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CORRIGENDA

- In the April 2003 issue, page 79, the observation on 2003 03 30.46 by observer SEA was incorrectly assigned to C/2001 RX₁₄; it belongs instead to C/2001 HT₅₀ (for which the accompanying descriptive notes on page 60 of that same issue are correct).

- In the October 2002 issue, p. 249, comet 153P, 2002 03 02.39, the coma diameter *should read* 1 and the DC *should read* 7 (no tail was seen).

New Groups of Near-Sun Comets

Maik Meyer

Kelkheim, Germany

Abstract. In 2002, three new groups of comets were recognized in the data of the SOHO/LASCO coronagraphs. These new groups are the only known groups besides the Kreutz group of sungrazing comets, identified over 100 years ago. The known members (as of early 2003) and their properties are summarized here. It is shown that two of the groups can experience close encounters with the earth.

Introduction

Comet groups can be understood as an association of at least three comets that show nearly identical orbital elements. Split comets, and comet pairs in general, seem to be a persistent phenomenon. The first such comet group was initially suggested by Kirkwood (1880) and later intensively studied by Kreutz (1888, 1891, 1901). The Kreutz group of sungrazing comets is well-known for its bright members, which caused great excitement because they were seen in daylight and displayed extremely long tails.

The Kreutz group is thought to have been produced by a break-up of a large parent comet whose surviving fragments tend to split — not only at their subsequent perihelia, but also along other parts of the orbit by secondary fragmentation (Sekanina 2000, 2002). Until the beginning of the 20th century, only three members were known: C/1843 D1, C/1880 C1, and C/1882 R1. With the apparitions of later members, further analyses were carried out (Marsden 1967, 1989) that proved the existence of subgroups (first proposed by Hasegawa 1966) and discussed possible progenitors and further potential members. The recent solar-observing spacecraft SOLWIND, SMM, and SOHO have detected a lot of fainter Kreutz-group members, with SOHO detecting more than 400 Kreutz fragments via a discovery rate of more than 50 comets per year! Additional earlier members may be contained in historic records; recently, numerous further objects have been proposed (Hasegawa and Nakano 2001, England 2002, Strom 2002).

Many searches for other possible comet groups have been conducted over the last 100 years (Whipple 1977). When using the 'D' criterion (a number used for determining the similarity of orbits based on the basic orbital elements) to determine possible comet pairs or groups, no statistically significant positive result was obtained (Kresak 1982). The Kreutz group was regarded as a unique phenomenon until recently.

An interesting result of the SOHO mission has been the detection of a lot of "sporadic" comets — i.e., objects that are not related to the Kreutz group. The existence of other small- q comets besides the Kreutz comets in the SOHO data is not surprising. Simulations have shown that a large fraction of all comets may become near-sun or even sungrazing comets (Bailey *et al.* 1992).

Unfortunately, the determination of the orbital elements for the SOHO comets is complicated by the low resolution of the detectors of the SOHO coronagraphs and vignetting effects near the edges and the occulter. Even more critical are the short arcs of observation: in most cases, only a few hours, with sometimes as few as four astrometric positions. While the orbits of the Kreutz comets are calculated under certain restrictions that are defined by their assumed membership to the Kreutz group, no such criterion existed for the non-Kreutz comets. Thus the elements for non-Kreutz comets have been particularly uncertain. However, some of the non-Kreutz SOHO comets were clearly related because they had similar trajectories while appearing nearly simultaneously (Biesecker 2000). Until the end of 2001, a handful of such pairs of non-Kreutz SOHO comets was known (Marsden 2002a).

The new groups

In January 2002, the orbital elements of the non-Kreutz comet C/2001 X8 were published. I then noted that the elements of this object are similar to the elements of comet C/1997 L2. In a subsequent cursory analysis of orbital data of known non-Kreutz SOHO comets, the object C/2001 E1 was found to have nearly the same orbital elements (with the exception of the inclination) as these other two comets. Interestingly, the inclination was almost exactly the supplementary angle to the inclination of the other two comets, and so it seemed reasonable to try to represent its positions by a direct solution (Marsden 2002a). I was able to show (a) that a direct solution fits the observations with about the same residuals as the original solution and (b) that this triplet of comets might be part of a new group. The revised orbit was published on MPC 44504.

Because the orbital elements of non-group SOHO comets are ambiguous, it seemed possible that the wrong orbital solution had been adopted for other comets, as well. An analysis of the astrometric data of all non-Kreutz SOHO comets produced three further objects that could be represented by the orbital elements of the triplet mentioned above, which had thus grown to a sextet! A second comet group was now fully confirmed. Meanwhile, B. G. Marsden was busy identifying a third near-sun-comet group consisting of four individual members. This 'Marsden group' contains only

faint SOHO comets, too, and consists of two of the previously identified pairs (cf. Table 2). After 100 years with a single identified comet group, suddenly two other groups were present — the ‘Marsden’ and the ‘Meyer’ groups — and both were announced on *IAUC* 7832 (Marsden 2002g).

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Table 1A. The first thirty-seven members of the ‘Meyer group’

Key to tabular headings: Des. = designation, T = time of perihelion, q = perihelion distance (AU), ω = argument of perihelion, Ω = longitude of the ascending node, i = inclination, L = longitude of the direction of perihelion, B = latitude of the direction of perihelion (equinox 2000.0), N = number of observations, arc = observed arc in days. *MPC/MPEC* = published reference of orbit (*Minor Planet Circulars* are 5-digit number; *Minor Planet Electronic Circulars* are year-letter/number)

| Comet | T (TT) | q (AU) | ω ° | Ω ° | i ° | L ° | B ° | N | arc | <i>MPC/MPEC</i> |
|----------------|---------------|----------|---------------|---------------|----------|----------|----------|-----|------|-----------------|
| C/1997 G7 | 1997 04 08.97 | 0.0351 | 55.36 | 73.94 | 70.33 | 99.92 | 50.78 | 9 | 0.14 | 44860 |
| C/1997 H4 | 1997 04 21.36 | 0.0356 | 57.53 | 72.33 | 73.13 | 96.85 | 53.84 | 12 | 0.44 | 45180 |
| C/1997 H5 | 1997 04 29.27 | 0.0371 | 56.95 | 69.13 | 79.18 | 85.22 | 55.42 | 5 | 0.13 | 45180 |
| C/1997 L2 | 1997 06 10.87 | 0.0381 | 57.30 | 72.62 | 71.69 | 98.69 | 53.03 | 20 | 0.95 | 35205 |
| C/1997 O2 | 1997 07 25.48 | 0.0356 | 57.03 | 73.07 | 71.92 | 98.64 | 52.90 | 18 | 0.14 | 2002-M23 |
| C/1997 U8 | 1997 10 19.98 | 0.0310 | 58.10 | 71.15 | 71.91 | 97.66 | 53.80 | 20 | 0.31 | 2002-M43 |
| C/1997 U9 | 1997 10 23.18 | 0.0402 | 64.63 | 68.23 | 77.41 | 92.92 | 61.86 | 7 | 0.08 | 2002-M47 |
| C/1998 V8 | 1998 11 03.41 | 0.0363 | 57.46 | 72.88 | 72.01 | 98.71 | 53.30 | 14 | 0.29 | 2002-J39 |
| C/1998 W7 | 1998 11 28.25 | 0.0362 | 56.89 | 73.21 | 72.12 | 98.42 | 52.86 | 17 | 0.41 | 2002-J39 |
| C/1999 F3 | 1999 03 17.38 | 0.0363 | 57.90 | 72.36 | 73.31 | 96.96 | 54.24 | 18 | 0.29 | 2002-H26 |
| C/1999 K16 | 1999 05 26.65 | 0.0339 | 56.71 | 72.64 | 71.73 | 98.16 | 52.54 | 11 | 0.15 | 45181 |
| C/1999 L9 | 1999 06 09.45 | 0.0380 | 57.93 | 70.16 | 70.73 | 97.94 | 53.12 | 8 | 0.11 | 45181 |
| C/1999 P7 | 1999 08 13.16 | 0.0372 | 57.64 | 73.00 | 71.32 | 99.81 | 53.15 | 11 | 0.17 | 45181 |
| C/2000 B8 | 2000 01 16.86 | 0.0340 | 54.63 | 75.09 | 70.75 | 100.00 | 50.34 | 12 | 0.19 | 45181 |
| C/2000 C2 | 2000 02 03.86 | 0.0370 | 55.44 | 73.71 | 71.35 | 98.61 | 51.29 | 10 | 0.13 | 44860 |
| C/2000 C5 | 2000 02 07.89 | 0.0358 | 54.73 | 65.16 | 72.22 | 88.51 | 51.03 | 7 | 0.08 | 44860 |
| C/2000 J8 | 2000 05 06.42 | 0.0367 | 56.91 | 73.65 | 72.50 | 98.42 | 53.04 | 14 | 0.24 | 2002-H49 |
| C/2000 N4 | 2000 07 04.80 | 0.0351 | 59.61 | 73.89 | 74.50 | 98.39 | 56.23 | 7 | 0.08 | 2002-J09 |
| C/2000 X9 | 2000 12 03.75 | 0.0386 | 60.08 | 73.96 | 72.66 | 101.34 | 55.83 | 9 | 0.11 | 2002-L63 |
| C/2001 C7 | 2001 02 11.67 | 0.0350 | 54.23 | 54.75 | 73.68 | 76.06 | 51.14 | 8 | 0.09 | 46333 |
| C/2001 E1 | 2001 03 15.64 | 0.0357 | 58.28 | 72.24 | 73.37 | 97.08 | 54.59 | 7 | 0.08 | 44504 |
| C/2001 K11 | 2001 05 16.85 | 0.0339 | 57.26 | 73.28 | 72.36 | 98.51 | 53.28 | 17 | 0.25 | 2002-034 |
| C/2001 L10 | 2001 06 01.47 | 0.0355 | 57.72 | 72.40 | 71.70 | 98.83 | 53.39 | 11 | 0.17 | 2002-034 |
| C/2001 R7 | 2001 09 12.80 | 0.0372 | 57.36 | 85.28 | 73.77 | 108.85 | 53.95 | 7 | 0.08 | 2002-034 |
| C/2001 T1 | 2001 10 09.17 | 0.0364 | 57.41 | 72.56 | 72.87 | 97.30 | 53.63 | 8 | 0.10 | 44860 |
| C/2001 V6 | 2001 11 02.48 | 0.0374 | 54.87 | 73.64 | 69.76 | 99.82 | 50.12 | 8 | 0.09 | 2002-034 |
| C/2001 X8 | 2001 12 12.86 | 0.0371 | 56.15 | 74.35 | 72.28 | 98.76 | 52.29 | 13 | 0.18 | 44505 |
| C/2001 X10 | 2001 12 15.55 | 0.0360 | 56.74 | 73.79 | 73.46 | 97.25 | 53.28 | 9 | 0.12 | 2002-034 |
| C/2002 A4 | 2002 01 01.34 | 0.0366 | 61.50 | 75.45 | 72.13 | 104.92 | 56.76 | 8 | 0.13 | 2002-G45 |
| C/2002 H8 | 2002 04 20.97 | 0.0336 | 55.83 | 73.71 | 69.34 | 101.17 | 50.73 | 9 | 0.12 | 2002-P41 |
| C/2002 P3 | 2002 08 12.67 | 0.0359 | 56.57 | 75.81 | 73.84 | 98.67 | 53.28 | 11 | 0.18 | 2002-P63 |
| C/2002 R8 | 2002 09 15.75 | 0.0343 | 63.49 | 59.71 | 75.95 | 85.66 | 60.24 | 7 | 0.08 | 2002-S35 |
| C/2002 T2 | 2002 10 04.34 | 0.0369 | 57.79 | 70.73 | 70.94 | 98.13 | 53.10 | 7 | 0.10 | 2002-T75 |
| C/2002 U6 | 2002 10 28.27 | 0.0359 | 56.77 | 74.62 | 73.06 | 98.60 | 53.15 | 17 | 0.23 | 2002-W42 |
| C/2002 V4 | 2002 11 09.72 | 0.0357 | 56.33 | 74.75 | 72.50 | 99.04 | 52.54 | 14 | 0.18 | 2003-B42 |
| C/2002 X6 | 2002 12 02.44 | 0.0346 | 57.43 | 74.75 | 72.55 | 99.90 | 53.51 | 13 | 0.17 | 2003-C02 |
| C/2002 Y2 | 2002 12 19.79 | 0.0400 | 57.48 | 74.51 | 73.52 | 98.50 | 53.96 | 10 | 0.15 | 2003-C02 |
| Weighted Means | | 0.0361 | 57.31 | 72.73 | 72.43 | 97.90 | 53.33 | | | |

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With the knowledge of the orbital elements, an intensified search for further members in SOHO archival data was conducted, since previous searches had focused mainly on the so-called Kreutz comets. So very quickly, R. Kracht was able to report a lot of further objects that were moving on trajectories that are similar to the expected trajectories for Meyer- and Marsden-group comets. Subsequent orbital calculations by Marsden and Kracht also revealed the existence of another set of comets that seem to be loosely connected to the Marsden group (Marsden 2002b, 2002d, 2002e, 2002f). These ‘Kracht group’ comets show clear differences in their orbital elements when compared to those of the Marsden group; however, the values for the direction of perihelion are quite similar. The members of these three new groups are summarized in Tables 1-3. The reduction of the astrometry, as well as the calculation of the orbital elements, was done by Marsden. The mean elements in the tables are weighted according to the length of the observed orbital arc, with one day given a weight of 1. This weighting reflects the fact that longer observed orbital arcs contain more observations and are more reliable than orbits that are based on only a few positions. Still, one always has to be aware of the high

uncertainty of these orbital elements. Figures 1-3 show the apparent trajectories, based on the weighted mean orbital elements, through the field-of-view of the SOHO/LASCO C2 coronagraph for each fifteenth day of the month over one year. The smaller circle in each figure represents the sun, with the outer circle indicating the occulting disk of the coronagraph. The rectangular pattern at the edges of the figures are non-detection areas; filled dots indicate the point of perihelion, and the arrows show the direction of movement. These graphs can be used for tentative identification of comets observed in the images of the coronagraph or for dedicated comet searching in these images.

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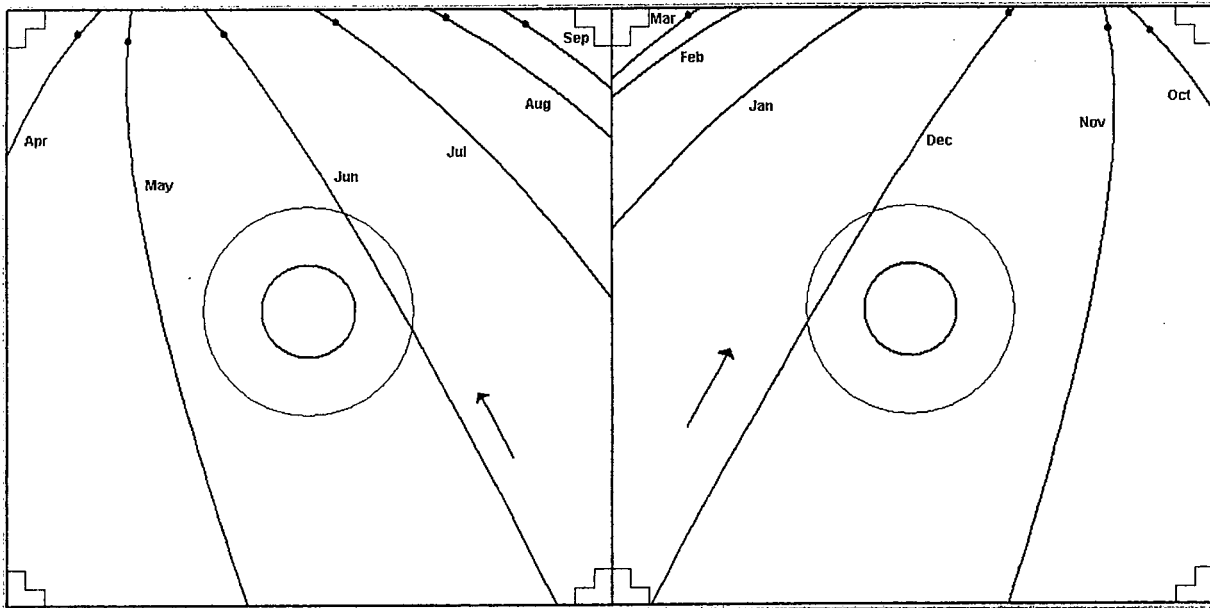


Figure 1 (above). Annual variation of the apparent trajectories of the Meyer group in the SOHO/LASCO C2 field-of-view. The smallest circle represents the sun, and the larger circle indicates the occulting disk. The rectangular patterns in the corners indicate non-detection areas. Filled dots indicate the location of perihelion, and the arrows show the direction of movement. Figure 2 (below). Annual variation of the apparent trajectories of the Marsden group in the SOHO/LASCO C2 field-of-view.

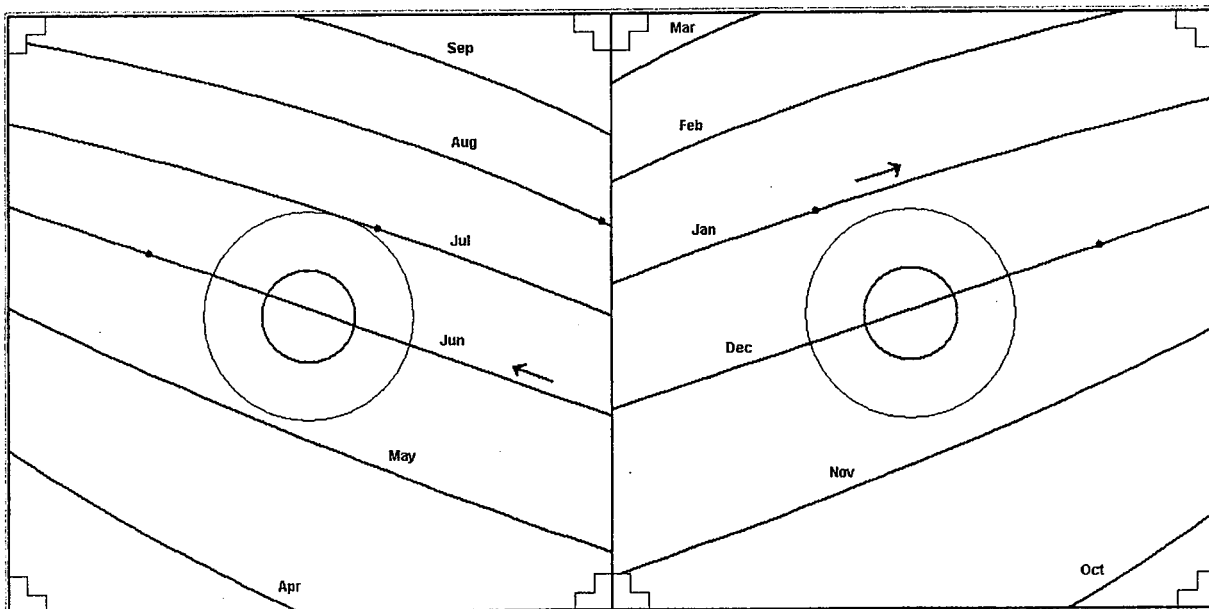


Table 1B. The first fifteen members of the 'Marsden group'

| Comet | <i>T</i> (TT) | <i>q</i> (AU) | ω _o | Ω _o | <i>i</i> _o | <i>L</i> _o | <i>B</i> _o | <i>N</i> | arc | MPC/MPEC |
|-----------|---------------|---------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|------|----------|
| C/1998 A2 | 1998 01 03.74 | 0.0410 | 26.31 | 80.78 | 27.93 | 104.38 | 11.98 | 6 | 0.10 | 45180 |
| C/1998 A3 | 1998 01 09.30 | 0.0419 | 22.97 | 80.73 | 27.35 | 101.36 | 10.33 | 6 | 0.14 | 45180 |
| C/1998 A4 | 1998 01 10.79 | 0.0431 | 21.35 | 81.03 | 26.87 | 100.25 | 9.47 | 6 | 0.10 | 2002-F70 |
| C/1999 J6 | 1999 05 11.59 | 0.0492 | 22.47 | 81.69 | 26.53 | 102.00 | 9.83 | 76 | 1.66 | 39791 |
| C/1999 N5 | 1999 07 11.24 | 0.0496 | 27.20 | 82.49 | 27.08 | 107.08 | 12.01 | 38 | 0.84 | 45181 |
| C/1999 P6 | 1999 08 05.11 | 0.0494 | 21.49 | 82.01 | 26.57 | 101.41 | 9.43 | 17 | 0.25 | 45181 |
| C/1999 P8 | 1999 08 14.99 | 0.0494 | 21.28 | 81.85 | 26.56 | 101.06 | 9.34 | 11 | 0.23 | 45182 |
| C/1999 P9 | 1999 08 15.04 | 0.0493 | 21.51 | 81.74 | 26.55 | 101.16 | 9.43 | 22 | 0.36 | 45182 |
| C/1999 U2 | 1999 10 25.23 | 0.0492 | 22.22 | 82.05 | 27.05 | 102.04 | 9.90 | 41 | 1.28 | 36654 |
| C/2000 C7 | 2000 02 04.48 | 0.0481 | 22.34 | 81.06 | 24.89 | 101.50 | 9.21 | 7 | 0.11 | 2002-K48 |
| C/2000 C3 | 2000 02 04.59 | 0.0487 | 23.47 | 81.85 | 24.97 | 103.33 | 9.68 | 35 | 0.54 | 44860 |
| C/2000 C4 | 2000 02 05.17 | 0.0487 | 23.05 | 81.95 | 24.97 | 103.04 | 9.51 | 54 | 0.50 | 44860 |
| C/2002 R1 | 2002 09 02.54 | 0.0492 | 33.67 | 70.43 | 22.19 | 102.10 | 12.09 | 32 | 0.18 | 2002-R57 |
| C/2002 R4 | 2002 09 03.30 | 0.0520 | 20.16 | 85.69 | 28.31 | 103.60 | 9.41 | 35 | 0.23 | 2002-S35 |
| C/2002 V5 | 2002 11 12.42 | 0.0506 | 19.13 | 86.61 | 34.24 | 102.61 | 10.63 | 28 | 0.93 | 2002-C02 |

Weighted Means 0.0491 22.73 82.30 27.37 102.72 10.14

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Table 1C. The first fourteen members of the 'Kracht group'

| Comet | <i>T</i> (TT) | <i>q</i> (AU) | ω _o | Ω _o | <i>i</i> _o | <i>L</i> _o | <i>B</i> _o | <i>N</i> | arc | MPC/MPEC |
|------------|---------------|---------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|------|----------|
| C/1999 M3 | 1999 06 30.70 | 0.0441 | 68.03 | 36.33 | 12.35 | 103.89 | 11.44 | 18 | 0.54 | 45181 |
| C/1999 N6 | 1999 07 12.30 | 0.0435 | 63.97 | 32.50 | 12.15 | 95.95 | 10.90 | 20 | 0.54 | 45181 |
| C/2000 03 | 2000 07 30.94 | 0.0540 | 48.12 | 53.46 | 14.58 | 100.65 | 10.80 | 61 | 1.28 | 41159 |
| C/2001 Q7 | 2001 08 21.80 | 0.0445 | 54.77 | 43.95 | 13.28 | 97.98 | 10.81 | 12 | 0.14 | 45182 |
| C/2001 Q8 | 2001 08 24.81 | 0.0451 | 56.22 | 44.76 | 13.07 | 100.28 | 10.83 | 11 | 0.17 | 2002-035 |
| C/2001 R8 | 2001 09 06.67 | 0.0437 | 59.63 | 42.19 | 13.58 | 101.11 | 11.69 | 11 | 0.18 | 2002-035 |
| C/2001 R9 | 2001 09 07.32 | 0.0472 | 53.31 | 48.90 | 12.47 | 101.55 | 9.97 | 5 | 0.08 | 2002-035 |
| C/2002 N2 | 2002 07 11.92 | 0.0490 | 54.78 | 52.93 | 13.80 | 106.92 | 11.24 | 14 | 0.58 | 2002-Q02 |
| C/2002 Q8 | 2002 08 25.92 | 0.0462 | 47.47 | 51.38 | 13.84 | 98.01 | 10.15 | 17 | 0.27 | 2002-Q46 |
| C/2002 Q10 | 2002 08 27.50 | 0.0484 | 51.02 | 50.99 | 13.54 | 101.22 | 10.49 | 13 | 0.17 | 2002-R02 |
| C/2002 S4 | 2002 09 18.22 | 0.0484 | 50.98 | 50.81 | 13.51 | 101.00 | 10.46 | 50 | 1.23 | 2002-T16 |
| C/2002 S5 | 2002 09 19.33 | 0.0467 | 52.01 | 49.01 | 14.03 | 100.18 | 11.01 | 14 | 0.19 | 2002-T16 |
| C/2002 S7 | 2002 09 21.06 | 0.0483 | 51.38 | 50.57 | 13.53 | 101.16 | 10.53 | 27 | 0.78 | 2002-T25 |
| C/2002 S11 | 2002 09 30.34 | 0.0482 | 51.84 | 50.70 | 13.68 | 101.74 | 10.72 | 64 | 1.24 | 2002-T75 |

Weighted Means 0.0483 53.49 48.47 13.57 101.20 10.78

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(text continued from top of page 117)

Orbital properties, appearance

Unlike Kreutz sungrazers, comets of the newly recognized groups appear almost stellar — making them harder to detect. The nature of the brightness variations is still unclear: whether they are due to cometary activity or phase-angle effects (or both) still has to be investigated. Although the observed orbital arcs of nearly all observed comets of the three newly realized groups are clustered around the time of perihelion, it is not definite that the comets have also survived their closest approach to the sun. Although no earthbound post-perihelion observations of the comets are known, also no signs of disintegration have been observed as for the Kreutz comets.

One can estimate the absolute brightness of the comets using the standard photometric model for comets, according to the formula

$$m = H + 5 \log \Delta + 2.5n \log r ,$$

where m is the apparent brightness, H is the comet's absolute brightness, Δ is the comet's distance to the earth in AU, r is the comet's distance to the sun, and n as the slope parameter. This formula does not take phase angle effects into account. When the brightness data are too few to determine the slope parameter n , the absolute brightness is often indicated as $H_{2.5n}$ (thus, H_{10} , H_8 , etc.).

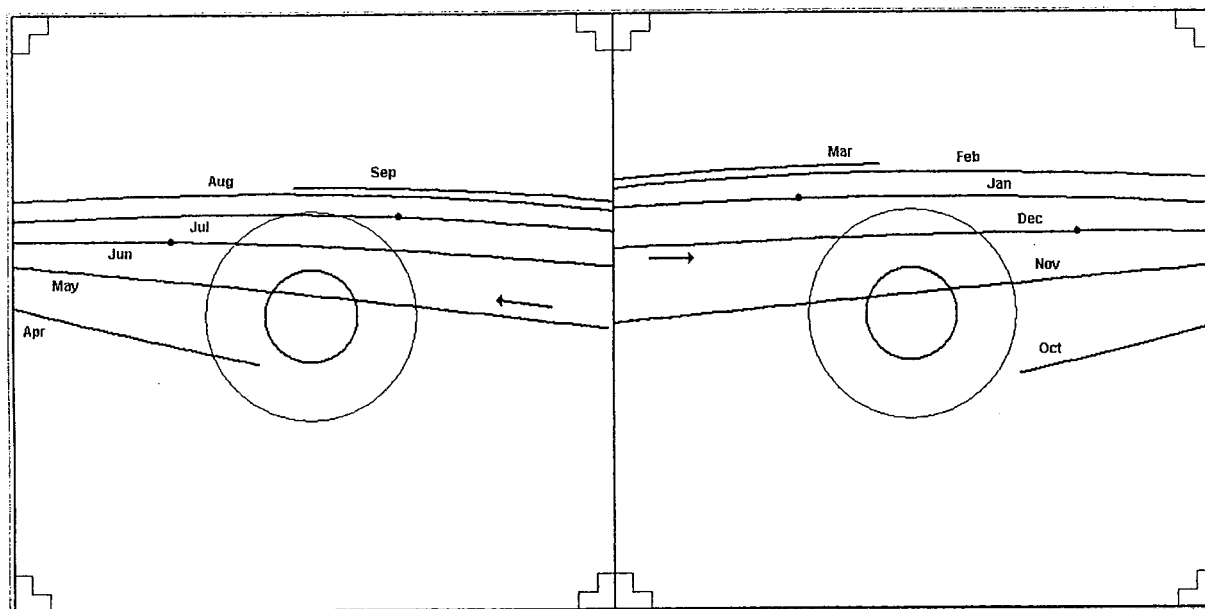


Figure 3. Annual variation of the apparent trajectories of the Kracht group in the SOHO/LASCO C2 field-of-view (explanation of symbols as for Figure 1).

