. 22	06 55.68	+26 54.6	1.758	1.297	+2.87	-1.4	18.3	46.9
Sept. 1	07 24.33	+26 40.7	1.798	1.388	+2.55	-2.7	18.8	50.2
Sept.11	07 49.86	+26 13.8	1.826	1.481	+2.25	-3.4	19.3	54.1
Sept.21	08 12.40	+25 40.2	1.842	1.576	+1.96	-3.5	19.7	58.8
Oct. 1	08 32.02	+25 05.1	1.846	1.672	+1.68	-3.2	20.1	64.1
Oct. 11	08 48.78	+24 33.1	1.838	1.768	+1.39	-2.5	20.4	70.1
Oct. 21	09 02.66	+24 07.9	1.818	1.863	+1.09	-1.5	20.8	76.8
Oct. 31	09 13.57	+23 53.1	1.790	1.958	+0.78	-0.2	21.0	84.3
Nov. 10	09 21.34	+23 51.3	1.754	2.051	+0.44	+1.3	21.3	92.5
Nov. 20	09 25.74	+24 04.6	1.714	2.143	+0.08	+2.9	21.5	101.6
Nov. 30	09 26.53	+24 34.0	1.675	2.234	-0.30	+4.4	21.8	111.5
Dec. 10	09 23.50	+25 18.4	1.642	2.323	-0.68	+5.6	22.0	122.3
Dec. 20	09 16.69	+26 14.0	1.622	2.411	-1.03	+6.1	22.2	133.9
Dec. 30	09 06.42	+27 14.6	1.620	2.497	-1.28	+5.7	22.4	146.1
Jan. 9	08 53.58	+28 11.7	1.642	2.582	-1.41	+4.6	22.7	158.3
Jan. 19	08 39.49	+28 57.3	1.694	2.665	-1.38	+2.9	22.9	168.3
Jan. 29	08 25.66	+29 26.3	1.776	2.746	-1.21	+1.1	23.2	167.6
Feb. 8	08 13.53	+29 37.4	1.888	2.826	-0.95	-0.5	23.5	157.7
Feb. 18	08 04.04	+29 32.9	2.028	2.904	-0.64	-1.6	23.9	146.6
Feb. 28	07 57.62	+29 16.4	2.191	2.981	-0.33	-2.5	24.2	135.6
Mar. 10	07 54.27	+28 51.6	2.374	3.056	-0.05	-3.0	24.6	125.2
Mar. 20	07 53.73	+28 21.3	2.571	3.130	+0.19	-3.4	24.9	115.4
Mar. 30	07 55.62	+27 47.2	2.779	3.203	+0.39	-3.7	25.2	106.1

Comet C/2007 W1 (Boattini)

Epoch = 2008 Aug. 2.0 TT
T = 2008 June 24.88966 TT
q = 0.8497342 AU Peri. = 306.55017
z = -0.0001779 Node = 334.52277 2000.0
e = 1.0001512 Incl. = 9.88952

m1 = 10.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	12 26.42	-05 37.1	2.524	2.797	+0.72	-7.9	16.5	95.6
Jan. 15	12 33.59	-06 55.9	2.266	2.675	+0.61	-7.9	16.0	103.6
Jan. 25	12 39.66	-08 14.7	2.015	2.551	+0.46	-7.9	15.6	111.9
Feb. 4	12 44.31	-09 33.6	1.773	2.426	+0.28	-7.9	15.1	120.4
Feb. 14	12 47.07	-10 52.8	1.543	2.299	+0.04	-8.0	14.6	129.3
Feb. 24	12 47.43	-12 12.9	1.328	2.171	-0.28	-8.1	14.0	138.5
Mar. 5	12 44.68	-13 34.2	1.131	2.041	-0.67	-8.3	13.4	148.2
Mar. 15	12 37.96	-14 56.9	0.953	1.911	-1.15	-8.4	12.7	157.8
Mar. 25	12 26.42	-16 21.4	0.796	1.779	-1.72	-8.5	12.0	165.3
Apr. 4	12 09.18	-17 46.6	0.663	1.647	-2.34	-8.4	11.3	163.8
Apr. 14	11 45.78	-19 10.8	0.552	1.516	-2.94	-8.3	10.5	153.0
Apr. 24	11 16.39	-20 34.1	0.462	1.386	-3.51	-8.4	9.7	138.5
May 4	10 41.25	-21 58.5	0.388	1.259	-4.18	-9.1	8.9	122.3
May 14	09 59.44	-23 29.4	0.326	1.140	-5.39	-9.1	8.1	105.1
May 24	09 05.59	-24 60.0	0.271	1.031	-7.73	-0.9	7.3	86.3
June 3	07 48.27	-25 08.8	0.228	0.941	-10.31	+29.5	6.5	65.0
June 13	06 05.18	-20 14.2	0.210	0.878	-9.27	+63.7	6.0	44.5
June 23	04 32.44	-09 37.5	0.236	0.850	-5.44	+61.6	6.2	40.4
July 3	03 38.02	+00 38.1	0.299	0.863	-2.67	+44.9	6.7	51.5
July 13	03 11.37	+08 07.2	0.374	0.914	-1.36	+32.2	7.5	63.6
July 23	02 57.74	+13 29.1	0.448	0.995	-0.95	+23.7	8.2	74.5
Aug. 2	02 48.26	+17 26.4	0.513	1.097	-1.02	+17.5	9.0	85.1
Aug. 12	02 38.07	+20 21.4	0.569	1.213	-1.32	+12.2	9.6	96.1
Aug. 22	02 24.91	+22 23.1	0.619	1.337	-1.68	+7.0	10.2	107.8
Sept. 1	02 08.08	+23 32.7	0.669	1.466	-1.97	+1.7	10.8	120.4
Sept.11	01 48.37	+23 49.5	0.727	1.597	-2.06	-3.1	11.3	133.6
Sept.21	01 27.79	+23 18.1	0.799	1.729	-1.92	-6.8	11.9	146.8
Oct. 1	01 08.60	+22 10.1	0.892	1.861	-1.59	-8.7	12.4	158.8
Oct. 11	00 52.67	+20 42.9	1.009	1.992	-1.18	-8.9	13.0	165.9
Oct. 21	00 40.90	+19 13.6	1.151	2.122	-0.76	-8.0	13.6	162.7
Oct. 31	00 33.32	+17 53.9	1.317	2.251	-0.38	-6.3	14.1	153.7
Nov. 10	00 29.54	+16 50.5	1.506	2.378	-0.06	-4.5	14.7	143.7
Nov. 20	00 28.95	+16 05.4	1.715	2.503	+0.20	-2.8	15.2	133.9
Nov. 30	00 30.94	+15 37.7	1.940	2.628	+0.41	-1.2	15.6	124.5
Dec. 10	00 35.00	+15 26.1	2.179	2.750	+0.57	+0.2	16.1	115.5
Dec. 20	00 40.67	+15 28.1	2.428	2.872	+0.69	+1.3	16.5	106.8
Dec. 30	00 47.60	+15 41.5	2.685	2.991	+0.79	+2.3	16.9	98.4
Jan. 9	00 55.53	+16 04.4	2.945	3.110	+0.87	+3.0	17.3	90.3
Jan. 19	01 04.22	+16 34.8	3.207	3.227	+0.93	+3.6	17.6	82.4
Jan. 29	01 13.51	+17 11.1	3.466	3.342	+0.97	+4.1	17.9	74.6
Feb. 8	01 23.25	+17 51.9	3.721	3.456	+1.01	+4.4	18.2	67.0
Feb. 18	01 33.32	+18 36.1	3.969	3.569	+1.03	+4.6	18.5	59.5
Feb. 28	01 43.62	+19 22.5	4.207	3.681	+1.05	+4.8	18.8	52.1
Mar. 10	01 54.08	+20 10.3	4.432	3.792	+1.05	+4.8	19.0	44.8
Mar. 20	02 04.60	+20 58.8	4.643	3.901	+1.05	+4.8	19.2	37.6
Mar. 30	02 15.14	+21 47.3	4.839	4.010	+1.05	+4.8	19.5	30.5

Comet C/2006 Q1 (McNaught)

Epoch = 2008 Aug. 2.0 TT
T = 2008 July 3.85523 TT
q = 2.7636477 AU Peri. = 344.38056
z = +0.0000685 Node = 199.54638 2000.0
e = 0.9998108 Incl. = 59.04743

m1 = 4.5 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	09 53.09	-50 23.5	3.045	3.320	-0.09	-5.2	12.1	97.5
Jan. 15	09 52.22	-51 15.1	2.914	3.266	-0.29	-2.5	12.0	102.2
Jan. 25	09 49.30	-51 40.4	2.788	3.215	-0.46	+0.7	11.8	106.9
Feb. 4	09 44.73	-51 33.4	2.668	3.165	-0.55	+4.5	11.6	111.5
Feb. 14	09 39.18	-50 48.6	2.558	3.117	-0.56	+8.7	11.5	115.8
Feb. 24	09 33.60	-49 22.1	2.459	3.072	-0.47	+12.9	11.3	119.7
Mar. 5	09 28.91	-47 12.6	2.375	3.029	-0.29	+17.0	11.2	122.8
Mar. 15	09 25.97	-44 22.2	2.309	2.989	-0.06	+20.5	11.1	124.7
Mar. 25	09 25.34	-40 56.9	2.264	2.952	+0.19	+23.2	11.0	125.0
Apr. 4	09 27.23	-37 05.3	2.242	2.918	+0.44	+24.7	10.9	123.6
Apr. 14	09 31.63	-32 58.5	2.245	2.887	+0.67	+25.0	10.9	120.5
Apr. 24	09 38.35	-28 48.3	2.272	2.859	+0.87	+24.3	10.8	116.0
May 4	09 47.07	-24 45.1	2.321	2.834	+1.04	+22.7	10.9	110.3
May 14	09 57.48	-20 57.7	2.392	2.813	+1.18	+20.6	10.9	104.0
May 24	10 09.27	-17 31.8	2.481	2.796	+1.29	+18.1	10.9	97.3
June 3	10 22.13	-14 30.6	2.584	2.782	+1.37	+15.6	11.0	90.4
June 13	10 35.85	-11 54.9	2.699	2.772	+1.44	+13.1	11.1	83.4
June 23	10 50.21	-09 44.0	2.820	2.766	+1.48	+10.8	11.2	76.5
July 3	11 05.04	-07 55.8	2.947	2.764	+1.52	+8.8	11.3	69.7
July 13	11 20.24	-06 28.2	3.074	2.765	+1.54	+7.0	11.4	63.0
July 23	11 35.68	-05 18.1	3.200	2.771	+1.56	+5.5	11.5	56.4
Aug. 2	11 51.30	-04 23.1	3.322	2.780	+1.57	+4.3	11.5	50.0
Aug. 12	12 07.05	-03 40.4	3.438	2.793	+1.58	+3.3	11.6	43.6
Aug. 22	12 22.87	-03 07.5	3.546	2.810	+1.59	+2.5	11.7	37.3
Sept. 1	12 38.74	-02 42.0	3.645	2.830	+1.59	+2.0	11.8	31.2
Sept.11	12 54.63	-02 21.7	3.733	2.854	+1.59	+1.7	11.9	25.2
Sept.21	13 10.51	-02 04.5	3.809	2.882	+1.59	+1.6	12.0	19.4
Oct. 1	13 26.37	-01 48.6	3.872	2.912	+1.58	+1.7	12.1	14.2
Oct. 11	13 42.17	-01 31.9	3.922	2.946	+1.57	+1.9	12.2	10.5
Oct. 21	13 57.88	-01 12.8	3.957	2.983	+1.56	+2.3	12.2	10.1
Oct. 31	14 13.46	-00 49.6	3.979	3.022	+1.54	+2.9	12.3	13.4
Nov. 10	14 28.87	-00 20.5	3.986	3.064	+1.52	+3.6	12.4	18.6
Nov. 20	14 44.04	+00 15.9	3.980	3.109	+1.49	+4.5	12.4	24.6
Nov. 30	14 58.91	+01 01.1	3.961	3.156	+1.45	+5.5	12.5	30.9
Dec. 10	15 13.38	+01 56.5	3.931	3.206	+1.40	+6.7	12.5	37.5
Dec. 20	15 27.37	+03 03.4	3.889	3.257	+1.34	+7.9	12.6	44.2
Dec. 30	15 40.76	+04 22.8	3.839	3.311	+1.27	+9.3	12.6	51.1
Jan. 9	15 53.43	+05 55.6	3.781	3.366	+1.18	+10.7	12.7	58.0
Jan. 19	16 05.23	+07 42.2	3.719	3.423	+1.08	+12.1	12.7	65.1
Jan. 29	16 16.03	+09 42.9	3.654	3.481	+0.96	+13.4	12.7	72.2
Feb. 8	16 25.64	+11 57.2	3.590	3.541	+0.83	+14.7	12.8	79.2
Feb. 18	16 33.92	+14 24.0	3.529	3.602	+0.68	+15.7	12.8	86.2
Feb. 28	16 40.68	+17 01.4	3.475	3.665	+0.51	+16.5	12.8	93.1
Mar. 10	16 45.77	+19 46.5	3.430	3.728	+0.33	+16.9	12.9	99.7
Mar. 20	16 49.05	+22 35.5	3.397	3.793	+0.14	+16.8	12.9	105.9
Mar. 30	16 50.42	+25 23.7	3.378	3.858	-0.06	+16.2	13.0	111.5

Comet 25D/Neujmin [Orbit 1]

Epoch = 2008 Aug. 2.0 TT
T = 2008 July 14.74487 TT
Peri. = 212.83505 e = 0.5827004
Node = 309.76211 2000.0 a = 3.0629907 AU
Incl. = 5.87264 n = 0.18385928
q = 1.2781848 AU P = 5.36 years

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		m1	Mot./PA ′/°	Elong. °
Jan. 5	02 07.14	+20 36.7	1.766	2.328	-0.89	-5.2	15.4	4.5/119	112.6
Jan. 15	02 09.93	+20 14.6	1.825	2.259	-0.85	-4.7	15.3	8.4/ 94	103.0
Jan. 25	02 15.89	+20 09.0	1.885	2.189	-0.83	-4.3	15.3	12.5/ 85	94.2
Feb. 4	02 24.76	+20 18.3	1.945	2.119	-0.83	-3.9	15.2	16.4/ 82	86.1
Feb. 14	02 36.31	+20 40.4	2.000	2.049	-0.84	-3.5	15.1	19.9/ 80	78.7
Feb. 24	02 50.34	+21 12.3	2.048	1.978	-0.87	-3.2	15.0	23.1/ 80	71.9
Mar. 5	03 06.68	+21 51.0	2.089	1.908	-0.92	-2.8	14.9	26.1/ 80	65.7
Mar. 15	03 25.25	+22 33.2	2.120	1.838	-0.98	-2.4	14.8	28.9/ 81	60.1
Mar. 25	03 45.97	+23 15.4	2.143	1.769	-1.05	-2.0	14.6	31.6/ 82	54.9
Apr. 4	04 08.78	+23 53.9	2.157	1.702	-1.14	-1.4	14.5	34.2/ 84	50.3
Apr. 14	04 33.65	+24 24.9	2.163	1.636	-1.23	-0.7	14.3	36.7/ 86	46.1
Apr. 24	05 00.51	+24 44.1	2.161	1.573	-1.33	+0.1	14.1	39.2/ 88	42.5
May 4	05 29.27	+24 47.4	2.153	1.514	-1.43	+1.2	14.0	41.6/ 91	39.3
May 14	05 59.78	+24 30.6	2.141	1.459	-1.53	+2.5	13.8	44.0/ 94	36.5
May 24	06 31.78	+23 49.6	2.126	1.409	-1.62	+4.0	13.6	46.3/ 97	34.2
June 3	07 05.01	+22 41.6	2.111	1.365	-1.70	+5.6	13.5	48.5/100	32.3
June 13	07 39.12	+21 04.3	2.097	1.330	-1.76	+7.3	13.3	50.4/103	30.8
June 23	08 13.73	+18 57.4	2.085	1.303	-1.80	+9.0	13.2	52.0/106	29.6
July 3	08 48.48	+16 22.2	2.080	1.285	-1.82	+10.6	13.2	53.3/109	28.8
July 13	09 23.09	+13 21.9	2.081	1.278	-1.82	+11.9	13.2	54.1/111	28.1
July 23	09 57.29	+10 01.2	2.092	1.282	-1.81	+12.9	13.2	54.4/113	27.6
Aug. 2	10 30.95	+06 26.2	2.113	1.296	-1.78	+13.4	13.2	54.2/114	27.2
Aug. 12	11 03.99	+02 43.4	2.144	1.319	-1.75	+13.5	13.4	53.4/115	26.7
Aug. 22	11 36.36	-01 00.4	2.186	1.352	-1.71	+13.2	13.5	52.3/115	26.0
Sept. 1	12 08.08	-04 39.3	2.239	1.393	-1.66	+12.6	13.7	50.8/115	25.1
Sept.11	12 39.17	-08 08.0	2.301	1.440	-1.61	+11.6	13.9	49.1/114	23.9
Sept.21	13 09.66	-11 22.4	2.372	1.494	-1.55	+10.4	14.1	47.2/113	22.4
Oct. 1	13 39.57	-14 19.6	2.449	1.552	-1.49	+9.1	14.4	45.2/111	20.5
Oct. 11	14 08.92	-16 57.7	2.531	1.614	-1.43	+7.7	14.6	43.3/110	18.3
Oct. 21	14 37.68	-19 15.5	2.616	1.679	-1.36	+6.4	14.8	41.3/108	15.6
Oct. 31	15 05.84	-21 13.0	2.701	1.745	-1.29	+5.1	15.1	39.5/106	12.7
Nov. 10	15 33.34	-22 50.3	2.784	1.814	-1.22	+3.9	15.3	37.7/103	9.4
Nov. 20	16 00.12	-24 08.3	2.863	1.883	-1.15	+2.8	15.5	36.0/101	6.0
Nov. 30	16 26.13	-25 07.9	2.937	1.954	-1.08	+1.9	15.7	34.3/ 98	3.5
Dec. 10	16 51.27	-25 50.5	3.003	2.024	-1.00	+1.0	16.0	32.7/ 96	4.9
Dec. 20	17 15.47	-26 17.6	3.061	2.094	-0.93	+0.3	16.1	31.2/ 94	8.9
Dec. 30	17 38.66	-26 30.8	3.108	2.165	-0.87	-0.3	16.3	29.7/ 91	13.7
Jan. 9	18 00.76	-26 31.7	3.143	2.234	-0.80	-0.8	16.5	28.1/ 89	18.8
Jan. 19	18 21.71	-26 22.2	3.165	2.304	-0.74	-1.2	16.6	26.6/ 87	24.2
Jan. 29	18 41.45	-26 04.0	3.175	2.372	-0.69	-1.5	16.8	25.0/ 85	29.9
Feb. 8	18 59.92	-25 38.9	3.170	2.440	-0.64	-1.8	16.9	23.4/ 83	35.8
Feb. 18	19 17.06	-25 08.6	3.152	2.507	-0.60	-2.0	17.0	21.7/ 82	42.0
Feb. 28	19 32.81	-24 34.8	3.121	2.573	-0.56	-2.2	17.1	19.9/ 80	48.4
Mar. 10	19 47.10	-23 59.2	3.077	2.638	-0.53	-2.3	17.2	17.9/ 79	55.1
Mar. 20	19 59.85	-23 23.6	3.021	2.702	-0.51	-2.4	17.2	15.7/ 78	62.1
Mar. 30	20 10.96	-22 49.4	2.954	2.765	-0.49	-2.6	17.3	13.3/ 77	69.4

Comet 33P/Daniel

Epoch = 2008 Aug. 2.0 TT
T = 2008 July 20.35847 TT
Peri. = 18.97671 e = 0.4619060
Node = 66.57184 2000.0 a = 4.0322460 AU
Incl. = 22.37539 n = 0.12172605
q = 2.1697274 AU P = 8.10 years

m1 = 11.2 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	00 30.61	-13 37.1	2.661	2.639	+0.88	+15.0	19.6	78.1
Jan. 15	00 39.43	-11 07.1	2.746	2.600	+1.03	+15.3	19.6	71.1
Jan. 25	00 49.70	-08 34.1	2.827	2.561	+1.16	+15.5	19.6	64.4
Feb. 4	01 01.26	-05 59.1	2.902	2.523	+1.27	+15.6	19.5	58.1
Feb. 14	01 13.96	-03 23.0	2.971	2.487	+1.37	+15.6	19.5	51.9
Feb. 24	01 27.69	-00 46.7	3.032	2.452	+1.47	+15.6	19.5	46.1
Mar. 5	01 42.36	+01 49.0	3.086	2.418	+1.55	+15.4	19.4	40.4
Mar. 15	01 57.91	+04 23.3	3.132	2.386	+1.64	+15.2	19.3	35.0
Mar. 25	02 14.28	+06 55.2	3.170	2.356	+1.72	+14.9	19.3	29.7
Apr. 4	02 31.47	+09 23.9	3.199	2.327	+1.80	+14.5	19.2	24.6
Apr. 14	02 49.45	+11 48.5	3.220	2.300	+1.87	+13.9	19.2	19.6
Apr. 24	03 08.20	+14 08.0	3.234	2.276	+1.95	+13.3	19.1	14.9
May 4	03 27.72	+16 21.4	3.239	2.254	+2.03	+12.6	19.0	10.2
May 14	03 48.01	+18 27.7	3.238	2.234	+2.10	+11.8	19.0	5.6
May 24	04 09.04	+20 25.9	3.229	2.217	+2.18	+10.9	18.9	1.2
June 3	04 30.80	+22 14.9	3.214	2.202	+2.24	+9.9	18.9	3.3
June 13	04 53.25	+23 53.9	3.192	2.190	+2.31	+8.8	18.8	7.6
June 23	05 16.31	+25 21.9	3.165	2.181	+2.36	+7.7	18.8	11.9
July 3	05 39.94	+26 38.5	3.132	2.174	+2.41	+6.4	18.7	16.1
July 13	06 04.02	+27 42.9	3.094	2.171	+2.44	+5.2	18.7	20.4
July 23	06 28.43	+28 35.2	3.051	2.170	+2.46	+4.0	18.7	24.7
Aug. 2	06 53.05	+29 15.2	3.003	2.172	+2.47	+2.8	18.6	29.0
Aug. 12	07 17.71	+29 43.7	2.951	2.177	+2.46	+1.8	18.6	33.4
Aug. 22	07 42.26	+30 01.3	2.895	2.185	+2.43	+0.8	18.6	37.8
Sept. 1	08 06.55	+30 09.4	2.834	2.196	+2.39	0.0	18.6	42.3
Sept.11	08 30.41	+30 09.6	2.770	2.209	+2.33	-0.6	18.6	47.0
Sept.21	08 53.69	+30 03.8	2.701	2.225	+2.26	-1.0	18.6	51.8
Oct. 1	09 16.26	+29 54.3	2.630	2.244	+2.17	-1.1	18.6	56.8
Oct. 11	09 37.95	+29 43.7	2.555	2.265	+2.07	-0.9	18.6	62.0
Oct. 21	09 58.65	+29 34.7	2.478	2.289	+1.95	-0.4	18.6	67.4
Oct. 31	10 18.20	+29 30.3	2.398	2.314	+1.82	+0.3	18.6	73.1
Nov. 10	10 36.42	+29 33.5	2.317	2.342	+1.67	+1.3	18.6	79.1
Nov. 20	10 53.15	+29 46.9	2.236	2.371	+1.50	+2.6	18.6	85.4
Nov. 30	11 08.15	+30 13.4	2.156	2.403	+1.30	+4.2	18.6	92.0
Dec. 10	11 21.15	+30 55.1	2.079	2.436	+1.07	+5.8	18.6	99.0
Dec. 20	11 31.85	+31 53.0	2.006	2.470	+0.81	+7.4	18.6	106.3
Dec. 30	11 39.92	+33 07.3	1.941	2.506	+0.51	+8.8	18.6	113.9
Jan. 9	11 44.99	+34 35.5	1.885	2.543	+0.18	+9.7	18.7	121.6
Jan. 19	11 46.79	+36 13.0	1.844	2.581	-0.16	+9.9	18.7	129.2
Jan. 29	11 45.17	+37 52.4	1.819	2.620	-0.49	+9.1	18.8	136.3
Feb. 8	11 40.30	+39 23.6	1.813	2.661	-0.76	+7.3	18.9	142.0
Feb. 18	11 32.74	+40 36.2	1.829	2.702	-0.93	+4.5	19.0	145.3
Feb. 28	11 23.48	+41 21.4	1.868	2.743	-0.97	+1.2	19.1	145.6
Mar. 10	11 13.80	+41 33.6	1.931	2.785	-0.88	-2.1	19.3	142.6
Mar. 20	11 04.98	+41 12.8	2.014	2.828	-0.70	-5.0	19.5	137.3
Mar. 30	10 58.00	+40 22.4	2.118	2.871	-0.46	-7.4	19.7	130.7

Comet 19P/Borrelly

Epoch = 2008 Aug. 2.0 TT
T = 2008 July 22.33191 TT
Peri. = 353.37834 e = 0.6244793
Node = 75.44472 2000.0 a = 3.6077345 AU
Incl. = 30.32429 n = 0.14383090
q = 1.3547790 AU P = 6.85 years

m1 = 8.5 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	21 34.97	−37 39.6	3.187	2.464	+1.99	+10.9	16.9	36.3
Jan. 15	21 54.89	−35 50.7	3.169	2.393	+2.05	+11.8	16.7	32.0
Jan. 25	22 15.43	−33 52.5	3.140	2.321	+2.11	+12.8	16.5	28.3
Feb. 4	22 36.51	−31 44.4	3.100	2.248	+2.16	+13.8	16.2	25.3
Feb. 14	22 58.07	−29 26.1	3.051	2.176	+2.20	+14.9	16.0	23.0
Feb. 24	23 20.05	−26 57.6	2.994	2.104	+2.24	+15.9	15.7	21.4
Mar. 5	23 42.46	−24 18.5	2.931	2.032	+2.28	+16.9	15.5	20.5
Mar. 15	00 05.31	−21 29.1	2.863	1.960	+2.33	+17.9	15.2	20.3
Mar. 25	00 28.59	−18 29.6	2.791	1.890	+2.38	+18.9	14.9	20.5
Apr. 4	00 52.37	−15 20.5	2.718	1.821	+2.43	+19.8	14.6	21.1
Apr. 14	01 16.69	−12 02.6	2.646	1.754	+2.49	+20.6	14.3	21.7
Apr. 24	01 41.61	−08 37.0	2.574	1.689	+2.56	+21.2	14.0	22.4
May 4	02 07.22	−05 05.1	2.506	1.627	+2.64	+21.6	13.7	23.1
May 14	02 33.60	−01 28.9	2.442	1.570	+2.72	+21.8	13.4	23.7
May 24	03 00.82	+02 09.3	2.383	1.517	+2.82	+21.7	13.1	24.2
June 3	03 29.00	+05 46.5	2.329	1.470	+2.92	+21.3	12.8	24.7
June 13	03 58.21	+09 19.4	2.281	1.429	+3.03	+20.5	12.6	25.2
June 23	04 28.53	+12 44.3	2.240	1.397	+3.15	+19.3	12.4	25.8
July 3	05 00.02	+15 57.1	2.204	1.373	+3.26	+17.6	12.3	26.6
July 13	05 32.65	+18 53.5	2.175	1.359	+3.37	+15.6	12.2	27.7
July 23	06 06.33	+21 29.7	2.151	1.355	+3.46	+13.2	12.1	29.0
Aug. 2	06 40.92	+23 42.1	2.132	1.360	+3.52	+10.6	12.1	30.6
Aug. 12	07 16.09	+25 28.3	2.118	1.376	+3.54	+7.9	12.2	32.5
Aug. 22	07 51.48	+26 47.2	2.107	1.401	+3.52	+5.2	12.3	34.8
Sept. 1	08 26.66	+27 39.3	2.100	1.434	+3.45	+2.8	12.5	37.3
Sept.11	09 01.16	+28 06.9	2.095	1.475	+3.34	+0.7	12.6	40.1
Sept.21	09 34.58	+28 13.5	2.092	1.523	+3.20	−1.0	12.8	43.2
Oct. 1	10 06.60	+28 03.8	2.089	1.577	+3.04	−2.1	13.1	46.5
Oct. 11	10 36.97	+27 43.3	2.086	1.635	+2.86	−2.6	13.3	50.1
Oct. 21	11 05.53	+27 17.2	2.081	1.697	+2.67	−2.7	13.5	53.9
Oct. 31	11 32.20	+26 50.6	2.073	1.762	+2.47	−2.2	13.8	58.1
Nov. 10	11 56.90	+26 28.6	2.061	1.830	+2.27	−1.3	14.0	62.5
Nov. 20	12 19.61	+26 15.2	2.046	1.899	+2.07	−0.1	14.2	67.3
Nov. 30	12 40.27	+26 14.2	2.027	1.970	+1.85	+1.4	14.5	72.5
Dec. 10	12 58.77	+26 28.6	2.004	2.041	+1.62	+3.2	14.7	78.0
Dec. 20	13 14.99	+27 00.5	1.978	2.113	+1.38	+5.1	14.9	83.9
Dec. 30	13 28.74	+27 51.5	1.949	2.186	+1.10	+7.0	15.0	90.1
Jan. 9	13 39.76	+29 01.7	1.921	2.258	+0.80	+8.8	15.2	96.7
Jan. 19	13 47.77	+30 29.8	1.894	2.330	+0.47	+10.3	15.4	103.6
Jan. 29	13 52.46	+32 12.9	1.872	2.402	+0.11	+11.2	15.6	110.6
Feb. 8	13 53.51	+34 05.0	1.858	2.474	−0.27	+11.3	15.7	117.5
Feb. 18	13 50.80	+35 58.0	1.856	2.545	−0.64	+10.4	15.9	124.0
Feb. 28	13 44.37	+37 41.7	1.869	2.615	−0.97	+8.3	16.1	129.7
Mar. 10	13 34.72	+39 04.4	1.900	2.685	−1.19	+5.2	16.3	133.8
Mar. 20	13 22.80	+39 56.6	1.951	2.754	−1.29	+1.6	16.5	135.8
Mar. 30	13 09.87	+40 12.1	2.023	2.822	−1.25	−2.2	16.8	135.4

Comet P/2001 R1 (LONEOS)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Aug. 5.17790 TT
Peri. = 24.96208 e = 0.6116668
Node = 35.30060 2000.0 a = 3.4635426 AU
Incl. = 7.03259 n = 0.15290556
q = 1.3450086 AU P = 6.45 years

m1 = 13.6 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		m1	Mot./PA ″/ °	Elong. °
Jan. 5	20 45.39	-23 21.4	3.405	2.539	-0.61	-2.6	21.3	25.7/ 73	24.1
Jan. 15	21 03.08	-22 01.7	3.383	2.470	-0.64	-3.1	21.2	27.1/ 72	18.4
Jan. 25	21 21.37	-20 33.1	3.348	2.399	-0.68	-3.6	21.0	28.4/ 71	13.0
Feb. 4	21 40.22	-18 55.1	3.300	2.328	-0.71	-4.2	20.8	29.7/ 69	8.1
Feb. 14	21 59.59	-17 07.5	3.240	2.257	-0.75	-4.8	20.6	30.9/ 68	4.8
Feb. 24	22 19.46	-15 10.3	3.168	2.186	-0.80	-5.5	20.3	32.3/ 67	5.6
Mar. 5	22 39.87	-13 03.2	3.088	2.114	-0.85	-6.2	20.1	33.7/ 67	9.1
Mar. 15	23 00.84	-10 46.4	2.999	2.043	-0.90	-6.9	19.9	35.1/ 66	13.1
Mar. 25	23 22.42	-08 19.9	2.905	1.972	-0.96	-7.7	19.6	36.6/ 65	17.0
Apr. 4	23 44.70	-05 44.1	2.806	1.902	-1.03	-8.5	19.3	38.3/ 65	20.6
Apr. 14	00 07.79	-02 59.5	2.704	1.833	-1.11	-9.3	19.1	39.9/ 65	24.0
Apr. 24	00 31.81	-00 07.0	2.602	1.766	-1.19	-10.1	18.8	41.7/ 64	27.0
May 4	00 56.92	+02 52.3	2.501	1.701	-1.29	-10.8	18.5	43.5/ 65	29.7
May 14	01 23.28	+05 56.5	2.404	1.638	-1.39	-11.4	18.2	45.3/ 65	32.1
May 24	01 51.06	+09 02.9	2.312	1.580	-1.51	-11.7	17.9	47.1/ 66	34.1
June 3	02 20.44	+12 08.2	2.227	1.525	-1.63	-11.8	17.6	48.8/ 68	35.9
June 13	02 51.54	+15 07.7	2.150	1.476	-1.76	-11.6	17.4	50.2/ 69	37.3
June 23	03 24.44	+17 56.1	2.082	1.434	-1.89	-10.8	17.1	51.4/ 72	38.5
July 3	03 59.12	+20 27.2	2.025	1.398	-2.00	-9.7	17.0	52.1/ 74	39.5
July 13	04 35.35	+22 34.7	1.978	1.372	-2.09	-8.1	16.8	52.4/ 77	40.3
July 23	05 12.76	+24 13.1	1.942	1.354	-2.15	-6.0	16.7	52.2/ 81	41.2
Aug. 2	05 50.82	+25 18.1	1.914	1.346	-2.16	-3.8	16.6	51.5/ 85	42.1
Aug. 12	06 28.83	+25 48.1	1.895	1.347	-2.13	-1.5	16.6	50.3/ 88	43.1
Aug. 22	07 06.06	+25 44.0	1.883	1.359	-2.05	+0.7	16.6	48.7/ 92	44.4
Sept. 1	07 41.90	+25 09.2	1.876	1.380	-1.93	+2.6	16.7	46.6/ 96	46.0
Sept.11	08 15.83	+24 08.8	1.871	1.410	-1.79	+4.2	16.8	44.3/ 99	47.9
Sept.21	08 47.54	+22 49.0	1.867	1.448	-1.64	+5.4	17.0	41.8/101	50.3
Oct. 1	09 16.86	+21 16.2	1.861	1.493	-1.49	+6.3	17.1	39.1/104	53.1
Oct. 11	09 43.74	+19 36.3	1.853	1.544	-1.36	+6.9	17.3	36.2/105	56.5
Oct. 21	10 08.20	+17 54.7	1.839	1.600	-1.23	+7.4	17.5	33.1/107	60.3
Oct. 31	10 30.27	+16 16.0	1.820	1.661	-1.13	+7.7	17.7	29.9/107	64.7
Nov. 10	10 49.94	+14 44.2	1.795	1.724	-1.05	+7.9	17.8	26.4/107	69.8
Nov. 20	11 07.22	+13 22.5	1.763	1.790	-0.98	+8.1	18.0	22.7/107	75.4
Nov. 30	11 22.01	+12 13.9	1.725	1.858	-0.93	+8.4	18.1	18.6/106	81.6
Dec. 10	11 34.16	+11 21.1	1.681	1.927	-0.91	+8.7	18.3	14.2/104	88.6
Dec. 20	11 43.48	+10 46.0	1.633	1.998	-0.91	+9.1	18.4	9.3/100	96.4
Dec. 30	11 49.72	+10 30.3	1.585	2.069	-0.93	+9.6	18.5	4.3/ 84	104.9
Jan. 9	11 52.62	+10 34.9	1.538	2.140	-0.98	+10.2	18.7	2.6/340	114.3
Jan. 19	11 52.02	+10 58.9	1.499	2.212	-1.05	+10.8	18.8	7.3/304	124.6
Jan. 29	11 47.91	+11 39.9	1.472	2.283	-1.13	+11.4	18.9	11.9/296	135.7
Feb. 8	11 40.62	+12 32.4	1.462	2.354	-1.22	+11.8	19.1	15.3/292	147.4
Feb. 18	11 30.92	+13 28.9	1.475	2.425	-1.29	+11.8	19.3	16.9/288	159.2
Feb. 28	11 19.91	+14 20.9	1.515	2.495	-1.34	+11.5	19.5	16.4/284	169.2
Mar. 10	11 08.92	+15 01.0	1.583	2.564	-1.34	+10.9	19.7	14.3/280	168.8
Mar. 20	10 59.18	+15 24.6	1.679	2.633	-1.31	+10.1	20.0	11.1/273	159.0
Mar. 30	10 51.52	+15 30.7	1.801	2.701	-1.24	+9.2	20.3	7.5/262	148.2

Comet C/2007 U1 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Aug. 6.98152 TT
q = 3.3293230 AU Peri. = 0.91500
z = -0.0006709 Node = 50.03840 2000.0
e = 1.0022336 Incl. = 157.78850

m1 = 8.5 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	05 48.43	+03 33.7	2.976	3.884	-2.11	+5.4	16.8	154.1
Jan. 15	05 27.37	+04 27.2	3.008	3.838	-1.92	+6.0	16.7	142.8
Jan. 25	05 08.19	+05 26.8	3.087	3.794	-1.65	+6.3	16.7	129.9
Feb. 4	04 51.66	+06 29.6	3.202	3.751	-1.35	+6.4	16.8	116.8
Feb. 14	04 38.12	+07 33.1	3.345	3.710	-1.06	+6.3	16.8	104.0
Feb. 24	04 27.56	+08 35.9	3.502	3.670	-0.78	+6.1	16.9	91.8
Mar. 5	04 19.71	+09 37.0	3.666	3.632	-0.55	+5.9	16.9	80.3
Mar. 15	04 14.24	+10 36.0	3.826	3.596	-0.35	+5.7	17.0	69.3
Mar. 25	04 10.75	+11 32.8	3.976	3.562	-0.19	+5.5	17.0	58.8
Apr. 4	04 08.90	+12 27.4	4.110	3.530	-0.05	+5.2	17.0	48.7
Apr. 14	04 08.36	+13 19.8	4.223	3.500	+0.05	+5.0	17.1	39.0
Apr. 24	04 08.81	+14 10.1	4.312	3.473	+0.12	+4.8	17.1	29.5
May 4	04 10.02	+14 58.4	4.374	3.447	+0.17	+4.6	17.1	20.4
May 14	04 11.75	+15 44.9	4.408	3.424	+0.20	+4.5	17.1	11.7
May 24	04 13.77	+16 29.7	4.412	3.403	+0.21	+4.3	17.0	4.8
June 3	04 15.87	+17 13.0	4.385	3.385	+0.20	+4.2	17.0	8.5
June 13	04 17.85	+17 55.1	4.329	3.369	+0.16	+4.1	17.0	16.8
June 23	04 19.48	+18 36.1	4.243	3.356	+0.10	+4.0	16.9	25.7
July 3	04 20.53	+19 16.4	4.130	3.346	+0.02	+4.0	16.8	34.8
July 13	04 20.70	+19 56.2	3.991	3.338	-0.10	+4.0	16.7	44.1
July 23	04 19.68	+20 35.7	3.830	3.332	-0.26	+3.9	16.6	53.8
Aug. 2	04 17.07	+21 15.1	3.650	3.330	-0.47	+3.9	16.5	63.8
Aug. 12	04 12.38	+21 54.1	3.456	3.330	-0.73	+3.8	16.4	74.4
Aug. 22	04 05.06	+22 31.9	3.255	3.332	-1.06	+3.5	16.3	85.5
Sept. 1	03 54.46	+23 06.7	3.053	3.338	-1.46	+2.8	16.2	97.5
Sept.11	03 39.91	+23 35.2	2.861	3.346	-1.90	+1.7	16.0	110.3
Sept.21	03 20.89	+23 51.7	2.689	3.356	-2.36	-0.3	15.9	124.1
Oct. 1	02 57.31	+23 48.6	2.551	3.369	-2.75	-3.1	15.8	138.8
Oct. 11	02 29.86	+23 17.7	2.459	3.385	-2.96	-6.3	15.7	154.1
Oct. 21	02 00.26	+22 15.1	2.424	3.403	-2.94	-9.1	15.7	167.8
Oct. 31	01 30.89	+20 44.1	2.452	3.424	-2.68	-10.8	15.8	166.2
Nov. 10	01 04.09	+18 56.4	2.541	3.447	-2.27	-11.0	15.9	152.1
Nov. 20	00 41.38	+17 06.7	2.684	3.473	-1.81	-10.0	16.1	137.1
Nov. 30	00 23.27	+15 26.7	2.868	3.500	-1.37	-8.3	16.2	122.7
Dec. 10	00 09.60	+14 03.4	3.081	3.530	-0.98	-6.4	16.4	109.2
Dec. 20	23 59.75	+12 59.1	3.311	3.562	-0.67	-4.6	16.6	96.7
Dec. 30	23 53.08	+12 13.4	3.547	3.596	-0.41	-2.9	16.8	84.9
Jan. 9	23 48.94	+11 44.4	3.781	3.632	-0.22	-1.4	17.0	73.8
Jan. 19	23 46.77	+11 30.0	4.005	3.670	-0.07	-0.2	17.2	63.3
Jan. 29	23 46.11	+11 27.9	4.213	3.710	+0.05	+0.8	17.3	53.3
Feb. 8	23 46.57	+11 36.2	4.401	3.751	+0.13	+1.7	17.5	43.7
Feb. 18	23 47.84	+11 53.1	4.565	3.794	+0.18	+2.4	17.6	34.6
Feb. 28	23 49.67	+12 17.2	4.703	3.838	+0.21	+3.0	17.7	26.1
Mar. 10	23 51.80	+12 47.1	4.813	3.884	+0.23	+3.5	17.8	18.6
Mar. 20	23 54.05	+13 21.8	4.892	3.932	+0.22	+3.9	17.9	13.6
Mar. 30	23 56.24	+14 00.3	4.942	3.980	+0.19	+4.1	18.0	13.9

