

COMET P/ GUNN 1969 II = 1976 III

The following improved orbital elements, by S. Nakano, are from 49 observations 1971 January 21 to 1978 November 30. Perturbations by all nine planets were taken into account. The mean residual is 1.45 arc seconds.

Epoch =	1969 Apr. 9.0	1976 Jan. 23.0 ET	
T =	1969 Apr. 18.85406	1976 Feb. 10.81882	+/- 0.00008 ET
Peri. =	197.11621	197.47841	+/- 0.00052
Node =	68.03713	67.97661	1950.0 +/- 0.00051
Inc. =	10.39407	10.38794	+/- 0.00011
q =	2.4414830	2.4445431	+/- 0.0000023 AU
e =	0.3195209	0.3190790	+/- 0.0000005
a =	3.5878881	3.5900538	+/- 0.0000020 AU
n =	0.14502596	0.14489475	+/- 0.00000012
P =	6.796	6.802	+/- 0.000006 year

The following orbital elements for the next return is from the above elements.

Epoch =	1982 Nov. 7.0 ET
T =	1982 Nov. 26.86180 ET
Peri. =	196.98294
Node =	67.88494 1950.0
Inc. =	10.38316
q =	2.4591487 AU
e =	0.3163613
a =	3.5971468 AU
n =	0.14446639
P =	6.822 years

The next pages residuals in seconds of arc are from the above elements.

continued

Date/ UT	*** D-C ***	Code / Obs.
	" "	
1970 Oct. 27.225	(5.8- 3.3+)	675 / au
Nov. 6.313	(12.9- 8.3+)	673 / ya
6.347	(14.9- 4.7+)	673 / ya
22.270	(13.0- 9.6+)	675 / bc
23.305	(4.5- 5.4+)	675 / bc
1971 Jan. 2.201	(20.4- 19.2-)	675 / kt
21.091	1.4- 0.8-	691 / rm
21.114	1.5- 0.7-	691 / rm
Feb. 28.118	1.2- 0.9-	693 / rm
Mar. 3.122	0.3+ 0.0	691 / rm
1973 Dec. 19.395	1.3+ 0.8-	801 / HO
1974 Jan. 20.347	3.4+ 1.1-	801 / HO
Feb. 14.171	3.2+ 0.5-	801 / HO
Mar. 13.174	(6.2+ 0.9+)	801 / HO
28.108	3.0+ 2.2-	801 / HO
Dec. 12.808	(4.6- 1.6+)	372 / sk
12.833	1.0- 0.0	372 / sk
16.824	2.8- 0.0	372 / sk
23.368	1.0+ 1.5-	801 / HO
1975 Jan. 13.278	1.2- 0.0	805 / tr
14.284	0.0 0.6-	805 / tr
17.726	(6.6- 3.9-)	372 / sk
17.842	0.4+ 0.3-	380 / kj
Mar. 21.752	1.5- 2.1+	372 / sk
Apr. 15.216	1.7- 0.3-	805 / tr
18.089	0.6- 1.0+	801 / mc
18.213	0.7- 0.1+	805 / tr
20.216	0.4+ 0.5+	805 / tr
30.173	3.2+ 0.2+	801 / ba
May 10.891	0.6- 2.3-	046 / mr
10.906	0.3+ 1.3-	046 / pt
13.861	0.9+ 3.4-	046 / mr
14.860	1.4- 2.1+	046 / mr
14.874	1.2- 0.4-	046 / mr
17.623	(4.6+ 2.9+)	882 / sz
June 4.169	(10.2- 6.5+)	774 / kn
12.034	1.1- 0.4+	805 / tr
12.129	0.7+ 2.2+	801 / sw
12.998	1.5- 0.4+	805 / tr
July 3.112	0.1+ 0.6+	801 / HO

continued

Date/ UT	*** O-C ***		Code / Obs.
	"	"	
1976 Apr. 24.703	1.9-	0.1-	485 / el
24.725	2.4+	1.6-	485 / el
June 4.608	0.7-	0.1+	485 / el
4.631	0.1-	0.7+	485 / el
6.374	0.8+	0.9+	807 / bl
July 26.532	1.8+	0.7-	485 / el
26.557	0.9+	2.4-	485 / el
Aug. 20.632	2.1+	0.2+	372 / sk
Sept. 18.447	0.1+	1.0-	485 / el
18.467	0.0	0.7-	485 / el
23.552	0.3-	2.1+	879 / fr
Oct. 19.585	2.5-	0.1-	323 / JP
Nov. 16.580	0.9+	1.2-	323 / JP
1977 Aug. 21.334	2.0-	0.3+	801 / sw
Sept. 11.358	0.5-	1.0+	801 / sa
Oct. 8.260	1.7+	1.8-	801 / mc
18.736	1.9+	0.3-	323 / JP
Dec. 13.638	1.3+	0.6-	323 / JP
1978 Nov. 29.347	4.0-	1.0-	675 / kw
30.348	2.4-	0.9-	675 / kw

() ----- Rejected Obs.

1980 April 4

S. Nakano