◇ ◇ ◇

(text continued from page 118)

The apparent brightness for a new-group comet with $H_{10} = 6$ could be around magnitude -7 at the time of perihelion. However, the brightest comets of the new groups reached only $\text{mag} \approx 4$, yielding $H_{10} \approx 17$. If we assume $n = 2$ (only reflected sunlight, and no phase-angle effects included), then $H_5 \approx 11$. While $H_{10} = 17$ is in the region of the small Kreutz sungrazers observed by SOHO (Sekanina 2002), a value of $H_5 = 11$ is high enough to make these objects observable from the earth when far from the sun if the power-law formula were to hold over large heliocentric distances — something that has not happened until now. It is well possible that these small objects exhibit unique lightcurves that prevent an earthbound observation.

Another quite interesting property among the members of the new near-sun comet groups is the occurrence of apparent pairs or even small “clumpings”. Although not as extreme as with the pairs of the Kreutz comets, a non-uniform temporal distribution of members of these groups is apparent (see the Tables), due perhaps in part to seasonal variations in the observing geometry. Figures 4-6 depict the temporal distribution of the three groups; the height of the graph bars indicates the number of observations, which in most cases is proportional to the observed arc and the apparent brightness. From June to October 1999, SOHO was not functional, indicated by the largest gap in Figure 1.

The Meyer group

The Meyer group is the most populated of the new groups. The temporal distribution shows a steady flow with at least five members per year.¹ The spatial orientation of the Meyer-group orbits is obviously explains why possible historic progenitors may be hard to find. The orbits place the Meyer-group comets mainly in the southern sky, except for the time of perihelion (but then, of course, close to the sun). So if such a comet is not bright enough to be a daylight object, there will be no chance of observing it from northern latitudes. The closest approach of the Meyer-group orbits to the earth occurs in mid-June, with a corresponding perihelion time at the end of May; the minimum geocentric distance is then ≈ 0.5 AU, with elongations around 50° .

The Marsden group

Much more interesting are the orbits of the Marsden-group comets. Though the southern-hemisphere observers are also favored, a perihelion around mid-May leads to close post-perihelion encounters with our planet in mid-June. The mean orbit yields minimum distances < 0.02 AU with elongations of $\approx 120^\circ$ or more. Comet C/1999 J6 was (surprisingly) such an object and might have approached the earth to ≈ 0.024 AU; this would have been the third-closest approach

¹The early years 1996-1999 of SOHO observation may be not representative, due to gaps in the SOHO data and due to less data overall. After 2000, no great data gaps occurred and the image-sequence density was high enough to increase the number of discoveries.

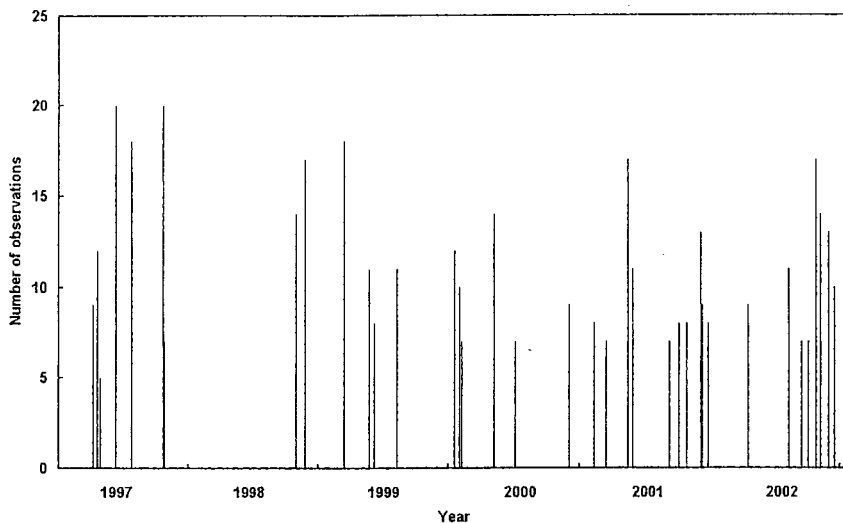
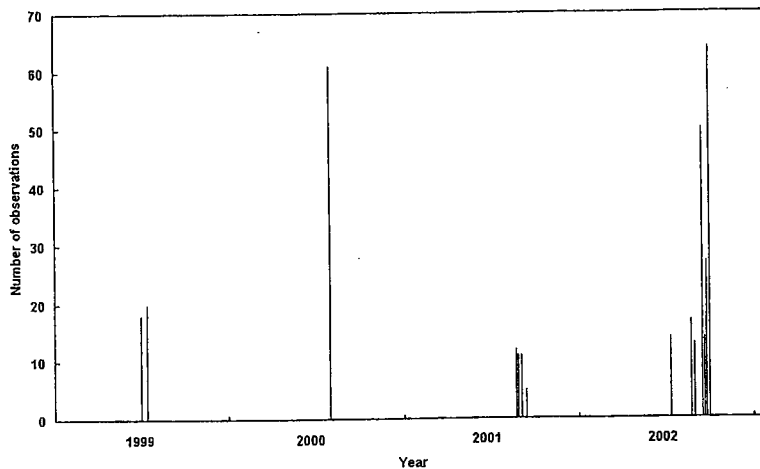
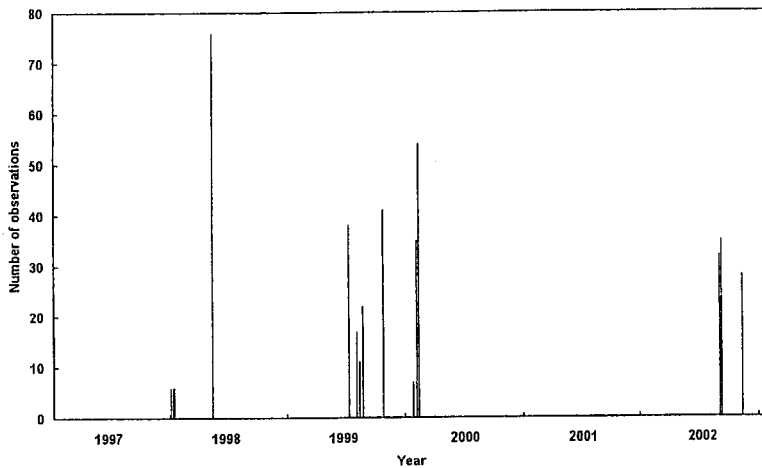


Figure 4 (above): Temporal distribution of Meyer-group comets vs. the number of observations. The heights of the bars are in most cases proportional to the observed arc and brightness of the comet. The large gap in 1999 corresponds to the longest time of non-functionality of SOHO. An almost continuous flux of Meyer-group comets can be seen. (The known new-group comets up to 2002 Dec. 31 are shown in Figures 4-6.) Figure 5 (below): Temporal distribution of Marsden-group comets and the number of observations; the comets have a tendency to come in groups, and their apparent brightness is often higher than for the Meyer-group comets. Figure 6 (bottom): Temporal distribution of Kracht-group comets and the number of observations; the distribution is comparable to the Marsden group.



(text continued from page 119)

ever recorded. The comet might have been \approx mag 11 between June 9 and 11, and brighter than mag 20 until early July. Unfortunately, none of the big surveys was observing at the right position at this time. These values don't have to be taken as firmly established — one has to take into account uncertainties in the orbital elements and brightness of the comet, if it survived perihelion at all. But the orbit also leads to pre-perihelion approaches to the earth, with minimum distances of \approx 0.35 AU in July/August with elongations of 80° or more from southern-hemisphere latitudes.

The Kracht group

The Kracht group, as a possible extended population of the Marsden group, shows a mean orbit that yields nearly similar visibility conditions, as seen from the earth, as that of the Marsden group. Post-perihelion encounters with the earth are close, with minimum distance \approx 0.1 AU and apparent solar elongations of 80° or more in mid-June. Pre-perihelion approaches are possible to as close as \approx 0.25 AU in July/August, with elongations of 80° or more for southern-hemisphere latitudes. Because of the similar values of the ecliptic latitudes and longitudes of the direction of perihelion (cf. Tables 2 and 3), the possible relationships described in the last paragraph apply here, too.

Relationships

D. A. J. Seargent was the first to note the similarity of the Marsden group's orbital elements with those of the daytime Arietid meteor stream (cf. Marsden 2002c). Though the orbital elements of the non-Kreutz SOHO comets are always calculated as parabolic elements (i.e., with the eccentricity set fixed as 1), it should be noted that the orbits of the group may, in fact, have elliptical orbits. A further possible relationship, based on the L and B values, can serve as an indication of a common origin: for the Marsden and the Kracht groups, L and B are similar to the corresponding values for comet 96P/Machholz and the Quadrantid meteor stream. Recently (Ohtsuka *et al.* 2003), it has been shown that 96P/Machholz will reach different states at various times in its orbital evolution that correspond to the current states of the Marsden and the Kracht group, respectively, as well as those of the daytime Arietids. Thus it is possible that these two new groups are close members of this "Quadrantid complex". Although it is not fully agreed that 96P is the parent body of the Quadrantids (Jenniskens *et al.* 1997), it seems clear that they are closely related. Detailed investigations about the evolution of 96P and the connection with several meteor streams (as well as further references) can be found, for example, in Green *et al.* (1990), McIntosh (1990), and Gonczi *et al.* (1992).

Conclusion

About a century after Heinrich Kreutz did establish the first known comet group, the SOHO spacecraft data have revealed the existence of other comet groups. The comets of the new groups have in common small perihelion distances, starlike morphologies, and an apparent lack of activity. It is reasonable to suspect that more groups with fewer members may exist in near-sun orbits. With the continuation of coronagraphs observing the sun, more knowledge will be obtained.² Ground-based observations of these comets could help to determine the orbital period. Further studies are needed to yield results concerning the origin, age, and dynamical evolution of the new comet groups.

Acknowledgements

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²Editor's note: With first the departure of D. Biesecker and now D. Hammer from the SOHO staff, there now is nobody to produce the astrometric measurements needed to compute orbits of these near-sun comets. It could well be months or years before somebody again takes on the valient work previously undertaken by Biesecker and Hammer, and therefore it is likely that few official designations and announcements of SOHO comets will be made in the near future.

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Tabulation of Comet Observations

Descriptive Information, to complement the Tabulated Data (all times UT):

See the July 2001 issue (page 98) for explanations of the abbreviations used in the descriptive information.

- ◇ Comet 7P/Pons-Winnecke \Rightarrow 2002 June 17.81: comet overhead; large and very diffuse [MAT08].
- ◇ Comet 19P/Borrelly \Rightarrow 2002 Feb. 17.15: also anti-tail in p.a. 148° [SOS].
- ◇ Comet 29P/Schwassmann-Wachmann \Rightarrow 2003 May 21.76: in outburst; strong central cond.; comp. star has $B-V = +0.54$ [KAD02]. June 5.77: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.49$ [NAK01]. July 25.68: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.53$ [TSU02].
- ◇ Comet 30P/Reinmuth \Rightarrow 2003 May 1.45 and 9.52: Guide 8.0 software used for comp.-star mags [TSU02]. May 1.45: comp. star has $B-V = +0.40$ [TSU02]. May 1.50: Guide 8.0 software used for comparison-star mags [OHS]. May 9.52: comp. star has $B-V = +1.07$ [TSU02]. May 23.53: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01].
- ◇ Comet 53P/Van Biesbroeck \Rightarrow 2003 Apr. 27.63: Guide 8.0 software used for comparison-star mags [OHS]. May 5.65: $B-V$ values of seven comp. stars range from +0.51 to +0.85 [NAK01]. May 9.62: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.59$ [TSU02]. May 23.62: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 1.58: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.61 and July 31.48: Guide 8.0 software used for comparison-star mags [TSU02]. June 5.61: comp. star has $B-V = +1.15$ [TSU02]. June 20.56 and 25.55: GUIDE 8.0 software used for comp.-star mags [TSU02]. June 20.56: comp. star has $B-V = +0.580$ [TSU02]. June 22.89: ephemeris from MPC ephemeris website; checked with Digitized Sky Survey; limiting stellar mag 15.5 [HAS02]. June 25.55: comp. star has $B-V = +0.52$ [TSU02]. July 7.48: $B-V$ of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. July 20.85: limiting stellar mag ≈ 15 (81 \times); no second detection due to low alt. [LEH]. July 31.48: comp. star has $B-V = +0.60$ [TSU02].
- ◇ Comet 65P/Gunn \Rightarrow 2003 May 3.66: Guide 8.0 software used for comparison-star mags; $B-V$ values of the comp. stars are +0.88 and +0.62 [OHS]. May 9.78: Guide 8.0 software used for comp.-star mags; $B-V$ values of comp. stars are +0.58 and +0.73 [NAK01]. June 5.68: GUIDE 8.0 software used for comp.-star mags; $B-V$ of comp. stars are +0.341 and +0.49 [NAK01]. June 22.12: comet only glimpsed (hard to see) [AMO01]. July 2.61: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.38$ [TSU02]. July 25.59: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.49$ [TSU02].
- ◇ Comet 66P/du Toit \Rightarrow 2003 May 5.52: $B-V$ of 7 comp. stars range from +0.51 to +0.85 [NAK01]. May 23.50: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 1.49: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 20.50: $B-V$ of comp. stars are +0.49, +0.65, and +0.86 [NAK01].
- ◇ Comet 67P/Churyumov-Gerasimenko \Rightarrow 2003 Mar. 5.81: motion checked in 1-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 15.4); faint, diffuse object; used orbital elements via MPC service for Guide software [RES]. May 5.48: $B-V$ of 7 comp. stars range from +0.51 to +0.85 [NAK01].
- ◇ Comet 74P/Smirnova-Chernykh \Rightarrow 2003 June 5.70: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.49$ [NAK01].
- ◇ Comet 81P/Wild \Rightarrow 2003 Apr. 24.83: low alt. [HOR02]. May 1.45: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.57$ [TSU02]. May 1.47: Guide 8.0 software used for comparison-star mags [OHS].

◊ *Comet 100P/Hartley* \Rightarrow 2003 May 2.51: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01]. May 23.55: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 5.52: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01].

◊ *Comet 116P/Wild* \Rightarrow 2003 Apr. 26.71: Guide 8.0 software used for comparison-star mags [YOS02]. Apr. 30.70: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01]. May 1.56: Guide 8.0 software used for comparison-star mags [OHS]. May 3.57: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.64$ [TSU02]. May 23.61: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 5.59 and July 31.46: Guide 8.0 software used for comparison-star mags [TSU02]. June 5.59: comp. star has $B-V = +0.55$ [TSU02]. June 20.53 and 26.51: GUIDE 8.0 software used for comp.-star mags [YOS02]. June 20.55 and 25.52: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.64$ [TSU02]. June 22.10: comet only glimpsed (hard to see) [AMO01]. July 31.46: comp. star has $B-V = +0.54$ [TSU02].

◊ *Comet 153P/2002 C1 (Ikeya-Zhang)* \Rightarrow 2002 Mar. 1.71: comet was also visible with the unaided eye at alt. $3^\circ-5^\circ$ [TIT]. Apr. 18.60: coma dia. $8'$ and tail (also) 6° long in p.a. 300° ; ref. stars ζ (mag 3.3) and ϵ Cep (mag 4.2) [OME]. Apr. 27.87: w/ Cousins I filter, jet 0.5 long in p.a. 70° ; moonlight [SOS]. May 1.88: evidence of the development of a secondary jet 0.5 long in p.a. 80° (not visible on the previous days); w/ Johnson V and Cousins I filters, jet $1'$ long in p.a. 50° [SOS].

◊ *Comet 155P/Shoemaker* \Rightarrow 2003 May 2.48: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01]. May 23.51: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01].

◊ *Comet C/1999 U4 (Catalina-Skiff)* \Rightarrow 2003 May 23.58: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84; another comp. star from ref. HV ($V = 8.80$, $B-V = +0.47$) yields same mag [NAK01]. June 5.55: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01].

◊ *Comet C/2000 SV₇₄ (LINEAR)* \Rightarrow 2003 Apr. 22.00: comet close to star [HOR02]. Apr. 28.05, 29.00, and May 4.85: limiting stellar mag ≈ 16.0 ; comet easily seen [HOR02]. Apr. 30.68: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 (every comp. star yields same total mag) [NAK01]. May 3.52 and 9.60: Guide 8.0 software used for comp.-star mags [TSU02]. May 3.52: comp. star has $B-V = +0.68$ [TSU02]. May 3.95: limiting stellar mag ≈ 16.2 ; comet easily seen [HOR02]. May 9.60: comp. star has $B-V = +0.96$ [TSU02]. May 20.57: $B-V$ of comp. stars are +0.37, +0.68, and +0.80; another comp. star w/ $B-V = +1.34$ yields $m_1 = 15.7$ [NAK01]. June 5.53: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 5.58 and July 25.50: Guide 8.0 software used for comparison-star mags [TSU02]. June 5.58: comp. star has $B-V = +0.58$ [TSU02]. June 20.53: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.655$ [TSU02]. July 25.50: comp. star has $B-V = +0.46$ [TSU02].

◊ *Comet C/2000 WM₁ (LINEAR)* \Rightarrow 2003 June 5.66: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01].

◊ *Comet C/2001 G1 (LONEOS)* \Rightarrow 2003 June 1.55: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01].

◊ *Comet C/2001 HT₅₀ (LINEAR-NEAT)* \Rightarrow 2003 May 1.45: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.66$ [TSU02]. May 1.47: Guide 8.0 software used for comparison-star mags [OHS].

◊ *Comet C/2001 K5 (LINEAR)* \Rightarrow 2003 May 3.67: Guide 8.0 software used for comparison-star mags; $B-V$ values of the comp. stars are +0.82, +0.86, +0.61 [OHS]. May 4.08: limiting stellar mag ≈ 16.2 ; comet easily seen [HOR02]. May 5.02: jet 1.2 long at W side of tail; dense star field [HOR02]. May 9.72: Guide 8.0 software used for comp.-star mags; $B-V$ values of comp. stars are +0.55 and +0.67 [OHS]. May 9.77: $B-V$ values of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. 1.70: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. May 11.96 and 16.92: jet 0.9 long at W side of tail; moonlight [HOR02]. May 30.99: comet close to star [HOR02]. June 9.95 and 11.94: moonlight [HOR02]. July 20.94: limiting stellar mag ≈ 16.5 ($162\times$); second detection made on July 21.00 [LEH]. July 25.64: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.98$ [TSU02].

◊ *Comet C/2001 OG₁₀₈ (LONEOS)* \Rightarrow 2002 May 6.46: "very diffuse; NGC 2916 (located $14'$ north of comet) was much easier to observe" [MAT08].

◊ *Comet C/2000 RX₁₄ (LINEAR)* \Rightarrow 2003 Apr. 26.67: Guide 8.0 software used for comparison-star mags [YOS02]. Apr. 27.54: Guide 8.0 software used for comparison-star mags [OHS]. May 1.45 and 9.51: Guide 8.0 software used for comp.-star mags [TSU02]. May 1.45: comp. star has $B-V = +0.54$ [TSU02]. May 3.82: second tail 2.8 long in p.a. 14° ; jet in p.a. 98° [HOR02]. May 4.83: second tail 1.6 long in p.a. 124° [HOR02]. May 4.92: faint object near two 13th-mag stars, but small inner coma still conspicuous at $242\times$ [KAM01]. May 6.82: second tail 1.6 long in p.a. 122° [HOR02]. May 7.83: second tail 1.5 long in p.a. 120° [HOR02]. May 9.51: comp. star has $B-V = +0.96$ [TSU02]. May 30.90: comet close to stars [HOR02]. May 11.83, 16.86, and June 4.87: moonlight [HOR02]. May 20.50: $B-V$ of comp. stars are +0.37, +0.68, and +0.80 [NAK01]. June 5.48: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.73$ [TSU02].

◊ *Comet C/2001 U6 (LINEAR)* \Rightarrow 2003 June 5.73: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01].

◇ *Comet C/2001 YX₁₂₇ (LINEAR)* ⇒ 2003 May 1.49: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 (every comp. star yields same total mag) [NAK01]. May 23.48: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01].

◇ *Comet C/2002 A3 (LINEAR)* ⇒ 2003 May 2.46: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01].

◇ *Comet C/2002 F1 (Utsunomiya)* ⇒ 2002 May 10.38: solar elongation 22°; alt. 5°; difficult obs. [MAT08]. May 24.38: alt. 12°; moonlight; very small and condensed with a hint of a tail in p.a. 130° [MAT08]. May 28.40: alt. 8° [MAT08]. June 2.40: w/ 28-cm T, tail 4' long in p.a. 120° and broad fan 5' long in p.a. 30° [MAT08].

◇ *Comet C/2002 J5 (LINEAR)* ⇒ 2003 May 9.76: $B-V$ values of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. June 1.68: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. July 7.55: $B-V$ of comp. stars are +0.32, +0.66, and +0.84 [NAK01].

◇ *Comet C/2002 K2 (LINEAR)* ⇒ 2003 Apr. 30.72: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01].

◇ *Comet C/2002 O4 (Hönig)* ⇒ 2002 Aug. 11.31: w/ 37-cm L (60×), tail 12' long in p.a. 190° [LIN04]. Aug. 13.35: w/ 37-cm L (60×), tail 10' long in p.a. 200° [LIN04].

◇ *Comet C/2002 O6 (SWAN)* ⇒ 2002 Aug. 12.61: w/ 37-cm L (60×), tail 30' long in p.a. 250° [LIN04].

◇ *Comet C/2002 O7 (LINEAR)* ⇒ 2003 Feb. 23.03: motion checked over a 1.5-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 16.0) [RES]. Apr. 21.92 and 27.87: elongated coma in p.a. 140° [HOR02]. Apr. 30.69: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01]. May 3.50 and 9.56: Guide 8.0 software used for comp.-star mags [TSU02]. May 3.50: comp. star has $B-V = +0.75$ [TSU02]. May 3.64: Guide 8.0 software used for comparison-star mags; $B-V$ values of the comp. stars are +0.64, +0.78, +0.85, +0.86 [OHS]. May 9.56: comp. star has $B-V = +0.70$ [TSU02]. May 11.91, 16.89, June 4.89, and 11.88: moonlight [HOR02]. May 16.89: comet close to star [HOR02]. May 20.55: $B-V$ of comp. stars are +0.37, +0.68, and +0.80 [NAK01]. June 1.52: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.52: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.69$ [TSU02]. June 20.49: $B-V$ of comp. stars are +0.49, +0.65, and +0.86; another TJ comp. star ($V = 10.28$, $B-V = +0.55$) yields same mag [NAK01]. June 20.50: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.64$ [TSU02]. July 7.37: "very marginal obs.; conditions quite poor due to moonlight and relatively low alt., and the comet was very indistinct; only after doubly checking the ephemeris position later could I be confident that I did really see it!" [SEA].

◇ *Comet C/2002 Q5 (LINEAR)* ⇒ 2003 May 1.47: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01]. May 1.49: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.96$ [TSU02].

◇ *Comet C/2002 R3 (LONEOS)* ⇒ 2003 June 5.55: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.49$ [NAK01].

◇ *Comet C/2002 T7 (LINEAR)* ⇒ 2003 Feb. 23.84: motion checked over a 2-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 16.3) [RES]. Feb. 24.80: motion checked over a 1.5-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 15.7) [RES]. Feb. 25.78 motion checked over a 2-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 16.0) [RES]. Mar. 2.80: motion checked over a 1.5-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 15.4) [RES]. Mar. 4.80: could not fully confirm motion due incoming thin cloud; but "confirmed" via Mar. 5.81 obs. [RES]. Mar. 5.81: motion checked over a 1.5-hr interval; no other diffuse objects found on DSS images (stellar limit \approx mag 15.8); used orbital elements via MPC service for Guide software [RES]. July 31.79: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.48$ [TSU02].

◇ *Comet C/2002 V1 (NEAT)* ⇒ 2002 Dec. 1.34: when comet was near zenith, but with sky bright due to nearby moon, w/ 37-cm $f/3$ L (256×), coma dia. 1', DC = 4, $m_1 = 12.4$ [MM = S; ref: USNO-A2.0 stars, but he performed a calibration of the USNO-A2.0 to a Tycho-2 star within the same 14' field, using $V = u + 0.17(B-u)$, where u was the red USNO-A2.0 magnitude; note that the ICQ does not recommend or encourage such transformations with catalogues as photometrically poor as the USNO astrometric catalogues, which is why this obs. was not tabulated] [LIN04]. 2003 Jan. 5.22: another tail 8' long in p.a. 280° [LIN04]. Jan. 17.76: strong moonlight [HOR02]. Mar. 16.45 and 17.45: moonlight (for tab. obs. in April 2003 ICQ) [MAT08]. Mar. 16.45: light pollution (for tab. obs. in April 2003 ICQ) [MAT08].

◇ *Comet C/2002 X1 (LINEAR)* ⇒ 2003 May 1.45: Guide 8.0 software used for comp.-star mags; $B-V$ values of comp. stars are +0.59 and +0.72 [NAK01].

◇ *Comet C/2002 Y1 (Juels-Holvorcem)* ⇒ 2003 Feb. 12.03: moonset [RES]. Feb. 13.02: moonlight [RES]. Mar. 2.79, 4.79, 5.80: light pollution [RES]. May 7.80: poor conditions due to thin high cloud and low alt. of comet; comet strongly enhanced through Swan Band filter [SEA]. May 13.36: clouds interfering [AMO01]. May 17.35: moonlight interference [SOU01]. May 21.35, 24.31, 25.29, 26.36, June 16.36, 21.29, 22.28, July 11.25: moonlight interfering [AMO01]. May 25.82: moonlight [MAT08]. May 26.80, 29.82, and 30.83: obs. from Erldunda, N.T., Australia; GUIDE 8.0 software used for comp.-star mags [TSU02]. May 29.82: coma well enhanced w/ Swan-band filter [MAT08]. May 31.78: a quick look w/ 25.4-cm L (71×) showed two tails (a faint dust tail and a very faint ion tail) in addition to a near-stellar cond. [SEA].

◊ *Comet P/2003 CP₇ (LINEAR-NEAT)* ⇒ 2003 May 2.49: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01]. May 9.54: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.94$ [TSU02]. May 23.54: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 5.50: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01].

◊ *Comet C/2003 E1 (NEAT)* ⇒ 2003 May 1.57: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.69$ [TSU02]. May 2.59: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01]. May 23.57: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84; another comp. star from ref. HV ($V = 10.67$, $B-V = +0.75$) yields same mag [NAK01]. June 1.53: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01].

◊ *Comet C/2003 F1 (LINEAR)* ⇒ 2003 Apr. 30.73: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01]. May 3.66: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.61$ [OHS]. May 5.63: $B-V$ values of seven comp. stars range from +0.51 to +0.85 (every comp. star yields same total mag) [NAK01]. May 11.88: moonlight [HOR02]. May 20.61: $B-V$ of comp. stars are +0.37, +0.68, and +0.80 [NAK01]. May 25.94: comet close to star [HOR02]. June 1.61: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 25.57: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.65$ [TSU02]. July 7.52: $B-V$ of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. July 25.56 and 31.54: Guide 8.0 software used for comparison-star mags [TSU02]. July 25.56: comp. star has $B-V = +0.78$ [TSU02]. July 31.54: comp. star has $B-V = +0.49$ [TSU02].

◊ *Comet C/2003 G1 (LINEAR)* ⇒ 2003 Apr. 30.75: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01]. May 1.60: Guide 8.0 software used for comparison-star mags [OHS]. May 5.68: $B-V$ values of seven comp. stars range from +0.51 to +0.85 [NAK01]. May 9.73: $B-V$ values of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. May 23.65: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 1.64: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.63: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 25.63: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.56$ [TSU02]. July 7.55: $B-V$ of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. July 25.57 and 31.52: Guide 8.0 software used for comparison-star mags [TSU02]. July 25.57: comp. star has $B-V = +0.90$ [TSU02]. July 31.52: comp. star has $B-V = +0.44$ [TSU02].

◊ *Comet C/2003 G2 (LINEAR)* ⇒ 2003 May 2.53: $B-V$ values of comp. stars are +0.48, +0.55, and +0.80 [NAK01].

◊ *Comet C/2003 H1 (LINEAR)* ⇒ 2003 Apr. 27.60: Guide 8.0 software used for comparison-star mags [OHS]. Apr. 27.71: colors of comp. star are $B-V = +0.38$, $V-I = +0.56$ [EZA]. Apr. 27.97, May 4.05, 4.96, and 6.92: dense star field [HOR02]. Apr. 30.76: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01]. May 3.66: Guide 8.0 software used for comparison-star mags; $B-V$ values of the comp. stars are +0.69 and +0.52 [OHS]. May 9.74: $B-V$ values of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. May 11.93 and 16.96: elongated coma in p.a. 130°; moonlight [HOR02]. May 20.62: $B-V$ of comp. stars are +0.37, +0.68, and +0.80 [NAK01]. June 1.63: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.62: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 10.02 and 11.91: moonlight [HOR02]. June 22.90: ephemeris from MPC ephemeris website; limiting stellar mag 15.5 [HAS02]. June 25.50: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.55$ [TSU02]. July 7.49: $B-V$ of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. July 20.90: limiting stellar mag ≈ 16 (162×); second detection made on July 20.98 [LEH]. July 25.51 and 31.50: Guide 8.0 software used for comparison-star mags [TSU02]. July 25.51: comp. star has $B-V = +0.24$ [TSU02]. July 31.50: comp. star has $B-V = +0.59$ [TSU02]. July 31.50: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.59$ [NAK01].