Comet C/2007 M1 (McNaught)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Aug. 11.65953 TT
q = 7.4741335 AU Peri. = 52.63302
z = +0.0005821 Node = 326.80801 2000.0
e = 0.9956493 Incl. = 139.72136

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

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m	° ′			m	′		°
Jan. 5	19 31.84	-00 42.8	8.493	7.600	+0.25	+2.3	19.0	23.3
Jan. 15	19 34.33	-00 19.7	8.498	7.589	+0.25	+2.8	18.9	21.1
Jan. 25	19 36.79	+00 08.0	8.476	7.578	+0.23	+3.2	18.9	22.8
Feb. 4	19 39.10	+00 39.9	8.427	7.568	+0.20	+3.6	18.9	27.8
Feb. 14	19 41.15	+01 16.0	8.351	7.559	+0.17	+4.0	18.9	34.5
Feb. 24	19 42.81	+01 56.0	8.252	7.550	+0.12	+4.4	18.9	42.3
Mar. 5	19 43.97	+02 39.6	8.132	7.541	+0.05	+4.7	18.8	50.6
Mar. 15	19 44.52	+03 26.3	7.993	7.533	-0.02	+4.9	18.8	59.2
Mar. 25	19 44.34	+04 15.6	7.841	7.525	-0.10	+5.1	18.7	68.1
Apr. 4	19 43.34	+05 06.9	7.678	7.518	-0.19	+5.2	18.7	77.1
Apr. 14	19 41.41	+05 59.3	7.511	7.512	-0.29	+5.3	18.6	86.2
Apr. 24	19 38.47	+06 52.0	7.343	7.506	-0.40	+5.2	18.6	95.4
May 4	19 34.49	+07 43.7	7.182	7.500	-0.51	+4.9	18.5	104.6
May 14	19 29.43	+08 33.0	7.031	7.495	-0.61	+4.6	18.5	113.7
May 24	19 23.34	+09 18.6	6.897	7.491	-0.70	+4.0	18.4	122.6
June 3	19 16.30	+09 58.9	6.784	7.487	-0.78	+3.3	18.4	130.8
June 13	19 08.45	+10 32.3	6.698	7.484	-0.84	+2.5	18.4	138.0
June 23	19 00.02	+10 57.8	6.641	7.481	-0.88	+1.7	18.4	143.3
July 3	18 51.24	+11 14.4	6.615	7.478	-0.88	+0.7	18.3	145.8
July 13	18 42.43	+11 21.7	6.623	7.476	-0.86	-0.2	18.3	144.8
July 23	18 33.86	+11 20.0	6.662	7.475	-0.80	-1.0	18.4	140.6
Aug. 2	18 25.82	+11 10.1	6.731	7.474	-0.73	-1.7	18.4	134.2
Aug. 12	18 18.54	+10 53.3	6.827	7.474	-0.64	-2.2	18.4	126.5
Aug. 22	18 12.17	+10 31.1	6.946	7.474	-0.53	-2.6	18.4	118.0
Sept. 1	18 06.84	+10 05.2	7.083	7.475	-0.42	-2.8	18.5	109.2
Sept.11	18 02.60	+09 37.2	7.232	7.477	-0.32	-2.8	18.5	100.2
Sept.21	17 59.43	+09 08.8	7.388	7.478	-0.21	-2.8	18.6	91.3
Oct. 1	17 57.30	+08 41.3	7.545	7.481	-0.12	-2.5	18.6	82.5
Oct. 11	17 56.14	+08 15.8	7.699	7.484	-0.03	-2.2	18.7	73.9
Oct. 21	17 55.84	+07 53.5	7.845	7.487	+0.05	-1.8	18.7	65.5
Oct. 31	17 56.31	+07 35.0	7.978	7.491	+0.11	-1.4	18.8	57.5
Nov. 10	17 57.44	+07 21.2	8.095	7.496	+0.17	-0.9	18.8	49.9
Nov. 20	17 59.09	+07 12.5	8.192	7.501	+0.21	-0.3	18.8	43.0
Nov. 30	18 01.15	+07 09.3	8.268	7.506	+0.24	+0.3	18.8	37.2
Dec. 10	18 03.50	+07 12.1	8.319	7.512	+0.25	+0.9	18.9	33.0
Dec. 20	18 06.01	+07 21.1	8.345	7.519	+0.26	+1.5	18.9	30.9
Dec. 30	18 08.57	+07 36.3	8.346	7.526	+0.25	+2.2	18.9	31.6
Jan. 9	18 11.03	+07 58.0	8.322	7.533	+0.23	+2.8	18.9	34.7
Jan. 19	18 13.28	+08 26.1	8.273	7.541	+0.19	+3.4	18.9	39.7
Jan. 29	18 15.20	+09 00.5	8.201	7.550	+0.15	+4.1	18.8	46.0
Feb. 8	18 16.66	+09 41.1	8.109	7.559	+0.09	+4.6	18.8	53.2
Feb. 18	18 17.53	+10 27.3	8.000	7.569	+0.02	+5.2	18.8	60.9
Feb. 28	18 17.70	+11 18.9	7.878	7.579	-0.07	+5.6	18.8	69.0
Mar. 10	18 17.05	+12 14.9	7.746	7.590	-0.16	+6.0	18.7	77.3
Mar. 20	18 15.48	+13 14.6	7.609	7.601	-0.26	+6.2	18.7	85.7
Mar. 30	18 12.90	+14 16.7	7.473	7.612	-0.37	+6.3	18.7	94.2

Comet 6P/d'Arrest

Epoch = 2008 Aug. 2.0 TT
T = 2008 Aug. 14.99102 TT
Peri. = 178.12189 e = 0.6128183
Node = 138.93572 2000.0 a = 3.4957995 AU
Incl. = 19.51481 n = 0.15079408
q = 1.3535096 AU P = 6.54 years

H = 16.0 G = 0.15 pre-T & r>1.6AU
m1 = 1.5 + 5 log(Delta) + 60.0 log(r(t-50)) pre-T & r<1.6AU
m1 = 8.0 + 5 log(Delta) + 20.0 log(r(t-50)) post-T

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Daily motion m	'	Mag.	Elong. °
Jan. 5	15 24.99	-02 12.1	3.030	2.611	+1.66	-1.8	21.4	56.0
Jan. 15	15 41.57	-02 30.1	2.855	2.542	+1.68	-0.7	21.3	61.8
Jan. 25	15 58.35	-02 37.0	2.676	2.472	+1.69	+0.5	21.2	67.5
Feb. 4	16 15.26	-02 31.8	2.496	2.402	+1.70	+1.8	21.0	73.1
Feb. 14	16 32.22	-02 13.4	2.316	2.331	+1.69	+3.2	20.8	78.6
Feb. 24	16 49.14	-01 41.1	2.138	2.260	+1.68	+4.7	20.6	84.0
Mar. 5	17 05.95	-00 54.4	1.963	2.189	+1.66	+6.2	20.4	89.3
Mar. 15	17 22.50	+00 07.3	1.793	2.117	+1.62	+7.6	20.1	94.5
Mar. 25	17 38.70	+01 23.4	1.630	2.046	+1.57	+9.0	19.9	99.5
Apr. 4	17 54.40	+02 53.5	1.474	1.976	+1.50	+10.2	19.6	104.3
Apr. 14	18 09.45	+04 35.9	1.326	1.906	+1.43	+11.2	19.3	109.0
Apr. 24	18 23.71	+06 27.7	1.188	1.837	+1.33	+11.7	19.0	113.5
May 4	18 37.03	+08 25.0	1.060	1.770	+1.22	+11.6	18.7	117.7
May 14	18 49.20	+10 21.2	0.941	1.705	+1.09	+10.6	18.3	121.8
May 24	19 00.15	+12 07.7	0.832	1.643	+0.96	+8.5	18.0	125.7
June 3	19 09.76	+13 32.5	0.733	1.585	+0.83	+4.7	17.6	129.5
June 13	19 18.02	+14 19.1	0.643	1.531	+0.72	-1.2	16.4	133.6
June 23	19 25.17	+14 06.7	0.562	1.483	+0.64	-9.8	15.1	138.0
July 3	19 31.60	+12 29.1	0.492	1.441	+0.65	-21.3	13.9	143.1
July 13	19 38.10	+08 56.3	0.433	1.406	+0.78	-35.1	12.6	149.2
July 23	19 45.86	+03 05.2	0.388	1.379	+1.03	-48.7	11.4	156.1
Aug. 2	19 56.13	-05 02.0	0.360	1.362	+1.41	-56.9	10.4	161.8
Aug. 12	20 10.21	-14 31.0	0.355	1.354	+1.85	-55.0	9.2	161.2
Aug. 22	20 28.70	-23 41.0	0.372	1.356	+2.24	-44.1	9.0	154.2
Sept. 1	20 51.12	-31 02.0	0.410	1.368	+2.51	-29.4	9.0	145.6
Sept.11	21 16.22	-35 55.9	0.467	1.389	+2.60	-15.6	9.1	138.0
Sept.21	21 42.23	-38 31.5	0.537	1.419	+2.54	-4.5	9.3	131.7
Oct. 1	22 07.62	-39 16.3	0.619	1.457	+2.40	+3.7	9.6	126.4
Oct. 11	22 31.61	-38 39.2	0.712	1.501	+2.23	+9.4	9.9	121.9
Oct. 21	22 53.92	-37 04.8	0.814	1.552	+2.07	+13.3	10.3	117.8
Oct. 31	23 14.62	-34 51.7	0.925	1.608	+1.94	+15.8	10.7	113.9
Nov. 10	23 34.03	-32 13.4	1.045	1.668	+1.84	+17.3	11.1	110.0
Nov. 20	23 52.42	-29 20.3	1.175	1.731	+1.76	+18.1	11.6	106.0
Nov. 30	00 10.03	-26 19.4	1.313	1.797	+1.71	+18.3	12.1	101.8
Dec. 10	00 27.11	-23 16.1	1.460	1.864	+1.67	+18.2	12.6	97.5
Dec. 20	00 43.79	-20 14.5	1.614	1.934	+1.64	+17.8	13.2	93.0
Dec. 30	01 00.20	-17 16.9	1.774	2.004	+1.62	+17.1	13.7	88.4
Jan. 9	01 16.43	-14 25.5	1.940	2.075	+1.61	+16.4	14.2	83.6
Jan. 19	01 32.53	-11 41.6	2.111	2.146	+1.60	+15.5	14.7	78.6
Jan. 29	01 48.56	-09 06.2	2.284	2.217	+1.60	+14.6	15.2	73.6
Feb. 8	02 04.53	-06 39.9	2.458	2.288	+1.59	+13.7	15.7	68.5
Feb. 18	02 20.46	-04 23.3	2.631	2.359	+1.59	+12.7	16.1	63.3
Feb. 28	02 36.35	-02 16.4	2.803	2.430	+1.59	+11.7	16.6	58.1
Mar. 10	02 52.21	-00 19.6	2.971	2.500	+1.58	+10.7	17.0	52.9
Mar. 20	03 08.02	+01 27.1	3.134	2.570	+1.57	+9.7	17.4	47.6
Mar. 30	03 23.76	+03 03.8	3.290	2.638	+1.57	+8.7	17.8	42.3

Comet C/2007 B2 (Skiff)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Aug. 20.87242 TT
q = 2.9748668 AU Peri. = 206.00425
z = +0.0013956 Node = 14.86937 2000.0
e = 0.9958484 Incl. = 27.49627

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	12 42.70	+09 40.6	3.455	3.718	+0.43	-4.4	15.4	97.8
Jan. 15	12 46.96	+08 56.2	3.261	3.662	+0.27	-3.9	15.2	106.4
Jan. 25	12 49.69	+08 17.0	3.074	3.608	+0.10	-3.5	15.0	115.5
Feb. 4	12 50.72	+07 42.4	2.898	3.555	-0.09	-3.1	14.8	124.9
Feb. 14	12 49.87	+07 11.4	2.738	3.504	-0.28	-2.9	14.6	134.8
Feb. 24	12 47.10	+06 42.3	2.597	3.455	-0.46	-2.9	14.5	145.0
Mar. 5	12 42.49	+06 13.2	2.480	3.407	-0.62	-3.2	14.3	155.4
Mar. 15	12 36.30	+05 41.7	2.389	3.361	-0.73	-3.7	14.2	165.6
Mar. 25	12 29.03	+05 05.1	2.326	3.317	-0.77	-4.4	14.0	172.5
Apr. 4	12 21.32	+04 21.5	2.293	3.275	-0.74	-5.2	14.0	167.1
Apr. 14	12 13.89	+03 29.5	2.289	3.236	-0.64	-6.1	13.9	157.0
Apr. 24	12 07.45	+02 28.3	2.311	3.199	-0.49	-7.0	13.9	146.5
May 4	12 02.54	+01 18.2	2.358	3.164	-0.30	-7.9	13.9	136.3
May 14	11 59.54	-00 00.3	2.424	3.132	-0.09	-8.6	13.9	126.4
May 24	11 58.60	-01 26.4	2.507	3.103	+0.11	-9.3	13.9	117.2
June 3	11 59.72	-02 59.2	2.601	3.076	+0.31	-9.9	14.0	108.4
June 13	12 02.84	-04 38.0	2.704	3.053	+0.49	-10.4	14.0	100.2
June 23	12 07.79	-06 22.2	2.812	3.032	+0.66	-10.9	14.1	92.5
July 3	12 14.39	-08 11.1	2.923	3.014	+0.81	-11.3	14.1	85.3
July 13	12 22.49	-10 04.2	3.034	3.000	+0.94	-11.7	14.2	78.4
July 23	12 31.92	-12 00.9	3.145	2.989	+1.06	-12.0	14.2	71.9
Aug. 2	12 42.56	-14 00.5	3.253	2.981	+1.17	-12.2	14.3	65.6
Aug. 12	12 54.29	-16 02.5	3.357	2.976	+1.27	-12.4	14.4	59.7
Aug. 22	13 07.01	-18 06.2	3.456	2.975	+1.37	-12.5	14.4	53.9
Sept. 1	13 20.66	-20 10.7	3.551	2.977	+1.45	-12.5	14.5	48.3
Sept.11	13 35.18	-22 15.4	3.639	2.982	+1.53	-12.4	14.6	43.0
Sept.21	13 50.52	-24 19.3	3.720	2.991	+1.61	-12.2	14.6	37.8
Oct. 1	14 06.64	-26 21.7	3.795	3.003	+1.69	-12.0	14.7	32.8
Oct. 11	14 23.51	-28 21.6	3.862	3.018	+1.76	-11.6	14.7	28.1
Oct. 21	14 41.09	-30 18.0	3.921	3.036	+1.83	-11.2	14.8	23.7
Oct. 31	14 59.34	-32 10.2	3.972	3.058	+1.89	-10.7	14.8	20.0
Nov. 10	15 18.21	-33 57.3	4.014	3.082	+1.94	-10.1	14.9	17.2
Nov. 20	15 37.64	-35 38.4	4.047	3.109	+1.99	-9.5	15.0	16.0
Nov. 30	15 57.56	-37 13.0	4.071	3.139	+2.03	-8.8	15.0	16.7
Dec. 10	16 17.87	-38 40.6	4.086	3.172	+2.06	-8.0	15.1	19.1
Dec. 20	16 38.43	-40 00.8	4.091	3.207	+2.07	-7.3	15.1	22.8
Dec. 30	16 59.14	-41 13.7	4.087	3.244	+2.07	-6.6	15.2	27.3
Jan. 9	17 19.81	-42 19.3	4.073	3.284	+2.05	-5.9	15.2	32.3
Jan. 19	17 40.29	-43 18.2	4.050	3.327	+2.01	-5.3	15.3	37.7
Jan. 29	18 00.40	-44 11.2	4.018	3.371	+1.95	-4.8	15.3	43.4
Feb. 8	18 19.93	-44 59.2	3.978	3.417	+1.88	-4.4	15.3	49.3
Feb. 18	18 38.70	-45 43.5	3.930	3.465	+1.78	-4.2	15.4	55.4
Feb. 28	18 56.52	-46 25.4	3.876	3.515	+1.67	-4.1	15.4	61.7
Mar. 10	19 13.19	-47 06.7	3.816	3.567	+1.53	-4.2	15.4	68.1
Mar. 20	19 28.52	-47 48.6	3.751	3.620	+1.38	-4.4	15.5	74.8
Mar. 30	19 42.31	-48 32.6	3.684	3.675	+1.20	-4.7	15.5	81.6

Comet P/1997 V1 (Larsen)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Aug. 27.02375 TT
Peri. = 133.77295 e = 0.3333415
Node = 234.81496 2000.0 a = 4.9081534 AU
Incl. = 12.12181 n = 0.09064146
q = 3.2720622 AU P = 10.87 years

m1 = 3.0 + 5 log(Delta) + 25.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. °'	Delta	r	Variation for T=+1 day		m1	Mot./PA ', °	Elong. °
Jan. 5	21 04.29	-06 23.4	4.280	3.509	-0.50	-2.4	19.8	20.1/ 76	34.0
Jan. 15	21 17.35	-05 33.8	4.332	3.490	-0.50	-2.5	19.8	20.7/ 74	27.6
Jan. 25	21 30.67	-04 37.6	4.370	3.472	-0.51	-2.5	19.7	21.2/ 73	21.4
Feb. 4	21 44.18	-03 35.3	4.394	3.455	-0.51	-2.5	19.7	21.5/ 72	15.7
Feb. 14	21 57.81	-02 27.5	4.402	3.439	-0.51	-2.6	19.6	21.7/ 71	11.2
Feb. 24	22 11.46	-01 14.9	4.395	3.423	-0.52	-2.6	19.6	21.8/ 69	9.3
Mar. 5	22 25.10	+00 01.9	4.374	3.407	-0.53	-2.7	19.5	21.9/ 68	11.4
Mar. 15	22 38.66	+01 22.2	4.339	3.393	-0.53	-2.7	19.5	21.8/ 68	15.8
Mar. 25	22 52.09	+02 45.1	4.290	3.379	-0.54	-2.7	19.4	21.6/ 67	21.2
Apr. 4	23 05.33	+04 10.0	4.227	3.366	-0.56	-2.7	19.3	21.3/ 66	26.9
Apr. 14	23 18.35	+05 36.1	4.152	3.354	-0.57	-2.7	19.2	20.8/ 65	32.9
Apr. 24	23 31.08	+07 02.5	4.066	3.343	-0.58	-2.7	19.1	20.3/ 65	38.9
May 4	23 43.46	+08 28.5	3.968	3.332	-0.60	-2.7	19.1	19.6/ 64	45.0
May 14	23 55.43	+09 53.2	3.861	3.322	-0.62	-2.7	19.0	18.8/ 64	51.2
May 24	00 06.91	+11 15.9	3.745	3.313	-0.64	-2.7	18.9	17.9/ 63	57.5
June 3	00 17.80	+12 35.6	3.622	3.305	-0.67	-2.6	18.8	16.7/ 63	64.0
June 13	00 28.00	+13 51.5	3.493	3.298	-0.70	-2.6	18.7	15.4/ 62	70.6
June 23	00 37.36	+15 02.6	3.359	3.291	-0.73	-2.6	18.6	13.8/ 61	77.5
July 3	00 45.76	+16 07.9	3.223	3.286	-0.76	-2.6	18.5	11.9/ 61	84.6
July 13	00 53.01	+17 06.1	3.085	3.281	-0.80	-2.5	18.3	9.8/ 59	92.0
July 23	00 58.93	+17 55.9	2.950	3.278	-0.84	-2.6	18.2	7.4/ 57	99.7
Aug. 2	01 03.34	+18 35.9	2.818	3.275	-0.89	-2.6	18.1	4.8/ 54	107.8
Aug. 12	01 06.07	+19 04.3	2.694	3.273	-0.94	-2.7	18.0	2.0/ 41	116.4
Aug. 22	01 07.00	+19 19.4	2.580	3.272	-0.99	-2.8	17.9	1.3/270	125.5
Sept. 1	01 06.09	+19 19.5	2.480	3.272	-1.03	-3.0	17.8	4.1/247	135.0
Sept.11	01 03.46	+19 03.3	2.398	3.273	-1.07	-3.2	17.8	6.6/241	144.9
Sept.21	00 59.39	+18 30.7	2.338	3.275	-1.10	-3.5	17.7	8.6/237	154.9
Oct. 1	00 54.33	+17 42.9	2.303	3.278	-1.11	-3.7	17.7	9.8/233	164.3
Oct. 11	00 48.92	+16 43.0	2.295	3.281	-1.11	-3.9	17.7	10.0/228	169.4
Oct. 21	00 43.82	+15 35.8	2.315	3.286	-1.09	-3.9	17.7	9.2/221	164.7
Oct. 31	00 39.64	+14 26.9	2.363	3.291	-1.06	-3.9	17.8	7.6/212	155.3
Nov. 10	00 36.90	+13 22.1	2.438	3.298	-1.02	-3.8	17.9	5.8/195	145.0
Nov. 20	00 35.89	+12 25.9	2.535	3.305	-0.97	-3.6	18.0	4.6/164	134.7
Nov. 30	00 36.75	+11 41.4	2.651	3.313	-0.92	-3.4	18.1	5.1/128	124.7
Dec. 10	00 39.47	+11 10.3	2.782	3.322	-0.87	-3.2	18.3	6.8/105	115.1
Dec. 20	00 43.93	+10 52.9	2.925	3.332	-0.82	-2.9	18.4	8.9/ 93	105.9
Dec. 30	00 49.98	+10 48.5	3.075	3.342	-0.78	-2.7	18.5	11.0/ 86	97.1
Jan. 9	00 57.44	+10 55.9	3.229	3.354	-0.75	-2.5	18.7	12.9/ 82	88.7
Jan. 19	01 06.11	+11 13.5	3.383	3.366	-0.72	-2.3	18.8	14.5/ 79	80.6
Jan. 29	01 15.84	+11 39.9	3.536	3.379	-0.69	-2.1	19.0	16.0/ 78	72.8
Feb. 8	01 26.48	+12 13.2	3.684	3.393	-0.66	-1.9	19.1	17.1/ 77	65.3
Feb. 18	01 37.86	+12 51.8	3.826	3.407	-0.64	-1.7	19.2	18.1/ 76	58.0
Feb. 28	01 49.90	+13 34.3	3.959	3.423	-0.62	-1.5	19.3	18.8/ 76	51.0
Mar. 10	02 02.47	+14 19.3	4.082	3.438	-0.61	-1.3	19.5	19.4/ 76	44.1
Mar. 20	02 15.48	+15 05.4	4.194	3.455	-0.59	-1.2	19.6	19.9/ 76	37.3
Mar. 30	02 28.86	+15 51.6	4.293	3.472	-0.58	-1.0	19.7	20.2/ 77	30.7

Comet 61P/Shajn-Schaldach

Epoch = 2008 Aug. 2.0 TT
T = 2008 Sept. 6.10522 TT
Peri. = 221.62150 e = 0.4264982
Node = 163.11861 2000.0 a = 3.6757035 AU
Incl. = 6.00916 n = 0.13985995
q = 2.1080226 AU P = 7.05 years

m1 = 10.6 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	20 11.08	-17 19.3	3.678	2.756	+1.76	+4.8	20.0	17.4
Jan. 15	20 28.64	-16 31.3	3.671	2.715	+1.79	+5.6	19.9	11.6
Jan. 25	20 46.51	-15 34.9	3.651	2.674	+1.81	+6.4	19.8	6.0
Feb. 4	21 04.62	-14 30.5	3.619	2.634	+1.83	+7.2	19.7	2.1
Feb. 14	21 22.92	-13 18.4	3.574	2.594	+1.84	+7.9	19.6	6.0
Feb. 24	21 41.33	-11 59.2	3.519	2.555	+1.85	+8.6	19.4	11.2
Mar. 5	21 59.84	-10 33.5	3.453	2.517	+1.86	+9.1	19.3	16.4
Mar. 15	22 18.41	-09 02.2	3.378	2.480	+1.86	+9.6	19.2	21.5
Mar. 25	22 37.01	-07 26.2	3.295	2.444	+1.86	+10.0	19.0	26.6
Apr. 4	22 55.65	-05 46.4	3.204	2.409	+1.87	+10.3	18.9	31.5
Apr. 14	23 14.30	-04 03.8	3.107	2.375	+1.87	+10.4	18.7	36.4
Apr. 24	23 32.97	-02 19.6	3.004	2.343	+1.87	+10.5	18.5	41.2
May 4	23 51.65	-00 34.9	2.897	2.312	+1.87	+10.4	18.4	45.9
May 14	00 10.33	+01 08.9	2.786	2.283	+1.87	+10.2	18.2	50.6
May 24	00 28.99	+02 50.4	2.672	2.255	+1.86	+9.8	18.0	55.3
June 3	00 47.60	+04 28.5	2.557	2.230	+1.85	+9.3	17.9	60.0
June 13	01 06.11	+06 01.5	2.440	2.207	+1.83	+8.6	17.7	64.7
June 23	01 24.46	+07 27.9	2.323	2.186	+1.81	+7.9	17.5	69.5
July 3	01 42.53	+08 46.4	2.206	2.167	+1.77	+6.9	17.4	74.4
July 13	02 00.19	+09 55.4	2.090	2.150	+1.71	+5.8	17.2	79.4
July 23	02 17.26	+10 53.6	1.976	2.137	+1.62	+4.6	17.0	84.7
Aug. 2	02 33.51	+11 39.7	1.863	2.125	+1.51	+3.3	16.9	90.2
Aug. 12	02 48.63	+12 12.5	1.754	2.117	+1.37	+1.9	16.7	96.1
Aug. 22	03 02.32	+12 31.3	1.649	2.111	+1.19	+0.4	16.6	102.4
Sept. 1	03 14.17	+12 35.5	1.549	2.108	+0.96	-1.0	16.4	109.2
Sept.11	03 23.75	+12 25.0	1.456	2.108	+0.69	-2.4	16.3	116.6
Sept.21	03 30.67	+12 00.6	1.372	2.111	+0.39	-3.7	16.2	124.7
Oct. 1	03 34.58	+11 23.4	1.299	2.117	+0.07	-4.7	16.1	133.5
Oct. 11	03 35.30	+10 36.3	1.241	2.125	-0.23	-5.3	16.0	143.0
Oct. 21	03 33.01	+09 43.5	1.201	2.136	-0.48	-5.3	15.9	153.0
Oct. 31	03 28.22	+08 50.5	1.181	2.150	-0.63	-4.6	15.9	162.9
Nov. 10	03 21.93	+08 04.3	1.185	2.166	-0.65	-3.3	16.0	169.6
Nov. 20	03 15.40	+07 31.1	1.213	2.185	-0.56	-1.6	16.1	166.2
Nov. 30	03 09.83	+07 15.4	1.265	2.206	-0.36	+0.4	16.3	156.8
Dec. 10	03 06.24	+07 19.2	1.340	2.229	-0.11	+2.2	16.5	146.7
Dec. 20	03 05.16	+07 41.5	1.434	2.255	+0.16	+3.8	16.7	136.9
Dec. 30	03 06.79	+08 19.5	1.545	2.282	+0.43	+5.0	16.9	127.6
Jan. 9	03 11.05	+09 10.0	1.671	2.311	+0.66	+5.9	17.2	118.8
Jan. 19	03 17.69	+10 09.1	1.807	2.342	+0.87	+6.4	17.4	110.6
Jan. 29	03 26.42	+11 13.5	1.951	2.374	+1.05	+6.7	17.7	102.9
Feb. 8	03 36.94	+12 20.3	2.102	2.408	+1.20	+6.7	17.9	95.6
Feb. 18	03 48.95	+13 26.8	2.257	2.443	+1.33	+6.4	18.2	88.7
Feb. 28	04 02.22	+14 31.2	2.414	2.479	+1.43	+6.0	18.4	82.0
Mar. 10	04 16.52	+15 31.7	2.571	2.516	+1.51	+5.5	18.7	75.7
Mar. 20	04 31.64	+16 26.8	2.727	2.554	+1.58	+4.9	18.9	69.5
Mar. 30	04 47.44	+17 15.6	2.881	2.593	+1.63	+4.2	19.1	63.4

Comet D/1896 R2 (Giacobini)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Sept. 9.89141 TT
Peri. = 154.23113 e = 0.5679245
Node = 179.61350 2000.0 a = 3.5409608 AU
Incl. = 15.31642 n = 0.14791847
q = 1.5299624 AU P = 6.66 years

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

0h TT	R.A.(2000)	Decl.	Delta	r	Variation for T=+1 day		m1	Mot./PA	Elong.
2008/09	h m	° '						' /°	°
Jan. 5	16 13.92	-11 28.6	3.408	2.746	-0.74	+1.0	17.5	24.7/ 93	41.2
Jan. 15	16 30.69	-11 39.3	3.254	2.684	-0.80	+0.9	17.4	24.9/ 91	47.1
Jan. 25	16 47.66	-11 39.9	3.093	2.622	-0.87	+0.8	17.1	25.1/ 88	53.0
Feb. 4	17 04.76	-11 29.4	2.925	2.559	-0.95	+0.7	16.9	25.3/ 85	58.9
Feb. 14	17 21.89	-11 07.0	2.753	2.496	-1.03	+0.5	16.7	25.4/ 82	64.7
Feb. 24	17 38.97	-10 32.0	2.579	2.433	-1.13	+0.3	16.4	25.5/ 79	70.5
Mar. 5	17 55.90	-09 43.8	2.404	2.370	-1.24	+0.1	16.2	25.4/ 76	76.1
Mar. 15	18 12.57	-08 41.9	2.230	2.307	-1.36	-0.1	15.9	25.4/ 73	81.7
Mar. 25	18 28.86	-07 26.1	2.059	2.245	-1.50	-0.4	15.6	25.2/ 69	87.3
Apr. 4	18 44.65	-05 56.2	1.892	2.182	-1.67	-0.6	15.3	24.9/ 66	92.7
Apr. 14	18 59.78	-04 12.6	1.732	2.120	-1.85	-0.9	15.0	24.4/ 62	98.1
Apr. 24	19 14.12	-02 16.1	1.578	2.059	-2.07	-1.2	14.6	23.8/ 57	103.5
May 4	19 27.48	-00 07.9	1.433	2.000	-2.32	-1.5	14.3	22.9/ 53	108.7
May 14	19 39.65	+02 09.5	1.298	1.941	-2.62	-1.8	13.9	21.6/ 48	113.9
May 24	19 50.45	+04 32.7	1.173	1.885	-2.96	-2.2	13.6	19.9/ 43	119.0
June 3	19 59.64	+06 56.8	1.058	1.831	-3.36	-2.8	13.2	17.5/ 38	124.1
June 13	20 06.99	+09 14.1	0.956	1.780	-3.82	-3.6	12.9	14.5/ 33	129.0
June 23	20 12.37	+11 15.3	0.865	1.731	-4.33	-4.8	12.6	10.5/ 28	133.8
July 3	20 15.75	+12 48.4	0.786	1.687	-4.86	-6.6	12.2	5.6/ 25	138.4
July 13	20 17.36	+13 39.2	0.719	1.647	-5.38	-8.9	12.0	0.8/126	142.7
July 23	20 17.82	+13 34.3	0.665	1.612	-5.83	-11.6	11.7	7.1/177	146.3
Aug. 2	20 18.06	+12 23.3	0.625	1.583	-6.16	-14.2	11.5	14.1/172	148.9
Aug. 12	20 19.41	+10 03.4	0.598	1.559	-6.32	-15.7	11.3	20.7/164	149.8
Aug. 22	20 23.18	+06 43.8	0.587	1.543	-6.30	-15.7	11.2	26.2/156	148.6
Sept. 1	20 30.29	+02 44.3	0.591	1.533	-6.14	-14.0	11.2	30.1/147	145.4
Sept.11	20 41.26	-01 27.2	0.611	1.530	-5.87	-11.2	11.3	32.2/137	140.8
Sept.21	20 55.97	-05 22.6	0.648	1.534	-5.53	-8.3	11.4	33.2/127	135.4
Oct. 1	21 13.83	-08 41.0	0.700	1.546	-5.14	-6.0	11.6	33.4/117	129.8
Oct. 11	21 34.08	-11 10.3	0.767	1.564	-4.73	-4.4	11.9	33.4/107	124.2
Oct. 21	21 55.85	-12 47.5	0.848	1.589	-4.32	-3.7	12.2	33.3/ 99	118.8
Oct. 31	22 18.39	-13 35.9	0.941	1.619	-3.90	-3.5	12.5	33.2/ 92	113.7
Nov. 10	22 41.16	-13 41.6	1.046	1.656	-3.51	-3.5	12.8	33.1/ 86	108.7
Nov. 20	23 03.73	-13 12.7	1.162	1.697	-3.14	-3.6	13.1	32.9/ 81	103.9
Nov. 30	23 25.89	-12 16.5	1.287	1.742	-2.80	-3.7	13.5	32.7/ 77	99.2
Dec. 10	23 47.55	-10 59.7	1.420	1.791	-2.50	-3.8	13.8	32.5/ 74	94.5
Dec. 20	00 08.65	-09 28.4	1.561	1.843	-2.24	-3.7	14.1	32.2/ 72	89.8
Dec. 30	00 29.24	-07 47.3	1.708	1.897	-2.01	-3.6	14.4	31.8/ 71	85.1
Jan. 9	00 49.38	-06 00.4	1.861	1.954	-1.81	-3.4	14.8	31.4/ 70	80.4
Jan. 19	01 09.10	-04 11.0	2.017	2.013	-1.64	-3.2	15.1	31.0/ 70	75.6
Jan. 29	01 28.47	-02 21.7	2.176	2.073	-1.49	-2.9	15.4	30.5/ 70	70.8
Feb. 8	01 47.55	-00 34.6	2.336	2.134	-1.36	-2.7	15.6	30.0/ 70	66.0
Feb. 18	02 06.36	+01 08.6	2.496	2.196	-1.24	-2.4	15.9	29.6/ 71	61.1
Feb. 28	02 24.96	+02 46.6	2.655	2.258	-1.14	-2.1	16.2	29.0/ 71	56.2
Mar. 10	02 43.36	+04 18.2	2.810	2.321	-1.05	-1.8	16.4	28.5/ 73	51.2
Mar. 20	03 01.56	+05 42.6	2.961	2.384	-0.97	-1.5	16.6	27.9/ 74	46.3
Mar. 30	03 19.58	+06 59.2	3.107	2.447	-0.90	-1.2	16.8	27.4/ 75	41.3

Comet C/2007 S2 (Lemmon)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Sept.14.43979 TT
Peri. = 210.42394 e = 0.5568765
Node = 296.25260 2000.0 a = 12.5442726 AU
Incl. = 16.86261 n = 0.02218380
q = 5.5586620 AU P = 44.43 years

m1 = 6.4 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	08 34.65	+16 10.4	4.809	5.726	-0.43	-0.5	17.4	156.9
Jan. 15	08 30.38	+16 05.5	4.748	5.713	-0.46	-0.3	17.4	167.8
Jan. 25	08 25.74	+16 02.1	4.718	5.701	-0.47	-0.2	17.3	176.8
Feb. 4	08 21.08	+15 59.6	4.719	5.689	-0.43	-0.2	17.3	168.8
Feb. 14	08 16.74	+15 57.1	4.751	5.678	-0.37	-0.3	17.3	157.9
Feb. 24	08 13.05	+15 53.8	4.811	5.667	-0.28	-0.5	17.3	147.1
Mar. 5	08 10.26	+15 49.2	4.897	5.657	-0.17	-0.7	17.4	136.4
Mar. 15	08 08.54	+15 42.7	5.004	5.647	-0.05	-0.9	17.4	126.1
Mar. 25	08 08.01	+15 33.8	5.128	5.638	+0.07	-1.1	17.5	116.1
Apr. 4	08 08.68	+15 22.5	5.263	5.629	+0.18	-1.4	17.5	106.5
Apr. 14	08 10.53	+15 08.3	5.407	5.621	+0.30	-1.7	17.6	97.2
Apr. 24	08 13.48	+14 51.0	5.554	5.613	+0.40	-2.0	17.6	88.2
May 4	08 17.45	+14 30.6	5.701	5.606	+0.49	-2.4	17.7	79.5
May 14	08 22.33	+14 06.9	5.844	5.599	+0.57	-2.7	17.7	71.1
May 24	08 27.99	+13 39.7	5.979	5.593	+0.63	-3.1	17.8	63.0
June 3	08 34.34	+13 09.1	6.105	5.587	+0.69	-3.4	17.8	55.1
June 13	08 41.25	+12 34.9	6.219	5.582	+0.74	-3.8	17.8	47.4
June 23	08 48.62	+11 57.4	6.320	5.577	+0.77	-4.1	17.9	39.8
July 3	08 56.36	+11 16.4	6.404	5.573	+0.80	-4.4	17.9	32.4
July 13	09 04.38	+10 32.2	6.472	5.569	+0.82	-4.7	17.9	25.2
July 23	09 12.59	+09 44.9	6.522	5.566	+0.83	-5.0	17.9	18.2
Aug. 2	09 20.91	+08 54.6	6.554	5.564	+0.84	-5.3	17.9	11.7
Aug. 12	09 29.27	+08 01.7	6.566	5.562	+0.83	-5.5	17.9	6.9
Aug. 22	09 37.59	+07 06.4	6.559	5.560	+0.82	-5.7	17.9	8.2
Sept. 1	09 45.80	+06 09.1	6.533	5.559	+0.80	-5.9	17.9	14.0
Sept.11	09 53.82	+05 10.0	6.487	5.559	+0.78	-6.0	17.9	20.9
Sept.21	10 01.58	+04 09.6	6.423	5.559	+0.74	-6.1	17.9	28.2
Oct. 1	10 09.02	+03 08.4	6.342	5.559	+0.70	-6.2	17.9	35.7
Oct. 11	10 16.02	+02 06.8	6.243	5.561	+0.65	-6.1	17.8	43.4
Oct. 21	10 22.53	+01 05.5	6.130	5.562	+0.59	-6.0	17.8	51.3
Oct. 31	10 28.43	+00 05.0	6.003	5.564	+0.52	-5.9	17.7	59.4
Nov. 10	10 33.64	-00 53.9	5.866	5.567	+0.44	-5.7	17.7	67.8
Nov. 20	10 38.05	-01 50.5	5.721	5.570	+0.35	-5.3	17.6	76.3
Nov. 30	10 41.57	-02 44.0	5.570	5.574	+0.25	-4.9	17.6	85.2
Dec. 10	10 44.11	-03 33.4	5.419	5.579	+0.15	-4.4	17.5	94.2
Dec. 20	10 45.59	-04 17.9	5.270	5.583	+0.04	-3.8	17.5	103.6
Dec. 30	10 45.95	-04 56.4	5.128	5.589	-0.08	-3.2	17.4	113.2
Jan. 9	10 45.20	-05 27.9	4.998	5.595	-0.18	-2.4	17.4	123.0
Jan. 19	10 43.39	-05 51.9	4.885	5.601	-0.28	-1.6	17.3	132.9
Jan. 29	10 40.61	-06 07.8	4.791	5.608	-0.35	-0.8	17.3	142.9
Feb. 8	10 37.07	-06 15.4	4.722	5.615	-0.41	0.0	17.3	152.5
Feb. 18	10 33.01	-06 15.1	4.681	5.623	-0.43	+0.7	17.3	160.8
Feb. 28	10 28.72	-06 07.9	4.668	5.632	-0.42	+1.3	17.3	165.3
Mar. 10	10 24.54	-05 55.2	4.685	5.641	-0.38	+1.6	17.3	162.6
Mar. 20	10 20.77	-05 38.8	4.731	5.650	-0.31	+1.8	17.3	155.1
Mar. 30	10 17.68	-05 20.8	4.805	5.660	-0.22	+1.8	17.3	145.9