◊ *Comet C/2003 H2 (LINEAR)* ⇒ 2003 Apr. 30.77: $B-V$ values of comp. stars are +0.51, +0.63, and +0.85 [NAK01]. May 5.70: $B-V$ values of seven comp. stars range from +0.51 to +0.85 [NAK01]. May 9.75: $B-V$ values of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. May 23.64: $B-V$ of comp. stars are +0.48, +0.55, +0.66, +0.80, and +0.84 [NAK01]. June 1.66: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.64: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 25.60: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.56$ [TSU02]. July 7.54: $B-V$ of comp. stars are +0.32, +0.66, +0.84 [NAK01].

◊ *Comet C/2003 H3 (NEAT)* ⇒ 2003 May 3.66: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.87$ [OHS]. June 1.71: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.71: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. July 2.65: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.61$ [TSU02].

◊ *Comet P/2003 H4 (LINEAR)* ⇒ 2003 May 5.66: $B-V$ values of seven comp. stars range from +0.51 to +0.85 [NAK01]. May 9.65: Guide 8.0 software used for comp.-star mags; comp. star has $B-V = +0.74$ [TSU02]. May 9.71: $B-V$ values of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. May 20.60: $B-V$ of comp. stars are +0.37, +0.68, and +0.80 [NAK01]. June 1.59: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 25.58: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.74$ [TSU02]. June 26.55 and July 7.50: $B-V$ of comp. stars are +0.32, +0.66, and +0.84 [NAK01]. July 31.51: $B-V$ values of the two comp. stars are +0.72 and +0.76 [NAK01].

◊ *Comet C/2003 J1 (NEAT)* ⇒ 2003 June 5.75: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.49$ [NAK01].

◊ *Comet C/2003 K1 (Spacewatch)* ⇒ 2003 June 1.57: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.57: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 20.55: $B-V$

of comp. stars are +0.49, +0.65, and +0.86 [NAK01].

◊ Comet P/2003 K2 (Christensen) \Rightarrow 2003 June 1.48: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 20.48: $B-V$ of comp. stars are +0.49, +0.65, and +0.86 [NAK01].

◊ Comet C/2003 K4 (LINEAR) \Rightarrow 2003 June 1.73: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.77: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 9.97 and 11.99: moonlight [HOR02]. June 22.91: ephemeris from MPC ephemeris website; limiting stellar mag 15.5 [HAS02]. July 2.64: GUIDE 8.0 software used for comp.-star mags; comp. star has $B-V = +0.40$ [TSU02]. July 25.65: Guide 8.0 software used for comparison-star mags; comp. star has $B-V = +0.51$ [TSU02].

◊ Comet P/2003 KV₂ (LINEAR) \Rightarrow 2003 June 1.51: $B-V$ of comp. stars are +0.32, +0.66, +0.84, +0.85, and +0.90 [NAK01]. June 5.49: $B-V$ of comp. stars are +0.32, +0.37, +0.66, +0.84, and +0.85 [NAK01]. June 20.52: $B-V$ of comp. stars are +0.49, +0.65, and +0.86 [NAK01]. July 2.42: no enhancement w/ Swan-band filter [MAT08].

◊ Comet P/2003 L1 (Scotti) \Rightarrow 2003 June 20.53: $B-V$ of comp. stars are +0.49, +0.65, and +0.86 [NAK01].

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Key to observers with observations published in this issue, with 2-digit numbers between Observer Code and Observer's Name indicating source [07 = Comet Section, British Astronomical Association; 11 = Dutch Comet Section (Werkgroep Kometen); 16 = Japanese observers (via Akimasa Nakamura, Kuma, Japan); 35 = South American observers (c/o Jose G. de Souza Aguiar, Brazil); 42 = Belarus observers (c/o V. S. Nevski and S. E. Shurpakov, Vitebsk); 48 = Ukrainian observers (c/o Denis A. Sveczkarev); etc.]:

| | | | |
|-----------|----------------------------------|-----------|----------------------------------|
| ABB 07 | James Abbott, Essex, England | LEH | Martin Lehky, Czech Republic |
| AM001 35 | Alexandre Amorim, Brazil | LIN04 | Mike Linnolt, Makawao, HI, USA |
| BAL04 32 | J. Balogh, Hosszuheteny, Hungary | MAK02 18 | Pawel Maksym, Lodz, Poland |
| *BAL08 32 | Zoltán Balogh, Hungary | MAN02 23 | Roman Maňák, Lipov, Czech Rep. |
| BAR06 37 | A. Baransky, Okhnovka, Ukraine | MAR02 13 | Jose Carvajal Martinez, Spain |
| BOH02 18 | Jerzy Bohusz, Gdynia, Poland | MAT08 | Michael Mattiazzo, S. Australia |
| BUR04 18 | Wojciech Burzynski, Poland | MER05 07 | Cliff Meredith, Manchester, U.K. |
| CHR 18 | Antoni Chrapek, Pikulice, Poland | NAK01 16 | Akimasa Nakamura, Ehime, Japan |
| CSU01 32 | István Csuti, Maglód, Hungary | NEV 42 | V. S. Nevski, Vitebsk, Belarus |
| DES01 | Jose G. de Souza Aguiar, Brazil | OHS 16 | Yuuji Ohshima, Nagano, Japan |
| DOM 32 | Gábor Dömény, Szekszárd, Hungary | OME | Stephen O'Meara, HI, U.S.A. |
| DUS 18 | Grzegorz Duzanowicz, Sweden | OSV 32 | László Osvald, Veszprém, Hungary |
| *ERD 32 | József Erdei, Hungary | *PON01 37 | Yu. Ponomarenko, Ukraine |
| EZA 16 | Yuusuke Ezaki, Osaka, Japan | POW01 18 | Jacek Powichrowski, Poland |
| FIL04 18 | Marcin Filipek, Poland | RAE | Stuart T. Rae, New Zealand |
| GON05 | J. J. Gonzalez, Asturias, Spain | RES 18 | M. Reszelski, Szamotuly, Poland |
| GRA09 18 | K. Graczevski, Izabelin, Poland | SAN04 38 | Juan M. San Juan, Madrid, Spain |
| GUZ 18 | Piotr Guzik, Krosno, Poland | SAN07 32 | G. Santa, Kisujszállás, Hungary |
| HAD01 32 | C. Hadházi, Hajdúhadház, Hungary | SCH04 11 | Alex H. Scholten, Netherlands |
| *HAM02 | Derek Hammer, U.S.A. [SOHO data] | SEA 14 | David A. J. Seargent, Australia |
| HAS02 | Werner Hasubick, Germany | SHA02 07 | Jonathan D. Shanklin, England |
| *HOL05 32 | Tibor Hollósy, Budapest, Hungary | SHU 42 | Sergey E. Shurpakov, Belarus |
| HOR02 23 | Kamil Hornoch, Czech Republic | SIP 32 | Brigitta Sipócz, Hungary |
| JOH01 | C. Johannink, The Netherlands | SOS | Giovanni Sostero, Italy |
| KAD02 16 | Ken-ichi Kadota, Saitama, Japan | SOU01 35 | Willian C. de Souza, Brazil |
| KAM01 | A. Kammerer, Ettlingen, Germany | SWI 18 | Mariusz Swietnicki, Poland |
| KES01 | Sándor Keszthelyi, Pécs, Hungary | TIT 48 | R. E. Titarenko, Ukraine |
| KOS | A. Kósa-Kiss, Salonta, Romania | TOT03 32 | Zoltán Tóth, Hungary |
| KUB 23 | Pavel Kubicek, Czech Republic | TSU02 16 | Mitsunori Tsumura, Japan |
| *KUL02 32 | Zoltán Kuli, Budapest, Hungary | TUR01 18 | Pawel Turek, Krakow, Poland |
| KWI 18 | Maciej Kwinta, Krakow, Poland | YOS02 16 | Katsumi Yoshimoto, Japan |
| LAB02 | C. Labordena, Castellon, Spain | | |

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TABULATED VISUAL DATA (also format for old-style CCD data)

NOTE: As begun in the October 2001 issue, the CCD and visual tabulated data are separated. The tabulated CCD data are also now generally further separated into two "CCD" sections: the first in the old format for those observations

submitted only in the old format, and the second in the new format (whose columns are described on page 208 of the July 2002 *ICQ*).

The headings for the tabulated data are as follows: "DATE (UT)" = Date and time to hundredths of a day in Universal Time; "N" = notes [* = correction to observation published in earlier issue of the *ICQ*; an exclamation mark (!) in this same location indicates that the observer has corrected his estimate in some manner for atmospheric extinction (prior to September 1992, this was the standard symbol for noting extinction correction, but following publication of the extinction paper — July 1992 *ICQ* — this symbol is only to be used to denote corrections made using procedures different from that outlined by Green 1992, *ICQ* 14, 55-59, and in Appendix E of the *ICQ Guide to Observing Comets* — and then only for situations where the observed comet is at altitude > 10°); 'z' = comet observed at altitude 20° or less with no atmospheric extinction correction applied; '\$' = comet observed at altitude 10° or lower, observations corrected by the observer using procedure of Green (*ibid.*); for a correction applied by the observer using Tables Ia, Ib, or Ic of Green (*ibid.*), the letters 'a', 'w', or 's', respectively, should be used; x indicates that a secondary source (often amateur computer software) was used to get supposedly correct comparison-star magnitudes from an accepted catalogue].

"MM" = the method employed for estimating the total (visual) magnitude; see article on page 186 of the Oct. 1996 issue [B = VBM method, M = Morris method, S = VSS or In-Out method, I = in-focus, C = unfiltered CCD, c = same as 'C', but for 'nuclear' magnitudes, V = electronic observations — usually CCD — with Johnson V filter, *etc.*]. "MAG." = total (visual) magnitude estimate; a colon indicates that the observation is only approximate, due to bad weather conditions, *etc.*; a left bracket ([]) indicates that the comet was not seen, with an estimated limiting magnitude given (if the comet IS seen, and it is simply estimated to be fainter than a certain magnitude, a "greater-than" sign (>) must be used, not a bracket). "RF" = reference for total magnitude estimates (see pages 98-100 of the October 1992 issue, and Appendix C of the *ICQ Guide to Observing Comets*, for all of the 1- and 2-letter codes; an updated list is also maintained at the *ICQ* World Wide Website). "AP." = aperture in centimeters of the instrument used for the observations, usually given to tenths. "T" = type of instrument used for the observation (R = refractor, L = Newtonian reflector, B = binoculars, C = Cassegrain reflector, A = camera, T = Schmidt-Cassegrain reflector, S = Schmidt-Newtonian reflector, E = naked eye, *etc.*). "F/" and "PWR" are the focal ratio and power or magnification, respectively, of the instrument used for the observation — given to nearest whole integer (round even); note that for CCD observations, in place of magnification is given the exposure time in seconds [see page 11 of the January 1997 issue; a lower-case "a" indicates an exposure time under 1000 seconds, an upper-case "A" indicates an exposure time of 1000-1999 seconds (with the thousands digit replaced by the "A"), an upper-case "B" indicates an exposure time of 2000-2999 seconds (with the thousands digit replaced by the "B"), *etc.*].

"COMA" = estimated coma diameter in minutes of arc; an ampersand (&) indicates an approximate estimate; an exclamation mark (!) precedes a coma diameter when the comet was not seen (*i.e.*, was too faint) and where a limiting magnitude estimate is provided based on an "assumed" coma diameter (a default size of 1' or 30" is recommended; cf. *ICQ* 9, 100); a plus mark (+) precedes a coma diameter when a diaphragm was used electronically, thereby specifying the diaphragm size (*i.e.*, the coma is almost always larger than such a specified diaphragm size). "DC" = degree of condensation on a scale where 9 = stellar and 0 = diffuse (preceded by lower- and upper-case letters S and D to indicate the presence of stellar and disklike central condensations; cf. July 1995 issue, p. 90); a slash (/) indicates a value midway between the given number and the next-higher integer. "TAIL" = estimated tail length in degrees, to 0.01 degree if appropriate; again, an ampersand indicates a rough estimate. Lower-case letters between the tail length and the p.a. indicate that the tail was measured in arcmin ("m") or arcsec ("s"), *in which cases the decimal point is shifted one column to the right*. "PA" = estimated measured position angle of the tail to nearest whole integer in degrees (north = 0°, east = 90°). "OBS" = the observer who made the observation (given as a 3-letter, 2-digit code).

A complete list of the Keys to abbreviations used in the *ICQ* is available from the Editor for \$4.00 postpaid (available free of charge via e-mail); these Keys (with the exception of the Observer Codes) are also available in the *Guide to Observing Comets* and via the *ICQ's* World Wide Web site. *Please note that data in archival form, and thus the data to be sent in machine-readable form, use a format that is different from that of the Tabulated data in the printed pages of the ICQ*; see pages 59-61 of the July 1992 issue, p. 10 of the January 1995 issue, and p. 100 of the April 1996 issue for further information [note correction on page 140 of the October 1993 issue]. Further guidelines concerning reporting of data may be found on pages 59-60 of the April 1993 issue, and in the *ICQ Guide to Observing Comets*.

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NOTE: The new-style CCD tabulated data begin on page 141.

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Visual Data

Comet 7P/Pons-Winnecke

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|-----|---|----|-----|------|----|------|----|-------|
| 2002 06 17.85 | | S | 12.0: | TT | 20 | L | 7 | 67 | 3.0 | 2 | | | MAT08 |

Comet 19P/Borrelly

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 02 10.84 | | S | 12.7 | HS | 27.0 | L | 6 | 167 | 1.5 | 2 | | | TOTO3 |
| 2002 03 15.91 | | S | 13.5 | HS | 27.0 | L | 6 | 167 | 0.6 | 2/ | | | TOTO3 |

Comet 29P/Schwassmann-Wachmann

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2002 06 14.68 | | S | 12.2 | TT | 28 | T | 6 | 133 | 1.0 | 6 | | | MAT08 |
| 2002 06 19.00 | | M | 12.0 | HS | 20.3 | L | 6 | 63 | 1 | 4 | | | GUZ |
| 2002 06 21.00 | | M | 12.2 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2002 07 30.88 | | S | [12.5 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2002 07 31.89 | | S | [12.8 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2002 08 04.91 | | M | 12.3 | HS | 20.3 | L | 6 | 63 | 0.6 | 7 | | | GUZ |
| 2002 08 06.93 | | S | 11.8 | HS | 20.3 | L | 6 | 63 | 1 | 5 | | | GUZ |
| 2002 08 10.96 | | S | 12.4 | HS | 20.3 | L | 6 | 63 | 1.2 | 4 | | | GUZ |
| 2002 08 31.87 | | S | [12.5 | HS | 20.3 | L | 6 | 63 | ! 0.5 | | | | GUZ |
| 2002 09 05.87 | | S | [13.2 | HS | 20.3 | L | 6 | 108 | ! 0.5 | | | | GUZ |
| 2003 05 31.02 | | S | [12.2 | HS | 20.3 | L | 6 | 63 | ! 0.5 | | | | GUZ |
| 2003 06 04.02 | | S | [12.7 | HS | 20.3 | L | 6 | 63 | ! 0.5 | | | | GUZ |
| 2003 06 08.02 | | S | [13.0 | HS | 20.3 | L | 6 | 108 | ! 0.5 | | | | GUZ |
| 2003 07 22.95 | | S | 13.6 | HS | 36 | L | 6 | 90 | 0.4 | 3 | | | BAR06 |
| 2003 07 23.02 | | S | 13.1 | HS | 20.3 | T | 10 | 133 | 1 | 2 | | | GON05 |
| 2003 07 27.01 | | S | 14.7 | NP | 45 | L | 5 | 167 | 1.5 | 1/ | | | MAR02 |
| 2003 07 29.04 | | S | 13.3 | HS | 20.3 | T | 10 | 133 | 1 | 2 | | | GON05 |
| 2003 07 31.00 | | B | 12.4 | TI | 23.5 | T | 10 | 94 | 3 | 2 | | | LAB02 |
| 2003 07 31.49 | | S | 14.1 | HS | 37 | L | 3 | 256 | 0.8 | 4 | | | LINO4 |

Comet 30P/Reinmuth

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 12 14.10 | | S | [13.0 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2003 02 22.88 | | S | 12.8 | AC | 41 | L | 5 | 121 | 1.5 | 3 | | | RES |
| 2003 02 23.82 | | S | 13.1 | HS | 20.3 | L | 6 | 108 | 1 | 2 | | | GUZ |
| 2003 02 23.88 | | S | 12.9 | AC | 41 | L | 5 | 121 | 1.3 | 2/ | | | RES |
| 2003 02 24.83 | | S | 12.8 | AC | 41 | L | 5 | 121 | 1.2 | 3/ | | | RES |
| 2003 03 01.82 | | S | 12.7 | AC | 41 | L | 5 | 121 | 1.2 | 3 | | | RES |
| 2003 03 02.83 | | S | 12.7 | AC | 41 | L | 5 | 121 | 1.3 | 3 | | | RES |
| 2003 03 04.84 | | S | 12.8 | AC | 41 | L | 5 | 121 | 1.3 | 3 | | | RES |
| 2003 03 05.85 | | S | 13.0 | AC | 41 | L | 5 | 121 | 1.2 | 2/ | | | RES |
| 2003 03 20.81 | | S | 13.2 | HS | 20.3 | L | 6 | 63 | 0.8 | 2 | | | GUZ |
| 2003 03 21.89 | | S | 13.3 | HS | 20.3 | L | 6 | 63 | 0.8 | 2 | | | GUZ |
| 2003 03 22.91 | | S | 13.3 | HS | 20.3 | L | 6 | 108 | 0.8 | 2 | | | GUZ |
| 2003 03 31.83 | | S | 13.2 | HS | 27.0 | L | 6 | 120 | 0.8 | 3 | | | TOTO3 |
| 2003 04 04.60 | | S | 13.6 | HS | 28 | T | 10 | 133 | 1 | 3 | | | MAT08 |

Comet 46P/Wirtanen

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|-----|---|----|-----|------|----|------|----|-------|
| 2002 08 12.62 | | M | 10.0 | TK | 37 | L | | 60 | 2.5 | 2 | | | LINO4 |

Comet 53P/Van Biesbroeck

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 05 25.57 | | S | 14.3: | HS | 28 | T | 10 | 310 | 0.5 | 5 | | | MAT08 |
| 2003 05 30.92 | | S | [13.2 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2003 06 03.48 | | S | 14.2 | HS | 28 | T | 10 | 310 | 0.5 | 5 | | | MAT08 |
| 2003 06 03.92 | | S | 13.8: | HS | 20.3 | L | 6 | 63 | 0.5 | 4 | | | GUZ |
| 2003 06 07.99 | | S | 13.8: | HS | 20.3 | L | 6 | 108 | 0.5 | 4 | | | GUZ |
| 2003 06 21.98 | | S | 13.4 | NP | 45 | L | 5 | 100 | 1 | 4 | | | SAN04 |
| 2003 06 21.98 | | S | 13.5 | NP | 45 | L | 5 | 100 | 1.5 | 3 | | | MAR02 |
| 2003 06 22.89 | | S | 13.7 | HS | 44.0 | L | 5 | 156 | 0.3 | 4 | | | HAS02 |
| 2003 07 20.85 | | B | 13.9 | HS | 42 | L | 5 | 81 | 0.8 | 4/ | | | LEH |
| 2003 07 26.92 | | S | 13.8 | NP | 45 | L | 5 | 100 | 0.75 | 2/ | | | MAR02 |
| 2003 07 26.93 | | S | 13.5 | NP | 45 | L | 5 | 100 | 1 | 3 | | | SAN04 |

Comet 57P/du Toit-Neujmin-Delporte

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|-----|---|----|-----|------|----|------|----|------|
| 2002 07 10.95 | | S | 14.1 | HS | 38 | L | 4 | 126 | 2 | 3 | | | SIP |

Comet 65P/Gunn

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2002 03 14.95 | | S | [13.6 | HS | 27.0 | L | 6 | 214 | ! 0.5 | | | | TOT03 |
| 2002 05 01.85 | | S | 13.7 | HS | 27.0 | L | 6 | 167 | 0.2 | 2 | | | TOT03 |
| 2003 05 25.58 | | S | 12.3 | TK | 28 | T | 10 | 133 | 1 | 5 | | | MAT08 |
| 2003 05 31.01 | | S | 12.5: | HS | 20.3 | L | 6 | 63 | 1 | 4 | | | GUZ |
| 2003 05 31.52 | | S | 12.8 | GA | 25.4 | L | 4 | 114 | | | | | SEA |
| 2003 06 03.61 | | S | 12.5 | TK | 28 | T | 10 | 133 | 1 | 5 | | | MAT08 |
| 2003 06 04.00 | | S | 12.3 | HS | 20.3 | L | 6 | 63 | 1 | 4 | | | GUZ |
| 2003 06 20.01 | | S | 12.5 | HS | 20.3 | T | 10 | 206 | 0.3 | 5 | | | GON05 |
| 2003 06 22.01 | | S | 12.0 | NP | 45 | L | 5 | 100 | 1 | 2 | | | MAR02 |
| 2003 06 22.01 | | S | 12.5 | NP | 45 | L | 5 | 100 | 1 | 3 | | | SAN04 |
| 2003 06 22.12 | | S | 12.5: | HS | 14.3 | L | 6 | 225 | | | | | AM001 |
| 2003 07 04.25 | | S | 11.9 | HS | 20 | L | 4 | 80 | 0.8 | 3 | | | RAE |
| 2003 07 05.98 | | S | 11.5 | TJ | 27.0 | L | 5 | 55 | 1.0 | 0/ | | | SOU01 |
| 2003 07 05.98 | | S | 11.6 | TJ | 27 | L | 5 | 55 | 2 | 1/ | | | DES01 |
| 2003 07 08.03 | | S | 11.8 | HS | 20.3 | T | 10 | 206 | 0.5 | 5 | | | GON05 |
| 2003 07 20.44 | | S | 12.6 | AC | 37 | L | 3 | 415 | 1.1 | 3 | | | LIN04 |
| 2003 07 22.96 | | S | 11.8 | TJ | 20.3 | T | 10 | 206 | 0.5 | 4 | | | GON05 |
| 2003 07 25.88 | | B | 11.9 | TI | 23.5 | T | 10 | 188 | 3 | 2 | | | LAB02 |
| 2003 07 26.93 | | S | 11.9 | NP | 45 | L | 5 | 100 | 1.5 | 3 | | | MAR02 |
| 2003 07 26.94 | | S | 12.3 | NP | 45 | L | 5 | 100 | 2.5 | 3 | | | SAN04 |
| 2003 07 30.92 | | B | 11.9 | TI | 23.5 | T | 10 | 94 | 3 | 2 | | | LAB02 |
| 2003 07 31.41 | | S | 13.2 | AC | 37 | L | 3 | 415 | 0.5 | 6 | | | LIN04 |

Comet 67P/Churyumov-Gerasimenko

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 03 05.86 | | S | 14.2 | AC | 41 | L | 5 | 121 | 0.5 | 3 | | | RES |
| 2003 03 22.82 | | S | 13.3 | HS | 27.0 | L | 6 | 167 | 0.8 | 5 | | | TOT03 |
| 2003 03 24.82 | | S | 13.6 | HS | 27.0 | L | 6 | 241 | 0.3 | 4 | | | TOT03 |

Comet 81P/Wild

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2003 01 03.82 | | S | [13.6 | HS | 27.0 | L | 6 | 241 | ! 0.8 | | | | TOT03 |
| 2003 01 28.76 | | S | [13.2 | HS | 27.0 | L | 6 | 241 | ! 1.0 | | | | TOT03 |
| 2003 02 22.84 | | S | 13.7 | AC | 41 | L | 5 | 121 | 0.5 | 3 | | | RES |
| 2003 02 23.85 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.5 | 3 | | | RES |
| 2003 02 24.79 | | S | 13.4 | AC | 41 | L | 5 | 121 | 0.6 | 3/ | | | RES |
| 2003 02 25.77 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.5 | 3/ | | | RES |
| 2003 03 01.78 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.5 | 3/ | | | RES |
| 2003 03 02.79 | | S | 13.4 | AC | 41 | L | 5 | 121 | 0.6 | 3/ | | | RES |
| 2003 03 04.81 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.5 | 3/ | | | RES |
| 2003 03 05.82 | | S | 13.4 | AC | 41 | L | 5 | 121 | 0.6 | 3 | | | RES |

Comet 116P/Wild

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 11 07.16 | | S | [12.5 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2003 03 02.13 | | S | 11.7 | AC | 41 | L | 5 | 121 | 1.5 | 2 | | | RES |
| 2003 04 04.59 | | S | 12.2 | TK | 28 | T | 10 | 133 | 1 | 4 | | | MAT08 |
| 2003 04 13.31 | | S | 13.0 | HS | 25.4 | T | | 158 | 0.25 | 7 | | | AM001 |
| 2003 04 26.15 | | S | 12.0 | TK | 25.4 | T | | 158 | 0.25 | 3 | | | AM001 |
| 2003 04 26.71 | x | S | 12.1 | TK | 25.4 | L | 4 | 116 | 1.2 | 5 | | | YOS02 |
| 2003 04 27.04 | | B | 12.3 | TI | 23.5 | T | 10 | 94 | 2 | 3 | | | LAB02 |
| 2003 04 28.58 | | S | 11.8 | GA | 25.4 | L | 4 | 71 | 1 | 6 | | | SEA |
| 2003 05 01.97 | | S | 11.8 | TK | 30 | L | 5 | 100 | 0.8 | 3 | | | NEV |
| 2003 05 02.96 | | B | 12.1 | TI | 23.5 | T | 10 | 67 | 2 | 2 | | | LAB02 |
| 2003 05 03.03 | | S | 12.1 | TJ | 20.3 | T | 10 | 77 | 1 | 1 | | | GON05 |
| 2003 05 03.17 | | S | 12.0 | TK | 25.4 | T | | 63 | 1 | 6 | | | AM001 |
| 2003 05 04.03 | | B | 11.3 | TI | 23.5 | T | 10 | 67 | 3 | 3 | | | LAB02 |

Comet 116P/Wild [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|----|------|-------|------|------|----|----|-----|------|----|------|----|-------|
| 2003 05 04.08 | | S | 11.8 | TK | 25.4 | T | | 63 | 1 | 3 | | | AM001 |
| 2003 05 04.92 | x& | S | 11.7 | TJ | 50 | L | 5 | 141 | 1.6 | 1/ | | | BOH02 |
| 2003 05 04.99 | x | S | 12.6 | HS | 50 | L | 5 | 215 | 1.5 | 2/ | | | TUR01 |
| 2003 05 05.94 | x | S | 12.7 | HS | 20 | L | 5 | 110 | 2 | 2 | | | POW01 |
| 2003 05 05.97 | | S | 12.1 | TK | 30 | L | 5 | 100 | 0.6 | 2 | | | NEV |
| 2003 05 05.99 | | S | 12.1 | HS | 36 | L | 6 | 70 | 1.1 | 3 | | | BAR06 |
| 2003 05 06.95 | | S | 12.0 | TK | 30 | L | 5 | 100 | 0.7 | 3 | | | NEV |
| 2003 05 06.99 | | S | 12.1 | HS | 36 | L | 6 | 70 | 1.1 | 3 | | | BAR06 |
| 2003 05 20.99 | | S | 12.1 | HS | 36 | L | 6 | 70 | 1.1 | 2 | | | BAR06 |
| 2003 05 21.99 | | S | 12.2 | HS | 36 | L | 6 | 70 | 1.0 | 2 | | | BAR06 |
| 2003 05 22.93 | B | 11.8 | TI | 23.5 | T | 10 | | 94 | 2 | 3 | | | LAB02 |
| 2003 05 22.96 | M | 10.9 | TT | 10 | B | 4 | | 25 | 2 | 4 | | | LEH |
| 2003 05 22.99 | | S | 12.2 | TJ | 20.3 | T | 10 | 100 | 1.5 | 2 | | | GON05 |
| 2003 05 23.90 | | S | 11.4 | TJ | 20.3 | L | 6 | 63 | 1.6 | 5 | | | GUZ |
| 2003 05 25.56 | | S | 12.4 | TK | 28 | T | 10 | 133 | 1 | 5 | | | MAT08 |
| 2003 05 25.89 | B | 11.7 | TI | 23.5 | T | 10 | | 94 | 3 | 3 | | | LAB02 |
| 2003 05 25.89 | | S | 12.4 | HS | 36 | L | 6 | 70 | 1.5 | 2 | | | BAR06 |
| 2003 05 28.03 | | S | 12.3 | HS | 14.3 | L | 6 | 80 | 1 | 2 | | | AM001 |
| 2003 05 29.05 | | S | 12.2 | HS | 14.3 | L | 6 | 80 | 1 | 2 | | | AM001 |
| 2003 05 30.10 | | S | 12.2 | HS | 14.3 | L | 6 | 80 | 1 | 1 | | | AM001 |
| 2003 05 30.46 | M | 12.1 | GA | 25.4 | L | 4 | | 71 | 2 | 5 | | | SEA |
| 2003 05 30.47 | | S | 11.9 | GA | 10.0 | B | | 25 | | | | | SEA |
| 2003 05 30.88 | | S | 11.9 | HS | 20.3 | L | 6 | 63 | 1.5 | 5 | | | GUZ |
| 2003 05 30.93 | | S | 11.8 | HS | 36 | L | 6 | 70 | 2 | 2 | | | BAR06 |
| 2003 05 31.00 | B | 11.8 | TI | 23.5 | T | 10 | | 67 | 3 | 2 | | | LAB02 |
| 2003 05 31.02 | | S | 12.3 | HS | 14.3 | L | 6 | 80 | 1 | 1 | | | AM001 |
| 2003 05 31.93 | | S | 12.0 | HS | 36 | L | 6 | 70 | 2 | 3 | | | BAR06 |
| 2003 06 01.09 | | S | 12.4 | HS | 14.3 | L | 6 | 80 | 0.5 | 1 | | | AM001 |
| 2003 06 01.92 | M | 11.0 | TT | 42 | L | 5 | | 81 | 2 | 4 | | | LEH |
| 2003 06 03.47 | | S | 11.9 | TK | 28 | T | 10 | 133 | 1.5 | 6 | | | MAT08 |
| 2003 06 03.47 | | S | 12.5 | HS | 28 | T | 10 | 133 | 1.5 | 6 | | | MAT08 |
| 2003 06 03.91 | | S | 12.0 | HS | 20.3 | L | 6 | 63 | 1.5 | 5 | | | GUZ |
| 2003 06 03.92 | M | 10.9 | TT | 42 | L | 5 | | 81 | 2.1 | 4 | | | LEH |
| 2003 06 18.98 | | S | 12.3 | HS | 20.3 | T | 10 | 100 | 1.5 | 4 | | | GON05 |
| 2003 06 19.99 | | S | 12.3 | HS | 20.3 | T | 10 | 133 | 1.5 | 4 | | | GON05 |
| 2003 06 20.53 | x | S | 11.9 | TK | 25.4 | L | 4 | 116 | 1.5 | 4 | | | YOS02 |
| 2003 06 21.95 | | S | 12.6 | NP | 45 | L | 5 | 100 | 1.5 | 3 | | | SAN04 |
| 2003 06 21.96 | | S | 12.7 | NP | 45 | L | 5 | 100 | 2 | 2/ | | | MAR02 |
| 2003 06 22.10 | | S | 12.5: | HS | 14.3 | L | 6 | 225 | | | | | AM001 |
| 2003 06 26.51 | x | S | 12.3 | GA | 25.4 | L | 4 | 116 | 1.5 | 2/ | | | YOS02 |
| 2003 06 28.90 | B | 12.4 | TI | 23.5 | T | 10 | | 94 | 2 | 2 | | | LAB02 |
| 2003 07 25.87 | B | 12.8 | TI | 23.5 | T | 10 | | 188 | 2 | 1 | | | LAB02 |
| 2003 07 26.92 | S | 13.2 | NP | 45 | L | 5 | | 100 | 1 | 2 | | | MAR02 |

Comet 153P/Ikeya-Zhang

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|-----|----|------|----|------|---|----|-----|------|----|------|-----|-------|
| 2002 02 15.74 | | M | 7.0 | TI | 5.0 | B | | 10 | 5 | S8 | | | SAN07 |
| 2002 03 01.71 | \$w | S | 5.5 | S | 11 | L | 7 | 32 | 5 | 4 | 0.42 | | TIT |
| 2002 03 05.75 | | S | 5.5 | TI | 5.0 | B | | 10 | 1.5 | 8 | | | KES01 |
| 2002 03 05.79 | | S | 5.5 | TI | 27.0 | L | 6 | 83 | 3 | 7 | | | SIP |
| 2002 03 05.79 | | S | 5.8 | TI | 27.0 | L | 6 | 83 | 2.3 | 7 | 0.15 | 55 | TOT03 |
| 2002 03 08.76 | | M | 4.5 | TI | 5.0 | B | | 10 | 6 | D8 | 2.5 | 90 | SAN07 |
| 2002 03 09.77 | | S | 4.5 | TI | 5.0 | B | | 7 | 5 | 7 | 1 | 75 | TOT03 |
| 2002 03 14.77 | | M | 3.8 | TI | 5.0 | B | | 10 | 4 | S8 | 3.5 | 90 | SAN07 |
| 2002 03 15.76 | | B | 4.0 | TI | 10.0 | L | 6 | 24 | 10 | D6 | 1 | 65 | CSU01 |
| 2002 03 18.75 | | M | 3.5 | TI | 5.0 | B | | 10 | 4 | S8 | 2.5 | 80 | SAN07 |
| 2002 03 18.76 | | B | 4.0 | TI | 10.0 | L | 6 | 24 | 10 | D4 | 1 | 35 | CSU01 |
| 2002 03 29.77 | | M | 3.0 | TI | 5.0 | B | | 10 | 4 | S8 | 4.5 | 35 | SAN07 |
| 2002 03 31.77 | | M | 3.0 | TI | 5.0 | B | | 10 | 4 | S8 | 7 | 40 | SAN07 |
| 2002 04 18.60 | | M | 3.9 | SC | 0.0 | E | | 1 | | | 6 | 300 | OME |
| 2002 05 10.38 | | S | 5.4 | TT | 5.0 | B | | 7 | 10 | 4 | | | MAT08 |
| 2002 05 11.86 | | B | 5.6 | TI | 5.0 | B | | 7 | 12 | 5 | | | CSU01 |
| 2002 05 15.65 | | S | 6.0 | TT | 5.0 | B | | 7 | 12 | 4 | | | MAT08 |
| 2002 05 15.85 | | B | 5.9 | TI | 5.0 | B | | 7 | 12 | 4 | | | CSU01 |

Comet 153P/Ikeya-Zhang [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|-----|---|----|-----|------|----|------|----|-------|
| 2002 05 16.85 | | B | 5.9 | TI | 5.0 | B | | 7 | 20 | 4 | | | CSU01 |

Comet 154P/Brewington

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 12 25.70 | | S | 12.6 | HS | 20.3 | L | 6 | 63 | 1.5 | 2 | | | GUZ |
| 2002 12 26.70 | | S | 12.7 | HS | 20.3 | L | 6 | 63 | 1.5 | 2 | | | GUZ |
| 2002 12 29.26 | | S | 12.9 | TK | 37 | L | 3 | 172 | 1.2 | 2 | | | LIN04 |
| 2003 01 01.69 | | S | 12.6 | HS | 20.3 | L | 6 | 63 | 1.2 | 3 | | | GUZ |
| 2003 01 03.77 | | S | 12.5 | HS | 27.0 | L | 6 | 120 | 0.8 | 2/ | | | TOT03 |
| 2003 02 02.74 | | S | 11.9 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 02 22.72 | | S | 11.8 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 02 22.75 | | S | 11.4 | AC | 41 | L | 5 | 72 | 1.5 | 3/ | | | RES |
| 2003 02 23.73 | | S | 11.6 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 02 23.75 | | S | 11.5 | AC | 41 | L | 5 | 72 | 1.5 | 3 | | | RES |
| 2003 02 25.73 | | S | 11.5 | HS | 20.3 | L | 6 | 63 | 1.8 | 3 | | | GUZ |
| 2003 02 25.76 | | S | 11.4 | AC | 41 | L | 5 | 72 | 1.8 | 3 | | | RES |
| 2003 02 26.73 | | S | 11.6 | HS | 20.3 | L | 6 | 63 | 1.6 | 3 | | | GUZ |
| 2003 03 21.76 | | S | 12.0: | HS | 20.3 | L | 6 | 63 | 1.5 | 2 | | | GUZ |

Comet 155P/Shoemaker

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2002 10 19.10 | | S | [13.5 | HS | 20.3 | L | 6 | 63 | ! 0.5 | | | | GUZ |
| 2002 11 07.12 | | S | [13.5 | HS | 20.3 | L | 6 | 108 | ! 0.5 | | | | GUZ |
| 2003 01 12.07 | | S | [13.0 | HS | 27.0 | L | 6 | 167 | ! 1.0 | | | | TOT03 |
| 2003 02 01.88 | | S | 12.5 | HS | 27.0 | L | 6 | 120 | 1.0 | 3 | | | TOT03 |
| 2003 02 22.87 | | S | 13.4 | AC | 41 | L | 5 | 121 | 1.0 | 3 | | | RES |
| 2003 02 23.78 | | S | 13.3 | HS | 20.3 | L | 6 | 108 | 0.8 | 2 | | | GUZ |
| 2003 02 23.88 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.8 | 3 | | | RES |
| 2003 02 24.82 | | S | 13.3 | AC | 41 | L | 5 | 121 | 0.8 | 3/ | | | RES |
| 2003 02 25.81 | | S | 13.4 | AC | 41 | L | 5 | 121 | 0.7 | 3/ | | | RES |
| 2003 02 26.77 | | S | [13.0 | HS | 20.3 | L | 6 | 108 | ! 1 | | | | GUZ |
| 2003 03 01.83 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.8 | 3/ | | | RES |
| 2003 03 02.84 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.6 | 3/ | | | RES |
| 2003 03 05.84 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.5 | 3/ | | | RES |
| 2003 03 21.77 | | S | 13.0 | HS | 27.0 | L | 6 | 167 | 0.5 | 4 | | | TOT03 |
| 2003 03 24.82 | | S | 13.6 | HS | 27.0 | L | 6 | 167 | 0.4 | 2 | | | TOT03 |

Comet C/2000 SV_74 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2002 01 04.73 | | S | [13.2 | HS | 27.0 | L | 6 | 167 | ! 0.8 | | | | TOT03 |
| 2003 02 23.04 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.9 | 2 | | | RES |
| 2003 03 02.10 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.8 | 2/ | | | RES |
| 2003 03 24.84 | | S | [13.3 | HS | 27.0 | L | 6 | 167 | ! 0.5 | | | | TOT03 |
| 2003 04 28.05 | | S | 14.5 | HS | 35 | L | 5 | 237 | 1.0 | 2 | | | HOR02 |
| 2003 04 29.00 | | S | 14.6 | HS | 35 | L | 5 | 237 | 1.1 | 3 | | | HOR02 |
| 2003 05 03.95 | | S | 14.6 | HS | 35 | L | 5 | 237 | 1.0 | 2/ | | | HOR02 |
| 2003 05 04.85 | | S | 14.6 | HS | 35 | L | 5 | 237 | 1.1 | 2/ | | | HOR02 |

Comet C/2000 WM_1 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|-----|-------|
| 2001 11 15.83 | | M | 7.8 | S | 10 | B | | 25 | 7 | 4 | | | KUB |
| 2002 03 11.17 | | S | 7.0 | AC | 8.0 | B | | 20 | 5 | 1 | 0.1 | 225 | KES01 |
| 2002 03 23.13 | | S | 7.7 | TI | 5.0 | B | | 10 | 10 | 2/ | 1 | 205 | SAN07 |
| 2002 05 01.88 | | S | 11.0 | HS | 27.0 | L | 6 | 83 | 2 | 3 | | | TOT03 |

Comet C/2001 HT_50 (LINEAR-NEAT)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|------|
| 2002 10 19.15 | | S | [12.5 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2002 11 07.15 | | S | [13.0 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2002 12 13.02 | | S | 12.1 | HS | 20.3 | L | 6 | 63 | 1.2 | 5 | | | GUZ |

Comet C/2001 HT₅₀ (LINEAR-NEAT) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|-----|------|----|-------|
| 2002 12 13.04 | x | S | 12.9 | TJ | 25 | L | 6 | 108 | 0.5 | 2 | | | SWI |
| 2002 12 14.05 | | S | 12.2 | HS | 20.3 | L | 6 | 63 | 1 | 5 | | | GUZ |
| 2002 12 26.93 | | S | 12.0 | HS | 20.3 | L | 6 | 63 | 1 | 5 | | | GUZ |
| 2003 01 07.44 | | S | 11.5 | TK | 37 | L | 4 | 172 | 1.3 | 6 | | | LINO4 |
| 2003 01 10.47 | | S | 10.9 | TK | 37 | L | 3 | 172 | 1.9 | 6 | | | LINO4 |
| 2003 01 12.06 | | S | 12.6 | HS | 27.0 | L | 6 | 120 | 0.8 | 4 | | | TOTO3 |
| 2003 01 28.94 | x | S | 10.8 | TT | 32 | L | 6 | 105 | & 2 | 3 | | | FIL04 |
| 2003 01 31.79 | x | S | 11.9 | TT | 20 | L | 5 | 110 | 0.8 | 2 | | | POW01 |
| 2003 02 01.75 | x | S | 11.2 | TT | 32 | L | 6 | 105 | & 2 | 2/ | | | FIL04 |
| 2003 02 01.87 | | S | 12.3 | HS | 27.0 | L | 6 | 120 | 0.9 | 2 | | | TOTO3 |
| 2003 02 02.72 | x | S | 11.9 | TJ | 35 | L | 6 | 150 | & 0.5 | 1 | | | CHR |
| 2003 02 02.80 | | S | 11.4 | HS | 20.3 | L | 6 | 63 | 1.5 | 4 | | | GUZ |
| 2003 02 03.76 | x | S | 12.1 | TJ | 35 | L | 6 | 150 | & 0.5 | 0/ | | | CHR |
| 2003 02 03.84 | x | S | 11.0: | TJ | 18.5 | L | 5 | 53 | 1.5 | 2 | | | KWI |
| 2003 02 19.78 | | S | 12.0 | HS | 27.0 | L | 6 | 120 | 0.8 | 2/ | | | TOTO3 |
| 2003 02 21.88 | | S | 11.5 | HS | 20.3 | L | 6 | 63 | 1.5 | 5 | | | GUZ |
| 2003 02 22.73 | | S | 11.6 | HS | 20.3 | L | 6 | 63 | 1.5 | 5 | | | GUZ |
| 2003 02 22.85 | x | S | 12.5 | TJ | 25 | L | 6 | 108 | 0.5 | 1 | | | SWI |
| 2003 02 22.86 | | S | 11.8 | AC | 41 | L | 5 | 72 | 1.7 | 3 | | | RES |
| 2003 02 22.95 | x | S | 11.7 | TT | 32 | L | 6 | 105 | & 1 | 2/ | | | FIL04 |
| 2003 02 23.74 | | S | 11.5 | HS | 20.3 | L | 6 | 63 | 1.5 | 4 | | | GUZ |
| 2003 02 23.77 | x | S | 11.8 | TT | 32 | L | 6 | 105 | & 1 | 2/ | | | FIL04 |
| 2003 02 23.86 | | S | 12.1 | AC | 41 | L | 5 | 72 | 1.5 | 2/ | | | RES |
| 2003 02 24.78 | x | S | 12.3 | TJ | 35 | L | 6 | 105 | & 0.5 | d0/ | | | CHR |
| 2003 02 24.82 | | S | 12.0 | AC | 41 | L | 5 | 72 | 1.8 | 2 | | | RES |
| 2003 02 25.74 | | S | 11.7 | HS | 20.3 | L | 6 | 63 | 1.5 | 4 | | | GUZ |
| 2003 02 25.76 | x | S | 12.3 | TJ | 35 | L | 6 | 105 | | d0/ | | | CHR |
| 2003 02 25.77 | | S | 12.2 | HS | 27.0 | L | 6 | 83 | 1.1 | 3 | | | TOTO3 |
| 2003 02 25.80 | | S | 12.0 | AC | 41 | L | 5 | 72 | 1.6 | 2/ | | | RES |
| 2003 02 26.75 | | S | 11.7 | HS | 20.3 | L | 6 | 63 | 1.8 | 4 | | | GUZ |
| 2003 02 26.76 | x | S | 12.5 | TJ | 35 | L | 6 | 105 | | d0/ | | | CHR |
| 2003 03 01.80 | | S | 11.8 | AC | 41 | L | 5 | 72 | 1.5 | 3 | | | RES |
| 2003 03 02.82 | | S | 11.6 | AC | 41 | L | 5 | 72 | 1.5 | 3/ | | | RES |
| 2003 03 04.82 | | S | 11.5 | AC | 41 | L | 5 | 72 | 1.6 | 3/ | | | RES |
| 2003 03 05.83 | | S | 11.7 | AC | 41 | L | 5 | 72 | 1.3 | 3/ | | | RES |
| 2003 03 07.91 | x | S | 11.6 | TT | 32 | L | 6 | 105 | & 1 | 2/ | | | FIL04 |
| 2003 03 20.79 | | S | 11.9 | HS | 20.3 | L | 6 | 63 | 1.5 | 4 | | | GUZ |
| 2003 03 21.77 | | S | 11.9 | HS | 20.3 | L | 6 | 63 | 1.5 | 4 | | | GUZ |
| 2003 03 21.78 | | S | 11.8 | HS | 27.0 | L | 6 | 120 | 0.8 | 4 | | | TOTO3 |
| 2003 03 22.88 | | S | 12.0 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 03 24.76 | x | S | 12.6 | TJ | 35 | L | 6 | 150 | | d0/ | | | CHR |
| 2003 03 24.78 | | S | 11.9 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 03 24.79 | | S | 12.2 | HS | 27.0 | L | 6 | 214 | 1.0 | 4 | | | TOTO3 |
| 2003 03 26.78 | | S | 11.9 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 03 26.84 | x | S | 11.8 | TT | 30 | L | 4 | 96 | 1.5 | 2 | | | GRA09 |
| 2003 03 31.84 | x | S | 11.9 | TT | 30 | L | 4 | 191 | 1.4 | 2/ | | | GRA09 |
| 2003 04 01.77 | x | S | 12.5 | TJ | 35 | L | 6 | 150 | | 0/ | | | CHR |
| 2003 04 26.85 | | B | 11.7 | TI | 23.5 | T | 10 | 188 | 1.5 | 2 | | | LAB02 |

Comet C/2001 K5 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2002 04 10.65 | | S | 14.5: | HS | 28 | T | 6 | 196 | 1 | 3 | | | MAT08 |
| 2002 05 03.92 | | S | [13.0 | HS | 27.0 | L | 6 | 83 | ! 1.0 | | | | TOTO3 |
| 2002 05 06.67 | | S | 14.0: | HS | 28 | T | 6 | 196 | 1 | 3 | | | MAT08 |
| 2002 05 13.96 | | S | 13.0 | HS | 27.0 | L | 6 | 167 | 0.5 | 4 | | | TOTO3 |
| 2002 07 10.90 | | S | 13.7 | HS | 38 | L | 4 | 126 | 2 | 5 | | | SIP |
| 2003 02 22.06 | | S | 13.2 | AC | 41 | L | 5 | 121 | 1.0 | 3 | | | RES |
| 2003 03 02.12 | | S | 13.1 | AC | 41 | L | 5 | 121 | 1.2 | 3/ | | | RES |
| 2003 05 04.08 | | M | 14.5 | HS | 35 | L | 5 | 237 | 0.4 | 7 | | | HOR02 |
| 2003 06 21.99 | | S | 13.2 | NP | 45 | L | 5 | 100 | 0.5 | 5 | | | SAN04 |
| 2003 06 21.99 | | S | 13.3 | NP | 45 | L | 5 | 100 | 0.5 | 6 | | | MAR02 |
| 2003 07 20.94 | | B | 14.3 | HS | 42 | L | 5 | 81 | 0.5 | 5 | | | LEH |
| 2003 07 27.00 | | S | 13.4 | NP | 45 | L | 5 | 167 | 0.5 | 4 | | | MAR02 |

Comet P/2001 MD_7 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 01 04.71 | | S | 12.5 | HS | 27.0 | L | 6 | 120 | 1.0 | 3 | | | TOTO3 |

Comet C/2001 OG_108 (LONEOS)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 03 05.76 | | S | 10.3 | HS | 27.0 | L | 6 | 167 | 1.5 | 2 | | | TOTO3 |
| 2002 03 15.02 | | S | 10.8 | HS | 27.0 | L | 6 | 120 | 1.0 | 5 | | | TOTO3 |
| 2002 03 31.82 | | S | 10.0 | TI | 10.0 | L | 10 | 80 | 5 | 1/ | | | SAN07 |
| 2002 04 07.80 | | S | 10.3 | HS | 27.0 | L | 6 | 83 | 3.0 | 4 | | | TOTO3 |
| 2002 04 07.81 | | S | 10.5 | HS | 27.0 | L | 6 | 83 | 3 | 4 | | | SIP |
| 2002 05 01.85 | | S | 12.1 | HS | 27.0 | L | 6 | 120 | 2.5 | 1 | | | TOTO3 |
| 2002 05 06.46 | | S | 13.0: | HS | 28 | T | 6 | 84 | 1 | 1 | | | MAT08 |
| 2002 05 06.87 | | S | 12.0 | HS | 27.0 | L | 6 | 120 | 1.5 | 2 | | | TOTO3 |

Comet C/2001 Q4 (NEAT)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 05 29.83 | | S | 14.0: | HS | 28 | T | 10 | 310 | 0.5 | 5 | | | MAT08 |
| 2003 05 31.79 | | S | 13.3 | GA | 25.4 | L | 4 | 114 | | | | | SEA |

Comet P/2001 Q6 (NEAT)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 01 03.76 | | S | 12.3 | HS | 27.0 | L | 6 | 120 | 1.3 | 2 | | | TOTO3 |

Comet C/2001 RX_14 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|----|----|-------|----|------|---|----|-----|-------|-----|-------|-----|-------|
| 2002 08 08.00 | x | S | 13.3 | HS | 20 | L | 5 | 110 | 0.5 | 4 | | | POW01 |
| 2002 08 11.04 | | S | 12.0 | HS | 20.3 | L | 6 | 63 | ! | 1 | | | GUZ |
| 2002 08 18.00 | x | S | 13.1 | HS | 20 | L | 5 | 110 | 0.6 | 3/ | | | POW01 |
| 2002 08 20.06 | | S | 12.5 | HS | 20.3 | L | 6 | 63 | ! | 1 | | | GUZ |
| 2002 09 02.97 | x | S | 12.6 | HS | 20 | L | 5 | 110 | 0.6 | 3 | | | POW01 |
| 2002 09 02.98 | x | S | 12.5 | HS | 20 | L | 5 | 110 | 0.5 | 2/ | | | BURO4 |
| 2002 09 12.07 | | S | 12.2 | HS | 20.3 | L | 6 | 108 | 1 | 3 | | | GUZ |
| 2002 09 13.02 | x | S | 12.3 | HS | 20 | L | 5 | 110 | 0.8 | 3 | | | POW01 |
| 2002 10 10.05 | x | S | 11.8 | TT | 20 | L | 5 | 110 | 4 | 2 | | | POW01 |
| 2002 10 10.06 | x | S | 12.0 | TT | 20 | L | 5 | 110 | 2.2 | 1/ | | | BURO4 |
| 2002 10 19.14 | | M | 11.5 | HS | 20.3 | L | 6 | 63 | 1.2 | 5 | 0.1 | 280 | GUZ |
| 2002 10 29.82 | x& | S | 12.8 | HS | 20 | L | 5 | 50 | 1.7 | 1 | | | POW01 |
| 2002 10 29.92 | x | C | 12.8 | HS | 15 | L | 5 | | 0.27 | 8 | 1.7m | 298 | DUS |
| 2002 11 07.13 | | M | 11.3 | HS | 20.3 | L | 6 | 63 | 1.5 | 5 | | | GUZ |
| 2002 11 09.08 | x | S | 10.8 | TT | 32 | L | 6 | 72 | & 2 | D4 | | | FILO4 |
| 2002 12 07.99 | x | S | 10.2 | TT | 32 | L | 6 | 60 | & 3 | 2/ | | | FILO4 |
| 2002 12 08.84 | x | S | 11.7 | TJ | 20 | L | 5 | 50 | 1.6 | 4 | | | BURO4 |
| 2002 12 08.85 | x | S | 11.6 | TJ | 20 | L | 5 | 50 | 2.4 | 3 | | | POW01 |
| 2002 12 11.01 | x | S | 10.3 | TT | 32 | L | 6 | 60 | & 2 | 3 | | | FILO4 |
| 2002 12 12.05 | x | S | 10.9 | TT | 32 | L | 6 | 60 | & 2 | 2/ | | | FILO4 |
| 2002 12 12.95 | x | S | 11.0 | TT | 32 | L | 6 | 60 | & 2 | 2/ | | | FILO4 |
| 2002 12 13.01 | | M | 10.8 | TJ | 20.3 | L | 6 | 63 | 2.5 | 4 | | | GUZ |
| 2002 12 13.03 | x | S | 11.7 | TJ | 25 | L | 6 | 108 | 1 | 4 | | | SWI |
| 2002 12 14.07 | | S | 11.0 | HS | 20.3 | L | 6 | 63 | 2.5 | 4 | 0.1 | 290 | GUZ |
| 2002 12 14.55 | | S | 10.9 | TK | 37 | L | 3 | 60 | 2.0 | 4 | | | LIN04 |
| 2002 12 25.03 | x | S | 11.2: | TT | 32 | L | 6 | 60 | & 2 | 2 | | | FILO4 |
| 2002 12 25.94 | x | S | 11.0 | TT | 32 | L | 6 | 60 | & 2 | 2 | | | FILO4 |
| 2002 12 26.91 | x | S | 11.1 | TT | 32 | L | 6 | 105 | & 2 | 2/ | | | FILO4 |
| 2002 12 26.94 | | S | 10.5 | TJ | 20.3 | L | 6 | 63 | 2 | 4 | 0.1 | 290 | GUZ |
| 2002 12 29.94 | x | S | 11.1 | TT | 32 | L | 6 | 105 | & 2.5 | 2 | | | FILO4 |
| 2003 01 01.12 | x | S | 10.6 | TT | 20 | L | 5 | 50 | 1.9 | 2/ | | | POW01 |
| 2003 01 01.17 | x | S | 10.9 | TT | 30 | L | 4 | 96 | 2.3 | s2/ | &0.13 | 305 | GRA09 |
| 2003 01 09.52 | | S | 11.0 | TK | 37 | L | 3 | 172 | 1.6 | 7 | 5 m | 300 | LIN04 |
| 2003 01 11.94 | x | S | 10.6 | TT | 20 | L | 5 | 50 | 3 | 2/ | | | POW01 |
| 2003 01 12.10 | | S | 11.8 | HS | 27.0 | L | 6 | 83 | 1.0 | 4 | | | TOTO3 |
| 2003 01 17.98 | x | S | 10.2: | TT | 32 | L | 6 | 105 | & 2 | 1/ | | | FILO4 |
| 2003 01 28.92 | x | S | 11.0 | TT | 32 | L | 6 | 105 | & 2 | 4 | | | FILO4 |