Comet C/2006 OF2 (Broughton)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Sept.15.68332 TT
q = 2.4314000 AU Peri. = 95.61285
z = -0.0003336 Node = 318.50834 2000.0
e = 1.0008110 Incl. = 30.16984

m1 = 5.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m ′		m1	Elong. °
Jan. 5	21 51.46	-01 38.2	4.236	3.630	+0.99	+7.9	13.7	46.5
Jan. 15	22 01.40	-00 19.5	4.260	3.557	+1.07	+8.7	13.7	39.5
Jan. 25	22 12.10	+01 07.3	4.270	3.485	+1.14	+9.5	13.6	33.0
Feb. 4	22 23.48	+02 42.1	4.264	3.414	+1.20	+10.3	13.5	26.8
Feb. 14	22 35.46	+04 24.9	4.244	3.344	+1.25	+11.1	13.4	21.4
Feb. 24	22 47.99	+06 15.6	4.208	3.275	+1.30	+11.8	13.3	17.0
Mar. 5	23 01.02	+08 14.1	4.159	3.207	+1.35	+12.6	13.2	14.3
Mar. 15	23 14.53	+10 20.3	4.097	3.141	+1.40	+13.3	13.0	14.0
Mar. 25	23 28.50	+12 33.7	4.022	3.077	+1.44	+14.1	12.9	16.1
Apr. 4	23 42.94	+14 54.3	3.938	3.014	+1.49	+14.7	12.8	19.6
Apr. 14	23 57.85	+17 21.6	3.844	2.953	+1.54	+15.4	12.6	23.8
Apr. 24	00 13.28	+19 55.1	3.742	2.895	+1.60	+15.9	12.5	28.2
May 4	00 29.25	+22 34.4	3.635	2.839	+1.66	+16.4	12.3	32.7
May 14	00 45.83	+25 18.7	3.523	2.786	+1.72	+16.8	12.2	37.2
May 24	01 03.06	+28 07.1	3.408	2.735	+1.80	+17.1	12.0	41.6
June 3	01 21.04	+30 58.5	3.292	2.688	+1.88	+17.3	11.9	46.0
June 13	01 39.84	+33 51.7	3.175	2.644	+1.97	+17.3	11.7	50.2
June 23	01 59.54	+36 44.9	3.060	2.603	+2.07	+17.2	11.6	54.4
July 3	02 20.23	+39 36.4	2.947	2.566	+2.17	+16.8	11.4	58.5
July 13	02 41.94	+42 24.1	2.837	2.533	+2.28	+16.1	11.3	62.5
July 23	03 04.72	+45 05.5	2.730	2.505	+2.38	+15.3	11.2	66.5
Aug. 2	03 28.52	+47 38.5	2.627	2.481	+2.47	+14.2	11.0	70.5
Aug. 12	03 53.19	+50 00.5	2.529	2.461	+2.53	+12.9	10.9	74.6
Aug. 22	04 18.50	+52 09.6	2.435	2.447	+2.55	+11.5	10.8	78.7
Sept. 1	04 44.02	+54 04.4	2.345	2.437	+2.51	+10.0	10.7	83.0
Sept.11	05 09.17	+55 44.2	2.259	2.432	+2.41	+8.5	10.6	87.5
Sept.21	05 33.23	+57 09.0	2.177	2.432	+2.21	+7.1	10.5	92.2
Oct. 1	05 55.35	+58 20.1	2.100	2.437	+1.92	+5.9	10.5	97.2
Oct. 11	06 14.56	+59 18.7	2.027	2.447	+1.54	+4.7	10.4	102.6
Oct. 21	06 29.98	+60 06.0	1.960	2.462	+1.08	+3.6	10.4	108.4
Oct. 31	06 40.74	+60 42.5	1.900	2.482	+0.54	+2.4	10.3	114.5
Nov. 10	06 46.18	+61 06.4	1.848	2.506	-0.01	+0.7	10.3	121.0
Nov. 20	06 46.12	+61 13.6	1.808	2.535	-0.52	-1.5	10.3	127.7
Nov. 30	06 40.94	+60 58.3	1.782	2.568	-0.90	-4.5	10.4	134.2
Dec. 10	06 31.95	+60 13.5	1.773	2.605	-1.08	-7.8	10.4	139.9
Dec. 20	06 21.19	+58 55.3	1.785	2.646	-1.04	-11.1	10.5	144.1
Dec. 30	06 10.83	+57 04.6	1.820	2.690	-0.82	-13.7	10.6	145.8
Jan. 9	06 02.67	+54 47.4	1.880	2.738	-0.50	-15.4	10.7	144.2
Jan. 19	05 57.70	+52 13.9	1.964	2.789	-0.16	-16.0	10.9	139.8
Jan. 29	05 56.12	+49 33.9	2.072	2.842	+0.16	-15.8	11.1	133.6
Feb. 8	05 57.72	+46 56.0	2.202	2.899	+0.43	-15.0	11.3	126.4
Feb. 18	06 02.03	+44 25.7	2.351	2.957	+0.65	-14.0	11.6	118.8
Feb. 28	06 08.55	+42 05.7	2.517	3.018	+0.83	-12.9	11.8	111.0
Mar. 10	06 16.83	+39 56.8	2.696	3.080	+0.96	-11.8	12.0	103.4
Mar. 20	06 26.45	+37 58.6	2.884	3.145	+1.06	-10.9	12.3	95.8
Mar. 30	06 37.08	+36 09.6	3.080	3.211	+1.14	-10.1	12.5	88.4

Comet 147P/Kushida-Muramatsu

Epoch = 2008 Aug. 2.0 TT
T = 2008 Sept.22.97731 TT
Peri. = 346.88564 e = 0.2758677
Node = 93.73889 2000.0 a = 3.8064988 AU
Incl. = 2.36727 n = 0.13271363
q = 2.7564087 AU P = 7.43 years

m1 = 13.2 + 5 log(Delta) + 10.0 log(r(t-100))

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	00 15.76	-00 43.7	3.104	3.079	+0.89	+6.6	20.9	79.4
Jan. 15	00 24.66	+00 21.8	3.220	3.058	+1.01	+7.2	20.9	71.7
Jan. 25	00 34.73	+01 33.9	3.331	3.037	+1.11	+7.7	21.0	64.3
Feb. 4	00 45.83	+02 51.4	3.434	3.016	+1.20	+8.2	21.0	57.2
Feb. 14	00 57.83	+04 13.1	3.527	2.996	+1.28	+8.5	21.0	50.4
Feb. 24	01 10.62	+05 37.7	3.611	2.977	+1.35	+8.7	21.0	43.8
Mar. 5	01 24.10	+07 04.2	3.684	2.958	+1.41	+8.7	21.0	37.4
Mar. 15	01 38.22	+08 31.6	3.745	2.940	+1.47	+8.7	21.0	31.2
Mar. 25	01 52.89	+09 58.7	3.794	2.923	+1.52	+8.6	21.0	25.2
Apr. 4	02 08.06	+11 24.7	3.831	2.906	+1.56	+8.4	21.0	19.3
Apr. 14	02 23.71	+12 48.6	3.855	2.890	+1.61	+8.1	21.0	13.6
Apr. 24	02 39.76	+14 09.5	3.867	2.875	+1.64	+7.7	21.0	8.0
May 4	02 56.19	+15 26.5	3.867	2.860	+1.68	+7.2	21.0	2.7
May 14	03 12.95	+16 39.0	3.855	2.847	+1.70	+6.7	20.9	3.4
May 24	03 29.99	+17 46.0	3.831	2.834	+1.73	+6.1	20.9	8.6
June 3	03 47.27	+18 47.2	3.796	2.822	+1.74	+5.5	20.8	13.9
June 13	04 04.71	+19 41.7	3.750	2.811	+1.75	+4.8	20.8	19.3
June 23	04 22.25	+20 29.3	3.693	2.801	+1.76	+4.0	20.7	24.6
July 3	04 39.82	+21 09.7	3.626	2.792	+1.75	+3.3	20.7	30.0
July 13	04 57.31	+21 42.5	3.549	2.784	+1.73	+2.5	20.6	35.4
July 23	05 14.62	+22 07.9	3.464	2.777	+1.70	+1.8	20.5	40.9
Aug. 2	05 31.65	+22 26.0	3.370	2.771	+1.66	+1.1	20.4	46.5
Aug. 12	05 48.26	+22 37.1	3.267	2.766	+1.61	+0.5	20.3	52.3
Aug. 22	06 04.32	+22 41.9	3.158	2.762	+1.53	-0.1	20.2	58.2
Sept. 1	06 19.66	+22 40.9	3.043	2.759	+1.45	-0.6	20.1	64.3
Sept.11	06 34.12	+22 35.4	2.922	2.757	+1.34	-0.9	20.0	70.6
Sept.21	06 47.50	+22 26.4	2.797	2.756	+1.21	-1.1	19.9	77.3
Oct. 1	06 59.60	+22 15.4	2.670	2.757	+1.06	-1.1	19.8	84.3
Oct. 11	07 10.17	+22 04.0	2.542	2.758	+0.88	-1.0	19.7	91.7
Oct. 21	07 18.97	+21 54.0	2.415	2.761	+0.68	-0.7	19.6	99.6
Oct. 31	07 25.72	+21 47.0	2.291	2.764	+0.44	-0.2	19.4	108.0
Nov. 10	07 30.15	+21 44.7	2.175	2.769	+0.19	+0.4	19.3	117.0
Nov. 20	07 32.05	+21 48.4	2.069	2.774	-0.08	+1.0	19.2	126.6
Nov. 30	07 31.28	+21 58.7	1.978	2.781	-0.34	+1.6	19.1	136.9
Dec. 10	07 27.89	+22 15.2	1.905	2.789	-0.57	+2.1	19.0	147.9
Dec. 20	07 22.23	+22 36.1	1.855	2.797	-0.73	+2.3	18.9	159.4
Dec. 30	07 14.91	+22 59.2	1.831	2.807	-0.80	+2.2	18.9	171.3
Jan. 9	07 06.87	+23 21.5	1.835	2.818	-0.77	+1.9	18.9	176.5
Jan. 19	06 59.19	+23 40.8	1.868	2.829	-0.64	+1.5	19.0	164.6
Jan. 29	06 52.83	+23 55.9	1.929	2.841	-0.43	+1.0	19.0	153.0
Feb. 8	06 48.56	+24 06.2	2.013	2.855	-0.18	+0.6	19.1	141.8
Feb. 18	06 46.78	+24 12.3	2.119	2.869	+0.08	+0.2	19.3	131.3
Feb. 28	06 47.60	+24 14.4	2.241	2.884	+0.33	-0.2	19.4	121.4
Mar. 10	06 50.94	+24 12.7	2.375	2.900	+0.56	-0.6	19.5	112.2
Mar. 20	06 56.53	+24 07.2	2.518	2.916	+0.76	-1.0	19.7	103.5
Mar. 30	07 04.11	+23 57.6	2.667	2.933	+0.93	-1.4	19.8	95.3

Comet 7P/Pons-Winnecke

Epoch = 2008 Aug. 2.0 TT
T = 2008 Sept.26.63468 TT
Peri. = 172.32942 e = 0.6348728
Node = 93.42283 2000.0 a = 3.4324131 AU
Incl. = 22.31027 n = 0.15499038
q = 1.2532674 AU P = 6.36 years

m1 = 11.8 + 5 log(Delta) + 12.5 log(r(t-50))

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m	° ′			m	′		°
Jan. 5	11 36.18	+27 27.4	2.330	2.926	+0.33	+10.1	20.0	118.2
Jan. 15	11 39.52	+29 08.6	2.159	2.858	+0.09	+12.1	19.8	126.7
Jan. 25	11 40.44	+31 09.9	2.006	2.789	-0.19	+13.8	19.5	134.9
Feb. 4	11 38.52	+33 27.5	1.873	2.719	-0.50	+14.6	19.2	142.1
Feb. 14	11 33.49	+35 53.4	1.764	2.648	-0.81	+14.2	19.0	147.2
Feb. 24	11 25.37	+38 15.5	1.680	2.577	-1.07	+12.4	18.8	148.6
Mar. 5	11 14.65	+40 19.7	1.622	2.504	-1.22	+9.3	18.6	145.6
Mar. 15	11 02.41	+41 52.3	1.588	2.430	-1.22	+5.2	18.4	139.3
Mar. 25	10 50.25	+42 44.5	1.575	2.356	-1.04	+0.9	18.2	131.3
Apr. 4	10 39.82	+42 53.9	1.579	2.281	-0.74	-3.1	18.1	122.7
Apr. 14	10 32.46	+42 23.2	1.595	2.206	-0.35	-6.5	18.0	114.2
Apr. 24	10 28.92	+41 18.6	1.619	2.130	+0.04	-9.2	17.8	106.1
May 4	10 29.36	+39 46.4	1.646	2.053	+0.43	-11.5	17.7	98.5
May 14	10 33.62	+37 51.4	1.672	1.977	+0.77	-13.4	17.6	91.5
May 24	10 41.28	+35 37.0	1.696	1.901	+1.06	-15.2	17.4	85.2
June 3	10 51.91	+33 05.0	1.716	1.826	+1.32	-16.9	17.3	79.4
June 13	11 05.10	+30 15.7	1.729	1.751	+1.54	-18.7	17.1	74.2
June 23	11 20.49	+27 09.2	1.737	1.679	+1.73	-20.4	16.9	69.6
July 3	11 37.81	+23 44.7	1.739	1.609	+1.91	-22.3	16.7	65.4
July 13	11 56.88	+20 01.6	1.735	1.542	+2.07	-24.2	16.5	61.8
July 23	12 17.54	+15 59.8	1.727	1.478	+2.22	-26.1	16.3	58.6
Aug. 2	12 39.75	+11 39.3	1.717	1.421	+2.38	-27.8	16.0	55.8
Aug. 12	13 03.54	+07 01.3	1.706	1.369	+2.54	-29.3	15.8	53.4
Aug. 22	13 28.94	+02 08.7	1.696	1.326	+2.72	-30.3	15.5	51.4
Sept. 1	13 56.10	-02 54.5	1.689	1.292	+2.91	-30.7	15.3	49.7
Sept.11	14 25.19	-08 01.8	1.688	1.268	+3.12	-30.3	15.1	48.4
Sept.21	14 56.38	-13 04.9	1.695	1.255	+3.35	-28.9	14.9	47.3
Oct. 1	15 29.86	-17 53.7	1.712	1.254	+3.58	-26.4	14.7	46.5
Oct. 11	16 05.70	-22 17.3	1.739	1.266	+3.81	-22.7	14.5	45.8
Oct. 21	16 43.77	-26 04.6	1.779	1.288	+4.00	-18.2	14.4	45.2
Oct. 31	17 23.73	-29 06.5	1.830	1.321	+4.12	-13.0	14.4	44.5
Nov. 10	18 04.89	-31 16.6	1.894	1.363	+4.14	-7.6	14.4	43.8
Nov. 20	18 46.31	-32 32.8	1.968	1.414	+4.07	-2.4	14.5	42.8
Nov. 30	19 27.01	-32 57.2	2.054	1.471	+3.91	+2.2	14.6	41.6
Dec. 10	20 06.11	-32 35.5	2.148	1.533	+3.69	+6.0	14.8	40.2
Dec. 20	20 42.97	-31 35.7	2.250	1.600	+3.43	+8.9	15.1	38.4
Dec. 30	21 17.30	-30 06.4	2.358	1.670	+3.18	+11.0	15.3	36.3
Jan. 9	21 49.05	-28 15.9	2.470	1.742	+2.93	+12.4	15.6	33.9
Jan. 19	22 18.35	-26 11.5	2.584	1.816	+2.71	+13.3	16.0	31.3
Jan. 29	22 45.44	-23 59.0	2.698	1.891	+2.51	+13.6	16.3	28.4
Feb. 8	23 10.56	-21 43.0	2.811	1.967	+2.34	+13.6	16.6	25.5
Feb. 18	23 33.98	-19 27.3	2.920	2.043	+2.20	+13.3	16.9	22.6
Feb. 28	23 55.93	-17 14.2	3.025	2.120	+2.07	+12.8	17.2	19.8
Mar. 10	00 16.61	-15 06.0	3.123	2.196	+1.96	+12.2	17.5	17.5
Mar. 20	00 36.18	-13 04.2	3.212	2.271	+1.86	+11.5	17.8	16.0
Mar. 30	00 54.76	-11 09.6	3.292	2.346	+1.77	+10.6	18.1	15.7

Comet C/2008 A1 (McNaught)

T = 2008 Sept.29.09245 TT
q = 1.0726752 AU Peri. = 348.49795
Node = 277.85489 2000.0
e = 1.0 Incl. = 82.52695

m1 = 6.5 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	06 44.88	-43 07.8	3.281	3.790	-1.70	-6.0	14.9	114.1
Jan. 15	06 27.92	-44 08.2	3.196	3.684	-1.73	-2.5	14.7	112.3
Jan. 25	06 10.67	-44 33.0	3.131	3.576	-1.63	+1.0	14.5	109.1
Feb. 4	05 54.32	-44 23.2	3.082	3.468	-1.44	+4.0	14.3	104.9
Feb. 14	05 39.96	-43 43.4	3.045	3.359	-1.16	+6.2	14.2	99.9
Feb. 24	05 28.34	-42 40.9	3.018	3.249	-0.86	+7.7	14.0	94.5
Mar. 5	05 19.78	-41 23.6	2.994	3.138	-0.54	+8.4	13.8	89.0
Mar. 15	05 14.35	-39 59.2	2.971	3.027	-0.25	+8.5	13.7	83.6
Mar. 25	05 11.89	-38 34.3	2.943	2.914	+0.03	+8.0	13.5	78.5
Apr. 4	05 12.18	-37 14.1	2.908	2.800	+0.28	+7.1	13.3	73.8
Apr. 14	05 14.98	-36 03.0	2.863	2.685	+0.51	+5.9	13.1	69.7
Apr. 24	05 20.07	-35 04.2	2.806	2.570	+0.72	+4.4	12.8	66.2
May 4	05 27.32	-34 20.6	2.734	2.454	+0.93	+2.6	12.6	63.4
May 14	05 36.66	-33 54.6	2.648	2.337	+1.14	+0.6	12.3	61.3
May 24	05 48.10	-33 48.7	2.547	2.220	+1.37	-1.7	12.0	59.9
June 3	06 01.82	-34 05.3	2.431	2.102	+1.63	-4.2	11.7	59.3
June 13	06 18.13	-34 47.1	2.301	1.985	+1.94	-7.0	11.3	59.3
June 23	06 37.57	-35 56.7	2.160	1.868	+2.35	-9.9	10.9	59.8
July 3	07 01.05	-37 36.1	2.011	1.753	+2.90	-12.9	10.5	60.6
July 13	07 30.01	-39 45.5	1.858	1.640	+3.66	-15.4	10.0	61.6
July 23	08 06.59	-42 19.3	1.708	1.530	+4.72	-16.0	9.5	62.4
Aug. 2	08 53.78	-44 59.1	1.568	1.425	+6.07	-12.5	9.0	62.7
Aug. 12	09 54.45	-47 03.7	1.450	1.328	+7.36	-2.0	8.5	62.3
Aug. 22	11 08.04	-47 23.4	1.366	1.241	+7.84	+15.0	8.1	60.8
Sept. 1	12 26.42	-44 53.1	1.327	1.168	+7.10	+32.1	7.8	58.1
Sept.11	13 37.47	-39 32.5	1.337	1.114	+5.73	+42.2	7.6	54.6
Sept.21	14 34.79	-32 30.1	1.394	1.081	+4.44	+44.6	7.6	50.5
Oct. 1	15 19.20	-25 04.1	1.485	1.073	+3.49	+42.2	7.7	46.2
Oct. 11	15 54.08	-18 02.1	1.597	1.091	+2.85	+38.1	7.9	42.3
Oct. 21	16 22.59	-11 40.6	1.716	1.132	+2.45	+34.1	8.2	39.0
Oct. 31	16 47.08	-05 59.5	1.834	1.194	+2.20	+30.8	8.6	36.6
Nov. 10	17 09.12	-00 51.1	1.944	1.273	+2.06	+28.5	9.0	35.4
Nov. 20	17 29.72	+03 53.6	2.044	1.364	+1.98	+26.9	9.4	35.3
Nov. 30	17 49.54	+08 23.1	2.135	1.464	+1.95	+26.1	9.8	36.5
Dec. 10	18 09.00	+12 44.4	2.216	1.571	+1.93	+25.8	10.2	38.6
Dec. 20	18 28.34	+17 02.8	2.289	1.682	+1.94	+25.9	10.6	41.4
Dec. 30	18 47.74	+21 21.9	2.359	1.796	+1.95	+26.2	10.9	44.6
Jan. 9	19 07.28	+25 43.8	2.426	1.912	+1.97	+26.5	11.2	48.0
Jan. 19	19 27.03	+30 08.8	2.493	2.029	+2.00	+26.8	11.6	51.3
Jan. 29	19 47.04	+34 36.3	2.565	2.147	+2.03	+26.8	11.9	54.4
Feb. 8	20 07.33	+39 04.8	2.641	2.264	+2.06	+26.7	12.2	57.2
Feb. 18	20 27.96	+43 31.7	2.724	2.381	+2.10	+26.3	12.4	59.6
Feb. 28	20 49.01	+47 54.6	2.815	2.498	+2.15	+25.6	12.7	61.4
Mar. 10	21 10.53	+52 10.7	2.914	2.614	+2.22	+24.7	13.0	62.8
Mar. 20	21 32.68	+56 17.6	3.021	2.729	+2.30	+23.6	13.3	63.6
Mar. 30	21 55.65	+60 13.3	3.134	2.843	+2.40	+22.3	13.5	64.1

Comet 187P/LINEAR

Epoch = 2008 Aug. 2.0 TT
T = 2008 Oct. 6.03195 TT
Peri. = 131.91772 e = 0.1703962
Node = 112.00287 2000.0 a = 4.4518583 AU
Incl. = 13.73228 n = 0.10492816
q = 3.6932786 AU P = 9.39 years

m1 = 5.0 + 5 log(Delta) + 20.0 log(r(t-150))

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	14 37.61	-01 56.6	4.103	3.826	+0.88	-1.5	19.1	66.9
Jan. 15	14 46.38	-02 12.0	3.957	3.817	+0.78	-0.7	19.0	74.7
Jan. 25	14 54.21	-02 18.9	3.806	3.808	+0.67	+0.2	18.9	82.7
Feb. 4	15 00.94	-02 17.1	3.653	3.800	+0.54	+1.0	18.7	90.9
Feb. 14	15 06.37	-02 06.7	3.502	3.791	+0.40	+1.9	18.6	99.5
Feb. 24	15 10.34	-01 48.0	3.355	3.784	+0.24	+2.6	18.5	108.3
Mar. 5	15 12.70	-01 22.0	3.216	3.776	+0.06	+3.2	18.4	117.4
Mar. 15	15 13.32	-00 49.9	3.089	3.769	-0.11	+3.6	18.3	126.7
Mar. 25	15 12.20	-00 13.8	2.978	3.762	-0.28	+3.8	18.2	136.2
Apr. 4	15 09.40	+00 23.9	2.888	3.755	-0.43	+3.6	18.1	145.5
Apr. 14	15 05.13	+01 00.0	2.820	3.749	-0.54	+3.1	18.0	154.1
Apr. 24	14 59.75	+01 31.0	2.779	3.743	-0.60	+2.3	18.0	160.6
May 4	14 53.73	+01 53.9	2.765	3.737	-0.61	+1.2	17.9	162.0
May 14	14 47.62	+02 05.8	2.778	3.732	-0.56	-0.1	17.9	157.4
May 24	14 41.98	+02 05.3	2.818	3.727	-0.47	-1.4	17.9	149.5
June 3	14 37.27	+01 51.7	2.882	3.722	-0.34	-2.6	18.0	140.6
June 13	14 33.87	+01 25.5	2.967	3.718	-0.19	-3.7	18.0	131.4
June 23	14 31.99	+00 48.0	3.070	3.714	-0.03	-4.7	18.0	122.3
July 3	14 31.73	+00 00.9	3.186	3.710	+0.14	-5.5	18.1	113.5
July 13	14 33.10	-00 54.1	3.312	3.707	+0.29	-6.1	18.2	104.9
July 23	14 36.03	-01 55.2	3.445	3.704	+0.44	-6.6	18.2	96.7
Aug. 2	14 40.42	-03 00.8	3.582	3.701	+0.57	-6.9	18.3	88.7
Aug. 12	14 46.15	-04 09.5	3.719	3.699	+0.69	-7.0	18.4	81.0
Aug. 22	14 53.09	-05 19.9	3.853	3.697	+0.80	-7.1	18.4	73.6
Sept. 1	15 01.11	-06 31.0	3.983	3.696	+0.90	-7.1	18.5	66.3
Sept.11	15 10.12	-07 41.7	4.107	3.694	+0.99	-6.9	18.5	59.2
Sept.21	15 19.98	-08 51.0	4.222	3.694	+1.06	-6.7	18.6	52.3
Oct. 1	15 30.61	-09 58.3	4.327	3.693	+1.13	-6.4	18.6	45.4
Oct. 11	15 41.92	-11 02.8	4.420	3.693	+1.19	-6.1	18.7	38.6
Oct. 21	15 53.81	-12 03.7	4.500	3.694	+1.24	-5.7	18.7	32.0
Oct. 31	16 06.20	-13 00.6	4.567	3.694	+1.28	-5.2	18.7	25.4
Nov. 10	16 19.01	-13 52.9	4.618	3.696	+1.31	-4.7	18.7	18.9
Nov. 20	16 32.13	-14 40.1	4.654	3.697	+1.34	-4.2	18.7	12.8
Nov. 30	16 45.51	-15 21.9	4.673	3.699	+1.35	-3.6	18.7	7.9
Dec. 10	16 59.02	-15 58.1	4.676	3.701	+1.36	-3.0	18.7	7.3
Dec. 20	17 12.58	-16 28.6	4.661	3.704	+1.35	-2.5	18.7	11.7
Dec. 30	17 26.10	-16 53.2	4.631	3.707	+1.34	-1.9	18.7	17.8
Jan. 9	17 39.46	-17 12.3	4.583	3.710	+1.31	-1.4	18.7	24.4
Jan. 19	17 52.55	-17 26.0	4.520	3.713	+1.27	-0.9	18.6	31.2
Jan. 29	18 05.27	-17 34.7	4.441	3.717	+1.22	-0.4	18.6	38.2
Feb. 8	18 17.48	-17 39.0	4.349	3.722	+1.16	-0.1	18.5	45.3
Feb. 18	18 29.07	-17 39.6	4.243	3.726	+1.08	+0.2	18.5	52.6
Feb. 28	18 39.91	-17 37.3	4.127	3.732	+1.00	+0.4	18.4	60.0
Mar. 10	18 49.87	-17 33.0	4.001	3.737	+0.89	+0.5	18.4	67.6
Mar. 20	18 58.79	-17 27.9	3.868	3.743	+0.78	+0.5	18.3	75.4
Mar. 30	19 06.55	-17 23.0	3.730	3.749	+0.64	+0.3	18.2	83.4

Comet P/2001 CV8 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Oct. 11.23409 TT
Peri. = 151.62644 e = 0.4442097
Node = 359.89418 2000.0 a = 3.8862206 AU
Incl. = 9.03514 n = 0.12865092
q = 2.1599237 AU P = 7.66 years

m1 = 10.4 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		m1	Mot./PA ″/°	Elong. °
Jan. 5	03 10.53	+29 17.9	2.246	2.959	−0.94	−5.5	21.6	2.8/201	128.4
Jan. 15	03 09.77	+28 52.0	2.319	2.916	−0.90	−5.3	21.5	3.2/123	118.3
Jan. 25	03 11.83	+28 34.2	2.403	2.874	−0.86	−5.0	21.5	6.3/ 98	108.7
Feb. 4	03 16.56	+28 25.4	2.494	2.832	−0.83	−4.6	21.4	9.5/ 90	99.7
Feb. 14	03 23.75	+28 25.1	2.588	2.790	−0.82	−4.3	21.4	12.5/ 86	91.2
Feb. 24	03 33.18	+28 32.3	2.682	2.748	−0.81	−3.9	21.3	15.1/ 84	83.3
Mar. 5	03 44.60	+28 45.2	2.773	2.707	−0.81	−3.5	21.3	17.4/ 84	75.9
Mar. 15	03 57.83	+29 01.9	2.859	2.667	−0.82	−3.1	21.2	19.5/ 84	68.9
Mar. 25	04 12.65	+29 20.4	2.939	2.627	−0.83	−2.7	21.1	21.3/ 84	62.3
Apr. 4	04 28.92	+29 38.5	3.011	2.589	−0.85	−2.2	21.1	22.9/ 85	56.0
Apr. 14	04 46.49	+29 54.3	3.075	2.551	−0.87	−1.8	21.0	24.3/ 86	50.1
Apr. 24	05 05.19	+30 05.7	3.131	2.514	−0.89	−1.3	20.9	25.6/ 88	44.5
May 4	05 24.91	+30 11.1	3.178	2.478	−0.91	−0.7	20.8	26.7/ 89	39.1
May 14	05 45.50	+30 08.7	3.215	2.443	−0.93	−0.2	20.7	27.7/ 91	34.0
May 24	06 06.82	+29 57.3	3.245	2.410	−0.95	+0.5	20.6	28.6/ 93	29.1
June 3	06 28.72	+29 35.5	3.265	2.379	−0.97	+1.1	20.5	29.4/ 95	24.4
June 13	06 51.07	+29 02.5	3.278	2.349	−0.98	+1.8	20.4	30.1/ 97	19.9
June 23	07 13.71	+28 17.6	3.283	2.320	−0.99	+2.5	20.3	30.8/ 99	15.6
July 3	07 36.51	+27 20.5	3.281	2.294	−1.00	+3.2	20.2	31.4/101	11.5
July 13	07 59.34	+26 11.1	3.272	2.270	−1.00	+3.8	20.1	31.9/104	8.0
July 23	08 22.09	+24 49.7	3.257	2.247	−0.99	+4.5	20.0	32.3/106	5.5
Aug. 2	08 44.67	+23 16.7	3.235	2.228	−0.99	+5.2	19.9	32.6/107	5.6
Aug. 12	09 07.00	+21 33.0	3.208	2.210	−0.98	+5.8	19.8	32.9/109	8.2
Aug. 22	09 29.00	+19 39.4	3.176	2.195	−0.97	+6.4	19.7	33.1/111	11.7
Sept. 1	09 50.65	+17 37.1	3.138	2.183	−0.95	+6.9	19.7	33.2/112	15.5
Sept.11	10 11.90	+15 27.3	3.095	2.173	−0.94	+7.4	19.6	33.2/113	19.5
Sept.21	10 32.75	+13 11.4	3.048	2.166	−0.93	+7.8	19.5	33.1/115	23.6
Oct. 1	10 53.18	+10 50.8	2.996	2.161	−0.92	+8.2	19.5	32.9/115	27.8
Oct. 11	11 13.18	+08 27.1	2.939	2.160	−0.91	+8.4	19.4	32.5/116	32.1
Oct. 21	11 32.73	+06 01.6	2.878	2.161	−0.91	+8.7	19.4	32.0/117	36.6
Oct. 31	11 51.82	+03 35.8	2.812	2.165	−0.90	+8.9	19.4	31.4/117	41.2
Nov. 10	12 10.42	+01 11.1	2.741	2.172	−0.91	+9.0	19.3	30.6/118	46.0
Nov. 20	12 28.48	−01 11.1	2.665	2.182	−0.91	+9.0	19.3	29.6/118	50.9
Nov. 30	12 45.94	−03 29.5	2.586	2.194	−0.92	+9.1	19.3	28.4/118	56.1
Dec. 10	13 02.69	−05 43.1	2.502	2.209	−0.93	+9.1	19.3	26.9/119	61.5
Dec. 20	13 18.62	−07 50.8	2.414	2.227	−0.95	+9.1	19.3	25.2/119	67.2
Dec. 30	13 33.56	−09 51.9	2.323	2.246	−0.97	+9.0	19.3	23.2/120	73.3
Jan. 9	13 47.31	−11 45.4	2.229	2.269	−1.00	+9.0	19.3	20.9/121	79.6
Jan. 19	13 59.62	−13 31.1	2.134	2.293	−1.04	+9.0	19.3	18.2/123	86.4
Jan. 29	14 10.21	−15 08.3	2.039	2.319	−1.09	+9.0	19.3	15.1/126	93.6
Feb. 8	14 18.74	−16 36.5	1.946	2.347	−1.15	+9.0	19.3	11.8/132	101.3
Feb. 18	14 24.90	−17 55.3	1.856	2.377	−1.22	+9.1	19.3	8.4/145	109.6
Feb. 28	14 28.34	−19 03.7	1.774	2.409	−1.30	+9.3	19.3	5.7/173	118.4
Mar. 10	14 28.83	−20 00.5	1.702	2.442	−1.38	+9.5	19.3	5.6/218	128.0
Mar. 20	14 26.36	−20 44.2	1.644	2.476	−1.47	+9.9	19.4	7.9/248	138.1
Mar. 30	14 21.13	−21 13.0	1.605	2.512	−1.54	+10.3	19.4	10.4/262	148.7

Comet 172P/Yeung

Epoch = 2008 Aug. 2.0 TT
M = 349.24081 e = 0.3618465
Peri. = 178.98985 a = 3.5108818 AU
Node = 40.08857 2000.0 n = 0.14982344
Incl. = 11.51784 P = 6.58 years

H = 13.8 G = 0.15

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	V	Elong. °
Jan. 5	10 48.60	+24 02.0	2.169	2.880	-0.03	+4.6	18.6	128.0
Jan. 15	10 48.33	+24 48.1	2.040	2.845	-0.29	+5.5	18.4	137.6
Jan. 25	10 45.44	+25 42.7	1.931	2.810	-0.54	+5.8	18.2	147.3
Feb. 4	10 40.01	+26 40.4	1.845	2.776	-0.76	+5.3	17.9	156.3
Feb. 14	10 32.45	+27 33.8	1.784	2.742	-0.89	+4.1	17.7	162.3
Feb. 24	10 23.57	+28 14.7	1.751	2.708	-0.91	+2.2	17.7	161.6
Mar. 5	10 14.43	+28 36.5	1.745	2.675	-0.82	-0.1	17.8	154.6
Mar. 15	10 06.22	+28 35.3	1.763	2.642	-0.63	-2.4	17.9	145.3
Mar. 25	09 59.94	+28 10.9	1.804	2.610	-0.37	-4.5	18.0	135.5
Apr. 4	09 56.23	+27 25.5	1.862	2.579	-0.08	-6.3	18.2	125.9
Apr. 14	09 55.38	+26 22.3	1.934	2.549	+0.20	-7.7	18.3	116.8
Apr. 24	09 57.37	+25 04.9	2.016	2.520	+0.46	-8.9	18.4	108.3
May 4	10 01.95	+23 35.9	2.105	2.491	+0.69	-9.9	18.5	100.3
May 14	10 08.84	+21 57.3	2.197	2.464	+0.88	-10.7	18.6	92.9
May 24	10 17.68	+20 10.6	2.290	2.438	+1.05	-11.4	18.7	85.9
June 3	10 28.17	+18 16.7	2.383	2.413	+1.19	-12.0	18.7	79.4
June 13	10 40.03	+16 16.3	2.474	2.389	+1.30	-12.6	18.8	73.3
June 23	10 53.04	+14 10.1	2.561	2.367	+1.40	-13.1	18.8	67.5
July 3	11 07.00	+11 58.7	2.645	2.346	+1.48	-13.6	18.8	62.0
July 13	11 21.77	+09 42.5	2.725	2.327	+1.55	-14.0	18.9	56.7
July 23	11 37.24	+07 22.4	2.799	2.310	+1.61	-14.3	18.9	51.6
Aug. 2	11 53.32	+04 58.9	2.869	2.294	+1.66	-14.6	18.9	46.6
Aug. 12	12 09.97	+02 32.9	2.933	2.281	+1.72	-14.8	18.8	41.8
Aug. 22	12 27.13	+00 05.3	2.992	2.269	+1.77	-14.8	18.8	37.1
Sept. 1	12 44.80	-02 23.0	3.044	2.259	+1.82	-14.8	18.8	32.5
Sept.11	13 02.95	-04 50.9	3.091	2.251	+1.86	-14.6	18.7	27.9
Sept.21	13 21.59	-07 17.2	3.132	2.246	+1.91	-14.4	18.7	23.3
Oct. 1	13 40.71	-09 41.0	3.166	2.242	+1.96	-14.0	18.6	18.8
Oct. 11	14 00.33	-12 01.0	3.194	2.241	+2.01	-13.5	18.6	14.3
Oct. 21	14 20.44	-14 15.9	3.216	2.241	+2.06	-12.9	18.5	9.7
Oct. 31	14 41.03	-16 24.6	3.231	2.244	+2.11	-12.1	18.4	5.2
Nov. 10	15 02.09	-18 25.8	3.239	2.249	+2.15	-11.3	18.2	1.3
Nov. 20	15 23.57	-20 18.5	3.240	2.256	+2.19	-10.3	18.4	4.5
Nov. 30	15 45.43	-22 01.6	3.233	2.265	+2.22	-9.3	18.5	9.2
Dec. 10	16 07.60	-23 34.5	3.219	2.276	+2.24	-8.2	18.6	14.0
Dec. 20	16 29.97	-24 56.3	3.197	2.289	+2.25	-7.1	18.7	18.9
Dec. 30	16 52.45	-26 06.8	3.168	2.304	+2.24	-5.9	18.8	23.9
Jan. 9	17 14.89	-27 05.9	3.131	2.321	+2.23	-4.8	18.8	29.0
Jan. 19	17 37.15	-27 54.0	3.086	2.339	+2.19	-3.8	18.9	34.2
Jan. 29	17 59.06	-28 31.5	3.033	2.359	+2.14	-2.8	18.9	39.6
Feb. 8	18 20.46	-28 59.6	2.973	2.381	+2.07	-2.0	19.0	45.0
Feb. 18	18 41.17	-29 19.4	2.907	2.404	+1.99	-1.3	19.0	50.6
Feb. 28	19 01.03	-29 32.6	2.833	2.428	+1.88	-0.9	19.0	56.3
Mar. 10	19 19.87	-29 41.2	2.753	2.454	+1.77	-0.6	19.0	62.3
Mar. 20	19 37.52	-29 47.0	2.668	2.481	+1.63	-0.5	19.0	68.4
Mar. 30	19 53.81	-29 52.5	2.579	2.509	+1.47	-0.7	18.9	74.8

Comet 25D/Neujmin [Orbit 2]

Epoch = 2008 Aug. 2.0 TT
T = 2008 Oct. 14.96680 TT
Peri. = 214.88486 e = 0.5862193
Node = 307.79216 2000.0 a = 3.0747323 AU
Incl. = 5.36084 n = 0.18280712
q = 1.2722649 AU P = 5.39 years

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' / °	Elong. °
Jan. 5	01 08.76	+13 43.8	2.640	2.930	-0.47	-3.2	17.3	6.7/ 84	97.2
Jan. 15	01 13.37	+13 50.5	2.728	2.869	-0.46	-3.1	17.3	9.8/ 78	88.1
Jan. 25	01 19.98	+14 10.0	2.814	2.808	-0.46	-2.9	17.2	12.6/ 76	79.6
Feb. 4	01 28.39	+14 40.8	2.893	2.745	-0.47	-2.8	17.2	15.1/ 74	71.5
Feb. 14	01 38.44	+15 21.4	2.964	2.681	-0.48	-2.7	17.1	17.4/ 73	63.9
Feb. 24	01 50.00	+16 10.1	3.024	2.616	-0.50	-2.7	17.1	19.4/ 73	56.8
Mar. 5	02 02.95	+17 05.2	3.072	2.550	-0.53	-2.6	17.0	21.3/ 73	50.0
Mar. 15	02 17.22	+18 05.0	3.108	2.483	-0.56	-2.6	16.9	23.0/ 73	43.6
Mar. 25	02 32.77	+19 08.0	3.130	2.416	-0.60	-2.5	16.8	24.6/ 74	37.5
Apr. 4	02 49.56	+20 12.3	3.138	2.347	-0.65	-2.4	16.7	26.1/ 75	31.7
Apr. 14	03 07.61	+21 16.3	3.134	2.278	-0.70	-2.3	16.6	27.6/ 76	26.3
Apr. 24	03 26.91	+22 18.2	3.116	2.208	-0.76	-2.1	16.4	29.1/ 78	21.2
May 4	03 47.50	+23 15.9	3.086	2.137	-0.83	-1.9	16.2	30.5/ 79	16.3
May 14	04 09.43	+24 07.5	3.045	2.067	-0.91	-1.5	16.1	32.1/ 81	11.8
May 24	04 32.69	+24 50.6	2.995	1.996	-0.99	-1.1	15.9	33.6/ 83	7.7
June 3	04 57.34	+25 22.7	2.935	1.925	-1.08	-0.5	15.7	35.3/ 86	4.2
June 13	05 23.37	+25 41.1	2.868	1.854	-1.17	+0.2	15.5	37.0/ 88	2.6
June 23	05 50.75	+25 43.1	2.796	1.785	-1.26	+1.1	15.2	38.8/ 91	4.5
July 3	06 19.42	+25 25.7	2.720	1.716	-1.36	+2.2	15.0	40.7/ 94	7.2
July 13	06 49.27	+24 46.1	2.642	1.649	-1.45	+3.4	14.8	42.7/ 97	9.9
July 23	07 20.15	+23 41.7	2.563	1.585	-1.53	+4.8	14.5	44.8/100	12.2
Aug. 2	07 51.91	+22 10.6	2.487	1.524	-1.60	+6.3	14.3	46.9/103	14.3
Aug. 12	08 24.31	+20 11.5	2.414	1.467	-1.66	+8.0	14.1	48.9/106	16.0
Aug. 22	08 57.16	+17 44.3	2.347	1.415	-1.71	+9.5	13.9	50.8/109	17.5
Sept. 1	09 30.29	+14 50.3	2.287	1.370	-1.74	+11.0	13.7	52.4/111	18.7
Sept.11	10 03.53	+11 32.1	2.236	1.332	-1.76	+12.3	13.5	53.8/113	19.6
Sept.21	10 36.77	+07 54.0	2.195	1.303	-1.76	+13.2	13.4	54.7/115	20.5
Oct. 1	11 09.96	+04 01.7	2.164	1.283	-1.76	+13.7	13.3	55.1/116	21.2
Oct. 11	11 43.04	+00 01.7	2.144	1.273	-1.75	+13.8	13.2	54.9/116	21.9
Oct. 21	12 16.01	-03 58.6	2.134	1.274	-1.74	+13.3	13.2	54.3/116	22.7
Oct. 31	12 48.86	-07 52.3	2.132	1.286	-1.71	+12.5	13.2	53.1/115	23.6
Nov. 10	13 21.54	-11 32.8	2.139	1.308	-1.68	+11.3	13.3	51.5/114	24.8
Nov. 20	13 53.99	-14 54.7	2.151	1.339	-1.65	+9.9	13.4	49.6/112	26.3
Nov. 30	14 26.11	-17 54.1	2.167	1.379	-1.60	+8.3	13.6	47.4/110	28.2
Dec. 10	14 57.73	-20 28.2	2.184	1.425	-1.54	+6.6	13.7	45.0/108	30.4
Dec. 20	15 28.66	-22 36.2	2.202	1.478	-1.47	+5.0	13.9	42.5/105	33.1
Dec. 30	15 58.68	-24 18.2	2.216	1.536	-1.40	+3.5	14.1	40.0/103	36.2
Jan. 9	16 27.54	-25 35.5	2.226	1.598	-1.32	+2.2	14.3	37.4/100	39.7
Jan. 19	16 55.03	-26 30.4	2.231	1.663	-1.23	+1.0	14.5	34.9/ 97	43.6
Jan. 29	17 20.93	-27 05.5	2.228	1.730	-1.15	+0.1	14.6	32.2/ 95	47.9
Feb. 8	17 45.04	-27 24.0	2.217	1.799	-1.07	-0.8	14.8	29.5/ 92	52.7
Feb. 18	18 07.20	-27 29.3	2.197	1.869	-1.00	-1.5	14.9	26.7/ 90	57.8
Feb. 28	18 27.27	-27 24.4	2.168	1.939	-0.94	-2.0	15.1	23.8/ 88	63.4
Mar. 10	18 45.09	-27 12.8	2.131	2.010	-0.89	-2.5	15.2	20.7/ 87	69.4
Mar. 20	19 00.52	-26 57.4	2.085	2.081	-0.86	-2.9	15.3	17.3/ 85	75.9
Mar. 30	19 13.40	-26 41.0	2.033	2.152	-0.84	-3.2	15.4	13.7/ 84	82.9