Comet C/2001 RX₁₄ (LINEAR) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|-----|-------|
| 2003 01 31.77 | x | S | 11.3 | TT | 20 | L | 5 | 50 | 1.9 | 1/ | | | POW01 |
| 2003 01 31.79 | x | S | 11.2 | TT | 20 | L | 5 | 50 | 1.6 | 2 | | | BUR04 |
| 2003 02 01.95 | x | S | 11.4 | TT | 32 | L | 6 | 60 | & 2 | 3/ | | | FIL04 |
| 2003 02 03.82 | x | S | 11.3 | TJ | 35 | L | 6 | 150 | & 2 | 2 | | | CHR |
| 2003 02 03.91 | x | S | 11.0: | TJ | 18.5 | L | 5 | 53 | 2 | 1 | | | KWI |
| 2003 02 05.97 | | S | 11.3 | TK | 30 | L | 4 | 96 | 0.6 | 4 | 1.6m | 275 | ABB |
| 2003 02 12.97 | x | S | 11.4 | TT | 32 | L | 6 | 105 | & 1 | 2/ | | | FIL04 |
| 2003 02 13.90 | x | S | 11.2 | TT | 32 | L | 6 | 105 | & 1 | 2/ | | | FIL04 |
| 2003 02 21.89 | | S | 10.4 | TJ | 20.3 | L | 6 | 63 | 3 | 5 | 0.1 | 240 | GUZ |
| 2003 02 22.74 | | M | 10.4 | TJ | 20.3 | L | 6 | 63 | 3 | 6 | 0.1 | 240 | GUZ |
| 2003 02 22.77 | | S | 11.0 | HS | 27.0 | L | 6 | 83 | 1.5 | 3 | | | TOT03 |
| 2003 02 22.89 | | S | 10.6 | AC | 41 | L | 5 | 72 | 2.2 | 4 | | | RES |
| 2003 02 22.96 | x | S | 11.2 | TT | 32 | L | 6 | 105 | & 2 | 4 | | | FIL04 |
| 2003 02 23.75 | | M | 10.5 | TJ | 20.3 | L | 6 | 63 | 2.5 | 5 | 0.1 | 240 | GUZ |
| 2003 02 23.76 | x | S | 10.7 | TT | 20 | L | 5 | 50 | 1.8 | 1 | | | POW01 |
| 2003 02 23.88 | | S | 10.9 | AC | 41 | L | 5 | 72 | 2.0 | 3 | | | RES |
| 2003 02 23.92 | x | S | 10.6 | TT | 32 | L | 6 | 105 | & 1 | 3 | | | FIL04 |
| 2003 02 24.78 | x | S | 10.5 | TJ | 20 | L | 2 | 58 | 2 | 1 | | | SWI |
| 2003 02 24.80 | x | S | 11.4 | TJ | 35 | L | 6 | 105 | & 1 | d1 | | | CHR |
| 2003 02 24.83 | | S | 10.7 | AC | 41 | L | 5 | 72 | 2.4 | 4/ | | | RES |
| 2003 02 25.14 | x | S | 10.8 | TT | 32 | L | 6 | 105 | & 1.5 | 3/ | | | FIL04 |
| 2003 02 25.15 | x | S | 10.7 | TT | 15 | L | 6 | 50 | & 2 | 2 | | | MAK02 |
| 2003 02 25.39 | | S | 10.3: | AA | 24 | L | 5 | 50 | 2 | 3 | | | PON01 |
| 2003 02 25.75 | | M | 10.5 | TJ | 20.3 | L | 6 | 63 | 2.5 | 4 | | | GUZ |
| 2003 02 25.77 | x | S | 10.3 | TT | 15 | L | 6 | 50 | & 2 | 2/ | | | MAK02 |
| 2003 02 25.78 | | S | 10.6 | HS | 27.0 | L | 6 | 83 | 1.0 | 4 | | | TOT03 |
| 2003 02 26.76 | | S | 10.5 | TJ | 20.3 | L | 6 | 63 | 2.5 | 4 | | | GUZ |
| 2003 02 26.80 | x | S | 11.4 | TJ | 35 | L | 6 | 105 | & 1 | d1 | | | CHR |
| 2003 02 27.78 | x | S | 10.8 | TJ | 25 | L | 6 | 54 | 1 | 2 | | | SWI |
| 2003 02 28.94 | x | S | 11.0 | TT | 32 | L | 6 | 105 | & 1.5 | 2/ | | | FIL04 |
| 2003 03 01.83 | | S | 10.6 | AC | 41 | L | 5 | 72 | 2.5 | 4 | | | RES |
| 2003 03 02.84 | | S | 10.5 | AC | 41 | L | 5 | 72 | 2.2 | 4 | | | RES |
| 2003 03 04.84 | | S | 10.6 | AC | 41 | L | 5 | 72 | 2.3 | 4 | | | RES |
| 2003 03 05.87 | | S | 10.4 | AC | 41 | L | 5 | 72 | 2.5 | 4 | | | RES |
| 2003 03 06.79 | x | S | 11.3 | TT | 20 | L | 5 | 50 | 1.5 | 1/ | | | POW01 |
| 2003 03 06.98 | | S | 11.7 | TK | 30 | L | 4 | 96 | 1.0 | 4 | 1.7m | 235 | ABB |
| 2003 03 07.92 | x | S | 10.6 | TT | 32 | L | 6 | 60 | & 2 | 3/ | | | FIL04 |
| 2003 03 08.97 | x | S | 10.7 | TT | 32 | L | 6 | 105 | & 2 | 3 | | | FIL04 |
| 2003 03 20.80 | | S | 10.9 | HS | 20.3 | L | 6 | 63 | 2.5 | 4 | | | GUZ |
| 2003 03 20.85 | x | S | 10.6 | TT | 30 | L | 4 | 96 | & 2 | 3 | | | GRA09 |
| 2003 03 21.76 | | S | 11.3 | HS | 27.0 | L | 6 | 120 | 1.2 | 3 | | | TOT03 |
| 2003 03 21.78 | x | S | 11.6 | TJ | 35 | L | 6 | 105 | & 1 | d1 | | | CHR |
| 2003 03 21.90 | | S | 11.0 | HS | 20.3 | L | 6 | 63 | 2.5 | 4 | | | GUZ |
| 2003 03 21.98 | x | S | 10.7 | TT | 32 | L | 6 | 105 | & 1.5 | 3/ | | | FIL04 |
| 2003 03 22.78 | x | S | 11.7 | TJ | 35 | L | 6 | 105 | & 1 | d1 | | | CHR |
| 2003 03 22.89 | | S | 11.0 | HS | 20.3 | L | 6 | 63 | 2.5 | 4 | 0.1 | 200 | GUZ |
| 2003 03 23.83 | x | S | 11.8 | TJ | 50 | L | 5 | 100 | & 2 | 3 | | | TUR01 |
| 2003 03 23.84 | x | S | 11.7 | TJ | 35 | L | 6 | 105 | & 1 | d1 | | | CHR |
| 2003 03 24.78 | x | S | 11.7 | TJ | 35 | L | 6 | 105 | & 1 | d1 | | | CHR |
| 2003 03 24.79 | | S | 11.0 | TJ | 20.3 | L | 6 | 63 | 2 | 4 | | | GUZ |
| 2003 03 24.80 | | S | 10.8 | HS | 27.0 | L | 6 | 83 | 1.5 | 4 | | | TOT03 |
| 2003 03 26.79 | x | S | 11.8 | TT | 20 | L | 5 | 50 | 2 | 2 | | | POW01 |
| 2003 03 27.96 | x | S | 12.4 | HS | 50 | L | 5 | 100 | & 2 | 2/ | | | TUR01 |
| 2003 03 30.78 | x | S | 11.8 | TJ | 35 | L | 6 | 105 | & 0.5 | d1 | | | CHR |
| 2003 04 01.78 | x | S | 11.8 | TJ | 35 | L | 6 | 105 | & 0.5 | d1 | | | CHR |
| 2003 04 01.84 | x | S | 11.0 | TT | 32 | L | 6 | 60 | & 3 | 3/ | | | FIL04 |
| 2003 04 04.54 | | S | 11.9 | TK | 28 | T | 10 | 133 | 2 | 5 | | | MAT08 |
| 2003 04 04.90 | x | S | 11.6 | TT | 32 | L | 6 | 60 | & 2 | 3 | | | FIL04 |
| 2003 04 20.92 | x | S | 10.9 | TT | 32 | L | 6 | 60 | & 3 | 1 | | | FIL04 |
| 2003 04 21.46 | | S | 12.2 | TK | 28 | T | 10 | 133 | 1.5 | 4 | | | MAT08 |
| 2003 04 21.80 | x | S | 12.5 | TJ | 35 | L | 6 | 150 | & 0.5 | 0/ | | | CHR |
| 2003 04 21.90 | | B | 11.1 | TI | 23.5 | T | 10 | 94 | 1.5 | 2 | | | LAB02 |
| 2003 04 22.00 | | M | 11.5 | HS | 35 | L | 5 | 68 | 2.4 | 4 | | | HOR02 |
| 2003 04 24.85 | | M | 11.6 | HS | 35 | L | 5 | 68 | 2.3 | 3/ | | | HOR02 |
| 2003 04 25.82 | x | S | 12.2 | TJ | 35 | L | 6 | 150 | | 0/ | | | CHR |

Comet C/2001 RX₁₄ (LINEAR) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 04 25.91 | x | S | 12.4 | TT | 32 | L | 6 | 105 | & 1 | 1 | | | FIL04 |
| 2003 04 26.67 | x | S | 12.3: | HS | 25.4 | L | 4 | 116 | 1.5 | 3 | | | YOS02 |
| 2003 04 26.90 | | B | 11.8 | TI | 23.5 | T | 10 | 94 | 1 | 2 | | | LAB02 |
| 2003 04 27.91 | | M | 11.5 | HS | 35 | L | 5 | 68 | 2.7 | 3 | | | HOR02 |
| 2003 04 28.46 | | S | 12.4 | GA | 25.4 | L | 4 | 71 | 2 | | | | SEA |
| 2003 04 28.88 | | M | 11.5 | HS | 35 | L | 5 | 68 | 2.5 | 3 | | | HOR02 |
| 2003 05 01.80 | x | S | 12.4 | TJ | 35 | L | 6 | 150 | 0.5 | 0/ | | | CHR |
| 2003 05 01.83 | | S | 12.5 | TK | 30 | L | 5 | 60 | 1.2 | 2 | | | NEV |
| 2003 05 01.90 | x | S | 11.7 | TJ | 25 | L | 5 | 100 | 1.5 | 1/ | | | BOH02 |
| 2003 05 01.98 | x | S | 12.6 | HS | 50 | L | 5 | 100 | 1 | 1 | | | TUR01 |
| 2003 05 02.83 | | S | 12.7 | HS | 30 | L | 5 | 100 | 1 | 3 | | | NEV |
| 2003 05 02.92 | | S | 12.5 | HS | 30 | T | 10 | 115 | 1.1 | 3 | | | SHA02 |
| 2003 05 03.01 | | S | 11.8 | TJ | 20.3 | T | 10 | 77 | 1.5 | 2 | | | GON05 |
| 2003 05 03.29 | | S | 11.5: | AA | 24 | L | 5 | 50 | 2 | 2 | | | PON01 |
| 2003 05 03.89 | | M | 11.6 | HS | 35 | L | 5 | 68 | 2.6 | 3 | | | HOR02 |
| 2003 05 03.96 | | B | 12.4 | TI | 23.5 | T | 10 | 94 | 2 | 2 | | | LAB02 |
| 2003 05 03.99 | x | S | 11.8 | TJ | 25 | L | 5 | 100 | 1.4 | 1/ | | | BOH02 |
| 2003 05 04.82 | x | S | 12.5 | TJ | 35 | L | 6 | 150 | | 0/ | | | CHR |
| 2003 05 04.83 | | M | 11.4 | TT | 42 | L | 5 | 81 | 2.1 | 3 | | | LEH |
| 2003 05 04.88 | x | S | 11.7 | TJ | 25 | L | 5 | 100 | 2 | 1/ | | | BOH02 |
| 2003 05 04.91 | | M | 11.7 | HS | 35 | L | 5 | 68 | 2.4 | 3 | | | HOR02 |
| 2003 05 04.92 | | S | 12.2 | HS | 30.5 | T | 10 | 167 | 0.7 | 3 | | | KAM01 |
| 2003 05 04.93 | x | S | 12.9 | HS | 50 | L | 5 | 215 | 0.7 | 1 | | | TUR01 |
| 2003 05 04.95 | | S | 11.8 | HS | 36 | L | 6 | 70 | 1.4 | 3 | | | BAR06 |
| 2003 05 05.83 | | M | 11.4 | TT | 42 | L | 5 | 81 | 2.0 | 3 | | | LEH |
| 2003 05 05.90 | x | S | 11.8 | HS | 20 | L | 5 | 110 | 1.8 | 1 | | | POW01 |
| 2003 05 05.90 | | S | 13.0 | HS | 30 | L | 5 | 100 | 0.7 | 2 | | | NEV |
| 2003 05 05.93 | | S | 11.8 | HS | 36 | L | 6 | 70 | 1.6 | 2 | | | BAR06 |
| 2003 05 06.85 | | M | 11.4 | TT | 42 | L | 5 | 81 | 2.0 | 3 | | | LEH |
| 2003 05 06.94 | | S | 12.8 | HS | 30 | L | 5 | 100 | 0.7 | 2 | | | NEV |
| 2003 05 06.97 | | S | 11.8 | HS | 36 | L | 6 | 70 | 1.5 | 2 | | | BAR06 |
| 2003 05 06.98 | | M | 11.7 | HS | 35 | L | 5 | 68 | 2.2 | 3 | | | HOR02 |
| 2003 05 07.84 | | M | 11.6 | TT | 42 | L | 5 | 81 | 1.9 | 3 | | | LEH |
| 2003 05 20.85 | | S | 12.4 | HS | 36 | L | 6 | 70 | 1.3 | 2/ | | | BAR06 |
| 2003 05 21.88 | | S | 12.1 | HS | 36 | L | 6 | 70 | 1.1 | 3/ | | | BAR06 |
| 2003 05 23.89 | | S | 12.6 | HS | 36 | L | 6 | 70 | 1.2 | 2 | | | BAR06 |
| 2003 05 24.89 | | S | 12.6 | HS | 35 | L | 5 | 68 | 1.6 | 2/ | | | HOR02 |
| 2003 05 24.89 | | S | 12.6 | HS | 36 | L | 6 | 70 | 1.1 | 2 | | | BAR06 |
| 2003 05 25.46 | | S | 12.4 | HS | 28 | T | 10 | 133 | 1 | 4 | | | MAT08 |
| 2003 05 25.87 | | S | 12.7 | HS | 36 | L | 6 | 70 | 1.0 | 1/ | | | BAR06 |
| 2003 05 25.90 | | S | 12.5 | HS | 35 | L | 5 | 68 | 1.8 | 2/ | | | HOR02 |
| 2003 05 25.94 | | S | 12.8 | HS | 30 | R | 20 | 230 | 0.7 | 3 | | | SHA02 |
| 2003 05 27.45 | | S | 12.6 | HS | 28 | T | 10 | 133 | 1 | 4 | | | MAT08 |
| 2003 05 27.88 | | S | 12.5 | HS | 36 | L | 6 | 70 | 1.5 | 7 | | | BAR06 |
| 2003 05 29.90 | | S | 12.6 | HS | 35 | L | 5 | 158 | 1.5 | 2/ | | | HOR02 |
| 2003 05 30.85 | | S | 12.8: | HS | 36 | L | 6 | 70 | 1.0 | 2 | | | BAR06 |
| 2003 05 30.86 | | S | 12.7 | HS | 20.3 | L | 6 | 63 | 1 | 3 | | | GUZ |
| 2003 05 31.84 | | S | 12.9: | HS | 36 | L | 6 | 70 | 0.9 | 1 | | | BAR06 |
| 2003 06 01.86 | | M | 11.7 | TI | 42 | L | 5 | 81 | 1.6 | 3 | | | LEH |
| 2003 06 03.46 | | S | 12.9 | HS | 28 | T | 10 | 133 | 1 | 4 | | | MAT08 |
| 2003 06 03.87 | | M | 12.0 | TI | 42 | L | 5 | 81 | 1.6 | 3 | | | LEH |
| 2003 06 03.87 | | S | 12.9 | HS | 20.3 | L | 6 | 63 | 1 | 3 | | | GUZ |

Comet C/2002 E2 (Snyder-Murakami)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 05 01.87 | | S | 11.5 | HS | 27.0 | L | 6 | 120 | 1.2 | 2 | | | TOT03 |
| 2002 05 03.90 | | S | 12.5 | HS | 27.0 | L | 6 | 120 | 0.8 | 3 | | | TOT03 |
| 2002 05 30.88 | | S | 12.7 | HS | 27.0 | L | 6 | 120 | 1.5 | 2 | | | TOT03 |

Comet C/2002 F1 (Utsunomiya)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|------|------|---|----|-----|------|----|------|----|-------|
| 2002 05 01.79 | | S | 5.5 | HS | 27.0 | L | 6 | 83 | 0.5 | 6 | 0.05 | 70 | TOT03 |
| 2002 05 10.38 | | B | 7 | : TT | 10 | B | | 25 | 1 | 7 | | | MAT08 |

Comet C/2002 F1 (Utsunomiya) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|-----|---|----|-----|------|----|------|----|-------|
| 2002 05 24.38 | | B | 8.6 | TT | 10 | B | | 25 | 1 | 7 | | | MAT08 |
| 2002 05 28.40 | | B | 8.9 | TT | 10 | B | | 25 | 1 | 6 | | | MAT08 |
| 2002 06 02.40 | | B | 9.3 | TT | 10 | B | | 25 | 1 | 6 | | | MAT08 |

Comet C/2002 H2 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 05 01.89 | | S | 13.4 | HS | 27.0 | L | 6 | 167 | 0.3 | 3 | | | TOT03 |

Comet C/2002 J4 (NEAT)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|-----|---|----|-----|------|----|------|----|-------|
| 2003 06 03.63 | | S | 14.5: | HS | 28 | T | 10 | 310 | 0.5 | 4 | | | MAT08 |

Comet C/2002 O4 (Hoenig)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|-------|-------|
| 2002 08 02.36 | | M | 9.2 | TK | 37 | L | 3 | 120 | 5 | 3 | 4 | m 200 | LIN04 |
| 2002 08 03.34 | | M | 9.3 | TK | 37 | L | 3 | 120 | 5 | 3 | 3 | m 180 | LIN04 |
| 2002 08 05.34 | | S | 9.0 | TK | 37 | L | 3 | 60 | 7 | 4 | 10 | m 220 | LIN04 |
| 2002 08 08.31 | | S | 8.1 | TK | 37 | L | 3 | 60 | 8 | 4 | 10 | m 230 | LIN04 |
| 2002 08 10.86 | | S | 10.3 | HS | 30.4 | L | 5 | 173 | 1.5 | 3 | | | SIP |
| 2002 08 11.31 | | M | 7.9 | TK | 5.0 | B | | 10 | 12 | 3 | | | LIN04 |
| 2002 08 13.35 | | M | 7.9 | TK | 5.0 | B | | 10 | 14 | 3 | | | LIN04 |
| 2002 08 20.30 | | S | 7.8 | TK | 37 | L | | 60 | 5 | 3 | | | LIN04 |
| 2002 08 23.26 | | S | 8.1 | TK | 37 | L | | 60 | 6 | 4 | | | LIN04 |
| 2002 08 26.24 | | S | 8.0 | TK | 5.0 | B | | 10 | 12 | 2 | | | LIN04 |
| 2002 08 26.82 | | S | 8.3 | AC | 5.0 | B | | 10 | 5 | 2/ | | | SAN07 |
| 2002 08 28.25 | | S | 7.9 | TK | 5.0 | B | | 10 | 9 | 4 | | | LIN04 |
| 2002 08 28.84 | | S | 8.0 | AC | 5.0 | B | | 10 | 10 | 1/ | | | SAN07 |
| 2002 08 28.84 | | S | 8.5 | AC | 10.0 | L | 10 | 80 | 6 | 2 | | | SAN07 |
| 2002 08 29.83 | | S | 7.5 | AC | 5.0 | B | | 10 | 12 | 2 | 0.1 | 75 | SAN07 |
| 2002 08 30.83 | | S | 9.0 | HS | 27.0 | L | 6 | 83 | 3.5 | 3 | | | TOT03 |
| 2002 08 30.84 | | S | 7.4 | AC | 8.0 | B | | 20 | 15 | d3 | | | OSV |
| 2002 08 31.83 | | S | 7.5 | AC | 5.0 | B | | 10 | 8 | 3 | | | SAN07 |
| 2002 09 01.82 | | S | 8.1 | AC | 5.0 | B | | 20 | 2 | 4 | | | SIP |
| 2002 09 07.81 | | S | 8.4 | AC | 5.0 | B | | 20 | 2 | 4 | | | SIP |
| 2002 09 08.25 | | M | 8.0 | TK | 37 | L | 3 | 60 | 4 | 4 | 7 | m 50 | LIN04 |
| 2002 10 06.10 | | S[| 9.2 | TK | 10 | L | 4 | 64 | | | | | LIN04 |

Comet C/2002 O6 (SWAN)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|-----|---|----|-----|------|----|------|----|-------|
| 2002 08 12.61 | | M | 6.5 | TK | 5.0 | B | | 10 | 12 | 5 | | | LIN04 |

Comet C/2002 O7 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 02 23.03 | | S | 13.8 | AC | 41 | L | 5 | 121 | 0.5 | 4 | | | RES |
| 2003 03 02.11 | | S | 13.7 | AC | 41 | L | 5 | 121 | 0.6 | 2/ | | | RES |
| 2003 03 21.88 | | S | 13.0: | HS | 20.3 | L | 6 | 63 | 1.0 | 2 | | | GUZ |
| 2003 03 22.92 | | S | 13.2 | HS | 20.3 | L | 6 | 63 | 1.0 | 2 | | | GUZ |
| 2003 04 22.03 | | M | 13.4 | HS | 35 | L | 5 | 158 | 1.2 | 3 | | | HOR02 |
| 2003 04 24.88 | | M | 13.2 | HS | 35 | L | 5 | 158 | 1.3 | 3 | | | HOR02 |
| 2003 04 27.86 | | M | 13.4 | HS | 35 | L | 5 | 158 | 1.1 | 4 | | | HOR02 |
| 2003 04 28.89 | | B | 12.2 | TI | 23.5 | T | 10 | 94 | 1 | 2 | | | LAB02 |
| 2003 04 28.91 | | M | 13.4 | HS | 35 | L | 5 | 158 | 1.3 | 3 | | | HOR02 |
| 2003 05 01.85 | | S | 13.3 | HS | 30 | L | 5 | 100 | 0.7 | 3 | | | NEV |
| 2003 05 02.84 | | S | 13.1 | HS | 30 | L | 5 | 100 | 0.7 | 3 | | | NEV |
| 2003 05 02.88 | | S | 13.0 | HS | 30 | T | 10 | 115 | 1.2 | 4 | | | SHA02 |
| 2003 05 02.94 | | B | 12.4 | TI | 23.5 | T | 10 | 94 | 2 | 2 | | | LAB02 |
| 2003 05 03.88 | | M | 13.3 | HS | 35 | L | 5 | 158 | 1.3 | 4 | | | HOR02 |
| 2003 05 03.98 | x | S | 13.2 | TT | 32 | L | 6 | 105 | & 1 | 1/ | | | FIL04 |
| 2003 05 04.01 | | B | 12.6 | TI | 23.5 | T | 10 | 94 | 2 | 2 | | | LAB02 |
| 2003 05 04.92 | | M | 11.3 | TT | 42 | L | 5 | 81 | 2.2 | 4 | | | LEH |

Comet C/2002 07 (LINEAR) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 05 04.96 | x | S | 13.1 | TT | 32 | L | 6 | 105 | & 1 | 1 | | | FILO4 |
| 2003 05 04.99 | x | S | 13.1 | TJ | 25 | L | 5 | 120 | 1.7 | 1 | | | BOHO2 |
| 2003 05 05.05 | | M | 13.3 | HS | 35 | L | 5 | 158 | 1.4 | 4 | | | HORO2 |
| 2003 05 05.91 | | S | 13.5 | HS | 30 | L | 5 | 180 | 0.5 | 3 | | | NEV |
| 2003 05 05.92 | x | S | 13.4 | HS | 20 | L | 5 | 110 | 0.7 | 3 | | | POWO1 |
| 2003 05 05.95 | | S | 13.6 | HS | 36 | L | 6 | 70 | 0.3 | 2 | | | BARO6 |
| 2003 05 05.99 | | M | 11.3 | TT | 42 | L | 5 | 81 | 2.0 | 4 | | | LEH |
| 2003 05 06.90 | | M | 11.3 | TT | 42 | L | 5 | 81 | 2.1 | 4 | | | LEH |
| 2003 05 07.02 | | M | 13.1 | HS | 35 | L | 5 | 158 | 1.3 | 4/ | | | HORO2 |
| 2003 05 07.02 | | S | 13.5 | HS | 36 | L | 6 | 70 | 0.5 | 3 | | | BARO6 |
| 2003 05 07.92 | | M | 11.2 | TT | 42 | L | 5 | 81 | 2.0 | 4 | | | LEH |
| 2003 05 20.88 | | S | 13.3 | HS | 36 | L | 6 | 70 | 0.9 | 2 | | | BARO6 |
| 2003 05 21.88 | | S | 13.4 | HS | 36 | L | 6 | 70 | 0.8 | 3 | | | BARO6 |
| 2003 05 23.89 | | S | 12.4 | HS | 20.3 | L | 6 | 63 | 1.0 | 3 | | | GUZ |
| 2003 05 24.88 | | M | 12.6 | HS | 35 | L | 5 | 68 | 1.4 | 3/ | | | HORO2 |
| 2003 05 24.91 | | S | 13.3 | HS | 36 | L | 6 | 70 | 0.9 | 2 | | | BARO6 |
| 2003 05 25.01 | x | S | 12.5: | TT | 32 | L | 6 | 105 | & 2 | 2/ | | | FILO4 |
| 2003 05 25.45 | | S | 12.5: | HS | 28 | T | 10 | 133 | 1 | 3 | | | MAT08 |
| 2003 05 25.89 | | S | 12.7 | HS | 35 | L | 5 | 68 | 1.3 | 3 | | | HORO2 |
| 2003 05 25.91 | | S | 13.7 | HS | 36 | L | 6 | 70 | 0.7 | 2/ | | | BARO6 |
| 2003 05 25.94 | | S | 13.5 | HS | 30 | R | 20 | 230 | 0.8 | 2 | | | SHAO2 |
| 2003 05 27.44 | | S | 12.6 | HS | 28 | T | 10 | 133 | 1 | 3 | | | MAT08 |
| 2003 05 29.93 | | S | 12.8 | HS | 35 | L | 5 | 158 | 1.2 | 3 | | | HORO2 |
| 2003 05 30.89 | | S | 12.8 | HS | 36 | L | 6 | 70 | 1.2 | 2 | | | BARO6 |
| 2003 05 30.91 | | S | 12.8 | HS | 20.3 | L | 6 | 63 | 1.0 | 4 | | | GUZ |
| 2003 05 31.86 | | S | 12.6 | HS | 36 | L | 6 | 70 | 1.5 | 2 | | | BARO6 |
| 2003 06 01.89 | | M | 11.9 | HS | 42 | L | 5 | 81 | 2 | 3 | | | LEH |
| 2003 06 03.45 | | S | 12.8: | HS | 28 | T | 10 | 133 | 1 | 2 | | | MAT08 |
| 2003 06 03.88 | | S | 12.7 | HS | 20.3 | L | 6 | 63 | 1.0 | 5 | | | GUZ |
| 2003 06 03.89 | | M | 12.2 | HS | 42 | L | 5 | 81 | 2 | 3 | | | LEH |
| 2003 06 04.93 | | M | 12.1 | HS | 35 | L | 5 | 68 | 1.4 | 2/ | | | HORO2 |
| 2003 06 18.96 | | S | 12.5 | HS | 20.3 | T | 10 | 100 | 1.5 | 3 | | | GON05 |
| 2003 06 21.91 | | S | 12.4 | NP | 45 | L | 5 | 100 | 2 | 2 | | | SANO4 |
| 2003 06 21.92 | | S | 12.2 | NP | 45 | L | 5 | 100 | 3 | 2 | | | MAR02 |
| 2003 06 22.89 | | S | 11.2 | TK | 44.0 | L | 5 | 156 | 0.6 | 4 | | | HAS02 |
| 2003 06 27.46 | | S | 12.5: | HS | 28 | T | 10 | 133 | 1 | 2 | | | MAT08 |
| 2003 07 02.41 | | S | 12.2 | TK | 28 | T | 10 | 133 | 1.5 | 2 | | | MAT08 |
| 2003 07 07.37 | | S | 12.3 | GA | 25.4 | L | 4 | 114 | & 1 | | | | SEA |

Comet C/2002 Q5 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|-----|---|----|-----|------|----|------|----|-------|
| 2003 04 04.64 | | S | 14.0: | HS | 28 | T | 10 | 133 | 1 | 1 | | | MAT08 |

Comet C/2002 T7 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|-----|---|----|-----|------|----|------|----|------|
| 2003 02 23.84 | | S | 14.2 | AC | 41 | L | 5 | 121 | 0.3 | 3 | | | RES |
| 2003 02 24.80 | | S | 13.9 | AC | 41 | L | 5 | 121 | 0.3 | 3 | | | RES |
| 2003 02 25.78 | | S | 14.0 | AC | 41 | L | 5 | 121 | 0.2 | 4 | | | RES |
| 2003 03 02.80 | | S | 13.9 | AC | 41 | L | 5 | 121 | 0.4 | 3 | | | RES |
| 2003 03 04.80 | | S | 13.8 | AC | 41 | L | 5 | 121 | 0.3 | 3 | | | RES |
| 2003 03 05.81 | | S | 13.8 | AC | 41 | L | 5 | 121 | 0.3 | 3/ | | | RES |

Comet C/2002 U2 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|-------|----|------|----|-------|
| 2002 10 28.80 | | S | [12.2 | HS | 27.0 | L | 6 | 167 | ! 1.0 | | | | TOTO3 |

Comet C/2002 V1 (NEAT)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|------|
| 2002 11 24.72 | | S | [11.0 | HS | 20.3 | L | 6 | 63 | ! 1 | | | | GUZ |
| 2002 11 29.88 | | S | 12.0: | HS | 20.3 | L | 6 | 63 | 1 | 4 | | | GUZ |
| 2002 12 07.85 | | S | 11.3 | HS | 20.3 | L | 6 | 63 | 2.5 | 4 | | | GUZ |