Comet P/2001 J1 (NEAT)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Nov. 6.83025 TT
Peri. = 271.17802 e = 0.7571513
Node = 200.67077 2000.0 a = 3.8877593 AU
Incl. = 10.15207 n = 0.12857455
q = 0.9441373 AU P = 7.67 years

m1 = 15.8 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. °′	Delta	r	Variation for T=+1 day		m1	Mot./PA ′/°	Elong. °
Jan. 5	21 49.27	-07 00.7	4.148	3.502	-0.27	-0.7	25.7	15.3/ 76	43.5
Jan. 15	21 59.25	-06 24.2	4.176	3.428	-0.28	-0.7	25.6	16.6/ 75	35.9
Jan. 25	22 09.96	-05 40.6	4.184	3.354	-0.30	-0.8	25.5	17.7/ 74	28.6
Feb. 4	22 21.32	-04 50.2	4.174	3.278	-0.32	-0.9	25.3	18.7/ 72	21.5
Feb. 14	22 33.26	-03 53.4	4.145	3.200	-0.34	-1.1	25.2	19.7/ 72	14.7
Feb. 24	22 45.72	-02 50.9	4.097	3.121	-0.37	-1.2	25.0	20.5/ 71	8.5
Mar. 5	22 58.65	-01 43.1	4.029	3.041	-0.40	-1.4	24.9	21.4/ 70	4.5
Mar. 15	23 12.04	-00 30.3	3.944	2.960	-0.44	-1.6	24.7	22.1/ 70	7.3
Mar. 25	23 25.86	+00 46.9	3.841	2.877	-0.48	-1.7	24.5	22.9/ 69	12.8
Apr. 4	23 40.14	+02 08.0	3.722	2.792	-0.53	-2.0	24.2	23.7/ 69	18.6
Apr. 14	23 54.88	+03 32.6	3.588	2.706	-0.58	-2.2	24.0	24.4/ 69	24.3
Apr. 24	00 10.14	+05 00.0	3.441	2.618	-0.65	-2.4	23.7	25.3/ 69	30.0
May 4	00 25.97	+06 30.0	3.282	2.529	-0.72	-2.7	23.4	26.2/ 69	35.4
May 14	00 42.46	+08 01.9	3.114	2.438	-0.81	-3.0	23.1	27.2/ 70	40.7
May 24	00 59.72	+09 35.1	2.938	2.345	-0.91	-3.3	22.8	28.4/ 70	45.7
June 3	01 17.90	+11 08.8	2.755	2.251	-1.03	-3.6	22.4	29.8/ 71	50.6
June 13	01 37.18	+12 42.2	2.569	2.156	-1.17	-3.8	22.0	31.5/ 72	55.1
June 23	01 57.80	+14 14.1	2.380	2.059	-1.35	-4.0	21.6	33.5/ 74	59.4
July 3	02 20.07	+15 43.1	2.192	1.960	-1.55	-4.2	21.2	35.9/ 76	63.4
July 13	02 44.37	+17 06.7	2.006	1.861	-1.80	-4.1	20.7	39.0/ 78	67.0
July 23	03 11.18	+18 21.9	1.826	1.760	-2.10	-3.8	20.2	42.9/ 80	70.0
Aug. 2	03 41.08	+19 24.0	1.654	1.659	-2.44	-3.2	19.6	47.7/ 84	72.5
Aug. 12	04 14.71	+20 06.1	1.492	1.558	-2.84	-1.9	19.1	53.5/ 87	74.2
Aug. 22	04 52.72	+20 18.6	1.346	1.458	-3.26	+0.2	18.5	60.4/ 91	74.9
Sept. 1	05 35.56	+19 49.0	1.218	1.360	-3.66	+3.1	17.9	68.0/ 95	74.6
Sept.11	06 23.17	+18 23.5	1.114	1.265	-3.98	+6.7	17.3	75.4/100	73.1
Sept.21	07 14.68	+15 51.8	1.038	1.176	-4.11	+10.2	16.8	81.0/104	70.3
Oct. 1	08 08.35	+12 14.5	0.993	1.096	-4.02	+12.5	16.3	83.5/107	66.7
Oct. 11	09 01.92	+07 48.2	0.981	1.029	-3.72	+12.6	15.9	82.2/110	62.7
Oct. 21	09 53.51	+03 00.9	0.998	0.979	-3.32	+10.7	15.7	77.9/111	58.8
Oct. 31	10 41.98	-01 39.6	1.039	0.950	-2.91	+7.8	15.6	71.8/111	55.7
Nov. 10	11 26.87	-05 53.7	1.096	0.945	-2.53	+4.8	15.7	65.2/110	53.6
Nov. 20	12 08.21	-09 32.3	1.161	0.966	-2.20	+2.2	15.9	58.7/109	52.6
Nov. 30	12 46.12	-12 33.2	1.227	1.008	-1.92	+0.2	16.3	52.4/107	52.8
Dec. 10	13 20.68	-14 57.4	1.289	1.070	-1.67	-1.2	16.7	46.5/105	54.2
Dec. 20	13 51.98	-16 48.3	1.342	1.146	-1.45	-2.3	17.2	41.0/102	56.5
Dec. 30	14 20.07	-18 09.2	1.384	1.232	-1.27	-2.9	17.6	35.7/100	59.9
Jan. 9	14 44.91	-19 03.6	1.414	1.325	-1.12	-3.3	18.1	30.7/ 97	64.1
Jan. 19	15 06.50	-19 34.9	1.432	1.422	-1.00	-3.4	18.5	25.8/ 93	69.3
Jan. 29	15 24.73	-19 45.5	1.437	1.521	-0.92	-3.4	18.9	20.8/ 89	75.2
Feb. 8	15 39.42	-19 37.9	1.431	1.622	-0.87	-3.2	19.2	15.7/ 82	82.1
Feb. 18	15 50.41	-19 13.8	1.416	1.723	-0.85	-2.8	19.5	10.8/ 69	89.7
Feb. 28	15 57.47	-18 34.4	1.395	1.824	-0.87	-2.2	19.8	6.8/ 38	98.3
Mar. 10	16 00.38	-17 40.7	1.372	1.924	-0.93	-1.5	20.0	6.9/345	107.8
Mar. 20	15 59.10	-16 33.8	1.351	2.023	-1.01	-0.7	20.3	11.0/315	118.2
Mar. 30	15 53.76	-15 15.1	1.339	2.120	-1.12	+0.3	20.5	15.6/304	129.6

Comet P/1999 XN120 (Catalina)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Nov. 12.65890 TT
Peri. = 161.63507 e = 0.2107083
Node = 285.44782 2000.0 a = 4.1860900 AU
Incl. = 5.02641 n = 0.11507772
q = 3.3040461 AU P = 8.56 years

m1 = 9.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		m1	Mot./PA ′/°	Elong. °
Jan. 5	00 56.29	+11 30.4	3.358	3.556	−0.57	−3.5	19.9	9.3/ 77	93.5
Jan. 15	01 02.46	+11 51.5	3.492	3.542	−0.55	−3.3	20.0	11.4/ 75	84.9
Jan. 25	01 09.96	+12 21.5	3.623	3.528	−0.54	−3.2	20.0	13.3/ 73	76.6
Feb. 4	01 18.65	+12 59.1	3.750	3.514	−0.53	−3.0	20.1	14.9/ 73	68.7
Feb. 14	01 28.37	+13 43.0	3.870	3.500	−0.52	−2.9	20.1	16.2/ 72	61.0
Feb. 24	01 39.00	+14 32.0	3.981	3.487	−0.52	−2.7	20.1	17.4/ 72	53.7
Mar. 5	01 50.42	+15 24.7	4.081	3.474	−0.52	−2.6	20.2	18.3/ 72	46.5
Mar. 15	02 02.53	+16 20.0	4.169	3.462	−0.52	−2.4	20.2	19.1/ 72	39.6
Mar. 25	02 15.25	+17 16.7	4.244	3.450	−0.52	−2.3	20.2	19.8/ 73	32.9
Apr. 4	02 28.49	+18 13.8	4.306	3.438	−0.53	−2.2	20.2	20.3/ 73	26.4
Apr. 14	02 42.19	+19 10.4	4.353	3.427	−0.53	−2.0	20.2	20.7/ 74	20.0
Apr. 24	02 56.28	+20 05.4	4.385	3.416	−0.54	−1.9	20.2	20.9/ 75	13.8
May 4	03 10.70	+20 58.2	4.402	3.406	−0.55	−1.7	20.2	21.1/ 76	7.8
May 14	03 25.39	+21 48.0	4.405	3.396	−0.56	−1.5	20.2	21.2/ 77	3.2
May 24	03 40.29	+22 34.2	4.392	3.386	−0.57	−1.4	20.2	21.2/ 78	5.8
June 3	03 55.32	+23 16.3	4.366	3.377	−0.58	−1.2	20.1	21.1/ 79	11.5
June 13	04 10.43	+23 53.7	4.325	3.369	−0.59	−1.0	20.1	20.9/ 80	17.4
June 23	04 25.52	+24 26.2	4.270	3.361	−0.60	−0.7	20.0	20.6/ 82	23.4
July 3	04 40.51	+24 53.6	4.202	3.353	−0.62	−0.5	20.0	20.2/ 83	29.4
July 13	04 55.31	+25 15.7	4.121	3.346	−0.63	−0.3	19.9	19.7/ 84	35.6
July 23	05 09.82	+25 32.6	4.028	3.340	−0.64	−0.1	19.9	19.1/ 86	41.8
Aug. 2	05 23.91	+25 44.4	3.924	3.334	−0.66	+0.2	19.8	18.3/ 87	48.1
Aug. 12	05 37.45	+25 51.4	3.810	3.328	−0.68	+0.4	19.7	17.4/ 88	54.7
Aug. 22	05 50.31	+25 54.1	3.687	3.323	−0.70	+0.7	19.7	16.2/ 90	61.4
Sept. 1	06 02.33	+25 53.0	3.557	3.319	−0.72	+0.9	19.6	14.8/ 91	68.3
Sept.11	06 13.32	+25 48.8	3.420	3.315	−0.74	+1.2	19.5	13.2/ 92	75.5
Sept.21	06 23.09	+25 42.3	3.280	3.312	−0.77	+1.4	19.4	11.3/ 94	83.1
Oct. 1	06 31.45	+25 34.4	3.137	3.309	−0.80	+1.6	19.3	9.1/ 95	91.0
Oct. 11	06 38.14	+25 26.0	2.995	3.307	−0.84	+1.8	19.2	6.6/ 97	99.3
Oct. 21	06 42.96	+25 17.8	2.858	3.306	−0.88	+2.0	19.1	3.8/101	108.1
Oct. 31	06 45.69	+25 10.6	2.727	3.305	−0.92	+2.2	19.0	0.9/133	117.5
Nov. 10	06 46.17	+25 04.6	2.608	3.304	−0.97	+2.3	18.9	2.5/259	127.4
Nov. 20	06 44.35	+24 59.7	2.505	3.304	−1.02	+2.3	18.8	5.5/266	137.8
Nov. 30	06 40.33	+24 55.3	2.421	3.305	−1.06	+2.3	18.7	8.0/267	148.8
Dec. 10	06 34.43	+24 50.3	2.362	3.306	−1.09	+2.2	18.7	9.8/267	160.3
Dec. 20	06 27.25	+24 43.8	2.331	3.308	−1.11	+2.0	18.6	10.6/266	172.0
Dec. 30	06 19.52	+24 35.0	2.329	3.310	−1.12	+1.8	18.6	10.1/264	175.7
Jan. 9	06 12.13	+24 23.8	2.357	3.313	−1.10	+1.6	18.7	8.6/262	164.0
Jan. 19	06 05.88	+24 11.0	2.413	3.317	−1.07	+1.4	18.7	6.3/258	152.4
Jan. 29	06 01.36	+23 57.5	2.495	3.321	−1.03	+1.2	18.8	3.5/248	141.2
Feb. 8	05 58.98	+23 44.3	2.599	3.326	−0.98	+1.1	18.9	1.2/188	130.5
Feb. 18	05 58.86	+23 32.0	2.720	3.331	−0.93	+1.1	19.0	3.1/111	120.4
Feb. 28	06 00.96	+23 20.9	2.853	3.337	−0.88	+1.1	19.1	5.9/100	110.8
Mar. 10	06 05.16	+23 10.5	2.996	3.343	−0.83	+1.1	19.2	8.4/ 97	101.8
Mar. 20	06 11.21	+23 00.1	3.143	3.350	−0.79	+1.2	19.4	10.7/ 96	93.2
Mar. 30	06 18.89	+22 49.1	3.292	3.357	−0.75	+1.3	19.5	12.6/ 95	85.1

Comet C/2007 G1 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Nov. 16.30141 TT
q = 2.6472204 AU Peri. = 223.97744
z = -0.0007241 Node = 78.99643 2000.0
e = 1.0019169 Incl. = 88.33577

m1 = 6.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	17 36.40	+01 20.8	4.951	4.146	+0.76	-5.6	15.6	31.6
Jan. 15	17 43.97	+00 25.3	4.823	4.074	+0.73	-5.1	15.5	36.5
Jan. 25	17 51.29	-00 25.4	4.675	4.003	+0.69	-4.7	15.4	42.4
Feb. 4	17 58.22	-01 12.3	4.507	3.932	+0.64	-4.4	15.2	49.0
Feb. 14	18 04.61	-01 56.4	4.323	3.862	+0.57	-4.3	15.0	56.2
Feb. 24	18 10.26	-02 39.3	4.124	3.793	+0.47	-4.3	14.9	63.9
Mar. 5	18 14.98	-03 22.7	3.912	3.725	+0.35	-4.6	14.7	71.9
Mar. 15	18 18.52	-04 08.8	3.690	3.657	+0.21	-5.1	14.5	80.4
Mar. 25	18 20.62	-05 00.1	3.463	3.591	+0.03	-5.9	14.2	89.2
Apr. 4	18 20.95	-05 59.6	3.234	3.526	-0.18	-7.1	14.0	98.6
Apr. 14	18 19.15	-07 10.8	3.009	3.462	-0.43	-8.7	13.8	108.6
Apr. 24	18 14.82	-08 37.6	2.793	3.399	-0.73	-10.6	13.5	119.2
May 4	18 07.56	-10 23.7	2.592	3.337	-1.06	-12.8	13.3	130.6
May 14	17 57.00	-12 31.9	2.415	3.278	-1.40	-15.1	13.1	142.8
May 24	17 43.01	-15 02.5	2.269	3.219	-1.73	-17.0	12.9	155.8
June 3	17 25.73	-17 52.0	2.160	3.163	-1.99	-18.0	12.7	169.4
June 13	17 05.87	-20 52.5	2.096	3.109	-2.12	-18.0	12.5	174.7
June 23	16 44.65	-23 52.6	2.078	3.057	-2.10	-16.9	12.4	161.0
July 3	16 23.62	-26 42.1	2.104	3.007	-1.93	-15.3	12.4	146.9
July 13	16 04.33	-29 14.6	2.168	2.960	-1.64	-13.5	12.4	133.3
July 23	15 47.92	-31 29.6	2.263	2.915	-1.29	-12.0	12.4	120.7
Aug. 2	15 34.97	-33 30.1	2.379	2.873	-0.93	-11.1	12.5	108.9
Aug. 12	15 25.64	-35 20.9	2.507	2.835	-0.59	-10.6	12.5	98.1
Aug. 22	15 19.73	-37 06.6	2.641	2.799	-0.28	-10.4	12.6	88.2
Sept. 1	15 16.93	-38 51.1	2.773	2.767	0.00	-10.6	12.6	79.1
Sept.11	15 16.91	-40 37.2	2.899	2.738	+0.24	-11.0	12.7	70.8
Sept.21	15 19.34	-42 26.9	3.015	2.713	+0.46	-11.5	12.7	63.1
Oct. 1	15 23.97	-44 21.7	3.117	2.692	+0.67	-12.1	12.8	56.2
Oct. 11	15 30.64	-46 22.6	3.204	2.675	+0.86	-12.8	12.8	50.1
Oct. 21	15 39.21	-48 30.5	3.273	2.662	+1.05	-13.6	12.8	44.9
Oct. 31	15 49.70	-50 46.1	3.325	2.653	+1.25	-14.4	12.8	40.7
Nov. 10	16 02.17	-53 09.9	3.358	2.648	+1.46	-15.2	12.9	37.9
Nov. 20	16 16.80	-55 42.1	3.375	2.648	+1.72	-16.1	12.9	36.6
Nov. 30	16 34.00	-58 22.9	3.375	2.651	+2.03	-16.9	12.9	36.8
Dec. 10	16 54.34	-61 11.8	3.360	2.659	+2.45	-17.6	12.9	38.4
Dec. 20	17 18.83	-64 07.3	3.333	2.671	+3.03	-17.9	12.9	41.1
Dec. 30	17 49.09	-67 06.5	3.297	2.687	+3.85	-17.7	12.9	44.6
Jan. 9	18 27.6	-70 03.2	3.255	2.707	+5.06	-16.2	12.9	48.6
Jan. 19	19 18.2	-72 45.4	3.212	2.731	+6.68	-12.7	12.9	52.8
Jan. 29	20 25.1	-74 52.3	3.169	2.759	+8.32	-6.1	12.9	57.0
Feb. 8	21 48.2	-75 53.7	3.133	2.790	+8.89	+3.0	12.9	60.9
Feb. 18	23 17.2	-75 23.9	3.107	2.825	+7.88	+12.0	13.0	64.4
Feb. 28	00 35.9	-73 24.3	3.093	2.863	+6.18	+18.3	13.0	67.4
Mar. 10	01 37.7	-70 21.0	3.094	2.904	+4.72	+21.9	13.1	69.7
Mar. 20	02 24.91	-66 42.4	3.112	2.948	+3.68	+23.3	13.2	71.3
Mar. 30	03 01.72	-62 49.7	3.146	2.994	+2.98	+23.2	13.3	72.1

Comet 150P/LONEOS

Epoch = 2008 Aug. 2.0 TT
M = 345.11365 e = 0.5459182
Peri. = 245.67395 a = 3.8928345 AU
Node = 272.43024 2000.0 n = 0.12832319
Incl. = 18.50060 P = 7.68 years

H = 14.5 G = 0.15

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	V	Elong. °
Jan. 5	01 57.43	+27 03.4	2.715	3.218	+0.29	-5.7	20.1	112.2
Jan. 15	02 00.38	+26 06.6	2.798	3.164	+0.52	-4.3	20.2	102.7
Jan. 25	02 05.53	+25 23.2	2.887	3.108	+0.71	-3.0	20.2	93.6
Feb. 4	02 12.67	+24 52.7	2.976	3.053	+0.89	-1.9	20.3	85.0
Feb. 14	02 21.61	+24 34.1	3.063	2.997	+1.05	-0.9	20.3	76.8
Feb. 24	02 32.16	+24 25.6	3.145	2.941	+1.20	0.0	20.3	69.1
Mar. 5	02 44.15	+24 25.2	3.219	2.884	+1.33	+0.6	20.3	61.7
Mar. 15	02 57.45	+24 31.0	3.284	2.828	+1.45	+1.0	20.2	54.7
Mar. 25	03 11.93	+24 40.8	3.338	2.771	+1.56	+1.2	20.2	48.0
Apr. 4	03 27.51	+24 52.6	3.380	2.714	+1.66	+1.2	20.1	41.6
Apr. 14	03 44.11	+25 04.5	3.410	2.657	+1.75	+1.0	20.0	35.5
Apr. 24	04 01.64	+25 14.4	3.427	2.601	+1.84	+0.6	19.9	29.6
May 4	04 20.04	+25 20.8	3.432	2.544	+1.92	+0.1	19.8	24.0
May 14	04 39.26	+25 21.6	3.425	2.488	+2.00	-0.6	19.7	18.6
May 24	04 59.22	+25 15.3	3.406	2.433	+2.06	-1.5	19.5	13.4
June 3	05 19.86	+25 00.2	3.376	2.378	+2.12	-2.5	19.4	8.4
June 13	05 41.10	+24 34.9	3.336	2.323	+2.18	-3.7	19.2	3.7
June 23	06 02.87	+23 57.9	3.286	2.270	+2.22	-5.0	19.0	1.3
July 3	06 25.08	+23 08.0	3.228	2.218	+2.26	-6.4	19.1	5.6
July 13	06 47.64	+22 04.1	3.162	2.167	+2.28	-7.9	19.1	9.9
July 23	07 10.47	+20 45.2	3.089	2.118	+2.30	-9.4	19.1	14.1
Aug. 2	07 33.50	+19 10.8	3.012	2.071	+2.31	-11.0	19.1	18.1
Aug. 12	07 56.63	+17 20.3	2.930	2.026	+2.32	-12.7	19.0	22.0
Aug. 22	08 19.82	+15 13.7	2.845	1.984	+2.32	-14.3	19.0	25.8
Sept. 1	08 43.01	+12 51.1	2.758	1.944	+2.32	-15.8	19.0	29.5
Sept.11	09 06.17	+10 12.9	2.670	1.908	+2.31	-17.3	18.9	33.1
Sept.21	09 29.26	+07 20.0	2.583	1.875	+2.30	-18.6	18.9	36.6
Oct. 1	09 52.29	+04 13.7	2.497	1.846	+2.30	-19.8	18.8	40.0
Oct. 11	10 15.24	+00 55.5	2.413	1.821	+2.29	-20.8	18.8	43.4
Oct. 21	10 38.14	-02 32.3	2.332	1.801	+2.29	-21.5	18.7	46.7
Oct. 31	11 01.00	-06 07.4	2.254	1.785	+2.28	-22.0	18.7	50.0
Nov. 10	11 23.82	-09 47.0	2.179	1.774	+2.28	-22.1	18.6	53.3
Nov. 20	11 46.60	-13 27.9	2.108	1.769	+2.27	-21.9	18.6	56.6
Nov. 30	12 09.32	-17 06.9	2.040	1.768	+2.26	-21.4	18.6	60.1
Dec. 10	12 31.92	-20 40.7	1.975	1.773	+2.24	-20.6	18.5	63.6
Dec. 20	12 54.32	-24 06.3	1.912	1.782	+2.20	-19.4	18.5	67.4
Dec. 30	13 16.36	-27 20.7	1.851	1.797	+2.14	-18.1	18.4	71.4
Jan. 9	13 37.80	-30 21.5	1.791	1.817	+2.06	-16.5	18.4	75.6
Jan. 19	13 58.35	-33 06.8	1.732	1.841	+1.93	-14.9	18.4	80.2
Jan. 29	14 17.62	-35 35.4	1.673	1.869	+1.75	-13.1	18.3	85.2
Feb. 8	14 35.11	-37 46.0	1.614	1.901	+1.52	-11.2	18.3	90.6
Feb. 18	14 50.28	-39 38.2	1.556	1.937	+1.22	-9.3	18.2	96.6
Feb. 28	15 02.49	-41 11.0	1.499	1.976	+0.86	-7.2	18.1	103.1
Mar. 10	15 11.14	-42 23.0	1.445	2.017	+0.46	-4.9	18.1	110.3
Mar. 20	15 15.74	-43 11.8	1.397	2.062	+0.03	-2.2	18.0	118.1
Mar. 30	15 16.05	-43 33.4	1.356	2.109	-0.37	+1.0	17.9	126.5

Comet P/2001 TU80 (LINEAR-NEAT)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Dec. 9.60625 TT
Peri. = 355.04350 e = 0.4705217
Node = 109.10656 2000.0 a = 3.6643910 AU
Incl. = 6.58145 n = 0.14050810
q = 1.9402155 AU P = 7.01 years

m1 = 12.0 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. °'	Delta	r	Variation for T=+1 day		m1	Mot./PA ', °	Elong. °
Jan. 5	23 15.95	-10 53.2	3.520	3.177	-0.47	-2.4	23.5	16.3/ 64	61.9
Jan. 15	23 25.85	-09 40.4	3.598	3.130	-0.47	-2.5	23.5	17.9/ 64	54.4
Jan. 25	23 36.72	-08 21.8	3.664	3.083	-0.48	-2.7	23.4	19.3/ 65	47.3
Feb. 4	23 48.44	-06 58.2	3.718	3.035	-0.48	-2.8	23.3	20.6/ 65	40.4
Feb. 14	00 00.93	-05 30.3	3.757	2.988	-0.49	-3.0	23.2	21.7/ 65	33.8
Feb. 24	00 14.08	-03 59.0	3.783	2.940	-0.51	-3.1	23.1	22.7/ 66	27.4
Mar. 5	00 27.84	-02 24.8	3.794	2.892	-0.52	-3.3	23.0	23.5/ 66	21.3
Mar. 15	00 42.18	-00 48.5	3.790	2.844	-0.54	-3.4	22.8	24.3/ 66	15.5
Mar. 25	00 57.04	+00 49.1	3.773	2.796	-0.56	-3.6	22.7	25.0/ 67	10.1
Apr. 4	01 12.41	+02 27.3	3.742	2.749	-0.59	-3.7	22.5	25.7/ 67	5.8
Apr. 14	01 28.27	+04 05.3	3.698	2.701	-0.62	-3.9	22.4	26.3/ 68	5.4
Apr. 24	01 44.63	+05 42.3	3.642	2.653	-0.65	-4.0	22.2	26.9/ 69	9.1
May 4	02 01.47	+07 17.5	3.574	2.606	-0.69	-4.1	22.0	27.4/ 70	13.8
May 14	02 18.81	+08 50.2	3.497	2.560	-0.73	-4.2	21.9	27.8/ 71	18.7
May 24	02 36.63	+10 19.3	3.410	2.513	-0.78	-4.3	21.7	28.3/ 72	23.5
June 3	02 54.96	+11 44.1	3.314	2.468	-0.82	-4.4	21.5	28.7/ 73	28.3
June 13	03 13.77	+13 03.6	3.211	2.423	-0.88	-4.4	21.3	29.1/ 75	33.0
June 23	03 33.06	+14 17.0	3.102	2.379	-0.94	-4.3	21.0	29.4/ 76	37.6
July 3	03 52.81	+15 23.4	2.988	2.336	-1.00	-4.3	20.8	29.7/ 78	42.2
July 13	04 12.98	+16 22.0	2.869	2.295	-1.07	-4.1	20.6	29.9/ 80	46.7
July 23	04 33.51	+17 12.0	2.747	2.254	-1.14	-4.0	20.4	30.1/ 81	51.2
Aug. 2	04 54.35	+17 52.8	2.622	2.216	-1.22	-3.7	20.1	30.1/ 83	55.7
Aug. 12	05 15.39	+18 23.9	2.496	2.179	-1.30	-3.4	19.9	30.1/ 85	60.3
Aug. 22	05 36.51	+18 45.2	2.369	2.143	-1.39	-3.0	19.7	29.9/ 87	64.8
Sept. 1	05 57.59	+18 56.6	2.241	2.111	-1.47	-2.6	19.4	29.6/ 89	69.5
Sept.11	06 18.45	+18 58.8	2.115	2.080	-1.57	-2.1	19.2	29.0/ 90	74.2
Sept.21	06 38.91	+18 52.6	1.990	2.052	-1.67	-1.5	19.0	28.2/ 92	79.1
Oct. 1	06 58.75	+18 39.3	1.867	2.027	-1.77	-0.9	18.7	27.0/ 93	84.1
Oct. 11	07 17.72	+18 20.9	1.747	2.004	-1.89	-0.3	18.5	25.5/ 94	89.5
Oct. 21	07 35.57	+17 59.9	1.630	1.985	-2.01	+0.5	18.3	23.5/ 94	95.1
Oct. 31	07 51.96	+17 39.5	1.519	1.969	-2.15	+1.3	18.1	20.9/ 94	101.2
Nov. 10	08 06.53	+17 23.3	1.412	1.956	-2.31	+2.1	17.8	17.8/ 92	107.7
Nov. 20	08 18.92	+17 15.5	1.313	1.947	-2.49	+3.0	17.7	14.0/ 88	114.9
Nov. 30	08 28.69	+17 20.4	1.222	1.942	-2.69	+4.0	17.5	9.9/ 77	122.8
Dec. 10	08 35.41	+17 41.8	1.142	1.940	-2.91	+5.0	17.3	6.3/ 50	131.5
Dec. 20	08 38.82	+18 22.1	1.076	1.942	-3.14	+5.9	17.2	5.9/360	141.0
Dec. 30	08 38.82	+19 21.2	1.027	1.948	-3.36	+6.7	17.1	8.5/330	151.5
Jan. 9	08 35.78	+20 34.9	0.997	1.957	-3.54	+7.0	17.1	10.8/318	162.6
Jan. 19	08 30.62	+21 55.0	0.989	1.970	-3.64	+6.9	17.1	11.3/313	173.6
Jan. 29	08 24.67	+23 11.6	1.005	1.986	-3.62	+6.3	17.2	9.5/312	172.8
Feb. 8	08 19.52	+24 15.4	1.045	2.006	-3.50	+5.5	17.4	6.2/318	161.7
Feb. 18	08 16.48	+25 01.1	1.107	2.028	-3.29	+4.8	17.6	2.6/355	150.9
Feb. 28	08 16.33	+25 27.1	1.188	2.054	-3.04	+4.2	17.8	4.1/ 80	140.8
Mar. 10	08 19.35	+25 33.9	1.287	2.082	-2.77	+3.9	18.1	8.2/ 97	131.5
Mar. 20	08 25.34	+25 23.7	1.399	2.113	-2.51	+3.8	18.4	11.9/102	123.0
Mar. 30	08 33.92	+24 58.6	1.522	2.146	-2.26	+3.9	18.7	15.1/104	115.1

Comet C/2007 M2 (Catalina)

Epoch = 2008 Aug. 2.0 TT
T = 2008 Dec. 8.60446 TT
q = 3.5405940 AU Peri. = 220.68045
z = +0.0002550 Node = 357.28190 2000.0
e = 0.9990972 Incl. = 80.95051

m1 = 7.5 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	12 55.77	+14 05.6	4.435	4.649	-0.17	-2.8	17.4	96.4
Jan. 15	12 54.04	+13 38.1	4.220	4.595	-0.35	-2.3	17.2	106.3
Jan. 25	12 50.52	+13 15.4	4.013	4.541	-0.55	-1.9	17.1	116.7
Feb. 4	12 45.04	+12 56.4	3.819	4.487	-0.75	-1.7	16.9	127.4
Feb. 14	12 37.51	+12 39.1	3.646	4.435	-0.95	-1.8	16.8	138.6
Feb. 24	12 28.00	+12 21.1	3.499	4.384	-1.13	-2.1	16.6	150.0
Mar. 5	12 16.73	+11 59.8	3.383	4.333	-1.26	-2.7	16.5	161.0
Mar. 15	12 04.18	+11 32.4	3.304	4.284	-1.32	-3.6	16.4	168.9
Mar. 25	11 50.99	+10 56.8	3.262	4.235	-1.31	-4.5	16.3	165.7
Apr. 4	11 37.91	+10 11.8	3.258	4.188	-1.22	-5.5	16.3	155.4
Apr. 14	11 25.67	+09 17.2	3.290	4.142	-1.08	-6.3	16.3	143.8
Apr. 24	11 14.87	+08 14.0	3.353	4.097	-0.90	-7.1	16.3	132.3
May 4	11 05.87	+07 03.5	3.441	4.053	-0.70	-7.7	16.3	121.0
May 14	10 58.88	+05 46.8	3.548	4.011	-0.50	-8.2	16.3	110.2
May 24	10 53.90	+04 25.2	3.668	3.970	-0.31	-8.6	16.3	100.0
June 3	10 50.82	+02 59.3	3.794	3.931	-0.13	-9.0	16.3	90.2
June 13	10 49.48	+01 29.6	3.921	3.893	+0.02	-9.4	16.4	81.0
June 23	10 49.67	-00 03.9	4.045	3.857	+0.15	-9.7	16.4	72.2
July 3	10 51.18	-01 41.3	4.161	3.822	+0.26	-10.1	16.4	63.8
July 13	10 53.82	-03 22.6	4.267	3.789	+0.36	-10.6	16.4	55.8
July 23	10 57.42	-05 08.3	4.359	3.758	+0.44	-11.0	16.4	48.1
Aug. 2	11 01.81	-06 58.7	4.436	3.729	+0.51	-11.5	16.5	40.9
Aug. 12	11 06.86	-08 54.2	4.495	3.702	+0.56	-12.1	16.4	34.2
Aug. 22	11 12.44	-10 55.1	4.537	3.676	+0.60	-12.7	16.4	28.2
Sept. 1	11 18.42	-13 02.0	4.559	3.653	+0.63	-13.3	16.4	23.2
Sept.11	11 24.72	-15 15.3	4.562	3.632	+0.65	-14.0	16.4	19.9
Sept.21	11 31.21	-17 35.6	4.546	3.613	+0.66	-14.8	16.4	19.1
Oct. 1	11 37.81	-20 03.6	4.512	3.596	+0.66	-15.6	16.3	21.1
Oct. 11	11 44.39	-22 39.7	4.459	3.581	+0.65	-16.5	16.3	25.1
Oct. 21	11 50.85	-25 24.7	4.391	3.568	+0.62	-17.5	16.2	30.4
Oct. 31	11 57.04	-28 19.3	4.308	3.558	+0.58	-18.5	16.2	36.4
Nov. 10	12 02.80	-31 24.0	4.212	3.550	+0.51	-19.5	16.1	42.8
Nov. 20	12 07.91	-34 39.3	4.107	3.545	+0.42	-20.6	16.1	49.4
Nov. 30	12 12.14	-38 05.7	3.995	3.541	+0.30	-21.7	16.0	56.1
Dec. 10	12 15.11	-41 42.8	3.879	3.541	+0.13	-22.7	15.9	62.9
Dec. 20	12 16.37	-45 29.9	3.764	3.542	-0.11	-23.5	15.9	69.5
Dec. 30	12 15.28	-49 25.2	3.653	3.546	-0.43	-24.0	15.8	76.0
Jan. 9	12 10.95	-53 25.1	3.550	3.552	-0.88	-23.9	15.8	82.2
Jan. 19	12 02.19	-57 23.6	3.459	3.561	-1.48	-22.8	15.7	87.9
Jan. 29	11 47.43	-61 11.9	3.383	3.572	-2.26	-20.5	15.7	93.0
Feb. 8	11 24.85	-64 36.8	3.325	3.585	-3.17	-16.5	15.7	97.2
Feb. 18	10 53.16	-67 21.9	3.287	3.600	-4.01	-10.7	15.6	100.5
Feb. 28	10 13.07	-69 09.2	3.270	3.618	-4.41	-3.8	15.7	102.6
Mar. 10	09 28.98	-69 47.7	3.273	3.637	-4.14	+2.7	15.7	103.6
Mar. 20	08 47.60	-69 20.3	3.295	3.659	-3.35	+7.7	15.7	103.5
Mar. 30	08 14.10	-68 03.8	3.335	3.683	-2.41	+10.4	15.8	102.5

Comet 85P/Boethin

Epoch = 2008 Aug. 2.0 TT
T = 2008 Dec. 16.35183 TT
Peri. = 53.57271 e = 0.7753700
Node = 343.45303 2000.0 a = 5.1084374 AU
Incl. = 4.21673 n = 0.08536345
q = 1.1475083 AU P = 11.55 years

m1 = 8.2 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	18 10.54	-26 40.0	4.825	3.869	+1.28	+0.5	20.4	12.0
Jan. 15	18 23.31	-26 35.0	4.710	3.794	+1.29	+0.8	20.3	19.1
Jan. 25	18 36.21	-26 26.7	4.575	3.719	+1.29	+1.1	20.1	26.3
Feb. 4	18 49.16	-26 15.2	4.423	3.642	+1.29	+1.5	19.8	33.5
Feb. 14	19 02.07	-26 00.6	4.255	3.565	+1.28	+1.7	19.6	40.7
Feb. 24	19 14.82	-25 43.2	4.072	3.487	+1.25	+2.0	19.4	47.9
Mar. 5	19 27.35	-25 23.2	3.877	3.407	+1.22	+2.2	19.1	55.1
Mar. 15	19 39.54	-25 01.3	3.671	3.327	+1.17	+2.3	18.9	62.3
Mar. 25	19 51.28	-24 38.0	3.457	3.245	+1.12	+2.4	18.6	69.5
Apr. 4	20 02.46	-24 14.0	3.238	3.163	+1.05	+2.4	18.3	76.8
Apr. 14	20 12.94	-23 50.4	3.015	3.079	+0.96	+2.2	17.9	84.2
Apr. 24	20 22.57	-23 28.1	2.792	2.995	+0.86	+2.0	17.6	91.7
May 4	20 31.16	-23 08.4	2.569	2.909	+0.73	+1.6	17.2	99.4
May 14	20 38.48	-22 52.7	2.351	2.822	+0.58	+1.0	16.8	107.3
May 24	20 44.28	-22 42.5	2.140	2.735	+0.39	+0.3	16.4	115.6
June 3	20 48.22	-22 39.4	1.939	2.646	+0.17	-0.5	16.0	124.2
June 13	20 49.93	-22 44.7	1.750	2.556	-0.09	-1.5	15.5	133.4
June 23	20 49.03	-22 59.4	1.576	2.465	-0.39	-2.4	15.1	143.1
July 3	20 45.13	-23 23.2	1.421	2.374	-0.71	-3.1	14.6	153.4
July 13	20 38.02	-23 54.3	1.287	2.282	-1.01	-3.4	14.1	164.3
July 23	20 27.88	-24 28.3	1.176	2.189	-1.25	-3.1	13.7	174.0
Aug. 2	20 15.35	-24 58.9	1.090	2.096	-1.35	-2.0	13.2	169.2
Aug. 12	20 01.81	-25 19.0	1.029	2.002	-1.27	-0.4	12.8	157.4
Aug. 22	19 49.14	-25 23.5	0.989	1.909	-1.00	+1.3	12.4	145.2
Sept. 1	19 39.18	-25 10.5	0.968	1.816	-0.57	+2.9	12.0	133.4
Sept.11	19 33.45	-24 41.3	0.959	1.725	-0.07	+4.3	11.7	122.6
Sept.21	19 32.76	-23 58.0	0.958	1.635	+0.46	+5.6	11.3	112.8
Oct. 1	19 37.36	-23 01.7	0.960	1.548	+0.98	+7.0	11.0	104.2
Oct. 11	19 47.17	-21 51.3	0.960	1.465	+1.47	+8.7	10.6	96.8
Oct. 21	20 01.86	-20 24.2	0.956	1.387	+1.93	+10.8	10.2	90.5
Oct. 31	20 21.11	-18 36.1	0.948	1.316	+2.35	+13.4	9.9	85.4
Nov. 10	20 44.62	-16 21.6	0.935	1.255	+2.74	+16.6	9.5	81.3
Nov. 20	21 12.04	-13 36.1	0.918	1.206	+3.11	+20.1	9.2	78.4
Nov. 30	21 43.15	-10 15.4	0.899	1.170	+3.46	+23.7	9.0	76.6
Dec. 10	22 17.72	-06 18.3	0.883	1.151	+3.77	+27.0	8.8	75.9
Dec. 20	22 55.47	-01 48.5	0.874	1.149	+4.06	+29.3	8.8	76.1
Dec. 30	23 36.05	+03 04.2	0.876	1.164	+4.28	+29.9	8.9	77.2
Jan. 9	00 18.89	+08 03.2	0.895	1.195	+4.42	+28.4	9.1	78.9
Jan. 19	01 03.11	+12 47.3	0.934	1.241	+4.45	+25.0	9.5	80.6
Jan. 29	01 47.63	+16 57.4	0.995	1.299	+4.37	+20.4	9.9	82.0
Feb. 8	02 31.34	+20 21.0	1.079	1.367	+4.19	+15.3	10.4	82.8
Feb. 18	03 13.22	+22 54.1	1.183	1.443	+3.94	+10.6	11.0	82.7
Feb. 28	03 52.64	+24 40.0	1.307	1.525	+3.67	+6.5	11.5	81.9
Mar. 10	04 29.31	+25 45.4	1.448	1.611	+3.39	+3.3	12.1	80.2
Mar. 20	05 03.17	+26 18.1	1.602	1.700	+3.12	+0.7	12.7	77.9
Mar. 30	05 34.40	+26 25.0	1.768	1.791	+2.88	-1.3	13.2	75.0