Comet C/2002 V1 (NEAT) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|-----|------|----|------|---|----|-----|------|----|------|-------|-------|
| 2002 12 08.31 | | S | 10.5 | TK | 37 | L | 3 | 60 | 3.5 | 4 | | | LINO4 |
| 2002 12 09.84 | | S | 10.9 | HS | 20.3 | L | 6 | 63 | 3.5 | 3 | | | GUZ |
| 2002 12 12.99 | | M | 10.4 | HS | 20.3 | L | 6 | 63 | 4 | 4 | | | GUZ |
| 2002 12 14.34 | | S | 11.6 | TK | 37 | L | 3 | 172 | 1.0 | 6 | | | LINO4 |
| 2002 12 14.54 | | S | 10.5 | TK | 37 | L | 3 | 60 | 6 | 3 | | | LINO4 |
| 2002 12 19.86 | | S | 10.9 | HS | 27.0 | L | 6 | 83 | 4 | 2/ | | | TOTO3 |
| 2002 12 21.21 | | S | 10.3 | TK | 37 | L | 3 | 172 | 2.5 | 4 | | | LINO4 |
| 2002 12 23.70 | | S | 9.5 | TJ | 20.3 | L | 6 | 63 | 7 | 3 | | | GUZ |
| 2002 12 25.36 | | B | 9.3 | TK | 37 | L | 3 | 60 | 7 | 7 | 20 | m 280 | LINO4 |
| 2002 12 25.69 | | S | 8.5 | TJ | 5.0 | B | | 10 | 8 | 3 | | | GUZ |
| 2002 12 25.69 | | S | 9.0 | TJ | 20.3 | L | 6 | 63 | 6 | 3 | | | GUZ |
| 2002 12 26.25 | | S | 9.1 | TK | 11 | L | 4 | 64 | 5 | 3 | | | LINO4 |
| 2002 12 26.71 | | S | 8.7 | TJ | 20.3 | L | 6 | 63 | 6 | 3 | | | GUZ |
| 2002 12 26.72 | | S | 8.3 | TJ | 5.0 | B | | 10 | 10 | 3 | | | GUZ |
| 2002 12 27.22 | | S | 9.1 | TK | 11 | L | 4 | 64 | 5.5 | 3 | | | LINO4 |
| 2002 12 28.23 | | S | 8.9 | TK | 11 | L | 4 | 64 | 6 | 3 | | | LINO4 |
| 2002 12 29.27 | | B | 8.7 | TK | 37 | L | 3 | 60 | 9 | 5 | 15 | m 260 | LINO4 |
| 2002 12 31.23 | | S | 8.3 | TK | 11 | L | 4 | 64 | 5.5 | 3 | | | LINO4 |
| 2002 12 31.68 | | S | 7.8 | TJ | 5.0 | B | | 10 | 12 | 4 | | | GUZ |
| 2003 01 01.70 | | M | 8.1 | TJ | 20.3 | L | 6 | 63 | 8 | 4 | | | GUZ |
| 2003 01 01.71 | | M | 7.6 | TJ | 5.0 | B | | 10 | 12 | 4 | | | GUZ |
| 2003 01 01.91 | | S | 8.7 | TI | 5.0 | B | | 10 | 7 | 3/ | | | SIP |
| 2003 01 03.68 | | S | 7.5 | AA | 8.0 | B | | 20 | 4.5 | 4 | 0.2 | 295 | KES01 |
| 2003 01 03.83 | | S | 8.5 | TI | 15.0 | L | 6 | 60 | 4 | 2 | | | ERD |
| 2003 01 05.22 | | B | 7.8 | TK | 37 | L | 3 | 60 | 8.0 | 5 | 12 | m 70 | LINO4 |
| 2003 01 05.71 | | M | 7.5 | TJ | 20.3 | L | 6 | 63 | 8 | 5 | 0.2 | 75 | GUZ |
| 2003 01 05.72 | | M | 7.2 | TJ | 5.0 | B | | 10 | 12 | 5 | | | GUZ |
| 2003 01 07.22 | | S | 7.3 | TK | 5.0 | B | | 10 | 15 | 4 | | | LINO4 |
| 2003 01 08.22 | | S | 7.3 | TK | 11 | L | 4 | 18 | 11 | 4 | | | LINO4 |
| 2003 01 08.71 | | S | 7.3 | TI | 27.0 | L | 6 | 83 | 4 | 2/ | | | TOTO3 |
| 2003 01 09.23 | | S | 7.2 | TK | 5.0 | B | | 10 | 7 | 5 | | | LINO4 |
| 2003 01 11.76 | | S | 7.0 | TI | 4.8 | R | 6 | 15 | 8 | 5 | | | TOTO3 |
| 2003 01 11.79 | | S | 7.0 | TJ | 5.0 | B | | 10 | 8 | 4 | | | GUZ |
| 2003 01 12.72 | | S | 7.3 | AA | 8.0 | B | | 20 | 4 | s3 | | | OSV |
| 2003 01 17.70 | | M | 6.6 | TJ | 5.0 | B | | 10 | 7 | 5 | 0.5 | 60 | GUZ |
| 2003 01 17.71 | | M | 6.8 | TJ | 15 | L | 6 | 48 | 5 | 5 | 0.7 | 60 | GUZ |
| 2003 01 19.72 | | M | 6.5 | TJ | 5.0 | B | | 10 | 7 | 6 | 0.5 | 60 | GUZ |
| 2003 01 19.73 | | M | 6.7 | TJ | 20.3 | L | 6 | 63 | 5 | 6 | 0.8 | 60 | GUZ |
| 2003 01 23.75 | | S | 6.2 | AA | 6.0 | B | | 20 | 6 | 7 | | | BAL04 |
| 2003 01 24.70 | | S | 5.4 | AA | 8.0 | R | 11 | 32 | 9.0 | 6 | | | BAL08 |
| 2003 01 25.69 | | S | 5.3 | AA | 16.0 | L | 6 | 50 | 9.0 | 6 | | | HADO1 |
| 2003 01 26.73 | | S | 6.0 | AA | 8.0 | B | | 20 | 7 | D7 | | | OSV |
| 2003 01 28.74 | | S | 6.1 | TI | 3.0 | B | | 8 | 8 | 7 | | | TOTO3 |
| 2003 01 28.77 | | B | 5.5: | TJ | 5.0 | B | | 10 | 5 | 7/ | 1 | 50 | GUZ |
| 2003 01 29.72 | | S | 5.4 | AA | 8.0 | B | | 11 | 6 | 5 | | | DOM |
| 2003 01 29.73 | | S | 5.3 | AC | 5.0 | B | | 10 | 8 | S8 | | | ERD |
| 2003 01 29.75 | | B | 5.4 | TJ | 5.0 | B | | 10 | 6 | 7/ | 1.5 | 50 | GUZ |
| 2003 02 01.72 | | S | 5.2 | TI | 3.0 | B | | 8 | 12 | 5 | | | MAN02 |
| 2003 02 01.72 | | S | 6.1 | TI | 3.0 | B | | 8 | 8 | 7 | | | TOTO3 |
| 2003 02 01.73 | | I | 4.9: | TI | 0.8 | E | | 1 | | | | | MAN02 |
| 2003 02 01.76 | | ! S | 5.2 | TJ | 0.0 | E | | 1 | 6 | 8 | | | GUZ |
| 2003 02 01.77 | | ! B | 5.3 | TJ | 5.0 | B | | 10 | 6 | 7/ | 1.5 | 50 | GUZ |
| 2003 02 02.72 | | B | 5.0 | TJ | 0.0 | E | | 1 | 6 | 8 | | | GUZ |
| 2003 02 02.73 | | B | 5.1 | TJ | 5.0 | B | | 10 | 6 | 7/ | 3 | 55 | GUZ |
| 2003 02 02.79 | | S | 4.5 | AC | 15.0 | L | 6 | 100 | 3 | 7 | 0.3 | 90 | ERD |
| 2003 02 02.79 | | S | 5.5 | AA | 8.0 | B | | 20 | 3 | 2 | 0.3 | 100 | KES01 |
| 2003 02 03.76 | | S | 5.3 | TK | 5.0 | B | | 10 | | 8 | 1.6 | 50 | ABB |
| 2003 02 05.77 | | S | 4.0: | TK | 7.0 | B | | 15 | 5 | | 0.3 | 55 | MERO5 |
| 2003 02 05.77 | | S | 4.9 | AA | 30 | L | 4 | 30 | 0.7 | 8 | 27 | m 50 | ABB |
| 2003 02 12.69 | | ! B | 2.4 | TJ | 5.0 | B | | 10 | 2 | 8 | 2 | 30 | GUZ |
| 2003 02 12.70 | | ! I | 2.3 | TJ | 0.0 | E | | 1 | 3 | 8/ | | | GUZ |
| 2003 04 04.42 | | B | 8.5 | TK | 10 | B | | 25 | 4 | 4 | | | MAT08 |
| 2003 04 06.42 | | B | 8.5 | TK | 10 | B | | 25 | 4 | 4 | | | MAT08 |
| 2003 05 03.40 | | S | 9.9 | TK | 10 | B | | 25 | 4 | 3 | | | MAT08 |

Comet C/2002 X1 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 03 24.79 | | S | 13.5 | HS | 27.0 | L | 6 | 214 | 0.5 | 2 | | | TOT03 |
| 2003 02 22.85 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.8 | 3 | | | RES |
| 2003 02 23.85 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.6 | 3 | | | RES |
| 2003 02 24.81 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.8 | 3 | | | RES |
| 2003 02 25.79 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.8 | 3 | | | RES |
| 2003 03 01.81 | | S | 13.5 | AC | 41 | L | 5 | 121 | 0.7 | 3 | | | RES |
| 2003 03 02.81 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.7 | 3 | | | RES |
| 2003 03 05.87 | | S | 13.6 | AC | 41 | L | 5 | 121 | 0.6 | 3 | | | RES |

Comet C/2002 X5 (Kudo-Fujikawa)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|-----|-------|
| 2002 01 01.69 | | B | 6.8 | TI | 20.0 | L | 5 | 83 | 2.5 | 5 | | | HOL05 |
| 2002 01 01.69 | | S | 6.6 | AA | 8.0 | B | | 20 | 8 | D7 | | | OSV |
| 2002 01 03.19 | | S | 7.0 | AA | 8.0 | B | | 20 | 6 | 5 | | | KES01 |
| 2002 01 17.21 | | S | 5.8 | AA | 5.0 | B | | 10 | 2 | 7/ | | | DOM |
| 2002 03 22.78 | | S | 10.8 | HS | 27.0 | L | 6 | 120 | 4 | 1 | | | TOT03 |
| 2002 03 24.78 | | S | 11.3 | HS | 27.0 | L | 6 | 120 | 2.5 | 1 | | | TOT03 |
| 2002 12 16.12 | | S | 7.4 | TJ | 5.0 | B | | 10 | 6 | 4 | | | GUZ |
| 2002 12 16.66 | | S | 7.6 | TK | 11 | L | 4 | 64 | 5.5 | 4 | | | LIN04 |
| 2002 12 20.67 | | S | 6.9 | TJ | 5.0 | B | | 10 | 6 | 4 | | | GUZ |
| 2002 12 21.66 | | S | 7.2 | TK | 11 | L | 4 | 64 | 4 | 5 | | | LIN04 |
| 2002 12 23.69 | | S | 6.8 | TJ | 5.0 | B | | 10 | 6 | 4 | | | GUZ |
| 2002 12 23.69 | | S | 7.4 | TJ | 20.3 | L | 6 | 63 | 5 | 4 | 0.1 | 330 | GUZ |
| 2002 12 24.68 | | S | 6.7 | TJ | 5.0 | B | | 10 | 7 | 4 | | | GUZ |
| 2002 12 25.67 | | M | 7.0 | TJ | 20.3 | L | 6 | 63 | 5 | 5 | 0.2 | 330 | GUZ |
| 2002 12 25.68 | | M | 6.6 | TJ | 5.0 | B | | 10 | 7 | 5 | | | GUZ |
| 2002 12 26.68 | | M | 6.5 | TJ | 5.0 | B | | 10 | 7 | 6 | 0.2 | 340 | GUZ |
| 2002 12 31.67 | | M | 6.3 | TJ | 5.0 | B | | 10 | 8 | 6 | 0.3 | 355 | GUZ |
| 2003 01 01.19 | | M | 6.3 | TJ | 5.0 | B | | 10 | 7 | 6 | 0.3 | 355 | GUZ |
| 2003 01 01.68 | | M | 6.3 | TJ | 5.0 | B | | 10 | 7 | 6 | 0.3 | 360 | GUZ |
| 2003 01 05.70 | | M | 6.1 | TJ | 5.0 | B | | 10 | 6 | 6 | 0.5 | 355 | GUZ |
| 2003 01 08.74 | | S | 6.0: | TK | 20.5 | T | 10 | 120 | 5 | 3 | | | MER05 |
| 2003 01 11.68 | | M | 5.9 | TJ | 5.0 | B | | 10 | 5 | 7 | 0.3 | 350 | GUZ |
| 2003 03 21.75 | | S | 9.5 | TJ | 20.3 | L | 6 | 63 | 3 | 3 | | | GUZ |
| 2003 03 24.76 | | S | 10.2 | TJ | 20.3 | L | 6 | 63 | 3 | 3 | | | GUZ |
| 2003 03 26.77 | | S | 10.4 | TJ | 20.3 | L | 6 | 63 | 2.5 | 3 | | | GUZ |
| 2003 03 31.78 | | S | 11.5 | HS | 20.3 | L | 6 | 63 | 1.5 | 3 | | | GUZ |
| 2003 04 04.48 | | S | 12.5: | HS | 28 | T | 10 | 133 | 2 | 1 | | | MAT08 |

Comet C/2002 Y1 (Juels-Holvorcem)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2002 01 12.78 | | S | 12.2 | HS | 27.0 | L | 6 | 83 | 1.5 | 2/ | | | TOT03 |
| 2002 02 19.76 | | S | 8.2 | TI | 27.0 | L | 6 | 60 | 5 | 3 | | | TOT03 |
| 2002 02 23.16 | | S | 7.5 | TI | 20.0 | L | 5 | 83 | 5 | 1 | | | KUL02 |
| 2002 02 25.76 | | S | 7.9 | TI | 27.0 | L | 6 | 60 | 5 | 6 | | | TOT03 |
| 2002 02 27.77 | | S | 7.3 | AA | 16.0 | L | 6 | 50 | 9 | 5 | | | HAD01 |
| 2002 02 28.77 | | S | 7.1 | TI | 8.0 | R | 11 | 52 | 8 | 6 | | | BAL08 |
| 2002 03 24.76 | | S | 6.6 | TI | 5.0 | B | | 10 | 3 | 6 | | | SIP |
| 2003 02 02.00 | | S | 9.5 | TI | 11.0 | L | 8 | 36 | 3.0 | 1 | | | MAN02 |
| 2003 02 02.95 | | S | 9.0 | TJ | 5.0 | B | | 10 | 5 | 3 | | | GUZ |
| 2003 02 12.03 | | S | 8.0 | TI | 6.0 | B | | 20 | 9 | 2/ | | | RES |
| 2003 02 12.98 | | S | 7.9 | TJ | 5.0 | B | | 10 | 8 | 3 | | | GUZ |
| 2003 02 13.02 | | S | 7.7 | TI | 6.0 | B | | 20 | 10 | 2/ | | | RES |
| 2003 02 21.90 | | M | 7.5 | TJ | 20.3 | L | 6 | 63 | 6 | 4 | | | GUZ |
| 2003 02 21.91 | | M | 7.3 | TJ | 5.0 | B | | 10 | 8 | 4 | | | GUZ |
| 2003 02 22.05 | | S | 7.2 | TI | 6.0 | B | | 20 | 10 | 3/ | | | RES |
| 2003 02 22.75 | | M | 7.2 | TJ | 5.0 | B | | 10 | 8 | 5 | | | GUZ |
| 2003 02 22.75 | | M | 7.4 | TJ | 20.3 | L | 6 | 63 | 6 | 5 | | | GUZ |
| 2003 02 22.89 | | S | 7.0 | TI | 6.0 | B | | 20 | 14 | 4 | | | RES |
| 2003 02 23.75 | | M | 7.1 | TJ | 5.0 | B | | 10 | 8 | 5 | | | GUZ |
| 2003 02 23.75 | | M | 7.2 | TJ | 20.3 | L | 6 | 63 | 6 | 5 | | | GUZ |
| 2003 02 23.76 | | S | 6.9 | TI | 6.0 | B | | 20 | 15 | 3/ | | | RES |
| 2003 02 24.83 | | S | 7.0 | TI | 6.0 | B | | 20 | 11 | 3 | | | RES |

Comet C/2002 Y1 (Juels-Holvorcem) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|-----|------|----|------|---|----|-----|------|----|------|-----|-------|
| 2003 02 25.01 | | S | 7.1 | TJ | 5.0 | B | | 10 | 8 | 5 | | | GUZ |
| 2003 02 25.74 | | M | 7.1 | TJ | 5.0 | B | | 10 | 8 | 5 | | | GUZ |
| 2003 02 25.76 | | S | 7.0 | TI | 6.0 | B | | 20 | 12 | 4 | | | RES |
| 2003 02 26.74 | | M | 7.1 | TJ | 5.0 | B | | 10 | 8 | 5 | | | GUZ |
| 2003 03 01.78 | | S | 6.7 | TI | 6.0 | B | | 20 | 11 | 4 | | | RES |
| 2003 03 02.79 | | S | 6.7 | TI | 6.0 | B | | 20 | 9 | 4 | | | RES |
| 2003 03 04.79 | | S | 6.7 | TI | 6.0 | B | | 20 | 9 | 4 | | | RES |
| 2003 03 05.80 | | S | 6.6 | TI | 6.0 | B | | 20 | 9 | 4 | | | RES |
| 2003 03 14.81 | | S | 6.6 | TK | 30 | L | 4 | 30 | 3.6 | 5 | | | ABB |
| 2003 03 20.78 | | B | 6.4 | TJ | 5.0 | B | | 10 | 5 | 7 | | | GUZ |
| 2003 03 21.76 | | B | 6.4 | TJ | 5.0 | B | | 10 | 5 | 7 | | | GUZ |
| 2003 03 22.80 | | ! B | 6.3 | TJ | 5.0 | B | | 10 | 5 | 6 | | | GUZ |
| 2003 03 22.82 | | & B | 6.6 | TK | 8.0 | B | | 15 | 2 | 7 | | | JOH01 |
| 2003 03 22.82 | | a S | 6.6 | TT | 8.0 | B | | 15 | & 3 | 7 | | | SCH04 |
| 2003 03 22.83 | | S | 6.8 | TK | 30 | L | 4 | 48 | 3.3 | 6 | | | ABB |
| 2003 03 23.81 | | S | 6.9 | TK | 30 | L | 4 | 48 | 3.4 | 6 | | | ABB |
| 2003 03 23.82 | | a S | 6.6 | TT | 8.0 | B | | 15 | & 3 | 7 | | | SCH04 |
| 2003 03 24.77 | | B | 6.3 | TJ | 5.0 | B | | 10 | 5 | 6 | | | GUZ |
| 2003 03 24.77 | | B | 6.3 | TJ | 20.3 | L | 6 | 63 | 4 | 6 | 0.7 | 350 | GUZ |
| 2003 03 31.15 | | a S | 6.5 | TT | 8.0 | B | | 15 | 8 | 6 | &0.3 | 345 | SCH04 |
| 2003 04 01.15 | | a S | 6.5 | TT | 8.0 | B | | 15 | 6 | 7 | &0.3 | 340 | SCH04 |
| 2003 04 02.10 | | S | 6.6 | AA | 8 | R | 6 | 19 | 3 | S7 | 1.2 | 18 | KOS |
| 2003 04 04.14 | | a S | 6.4 | TT | 8.0 | B | | 15 | & 7 | 7 | | | SCH04 |
| 2003 04 05.11 | | S | 6.2 | AA | 5.0 | B | | 7 | 2 | 8 | 0.4 | 5 | KOS |
| 2003 04 05.11 | | S | 6.2 | AA | 8 | R | 6 | 19 | 2 | S8 | 0.8 | 5 | KOS |
| 2003 04 07.14 | | a S | 6.4 | TT | 8.0 | B | | 15 | & 4 | 7 | | | SCH04 |
| 2003 04 10.10 | | S | 6.1 | AA | 8 | R | 6 | 19 | 2 | S8 | 0.5 | 350 | KOS |
| 2003 05 03.35 | | S | 7.0 | TK | 8.0 | B | | 20 | 4 | 6/ | | | AM001 |
| 2003 05 07.80 | | S | 6.8: | AA | 10.0 | B | | 25 | 6 | 6 | | | SEA |
| 2003 05 08.36 | | S | 7.0 | TK | 8.0 | B | | 20 | 6 | 7 | | | AM001 |
| 2003 05 09.36 | | S | 7.0 | TK | 8.0 | B | | 20 | 5 | 7 | | | AM001 |
| 2003 05 11.35 | | S | 7.0 | TK | 8.0 | B | | 20 | 4 | 6 | | | AM001 |
| 2003 05 12.35 | | S | 7.1 | TK | 8.0 | B | | 20 | 4 | 6/ | | | AM001 |
| 2003 05 13.36 | | S | 7.1 | TK | 8.0 | B | | 20 | 4 | 6/ | | | AM001 |
| 2003 05 17.35 | | S | 7.4 | TJ | 8.0 | B | | 11 | 4 | 4/ | | | SOU01 |
| 2003 05 21.35 | | S | 7.5 | TK | 8.0 | B | | 20 | 4 | 6 | | | AM001 |
| 2003 05 24.31 | | S | 7.6 | TK | 8.0 | B | | 20 | 4 | 5 | | | AM001 |
| 2003 05 25.29 | | S | 7.6 | TK | 8.0 | B | | 20 | 4 | 5 | | | AM001 |
| 2003 05 25.82 | | B | 7.9 | TK | 10 | B | | 25 | 3 | 5 | | | MAT08 |
| 2003 05 26.36 | | S | 7.6 | TK | 8.0 | B | | 20 | 3 | 5 | | | AM001 |
| 2003 05 26.80 | | x M | 8.2 | TT | 20.0 | L | 5 | 31 | 3.3 | | | | TSU02 |
| 2003 05 27.36 | | S | 7.7: | TK | 8.0 | B | | 20 | | | | | AM001 |
| 2003 05 28.35 | | S | 7.6 | TK | 8.0 | B | | 20 | 4 | 5 | | | AM001 |
| 2003 05 29.36 | | S | 7.7 | TK | 8.0 | B | | 20 | 6 | 5 | | | AM001 |
| 2003 05 29.82 | | B | 8.0 | TK | 10 | B | | 25 | 4 | 5 | | | MAT08 |
| 2003 05 29.82 | | x M | 8.5 | TT | 20.0 | L | 5 | 31 | 4 | 4 | | | TSU02 |
| 2003 05 30.36 | | S | 7.7 | TK | 8.0 | B | | 20 | 5 | 5 | | | AM001 |
| 2003 05 30.83 | | x M | 8.3 | TT | 20.0 | L | 5 | 31 | 6 | 5 | | | TSU02 |
| 2003 05 31.32 | | S | 7.7 | TK | 8.0 | B | | 20 | 4 | 4 | | | AM001 |
| 2003 05 31.78 | | B | 7.9 | GA | 10.0 | B | | 25 | 9 | 5 | | | SEA |
| 2003 06 02.76 | | M | 8.0 | TT | 7.0 | B | | 15 | 6 | 5 | | | RAE |
| 2003 06 10.74 | | M | 8.2 | TT | 7.0 | B | | 15 | 7 | 5 | | | RAE |
| 2003 06 11.74 | | M | 8.2 | TT | 7.0 | B | | 15 | 6 | 5 | | | RAE |
| 2003 06 12.74 | | M | 8.4 | TT | 7.0 | B | | 15 | 7 | 5 | | | RAE |
| 2003 06 16.36 | | S | 8.6 | TK | 8.0 | B | | 20 | 3 | 4 | | | AM001 |
| 2003 06 21.28 | | S | 8.7 | TK | 14.3 | L | | 40 | 3 | 1/ | | | AM001 |
| 2003 06 21.29 | | S | 8.5 | TK | 8.0 | B | | 20 | 4 | 1 | | | AM001 |
| 2003 06 22.28 | | S | 8.8: | TK | 8.0 | B | | 20 | | | | | AM001 |
| 2003 06 27.36 | | S | 8.9 | TK | 8.0 | B | | 20 | 5 | 1 | | | AM001 |
| 2003 06 28.35 | | S | 8.9 | TK | 8.0 | B | | 20 | 5 | 2 | | | AM001 |
| 2003 06 29.30 | | S[| 9.0 | TK | 14.3 | L | | 40 | | | | | AM001 |
| 2003 06 30.35 | | S | 8.9 | TK | 8.0 | B | | 20 | 4 | 2 | | | AM001 |
| 2003 07 01.36 | | S | 9.0 | TK | 8.0 | B | | 20 | 4 | 1 | | | AM001 |
| 2003 07 02.37 | | S | 9.1 | TK | 8.0 | B | | 20 | 4 | 1 | | | AM001 |
| 2003 07 03.74 | | S | 9.0 | AA | 10.0 | B | | 25 | 5 | 4 | | | SEA |

Comet C/2002 Y1 (Juels-Holvorcem) [cont.]

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 07 05.75 | | M | 9.1 | TT | 20 | L | 4 | 25 | 6 | 3 | | | RAE |
| 2003 07 11.25 | | S | 10.1 | TK | 14.3 | L | | 80 | 3 | 0 | | | AM001 |

Comet C/2003 G2 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|-----|---|----|-----|------|----|------|----|-------|
| 2003 04 21.45 | | S | [13.3 | HS | 28 | T | 10 | 133 | | | | | MAT08 |

Comet C/2003 H1 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 06 03.64 | | S | [14.0 | HS | 28 | T | 10 | 310 | | | | | MAT08 |
| 2003 06 03.98 | x | S | 13.6 | HS | 30 | L | 4 | 191 | 0.7 | 3/ | | | GRA09 |
| 2003 06 22.90 | | S | [14.0 | HS | 44.0 | L | 5 | 156 | | | | | HASO2 |
| 2003 07 20.90 | | B | 13.8 | HS | 42 | L | 5 | 81 | 0.5 | 4 | | | LEH |

Comet P/2003 K2 (Christensen)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|-----|---|----|-----|------|----|------|----|-------|
| 2003 06 01.32 | | I | [14.6 | HS | 37 | L | 3 | 415 | | | | | LINO4 |

Comet C/2003 K4 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|------|---|----|-----|------|----|------|----|-------|
| 2003 06 22.91 | | S | [14.0 | HS | 44.0 | L | 5 | 156 | | | | | HASO2 |

Comet P/2003 KV_2 (LINEAR)

| DATE (UT) | N | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---------------|---|----|-------|----|-----|---|----|-----|------|----|------|----|-------|
| 2003 06 27.48 | | S | [13.0 | HS | 28 | T | 10 | 133 | | | | | MAT08 |
| 2003 07 02.42 | | S | [13.5 | HS | 28 | T | 10 | 133 | | | | | MAT08 |

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Non-Visual Data (new format)

TABULATED NON-VISUAL DATA

The new format for non-visual data was introduced in the October 2001 issue of the *ICQ*, chiefly to help researchers make more sense of comet photometry obtained with CCD cameras, to determine what effects various instrumental factors play (spectral responses, exposure times, photometric aperture sizes, etc.). As described in that issue, almost all of the new information is added to the original observation records in columns 81-129, thereby leaving the first 80 columns essentially unchanged (except that in the "coma-diameter" column, true coma diameters are now given without exception in the new format; the old format allowed CCD users to put instead an aperture size in the "coma-diameter" column, but this is now allowed for in columns 87-93 of the new-format records). See also page 208 of the July 2002 issue.

Most of the columns below are as for the visual data (described on pages 126-127 of this issue). While electronic magnitudes *can* be submitted to 0.01 magnitude, for many reasons it is highly advised to continue giving total comet magnitudes only to 0.1 mag. Similarly, it is advised to continue giving all times to 0.01 day, as 0.001 day is usually unnecessary for cometary photometry.

The headings for the tabulated data are as follows: The date (UT), notes, magnitude method (including filters for CCDs, and "P" for photographs), magnitude, reference, instrument aperture, instrument type, instrument *f*-ratio, exposure time, coma diameter, degree of condensation, tail length and position angle, and observer are all as described for the visual tabulation. The column headed "APERTUR" gives the photometric aperture, preceded by "S" for square aperture and "C" for circular aperture, and followed by "d" for degrees, "m" for arcmin, and "s" for arcsec. The column "Chp" contains the 3-character code for the computer chip, given to indicate spectral response of the CCD camera. This column will also be used to indicate photographic emulsion when such information is provided for photographic photometry. The column "Sfw" contains the 3-character code for the software used to actually perform the photometric measures (not solely to extract comparison-star magnitudes). A lower-case "a" between these two columns indicates an anti-blooming CCD. The column headed "C" gives a number as follows: 0 = no correction; 1 = correction for bias (bias subtracted); 2 = flat-field corrected (flat-fielded); 3 = 1 + 2; 4 = dark-subtracted (and bias-subtracted) 5 = 2 + 4. The column headed "P" includes a P if the images used to measure the photometry were also measured for astrometry *and* those astrometric measures were published in the *Minor Planet Circulars* (meaning they were refereed); a U in this column indicates that the respective astrometric was sent to the MPC for publication but that either (a) they are unpublished

at the time of reporting the photometry or (b) the observer is unaware of the publication status; a blank in this column indicates that no astrometry was measured. The 3-character CCD-camera code is listed under "Cam".