Comet 57P/du Toit-Neujmin-Delporte - A

Epoch = 2008 Aug. 2.0 TT
T = 2008 Dec. 25.98231 TT
Peri. = 115.30479 e = 0.5001553
Node = 188.84021 2000.0 a = 3.4484347 AU
Incl. = 2.84801 n = 0.15391150
q = 1.7236818 AU P = 6.40 years

m1 = 10.0 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	13 41.44	-10 27.0	3.329	3.246	+0.86	-4.3	22.8	76.6
Jan. 15	13 50.02	-11 10.1	3.136	3.197	+0.76	-3.6	22.6	84.6
Jan. 25	13 57.57	-11 45.7	2.941	3.147	+0.63	-2.7	22.3	92.8
Feb. 4	14 03.87	-12 13.0	2.748	3.097	+0.48	-1.8	22.0	101.4
Feb. 14	14 08.64	-12 30.7	2.559	3.046	+0.30	-0.7	21.7	110.3
Feb. 24	14 11.61	-12 37.6	2.379	2.995	+0.09	+0.5	21.4	119.7
Mar. 5	14 12.51	-12 32.7	2.211	2.943	-0.14	+1.8	21.1	129.5
Mar. 15	14 11.15	-12 14.9	2.058	2.891	-0.37	+3.1	20.8	139.9
Mar. 25	14 07.47	-11 44.1	1.925	2.838	-0.58	+4.3	20.5	150.9
Apr. 4	14 01.62	-11 00.7	1.816	2.785	-0.76	+5.3	20.2	162.3
Apr. 14	13 54.05	-10 07.3	1.733	2.732	-0.85	+5.9	19.9	174.0
Apr. 24	13 45.51	-09 08.1	1.677	2.679	-0.86	+5.9	19.7	173.5
May 4	13 36.93	-08 08.8	1.650	2.626	-0.76	+5.3	19.5	161.5
May 14	13 29.33	-07 16.0	1.648	2.572	-0.58	+4.1	19.3	149.8
May 24	13 23.56	-06 35.3	1.668	2.519	-0.34	+2.5	19.1	138.6
June 3	13 20.18	-06 10.5	1.706	2.465	-0.07	+0.7	19.0	128.1
June 13	13 19.50	-06 03.3	1.758	2.412	+0.21	-1.1	18.9	118.4
June 23	13 21.59	-06 14.0	1.819	2.359	+0.47	-2.7	18.8	109.4
July 3	13 26.32	-06 41.1	1.885	2.307	+0.72	-4.2	18.6	101.1
July 13	13 33.57	-07 23.3	1.952	2.256	+0.95	-5.5	18.5	93.5
July 23	13 43.11	-08 18.2	2.020	2.205	+1.17	-6.5	18.4	86.5
Aug. 2	13 54.77	-09 23.7	2.085	2.155	+1.36	-7.4	18.3	80.0
Aug. 12	14 08.41	-10 37.5	2.147	2.107	+1.55	-8.0	18.1	74.0
Aug. 22	14 23.88	-11 57.4	2.204	2.060	+1.72	-8.4	18.0	68.5
Sept. 1	14 41.10	-13 21.1	2.257	2.015	+1.89	-8.5	17.9	63.2
Sept.11	15 00.01	-14 46.0	2.305	1.972	+2.05	-8.4	17.7	58.3
Sept.21	15 20.53	-16 09.6	2.347	1.931	+2.21	-8.0	17.6	53.7
Oct. 1	15 42.63	-17 29.2	2.386	1.893	+2.36	-7.3	17.4	49.4
Oct. 11	16 06.24	-18 42.0	2.420	1.858	+2.50	-6.3	17.3	45.3
Oct. 21	16 31.27	-19 45.0	2.451	1.827	+2.64	-5.0	17.2	41.4
Oct. 31	16 57.63	-20 35.5	2.480	1.799	+2.75	-3.5	17.1	37.6
Nov. 10	17 25.15	-21 10.6	2.506	1.775	+2.85	-1.7	17.0	34.1
Nov. 20	17 53.61	-21 28.1	2.532	1.755	+2.92	+0.2	16.9	30.7
Nov. 30	18 22.80	-21 26.1	2.556	1.740	+2.96	+2.3	16.8	27.3
Dec. 10	18 52.43	-21 03.4	2.581	1.730	+2.98	+4.3	16.8	24.1
Dec. 20	19 22.20	-20 20.0	2.607	1.725	+2.97	+6.4	16.8	21.0
Dec. 30	19 51.86	-19 16.2	2.634	1.724	+2.93	+8.3	16.8	17.8
Jan. 9	20 21.15	-17 53.4	2.661	1.729	+2.87	+10.0	16.9	14.7
Jan. 19	20 49.85	-16 13.9	2.690	1.738	+2.80	+11.4	16.9	11.6
Jan. 29	21 17.85	-14 20.1	2.720	1.752	+2.72	+12.5	17.0	8.5
Feb. 8	21 45.03	-12 15.0	2.751	1.771	+2.63	+13.4	17.2	5.3
Feb. 18	22 11.34	-10 01.5	2.781	1.794	+2.54	+13.9	17.3	2.2
Feb. 28	22 36.79	-07 42.4	2.811	1.821	+2.46	+14.2	17.5	1.8
Mar. 10	23 01.37	-05 20.7	2.839	1.852	+2.38	+14.2	17.6	5.1
Mar. 20	23 25.12	-02 58.7	2.865	1.886	+2.30	+14.0	17.8	8.6
Mar. 30	23 48.10	-00 38.7	2.888	1.924	+2.22	+13.6	18.0	12.3

Comet P/2003 K2 (Christensen)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 5.22701 TT
Peri. = 345.88135 e = 0.8326860
Node = 93.86310 2000.0 a = 3.1931440 AU
Incl. = 10.22132 n = 0.17273340
q = 0.5342577 AU P = 5.71 years

m1 = 14.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' / °	Elong. °
Jan. 5	19 01.83	-24 10.0	5.020	4.037	-0.21	+0.2	23.6	15.0/ 86	1.5
Jan. 15	19 12.74	-23 57.7	4.949	3.976	-0.23	+0.1	23.5	15.2/ 85	7.7
Jan. 25	19 23.78	-23 43.0	4.855	3.914	-0.24	0.0	23.4	15.3/ 84	15.2
Feb. 4	19 34.85	-23 26.0	4.740	3.850	-0.26	-0.1	23.2	15.3/ 83	22.8
Feb. 14	19 45.88	-23 07.1	4.604	3.785	-0.29	-0.2	23.1	15.1/ 83	30.4
Feb. 24	19 56.74	-22 46.8	4.449	3.719	-0.31	-0.3	22.9	14.9/ 82	37.9
Mar. 5	20 07.36	-22 25.5	4.276	3.650	-0.34	-0.4	22.8	14.4/ 82	45.5
Mar. 15	20 17.62	-22 04.1	4.088	3.580	-0.37	-0.6	22.6	13.8/ 82	53.1
Mar. 25	20 27.42	-21 43.4	3.887	3.509	-0.41	-0.7	22.4	13.0/ 82	60.7
Apr. 4	20 36.64	-21 24.4	3.674	3.435	-0.45	-0.9	22.2	12.0/ 83	68.5
Apr. 14	20 45.14	-21 08.4	3.454	3.360	-0.49	-1.1	22.0	10.7/ 84	76.3
Apr. 24	20 52.75	-20 56.7	3.227	3.283	-0.55	-1.3	21.7	9.2/ 87	84.3
May 4	20 59.30	-20 51.0	2.998	3.204	-0.61	-1.5	21.4	7.3/ 92	92.5
May 14	21 04.52	-20 53.3	2.769	3.124	-0.67	-1.8	21.2	5.2/104	101.0
May 24	21 08.15	-21 05.7	2.544	3.041	-0.75	-2.0	20.9	3.4/137	109.8
June 3	21 09.83	-21 30.4	2.326	2.955	-0.84	-2.2	20.5	4.1/194	119.1
June 13	21 09.12	-22 09.8	2.119	2.868	-0.93	-2.3	20.2	7.4/221	128.9
June 23	21 05.58	-23 05.3	1.927	2.778	-1.03	-2.2	19.9	11.9/232	139.3
July 3	20 58.74	-24 17.6	1.755	2.686	-1.13	-2.0	19.5	16.7/238	150.4
July 13	20 48.23	-25 44.3	1.606	2.591	-1.20	-1.4	19.2	21.3/243	161.8
July 23	20 34.05	-27 19.6	1.485	2.493	-1.24	-0.4	18.8	24.8/247	170.9
Aug. 2	20 16.75	-28 54.3	1.394	2.393	-1.21	+0.9	18.5	26.3/250	166.5
Aug. 12	19 57.65	-30 17.1	1.334	2.289	-1.11	+2.4	18.2	25.2/254	154.2
Aug. 22	19 38.70	-31 19.4	1.302	2.183	-0.93	+3.8	18.0	21.7/259	141.0
Sept. 1	19 21.93	-31 58.0	1.292	2.072	-0.73	+4.7	17.7	16.5/263	128.1
Sept.11	19 09.03	-32 15.5	1.298	1.958	-0.52	+5.3	17.5	10.4/268	115.8
Sept.21	19 00.86	-32 17.3	1.311	1.841	-0.33	+5.6	17.2	4.2/282	104.5
Oct. 1	18 57.65	-32 08.9	1.326	1.719	-0.19	+5.6	17.0	2.6/ 53	94.2
Oct. 11	18 59.26	-31 53.5	1.334	1.593	-0.08	+5.5	16.6	8.0/ 75	84.8
Oct. 21	19 05.29	-31 32.6	1.331	1.462	0.00	+5.5	16.3	13.2/ 79	76.4
Oct. 31	19 15.39	-31 05.3	1.312	1.327	+0.06	+5.4	15.8	18.2/ 79	68.7
Nov. 10	19 29.20	-30 29.4	1.273	1.188	+0.11	+5.3	15.3	22.7/ 79	61.8
Nov. 20	19 46.32	-29 41.1	1.210	1.044	+0.19	+5.2	14.6	26.9/ 77	55.6
Nov. 30	20 06.25	-28 34.8	1.119	0.900	+0.37	+5.1	13.8	30.0/ 74	50.1
Dec. 10	20 27.78	-27 03.7	0.997	0.759	+0.80	+5.1	12.8	29.4/ 66	45.0
Dec. 20	20 47.62	-25 00.5	0.841	0.634	+1.98	+5.6	11.6	20.4/ 39	39.7
Dec. 30	20 56.77	-22 20.1	0.660	0.551	+5.07	+7.1	10.5	35.2/306	32.1
Jan. 9	20 36.61	-18 51.1	0.488	0.540	+11.50	+5.5	9.8	93.3/287	18.0
Jan. 19	19 35.43	-13 42.4	0.384	0.609	+17.83	-7.8	9.8	114.5/288	9.6
Jan. 29	18 22.24	-07 17.8	0.363	0.726	+16.39	-6.6	10.4	89.2/291	36.6
Feb. 8	17 26.78	-01 49.1	0.387	0.865	+10.92	+14.0	11.3	65.8/293	60.6
Feb. 18	16 46.33	+02 26.8	0.421	1.009	+6.35	+31.7	12.2	56.9/293	80.6
Feb. 28	16 11.13	+06 02.3	0.455	1.153	+3.07	+42.7	12.9	55.5/290	98.9
Mar. 10	15 35.89	+09 05.9	0.495	1.293	+0.64	+47.5	13.6	54.7/286	116.6
Mar. 20	15 00.06	+11 26.4	0.549	1.429	-1.10	+46.6	14.2	50.8/280	133.4
Mar. 30	14 25.89	+12 49.8	0.623	1.561	-2.13	+41.1	14.9	43.1/274	147.7

Comet P/2002 CW134 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 5.91297 TT
Peri. = 190.26887 e = 0.4888504
Node = 348.26125 2000.0 a = 3.6070364 AU
Incl. = 15.21324 n = 0.14387267
q = 1.8437352 AU P = 6.85 years

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' /°	Elong. °
Jan. 5	03 03.51	+37 08.8	2.621	3.313	-0.71	-4.5	20.3	5.6/204	127.6
Jan. 15	03 01.66	+36 18.0	2.690	3.265	-0.67	-4.3	20.3	4.6/165	117.7
Jan. 25	03 02.59	+35 33.9	2.771	3.217	-0.64	-4.0	20.3	5.6/129	108.2
Feb. 4	03 06.14	+34 58.6	2.860	3.169	-0.62	-3.7	20.3	7.8/109	99.1
Feb. 14	03 12.11	+34 32.8	2.951	3.120	-0.61	-3.4	20.3	10.2/ 99	90.5
Feb. 24	03 20.24	+34 16.2	3.043	3.070	-0.61	-3.1	20.3	12.5/ 93	82.3
Mar. 5	03 30.30	+34 07.6	3.130	3.021	-0.61	-2.7	20.3	14.7/ 90	74.5
Mar. 15	03 42.10	+34 05.4	3.211	2.971	-0.62	-2.4	20.3	16.6/ 88	67.2
Mar. 25	03 55.44	+34 07.8	3.285	2.920	-0.64	-2.1	20.2	18.3/ 87	60.2
Apr. 4	04 10.18	+34 12.9	3.348	2.870	-0.66	-1.7	20.2	19.9/ 87	53.6
Apr. 14	04 26.19	+34 18.8	3.401	2.819	-0.68	-1.4	20.2	21.2/ 87	47.3
Apr. 24	04 43.35	+34 23.7	3.443	2.768	-0.71	-1.0	20.1	22.5/ 88	41.3
May 4	05 01.54	+34 25.8	3.473	2.718	-0.74	-0.5	20.0	23.7/ 89	35.6
May 14	05 20.67	+34 23.3	3.491	2.667	-0.76	0.0	20.0	24.7/ 91	30.3
May 24	05 40.62	+34 14.8	3.497	2.616	-0.79	+0.5	19.9	25.7/ 92	25.2
June 3	06 01.28	+33 58.6	3.492	2.566	-0.82	+1.0	19.8	26.7/ 94	20.4
June 13	06 22.56	+33 33.6	3.476	2.516	-0.85	+1.7	19.7	27.5/ 96	16.1
June 23	06 44.33	+32 58.6	3.449	2.466	-0.88	+2.3	19.6	28.4/ 98	12.5
July 3	07 06.49	+32 12.6	3.412	2.417	-0.90	+3.0	19.5	29.2/100	10.0
July 13	07 28.91	+31 15.0	3.366	2.369	-0.92	+3.8	19.4	30.0/102	9.4
July 23	07 51.49	+30 05.2	3.311	2.321	-0.94	+4.6	19.3	30.7/104	10.9
Aug. 2	08 14.14	+28 42.8	3.248	2.275	-0.95	+5.4	19.1	31.4/106	13.6
Aug. 12	08 36.76	+27 07.9	3.179	2.229	-0.96	+6.3	19.0	32.2/108	17.0
Aug. 22	08 59.29	+25 20.4	3.103	2.185	-0.97	+7.2	18.9	32.8/110	20.6
Sept. 1	09 21.67	+23 20.6	3.021	2.143	-0.98	+8.1	18.7	33.5/112	24.4
Sept.11	09 43.85	+21 09.0	2.935	2.102	-0.99	+9.0	18.6	34.1/114	28.2
Sept.21	10 05.81	+18 46.3	2.845	2.064	-1.00	+9.8	18.4	34.7/115	32.0
Oct. 1	10 27.55	+16 13.1	2.752	2.028	-1.01	+10.7	18.3	35.1/117	35.9
Oct. 11	10 49.04	+13 30.5	2.657	1.994	-1.02	+11.5	18.1	35.6/118	39.7
Oct. 21	11 10.30	+10 39.3	2.559	1.963	-1.04	+12.3	18.0	35.9/119	43.6
Oct. 31	11 31.34	+07 40.8	2.461	1.935	-1.06	+13.0	17.8	36.1/120	47.6
Nov. 10	11 52.15	+04 36.2	2.362	1.911	-1.09	+13.7	17.7	36.2/121	51.6
Nov. 20	12 12.74	+01 26.6	2.263	1.890	-1.12	+14.2	17.5	36.1/122	55.6
Nov. 30	12 33.10	-01 46.5	2.164	1.872	-1.16	+14.7	17.4	35.9/123	59.7
Dec. 10	12 53.19	-05 01.8	2.067	1.859	-1.21	+15.0	17.3	35.4/124	64.0
Dec. 20	13 12.96	-08 18.0	1.971	1.850	-1.27	+15.2	17.1	34.7/125	68.4
Dec. 30	13 32.32	-11 34.0	1.876	1.845	-1.34	+15.3	17.0	33.6/126	72.9
Jan. 9	13 51.12	-14 48.4	1.783	1.844	-1.43	+15.1	16.9	32.3/127	77.7
Jan. 19	14 09.20	-18 00.5	1.694	1.847	-1.52	+14.9	16.8	30.7/129	82.7
Jan. 29	14 26.29	-21 09.4	1.607	1.855	-1.64	+14.4	16.7	28.6/131	88.0
Feb. 8	14 42.05	-24 14.5	1.524	1.867	-1.77	+13.8	16.6	26.2/134	93.6
Feb. 18	14 56.07	-27 15.3	1.445	1.883	-1.93	+13.0	16.5	23.4/139	99.7
Feb. 28	15 07.82	-30 10.9	1.372	1.902	-2.11	+12.2	16.5	20.4/147	106.1
Mar. 10	15 16.70	-33 00.0	1.305	1.925	-2.32	+11.4	16.4	17.3/158	113.1
Mar. 20	15 22.13	-35 39.8	1.248	1.952	-2.55	+10.8	16.4	14.7/174	120.5
Mar. 30	15 23.53	-38 05.6	1.201	1.982	-2.80	+10.5	16.4	12.9/195	128.3

Comet C/2007 N3 (Lulin)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 10.65018 TT
q = 1.2124830 AU Peri. = 136.83574
z = -0.0001579 Node = 338.51859 2000.0
e = 1.0001914 Incl. = 178.37263

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

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m	° ′			m	′		°
Jan. 5	21 09.36	-15 56.3	5.583	4.769	+0.37	+1.7	18.7	31.1
Jan. 15	21 13.06	-15 39.3	5.571	4.672	+0.42	+2.0	18.6	21.8
Jan. 25	21 17.23	-15 19.7	5.530	4.575	+0.45	+2.2	18.5	12.7
Feb. 4	21 21.76	-14 58.0	5.460	4.477	+0.47	+2.3	18.4	3.7
Feb. 14	21 26.49	-14 34.7	5.361	4.378	+0.48	+2.4	18.3	5.2
Feb. 24	21 31.28	-14 10.5	5.232	4.279	+0.47	+2.5	18.1	14.1
Mar. 5	21 36.01	-13 45.9	5.075	4.179	+0.45	+2.4	17.9	22.9
Mar. 15	21 40.52	-13 21.7	4.891	4.079	+0.41	+2.3	17.8	31.7
Mar. 25	21 44.65	-12 58.8	4.682	3.977	+0.36	+2.1	17.5	40.6
Apr. 4	21 48.24	-12 38.0	4.449	3.875	+0.28	+1.7	17.3	49.5
Apr. 14	21 51.06	-12 20.6	4.197	3.772	+0.18	+1.3	17.1	58.6
Apr. 24	21 52.86	-12 07.8	3.927	3.669	+0.05	+0.6	16.8	67.9
May 4	21 53.33	-12 01.4	3.645	3.564	-0.13	-0.2	16.5	77.4
May 14	21 52.06	-12 03.5	3.354	3.459	-0.35	-1.3	16.2	87.4
May 24	21 48.52	-12 16.4	3.060	3.353	-0.65	-2.7	15.9	97.9
June 3	21 42.00	-12 43.3	2.769	3.247	-1.04	-4.4	15.5	109.2
June 13	21 31.59	-13 27.4	2.489	3.140	-1.54	-6.4	15.1	121.4
June 23	21 16.19	-14 31.4	2.229	3.032	-2.16	-8.4	14.8	134.8
July 3	20 54.59	-15 55.7	2.000	2.923	-2.87	-10.0	14.4	149.7
July 13	20 25.89	-17 35.5	1.816	2.814	-3.55	-10.2	14.0	166.2
July 23	19 50.39	-19 17.0	1.691	2.704	-4.00	-8.3	13.7	175.2
Aug. 2	19 10.43	-20 40.4	1.632	2.594	-4.01	-5.0	13.4	156.4
Aug. 12	18 30.28	-21 29.9	1.641	2.484	-3.60	-1.5	13.2	137.5
Aug. 22	17 54.27	-21 44.9	1.706	2.373	-2.95	+0.8	13.1	119.5
Sept. 1	17 24.82	-21 36.7	1.811	2.263	-2.25	+1.8	13.0	103.0
Sept.11	17 02.27	-21 18.3	1.938	2.153	-1.65	+2.0	13.0	88.1
Sept.21	16 45.73	-20 58.5	2.070	2.044	-1.18	+1.7	12.9	74.4
Oct. 1	16 33.94	-20 41.5	2.195	1.936	-0.82	+1.3	12.8	61.9
Oct. 11	16 25.75	-20 28.7	2.303	1.830	-0.56	+0.9	12.6	50.1
Oct. 21	16 20.16	-20 19.8	2.386	1.728	-0.38	+0.6	12.5	38.9
Oct. 31	16 16.38	-20 14.0	2.437	1.629	-0.26	+0.4	12.3	28.0
Nov. 10	16 13.79	-20 10.2	2.452	1.535	-0.20	+0.3	12.0	17.4
Nov. 20	16 11.83	-20 07.5	2.425	1.449	-0.18	+0.3	11.7	6.9
Nov. 30	16 10.07	-20 04.8	2.355	1.373	-0.20	+0.4	11.4	3.8
Dec. 10	16 08.04	-20 00.9	2.239	1.308	-0.28	+0.6	11.1	14.4
Dec. 20	16 05.24	-19 54.6	2.077	1.259	-0.42	+1.1	10.8	25.2
Dec. 30	16 01.06	-19 44.1	1.870	1.226	-0.66	+1.8	10.4	36.4
Jan. 9	15 54.42	-19 25.8	1.622	1.213	-1.11	+3.3	10.1	48.2
Jan. 19	15 43.34	-18 52.4	1.341	1.219	-2.01	+6.8	9.7	61.0
Jan. 29	15 23.26	-17 44.4	1.035	1.246	-4.12	+16.7	9.2	76.1
Feb. 8	14 42.08	-14 57.5	0.727	1.290	-9.66	+51.1	8.6	96.5
Feb. 18	13 05.50	-06 26.8	0.473	1.350	-17.82	+106.9	7.9	131.8
Feb. 28	10 07.27	+11 22.2	0.436	1.423	-12.52	+51.1	7.9	170.4
Mar. 10	08 02.02	+19 52.9	0.668	1.506	-5.17	+11.2	9.1	129.1
Mar. 20	07 10.30	+21 44.8	0.992	1.597	-2.21	+2.9	10.2	106.9
Mar. 30	06 48.21	+22 13.5	1.337	1.694	-0.96	+0.9	11.1	91.8

Comet 68P/Klemola

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 21.01283 TT
Peri. = 153.98782 e = 0.6406344
Node = 175.34403 2000.0 a = 4.8942105 AU
Incl. = 11.14324 n = 0.09102907
q = 1.7588109 AU P = 10.83 years

m1 = 11.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	15 15.78	-11 13.6	4.257	3.774	+1.02	-1.8	22.8	54.6
Jan. 15	15 26.01	-11 31.5	4.068	3.713	+0.97	-1.1	22.6	62.2
Jan. 25	15 35.75	-11 42.5	3.870	3.652	+0.91	-0.4	22.4	70.0
Feb. 4	15 44.86	-11 46.2	3.666	3.590	+0.83	+0.4	22.1	77.9
Feb. 14	15 53.14	-11 41.9	3.458	3.528	+0.73	+1.3	21.9	86.0
Feb. 24	16 00.39	-11 29.3	3.250	3.466	+0.60	+2.1	21.7	94.2
Mar. 5	16 06.41	-11 08.1	3.044	3.403	+0.45	+3.0	21.4	102.7
Mar. 15	16 10.95	-10 38.2	2.844	3.340	+0.28	+3.9	21.1	111.5
Mar. 25	16 13.78	-09 59.7	2.654	3.276	+0.09	+4.7	20.8	120.6
Apr. 4	16 14.71	-09 13.1	2.477	3.212	-0.12	+5.4	20.6	130.0
Apr. 14	16 13.55	-08 19.5	2.316	3.148	-0.32	+5.9	20.3	139.6
Apr. 24	16 10.31	-07 21.0	2.176	3.084	-0.52	+6.1	20.0	149.2
May 4	16 05.11	-06 20.2	2.059	3.019	-0.68	+5.9	19.8	158.2
May 14	15 58.30	-05 21.3	1.969	2.954	-0.78	+5.2	19.5	164.3
May 24	15 50.50	-04 28.9	1.905	2.889	-0.80	+4.1	19.3	163.4
June 3	15 42.47	-03 47.4	1.867	2.825	-0.74	+2.7	19.1	156.1
June 13	15 35.08	-03 20.9	1.855	2.760	-0.60	+0.9	19.0	146.6
June 23	15 29.13	-03 11.5	1.864	2.695	-0.39	-0.8	18.8	136.7
July 3	15 25.20	-03 19.7	1.891	2.631	-0.15	-2.5	18.7	126.9
July 13	15 23.71	-03 44.7	1.932	2.567	+0.11	-4.0	18.6	117.7
July 23	15 24.82	-04 24.4	1.982	2.504	+0.37	-5.2	18.5	109.0
Aug. 2	15 28.55	-05 16.4	2.037	2.441	+0.63	-6.2	18.4	100.9
Aug. 12	15 34.85	-06 18.0	2.095	2.379	+0.87	-6.9	18.3	93.3
Aug. 22	15 43.58	-07 26.6	2.153	2.319	+1.10	-7.3	18.1	86.3
Sept. 1	15 54.62	-08 39.7	2.209	2.259	+1.32	-7.5	18.0	79.8
Sept.11	16 07.83	-09 54.8	2.262	2.202	+1.53	-7.5	17.9	73.7
Sept.21	16 23.09	-11 09.4	2.310	2.146	+1.72	-7.2	17.8	68.0
Oct. 1	16 40.29	-12 21.2	2.355	2.093	+1.90	-6.6	17.7	62.6
Oct. 11	16 59.33	-13 27.7	2.394	2.042	+2.08	-5.9	17.5	57.6
Oct. 21	17 20.10	-14 26.4	2.429	1.994	+2.24	-4.9	17.4	52.9
Oct. 31	17 42.49	-15 15.0	2.460	1.949	+2.39	-3.6	17.3	48.4
Nov. 10	18 06.36	-15 51.0	2.488	1.908	+2.52	-2.1	17.2	44.2
Nov. 20	18 31.54	-16 12.4	2.513	1.871	+2.63	-0.5	17.1	40.2
Nov. 30	18 57.83	-16 17.3	2.537	1.839	+2.72	+1.3	17.0	36.4
Dec. 10	19 25.01	-16 04.5	2.559	1.812	+2.78	+3.1	16.9	32.8
Dec. 20	19 52.84	-15 33.4	2.582	1.790	+2.82	+4.9	16.9	29.3
Dec. 30	20 21.08	-14 43.9	2.605	1.774	+2.84	+6.7	16.8	25.9
Jan. 9	20 49.47	-13 36.9	2.630	1.763	+2.83	+8.3	16.8	22.6
Jan. 19	21 17.80	-12 14.0	2.656	1.759	+2.81	+9.7	16.8	19.4
Jan. 29	21 45.89	-10 37.1	2.685	1.761	+2.77	+10.8	16.8	16.2
Feb. 8	22 13.59	-08 49.0	2.715	1.769	+2.72	+11.6	16.9	13.1
Feb. 18	22 40.79	-06 52.6	2.748	1.783	+2.66	+12.2	17.0	9.9
Feb. 28	23 07.43	-04 50.7	2.782	1.802	+2.60	+12.4	17.1	6.7
Mar. 10	23 33.45	-02 46.3	2.818	1.827	+2.54	+12.4	17.2	3.4
Mar. 20	23 58.85	-00 42.3	2.853	1.858	+2.48	+12.1	17.3	0.5
Mar. 30	00 23.61	+01 19.1	2.888	1.892	+2.41	+11.6	17.5	3.5

Comet 195P/Hill

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 21.27394 TT
Peri. = 249.63515 e = 0.3149244
Node = 243.25689 2000.0 a = 6.4788394 AU
Incl. = 36.36437 n = 0.05976656
q = 4.4384948 AU P = 16.49 years

m1 = 5.0 + 5 log(Delta) + 15.0 log(r)

0h TT	R.A.(2000)	Decl.	Delta	r	Daily motion		m1	Elong.
2008/09	h m	° ′			m	′		°
Jan. 5	05 18.92	+04 46.7	3.885	4.759	-0.46	-2.6	18.1	149.6
Jan. 15	05 14.28	+04 20.4	3.948	4.744	-0.35	-1.7	18.1	139.9
Jan. 25	05 10.79	+04 02.9	4.036	4.729	-0.21	-1.0	18.2	130.0
Feb. 4	05 08.65	+03 53.3	4.142	4.714	-0.07	-0.3	18.2	120.1
Feb. 14	05 07.97	+03 50.3	4.262	4.699	+0.08	+0.2	18.2	110.5
Feb. 24	05 08.76	+03 52.3	4.392	4.685	+0.22	+0.5	18.3	101.2
Mar. 5	05 10.97	+03 57.8	4.526	4.671	+0.35	+0.7	18.3	92.3
Mar. 15	05 14.51	+04 05.2	4.661	4.658	+0.48	+0.8	18.4	83.7
Mar. 25	05 19.27	+04 13.0	4.793	4.644	+0.58	+0.7	18.4	75.5
Apr. 4	05 25.10	+04 20.0	4.919	4.632	+0.68	+0.5	18.4	67.7
Apr. 14	05 31.89	+04 25.1	5.036	4.619	+0.76	+0.2	18.5	60.2
Apr. 24	05 39.49	+04 27.3	5.142	4.607	+0.83	-0.2	18.5	53.0
May 4	05 47.80	+04 25.7	5.235	4.595	+0.89	-0.6	18.5	46.2
May 14	05 56.69	+04 19.6	5.314	4.584	+0.94	-1.1	18.5	39.9
May 24	06 06.05	+04 08.5	5.378	4.573	+0.97	-1.7	18.6	34.0
June 3	06 15.79	+03 51.9	5.426	4.563	+1.00	-2.3	18.6	28.7
June 13	06 25.80	+03 29.4	5.458	4.552	+1.02	-2.9	18.6	24.4
June 23	06 36.00	+03 00.6	5.473	4.543	+1.03	-3.5	18.6	21.5
July 3	06 46.30	+02 25.3	5.471	4.533	+1.03	-4.2	18.5	20.5
July 13	06 56.62	+01 43.4	5.453	4.524	+1.02	-4.9	18.5	21.7
July 23	07 06.86	+00 54.7	5.419	4.516	+1.01	-5.6	18.5	24.7
Aug. 2	07 16.95	-00 00.9	5.369	4.508	+0.98	-6.2	18.5	28.9
Aug. 12	07 26.79	-01 03.2	5.305	4.500	+0.95	-6.9	18.4	33.9
Aug. 22	07 36.30	-02 12.2	5.226	4.493	+0.91	-7.6	18.4	39.5
Sept. 1	07 45.39	-03 27.8	5.135	4.486	+0.86	-8.2	18.3	45.5
Sept.11	07 53.96	-04 49.6	5.032	4.480	+0.79	-8.8	18.3	51.7
Sept.21	08 01.89	-06 17.3	4.920	4.474	+0.72	-9.3	18.2	58.2
Oct. 1	08 09.07	-07 50.2	4.799	4.468	+0.63	-9.8	18.2	64.9
Oct. 11	08 15.38	-09 27.8	4.672	4.463	+0.53	-10.1	18.1	71.9
Oct. 21	08 20.68	-11 08.8	4.541	4.459	+0.42	-10.3	18.0	78.9
Oct. 31	08 24.84	-12 52.2	4.409	4.454	+0.29	-10.4	18.0	86.2
Nov. 10	08 27.73	-14 36.0	4.279	4.451	+0.15	-10.2	17.9	93.5
Nov. 20	08 29.23	-16 18.3	4.153	4.448	0.00	-9.8	17.8	100.9
Nov. 30	08 29.25	-17 56.4	4.035	4.445	-0.15	-9.1	17.7	108.3
Dec. 10	08 27.76	-19 27.2	3.929	4.443	-0.29	-8.0	17.7	115.5
Dec. 20	08 24.82	-20 47.3	3.836	4.441	-0.42	-6.6	17.6	122.3
Dec. 30	08 20.57	-21 53.5	3.762	4.440	-0.53	-4.9	17.6	128.4
Jan. 9	08 15.31	-22 42.4	3.707	4.439	-0.59	-3.0	17.6	133.3
Jan. 19	08 09.43	-23 12.3	3.674	4.439	-0.60	-1.0	17.5	136.4
Jan. 29	08 03.39	-23 22.1	3.664	4.439	-0.57	+0.9	17.5	137.4
Feb. 8	07 57.73	-23 12.7	3.677	4.439	-0.48	+2.6	17.5	136.0
Feb. 18	07 52.90	-22 46.3	3.711	4.440	-0.36	+4.0	17.6	132.6
Feb. 28	07 49.27	-22 06.4	3.767	4.442	-0.22	+4.9	17.6	127.7
Mar. 10	07 47.10	-21 17.0	3.840	4.444	-0.06	+5.5	17.6	121.8
Mar. 20	07 46.53	-20 22.3	3.929	4.446	+0.10	+5.6	17.7	115.3
Mar. 30	07 47.56	-19 26.0	4.030	4.449	+0.26	+5.5	17.8	108.5

Comet P/2002 JN16 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 25.09008 TT
Peri. = 39.69329 e = 0.4872148
Node = 230.03451 2000.0 a = 3.4785924 AU
Incl. = 11.41883 n = 0.15191434
q = 1.7837707 AU P = 6.49 years

m1 = 14.5 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. °′	Delta	r	Variation for T=+1 day		m1	Mot./PA ′/°	Elong. °
Jan. 5	11 01.19	-07 58.0	2.860	3.376	-0.71	+3.5	22.1	3.5/189	113.6
Jan. 15	11 00.81	-08 33.0	2.687	3.329	-0.76	+3.8	21.9	4.1/238	123.2
Jan. 25	10 58.46	-08 54.4	2.529	3.282	-0.81	+4.1	21.7	6.4/265	133.2
Feb. 4	10 54.15	-08 59.6	2.390	3.235	-0.85	+4.5	21.5	9.1/278	143.3
Feb. 14	10 48.04	-08 46.6	2.274	3.186	-0.89	+4.8	21.3	11.5/286	153.2
Feb. 24	10 40.59	-08 14.7	2.184	3.138	-0.91	+5.0	21.2	13.1/292	161.6
Mar. 5	10 32.43	-07 25.3	2.122	3.089	-0.91	+5.2	21.0	13.6/298	164.5
Mar. 15	10 24.36	-06 22.0	2.089	3.039	-0.90	+5.2	20.9	12.8/304	159.2
Mar. 25	10 17.22	-05 10.5	2.084	2.990	-0.87	+5.0	20.9	11.0/312	150.0
Apr. 4	10 11.71	-03 57.1	2.104	2.939	-0.84	+4.8	20.8	8.6/324	139.7
Apr. 14	10 08.33	-02 47.7	2.145	2.889	-0.80	+4.5	20.8	6.2/346	129.5
Apr. 24	10 07.34	-01 47.4	2.203	2.838	-0.77	+4.1	20.7	5.3/ 24	119.6
May 4	10 08.77	-00 59.0	2.272	2.787	-0.74	+3.8	20.7	6.6/ 59	110.3
May 14	10 12.54	-00 24.6	2.348	2.735	-0.71	+3.4	20.7	9.1/ 77	101.6
May 24	10 18.47	-00 04.8	2.427	2.684	-0.70	+3.2	20.7	11.8/ 87	93.4
June 3	10 26.34	+00 00.6	2.507	2.633	-0.69	+3.0	20.7	14.5/ 93	85.7
June 13	10 35.96	-00 08.0	2.584	2.581	-0.69	+2.8	20.7	16.9/ 97	78.5
June 23	10 47.11	-00 29.9	2.657	2.530	-0.69	+2.7	20.7	19.1/100	71.8
July 3	10 59.63	-01 04.0	2.724	2.479	-0.70	+2.7	20.6	21.1/102	65.4
July 13	11 13.38	-01 49.5	2.784	2.428	-0.72	+2.7	20.6	23.0/104	59.3
July 23	11 28.24	-02 45.1	2.836	2.378	-0.74	+2.7	20.5	24.7/105	53.6
Aug. 2	11 44.14	-03 49.9	2.880	2.328	-0.76	+2.7	20.5	26.3/106	48.1
Aug. 12	12 01.01	-05 02.7	2.915	2.279	-0.79	+2.7	20.4	27.7/107	42.9
Aug. 22	12 18.83	-06 22.1	2.942	2.231	-0.83	+2.7	20.3	29.2/107	37.9
Sept. 1	12 37.57	-07 46.8	2.960	2.185	-0.86	+2.7	20.3	30.5/107	33.0
Sept.11	12 57.24	-09 15.4	2.971	2.139	-0.91	+2.6	20.2	31.8/107	28.4
Sept.21	13 17.85	-10 46.0	2.973	2.095	-0.95	+2.6	20.1	33.0/107	23.9
Oct. 1	13 39.42	-12 17.1	2.969	2.053	-1.00	+2.4	20.0	34.1/106	19.5
Oct. 11	14 01.98	-13 46.4	2.958	2.013	-1.05	+2.2	19.9	35.2/105	15.3
Oct. 21	14 25.53	-15 11.7	2.942	1.975	-1.10	+2.0	19.8	36.3/103	11.2
Oct. 31	14 50.08	-16 30.9	2.921	1.940	-1.16	+1.6	19.7	37.3/102	7.2
Nov. 10	15 15.62	-17 41.2	2.895	1.908	-1.21	+1.1	19.6	38.2/100	3.4
Nov. 20	15 42.07	-18 40.3	2.866	1.878	-1.26	+0.6	19.5	39.0/ 98	1.0
Nov. 30	16 09.38	-19 25.6	2.835	1.853	-1.30	-0.1	19.4	39.7/ 95	4.3
Dec. 10	16 37.39	-19 54.7	2.801	1.831	-1.34	-0.8	19.4	40.2/ 93	7.9
Dec. 20	17 05.91	-20 05.9	2.767	1.813	-1.37	-1.6	19.3	40.7/ 90	11.4
Dec. 30	17 34.76	-19 57.7	2.732	1.799	-1.38	-2.4	19.2	40.9/ 87	14.8
Jan. 9	18 03.67	-19 29.4	2.697	1.790	-1.39	-3.2	19.2	41.0/ 84	18.3
Jan. 19	18 32.40	-18 40.9	2.662	1.785	-1.38	-4.0	19.1	40.9/ 82	21.7
Jan. 29	19 00.71	-17 33.0	2.627	1.784	-1.36	-4.7	19.1	40.6/ 79	25.1
Feb. 8	19 28.38	-16 07.1	2.592	1.788	-1.33	-5.3	19.1	40.2/ 76	28.5
Feb. 18	19 55.23	-14 25.2	2.558	1.797	-1.30	-5.8	19.1	39.5/ 74	31.9
Feb. 28	20 21.13	-12 29.6	2.524	1.809	-1.26	-6.1	19.1	38.6/ 72	35.4
Mar. 10	20 45.97	-10 23.2	2.489	1.827	-1.22	-6.3	19.1	37.6/ 70	38.9
Mar. 20	21 09.69	-08 08.6	2.453	1.848	-1.19	-6.3	19.1	36.4/ 68	42.6
Mar. 30	21 32.25	-05 48.4	2.416	1.872	-1.15	-6.3	19.1	35.0/ 66	46.4