◇ ◇ ◇

Comet 7P/Pons-Winnecke

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 03 05.16 | | C | 16.0 | AO | 31 | T | 3 | a300 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.11 | | J | 15.3 | HI | 31 | T | 3 | a300 | 0.2 | | | | C 0.2 m | K40 | AfP | 3 | | H24 | SOS |

Comet 19P/Borrelly

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|---------|----|---------|-----|-----|---|---|-----|------|
| 2002 02 17.04 | | H | 12.2 | HI | 31 | T | 3 | a120 | 1.7 | | | | C 1.7 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.04 | | H | 12.9 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.04 | | J | 13.1 | HI | 31 | T | 3 | a120 | 1.7 | | | | C 1.7 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.04 | | J | 13.9 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.05 | | C | 12.7 | HI | 31 | T | 3 | a120 | 1.7 | | | | C 1.7 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.05 | | C | 13.4 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.05 | | k | 12.7 | HI | 31 | T | 3 | a120 | 1.7 | | | | C 1.7 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.05 | | k | 13.4 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 17.15 | | C | 13.5 | HI | 31 | T | 3 | A200 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.08 | | C | 13.4 | AO | 31 | T | 3 | a300 | 1.5 | | 5.0m300 | | C 1.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.08 | | C | 14.3 | AO | 31 | T | 3 | a300 | 0.7 | | 5.0m300 | | C 0.7 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.08 | | C | 15.0 | AO | 31 | T | 3 | a300 | 0.4 | | 5.0m300 | | C 0.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 24.91 | | J | 15.4 | HI | 31 | T | 3 | a300 | 0.7 | | | | C 0.7 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 24.99 | | H | 13.9 | HI | 31 | T | 3 | a300 | 1.4 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 24.99 | | H | 14.3 | HI | 31 | T | 3 | a300 | 0.7 | | | | C 0.7 m | K40 | AfP | 3 | | H24 | SOS |

Comet 29P/Schwassmann-Wachmann

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|------|----|---------|------|-----|---|---|-----|-------|
| 2003 05 21.76 | | C | 13.4 | TJ | 25.0L | | 5 | a 60 | 0.3 | | | | S 0.3 m | K26 | SI4 | 5 | U | ST9 | KAD02 |
| 2003 06 05.77 | x | C | 12.8 | HV | 60.0Y | | 6 | a120 | 2.1 | 5 | | | S 2.1 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.77 | x | c | 15.2 | HV | 60.0Y | | 6 | a120 | | | | | S10.0 s | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 25.68 | ax | C | 12.9 | HV | 35.0C | | 9 | a 90 | 2.2 | | | | S 1.42m | KAIa | SI3 | 5 | | ST2 | TSU02 |

Comet 30P/Reinmuth

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|---------|----|---------|------|-----|-----|-----|-------|-------|
| 2003 03 06.83 | | C | 14.0 | UO | 11.0L | | 7 | a300 | 0.16 | 4 | | | | T25 | A32 | 4 | U | PIX | SHU |
| 2003 03 07.89 | | C | 14.1 | UO | 11.0L | | 7 | a360 | 0.18 | 4 | | | | T25 | A32 | 2 | U | PIX | SHU |
| 2003 03 14.81 | | C | 13.7 | UO | 11.0L | | 7 | a480 | 0.11 | 4 | | | | T25 | A32 | 2 | U | PIX | SHU |
| 2003 04 21.88 | d | k | 14.3 | LA | 35 | L | 5 | a540 | 1.0 | | 3.5m270 | | C 2.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 04 21.88 | d | k | 14.7 | LA | 35 | L | 5 | a540 | 1.0 | | 3.5m270 | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 04 21.88 | d | k | 15.4 | LA | 35 | L | 5 | a540 | 1.0 | | 3.5m270 | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 04 28.02 | d | k | 15.2 | LA | 35 | L | 5 | a600 | 0.7 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 04 28.02 | d | k | 15.5 | LA | 35 | L | 5 | a600 | 0.7 | | | | C 0.70m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 04 28.02 | d | k | 15.9 | LA | 35 | L | 5 | a600 | 0.7 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 01.50 | ax | C | 16.3 | TJ | 20.0L | | 4 | a480 | 0.3 | | | | S 0.3 m | K41a | SI3 | 5 | | SE7 | OHS |
| 2003 05 01.54 | ax | C | 14.5 | HV | 35.0C | | 9 | a120 | 0.6 | 4 | | | S 1.93m | KAIa | SI3 | 5 | | ST2 | TSU02 |
| 2003 05 03.85 | d | k | 14.6 | LA | 35 | L | 5 | A170 | 0.65 | | 1.8m128 | | C 2.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 03.85 | d | k | 15.2 | LA | 35 | L | 5 | A170 | 0.65 | | 1.8m128 | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 03.85 | d | k | 15.5 | LA | 35 | L | 5 | A170 | 0.65 | | 1.8m128 | | C 0.65m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 03.85 | d | k | 15.8 | LA | 35 | L | 5 | A170 | 0.65 | | 1.8m128 | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 04.84 | d | k | 15.3 | LA | 35 | L | 5 | a900 | 0.78 | | 1.3m135 | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 04.84 | d | k | 15.5 | LA | 35 | L | 5 | a900 | 0.78 | | 1.3m135 | | C 0.78m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 04.84 | d | k | 15.8 | LA | 35 | L | 5 | a900 | 0.78 | | 1.3m135 | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 09.52 | ax | C | 15.8 | HV | 35.0C | | 9 | a540 | 0.5 | 3 | | | S 0.86m | KAIa | SI3 | 5 | | ST2 | TSU02 |
| 2003 05 23.53 | | C | 16.5 | GA | 60.0Y | | 6 | a240 | 0.65 | | 0.9m111 | | S 0.65m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet 43P/Wolf-Harrington

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2003 07 26.99 | | C | 16.3 | UO | 11.0L | | 7 | a720 | 0.83 | 2 | | | | T25 | A32 | 4 | | PIX | SHU |

Comet 44P/Reinmuth

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 02 24.87 | | C | 18.2 | HI | 31 | T | 3 | a300 | 0.4 | | | | C 0.4 m | K40 | AfP | 3 | | H24 | SOS |

Comet 53P/Van Biesbroeck

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|---------|----|---------|---------|-----|---|---|-----|-------|
| 2003 04 27.63 | x | C | 14.8 | TJ | 20.0L | | 4 | a120 | 0.4 | | | | S 0.4 m | K41aSI3 | 5 | | | SE7 | OHS |
| 2003 05 05.65 | a | C | 14.8 | GA | 60.0Y | | 6 | a120 | 0.65 | | 2.4m276 | | S 0.65m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 09.62 | ax | C | 14.5 | HV | 35.0C | | 9 | a120 | 0.6 | 5 | 5.0m275 | | S 1.16m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 05 23.62 | | C | 14.1 | GA | 60.0Y | | 6 | a120 | 0.85 | | 2.0m272 | | S 0.85m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 01.58 | | C | 14.0 | GA | 60.0Y | | 6 | a120 | 0.85 | | 2.0m272 | | S 0.85m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.61 | ax | C | 14.1 | HV | 35.0C | | 9 | a120 | 0.8 | 5 | | | S 0.85m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 06 20.56 | ax | C | 13.8 | HV | 35.0C | | 9 | a120 | 0.7 | 5 | | | S 0.94m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 06 25.55 | ax | C | 13.9 | HV | 35.0C | | 9 | a120 | 0.8 | 5 | | | S 1.62m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 07 07.48 | | C | 14.2 | GA | 60.0Y | | 6 | a120 | 1.1 | | | | S 1.1 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 31.48 | ax | C | 14.9 | HV | 35.0C | | 9 | a 90 | 0.4 | 5 | | | S 0.88m | KAIaSI3 | 5 | | | ST2 | TSU02 |

Comet 65P/Gunn

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|-------|----|---------|----|---------|---------|-----|---|---|-----|-------|
| 2002 02 19.16 | | C | 15.1 | HI | 31 | T | 3 | a300 | 0.4 | | | | C 0.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.10 | | C | 15.0 | AO | 31 | T | 3 | a300 | 0.4 | | 1.0m300 | | C 0.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.10 | | C | 15.8 | AO | 31 | T | 3 | a300 | 0.2 | | 1.0m300 | | C 0.2 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.82 | | H | 14.6 | HI | 31 | T | 3 | a300 | + 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.83 | | L | 15.7 | HI | 31 | T | 3 | a540 | + 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.84 | | J | 15.0 | HI | 31 | T | 3 | a300 | + 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.84 | | k | 14.4 | HI | 31 | T | 3 | a300 | + 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2003 05 03.75 | x | C | 13.3 | TJ | 20.0L | | 4 | a120 | 0.4 | | | | S 0.4 m | K41aSI3 | 5 | | | SE7 | OHS |
| 2003 05 09.78 | x | C | 13.3 | TJ | 60.0Y | | 6 | a120 | 1.05 | | 2.7m287 | | S 1.05m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.68 | x | C | 12.6 | TJ | 60.0Y | | 6 | a120 | 1.3 | | 3.2m280 | | S 1.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 02.61 | ax | C | 12.1 | HV | 35.0C | | 9 | a120 | 0.6 | 4 | | | S 1.42m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 07 25.59 | ax | C | 13.8 | HV | 35.0C | | 9 | a 90 | 0.5 | 5 | | | S 0.50m | KAIaSI3 | 5 | | | ST2 | TSU02 |

Comet 66P/du Toit

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 05 05.52 | | C | 17.7 | GA | 60.0Y | | 6 | a240 | 0.3 | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.50 | | C | 17.1 | GA | 60.0Y | | 6 | a240 | 0.35 | | | | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 01.49 | | C | 17.0 | GA | 60.0Y | | 6 | a120 | 0.35 | | | 20 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 20.50 | | C | 15.8 | GA | 60.0Y | | 6 | a120 | 0.6 | | | | S 0.6 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet 67P/Churyumov-Gerasimenko

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. | |
|---------------|---|---|------|----|-------|---|----|------|------|----|-----------|----|---------|-----|-----|---|---|-----|-------|-----|
| 2003 03 06.87 | | C | 15.9 | UO | 11.0L | | 7 | a480 | 0.20 | 3 | | | | T25 | A32 | 4 | U | PIX | SHU | |
| 2003 03 21.82 | | C | 15.6 | UO | 11.0L | | 7 | a540 | 0.21 | 3 | | | | T25 | A32 | 4 | | | PIX | SHU |
| 2003 05 05.48 | | C | 16.2 | GA | 60.0Y | | 6 | a240 | 0.75 | 1 | > 4.2m304 | | S 0.75m | SIA | IPL | 5 | U | Ap7 | NAK01 | |

Comet 74P/Smirnova-Chernykh

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 06 05.70 | x | C | 17.5 | HV | 60.0Y | | 6 | a240 | 0.3 | | | 270 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet 77P/Longmore

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 03 05.03 | | C | 14.9 | AO | 31 | T | 3 | a300 | 1.4 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.03 | | C | 15.4 | AO | 31 | T | 3 | a300 | 0.7 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 05.03 | | C | 15.8 | AO | 31 | T | 3 | a300 | 0.3 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |

Comet 81P/Wild

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|----|---|-----|-------|
| 2003 04 21.82 | d | k | 14.1 | LA | 35 | L | 5 | a480 | 0.73 | | | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.82 | d | k | 14.2 | LA | 35 | L | 5 | a480 | 0.73 | | | | C 0.73m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.82 | d | k | 14.5 | LA | 35 | L | 5 | a480 | 0.73 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |

Comet 81P/Wild [cont.]

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|------|----|---------|---------|-----|----|---|-----|-------|
| 2003 04 22.82 | d | k | 14.3 | LA | 35 | L | 5 | a420 | 0.77 | | | | C 0.77m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 22.82 | d | k | 14.6 | LA | 35 | L | 5 | a420 | 0.77 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 24.83 | d | k | 14.4 | LA | 35 | L | 5 | a840 | 0.67 | | | | C 0.67m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 01.45 | ax | C | 14.8 | HV | 35.0C | | 9 | a 90 | 0.4 | 4 | | | S 0.63m | KAIaSI3 | | 5 | | ST2 | TSU02 |
| 2003 05 01.47 | x | C | 14.6 | TJ | 20.0L | | 4 | a120 | 0.5 | | | | S 0.5 m | K41aSI3 | | 5 | | SE7 | OHS |

Comet 100P/Hartley

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 05 02.51 | | C | 19.0 | GA | 60.0Y | | 6 | a240 | 0.25 | | | | S 0.25m | SIa | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.55 | | C | 18.6 | GA | 60.0Y | | 6 | a240 | 0.3 | | | 100 | S 0.3 m | SIa | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.52 | | C | 18.8 | GA | 60.0Y | | 6 | a240 | 0.25 | | | 100 | S 0.25m | SIa | IPL | 5 | U | Ap7 | NAK01 |

Comet 116P/Wild

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|--------|-----|---------|---------|-----|---|---|-----|-------|
| 2003 04 30.70 | a | C | 12.3 | GA | 60.0Y | | 6 | a120 | 1.7 | | > 7.9m | 289 | S 1.7 m | SIa | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 01.56 | x | C | 12.8 | TJ | 20.0L | | 4 | a120 | 0.6 | | 3.6m | 290 | S 0.6 m | K41aSI3 | | 5 | | SE7 | OHS |
| 2003 05 03.57 | ax | C | 13.0 | HV | 35.0C | | 9 | a120 | 1.0 | 5 | 7.5m | 287 | S 1.95m | KAIaSI3 | | 5 | | ST2 | TSU02 |
| 2003 05 23.61 | a | C | 12.1 | GA | 60.0Y | | 6 | a120 | 1.8 | | > 4.7m | 291 | S 1.8 m | SIa | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.59 | ax | C | 12.3 | HV | 35.0C | | 9 | a 90 | 1.5 | 5 | 5 m | 295 | S 1.35m | KAIaSI3 | | 5 | | ST2 | TSU02 |
| 2003 06 20.55 | ax | C | 13.3 | HV | 35.0C | | 9 | a120 | 1.0 | 5 | | | S 1.15m | KAIaSI3 | | 5 | | ST2 | TSU02 |
| 2003 06 25.52 | ax | C | 13.2 | HV | 35.0C | | 9 | a120 | 1.2 | 5 | | | S 2.00m | KAIaSI3 | | 5 | | ST2 | TSU02 |
| 2003 07 31.46 | ax | C | 14.1 | HV | 35.0C | | 9 | a120 | 0.5 | 5 | | | S 0.73m | KAIaSI3 | | 5 | | ST2 | TSU02 |

Comet 153P/Ikeya-Zhang

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 02 24.75 | H | | 7.1 | HI | 31 | T | 3 | a 30 | 1.9 | | | | C 1.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.75 | H | | 7.5 | HI | 31 | T | 3 | a 30 | 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.75 | H | | 8.1 | HI | 31 | T | 3 | a 30 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.76 | J | | 6.7 | HI | 31 | T | 3 | a 30 | 1.9 | | | | C 1.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.76 | J | | 7.1 | HI | 31 | T | 3 | a 30 | 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.76 | J | | 8.0 | HI | 31 | T | 3 | a 30 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.77 | L | | 7.3 | HI | 31 | T | 3 | a 30 | 1.9 | | | | C 1.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.77 | L | | 7.8 | HI | 31 | T | 3 | a 30 | 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.77 | L | | 8.6 | HI | 31 | T | 3 | a 30 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.77 | k | | 7.3 | HI | 31 | T | 3 | a 30 | 1.9 | | | | C 1.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.77 | k | | 7.7 | HI | 31 | T | 3 | a 30 | 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 02 24.77 | k | | 8.3 | HI | 31 | T | 3 | a 30 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.77 | H | | 4.7 | HI | 31 | T | 3 | a 16 | 2.3 | | | | C 2.3 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.77 | H | | 5.2 | HI | 31 | T | 3 | a 16 | 1.2 | | | | C 1.2 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.77 | H | | 5.9 | HI | 31 | T | 3 | a 16 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.78 | J | | 5.0 | HI | 31 | T | 3 | a 16 | 2.3 | | | | C 2.3 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.78 | J | | 5.4 | HI | 31 | T | 3 | a 16 | 1.2 | | | | C 1.2 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.78 | J | | 6.0 | HI | 31 | T | 3 | a 16 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.79 | k | | 5.2 | HI | 31 | T | 3 | a 20 | 2.3 | | | | C 2.3 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.79 | k | | 5.6 | HI | 31 | T | 3 | a 20 | 1.2 | | | | C 1.2 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 10.79 | k | | 6.2 | HI | 31 | T | 3 | a 20 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 11.76 | H | | 3.7 | HI | 31 | T | 3 | a 10 | 4.6 | | | | C 4.6 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 11.76 | H | | 5.0 | HI | 31 | T | 3 | a 10 | 2.3 | | | | C 2.3 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 11.76 | H | | 5.5 | HI | 31 | T | 3 | a 10 | 1.2 | | | | C 1.2 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 11.76 | H | | 6.2 | HI | 31 | T | 3 | a 10 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 11.78 | J | | 4.9 | HI | 31 | T | 3 | a 15 | 4.6 | | | | C 4.6 m | K40 | AfP | 3 | 1 | H24 | SOS |
| 2002 03 11.78 | J | | 5.2 | HI | 31 | T | 3 | a 15 | 2.3 | | | | C 2.3 m | K40 | AfP | 3 | 1 | H24 | SOS |
| 2002 03 11.78 | J | | 5.7 | HI | 31 | T | 3 | a 15 | 1.2 | | | | C 1.2 m | K40 | AfP | 3 | 1 | H24 | SOS |
| 2002 03 11.78 | J | | 6.2 | HI | 31 | T | 3 | a 15 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | 1 | H24 | SOS |
| 2002 03 23.77 | H | | 3.8 | HI | 31 | T | 3 | a 10 | 3.2 | | | | C 3.2 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 23.77 | H | | 4.3 | HI | 31 | T | 3 | a 10 | 1.6 | | | | C 1.6 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 23.77 | H | | 4.5 | HI | 31 | T | 3 | a 10 | 1.2 | | | | C 1.2 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 23.77 | H | | 4.8 | HI | 31 | T | 3 | a 10 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 23.77 | H | | 5.8 | HI | 31 | T | 3 | a 10 | 0.4 | | | | C 0.4 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 03 23.77 | H | | 6.8 | HI | 31 | T | 3 | a 10 | 0.2 | | | | C 0.2 m | K40 | AfP | 3 | 3 | H24 | SOS |
| 2002 04 27.87 | H | | 6.4 | HI | 31 | T | 3 | a300 | 5.6 | | | | C 5.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 04 27.87 | H | | 7.1 | HI | 31 | T | 3 | a300 | 2.8 | | | | C 2.8 m | K40 | AfP | 3 | | H24 | SOS |

Comet 153P/Ikeya-Zhang [cont.]

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 05 01.88 | | H | 6.6 | HI | 31 | T | 3 | a100 | 5.6 | | | | C 5.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.88 | | H | 7.3 | HI | 31 | T | 3 | a100 | 2.8 | | | | C 2.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.88 | | H | 8.1 | HI | 31 | T | 3 | a100 | 1.4 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | J | 5.9 | HI | 31 | T | 3 | a100 | 5.6 | | | | C 5.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | J | 6.7 | HI | 31 | T | 3 | a100 | 2.8 | | | | C 2.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | J | 7.7 | HI | 31 | T | 3 | a100 | 1.4 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | L | 6.3 | HI | 31 | T | 3 | a100 | 5.6 | | | | C 5.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | L | 7.1 | HI | 31 | T | 3 | a100 | 2.8 | | | | C 2.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | L | 8.1 | HI | 31 | T | 3 | a100 | 1.4 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | k | 6.5 | HI | 31 | T | 3 | a100 | 5.6 | | | | C 5.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | k | 7.1 | HI | 31 | T | 3 | a100 | 2.8 | | | | C 2.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 05 01.89 | | k | 8.0 | HI | 31 | T | 3 | a100 | 1.4 | | | | C 1.4 m | K40 | AfP | 3 | | H24 | SOS |

Comet 155P/Shoemaker

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|---------|----|---------|-----|-----|---|---|-----|-------|
| 2003 05 02.48 | | C | 18.5 | GA | 60.OY | | 6 | a240 | 0.3 | | 1.3m112 | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.51 | | C | 19.9 | GA | 60.OY | | 6 | a240 | 0.25 | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/1999 U4 (Catalina-Skiff)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|---------|----|---------|-----|-----|-----|-----|-------|-------|
| 2002 03 05.06 | | C | 17.0 | A0 | 31 | T | 3 | a300 | 0.5 | | 1.5m304 | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 24.86 | | J | 15.9 | HI | 31 | T | 3 | a300 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2003 05 03.95 | d | k | 16.2 | LA | 35 | L | 5 | a900 | 0.57 | | 5.6m331 | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 03.95 | d | k | 16.7 | LA | 35 | L | 5 | a900 | 0.57 | | 5.6m331 | | C 0.57m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 04.94 | d | k | 16.5 | LA | 35 | L | 5 | a990 | 0.63 | | 3.6m334 | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 04.94 | d | k | 16.7 | LA | 35 | L | 5 | a990 | 0.63 | | 3.6m334 | | C 0.63m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 05 23.58 | | C | 17.2 | GA | 60.OY | | 6 | a240 | 0.45 | | | | S 0.45m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.55 | | C | 17.2 | GA | 60.OY | | 6 | a240 | 0.6 | | | | S 0.6 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2000 SV_74 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. | |
|---------------|----|---|------|----|-------|---|----|------|------|----|------|----|---------|---------|-----|-----|-----|-------|-------|-----|
| 2002 03 11.84 | | J | 14.8 | HI | 31 | T | 3 | a 60 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | | H24 | SOS | |
| 2002 03 11.84 | | J | 15.8 | HI | 31 | T | 3 | a 60 | 0.3 | | | | C 0.3 m | K40 | AfP | 3 | | H24 | SOS | |
| 2002 03 11.85 | | k | 14.4 | HI | 31 | T | 3 | a 60 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | | H24 | SOS | |
| 2002 03 11.85 | | k | 15.5 | HI | 31 | T | 3 | a 60 | 0.3 | | | | C 0.3 m | K40 | AfP | 3 | | H24 | SOS | |
| 2002 03 11.88 | | H | 13.8 | HI | 31 | T | 3 | a 60 | 0.6 | | | | C 0.6 m | K40 | AfP | 3 | | H24 | SOS | |
| 2002 03 11.88 | | H | 14.9 | HI | 31 | T | 3 | a 60 | 0.3 | | | | C 0.3 m | K40 | AfP | 3 | | H24 | SOS | |
| 2003 03 15.76 | | C | 15.4 | U0 | 11.O | L | 7 | a312 | 0.10 | 8 | | | | | T25 | A32 | 2 | U | PIX | SHU |
| 2003 04 22.00 | d | k | 14.7 | LA | 35 | L | 5 | a990 | 1.5 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 22.00 | d | k | 15.4 | LA | 35 | L | 5 | a990 | 1.5 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 22.91 | d | k | 14.5 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 2.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 24.91 | d | k | 14.6 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 1.30m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 24.91 | d | k | 14.8 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 24.91 | d | k | 15.3 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 27.89 | d | k | 14.5 | LA | 35 | L | 5 | A170 | 1.9 | | | | C 1.90m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 27.89 | d | k | 14.8 | LA | 35 | L | 5 | A170 | 1.9 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 27.89 | d | k | 15.3 | LA | 35 | L | 5 | A170 | 1.9 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 04 30.68 | | C | 15.3 | GA | 60.OY | | 6 | a120 | 0.75 | | 5.0m | 6 | S 0.75m | SIA | IPL | 5 | U | Ap7 | NAK01 | |
| 2003 05 03.52 | ax | C | 15.2 | HV | 35.O | | 9 | a120 | 0.8 | 4 | | | S 1.23m | KAIaSI3 | | 5 | | ST2 | TSU02 | |
| 2003 05 03.87 | d | k | 14.5 | LA | 35 | L | 5 | a720 | 1.3 | | | | C 2.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 03.87 | d | k | 14.7 | LA | 35 | L | 5 | a720 | 1.3 | | | | C 1.30m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 03.87 | d | k | 14.9 | LA | 35 | L | 5 | a720 | 1.3 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 03.87 | d | k | 15.4 | LA | 35 | L | 5 | a720 | 1.3 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 04.86 | d | k | 14.4 | LA | 35 | L | 5 | a900 | 1.6 | | | | C 2.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 04.86 | d | k | 14.5 | LA | 35 | L | 5 | a900 | 1.6 | | | | C 1.60m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 04.86 | d | k | 14.8 | LA | 35 | L | 5 | a900 | 1.6 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 04.86 | d | k | 15.4 | LA | 35 | L | 5 | a900 | 1.6 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 06.96 | d | k | 14.8 | LA | 35 | L | 5 | a990 | 1.5 | | | | C 1.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 06.96 | d | k | 14.8 | LA | 35 | L | 5 | a990 | 1.5 | | | | C 2.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 06.96 | d | k | 15.0 | LA | 35 | L | 5 | a990 | 1.5 | | | | C 1.00m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 06.96 | d | k | 15.5 | LA | 35 | L | 5 | a990 | 1.5 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | | |
| 2003 05 09.60 | ax | C | 15.0 | HV | 35.O | | 9 | a120 | 0.5 | 4 | | | S 1.32m | KAIaSI3 | | 5 | | ST2 | TSU02 | |

Comet C/2000 SV_74 (LINEAR) [cont.]

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|----|---------|---------|-----|----|-----|-------|-------|
| 2003 05 20.57 | | C | 15.5 | GA | 60.0Y | 6 | a120 | 0.8 | | | | | S 0.8 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.93 | d | k | 14.7 | LA | 35 | L | 5 | a630 | 1.1 | | | | C 2.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 23.93 | d | k | 15.1 | LA | 35 | L | 5 | a630 | 1.1 | | | | C 1.10m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 23.93 | d | k | 15.6 | LA | 35 | L | 5 | a630 | 1.1 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 24.93 | d | k | 14.7 | LA | 35 | L | 5 | a990 | 1.2 | | | | C 2.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 24.93 | d | k | 15.0 | LA | 35 | L | 5 | a990 | 1.2 | | | | C 1.20m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 24.93 | d | k | 15.6 | LA | 35 | L | 5 | a990 | 1.2 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 25.91 | d | k | 14.6 | LA | 35 | L | 5 | A350 | 1.5 | | | | C 2.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 25.91 | d | k | 14.7 | LA | 35 | L | 5 | A350 | 1.5 | | | | C 1.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 25.91 | d | k | 15.0 | LA | 35 | L | 5 | A350 | 1.5 | | | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 25.91 | d | k | 15.6 | LA | 35 | L | 5 | A350 | 1.5 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 29.92 | d | k | 14.8 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 2.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 29.92 | d | k | 14.9 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 1.30m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 29.92 | d | k | 15.6 | LA | 35 | L | 5 | a990 | 1.3 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.97 | d | k | 15.0 | LA | 35 | L | 5 | a900 | 1.3 | | | | C 1.30m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.97 | d | k | 15.6 | LA | 35 | L | 5 | a900 | 1.3 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.91 | d | k | 15.0 | LA | 35 | L | 5 | a900 | 1.5 | | | | C 2.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.91 | d | k | 15.1 | LA | 35 | L | 5 | a900 | 1.5 | | | | C 1.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.91 | d | k | 15.3 | LA | 35 | L | 5 | a900 | 1.5 | | | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.91 | d | k | 15.7 | LA | 35 | L | 5 | a900 | 1.5 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 05.53 | | C | 15.3 | GA | 60.0Y | 6 | a120 | 1.0 | | | | | S 1.0 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.58 | ax | C | 15.7 | HV | 35.0C | 9 | a360 | 0.5 | 4 | | | | S 0.8 m | KAIaSI3 | 5 | | ST2 | TSU02 | |
| 2003 06 20.53 | ax | C | 15.8 | HV | 35.0C | 9 | a960 | 0.4 | 4 | | | | S 0.7 m | KAIaSI3 | 5 | | ST2 | TSU02 | |
| 2003 07 25.50 | ax | C | 16.1 | HV | 35.0C | 9 | a960 | 0.5 | 3 | | | | S 1.0 m | KAIaSI3 | 5 | | ST2 | TSU02 | |

Comet C/2000 WM_1 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|----|---------|-----|-----|----|---|-----|-------|
| 2003 06 05.66 | | C | 20.6 | GA | 60.0Y | 6 | a480 | 0.2 | | | | | S 0.2 m | SIA | IPL | 5* | U | Ap7 | NAK01 |

Comet C/2001 B2 (NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|------|----|------|---------|---------|-----|-----|---|---|-----|------|
| 2002 03 04.95 | | C | 16.7 | A0 | 31 | T | 3 | a300 | 0.4 | | | 1.0m130 | C 0.4 m | K40 | AfP | 3 | | H24 | SOS |

Comet C/2001 G1 (LONEOS)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 06 01.55 | | C | 18.7 | GA | 60.0Y | 6 | a240 | 0.25 | | | | 210 | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2001 HT_50 (LINEAR-NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|----|---------|---------|-----|----|-----|-------|-------|
| 2002 03 04.93 | | C | 16.0 | A0 | 31 | T | 3 | a300 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 24.88 | | J | 16.0 | HI | 31 | T | 3 | a300 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2003 04 21.79 | d | k | 12.9 | LA | 35 | L | 5 | a600 | 0.90 | | 4.0m | 92 | C 1.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.79 | d | k | 13.1 | LA | 35 | L | 5 | a600 | 0.90 | | 4.0m | 92 | C 0.90m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.79 | d | k | 13.4 | LA | 35 | L | 5 | a600 | 0.90 | | 4.0m | 92 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 24.80 | d | k | 13.0 | LA | 35 | L | 5 | a800 | 0.90 | | 4.5m | 92 | C 0.90m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 24.80 | d | k | 13.5 | LA | 35 | L | 5 | a800 | 0.90 | | 4.5m | 92 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 01.45 | ax | C | 13.5 | HV | 35.0C | 9 | a 90 | 0.5 | 4 | | 1.0m | 81 | S 0.70m | KAIaSI3 | 5 | | ST2 | TSU02 | |
| 2003 05 01.47 | x | C | 13.6 | TJ | 20.0L | 4 | a120 | 0.5 | | | 0.8m | 90 | S 0.5 m | K41aSI3 | 5 | | SE7 | OHS | |

Comet C/2001 K5 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|---------|---------|---------|-----|-----|----|-----|-----|-------|
| 2002 03 05.17 | | C | 16.0 | A0 | 31 | T | 3 | a300 | 0.4 | | | 0.8m221 | C 0.4 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 04 19.99 | | C | 15.0 | HI | 31 | T | 3 | a 60 | 0.5 | | | 1.7m212 | C 0.5 m | M47 | AfP | 3 | | AP4 | SOS |
| 2002 04 19.99 | | C | 15.2 | HI | 31 | T | 3 | a 60 | 0.25 | | | 1.7m212 | C 0.25m | M47 | AfP | 3 | | AP4 | SOS |
| 2003 03 07.98 | | C | 15.7 | U0 | 11.0L | 7 | a390 | 0.13 | 5 | | | | T25 | A32 | 2 | U | PIX | SHU | |
| 2003 03 18.95 | | C | 15.5 | U0 | 11.0L | 7 | a480 | 0.12 | 4 | | | | T25 | A32 | 2 | U | PIX | SHU | |
| 2003 04 21.98 | d | k | 14.5 | LA | 35 | L | 5 | a720 | 0.37 | | 4.1m233 | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.98 | d | k | 14.9 | LA | 35 | L | 5 | a720 | 0.37 | | 4.1m233 | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.98 | d | k | 15.1 | LA | 35 | L | 5 | a720 | 0.37 | | 4.1m233 | | C 0.37m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 24.98 | d | k | 14.5 | LA | 35 | L | 5 | a780 | 0.33 | | 4.2m234 | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |

Comet C/2001 RX₁₄ (LINEAR) [cont.]