Comet 144P/Kushida

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 26.94051 TT
Peri. = 216.10455 e = 0.6276949
Node = 245.56226 2000.0 a = 3.8650956 AU
Incl. = 4.10936 n = 0.12970709
q = 1.4389948 AU P = 7.60 years

m1 = 11.0 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	21 46.72	-09 42.6	4.379	3.705	+1.00	+4.8	24.2	41.8
Jan. 15	21 56.72	-08 54.9	4.418	3.647	+1.06	+5.4	24.1	34.3
Jan. 25	22 07.34	-08 01.3	4.439	3.589	+1.11	+5.9	23.9	26.9
Feb. 4	22 18.47	-07 02.2	4.441	3.530	+1.16	+6.4	23.8	19.7
Feb. 14	22 30.05	-05 57.9	4.425	3.470	+1.19	+6.9	23.7	12.8
Feb. 24	22 41.99	-04 48.9	4.390	3.409	+1.23	+7.3	23.5	6.4
Mar. 5	22 54.24	-03 35.7	4.337	3.347	+1.25	+7.7	23.4	3.4
Mar. 15	23 06.75	-02 18.7	4.265	3.285	+1.27	+8.0	23.2	8.4
Mar. 25	23 19.48	-00 58.3	4.177	3.222	+1.29	+8.3	23.0	14.6
Apr. 4	23 32.41	+00 24.8	4.072	3.158	+1.31	+8.6	22.8	20.9
Apr. 14	23 45.51	+01 50.3	3.952	3.093	+1.32	+8.7	22.6	27.1
Apr. 24	23 58.75	+03 17.7	3.819	3.028	+1.34	+8.9	22.3	33.2
May 4	00 12.14	+04 46.4	3.673	2.961	+1.35	+9.0	22.1	39.2
May 14	00 25.65	+06 15.9	3.517	2.895	+1.36	+9.0	21.8	45.2
May 24	00 39.26	+07 45.7	3.351	2.827	+1.37	+9.0	21.5	51.1
June 3	00 52.98	+09 15.3	3.178	2.759	+1.38	+8.9	21.2	57.0
June 13	01 06.78	+10 44.2	2.998	2.690	+1.39	+8.7	20.9	62.8
June 23	01 20.63	+12 11.6	2.814	2.621	+1.39	+8.6	20.6	68.6
July 3	01 34.51	+13 37.1	2.627	2.551	+1.38	+8.3	20.2	74.5
July 13	01 48.35	+14 59.9	2.439	2.481	+1.37	+7.9	19.8	80.4
July 23	02 02.10	+16 19.3	2.252	2.411	+1.36	+7.5	19.5	86.3
Aug. 2	02 15.66	+17 34.6	2.066	2.340	+1.32	+7.0	19.0	92.4
Aug. 12	02 28.88	+18 44.8	1.884	2.269	+1.27	+6.4	18.6	98.6
Aug. 22	02 41.60	+19 49.0	1.708	2.199	+1.20	+5.7	18.2	105.0
Sept. 1	02 53.58	+20 46.0	1.539	2.129	+1.09	+4.8	17.7	111.7
Sept.11	03 04.51	+21 34.4	1.378	2.060	+0.95	+3.8	17.2	118.7
Sept.21	03 14.03	+22 12.6	1.227	1.992	+0.77	+2.6	16.7	126.1
Oct. 1	03 21.70	+22 38.5	1.089	1.925	+0.53	+1.1	16.2	134.0
Oct. 11	03 27.05	+22 49.5	0.964	1.859	+0.27	-0.7	15.6	142.6
Oct. 21	03 29.73	+22 42.8	0.856	1.796	-0.02	-2.7	15.1	151.9
Oct. 31	03 29.54	+22 15.5	0.765	1.736	-0.27	-4.9	14.6	162.0
Nov. 10	03 26.87	+21 26.6	0.692	1.679	-0.41	-6.8	14.1	172.6
Nov. 20	03 22.78	+20 18.5	0.640	1.627	-0.39	-7.9	13.7	175.3
Nov. 30	03 18.90	+18 59.0	0.607	1.579	-0.16	-7.8	13.4	164.3
Dec. 10	03 17.25	+17 40.8	0.592	1.537	+0.22	-6.4	13.1	153.4
Dec. 20	03 19.48	+16 36.7	0.592	1.501	+0.70	-4.1	12.9	143.5
Dec. 30	03 26.52	+15 55.2	0.605	1.473	+1.21	-1.6	12.9	134.7
Jan. 9	03 38.64	+15 39.0	0.629	1.453	+1.69	+0.6	12.8	127.3
Jan. 19	03 55.50	+15 44.8	0.662	1.442	+2.09	+2.1	12.9	121.0
Jan. 29	04 16.45	+16 06.1	0.704	1.439	+2.43	+2.9	13.0	115.9
Feb. 8	04 40.73	+16 34.7	0.754	1.445	+2.67	+2.8	13.2	111.6
Feb. 18	05 07.43	+17 02.6	0.813	1.461	+2.83	+2.1	13.4	107.9
Feb. 28	05 35.75	+17 23.1	0.882	1.484	+2.92	+0.8	13.7	104.7
Mar. 10	06 04.92	+17 31.3	0.961	1.515	+2.93	-0.7	14.1	101.7
Mar. 20	06 34.23	+17 24.3	1.050	1.553	+2.89	-2.3	14.5	98.8
Mar. 30	07 03.18	+17 01.1	1.150	1.598	+2.82	-3.9	14.9	95.8

Comet P/2003 O3 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 30.00824 TT
Peri. = 0.70148 e = 0.5984976
Node = 341.49540 2000.0 a = 3.1048151 AU
Incl. = 8.36513 n = 0.18015672
q = 1.2465907 AU P = 5.47 years

m1 = 18.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' / °	Elong. °
Jan. 5	14 20.85	-19 38.4	3.855	3.547	-0.46	+2.7	26.4	13.3/117	64.6
Jan. 15	14 29.26	-20 38.5	3.663	3.496	-0.50	+2.8	26.3	12.0/119	72.6
Jan. 25	14 36.80	-21 35.8	3.464	3.445	-0.54	+3.0	26.1	10.5/121	80.7
Feb. 4	14 43.25	-22 29.9	3.261	3.393	-0.59	+3.2	25.9	8.6/126	89.1
Feb. 14	14 48.33	-23 20.2	3.058	3.340	-0.65	+3.4	25.7	6.6/134	97.8
Feb. 24	14 51.76	-24 06.1	2.859	3.285	-0.71	+3.6	25.4	4.5/154	106.9
Mar. 5	14 53.23	-24 46.7	2.666	3.230	-0.78	+3.9	25.2	3.5/198	116.2
Mar. 15	14 52.45	-25 20.4	2.484	3.173	-0.84	+4.3	25.0	5.1/240	126.1
Mar. 25	14 49.18	-25 45.3	2.317	3.115	-0.91	+4.8	24.8	8.0/260	136.3
Apr. 4	14 43.35	-25 59.1	2.170	3.057	-0.96	+5.3	24.5	11.1/270	146.8
Apr. 14	14 35.09	-25 59.0	2.046	2.997	-1.00	+5.9	24.3	13.8/276	157.4
Apr. 24	14 24.89	-25 43.2	1.948	2.936	-1.01	+6.5	24.1	15.6/281	166.5
May 4	14 13.58	-25 11.7	1.879	2.874	-0.99	+7.0	24.0	16.1/286	168.2
May 14	14 02.22	-24 26.8	1.839	2.810	-0.95	+7.3	23.8	15.0/290	160.1
May 24	13 51.94	-23 33.7	1.826	2.746	-0.89	+7.3	23.7	12.7/295	149.3
June 3	13 43.67	-22 39.1	1.837	2.681	-0.83	+7.2	23.6	9.2/302	138.3
June 13	13 38.04	-21 49.5	1.867	2.614	-0.76	+6.9	23.5	5.4/316	127.6
June 23	13 35.37	-21 10.2	1.912	2.547	-0.71	+6.5	23.5	2.6/ 9	117.6
July 3	13 35.68	-20 44.2	1.966	2.478	-0.67	+6.1	23.4	4.6/ 76	108.1
July 13	13 38.88	-20 33.2	2.024	2.409	-0.64	+5.7	23.4	8.3/ 93	99.4
July 23	13 44.77	-20 37.0	2.084	2.339	-0.63	+5.4	23.3	11.9/ 99	91.3
Aug. 2	13 53.17	-20 54.4	2.141	2.268	-0.64	+5.1	23.2	15.3/102	83.8
Aug. 12	14 03.90	-21 24.1	2.193	2.196	-0.66	+4.8	23.1	18.4/103	76.8
Aug. 22	14 16.82	-22 04.0	2.238	2.124	-0.69	+4.5	23.0	21.4/104	70.3
Sept. 1	14 31.86	-22 51.9	2.276	2.051	-0.74	+4.3	22.9	24.2/104	64.3
Sept.11	14 48.98	-23 45.4	2.304	1.978	-0.80	+4.0	22.8	26.8/103	58.7
Sept.21	15 08.15	-24 41.6	2.324	1.905	-0.88	+3.7	22.6	29.4/102	53.5
Oct. 1	15 29.43	-25 37.5	2.334	1.833	-0.96	+3.3	22.5	32.0/101	48.6
Oct. 11	15 52.84	-26 29.8	2.335	1.761	-1.06	+2.8	22.3	34.5/ 99	44.1
Oct. 21	16 18.41	-27 14.3	2.328	1.691	-1.17	+2.1	22.1	37.1/ 97	40.0
Oct. 31	16 46.17	-27 46.8	2.314	1.622	-1.29	+1.2	21.9	39.6/ 94	36.2
Nov. 10	17 16.06	-28 02.3	2.293	1.556	-1.41	+0.1	21.7	42.2/ 91	32.8
Nov. 20	17 47.93	-27 55.8	2.269	1.494	-1.53	-1.4	21.5	44.8/ 88	29.7
Nov. 30	18 21.56	-27 22.3	2.242	1.435	-1.64	-3.1	21.3	47.3/ 84	27.0
Dec. 10	18 56.61	-26 17.6	2.214	1.383	-1.73	-5.0	21.1	49.7/ 80	24.7
Dec. 20	19 32.61	-24 38.5	2.189	1.337	-1.80	-7.1	21.0	52.0/ 77	22.8
Dec. 30	20 09.12	-22 23.8	2.167	1.300	-1.84	-9.3	20.8	53.9/ 73	21.2
Jan. 9	20 45.65	-19 34.7	2.151	1.271	-1.85	-11.3	20.7	55.3/ 70	19.9
Jan. 19	21 21.82	-16 14.6	2.143	1.253	-1.84	-13.1	20.6	56.3/ 68	18.9
Jan. 29	21 57.35	-12 29.2	2.145	1.247	-1.81	-14.5	20.6	56.7/ 65	18.0
Feb. 8	22 32.09	-08 25.6	2.158	1.251	-1.77	-15.3	20.6	56.5/ 64	17.3
Feb. 18	23 05.97	-04 12.2	2.182	1.267	-1.73	-15.6	20.7	55.7/ 63	16.7
Feb. 28	23 39.02	+00 03.2	2.217	1.293	-1.68	-15.4	20.8	54.4/ 63	15.9
Mar. 10	00 11.27	+04 12.9	2.262	1.329	-1.63	-14.7	21.0	52.7/ 63	15.1
Mar. 20	00 42.82	+08 10.7	2.318	1.373	-1.58	-13.7	21.2	50.7/ 64	14.0
Mar. 30	01 13.72	+11 51.8	2.381	1.424	-1.52	-12.4	21.4	48.5/ 65	12.8

Comet 47P/Ashbrook-Jackson

Epoch = 2008 Aug. 2.0 TT
T = 2009 Jan. 31.78568 TT
Peri. = 357.63604 e = 0.3198829
Node = 356.99442 2000.0 a = 4.1157065 AU
Incl. = 13.04779 n = 0.11804225
q = 2.7991624 AU P = 8.35 years

m1 = 5.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	18 30.15	-33 25.3	4.464	3.511	+1.65	+1.4	16.4	12.6
Jan. 15	18 46.65	-33 11.7	4.409	3.483	+1.64	+1.8	16.4	17.4
Jan. 25	19 03.10	-32 54.0	4.338	3.455	+1.63	+2.2	16.3	23.1
Feb. 4	19 19.38	-32 32.4	4.253	3.427	+1.60	+2.5	16.2	29.2
Feb. 14	19 35.40	-32 07.2	4.154	3.399	+1.56	+2.8	16.1	35.5
Feb. 24	19 51.04	-31 39.2	4.042	3.372	+1.52	+3.0	16.0	42.0
Mar. 5	20 06.21	-31 09.0	3.919	3.344	+1.46	+3.1	15.8	48.5
Mar. 15	20 20.81	-30 37.6	3.785	3.318	+1.39	+3.2	15.7	55.1
Mar. 25	20 34.72	-30 05.7	3.643	3.291	+1.31	+3.1	15.6	61.8
Apr. 4	20 47.84	-29 34.6	3.495	3.265	+1.22	+2.9	15.4	68.6
Apr. 14	21 00.04	-29 05.6	3.341	3.239	+1.11	+2.6	15.3	75.5
Apr. 24	21 11.18	-28 39.7	3.184	3.213	+0.99	+2.1	15.1	82.6
May 4	21 21.11	-28 18.2	3.026	3.188	+0.85	+1.6	15.0	89.9
May 14	21 29.64	-28 02.5	2.868	3.164	+0.69	+0.9	14.8	97.5
May 24	21 36.58	-27 53.6	2.715	3.139	+0.51	+0.1	14.6	105.4
June 3	21 41.72	-27 52.3	2.568	3.116	+0.31	-0.7	14.5	113.6
June 13	21 44.83	-27 58.9	2.430	3.093	+0.09	-1.4	14.3	122.2
June 23	21 45.72	-28 12.7	2.305	3.070	-0.15	-2.0	14.1	131.1
July 3	21 44.26	-28 32.3	2.195	3.049	-0.38	-2.2	14.0	140.4
July 13	21 40.47	-28 54.6	2.105	3.028	-0.59	-2.1	13.8	149.8
July 23	21 34.60	-29 15.5	2.037	3.007	-0.75	-1.5	13.7	158.8
Aug. 2	21 27.13	-29 30.2	1.994	2.987	-0.83	-0.4	13.6	165.5
Aug. 12	21 18.84	-29 34.0	1.977	2.969	-0.82	+1.0	13.6	165.2
Aug. 22	21 10.68	-29 23.9	1.987	2.951	-0.71	+2.5	13.5	158.3
Sept. 1	21 03.56	-28 58.9	2.022	2.933	-0.53	+3.9	13.5	149.0
Sept.11	20 58.27	-28 19.6	2.080	2.917	-0.30	+5.2	13.6	139.2
Sept.21	20 55.28	-27 28.1	2.157	2.902	-0.05	+6.1	13.6	129.6
Oct. 1	20 54.80	-26 26.7	2.250	2.887	+0.20	+6.9	13.7	120.3
Oct. 11	20 56.83	-25 17.6	2.356	2.874	+0.43	+7.5	13.7	111.4
Oct. 21	21 01.16	-24 02.2	2.470	2.862	+0.64	+8.1	13.8	102.9
Oct. 31	21 07.56	-22 41.5	2.590	2.850	+0.82	+8.6	13.9	94.8
Nov. 10	21 15.75	-21 15.9	2.713	2.840	+0.97	+9.0	14.0	87.0
Nov. 20	21 25.43	-19 45.7	2.837	2.831	+1.09	+9.5	14.0	79.6
Nov. 30	21 36.36	-18 10.9	2.959	2.823	+1.19	+9.9	14.1	72.5
Dec. 10	21 48.31	-16 31.7	3.077	2.816	+1.28	+10.4	14.2	65.6
Dec. 20	22 01.06	-14 48.2	3.190	2.810	+1.34	+10.8	14.2	58.9
Dec. 30	22 14.47	-13 00.5	3.296	2.806	+1.39	+11.2	14.3	52.3
Jan. 9	22 28.40	-11 08.9	3.395	2.802	+1.43	+11.5	14.4	46.0
Jan. 19	22 42.70	-09 13.9	3.485	2.800	+1.46	+11.8	14.4	39.8
Jan. 29	22 57.32	-07 15.8	3.565	2.799	+1.48	+12.1	14.5	33.7
Feb. 8	23 12.15	-05 15.1	3.635	2.799	+1.50	+12.3	14.5	27.7
Feb. 18	23 27.15	-03 12.6	3.694	2.801	+1.51	+12.4	14.5	21.9
Feb. 28	23 42.27	-01 08.7	3.742	2.804	+1.52	+12.5	14.6	16.1
Mar. 10	23 57.46	+00 55.8	3.778	2.807	+1.52	+12.5	14.6	10.4
Mar. 20	00 12.69	+03 00.4	3.803	2.813	+1.53	+12.4	14.6	5.0
Mar. 30	00 27.95	+05 04.5	3.817	2.819	+1.52	+12.3	14.7	2.1

Comet P/2001 X2 (Scotti)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Feb. 7.19703 TT
Peri. = 255.56849 e = 0.3306655
Node = 194.58235 2000.0 a = 3.7752091 AU
Incl. = 2.18507 n = 0.13436698
q = 2.5268777 AU P = 7.34 years

m1 = 11.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		m1	Mot./PA ″/ °	Elong. °
Jan. 5	23 02.10	-05 37.1	3.754	3.382	-0.47	-2.6	21.8	16.2/ 69	60.6
Jan. 15	23 12.17	-04 38.4	3.847	3.351	-0.47	-2.6	21.8	17.5/ 68	53.1
Jan. 25	23 23.04	-03 33.5	3.929	3.320	-0.47	-2.7	21.8	18.7/ 68	45.8
Feb. 4	23 34.60	-02 23.3	3.998	3.289	-0.47	-2.7	21.8	19.7/ 68	38.8
Feb. 14	23 46.75	-01 08.5	4.053	3.258	-0.48	-2.8	21.7	20.5/ 68	32.0
Feb. 24	23 59.39	+00 10.0	4.094	3.227	-0.48	-2.8	21.7	21.2/ 67	25.3
Mar. 5	00 12.48	+01 31.5	4.119	3.196	-0.49	-2.9	21.6	21.9/ 67	18.8
Mar. 15	00 25.95	+02 55.1	4.130	3.166	-0.50	-2.9	21.6	22.3/ 68	12.4
Mar. 25	00 39.75	+04 20.1	4.125	3.135	-0.52	-3.0	21.5	22.7/ 68	6.2
Apr. 4	00 53.85	+05 45.6	4.105	3.105	-0.53	-3.0	21.4	23.0/ 68	0.1
Apr. 14	01 08.21	+07 11.0	4.071	3.075	-0.55	-3.0	21.4	23.3/ 68	5.9
Apr. 24	01 22.79	+08 35.4	4.023	3.046	-0.57	-3.0	21.3	23.4/ 69	11.7
May 4	01 37.58	+09 58.2	3.962	3.016	-0.59	-3.0	21.2	23.5/ 70	17.6
May 14	01 52.55	+11 18.5	3.889	2.987	-0.62	-3.0	21.1	23.5/ 70	23.3
May 24	02 07.64	+12 35.8	3.803	2.959	-0.65	-3.0	21.0	23.4/ 71	29.0
June 3	02 22.83	+13 49.2	3.707	2.931	-0.68	-3.0	20.9	23.2/ 72	34.7
June 13	02 38.07	+14 58.2	3.601	2.903	-0.71	-2.9	20.7	22.9/ 73	40.4
June 23	02 53.28	+16 02.2	3.485	2.876	-0.75	-2.9	20.6	22.5/ 74	46.2
July 3	03 08.40	+17 00.6	3.362	2.850	-0.79	-2.8	20.5	22.0/ 76	51.9
July 13	03 23.33	+17 52.8	3.232	2.824	-0.83	-2.7	20.3	21.3/ 77	57.8
July 23	03 37.96	+18 38.6	3.095	2.799	-0.88	-2.6	20.2	20.5/ 78	63.8
Aug. 2	03 52.14	+19 17.7	2.954	2.775	-0.93	-2.5	20.0	19.4/ 80	69.9
Aug. 12	04 05.71	+19 49.8	2.810	2.752	-0.99	-2.3	19.8	18.1/ 81	76.3
Aug. 22	04 18.45	+20 14.9	2.663	2.729	-1.05	-2.2	19.7	16.5/ 83	82.9
Sept. 1	04 30.15	+20 33.2	2.516	2.708	-1.12	-2.0	19.5	14.6/ 85	89.8
Sept.11	04 40.51	+20 44.8	2.371	2.687	-1.20	-1.9	19.3	12.3/ 87	97.1
Sept.21	04 49.26	+20 50.2	2.229	2.667	-1.28	-1.8	19.1	9.5/ 90	104.8
Oct. 1	04 56.05	+20 49.9	2.092	2.649	-1.38	-1.8	18.9	6.3/ 95	113.0
Oct. 11	05 00.55	+20 44.4	1.965	2.631	-1.48	-1.8	18.8	2.9/110	121.8
Oct. 21	05 02.51	+20 34.4	1.849	2.615	-1.58	-1.9	18.6	1.8/217	131.3
Oct. 31	05 01.75	+20 20.3	1.749	2.600	-1.69	-2.0	18.4	5.1/250	141.4
Nov. 10	04 58.33	+20 02.8	1.669	2.586	-1.78	-2.3	18.3	8.3/256	152.2
Nov. 20	04 52.64	+19 42.9	1.611	2.574	-1.85	-2.6	18.2	10.5/259	163.5
Nov. 30	04 45.40	+19 21.8	1.579	2.563	-1.88	-2.9	18.1	11.1/260	174.7
Dec. 10	04 37.67	+19 01.6	1.575	2.553	-1.88	-3.2	18.1	10.2/261	171.8
Dec. 20	04 30.59	+18 44.9	1.597	2.545	-1.83	-3.3	18.1	7.8/262	160.3
Dec. 30	04 25.19	+18 34.1	1.645	2.539	-1.75	-3.3	18.2	4.3/266	148.9
Jan. 9	04 22.20	+18 31.1	1.715	2.533	-1.66	-3.3	18.2	0.6/330	138.0
Jan. 19	04 21.98	+18 36.4	1.804	2.530	-1.56	-3.1	18.3	3.9/ 71	127.9
Jan. 29	04 24.60	+18 49.4	1.907	2.528	-1.47	-2.8	18.4	7.8/ 75	118.3
Feb. 8	04 29.92	+19 08.7	2.020	2.527	-1.38	-2.5	18.6	11.2/ 78	109.5
Feb. 18	04 37.68	+19 32.2	2.141	2.528	-1.31	-2.1	18.7	14.2/ 79	101.3
Feb. 28	04 47.60	+19 58.0	2.267	2.530	-1.24	-1.8	18.8	16.8/ 81	93.6
Mar. 10	04 59.38	+20 23.7	2.395	2.534	-1.18	-1.4	19.0	18.9/ 82	86.4
Mar. 20	05 12.73	+20 47.5	2.523	2.540	-1.13	-1.0	19.1	20.6/ 84	79.6
Mar. 30	05 27.40	+21 07.5	2.651	2.546	-1.09	-0.6	19.2	22.1/ 85	73.1

Comet 14P/Wolf

Epoch = 2008 Aug. 2.0 TT
T = 2009 Feb. 27.09726 TT
Peri. = 158.93856 e = 0.3583134
Node = 202.13451 2000.0 a = 4.2455071 AU
Incl. = 27.93796 n = 0.11267037
q = 2.7242850 AU P = 8.75 years

m1 = 10.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	18 18.30	-02 21.3	4.513	3.626	+1.34	+2.6	21.7	22.8
Jan. 15	18 31.71	-01 54.9	4.451	3.594	+1.34	+3.5	21.6	26.2
Jan. 25	18 45.09	-01 19.5	4.374	3.562	+1.32	+4.4	21.5	30.6
Feb. 4	18 58.33	-00 35.0	4.285	3.530	+1.30	+5.3	21.4	35.6
Feb. 14	19 11.34	+00 18.3	4.184	3.499	+1.27	+6.2	21.3	41.0
Feb. 24	19 24.01	+01 20.2	4.071	3.467	+1.22	+7.0	21.1	46.6
Mar. 5	19 36.25	+02 30.4	3.949	3.436	+1.17	+7.8	21.0	52.5
Mar. 15	19 47.94	+03 48.3	3.819	3.405	+1.10	+8.5	20.9	58.4
Mar. 25	19 58.98	+05 13.1	3.682	3.374	+1.03	+9.1	20.8	64.4
Apr. 4	20 09.24	+06 44.2	3.540	3.343	+0.94	+9.6	20.6	70.6
Apr. 14	20 18.59	+08 20.4	3.395	3.313	+0.83	+10.0	20.5	76.8
Apr. 24	20 26.90	+10 00.5	3.248	3.282	+0.71	+10.2	20.3	83.1
May 4	20 34.02	+11 43.0	3.102	3.253	+0.58	+10.3	20.1	89.5
May 14	20 39.77	+13 25.8	2.958	3.223	+0.42	+10.1	20.0	96.0
May 24	20 44.00	+15 06.4	2.818	3.194	+0.26	+9.6	19.8	102.5
June 3	20 46.55	+16 42.0	2.684	3.166	+0.07	+8.7	19.7	109.2
June 13	20 47.30	+18 08.6	2.559	3.138	-0.11	+7.3	19.5	115.8
June 23	20 46.20	+19 22.0	2.445	3.110	-0.29	+5.5	19.3	122.4
July 3	20 43.29	+20 17.4	2.345	3.083	-0.45	+3.2	19.2	128.6
July 13	20 38.80	+20 49.9	2.260	3.057	-0.57	+0.6	19.1	134.2
July 23	20 33.15	+20 55.5	2.194	3.032	-0.62	-2.4	18.9	138.6
Aug. 2	20 26.91	+20 31.8	2.147	3.007	-0.61	-5.3	18.8	141.3
Aug. 12	20 20.81	+19 38.8	2.121	2.983	-0.52	-7.9	18.8	141.7
Aug. 22	20 15.59	+18 19.5	2.116	2.959	-0.37	-10.0	18.7	139.6
Sept. 1	20 11.87	+16 39.3	2.132	2.937	-0.17	-11.4	18.7	135.4
Sept.11	20 10.15	+14 45.3	2.168	2.915	+0.05	-12.0	18.6	129.7
Sept.21	20 10.68	+12 45.2	2.221	2.894	+0.28	-12.0	18.7	123.1
Oct. 1	20 13.52	+10 45.6	2.290	2.875	+0.51	-11.3	18.7	116.1
Oct. 11	20 18.64	+08 52.4	2.372	2.856	+0.72	-10.3	18.7	108.9
Oct. 21	20 25.85	+07 09.7	2.464	2.839	+0.91	-8.9	18.8	101.7
Oct. 31	20 34.94	+05 40.4	2.564	2.822	+1.08	-7.4	18.8	94.5
Nov. 10	20 45.69	+04 26.0	2.669	2.807	+1.22	-5.9	18.9	87.5
Nov. 20	20 57.85	+03 27.4	2.777	2.793	+1.34	-4.3	18.9	80.7
Nov. 30	21 11.20	+02 44.5	2.886	2.780	+1.43	-2.8	19.0	74.0
Dec. 10	21 25.54	+02 16.9	2.993	2.768	+1.51	-1.3	19.0	67.4
Dec. 20	21 40.67	+02 03.7	3.098	2.758	+1.58	0.0	19.1	61.0
Dec. 30	21 56.44	+02 03.7	3.198	2.749	+1.63	+1.2	19.1	54.6
Jan. 9	22 12.70	+02 15.8	3.293	2.741	+1.66	+2.3	19.2	48.5
Jan. 19	22 29.34	+02 38.5	3.380	2.735	+1.69	+3.2	19.2	42.4
Jan. 29	22 46.26	+03 10.3	3.460	2.730	+1.71	+3.9	19.2	36.4
Feb. 8	23 03.39	+03 49.7	3.530	2.727	+1.73	+4.5	19.3	30.5
Feb. 18	23 20.64	+04 35.2	3.591	2.725	+1.73	+5.0	19.3	24.7
Feb. 28	23 37.99	+05 25.4	3.641	2.724	+1.74	+5.3	19.3	19.1
Mar. 10	23 55.37	+06 18.6	3.681	2.725	+1.74	+5.5	19.4	13.5
Mar. 20	00 12.76	+07 13.4	3.709	2.727	+1.74	+5.5	19.4	8.4
Mar. 30	00 30.13	+08 08.6	3.725	2.731	+1.73	+5.4	19.4	4.6

Comet 67P/Churyumov-Gerasimenko

Epoch = 2008 Aug. 2.0 TT
T = 2009 Feb. 28.34026 TT
Peri. = 12.66698 e = 0.6402475
Node = 50.20769 2000.0 a = 3.4655865 AU
Incl. = 7.04080 n = 0.15277031
q = 1.2467534 AU P = 6.45 years

m1 = 10.4 + 5 log(Delta) + 12.5 log(r(t-40))

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	19 07.72	-27 10.4	4.842	3.863	+1.27	+1.9	21.4	4.8
Jan. 15	19 20.43	-26 51.5	4.782	3.810	+1.28	+2.2	21.3	7.7
Jan. 25	19 33.28	-26 29.7	4.703	3.756	+1.29	+2.4	21.2	14.2
Feb. 4	19 46.18	-26 05.3	4.604	3.702	+1.29	+2.7	21.1	21.2
Feb. 14	19 59.04	-25 38.5	4.486	3.646	+1.27	+2.9	21.0	28.3
Feb. 24	20 11.78	-25 09.8	4.351	3.590	+1.25	+3.0	20.9	35.3
Mar. 5	20 24.31	-24 39.6	4.200	3.532	+1.22	+3.1	20.7	42.4
Mar. 15	20 36.55	-24 08.7	4.036	3.474	+1.19	+3.1	20.5	49.5
Mar. 25	20 48.40	-23 37.9	3.859	3.414	+1.14	+3.0	20.4	56.7
Apr. 4	20 59.78	-23 08.0	3.672	3.354	+1.08	+2.8	20.2	63.9
Apr. 14	21 10.58	-22 40.3	3.477	3.292	+1.01	+2.4	20.0	71.1
Apr. 24	21 20.68	-22 15.8	3.276	3.229	+0.93	+2.0	19.7	78.5
May 4	21 29.95	-21 56.0	3.072	3.166	+0.83	+1.4	19.5	86.0
May 14	21 38.21	-21 42.4	2.867	3.101	+0.71	+0.6	19.3	93.7
May 24	21 45.28	-21 36.8	2.664	3.035	+0.56	-0.4	19.0	101.7
June 3	21 50.91	-21 40.9	2.465	2.968	+0.39	-1.6	18.7	109.9
June 13	21 54.83	-21 56.5	2.274	2.901	+0.19	-2.8	18.4	118.6
June 23	21 56.72	-22 25.0	2.094	2.832	-0.05	-4.2	18.1	127.6
July 3	21 56.26	-23 07.2	1.928	2.762	-0.31	-5.5	17.9	137.2
July 13	21 53.13	-24 02.7	1.780	2.691	-0.59	-6.6	17.6	147.1
July 23	21 47.19	-25 08.5	1.653	2.619	-0.87	-7.1	17.3	157.1
Aug. 2	21 38.52	-26 19.6	1.550	2.546	-1.09	-6.8	17.0	165.8
Aug. 12	21 27.64	-27 27.9	1.473	2.472	-1.21	-5.7	16.8	167.5
Aug. 22	21 15.59	-28 24.5	1.423	2.398	-1.19	-3.8	16.5	159.7
Sept. 1	21 03.74	-29 02.2	1.399	2.323	-1.01	-1.5	16.4	149.0
Sept.11	20 53.62	-29 16.7	1.396	2.247	-0.71	+0.9	16.2	137.9
Sept.21	20 46.47	-29 08.0	1.411	2.170	-0.34	+3.0	16.1	127.2
Oct. 1	20 43.05	-28 38.4	1.438	2.093	+0.06	+4.8	15.9	117.1
Oct. 11	20 43.68	-27 50.7	1.473	2.016	+0.46	+6.3	15.8	107.8
Oct. 21	20 48.26	-26 47.4	1.512	1.939	+0.82	+7.8	15.7	99.3
Oct. 31	20 56.49	-25 29.5	1.550	1.863	+1.15	+9.2	15.6	91.5
Nov. 10	21 08.03	-23 57.1	1.585	1.787	+1.44	+10.8	15.4	84.6
Nov. 20	21 22.47	-22 09.4	1.615	1.713	+1.70	+12.4	15.2	78.3
Nov. 30	21 39.48	-20 05.2	1.639	1.641	+1.93	+14.2	15.1	72.6
Dec. 10	21 58.75	-17 43.3	1.657	1.571	+2.13	+16.1	14.9	67.6
Dec. 20	22 20.02	-15 02.6	1.668	1.505	+2.31	+18.0	14.7	63.1
Dec. 30	22 43.15	-12 02.3	1.673	1.444	+2.48	+20.0	14.4	59.3
Jan. 9	23 07.99	-08 42.4	1.674	1.389	+2.65	+21.8	14.2	56.0
Jan. 19	23 34.49	-05 04.1	1.673	1.341	+2.82	+23.4	14.0	53.3
Jan. 29	00 02.65	-01 09.8	1.670	1.301	+2.99	+24.6	13.7	51.1
Feb. 8	00 32.50	+02 56.7	1.670	1.272	+3.16	+25.3	13.5	49.4
Feb. 18	01 04.10	+07 09.2	1.673	1.253	+3.34	+25.1	13.3	48.2
Feb. 28	01 37.51	+11 20.4	1.683	1.247	+3.52	+24.1	13.1	47.3
Mar. 10	02 12.75	+15 20.9	1.703	1.252	+3.69	+22.0	13.0	46.8
Mar. 20	02 49.67	+19 00.9	1.733	1.270	+3.84	+19.0	12.9	46.3
Mar. 30	03 28.04	+22 11.2	1.776	1.299	+3.93	+15.3	12.9	46.0

Comet 59P/Kearns-Kwee

Epoch = 2008 Aug. 2.0 TT
T = 2009 Mar. 7.68589 TT
Peri. = 127.53888 e = 0.4748707
Node = 313.03748 2000.0 a = 4.4856185 AU
Incl. = 9.34100 n = 0.10374581
q = 2.3555297 AU P = 9.50 years

m1 = 8.2 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	22 03.88	-07 48.4	4.363	3.755	+1.00	+6.0	21.5	46.5
Jan. 15	22 13.84	-06 48.6	4.424	3.711	+1.06	+6.5	21.4	39.0
Jan. 25	22 24.40	-05 43.1	4.468	3.668	+1.11	+7.1	21.3	31.7
Feb. 4	22 35.46	-04 32.4	4.497	3.624	+1.15	+7.6	21.3	24.7
Feb. 14	22 46.93	-03 16.7	4.508	3.580	+1.18	+8.0	21.2	17.8
Feb. 24	22 58.74	-01 56.7	4.502	3.537	+1.21	+8.4	21.1	11.3
Mar. 5	23 10.82	-00 32.6	4.478	3.493	+1.23	+8.8	21.0	5.8
Mar. 15	23 23.11	+00 54.9	4.438	3.449	+1.25	+9.0	20.8	5.3
Mar. 25	23 35.57	+02 25.3	4.382	3.405	+1.26	+9.3	20.7	10.3
Apr. 4	23 48.16	+03 58.2	4.310	3.361	+1.27	+9.5	20.6	16.3
Apr. 14	00 00.83	+05 33.2	4.223	3.318	+1.27	+9.6	20.4	22.4
Apr. 24	00 13.55	+07 09.6	4.122	3.274	+1.27	+9.7	20.3	28.6
May 4	00 26.29	+08 47.1	4.009	3.231	+1.27	+9.8	20.1	34.7
May 14	00 38.99	+10 25.1	3.884	3.188	+1.26	+9.8	20.0	40.7
May 24	00 51.63	+12 03.2	3.750	3.145	+1.25	+9.8	19.8	46.8
June 3	01 04.14	+13 40.9	3.606	3.102	+1.23	+9.7	19.6	52.9
June 13	01 16.45	+15 17.8	3.455	3.060	+1.20	+9.6	19.4	59.1
June 23	01 28.48	+16 53.4	3.299	3.018	+1.17	+9.4	19.2	65.3
July 3	01 40.15	+18 27.4	3.137	2.977	+1.11	+9.2	19.0	71.6
July 13	01 51.29	+19 59.2	2.973	2.936	+1.05	+8.9	18.8	78.0
July 23	02 01.77	+21 28.5	2.808	2.896	+0.96	+8.6	18.5	84.7
Aug. 2	02 11.37	+22 54.7	2.643	2.857	+0.85	+8.2	18.3	91.5
Aug. 12	02 19.86	+24 17.2	2.481	2.818	+0.71	+7.8	18.0	98.7
Aug. 22	02 26.95	+25 35.2	2.323	2.780	+0.54	+7.2	17.8	106.2
Sept. 1	02 32.33	+26 47.5	2.173	2.744	+0.33	+6.5	17.6	114.1
Sept.11	02 35.66	+27 52.4	2.032	2.708	+0.10	+5.5	17.3	122.4
Sept.21	02 36.66	+28 47.8	1.903	2.673	-0.15	+4.3	17.1	131.1
Oct. 1	02 35.15	+29 30.6	1.791	2.640	-0.40	+2.7	16.8	140.3
Oct. 11	02 31.18	+29 57.3	1.697	2.608	-0.60	+0.8	16.6	149.6
Oct. 21	02 25.16	+30 05.0	1.626	2.577	-0.73	-1.3	16.5	158.3
Oct. 31	02 17.83	+29 52.2	1.578	2.548	-0.75	-3.2	16.3	164.2
Nov. 10	02 10.32	+29 20.3	1.557	2.521	-0.65	-4.6	16.2	163.1
Nov. 20	02 03.84	+28 34.3	1.561	2.495	-0.45	-5.3	16.1	155.8
Nov. 30	01 59.38	+27 41.4	1.588	2.471	-0.17	-5.2	16.1	146.5
Dec. 10	01 57.67	+26 49.4	1.638	2.450	+0.13	-4.5	16.1	136.8
Dec. 20	01 59.00	+26 04.9	1.704	2.430	+0.44	-3.3	16.1	127.3
Dec. 30	02 03.36	+25 31.7	1.785	2.412	+0.72	-2.0	16.2	118.3
Jan. 9	02 10.59	+25 11.6	1.877	2.397	+0.98	-0.7	16.2	109.9
Jan. 19	02 20.38	+25 04.3	1.977	2.384	+1.20	+0.4	16.3	102.0
Jan. 29	02 32.42	+25 08.3	2.082	2.373	+1.40	+1.3	16.4	94.6
Feb. 8	02 46.43	+25 21.2	2.190	2.365	+1.57	+1.9	16.4	87.7
Feb. 18	03 02.12	+25 40.5	2.300	2.359	+1.71	+2.3	16.5	81.1
Feb. 28	03 19.26	+26 03.3	2.411	2.356	+1.84	+2.4	16.6	74.9
Mar. 10	03 37.63	+26 27.1	2.520	2.356	+1.94	+2.2	16.7	69.1
Mar. 20	03 57.03	+26 49.3	2.627	2.357	+2.02	+1.9	16.8	63.5
Mar. 30	04 17.27	+27 07.8	2.733	2.362	+2.09	+1.3	16.9	58.1

Comet P/2002 Q1 (Van Ness)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Mar. 22.62736 TT
Peri. = 185.03152 e = 0.5641624
Node = 174.01272 2000.0 a = 3.5588602 AU
Incl. = 36.27951 n = 0.14680393
q = 1.5510851 AU P = 6.71 years

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

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' / °	Elong. °
Jan. 5	15 57.20	+05 26.5	4.318	3.806	-0.41	0.0	22.0	16.2/ 80	52.9
Jan. 15	16 07.91	+05 54.8	4.160	3.758	-0.44	0.0	21.8	15.9/ 75	59.5
Jan. 25	16 18.20	+06 35.3	3.993	3.709	-0.47	0.0	21.7	15.4/ 70	66.3
Feb. 4	16 27.94	+07 28.8	3.821	3.659	-0.50	+0.1	21.5	15.0/ 63	73.2
Feb. 14	16 36.94	+08 35.7	3.645	3.609	-0.54	+0.1	21.4	14.4/ 56	80.1
Feb. 24	16 45.04	+09 56.3	3.468	3.558	-0.58	+0.1	21.2	14.0/ 47	87.1
Mar. 5	16 52.03	+11 30.5	3.294	3.506	-0.62	0.0	21.0	13.5/ 38	94.0
Mar. 15	16 57.68	+13 17.5	3.124	3.453	-0.67	0.0	20.9	13.2/ 27	100.9
Mar. 25	17 01.76	+15 15.8	2.963	3.400	-0.73	-0.1	20.7	13.1/ 14	107.6
Apr. 4	17 04.06	+17 22.9	2.812	3.346	-0.78	-0.2	20.5	13.2/ 2	114.0
Apr. 14	17 04.35	+19 35.2	2.675	3.291	-0.84	-0.4	20.3	13.5/349	119.8
Apr. 24	17 02.49	+21 47.3	2.554	3.236	-0.89	-0.7	20.1	13.7/336	124.8
May 4	16 58.45	+23 52.7	2.451	3.179	-0.94	-1.1	20.0	13.9/324	128.6
May 14	16 52.36	+25 43.7	2.368	3.123	-0.98	-1.6	19.8	13.7/311	130.7
May 24	16 44.59	+27 12.7	2.303	3.065	-1.01	-2.1	19.7	13.2/298	131.0
June 3	16 35.73	+28 13.1	2.259	3.007	-1.01	-2.6	19.6	12.4/283	129.4
June 13	16 26.59	+28 40.3	2.232	2.948	-1.00	-3.1	19.4	11.3/267	126.2
June 23	16 18.03	+28 33.0	2.222	2.888	-0.97	-3.5	19.3	10.3/247	121.7
July 3	16 10.85	+27 52.8	2.226	2.828	-0.93	-3.7	19.3	9.8/225	116.4
July 13	16 05.68	+26 43.5	2.240	2.768	-0.88	-3.7	19.2	10.0/202	110.7
July 23	16 02.92	+25 10.6	2.263	2.707	-0.84	-3.5	19.1	11.1/181	104.8
Aug. 2	16 02.73	+23 19.3	2.292	2.645	-0.80	-3.1	19.0	12.9/165	98.8
Aug. 12	16 05.14	+21 14.9	2.324	2.584	-0.77	-2.6	19.0	15.0/152	93.0
Aug. 22	16 10.07	+19 01.9	2.357	2.522	-0.75	-2.0	18.9	17.3/143	87.3
Sept. 1	16 17.37	+16 44.1	2.390	2.459	-0.74	-1.4	18.8	19.6/135	81.8
Sept.11	16 26.91	+14 24.5	2.422	2.397	-0.75	-0.7	18.7	21.9/129	76.6
Sept.21	16 38.53	+12 05.8	2.450	2.335	-0.76	+0.1	18.6	24.2/124	71.5
Oct. 1	16 52.11	+09 50.0	2.476	2.273	-0.78	+0.8	18.5	26.3/119	66.6
Oct. 11	17 07.52	+07 39.1	2.498	2.211	-0.81	+1.5	18.4	28.4/116	61.9
Oct. 21	17 24.66	+05 35.0	2.516	2.150	-0.85	+2.2	18.3	30.4/112	57.4
Oct. 31	17 43.43	+03 39.1	2.530	2.090	-0.89	+2.8	18.2	32.2/109	53.0
Nov. 10	18 03.74	+01 53.1	2.542	2.031	-0.94	+3.4	18.1	34.0/106	48.8
Nov. 20	18 25.49	+00 18.3	2.550	1.973	-1.00	+3.9	18.0	35.6/103	44.6
Nov. 30	18 48.57	-01 04.0	2.556	1.917	-1.06	+4.4	17.9	37.1/101	40.5
Dec. 10	19 12.86	-02 12.8	2.560	1.863	-1.12	+4.7	17.7	38.4/ 98	36.5
Dec. 20	19 38.24	-03 07.5	2.562	1.812	-1.18	+5.0	17.6	39.6/ 96	32.6
Dec. 30	20 04.58	-03 47.6	2.562	1.764	-1.24	+5.3	17.5	40.7/ 94	28.7
Jan. 9	20 31.72	-04 13.2	2.562	1.719	-1.29	+5.4	17.4	41.6/ 92	24.8
Jan. 19	20 59.52	-04 24.9	2.561	1.679	-1.34	+5.5	17.3	42.4/ 90	20.9
Jan. 29	21 27.86	-04 23.6	2.559	1.643	-1.39	+5.5	17.2	43.0/ 89	17.0
Feb. 8	21 56.60	-04 10.6	2.557	1.612	-1.43	+5.5	17.1	43.5/ 87	13.1
Feb. 18	22 25.63	-03 47.7	2.555	1.587	-1.46	+5.5	17.0	43.9/ 86	9.3
Feb. 28	22 54.88	-03 16.8	2.552	1.569	-1.49	+5.4	17.0	44.2/ 85	5.5
Mar. 10	23 24.25	-02 40.1	2.549	1.557	-1.51	+5.3	17.0	44.3/ 85	1.7
Mar. 20	23 53.69	-01 59.9	2.546	1.551	-1.52	+5.2	16.9	44.3/ 85	2.0
Mar. 30	00 23.13	-01 18.5	2.544	1.553	-1.52	+5.0	16.9	44.3/ 85	5.7

Comet 145P/Shoemaker-Levy

Epoch = 2008 Aug. 2.0 TT
T = 2009 Mar. 26.52432 TT
Peri. = 10.08881 e = 0.5423823
Node = 26.91737 2000.0 a = 4.1336913 AU
Incl. = 11.29769 n = 0.11727272
q = 1.8916503 AU P = 8.40 years

m1 = 9.8 + 5 log(Delta) + 17.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	18 49.24	-31 36.8	4.837	3.869	+1.40	+1.4	23.5	9.2
Jan. 15	19 03.27	-31 22.9	4.769	3.820	+1.41	+1.7	23.4	13.6
Jan. 25	19 17.39	-31 06.4	4.684	3.771	+1.41	+1.9	23.2	19.6
Feb. 4	19 31.51	-30 47.4	4.581	3.721	+1.40	+2.1	23.1	26.1
Feb. 14	19 45.55	-30 26.4	4.461	3.671	+1.39	+2.3	22.9	32.9
Feb. 24	19 59.40	-30 03.7	4.326	3.620	+1.36	+2.4	22.8	39.7
Mar. 5	20 12.99	-29 40.0	4.177	3.569	+1.32	+2.4	22.6	46.6
Mar. 15	20 26.20	-29 16.0	4.017	3.517	+1.28	+2.3	22.4	53.5
Mar. 25	20 38.96	-28 52.6	3.846	3.465	+1.22	+2.2	22.2	60.5
Apr. 4	20 51.15	-28 30.8	3.668	3.413	+1.15	+1.9	22.0	67.5
Apr. 14	21 02.67	-28 11.9	3.483	3.360	+1.07	+1.5	21.7	74.7
Apr. 24	21 13.38	-27 56.9	3.294	3.307	+0.98	+1.0	21.5	81.9
May 4	21 23.15	-27 47.4	3.104	3.253	+0.86	+0.3	21.2	89.4
May 14	21 31.78	-27 44.7	2.915	3.199	+0.73	-0.6	21.0	97.0
May 24	21 39.09	-27 50.2	2.730	3.145	+0.57	-1.5	20.7	104.8
June 3	21 44.84	-28 05.3	2.551	3.091	+0.39	-2.5	20.4	113.0
June 13	21 48.75	-28 30.7	2.381	3.037	+0.18	-3.6	20.1	121.4
June 23	21 50.57	-29 06.6	2.223	2.982	-0.05	-4.5	19.8	130.2
July 3	21 50.03	-29 51.9	2.081	2.927	-0.31	-5.2	19.6	139.2
July 13	21 46.97	-30 44.0	1.958	2.873	-0.55	-5.4	19.3	148.2
July 23	21 41.43	-31 38.1	1.857	2.818	-0.77	-5.0	19.0	156.6
Aug. 2	21 33.70	-32 27.7	1.780	2.764	-0.92	-3.8	18.8	162.3
Aug. 12	21 24.46	-33 05.6	1.728	2.710	-0.97	-2.0	18.6	161.8
Aug. 22	21 14.77	-33 25.2	1.702	2.656	-0.90	+0.2	18.4	155.5
Sept. 1	21 05.82	-33 23.0	1.700	2.602	-0.71	+2.5	18.2	146.5
Sept.11	20 58.75	-32 58.2	1.720	2.549	-0.43	+4.5	18.1	136.9
Sept.21	20 54.41	-32 13.0	1.757	2.497	-0.12	+6.2	18.0	127.4
Oct. 1	20 53.20	-31 10.5	1.808	2.446	+0.20	+7.7	17.9	118.2
Oct. 11	20 55.24	-29 54.0	1.870	2.395	+0.51	+8.8	17.8	109.5
Oct. 21	21 00.34	-28 26.0	1.938	2.346	+0.79	+9.8	17.7	101.3
Oct. 31	21 08.22	-26 48.0	2.009	2.297	+1.03	+10.7	17.6	93.7
Nov. 10	21 18.51	-25 00.6	2.082	2.251	+1.23	+11.6	17.6	86.5
Nov. 20	21 30.86	-23 04.4	2.154	2.206	+1.41	+12.5	17.5	79.8
Nov. 30	21 44.93	-20 59.1	2.225	2.163	+1.55	+13.4	17.4	73.5
Dec. 10	22 00.44	-18 44.9	2.292	2.122	+1.67	+14.3	17.3	67.6
Dec. 20	22 17.14	-16 21.9	2.356	2.084	+1.77	+15.2	17.2	62.0
Dec. 30	22 34.84	-13 50.3	2.416	2.049	+1.85	+16.0	17.2	56.8
Jan. 9	22 53.37	-11 10.7	2.471	2.016	+1.92	+16.7	17.1	51.7
Jan. 19	23 12.61	-08 24.0	2.523	1.987	+1.99	+17.3	17.0	47.0
Jan. 29	23 32.50	-05 31.2	2.572	1.961	+2.05	+17.7	17.0	42.5
Feb. 8	23 52.96	-02 33.7	2.616	1.939	+2.10	+18.1	16.9	38.2
Feb. 18	00 13.97	+00 26.8	2.659	1.921	+2.16	+18.2	16.9	34.1
Feb. 28	00 35.52	+03 28.7	2.698	1.907	+2.21	+18.1	16.9	30.1
Mar. 10	00 57.61	+06 29.8	2.736	1.898	+2.26	+17.8	16.9	26.3
Mar. 20	01 20.24	+09 28.0	2.772	1.893	+2.32	+17.3	16.9	22.7
Mar. 30	01 43.45	+12 21.3	2.806	1.892	+2.38	+16.6	16.9	19.2

Comet P/1994 J3 (Shoemaker)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Apr. 11.67268 TT
Peri. = 191.95553 e = 0.5073576
Node = 92.94615 2000.0 a = 5.9582622 AU
Incl. = 24.76846 n = 0.06776800
q = 2.9352926 AU P = 14.54 years

m1 = 5.0 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' / °	Elong. °
Jan. 5	14 41.22	+07 50.5	4.463	4.235	-0.41	+3.8	20.8	11.7/ 92	70.3
Jan. 15	14 49.10	+07 46.4	4.288	4.193	-0.43	+3.9	20.6	10.5/ 87	77.9
Jan. 25	14 56.13	+07 51.4	4.109	4.152	-0.45	+4.2	20.4	9.1/ 81	85.6
Feb. 4	15 02.16	+08 05.4	3.930	4.111	-0.48	+4.4	20.3	7.5/ 72	93.6
Feb. 14	15 07.00	+08 28.2	3.753	4.070	-0.50	+4.6	20.1	6.0/ 59	101.7
Feb. 24	15 10.46	+08 58.7	3.583	4.029	-0.53	+4.8	19.9	4.7/ 38	110.0
Mar. 5	15 12.40	+09 35.7	3.421	3.989	-0.56	+5.0	19.7	4.2/ 6	118.3
Mar. 15	15 12.67	+10 17.0	3.273	3.948	-0.59	+5.2	19.5	4.8/334	126.7
Mar. 25	15 11.23	+10 59.6	3.141	3.908	-0.62	+5.4	19.3	6.1/311	134.8
Apr. 4	15 08.11	+11 40.1	3.029	3.868	-0.64	+5.5	19.2	7.6/297	142.2
Apr. 14	15 03.48	+12 14.1	2.939	3.828	-0.66	+5.6	19.0	8.8/285	148.3
Apr. 24	14 57.66	+12 37.4	2.874	3.789	-0.67	+5.6	18.9	9.6/276	151.6
May 4	14 51.12	+12 46.4	2.835	3.750	-0.68	+5.6	18.7	9.9/265	151.2
May 14	14 44.38	+12 38.1	2.821	3.712	-0.67	+5.5	18.6	9.6/254	147.2
May 24	14 38.05	+12 11.5	2.832	3.673	-0.66	+5.5	18.6	9.1/241	140.8
June 3	14 32.63	+11 27.0	2.865	3.636	-0.64	+5.4	18.5	8.6/225	133.2
June 13	14 28.53	+10 26.0	2.918	3.598	-0.61	+5.4	18.4	8.4/206	125.0
June 23	14 26.03	+09 11.1	2.986	3.562	-0.59	+5.3	18.4	8.7/188	116.8
July 3	14 25.25	+07 44.9	3.067	3.526	-0.57	+5.3	18.4	9.6/171	108.6
July 13	14 26.24	+06 10.1	3.157	3.490	-0.55	+5.3	18.4	10.9/158	100.6
July 23	14 28.94	+04 29.1	3.253	3.455	-0.53	+5.4	18.3	12.3/148	92.8
Aug. 2	14 33.25	+02 43.9	3.352	3.421	-0.51	+5.4	18.3	13.9/141	85.3
Aug. 12	14 39.07	+00 56.3	3.450	3.387	-0.50	+5.4	18.3	15.3/135	78.0
Aug. 22	14 46.27	-00 52.3	3.546	3.355	-0.50	+5.4	18.3	16.7/131	70.9
Sept. 1	14 54.74	-02 40.9	3.639	3.323	-0.50	+5.4	18.2	18.0/127	64.0
Sept.11	15 04.36	-04 28.2	3.725	3.292	-0.50	+5.4	18.2	19.1/124	57.3
Sept.21	15 15.04	-06 13.5	3.803	3.262	-0.50	+5.4	18.2	20.1/121	50.7
Oct. 1	15 26.69	-07 56.0	3.873	3.233	-0.51	+5.4	18.1	21.1/118	44.3
Oct. 11	15 39.23	-09 34.8	3.933	3.205	-0.52	+5.4	18.1	21.8/116	37.9
Oct. 21	15 52.57	-11 09.4	3.982	3.178	-0.53	+5.4	18.0	22.5/114	31.7
Oct. 31	16 06.65	-12 39.2	4.019	3.152	-0.54	+5.3	18.0	23.1/112	25.5
Nov. 10	16 21.41	-14 03.4	4.044	3.128	-0.56	+5.2	17.9	23.6/110	19.5
Nov. 20	16 36.75	-15 21.8	4.056	3.104	-0.57	+5.1	17.9	24.0/108	13.6
Nov. 30	16 52.63	-16 33.9	4.055	3.082	-0.59	+5.0	17.8	24.3/106	8.3
Dec. 10	17 08.94	-17 39.3	4.041	3.062	-0.62	+4.9	17.8	24.5/104	5.3
Dec. 20	17 25.62	-18 37.8	4.014	3.043	-0.64	+4.8	17.7	24.6/103	7.9
Dec. 30	17 42.57	-19 29.6	3.974	3.025	-0.66	+4.6	17.6	24.6/101	13.2
Jan. 9	17 59.69	-20 14.7	3.921	3.009	-0.69	+4.5	17.5	24.5/100	19.1
Jan. 19	18 16.90	-20 53.4	3.856	2.994	-0.71	+4.3	17.5	24.3/ 99	25.1
Jan. 29	18 34.08	-21 26.2	3.779	2.981	-0.74	+4.1	17.4	23.9/ 97	31.2
Feb. 8	18 51.13	-21 54.0	3.692	2.969	-0.77	+3.9	17.3	23.5/ 97	37.4
Feb. 18	19 07.94	-22 17.6	3.595	2.959	-0.79	+3.7	17.2	22.9/ 96	43.7
Feb. 28	19 24.41	-22 38.3	3.489	2.951	-0.82	+3.4	17.1	22.2/ 96	50.0
Mar. 10	19 40.40	-22 57.4	3.375	2.945	-0.86	+3.2	17.0	21.4/ 96	56.4
Mar. 20	19 55.83	-23 16.6	3.255	2.940	-0.89	+3.0	16.9	20.4/ 97	63.0
Mar. 30	20 10.55	-23 37.6	3.130	2.937	-0.93	+2.7	16.8	19.2/ 98	69.7

Comet P/2004 CB (LINEAR)

Epoch = 2008 Aug. 2.0 TT
M = 309.73034 e = 0.6890077
Peri. = 149.72395 a = 2.9377155 AU
Node = 66.45662 2000.0 n = 0.19574446
Incl. = 19.14914 P = 5.04 years

H = 15.2 G = 0.15

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Variation for T=+1 day		V	Mot./PA ′/°	Elong. °
Jan. 5	03 16.21	+16 15.5	3.403	4.072	+1.26	+13.9	21.6	5.5/277	127.1
Jan. 15	03 12.39	+16 22.3	3.500	4.030	+1.18	+13.6	21.7	3.0/296	116.0
Jan. 25	03 10.51	+16 35.6	3.610	3.987	+1.12	+13.2	21.8	2.0/ 0	105.5
Feb. 4	03 10.51	+16 55.4	3.726	3.943	+1.07	+12.9	21.8	3.6/ 45	95.4
Feb. 14	03 12.31	+17 21.1	3.843	3.898	+1.04	+12.6	21.9	5.8/ 58	85.8
Feb. 24	03 15.76	+17 52.0	3.957	3.851	+1.03	+12.4	21.9	7.9/ 63	76.7
Mar. 5	03 20.69	+18 27.3	4.064	3.803	+1.03	+12.2	21.9	9.7/ 66	67.9
Mar. 15	03 26.96	+19 06.0	4.160	3.755	+1.05	+12.0	21.9	11.3/ 68	59.5
Mar. 25	03 34.42	+19 47.2	4.243	3.704	+1.09	+11.8	21.9	12.7/ 70	51.5
Apr. 4	03 42.93	+20 30.0	4.310	3.653	+1.14	+11.7	21.9	14.0/ 71	43.7
Apr. 14	03 52.39	+21 13.8	4.361	3.600	+1.20	+11.6	21.8	15.0/ 73	36.2
Apr. 24	04 02.68	+21 57.6	4.393	3.546	+1.28	+11.5	21.7	15.9/ 74	28.9
May 4	04 13.74	+22 41.0	4.407	3.491	+1.37	+11.5	21.6	16.7/ 75	21.9
May 14	04 25.47	+23 23.2	4.400	3.434	+1.47	+11.4	21.5	17.4/ 76	15.0
May 24	04 37.81	+24 03.8	4.375	3.376	+1.59	+11.2	21.3	18.0/ 77	8.4
June 3	04 50.71	+24 42.4	4.330	3.317	+1.73	+11.1	21.1	18.6/ 78	2.7
June 13	05 04.12	+25 18.5	4.266	3.256	+1.88	+10.9	21.1	19.0/ 79	5.5
June 23	05 17.98	+25 51.9	4.183	3.194	+2.06	+10.6	21.2	19.5/ 80	11.6
July 3	05 32.25	+26 22.4	4.082	3.130	+2.26	+10.3	21.2	19.8/ 81	17.8
July 13	05 46.88	+26 49.8	3.965	3.064	+2.48	+9.8	21.2	20.1/ 82	24.0
July 23	06 01.85	+27 14.2	3.832	2.997	+2.73	+9.3	21.1	20.4/ 83	30.2
Aug. 2	06 17.10	+27 35.7	3.684	2.929	+3.01	+8.6	21.1	20.7/ 84	36.4
Aug. 12	06 32.61	+27 54.4	3.522	2.859	+3.33	+7.7	21.0	20.9/ 85	42.5
Aug. 22	06 48.33	+28 10.9	3.349	2.787	+3.69	+6.6	20.9	21.1/ 85	48.7
Sept. 1	07 04.23	+28 25.8	3.166	2.713	+4.11	+5.2	20.8	21.2/ 85	54.9
Sept.11	07 20.27	+28 39.7	2.973	2.638	+4.58	+3.5	20.7	21.3/ 85	61.1
Sept.21	07 36.43	+28 54.0	2.775	2.561	+5.14	+1.3	20.5	21.4/ 85	67.3
Oct. 1	07 52.68	+29 09.9	2.571	2.482	+5.79	-1.3	20.3	21.4/ 84	73.6
Oct. 11	08 08.99	+29 29.5	2.364	2.401	+6.57	-4.7	20.1	21.5/ 82	80.0
Oct. 21	08 25.35	+29 55.1	2.157	2.319	+7.50	-8.8	19.9	21.6/ 80	86.4
Oct. 31	08 41.77	+30 29.7	1.952	2.235	+8.63	-14.2	19.6	21.7/ 76	92.9
Nov. 10	08 58.23	+31 17.4	1.750	2.148	+10.03	-21.0	19.3	22.1/ 72	99.5
Nov. 20	09 14.79	+32 23.0	1.555	2.060	+11.78	-29.8	19.0	22.8/ 66	106.1
Nov. 30	09 31.51	+33 52.7	1.369	1.971	+14.03	-41.3	18.6	24.2/ 59	112.6
Dec. 10	09 48.51	+35 53.9	1.194	1.879	+16.96	-56.4	18.2	26.4/ 51	118.9
Dec. 20	10 06.08	+38 35.1	1.032	1.787	+20.86	-76.6	17.7	29.9/ 44	124.7
Dec. 30	10 24.62	+42 05.6	0.887	1.692	+26.19	-103.8	17.3	34.5/ 38	129.5
Jan. 9	10 44.94	+46 32.5	0.759	1.597	+33.64	-140.7	16.8	40.0/ 33	132.4
Jan. 19	11 08.73	+51 57.7	0.651	1.502	+44.21	-192.5	16.4	45.6/ 32	132.4
Jan. 29	11 39.19	+58 12.3	0.562	1.407	+59.06	-269.7	16.1	50.4/ 34	128.8
Feb. 8	12 23.46	+64 45.6	0.490	1.313	+77.57	-394.6	15.8	53.9/ 42	122.0
Feb. 18	13 36.5	+70 33.7	0.432	1.223	+89.31	-600.8	15.6	57.0/ 59	112.9
Feb. 28	15 35.3	+73 25.3	0.384	1.138	+67.28	-875.6	15.5	62.0/ 89	102.6
Mar. 10	17 46.8	+70 41.7	0.343	1.061	+21.46	-1114.7	15.4	72.7/122	91.8
Mar. 20	19 16.99	+62 21.8	0.305	0.996	-3.20	-1277.1	15.5	90.2/143	81.2
Mar. 30	20 12.94	+49 27.5	0.276	0.947	-8.76	-1330.1	15.6	109.4/152	71.3

Comet 18D/Perrine-Mrkos

Epoch = 2008 Aug. 2.0 TT
T = 2009 Apr. 17.19990 TT
Peri. = 156.74409 e = 0.5855589
Node = 238.09524 2000.0 a = 3.9482838 AU
Incl. = 16.87245 n = 0.12562947
q = 1.6363311 AU P = 7.85 years

m1 = 11.5 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ', °	Elong. °
Jan. 5	17 58.13	-16 52.5	4.980	4.043	-0.33	-1.1	27.1	16.6/ 85	15.7
Jan. 15	18 09.61	-16 36.1	4.882	3.993	-0.35	-1.2	27.0	16.5/ 83	22.8
Jan. 25	18 21.01	-16 14.3	4.765	3.943	-0.37	-1.3	26.8	16.4/ 81	30.0
Feb. 4	18 32.22	-15 47.0	4.630	3.892	-0.39	-1.4	26.6	16.1/ 79	37.3
Feb. 14	18 43.13	-15 14.2	4.480	3.840	-0.41	-1.6	26.4	15.7/ 76	44.6
Feb. 24	18 53.62	-14 35.9	4.315	3.787	-0.43	-1.7	26.2	15.1/ 74	52.0
Mar. 5	19 03.58	-13 52.4	4.139	3.734	-0.46	-1.9	26.0	14.4/ 71	59.5
Mar. 15	19 12.87	-13 03.8	3.953	3.681	-0.49	-2.1	25.8	13.5/ 67	67.0
Mar. 25	19 21.35	-12 10.6	3.760	3.626	-0.52	-2.4	25.6	12.4/ 63	74.7
Apr. 4	19 28.87	-11 13.1	3.562	3.571	-0.56	-2.6	25.3	11.2/ 57	82.5
Apr. 14	19 35.24	-10 11.9	3.363	3.516	-0.60	-2.9	25.1	9.9/ 50	90.4
Apr. 24	19 40.30	-09 07.8	3.164	3.459	-0.65	-3.2	24.8	8.5/ 39	98.5
May 4	19 43.86	-08 01.6	2.970	3.403	-0.70	-3.5	24.5	7.2/ 22	106.9
May 14	19 45.69	-06 54.6	2.783	3.345	-0.75	-3.8	24.2	6.6/359	115.5
May 24	19 45.64	-05 48.2	2.607	3.287	-0.80	-4.2	23.9	7.1/334	124.4
June 3	19 43.56	-04 44.4	2.446	3.228	-0.86	-4.6	23.6	8.6/313	133.4
June 13	19 39.40	-03 45.5	2.303	3.169	-0.91	-5.0	23.3	10.5/299	142.4
June 23	19 33.28	-02 54.4	2.182	3.110	-0.95	-5.4	23.0	12.3/289	150.9
July 3	19 25.52	-02 13.8	2.085	3.049	-0.98	-5.8	22.8	13.6/282	157.5
July 13	19 16.66	-01 46.4	2.014	2.989	-0.99	-6.1	22.5	13.8/275	159.7
July 23	19 07.47	-01 33.5	1.970	2.927	-0.98	-6.3	22.3	13.0/269	155.9
Aug. 2	18 58.80	-01 35.5	1.952	2.866	-0.95	-6.4	22.1	11.1/262	148.4
Aug. 12	18 51.49	-01 50.9	1.957	2.804	-0.91	-6.4	21.9	8.3/252	139.3
Aug. 22	18 46.23	-02 17.1	1.982	2.742	-0.87	-6.3	21.7	5.4/231	129.8
Sept. 1	18 43.45	-02 50.7	2.022	2.680	-0.83	-6.0	21.6	3.8/181	120.5
Sept.11	18 43.39	-03 28.3	2.073	2.617	-0.79	-5.7	21.4	5.5/133	111.6
Sept.21	18 46.07	-04 06.3	2.132	2.555	-0.77	-5.4	21.3	8.8/114	103.1
Oct. 1	18 51.42	-04 42.1	2.194	2.492	-0.75	-5.1	21.1	12.1/105	95.2
Oct. 11	18 59.28	-05 13.0	2.256	2.430	-0.74	-4.8	21.0	15.4/ 99	87.7
Oct. 21	19 09.45	-05 36.9	2.316	2.368	-0.75	-4.6	20.8	18.4/ 95	80.6
Oct. 31	19 21.73	-05 52.0	2.373	2.306	-0.76	-4.4	20.6	21.2/ 91	74.0
Nov. 10	19 35.95	-05 56.8	2.424	2.246	-0.78	-4.3	20.4	23.8/ 89	67.8
Nov. 20	19 51.89	-05 50.0	2.468	2.186	-0.81	-4.2	20.3	26.2/ 86	62.0
Nov. 30	20 09.40	-05 30.7	2.506	2.127	-0.85	-4.2	20.1	28.5/ 84	56.5
Dec. 10	20 28.34	-04 58.1	2.537	2.070	-0.89	-4.3	19.8	30.6/ 82	51.4
Dec. 20	20 48.54	-04 11.9	2.561	2.015	-0.94	-4.4	19.6	32.5/ 80	46.5
Dec. 30	21 09.91	-03 11.8	2.579	1.961	-0.99	-4.5	19.4	34.4/ 78	42.0
Jan. 9	21 32.34	-01 58.2	2.591	1.910	-1.04	-4.6	19.2	36.1/ 76	37.7
Jan. 19	21 55.71	-00 31.9	2.599	1.863	-1.10	-4.7	19.0	37.7/ 75	33.7
Jan. 29	22 19.99	+01 06.1	2.603	1.818	-1.16	-4.8	18.8	39.2/ 74	30.0
Feb. 8	22 45.09	+02 54.1	2.605	1.777	-1.22	-4.8	18.6	40.4/ 73	26.5
Feb. 18	23 10.98	+04 50.0	2.605	1.741	-1.28	-4.8	18.4	41.6/ 73	23.2
Feb. 28	23 37.63	+06 51.2	2.606	1.709	-1.34	-4.6	18.2	42.5/ 73	20.0
Mar. 10	00 04.99	+08 54.9	2.606	1.683	-1.39	-4.4	18.1	43.2/ 73	17.1
Mar. 20	00 33.03	+10 57.7	2.609	1.662	-1.44	-3.9	18.0	43.7/ 74	14.2
Mar. 30	01 01.71	+12 56.3	2.614	1.647	-1.48	-3.4	17.9	44.0/ 75	11.5

Comet P/2003 A1 (LINEAR)

Epoch = 2008 Aug. 2.0 TT
T = 2009 June 16.09258 TT
Peri. = 340.22200 e = 0.4998857
Node = 54.09255 2000.0 a = 3.8329046 AU
Incl. = 44.33612 n = 0.13134455
q = 1.9168904 AU P = 7.50 years

m1 = 6.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° '	Delta	r	Variation for T=+1 day		m1	Mot./PA ' /°	Elong. °
Jan. 5	17 32.31	-42 02.1	4.946	4.091	-0.36	+3.0	18.6	16.2/109	26.7
Jan. 15	17 46.24	-42 51.8	4.843	4.050	-0.40	+2.9	18.5	16.2/110	32.7
Jan. 25	18 00.30	-43 43.5	4.724	4.009	-0.44	+2.8	18.4	16.1/111	39.1
Feb. 4	18 14.41	-44 37.9	4.589	3.966	-0.48	+2.7	18.3	16.0/112	45.9
Feb. 14	18 28.46	-45 35.7	4.441	3.924	-0.53	+2.6	18.1	15.7/115	52.8
Feb. 24	18 42.33	-46 38.0	4.283	3.881	-0.58	+2.5	18.0	15.4/117	59.8
Mar. 5	18 55.90	-47 45.7	4.116	3.837	-0.64	+2.4	17.8	15.1/121	66.9
Mar. 15	19 09.04	-49 00.4	3.944	3.793	-0.71	+2.2	17.7	14.7/125	74.0
Mar. 25	19 21.57	-50 23.3	3.769	3.748	-0.79	+2.1	17.5	14.4/131	81.2
Apr. 4	19 33.33	-51 55.7	3.594	3.703	-0.88	+1.9	17.3	14.2/138	88.4
Apr. 14	19 44.03	-53 39.1	3.422	3.658	-0.98	+1.7	17.1	14.1/146	95.5
Apr. 24	19 53.40	-55 34.2	3.257	3.612	-1.10	+1.6	16.9	14.2/154	102.5
May 4	20 01.02	-57 41.3	3.102	3.565	-1.25	+1.5	16.7	14.4/164	109.4
May 14	20 06.35	-59 59.5	2.959	3.518	-1.41	+1.5	16.6	14.8/174	115.8
May 24	20 08.68	-62 26.4	2.832	3.471	-1.61	+1.6	16.4	15.2/184	121.6
June 3	20 07.12	-64 57.7	2.722	3.423	-1.84	+1.9	16.2	15.4/194	126.4
June 13	20 00.54	-67 26.2	2.633	3.375	-2.09	+2.5	16.0	15.3/205	129.8
June 23	19 47.93	-69 42.4	2.565	3.326	-2.33	+3.4	15.9	14.7/218	131.4
July 3	19 28.8	-71 35.0	2.518	3.277	-2.52	+4.7	15.7	13.7/232	131.0
July 13	19 04.2	-72 53.1	2.492	3.228	-2.56	+6.2	15.6	12.2/249	128.8
July 23	18 37.3	-73 30.2	2.484	3.178	-2.42	+7.6	15.5	10.4/269	125.0
Aug. 2	18 12.9	-73 27.6	2.493	3.128	-2.15	+8.6	15.4	8.6/292	120.2
Aug. 12	17 54.9	-72 53.2	2.514	3.078	-1.85	+9.2	15.3	7.1/319	114.6
Aug. 22	17 44.9	-71 57.9	2.547	3.027	-1.61	+9.3	15.2	6.8/351	108.8
Sept. 1	17 42.8	-70 51.1	2.586	2.977	-1.45	+9.1	15.2	7.6/ 20	102.8
Sept.11	17 47.67	-69 38.7	2.630	2.926	-1.36	+8.6	15.1	9.4/ 39	96.9
Sept.21	17 58.31	-68 24.1	2.676	2.876	-1.33	+8.0	15.0	11.6/ 50	91.1
Oct. 1	18 13.57	-67 07.4	2.721	2.825	-1.33	+7.2	14.9	13.9/ 57	85.5
Oct. 11	18 32.53	-65 47.7	2.765	2.774	-1.35	+6.2	14.9	16.1/ 61	80.1
Oct. 21	18 54.32	-64 23.2	2.805	2.724	-1.38	+5.1	14.8	18.4/ 63	75.1
Oct. 31	19 18.19	-62 51.3	2.841	2.674	-1.39	+3.9	14.7	20.5/ 63	70.2
Nov. 10	19 43.50	-61 09.8	2.872	2.624	-1.40	+2.6	14.6	22.5/ 63	65.7
Nov. 20	20 09.64	-59 16.8	2.897	2.574	-1.38	+1.2	14.5	24.4/ 62	61.3
Nov. 30	20 36.11	-57 10.7	2.918	2.525	-1.35	-0.3	14.4	26.2/ 60	57.3
Dec. 10	21 02.53	-54 50.6	2.933	2.477	-1.31	-1.8	14.2	27.8/ 59	53.4
Dec. 20	21 28.55	-52 16.4	2.944	2.429	-1.25	-3.2	14.1	29.4/ 58	49.8
Dec. 30	21 54.01	-49 28.2	2.951	2.382	-1.19	-4.7	14.0	30.8/ 56	46.4
Jan. 9	22 18.77	-46 26.9	2.954	2.337	-1.12	-6.1	13.9	32.0/ 55	43.2
Jan. 19	22 42.76	-43 13.8	2.955	2.292	-1.05	-7.5	13.8	33.1/ 54	40.1
Jan. 29	23 06.00	-39 50.2	2.953	2.249	-0.98	-8.8	13.6	34.0/ 53	37.2
Feb. 8	23 28.51	-36 17.9	2.950	2.208	-0.92	-9.9	13.5	34.8/ 53	34.5
Feb. 18	23 50.34	-32 38.9	2.945	2.169	-0.86	-11.0	13.4	35.4/ 52	31.8
Feb. 28	00 11.58	-28 54.9	2.939	2.131	-0.80	-12.0	13.3	35.8/ 52	29.3
Mar. 10	00 32.28	-25 08.0	2.932	2.096	-0.76	-12.8	13.2	36.0/ 52	27.0
Mar. 20	00 52.52	-21 19.9	2.923	2.064	-0.71	-13.5	13.0	36.2/ 52	25.0
Mar. 30	01 12.38	-17 32.3	2.913	2.034	-0.68	-14.2	12.9	36.1/ 52	23.2

Comet C/2006 W3 (Christensen)

Epoch = 2008 Aug. 2.0 TT
T = 2009 July 6.58682 TT
q = 3.1265426 AU Peri. = 133.49962
z = +0.0000162 Node = 113.57080 2000.0
e = 0.9999494 Incl. = 127.07458

m1 = 4.0 + 5 log(Delta) + 10.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	04 13.11	+63 41.5	5.171	5.859	-1.92	-4.7	15.2	130.6
Jan. 15	03 53.90	+62 54.7	5.189	5.790	-1.56	-6.0	15.2	123.5
Jan. 25	03 38.26	+61 54.9	5.231	5.721	-1.19	-6.6	15.2	115.3
Feb. 4	03 26.35	+60 49.0	5.291	5.653	-0.84	-6.6	15.1	106.6
Feb. 14	03 17.96	+59 43.2	5.364	5.585	-0.53	-6.1	15.1	97.8
Feb. 24	03 12.65	+58 42.2	5.442	5.516	-0.27	-5.3	15.1	89.1
Mar. 5	03 09.96	+57 49.0	5.521	5.448	-0.05	-4.3	15.1	80.6
Mar. 15	03 09.43	+57 05.5	5.596	5.380	+0.12	-3.3	15.0	72.5
Mar. 25	03 10.64	+56 32.7	5.661	5.313	+0.26	-2.2	15.0	64.7
Apr. 4	03 13.26	+56 10.9	5.713	5.245	+0.37	-1.1	15.0	57.6
Apr. 14	03 17.00	+56 00.0	5.749	5.178	+0.46	0.0	14.9	51.1
Apr. 24	03 21.61	+55 59.7	5.765	5.110	+0.53	+1.0	14.9	45.4
May 4	03 26.86	+56 09.8	5.762	5.043	+0.57	+2.0	14.8	41.0
May 14	03 32.58	+56 29.9	5.736	4.977	+0.60	+3.0	14.8	37.9
May 24	03 38.57	+56 59.9	5.687	4.910	+0.61	+4.0	14.7	36.5
June 3	03 44.66	+57 39.6	5.616	4.844	+0.60	+5.0	14.6	37.0
June 13	03 50.66	+58 29.3	5.523	4.779	+0.57	+6.0	14.5	39.2
June 23	03 56.33	+59 29.0	5.409	4.714	+0.51	+7.0	14.4	42.8
July 3	04 01.42	+60 39.1	5.275	4.649	+0.41	+8.1	14.3	47.5
July 13	04 05.57	+62 00.3	5.123	4.585	+0.27	+9.3	14.2	53.0
July 23	04 08.30	+63 32.9	4.957	4.521	+0.06	+10.5	14.0	59.1
Aug. 2	04 08.95	+65 17.5	4.779	4.457	-0.25	+11.6	13.9	65.7
Aug. 12	04 06.47	+67 13.8	4.592	4.395	-0.72	+12.7	13.7	72.5
Aug. 22	03 59.29	+69 20.5	4.401	4.333	-1.44	+13.3	13.6	79.5
Sept. 1	03 44.9	+71 33.8	4.211	4.271	-2.54	+13.1	13.4	86.6
Sept.11	03 19.5	+73 44.7	4.027	4.211	-4.14	+11.0	13.3	93.5
Sept.21	02 38.1	+75 34.6	3.855	4.151	-5.95	+5.7	13.1	100.1
Oct. 1	01 38.6	+76 32.0	3.701	4.092	-6.89	-3.0	13.0	106.0
Oct. 11	00 29.7	+76 02.1	3.570	4.034	-6.04	-12.8	12.8	110.8
Oct. 21	23 29.2	+73 54.3	3.468	3.977	-4.24	-20.4	12.7	113.9
Oct. 31	22 46.8	+70 30.4	3.399	3.921	-2.62	-24.9	12.6	114.9
Nov. 10	22 20.57	+66 21.9	3.363	3.867	-1.49	-26.7	12.5	113.6
Nov. 20	22 05.66	+61 55.1	3.361	3.813	-0.75	-26.6	12.4	110.0
Nov. 30	21 58.13	+57 29.1	3.389	3.761	-0.27	-25.2	12.4	104.6
Dec. 10	21 55.41	+53 17.4	3.443	3.710	+0.04	-22.9	12.4	98.0
Dec. 20	21 55.86	+49 28.2	3.515	3.661	+0.26	-20.2	12.4	90.6
Dec. 30	21 58.43	+46 06.0	3.600	3.613	+0.40	-17.3	12.4	82.9
Jan. 9	22 02.41	+43 12.6	3.691	3.567	+0.49	-14.5	12.4	75.1
Jan. 19	22 07.32	+40 47.3	3.779	3.523	+0.55	-11.9	12.4	67.5
Jan. 29	22 12.80	+38 48.5	3.861	3.480	+0.58	-9.4	12.3	60.3
Feb. 8	22 18.58	+37 14.0	3.930	3.440	+0.58	-7.3	12.3	53.7
Feb. 18	22 24.43	+36 01.2	3.983	3.401	+0.57	-5.4	12.3	47.9
Feb. 28	22 30.17	+35 07.5	4.016	3.365	+0.55	-3.7	12.3	43.3
Mar. 10	22 35.62	+34 30.6	4.027	3.331	+0.50	-2.3	12.3	40.2
Mar. 20	22 40.61	+34 08.1	4.015	3.299	+0.44	-1.0	12.2	38.8
Mar. 30	22 44.98	+33 58.1	3.977	3.269	+0.35	0.0	12.1	39.5

Comet 77P/Longmore

Epoch = 2008 Aug. 2.0 TT
T = 2009 July 7.84734 TT
Peri. = 196.69449 e = 0.3581127
Node = 14.91668 2000.0 a = 3.5992703 AU
Incl. = 24.39832 n = 0.14433856
q = 2.3103259 AU P = 6.83 years

m1 = 6.8 + 5 log(Delta) + 20.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	05 34.27	+54 27.0	2.971	3.814	-1.08	-3.0	20.8	144.4
Jan. 15	05 23.47	+53 57.2	2.996	3.784	-0.82	-4.6	20.7	137.9
Jan. 25	05 15.27	+53 11.6	3.043	3.753	-0.51	-5.6	20.7	130.0
Feb. 4	05 10.19	+52 16.0	3.110	3.722	-0.18	-6.0	20.7	121.6
Feb. 14	05 08.37	+51 15.7	3.191	3.691	+0.13	-6.1	20.7	113.0
Feb. 24	05 09.68	+50 14.9	3.283	3.659	+0.41	-5.9	20.6	104.5
Mar. 5	05 13.83	+49 16.1	3.382	3.627	+0.67	-5.5	20.6	96.2
Mar. 15	05 20.49	+48 20.8	3.484	3.594	+0.88	-5.2	20.6	88.3
Mar. 25	05 29.31	+47 29.1	3.585	3.562	+1.06	-4.8	20.6	80.6
Apr. 4	05 39.96	+46 40.7	3.684	3.529	+1.22	-4.6	20.6	73.3
Apr. 14	05 52.17	+45 54.7	3.776	3.496	+1.35	-4.5	20.6	66.3
Apr. 24	06 05.66	+45 10.1	3.861	3.462	+1.46	-4.4	20.5	59.6
May 4	06 20.23	+44 25.8	3.936	3.428	+1.55	-4.5	20.5	53.2
May 14	06 35.69	+43 40.7	4.001	3.395	+1.61	-4.7	20.4	47.1
May 24	06 51.83	+42 53.8	4.054	3.360	+1.67	-5.0	20.4	41.3
June 3	07 08.52	+42 04.2	4.095	3.326	+1.71	-5.3	20.3	35.8
June 13	07 25.62	+41 11.4	4.123	3.292	+1.74	-5.7	20.2	30.7
June 23	07 42.98	+40 14.9	4.139	3.257	+1.75	-6.1	20.1	26.1
July 3	08 00.53	+39 14.3	4.141	3.223	+1.76	-6.5	20.0	22.2
July 13	08 18.15	+38 09.4	4.129	3.188	+1.76	-6.9	19.9	19.3
July 23	08 35.75	+37 00.3	4.105	3.153	+1.75	-7.3	19.8	17.8
Aug. 2	08 53.28	+35 47.1	4.067	3.118	+1.74	-7.7	19.7	18.1
Aug. 12	09 10.67	+34 30.0	4.017	3.084	+1.72	-8.0	19.6	19.9
Aug. 22	09 27.85	+33 09.6	3.954	3.049	+1.70	-8.3	19.5	23.0
Sept. 1	09 44.80	+31 46.1	3.879	3.014	+1.67	-8.6	19.3	27.0
Sept.11	10 01.47	+30 20.4	3.792	2.980	+1.63	-8.7	19.2	31.4
Sept.21	10 17.81	+28 53.0	3.694	2.946	+1.60	-8.8	19.0	36.3
Oct. 1	10 33.79	+27 24.8	3.586	2.911	+1.56	-8.8	18.9	41.4
Oct. 11	10 49.36	+25 56.6	3.468	2.878	+1.51	-8.7	18.7	46.8
Oct. 21	11 04.47	+24 29.4	3.341	2.844	+1.46	-8.5	18.5	52.4
Oct. 31	11 19.05	+23 04.1	3.205	2.811	+1.40	-8.2	18.3	58.1
Nov. 10	11 33.02	+21 41.8	3.063	2.778	+1.33	-7.8	18.1	64.1
Nov. 20	11 46.27	+20 23.5	2.916	2.746	+1.24	-7.3	17.9	70.4
Nov. 30	11 58.69	+19 10.5	2.764	2.715	+1.14	-6.7	17.7	76.8
Dec. 10	12 10.08	+18 03.7	2.609	2.684	+1.02	-6.0	17.5	83.6
Dec. 20	12 20.25	+17 04.0	2.453	2.653	+0.87	-5.2	17.2	90.7
Dec. 30	12 28.95	+16 12.3	2.297	2.624	+0.69	-4.3	17.0	98.1
Jan. 9	12 35.86	+15 29.2	2.146	2.595	+0.48	-3.5	16.7	106.0
Jan. 19	12 40.65	+14 54.5	2.000	2.567	+0.23	-2.7	16.5	114.4
Jan. 29	12 42.94	+14 27.7	1.863	2.541	-0.06	-2.1	16.2	123.3
Feb. 8	12 42.37	+14 06.9	1.739	2.515	-0.36	-1.8	16.0	132.7
Feb. 18	12 38.73	+13 48.8	1.631	2.490	-0.67	-2.0	15.8	142.7
Feb. 28	12 32.01	+13 28.9	1.543	2.467	-0.94	-2.8	15.6	152.9
Mar. 10	12 22.61	+13 01.3	1.480	2.445	-1.12	-4.1	15.4	162.4
Mar. 20	12 11.41	+12 20.5	1.443	2.425	-1.18	-5.8	15.3	167.4
Mar. 30	11 59.64	+11 22.8	1.434	2.405	-1.09	-7.6	15.2	162.7

Comet 116P/Wild

Epoch = 2008 Aug. 2.0 TT
T = 2009 July 18.87104 TT
Peri. = 173.59490 e = 0.3748527
Node = 21.04142 2000.0 a = 3.4786363 AU
Incl. = 3.61263 n = 0.15191146
q = 2.1746601 AU P = 6.49 years

m1 = 7.0 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	03 39.47	+22 55.6	3.087	3.835	-0.30	-1.4	18.2	133.9
Jan. 15	03 36.51	+22 42.1	3.178	3.805	-0.09	-0.8	18.2	123.1
Jan. 25	03 35.60	+22 34.5	3.283	3.774	+0.11	-0.1	18.2	112.7
Feb. 4	03 36.72	+22 33.2	3.399	3.743	+0.30	+0.5	18.3	102.8
Feb. 14	03 39.76	+22 38.3	3.520	3.711	+0.48	+1.1	18.3	93.4
Feb. 24	03 44.59	+22 48.9	3.641	3.679	+0.64	+1.5	18.3	84.4
Mar. 5	03 51.01	+23 04.2	3.759	3.646	+0.79	+1.9	18.3	75.9
Mar. 15	03 58.88	+23 23.1	3.871	3.613	+0.91	+2.1	18.3	67.7
Mar. 25	04 08.02	+23 44.5	3.974	3.580	+1.03	+2.3	18.3	60.0
Apr. 4	04 18.28	+24 07.1	4.066	3.546	+1.13	+2.3	18.3	52.5
Apr. 14	04 29.55	+24 30.0	4.146	3.512	+1.21	+2.2	18.3	45.2
Apr. 24	04 41.68	+24 52.0	4.211	3.478	+1.29	+2.0	18.2	38.3
May 4	04 54.58	+25 12.3	4.262	3.443	+1.36	+1.8	18.2	31.5
May 14	05 08.15	+25 29.9	4.298	3.408	+1.41	+1.4	18.2	25.0
May 24	05 22.30	+25 44.3	4.317	3.373	+1.46	+1.0	18.1	18.6
June 3	05 36.93	+25 54.7	4.321	3.337	+1.50	+0.6	18.0	12.4
June 13	05 51.98	+26 00.6	4.308	3.301	+1.54	+0.1	18.0	6.5
June 23	06 07.35	+26 01.6	4.280	3.265	+1.56	-0.4	17.9	2.6
July 3	06 22.98	+25 57.4	4.236	3.229	+1.58	-1.0	17.8	6.7
July 13	06 38.78	+25 47.8	4.177	3.192	+1.59	-1.5	17.7	12.4
July 23	06 54.68	+25 32.7	4.104	3.155	+1.59	-2.1	17.6	18.3
Aug. 2	07 10.61	+25 12.2	4.016	3.118	+1.59	-2.6	17.4	24.2
Aug. 12	07 26.49	+24 46.3	3.915	3.081	+1.57	-3.1	17.3	30.1
Aug. 22	07 42.23	+24 15.6	3.802	3.044	+1.55	-3.5	17.2	36.1
Sept. 1	07 57.77	+23 40.3	3.678	3.006	+1.52	-3.9	17.0	42.1
Sept.11	08 13.00	+23 01.0	3.543	2.969	+1.49	-4.2	16.8	48.2
Sept.21	08 27.86	+22 18.6	3.399	2.932	+1.44	-4.5	16.7	54.5
Oct. 1	08 42.23	+21 33.8	3.247	2.895	+1.38	-4.6	16.5	60.8
Oct. 11	08 56.00	+20 47.9	3.089	2.858	+1.31	-4.6	16.3	67.4
Oct. 21	09 09.06	+20 02.0	2.925	2.821	+1.22	-4.4	16.1	74.1
Oct. 31	09 21.24	+19 17.5	2.758	2.784	+1.11	-4.1	15.9	81.1
Nov. 10	09 32.37	+18 36.3	2.590	2.748	+0.99	-3.6	15.7	88.4
Nov. 20	09 42.25	+17 59.9	2.423	2.711	+0.84	-2.9	15.4	96.1
Nov. 30	09 50.62	+17 30.5	2.259	2.676	+0.66	-2.0	15.2	104.1
Dec. 10	09 57.20	+17 10.1	2.100	2.641	+0.45	-1.0	14.9	112.6
Dec. 20	10 01.70	+17 00.4	1.951	2.606	+0.21	+0.3	14.7	121.7
Dec. 30	10 03.81	+17 02.9	1.814	2.572	-0.05	+1.5	14.4	131.3
Jan. 9	10 03.29	+17 18.0	1.693	2.539	-0.32	+2.6	14.2	141.6
Jan. 19	10 00.09	+17 44.3	1.592	2.506	-0.57	+3.4	14.0	152.5
Jan. 29	09 54.41	+18 18.8	1.514	2.475	-0.76	+3.7	13.8	163.8
Feb. 8	09 46.86	+18 55.9	1.461	2.444	-0.84	+3.3	13.6	173.8
Feb. 18	09 38.44	+19 29.1	1.436	2.415	-0.81	+2.4	13.5	169.8
Feb. 28	09 30.36	+19 52.7	1.437	2.387	-0.65	+1.0	13.5	158.6
Mar. 10	09 23.87	+20 02.3	1.462	2.360	-0.40	-0.6	13.4	147.4
Mar. 20	09 19.87	+19 56.4	1.508	2.334	-0.10	-2.1	13.4	136.6
Mar. 30	09 18.85	+19 35.2	1.571	2.311	+0.21	-3.5	13.4	126.7

Comet 74P/Smirnova-Chernykh

Epoch = 2008 Aug. 2.0 TT
T = 2009 July 30.91019 TT
Peri. = 87.32782 e = 0.1477875
Node = 77.11298 2000.0 a = 4.1741085 AU
Incl. = 6.64820 n = 0.11557356
q = 3.5572274 AU P = 8.53 years

m1 = 5.5 + 5 log(Delta) + 15.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. °′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	04 53.88	+23 15.5	3.120	4.008	-0.48	+0.2	17.0	150.9
Jan. 15	04 49.08	+23 17.4	3.195	3.995	-0.31	+0.4	17.0	139.7
Jan. 25	04 46.00	+23 21.0	3.292	3.983	-0.12	+0.6	17.1	128.8
Feb. 4	04 44.80	+23 26.9	3.406	3.971	+0.07	+0.8	17.1	118.4
Feb. 14	04 45.54	+23 35.4	3.534	3.958	+0.26	+1.1	17.2	108.4
Feb. 24	04 48.14	+23 46.3	3.669	3.946	+0.43	+1.3	17.3	99.0
Mar. 5	04 52.47	+23 59.3	3.808	3.934	+0.59	+1.4	17.3	89.9
Mar. 15	04 58.39	+24 13.7	3.947	3.922	+0.73	+1.5	17.4	81.3
Mar. 25	05 05.71	+24 28.8	4.082	3.910	+0.85	+1.5	17.4	73.1
Apr. 4	05 14.26	+24 43.7	4.211	3.898	+0.96	+1.4	17.5	65.1
Apr. 14	05 23.88	+24 57.8	4.331	3.886	+1.05	+1.2	17.5	57.5
Apr. 24	05 34.42	+25 10.1	4.441	3.874	+1.13	+1.0	17.6	50.2
May 4	05 45.74	+25 20.1	4.538	3.862	+1.20	+0.7	17.6	43.0
May 14	05 57.72	+25 27.2	4.622	3.851	+1.25	+0.4	17.6	36.1
May 24	06 10.22	+25 31.0	4.691	3.839	+1.29	0.0	17.6	29.3
June 3	06 23.14	+25 31.2	4.744	3.828	+1.32	-0.4	17.6	22.6
June 13	06 36.39	+25 27.4	4.782	3.817	+1.35	-0.8	17.6	16.1
June 23	06 49.86	+25 19.5	4.804	3.806	+1.36	-1.2	17.6	9.8
July 3	07 03.47	+25 07.6	4.809	3.795	+1.37	-1.6	17.6	3.9
July 13	07 17.13	+24 51.8	4.797	3.784	+1.36	-2.0	17.6	4.3
July 23	07 30.76	+24 32.2	4.769	3.774	+1.35	-2.3	17.5	10.2
Aug. 2	07 44.28	+24 09.2	4.725	3.763	+1.33	-2.6	17.5	16.5
Aug. 12	07 57.61	+23 43.2	4.665	3.753	+1.31	-2.8	17.5	23.0
Aug. 22	08 10.66	+23 14.8	4.590	3.743	+1.27	-3.0	17.4	29.5
Sept. 1	08 23.37	+22 44.6	4.500	3.733	+1.23	-3.1	17.3	36.2
Sept.11	08 35.64	+22 13.4	4.396	3.724	+1.17	-3.1	17.3	43.0
Sept.21	08 47.37	+21 42.1	4.280	3.714	+1.11	-3.0	17.2	50.0
Oct. 1	08 58.47	+21 11.7	4.152	3.705	+1.04	-2.8	17.1	57.1
Oct. 11	09 08.83	+20 43.4	4.014	3.696	+0.95	-2.5	17.0	64.5
Oct. 21	09 18.31	+20 18.3	3.868	3.687	+0.85	-2.0	16.9	72.2
Oct. 31	09 26.78	+19 57.9	3.717	3.679	+0.73	-1.4	16.8	80.1
Nov. 10	09 34.06	+19 43.4	3.562	3.671	+0.59	-0.7	16.7	88.4
Nov. 20	09 40.01	+19 36.3	3.407	3.662	+0.44	+0.1	16.6	97.1
Nov. 30	09 44.42	+19 37.7	3.255	3.655	+0.27	+1.1	16.5	106.2
Dec. 10	09 47.12	+19 48.6	3.111	3.647	+0.09	+2.1	16.4	115.7
Dec. 20	09 47.99	+20 09.3	2.977	3.640	-0.11	+3.0	16.3	125.7
Dec. 30	09 46.91	+20 39.3	2.860	3.633	-0.30	+3.8	16.2	136.1
Jan. 9	09 43.94	+21 17.0	2.762	3.626	-0.47	+4.3	16.1	146.9
Jan. 19	09 39.28	+21 59.8	2.690	3.620	-0.60	+4.4	16.0	157.8
Jan. 29	09 33.28	+22 43.9	2.644	3.614	-0.67	+4.1	16.0	168.0
Feb. 8	09 26.54	+23 25.1	2.629	3.608	-0.68	+3.5	16.0	171.6
Feb. 18	09 19.73	+23 59.6	2.643	3.602	-0.62	+2.5	16.0	163.5
Feb. 28	09 13.56	+24 24.7	2.687	3.597	-0.49	+1.4	16.0	152.9
Mar. 10	09 08.63	+24 38.7	2.756	3.592	-0.32	+0.3	16.0	142.2
Mar. 20	09 05.38	+24 41.6	2.847	3.587	-0.13	-0.8	16.1	131.7
Mar. 30	09 04.05	+24 33.9	2.956	3.583	+0.07	-1.7	16.2	121.7

Comet C/2007 Q3 (Siding Spring)

Epoch = 2008 Aug. 2.0 TT
T = 2009 Oct. 7.38334 TT
q = 2.2512042 AU Peri. = 2.11846
z = +0.0000642 Node = 149.41971 2000.0
e = 0.9998554 Incl. = 65.64906

m1 = 6.8 + 5 log(Delta) + 7.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	02 36.14	-51 22.6	6.647	6.653	-0.11	+6.5	17.1	86.1
Jan. 15	02 35.09	-50 17.6	6.649	6.576	+0.05	+7.1	17.0	81.5
Jan. 25	02 35.54	-49 06.5	6.648	6.499	+0.19	+7.5	17.0	77.1
Feb. 4	02 37.44	-47 51.5	6.643	6.422	+0.33	+7.7	17.0	72.8
Feb. 14	02 40.71	-46 34.5	6.632	6.344	+0.45	+7.7	16.9	68.9
Feb. 24	02 45.22	-45 17.3	6.613	6.267	+0.56	+7.6	16.9	65.4
Mar. 5	02 50.86	-44 01.6	6.587	6.189	+0.66	+7.3	16.8	62.3
Mar. 15	02 57.51	-42 48.5	6.551	6.111	+0.75	+6.9	16.8	59.8
Mar. 25	03 05.04	-41 39.5	6.505	6.032	+0.83	+6.4	16.7	57.8
Apr. 4	03 13.37	-40 35.5	6.450	5.954	+0.90	+5.8	16.7	56.3
Apr. 14	03 22.37	-39 37.3	6.384	5.875	+0.96	+5.1	16.6	55.5
Apr. 24	03 31.97	-38 45.9	6.309	5.796	+1.01	+4.4	16.5	55.3
May 4	03 42.08	-38 02.0	6.225	5.717	+1.05	+3.6	16.4	55.6
May 14	03 52.61	-37 26.1	6.133	5.638	+1.09	+2.7	16.4	56.5
May 24	04 03.48	-36 59.0	6.032	5.558	+1.11	+1.8	16.3	57.8
June 3	04 14.63	-36 41.1	5.924	5.479	+1.13	+0.8	16.2	59.4
June 13	04 25.96	-36 32.8	5.810	5.399	+1.14	-0.2	16.1	61.4
June 23	04 37.40	-36 34.6	5.691	5.319	+1.15	-1.2	16.0	63.7
July 3	04 48.86	-36 46.7	5.567	5.239	+1.14	-2.3	15.9	66.1
July 13	05 00.26	-37 09.4	5.439	5.158	+1.12	-3.3	15.8	68.7
July 23	05 11.47	-37 42.6	5.309	5.078	+1.09	-4.4	15.7	71.5
Aug. 2	05 22.41	-38 26.3	5.177	4.997	+1.05	-5.4	15.6	74.2
Aug. 12	05 32.93	-39 20.3	5.043	4.916	+1.00	-6.4	15.5	77.0
Aug. 22	05 42.89	-40 24.0	4.910	4.836	+0.92	-7.3	15.4	79.8
Sept. 1	05 52.14	-41 36.8	4.778	4.755	+0.83	-8.1	15.3	82.6
Sept.11	06 00.48	-42 57.7	4.646	4.674	+0.72	-8.7	15.2	85.3
Sept.21	06 07.71	-44 25.2	4.517	4.593	+0.59	-9.2	15.0	88.0
Oct. 1	06 13.59	-45 57.5	4.391	4.512	+0.43	-9.5	14.9	90.5
Oct. 11	06 17.86	-47 32.2	4.267	4.430	+0.24	-9.4	14.8	92.9
Oct. 21	06 20.27	-49 06.3	4.147	4.349	+0.03	-9.0	14.7	95.0
Oct. 31	06 20.57	-50 36.1	4.032	4.268	-0.20	-8.1	14.6	97.0
Nov. 10	06 18.54	-51 57.2	3.921	4.188	-0.44	-6.7	14.4	98.8
Nov. 20	06 14.14	-53 04.6	3.815	4.107	-0.67	-4.8	14.3	100.2
Nov. 30	06 07.47	-53 52.7	3.715	4.026	-0.85	-2.3	14.2	101.3
Dec. 10	05 58.93	-54 16.0	3.621	3.946	-0.97	+0.6	14.1	102.1
Dec. 20	05 49.24	-54 10.1	3.533	3.866	-0.99	+3.8	13.9	102.4
Dec. 30	05 39.29	-53 31.6	3.453	3.786	-0.92	+7.2	13.8	102.3
Jan. 9	05 30.10	-52 19.4	3.380	3.707	-0.76	+10.5	13.7	101.7
Jan. 19	05 22.55	-50 34.7	3.315	3.628	-0.53	+13.4	13.6	100.6
Jan. 29	05 17.27	-48 20.3	3.259	3.549	-0.27	+16.0	13.5	99.0
Feb. 8	05 14.60	-45 40.6	3.212	3.471	0.00	+18.0	13.4	96.9
Feb. 18	05 14.62	-42 40.6	3.174	3.394	+0.26	+19.5	13.3	94.3
Feb. 28	05 17.24	-39 25.5	3.145	3.318	+0.50	+20.5	13.2	91.3
Mar. 10	05 22.27	-36 00.4	3.126	3.243	+0.72	+21.0	13.1	87.8
Mar. 20	05 29.44	-32 30.3	3.116	3.169	+0.91	+21.1	13.0	83.9
Mar. 30	05 38.50	-28 59.3	3.115	3.096	+1.07	+20.8	12.9	79.7

Comet 118P/Shoemaker-Levy

Epoch = 2008 Aug. 2.0 TT
T = 2010 Jan. 2.24938 TT
Peri. = 302.04288 e = 0.4269858
Node = 151.80433 2000.0 a = 3.4661555 AU
Incl. = 8.50616 n = 0.15273270
q = 1.9861563 AU P = 6.45 years

m1 = 9.0 + 5 log(Delta) + 14.0 log(r(t-50))

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	20 17.79	-16 37.5	5.334	4.417	+1.02	+2.8	21.8	19.2
Jan. 15	20 28.01	-16 09.8	5.352	4.393	+1.04	+3.1	21.8	11.6
Jan. 25	20 38.38	-15 38.5	5.349	4.369	+1.04	+3.5	21.8	4.6
Feb. 4	20 48.82	-15 04.0	5.325	4.343	+1.04	+3.7	21.7	4.7
Feb. 14	20 59.24	-14 26.7	5.280	4.318	+1.03	+3.9	21.7	11.7
Feb. 24	21 09.53	-13 47.2	5.214	4.292	+1.01	+4.1	21.6	19.1
Mar. 5	21 19.63	-13 06.1	5.129	4.265	+0.98	+4.2	21.5	26.6
Mar. 15	21 29.45	-12 24.0	5.025	4.238	+0.94	+4.2	21.5	34.0
Mar. 25	21 38.90	-11 41.6	4.904	4.210	+0.90	+4.2	21.4	41.5
Apr. 4	21 47.90	-10 59.8	4.768	4.181	+0.85	+4.0	21.3	49.1
Apr. 14	21 56.36	-10 19.3	4.618	4.153	+0.78	+3.8	21.2	56.7
Apr. 24	22 04.17	-09 41.2	4.456	4.123	+0.71	+3.5	21.1	64.4
May 4	22 11.24	-09 06.4	4.285	4.093	+0.62	+3.0	20.9	72.3
May 14	22 17.43	-08 36.0	4.108	4.063	+0.52	+2.5	20.8	80.4
May 24	22 22.63	-08 11.2	3.926	4.032	+0.41	+1.8	20.7	88.6
June 3	22 26.69	-07 53.2	3.745	4.000	+0.28	+1.0	20.5	97.2
June 13	22 29.47	-07 43.2	3.565	3.968	+0.14	+0.1	20.4	106.0
June 23	22 30.82	-07 42.4	3.392	3.935	-0.02	-0.9	20.2	115.3
July 3	22 30.64	-07 51.7	3.230	3.902	-0.18	-2.0	20.1	124.9
July 13	22 28.83	-08 11.9	3.082	3.868	-0.34	-3.1	19.9	135.0
July 23	22 25.42	-08 42.8	2.953	3.834	-0.49	-4.1	19.8	145.5
Aug. 2	22 20.52	-09 23.5	2.847	3.799	-0.61	-4.9	19.7	156.4
Aug. 12	22 14.40	-10 12.2	2.767	3.764	-0.69	-5.4	19.5	167.7
Aug. 22	22 07.47	-11 05.8	2.716	3.728	-0.72	-5.5	19.4	179.1
Sept. 1	22 00.29	-12 00.6	2.695	3.691	-0.68	-5.2	19.4	169.1
Sept.11	21 53.47	-12 52.8	2.704	3.655	-0.59	-4.6	19.3	157.6
Sept.21	21 47.60	-13 38.9	2.739	3.617	-0.44	-3.8	19.3	146.2
Oct. 1	21 43.15	-14 16.4	2.799	3.579	-0.27	-2.7	19.3	135.2
Oct. 11	21 40.48	-14 43.7	2.878	3.541	-0.07	-1.6	19.3	124.6
Oct. 21	21 39.74	-15 00.0	2.971	3.502	+0.12	-0.5	19.3	114.4
Oct. 31	21 40.98	-15 05.5	3.075	3.463	+0.31	+0.5	19.3	104.7
Nov. 10	21 44.13	-15 00.4	3.185	3.423	+0.49	+1.5	19.3	95.4
Nov. 20	21 49.04	-14 45.2	3.296	3.383	+0.65	+2.5	19.3	86.5
Nov. 30	21 55.55	-14 20.6	3.404	3.343	+0.79	+3.3	19.3	78.1
Dec. 10	22 03.48	-13 47.1	3.508	3.302	+0.92	+4.2	19.3	69.9
Dec. 20	22 12.64	-13 05.5	3.603	3.260	+1.02	+4.9	19.3	62.1
Dec. 30	22 22.87	-12 16.3	3.688	3.218	+1.11	+5.6	19.3	54.5
Jan. 9	22 34.02	-11 20.1	3.761	3.176	+1.19	+6.2	19.3	47.2
Jan. 19	22 45.94	-10 17.7	3.821	3.134	+1.26	+6.8	19.2	40.2
Jan. 29	22 58.55	-09 09.5	3.867	3.091	+1.32	+7.3	19.2	33.3
Feb. 8	23 11.74	-07 56.4	3.897	3.048	+1.37	+7.7	19.1	26.7
Feb. 18	23 25.43	-06 39.1	3.913	3.005	+1.41	+8.1	19.1	20.3
Feb. 28	23 39.57	-05 18.1	3.913	2.962	+1.45	+8.4	19.0	14.1
Mar. 10	23 54.11	-03 54.3	3.898	2.919	+1.49	+8.6	18.9	8.2
Mar. 20	00 09.01	-02 28.4	3.868	2.875	+1.52	+8.7	18.8	3.6
Mar. 30	00 24.25	-01 01.2	3.824	2.831	+1.56	+8.8	18.7	5.3

Comet 81P/Wild

Epoch = 2008 Aug. 2.0 TT
T = 2010 Feb. 22.74281 TT
Peri. = 41.84366 e = 0.5374771
Node = 136.10370 2000.0 a = 3.4526293 AU
Incl. = 3.23744 n = 0.15363110
q = 1.5969201 AU P = 6.42 years

m1 = 7.0 + 5 log(Delta) + 16.0 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	00 37.83	+00 53.1	4.852	4.868	+0.32	+2.6	21.4	85.1
Jan. 15	00 41.06	+01 19.0	4.990	4.845	+0.43	+3.2	21.5	75.9
Jan. 25	00 45.34	+01 50.9	5.122	4.821	+0.52	+3.7	21.5	66.9
Feb. 4	00 50.53	+02 28.1	5.243	4.797	+0.60	+4.1	21.5	58.2
Feb. 14	00 56.54	+03 09.5	5.350	4.772	+0.67	+4.5	21.5	49.7
Feb. 24	01 03.24	+03 54.3	5.442	4.746	+0.73	+4.7	21.5	41.5
Mar. 5	01 10.53	+04 41.7	5.516	4.720	+0.78	+4.9	21.5	33.5
Mar. 15	01 18.32	+05 30.9	5.570	4.693	+0.82	+5.0	21.5	25.6
Mar. 25	01 26.50	+06 21.1	5.604	4.666	+0.85	+5.1	21.4	17.9
Apr. 4	01 35.00	+07 11.8	5.617	4.637	+0.87	+5.0	21.4	10.5
Apr. 14	01 43.75	+08 02.2	5.609	4.609	+0.89	+5.0	21.4	3.7
Apr. 24	01 52.66	+08 51.9	5.579	4.579	+0.90	+4.8	21.3	5.4
May 4	02 01.67	+09 40.2	5.529	4.549	+0.90	+4.6	21.2	12.4
May 14	02 10.70	+10 26.6	5.458	4.518	+0.90	+4.4	21.2	19.6
May 24	02 19.67	+11 10.7	5.367	4.487	+0.88	+4.1	21.1	26.8
June 3	02 28.51	+11 52.1	5.258	4.454	+0.86	+3.8	21.0	34.1
June 13	02 37.13	+12 30.3	5.131	4.422	+0.83	+3.5	20.9	41.5
June 23	02 45.42	+13 04.8	4.989	4.388	+0.79	+3.1	20.8	48.9
July 3	02 53.30	+13 35.4	4.833	4.354	+0.73	+2.6	20.6	56.4
July 13	03 00.63	+14 01.7	4.665	4.319	+0.66	+2.2	20.5	64.1
July 23	03 07.27	+14 23.3	4.487	4.284	+0.58	+1.7	20.4	72.0
Aug. 2	03 13.08	+14 39.8	4.302	4.247	+0.48	+1.1	20.2	80.1
Aug. 12	03 17.89	+14 51.0	4.113	4.211	+0.36	+0.6	20.1	88.5
Aug. 22	03 21.51	+14 56.5	3.923	4.173	+0.23	-0.1	19.9	97.3
Sept. 1	03 23.77	+14 56.0	3.735	4.135	+0.07	-0.7	19.7	106.4
Sept.11	03 24.47	+14 49.2	3.554	4.096	-0.10	-1.3	19.6	115.9
Sept.21	03 23.49	+14 35.9	3.385	4.056	-0.27	-2.0	19.4	125.9
Oct. 1	03 20.75	+14 16.2	3.231	4.016	-0.45	-2.6	19.2	136.4
Oct. 11	03 16.25	+13 50.3	3.097	3.974	-0.61	-3.1	19.0	147.3
Oct. 21	03 10.19	+13 19.2	2.989	3.933	-0.73	-3.5	18.9	158.6
Oct. 31	03 02.90	+12 44.3	2.909	3.890	-0.80	-3.6	18.8	169.9
Nov. 10	02 54.90	+12 08.0	2.860	3.847	-0.81	-3.5	18.6	174.7
Nov. 20	02 46.83	+11 33.1	2.842	3.803	-0.75	-3.0	18.5	164.3
Nov. 30	02 39.31	+11 02.6	2.855	3.758	-0.64	-2.3	18.5	152.6
Dec. 10	02 32.96	+10 39.3	2.896	3.713	-0.48	-1.4	18.4	140.9
Dec. 20	02 28.20	+10 25.1	2.960	3.666	-0.29	-0.4	18.4	129.6
Dec. 30	02 25.31	+10 21.1	3.042	3.619	-0.09	+0.6	18.4	118.8
Jan. 9	02 24.41	+10 27.6	3.136	3.572	+0.11	+1.6	18.3	108.5
Jan. 19	02 25.47	+10 43.9	3.239	3.523	+0.29	+2.5	18.3	98.6
Jan. 29	02 28.42	+11 09.1	3.344	3.474	+0.47	+3.3	18.3	89.3
Feb. 8	02 33.11	+11 42.0	3.447	3.425	+0.63	+3.9	18.2	80.4
Feb. 18	02 39.39	+12 21.2	3.546	3.374	+0.77	+4.4	18.2	72.0
Feb. 28	02 47.12	+13 05.5	3.636	3.323	+0.90	+4.8	18.1	64.0
Mar. 10	02 56.15	+13 53.3	3.716	3.271	+1.02	+5.0	18.1	56.3
Mar. 20	03 06.35	+14 43.5	3.783	3.218	+1.13	+5.1	18.0	49.0
Mar. 30	03 17.63	+15 34.9	3.837	3.165	+1.23	+5.1	17.9	41.9

Comet 65P/Gunn

Epoch = 2008 Aug. 2.0 TT
T = 2010 Mar. 1.76116 TT
Peri. = 196.51491 e = 0.3197022
Node = 68.37529 2000.0 a = 3.5883537 AU
Incl. = 10.38526 n = 0.14499773
q = 2.4411491 AU P = 6.80 years

m1 = 6.8 + 5 log(Delta) + 12.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	08 54.86	+28 34.6	3.398	4.301	-0.66	+4.4	17.4	153.6
Jan. 15	08 48.28	+29 18.2	3.330	4.282	-0.75	+4.0	17.3	163.4
Jan. 25	08 40.79	+29 57.9	3.293	4.263	-0.78	+3.3	17.3	168.7
Feb. 4	08 32.95	+30 30.7	3.287	4.243	-0.75	+2.4	17.2	163.9
Feb. 14	08 25.43	+30 54.2	3.311	4.222	-0.66	+1.3	17.2	154.2
Feb. 24	08 18.85	+31 07.5	3.364	4.202	-0.52	+0.3	17.2	143.6
Mar. 5	08 13.69	+31 10.8	3.441	4.180	-0.34	-0.6	17.2	133.0
Mar. 15	08 10.30	+31 05.0	3.537	4.159	-0.15	-1.3	17.3	122.7
Mar. 25	08 08.82	+30 51.5	3.648	4.137	+0.04	-2.0	17.3	112.7
Apr. 4	08 09.26	+30 31.7	3.770	4.115	+0.23	-2.5	17.4	103.2
Apr. 14	08 11.53	+30 06.7	3.896	4.092	+0.39	-2.9	17.4	94.1
Apr. 24	08 15.47	+29 37.2	4.024	4.069	+0.54	-3.3	17.4	85.4
May 4	08 20.90	+29 04.0	4.149	4.045	+0.67	-3.7	17.5	77.1
May 14	08 27.64	+28 27.2	4.269	4.022	+0.78	-4.0	17.5	69.1
May 24	08 35.49	+27 47.1	4.381	3.998	+0.88	-4.3	17.5	61.5
June 3	08 44.28	+27 03.8	4.482	3.973	+0.96	-4.6	17.5	54.1
June 13	08 53.85	+26 17.4	4.571	3.948	+1.02	-4.9	17.6	46.9
June 23	09 04.07	+25 28.1	4.647	3.923	+1.07	-5.2	17.6	40.0
July 3	09 14.82	+24 35.9	4.708	3.897	+1.12	-5.5	17.5	33.2
July 13	09 25.99	+23 40.9	4.752	3.871	+1.15	-5.7	17.5	26.7
July 23	09 37.48	+22 43.5	4.781	3.845	+1.17	-6.0	17.5	20.4
Aug. 2	09 49.22	+21 43.8	4.792	3.819	+1.19	-6.2	17.5	14.6
Aug. 12	10 01.14	+20 42.2	4.786	3.792	+1.20	-6.3	17.4	9.8
Aug. 22	10 13.17	+19 39.1	4.763	3.765	+1.21	-6.4	17.4	8.1
Sept. 1	10 25.25	+18 34.9	4.722	3.737	+1.21	-6.5	17.3	11.1
Sept.11	10 37.33	+17 30.1	4.665	3.709	+1.20	-6.5	17.3	16.3
Sept.21	10 49.34	+16 25.5	4.590	3.681	+1.19	-6.4	17.2	22.3
Oct. 1	11 01.25	+15 21.6	4.499	3.653	+1.17	-6.2	17.1	28.7
Oct. 11	11 12.97	+14 19.2	4.393	3.624	+1.15	-6.0	17.0	35.3
Oct. 21	11 24.46	+13 19.1	4.273	3.595	+1.12	-5.7	16.9	42.0
Oct. 31	11 35.63	+12 22.2	4.139	3.566	+1.08	-5.3	16.8	49.0
Nov. 10	11 46.39	+11 29.6	3.993	3.537	+1.03	-4.7	16.7	56.1
Nov. 20	11 56.64	+10 42.4	3.837	3.507	+0.96	-4.1	16.5	63.4
Nov. 30	12 06.26	+10 01.5	3.673	3.478	+0.88	-3.3	16.4	70.9
Dec. 10	12 15.10	+09 28.5	3.503	3.448	+0.79	-2.4	16.2	78.7
Dec. 20	12 23.00	+09 04.2	3.329	3.418	+0.68	-1.4	16.1	86.8
Dec. 30	12 29.77	+08 50.1	3.155	3.388	+0.54	-0.3	15.9	95.1
Jan. 9	12 35.18	+08 47.2	2.983	3.357	+0.38	+0.9	15.7	103.9
Jan. 19	12 39.03	+08 56.1	2.817	3.327	+0.21	+2.1	15.6	113.0
Jan. 29	12 41.08	+09 17.2	2.661	3.296	+0.01	+3.3	15.4	122.5
Feb. 8	12 41.15	+09 49.9	2.519	3.266	-0.20	+4.2	15.2	132.3
Feb. 18	12 39.16	+10 32.3	2.395	3.235	-0.40	+4.9	15.1	142.4
Feb. 28	12 35.13	+11 21.5	2.293	3.204	-0.58	+5.1	14.9	152.4
Mar. 10	12 29.33	+12 12.6	2.217	3.174	-0.71	+4.8	14.8	161.3
Mar. 20	12 22.24	+13 00.2	2.168	3.143	-0.77	+3.8	14.7	165.9
Mar. 30	12 14.54	+13 38.4	2.147	3.113	-0.75	+2.4	14.6	162.0

Comet C/2006 S3 (LONEOS)

Epoch = 2008 Aug. 2.0 TT
T = 2012 Apr. 17.28822 TT
q = 5.1414844 AU Peri. = 140.01357
z = +0.0000752 Node = 38.33125 2000.0
e = 0.9996134 Incl. = 166.02937

m1 = 4.5 + 5 log(Delta) + 7.5 log(r)

0h TT 2008/09	R.A.(2000) h m	Decl. ° ′	Delta	r	Daily motion m	′	m1	Elong. °
Jan. 5	23 16.66	+05 16.9	12.137	11.813	+0.06	-0.1	18.0	68.5
Jan. 15	23 17.28	+05 15.7	12.242	11.760	+0.10	+0.2	18.0	58.6
Jan. 25	23 18.32	+05 17.9	12.330	11.706	+0.14	+0.6	18.0	48.9
Feb. 4	23 19.71	+05 23.5	12.399	11.653	+0.17	+0.8	18.0	39.3
Feb. 14	23 21.38	+05 31.9	12.444	11.600	+0.19	+1.1	18.0	30.0
Feb. 24	23 23.26	+05 43.0	12.464	11.547	+0.20	+1.3	17.9	21.1
Mar. 5	23 25.27	+05 56.2	12.457	11.493	+0.21	+1.5	17.9	13.1
Mar. 15	23 27.35	+06 11.1	12.421	11.440	+0.21	+1.6	17.9	8.9
Mar. 25	23 29.41	+06 27.3	12.357	11.387	+0.20	+1.7	17.9	12.7
Apr. 4	23 31.39	+06 44.4	12.265	11.333	+0.18	+1.7	17.9	20.4
Apr. 14	23 33.21	+07 01.8	12.147	11.280	+0.16	+1.7	17.8	29.0
Apr. 24	23 34.80	+07 19.1	12.003	11.226	+0.13	+1.7	17.8	37.9
May 4	23 36.09	+07 35.8	11.837	11.173	+0.09	+1.6	17.7	47.0
May 14	23 37.01	+07 51.4	11.651	11.119	+0.05	+1.4	17.7	56.1
May 24	23 37.50	+08 05.3	11.449	11.066	0.00	+1.2	17.6	65.4
June 3	23 37.51	+08 17.2	11.236	11.012	-0.05	+0.9	17.6	74.8
June 13	23 36.97	+08 26.4	11.014	10.959	-0.11	+0.6	17.5	84.2
June 23	23 35.84	+08 32.5	10.790	10.905	-0.17	+0.3	17.4	93.8
July 3	23 34.09	+08 35.0	10.568	10.852	-0.24	-0.2	17.4	103.6
July 13	23 31.72	+08 33.5	10.353	10.798	-0.30	-0.6	17.3	113.5
July 23	23 28.72	+08 27.7	10.151	10.745	-0.36	-1.0	17.3	123.5
Aug. 2	23 25.13	+08 17.3	9.966	10.691	-0.41	-1.5	17.2	133.6
Aug. 12	23 21.02	+08 02.3	9.804	10.638	-0.45	-1.9	17.2	143.7
Aug. 22	23 16.47	+07 42.8	9.668	10.584	-0.49	-2.4	17.1	153.7
Sept. 1	23 11.61	+07 19.2	9.562	10.530	-0.50	-2.7	17.1	162.7
Sept.11	23 06.57	+06 52.2	9.489	10.477	-0.51	-3.0	17.0	168.2
Sept.21	23 01.51	+06 22.6	9.449	10.423	-0.49	-3.1	17.0	165.2
Oct. 1	22 56.60	+05 51.4	9.443	10.369	-0.46	-3.2	17.0	156.7
Oct. 11	22 52.00	+05 19.6	9.468	10.316	-0.42	-3.1	17.0	146.6
Oct. 21	22 47.83	+04 48.5	9.521	10.262	-0.36	-2.9	17.0	136.1
Oct. 31	22 44.21	+04 19.1	9.599	10.209	-0.30	-2.7	17.0	125.5
Nov. 10	22 41.22	+03 52.3	9.698	10.155	-0.23	-2.3	17.0	114.9
Nov. 20	22 38.91	+03 28.9	9.810	10.101	-0.16	-2.0	17.0	104.4
Nov. 30	22 37.29	+03 09.3	9.931	10.048	-0.09	-1.5	17.0	94.0
Dec. 10	22 36.35	+02 54.1	10.054	9.994	-0.03	-1.1	17.0	83.7
Dec. 20	22 36.06	+02 43.2	10.173	9.940	+0.03	-0.6	17.0	73.6
Dec. 30	22 36.37	+02 36.8	10.284	9.887	+0.08	-0.2	17.0	63.6
Jan. 9	22 37.20	+02 34.7	10.381	9.833	+0.13	+0.2	17.0	53.8
Jan. 19	22 38.49	+02 36.6	10.460	9.780	+0.17	+0.6	17.0	44.3
Jan. 29	22 40.15	+02 42.4	10.518	9.726	+0.19	+0.9	17.0	34.9
Feb. 8	22 42.10	+02 51.5	10.551	9.673	+0.21	+1.2	17.0	25.9
Feb. 18	22 44.24	+03 03.5	10.557	9.619	+0.23	+1.5	17.0	17.6
Feb. 28	22 46.50	+03 18.1	10.535	9.566	+0.23	+1.7	17.0	11.4
Mar. 10	22 48.78	+03 34.7	10.484	9.512	+0.22	+1.8	16.9	11.2
Mar. 20	22 51.00	+03 52.8	10.406	9.459	+0.21	+1.9	16.9	17.2
Mar. 30	22 53.07	+04 11.9	10.299	9.405	+0.18	+2.0	16.9	25.2

彗 星 年 表　２００８

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