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|------|------|---------|------|-----|----|---|-----|-------|
| 2003 05 29.87 | d | k | 13.7 | LA | 35 | L | 5 | a660 | 1.6 | | 4 | m350 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 29.87 | d | k | 14.3 | LA | 35 | L | 5 | a660 | 1.6 | | 4 | m350 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.90 | d | k | 13.7 | LA | 35 | L | 5 | a540 | 1.5 | | | | C 1.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.90 | d | k | 13.8 | LA | 35 | L | 5 | a540 | 1.5 | | | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.90 | d | k | 14.3 | LA | 35 | L | 5 | a540 | 1.5 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.87 | d | k | 13.6 | LA | 35 | L | 5 | a780 | 1.6 | | 5.0m | 346 | C 1.60m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.87 | d | k | 13.8 | LA | 35 | L | 5 | a780 | 1.6 | | 5.0m | 346 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 04.87 | d | k | 14.4 | LA | 35 | L | 5 | a780 | 1.6 | | 5.0m | 346 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 05.48 | ax | C | 13.9 | HV | 35.0C | | 9 | a120 | 0.7 | 4 | | | S 1.2 m | KAIa | SI3 | 5 | | ST2 | TSU02 |

Comet P/2001 TU₈₀ (LINEAR-NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|--------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 03 04.95 | | | C 15.7 | AO | 31 | T | 3 | a300 | 0.9 | | | | C 0.9 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 04.95 | | | C 16.2 | AO | 31 | T | 3 | a300 | 0.5 | | | | C 0.5 m | K40 | AfP | 3 | | H24 | SOS |

Comet C/2001 U6 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|--------|----|-------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 06 05.73 | | | C 19.1 | GA | 60.0Y | | 6 | a240 | 0.25 | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet P/2001 YX₁₂₇ (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|--------|----|-------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 05 01.49 | | | C 19.0 | GA | 60.0Y | | 6 | a240 | 0.2 | | | | S 0.2 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.48 | | | C 19.4 | GA | 60.0Y | | 6 | a240 | 0.2 | | | | S 0.2 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2002 A3 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|--------|----|-------|---|----|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 05 02.46 | | | C 18.8 | GA | 60.0Y | | 6 | a240 | 0.25 | | 0.8m | 232 | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2002 E2 (Snyder-Murakami)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|--------|----|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2002 03 23.05 | | | H 11.3 | HI | 31 | T | 3 | a120 | 1.6 | | | | C 1.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.05 | | | H 11.8 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.05 | | | k 11.9 | HI | 31 | T | 3 | a120 | 1.6 | | | | C 1.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.05 | | | k 12.5 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.06 | | | J 11.8 | HI | 31 | T | 3 | a120 | 1.6 | | | | C 1.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.06 | | | J 12.5 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.07 | | | L 12.1 | HI | 31 | T | 3 | a120 | 1.6 | | | | C 1.6 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.07 | | | L 12.9 | HI | 31 | T | 3 | a120 | 0.8 | | | | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |

Comet C/2002 F1 (Utsunomiya)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|-------|----|-----|---|----|------|------|----|------|------|---------|-----|-----|---|---|-----|------|
| 2002 03 23.15 | | | C 9.3 | HI | 31 | T | 3 | a120 | 1.5 | | 10 | m239 | C 1.5 m | K40 | AfP | 3 | | H24 | SOS |
| 2002 03 23.15 | | | C 9.8 | HI | 31 | T | 3 | a120 | 0.8 | | 10 | m239 | C 0.8 m | K40 | AfP | 3 | | H24 | SOS |

Comet C/2002 J5 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|-----------|----|-------|---|----|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 05 09.76 | | | C 17.2 | GA | 60.0Y | | 6 | a120 | 0.25 | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 01.68 | | | C 17.0 | GA | 60.0Y | | 6 | a120 | 0.3 | | 0.8m | 140 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 07.55 | | | C 17.0:GA | | 60.0Y | | 6 | a120 | 0.35 | | | 130 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 30.55 | | | C 16.9:HS | | 60.0Y | | 6 | a120 | 0.4 | | 1.2m | 121 | S 0.4 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2002 K2 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|--------|----|-------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 04 30.72 | | | C 20.0 | GA | 60.0Y | | 6 | a240 | 0.2 | | | | S 0.2 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2002 R3 (LONEOS)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 06 05.78 | x | C | 16.4 | HV | 60.0Y | 6 | a120 | 0.35 | | | | | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2002 T7 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|----|---------|---------|-----|----|---|-----|-------|
| 2003 04 21.83 | d | k | 15.2 | LA | 35 | L | 5 | a300 | 0.33 | | | | C 0.33m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 01.45 | x | C | 15.3 | TJ | 20.0L | 4 | a120 | 0.3 | | | | | S 0.3 m | K4IaSI3 | 5 | | | SE7 | OHS |
| 2003 07 31.79 | ax | C | 13.9 | HV | 35.0C | 9 | a 60 | 0.3 | 5 | | | | S 0.60m | KAIaSI3 | 5 | | | ST2 | TSU02 |

Comet C/2002 U2 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|----|---------|-----|-----|---|---|-----|------|
| 2003 03 08.00 | | C | 16.7 | U0 | 11.0L | 7 | a490 | 0.11 | 3 | | | | | T25 | A32 | 2 | U | PIX | SHU |

Comet C/2002 V1 (NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-----|---|----|------|-------|----|--------|----|---------|-----|-----|----|---|-----|-------|
| 2003 01 17.76 | d | k | 8.2 | LA | 35 | L | 5 | A050 | >11.0 | | >10.0m | 70 | C 8.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 01 17.76 | d | k | 8.5 | LA | 35 | L | 5 | A050 | >11.0 | | >10.0m | 70 | C 4.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 01 17.76 | d | k | 8.9 | LA | 35 | L | 5 | A050 | >11.0 | | >10.0m | 70 | C 2.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 01 17.76 | d | k | 9.5 | LA | 35 | L | 5 | A050 | >11.0 | | >10.0m | 70 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |

Comet C/2002 X1 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|----|---------|-----|-----|----|---|-----|-------|
| 2003 04 21.84 | d | k | 15.5 | LA | 35 | L | 5 | a540 | 0.33 | | 2.0m | 75 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.84 | d | k | 15.7 | LA | 35 | L | 5 | a540 | 0.33 | | 2.0m | 75 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.84 | d | k | 16.1 | LA | 35 | L | 5 | a540 | 0.33 | | 2.0m | 75 | C 0.33m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 01.45 | x | C | 16.0 | TJ | 60.0Y | 6 | a120 | 0.35 | | | 1.4m | 82 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2002 X3 (SOHO)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Unc | OBS. |
|----------------|---|---|------|----|------|----|------|------|------|----|------|----|---------|-----|-----|---|-------|-------|------|
| 2002 12 04.185 | a | | 9.2 | HI | 2.0G | 18 | a 26 | | | | | | S59.5 s | | | | P 0.8 | HAM02 | |
| 2002 12 04.202 | a | | 8.5 | HI | 2.0G | 18 | a 25 | | | | | | S59.5 s | | | | P 0.5 | HAM02 | |
| 2002 12 04.213 | a | | 8.6 | HI | 2.0G | 18 | a 25 | | | | | | S59.5 s | | | | P 0.6 | HAM02 | |
| 2002 12 04.247 | a | | 8.4 | HI | 2.0G | 18 | a 25 | | | | | | S59.5 s | | | | P 0.6 | HAM02 | |

Comet C/2002 X4 (SOHO)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Unc | OBS. |
|----------------|---|---|------|----|------|----|------|------|------|----|------|----|---------|-----|-----|---|-------|-------|------|
| 2002 12 04.285 | a | | 7.3 | HI | 2.0G | 18 | a 25 | | | | | | S59.5 s | | | | P 0.2 | HAM02 | |
| 2002 12 04.309 | a | | 7.4 | HI | 2.0G | 18 | a 26 | | | | | | S59.5 s | | | | P 0.2 | HAM02 | |
| 2002 12 04.338 | a | | 8.2 | HI | 2.0G | 18 | a 26 | | | | | | S59.5 s | | | | P 0.5 | HAM02 | |
| 2002 12 04.352 | a | | 7.9 | HI | 2.0G | 18 | a 25 | | | | | | S59.5 s | | | | P 0.4 | HAM02 | |

Comet P/2003 CP_7 (LINEAR-NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|-----|---------|---------|-----|---|---|-----|-------|
| 2003 05 02.49 | | C | 18.6 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 09.54 | ax | C | 16.9 | HV | 35.0C | 9 | a720 | 0.3 | 3 | | | | S 0.75m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 05 23.54 | | C | 18.4 | GA | 60.0Y | 6 | a240 | 0.3 | | | 0.5m | 117 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.50 | | C | 18.7 | GA | 60.0Y | 6 | a240 | 0.25 | | | | 120 | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 E1 (NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|----|---------|---------|-----|---|---|-----|-------|
| 2003 05 01.57 | ax | C | 18.0 | HV | 35.0C | 9 | a900 | 0.3 | | | | | S 0.59m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 05 02.59 | | C | 18.9 | GA | 60.0Y | 6 | a240 | 0.2 | | | | | S 0.2 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.57 | | C | 18.6 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 01.53 | | C | 18.5 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 F1 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|------|---------|---------|---------|-----|----|---|-----|-------|
| 2003 04 21.95 | d | k | 16.9 | LA | 35 | L | 5 | A350 | 0.28 | | 17 | s289 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 21.95 | d | k | 17.1 | LA | 35 | L | 5 | A350 | 0.28 | | 17 | s289 | C 0.28m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 24.96 | d | k | 17.4 | LA | 35 | L | 5 | a810 | 0.27 | | 18 | s290 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 24.96 | d | k | 17.5 | LA | 35 | L | 5 | a810 | 0.27 | | 18 | s290 | C 0.27m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 27.95 | d | k | 16.8 | LA | 35 | L | 5 | A350 | 0.33 | | | 0.6m307 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 27.95 | d | k | 17.0 | LA | 35 | L | 5 | A350 | 0.33 | | | 0.6m307 | C 0.33m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 04 30.73 | | C | 17.4 | GA | 60.0Y | | 6 | a240 | 0.3 | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 03.66 | x | C | 16.9 | TJ | 20.0L | | 4 | a720 | 0.3 | | | | S 0.3 m | K41aSI3 | 5 | | | SE7 | OHS |
| 2003 05 03.93 | d | k | 16.5 | LA | 35 | L | 5 | A350 | 0.37 | | | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 03.93 | d | k | 16.7 | LA | 35 | L | 5 | A350 | 0.37 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 03.93 | d | k | 16.9 | LA | 35 | L | 5 | A350 | 0.37 | | | | C 0.37m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 04.89 | d | k | 16.5 | LA | 35 | L | 5 | A350 | 0.33 | | | | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 04.89 | d | k | 16.6 | LA | 35 | L | 5 | A350 | 0.33 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 04.89 | d | k | 16.8 | LA | 35 | L | 5 | A350 | 0.33 | | | | C 0.33m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 05.63 | | C | 17.3 | GA | 60.0Y | | 6 | a240 | 0.3 | | | 0.9m292 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 06.88 | d | k | 16.9 | LA | 35 | L | 5 | A800 | 0.37 | | 30 | s306 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 06.88 | d | k | 17.1 | LA | 35 | L | 5 | A800 | 0.37 | | 30 | s306 | C 0.37m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 11.88 | d | k | 16.8 | LA | 35 | L | 5 | A350 | 0.28 | | 20 | s260 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 11.88 | d | k | 17.0 | LA | 35 | L | 5 | A350 | 0.28 | | 20 | s260 | C 0.28m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 20.61 | | C | 17.4 | GA | 60.0Y | | 6 | a240 | 0.3 | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 24.06 | d | k | 16.8 | LA | 35 | L | 5 | A170 | 0.33 | | 20 | s290 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 24.06 | d | k | 16.9 | LA | 35 | L | 5 | A170 | 0.33 | | 20 | s290 | C 0.33m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 24.91 | d | k | 16.7 | LA | 35 | L | 5 | A260 | 0.37 | | 16 | s275 | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 24.91 | d | k | 16.7 | LA | 35 | L | 5 | A260 | 0.37 | | 16 | s275 | C 0.37m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 25.94 | d | k | 16.7 | LA | 35 | L | 5 | A350 | 0.38 | | | | C 0.50m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 25.94 | d | k | 16.7 | LA | 35 | L | 5 | A350 | 0.38 | | | | C 0.38m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.01 | d | k | 16.4 | LA | 35 | L | 5 | A350 | 0.45 | | 28 | s305 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 30.01 | d | k | 16.7 | LA | 35 | L | 5 | A350 | 0.45 | | 28 | s305 | C 0.45m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 31.03 | d | k | 16.4 | LA | 35 | L | 5 | A350 | 0.40 | | | 0.8m310 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 05 31.03 | d | k | 16.7 | LA | 35 | L | 5 | A350 | 0.40 | | | 0.8m310 | C 0.40m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 01.61 | | C | 16.9 | GA | 60.0Y | | 6 | a240 | 0.45 | | | 0.8m303 | S 0.45m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.00 | d | k | 16.7 | LA | 35 | L | 5 | A350 | 0.37 | | 18 | s312 | C 1.00m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 05.00 | d | k | 16.9 | LA | 35 | L | 5 | A350 | 0.37 | | 18 | s312 | C 0.37m | T24 | GAI | 5* | P | ST6 | HOR02 |
| 2003 06 25.57 | ax | C | 16.4 | HV | 35.0C | | 9 | a120 | 0.3 | 4 | | | S 0.66m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 07 07.52 | | C | 17.1 | GA | 60.0Y | | 6 | a240 | 0.35 | | | 0.7m345 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 25.56 | ax | C | 16.6 | HV | 35.0C | | 9 | a120 | 0.2 | 5 | | | S 0.71m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 07 31.54 | ax | C | 17.3 | HV | 35.0C | | 9 | a 90 | 0.2 | 4 | | | S 0.66m | KAIaSI3 | 5 | | | ST2 | TSU02 |

Comet C/2003 G1 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|------|---------|---------|---------|-----|----|---|-----|-------|
| 2003 04 30.75 | | C | 15.7 | GA | 60.0Y | | 6 | a240 | 0.4 | | | 1.5m216 | S 0.4 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 01.60 | x | C | 16.0 | TJ | 20.0L | | 4 | a120 | 0.3 | | | | S 0.3 m | K41aSI3 | 5 | | | SE7 | OHS |
| 2003 05 05.68 | | C | 15.8 | GA | 60.0Y | | 6 | a120 | 0.35 | | | 2.4m219 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 09.59 | a | H | 15.0 | LA | 30.0L | | 6 | a540 | 0.4 | | | | C 0.4 m | SIA | MIm | 5* | U | Ap7 | EZA |
| 2003 05 09.73 | | C | 15.7 | GA | 60.0Y | | 6 | a120 | 0.4 | | | 2.4m214 | S 0.4 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 23.65 | | C | 15.6 | GA | 60.0Y | | 6 | a120 | 0.45 | | | 2.2m208 | S 0.45m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 01.64 | | C | 15.6 | GA | 60.0Y | | 6 | a120 | 0.45 | | | 2.0m207 | S 0.45m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.63 | | C | 15.5 | GA | 60.0Y | | 6 | a120 | 0.4 | | | 3.4m205 | S 0.4 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 25.63 | ax | C | 16.0 | HV | 35.0C | | 9 | a120 | 0.3 | 5 | | | S 0.61m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 07 07.55 | | C | 15.8 | GA | 60.0Y | | 6 | a120 | 0.5 | | | 1.4m197 | S 0.5 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 25.57 | ax | C | 16.2 | HV | 35.0C | | 9 | a120 | 0.3 | 4 | | | S 0.58m | KAIaSI3 | 5 | | | ST2 | TSU02 |
| 2003 07 31.52 | ax | C | 15.8 | HV | 35.0C | | 9 | a 90 | 0.3 | 4 | | | S 0.81m | KAIaSI3 | 5 | | | ST2 | TSU02 |

Comet C/2003 G2 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 05 02.53 | a | C | 18.4 | GA | 60.0Y | | 6 | a120 | 0.3 | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 G3 (SOHO)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Unc | OBS. |
|----------------|---|---|------|----|------|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 04 04.029 | | K | 7.5 | HI | 0.8G | | 9 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.113 | | K | 7.7 | HI | 0.8G | | 9 | a 19 | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.196 | | K | 7.6 | HI | 0.8G | | 9 | a 20 | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |

Comet C/2003 G3 (SOHO) [cont.]

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Unc | OBS. |
|----------------|---|-----|------|------|-----|---|----|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 04 04.279 | K | 7.8 | HI | 0.8G | 9 | a | 19 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.363 | K | 7.4 | HI | 0.8G | 9 | a | 19 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.446 | K | 6.9 | HI | 0.8G | 9 | a | 19 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.529 | K | 5.7 | HI | 0.8G | 9 | a | 19 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.564 | a | 4.8 | HI | 2.0G | 18 | a | 25 | | | | | | S 1.4 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.613 | K | 5.3 | HI | 0.8G | 9 | a | 19 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.621 | a | 4.5 | HI | 2.0G | 18 | a | 26 | | | | | | S 1.4 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.679 | K | 5.6 | HI | 0.8G | 9 | a | 19 | | | | | | S 2.8 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.685 | a | 4.2 | HI | 2.0G | 18 | a | 25 | | | | | | S 1.4 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.768 | a | 4.1 | HI | 2.0G | 18 | a | 25 | | | | | | S 1.4 m | | | | P | 0.1 | HAM02 |
| 2003 04 04.838 | a | 4.6 | HI | 2.0G | 18 | a | 26 | | | | | | S 1.4 m | | | | P | 0.1 | HAM02 |

Comet C/2003 H1 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|----|------|------|----|---------|----|---------|---------|-----|---|-----|-------|------|
| 2003 04 27.60 | x | C | 15.8 | TJ | 20.0L | 4 | a | 120 | 0.3 | | | | S 0.3 m | K41aSI3 | 5 | | SE7 | OHS | |
| 2003 04 27.71 | a | C | 15.9 | LA | 30.0L | 6 | a | 360 | 0.4 | | | | C 0.4 m | SIA MIm | 5*U | | Ap7 | EZA | |
| 2003 04 27.72 | a | H | 15.4 | LA | 30.0L | 6 | a | 360 | 0.4 | | | | C 0.4 m | SIA MIm | 5*U | | Ap7 | EZA | |
| 2003 04 27.97 | d | k | 15.5 | LA | 35 L | 5 | a | 900 | 0.38 | | | | C 0.38m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 04 30.76 | C | C | 15.9 | GA | 60.0Y | 6 | a | 120 | 0.35 | | | | S 0.35m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 05 03.66 | x | C | 15.9 | TJ | 20.0L | 4 | a | 180 | 0.3 | | | | S 0.3 m | K41aSI3 | 5 | | SE7 | OHS | |
| 2003 05 04.05 | d | k | 15.6 | LA | 35 L | 5 | a | 900 | 0.48 | | | | C 0.48m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 04.96 | d | k | 15.8 | LA | 35 L | 5 | a | 900 | 0.60 | | | | C 0.60m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 04.96 | d | k | 15.8 | LA | 35 L | 5 | a | 900 | 0.60 | | | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 06.92 | d | k | 15.4 | LA | 35 L | 5 | a | 960 | 0.47 | | | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 06.92 | d | k | 15.5 | LA | 35 L | 5 | a | 960 | 0.47 | | | | C 0.47m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 07.91 | d | k | 15.5 | LA | 35 L | 5 | a | 960 | 0.53 | | | | C 0.53m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 09.57 | a | H | 15.1 | LA | 30.0L | 6 | a | 600 | 0.4 | | | | C 0.4 m | SIA MIm | 5*U | | Ap7 | EZA | |
| 2003 05 09.74 | C | C | 15.9 | GA | 60.0Y | 6 | a | 120 | 0.35 | | | | S 0.35m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 05 11.93 | d | k | 15.5 | LA | 35 L | 5 | a | 960 | 0.43 | | | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 11.93 | d | k | 15.6 | LA | 35 L | 5 | a | 960 | 0.43 | | | | C 0.43m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 16.96 | d | k | 15.2 | LA | 35 L | 5 | a | 900 | 0.47 | | | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 16.96 | d | k | 15.3 | LA | 35 L | 5 | a | 900 | 0.47 | | | | C 0.47m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 20.62 | C | C | 15.9 | GA | 60.0Y | 6 | a | 120 | 0.45 | | | | S 0.45m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 05 23.95 | d | k | 15.3 | LA | 35 L | 5 | a | 840 | 0.50 | | 0.5m127 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 23.95 | d | k | 15.4 | LA | 35 L | 5 | a | 840 | 0.50 | | 0.5m127 | | C 0.50m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 24.98 | d | k | 15.0 | LA | 35 L | 5 | A | 020 | 0.45 | | 0.5m126 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 24.98 | d | k | 15.2 | LA | 35 L | 5 | A | 020 | 0.45 | | 0.5m126 | | C 0.45m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 25.96 | d | k | 15.1 | LA | 35 L | 5 | a | 900 | 0.42 | | 0.5m124 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 25.96 | d | k | 15.3 | LA | 35 L | 5 | a | 900 | 0.42 | | 0.5m124 | | C 0.42m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 29.94 | d | k | 15.2 | LA | 35 L | 5 | a | 900 | 0.52 | | 0.7m130 | | C 0.52m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 29.94 | d | k | 15.2 | LA | 35 L | 5 | a | 900 | 0.52 | | 0.7m130 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 30.94 | d | k | 15.2 | LA | 35 L | 5 | a | 900 | 0.47 | | 0.7m132 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 05 30.94 | d | k | 15.3 | LA | 35 L | 5 | a | 900 | 0.47 | | 0.7m132 | | C 0.47m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 01.63 | C | C | 15.5 | GA | 60.0Y | 6 | a | 120 | 0.4 | | 1.0m119 | | S 0.4 m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 06 04.94 | d | k | 15.0 | LA | 35 L | 5 | a | 840 | 0.42 | | 1.0m119 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 04.94 | d | k | 15.2 | LA | 35 L | 5 | a | 840 | 0.42 | | 1.0m119 | | C 0.42m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 05.62 | C | C | 15.5 | GA | 60.0Y | 6 | a | 120 | 0.35 | | 1.1m123 | | S 0.35m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 06 10.02 | d | k | 14.9 | LA | 35 L | 5 | a | 900 | 0.43 | | 1.1m109 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 10.02 | d | k | 15.1 | LA | 35 L | 5 | a | 900 | 0.43 | | 1.1m109 | | C 0.43m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 11.91 | d | k | 14.9 | LA | 35 L | 5 | a | 900 | 0.40 | | 1.1m108 | | C 1.00m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 11.91 | d | k | 15.2 | LA | 35 L | 5 | a | 900 | 0.40 | | 1.1m108 | | C 0.40m | T24 GAI | 5*P | | ST6 | HOR02 | |
| 2003 06 25.50 | ax | C | 15.4 | HV | 35.0C | 9 | a | 120 | 0.2 | 5 | 0.8m109 | | S 0.60m | KAIaSI3 | 5 | | ST2 | TSU02 | |
| 2003 07 07.49 | C | C | 15.5 | GA | 60.0Y | 6 | a | 120 | 0.4 | | 1.5m109 | | S 0.4 m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 07 25.51 | ax | C | 15.4 | HV | 35.0C | 9 | a | 120 | 0.2 | 5 | 1.2m 97 | | S 0.65m | KAIaSI3 | 5 | | ST2 | TSU02 | |
| 2003 07 31.50 | x | C | 15.5 | HV | 60.0Y | 6 | a | 120 | 0.4 | | 2.0m 95 | | S 0.4 m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 07 31.50 | x | C | 15.6 | HV | 35.0C | 9 | a | 90 | 0.2 | 5 | 1.4m 96 | | S 0.57m | KAIaSI3 | 5 | | ST2 | TSU02 | |

Comet C/2003 H2 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|----|------|------|----|------|----|---------|---------|-----|---|-----|-------|------|
| 2003 04 30.77 | C | C | 18.1 | GA | 60.0Y | 6 | a | 240 | 0.25 | | | | S 0.25m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 05 05.70 | C | C | 18.0 | GA | 60.0Y | 6 | a | 240 | 0.25 | | | | S 0.25m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 05 09.75 | C | C | 17.8 | GA | 60.0Y | 6 | a | 240 | 0.3 | | | | S 0.3 m | SIA IPL | 5 U | | Ap7 | NAK01 | |
| 2003 05 23.64 | C | C | 17.5 | GA | 60.0Y | 6 | a | 240 | 0.35 | | | | S 0.35m | SIA IPL | 5 U | | Ap7 | NAK01 | |

Comet C/2003 H2 (LINEAR) [cont.]

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|----|---------|------|-----|---|---|-----|-------|
| 2003 06 01.66 | | C | 17.0 | GA | 60.0Y | 6 | a240 | 0.4 | | | | | S 0.4 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.64 | | C | 17.2 | GA | 60.0Y | 6 | a240 | 0.35 | | | | | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 25.60 | ax | C | 17.1 | HV | 35.0C | 9 | a360 | 0.2 | 3 | | | | S 0.67m | KAIa | SI3 | 5 | | ST2 | TSU02 |
| 2003 07 07.54 | a | C | 18.2 | GA | 60.0Y | 6 | a120 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 H3 (NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|-----|---------|------|-----|---|---|-----|-------|
| 2003 05 03.74 | x | C | 16.1 | TJ | 20.0L | 4 | a900 | 0.3 | | | | | S 0.3 m | K41a | SI3 | 5 | | SE7 | OHS |
| 2003 05 09.77 | a | H | 13.8 | LA | 30.0L | 6 | a120 | 0.4 | | | | | C 0.4 m | SIA | MIm | 5 | U | Ap7 | EZA |
| 2003 06 01.71 | | C | 15.4 | GA | 60.0Y | 6 | a120 | 0.5 | | | | | S 0.5 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.71 | | C | 15.0 | GA | 60.0Y | 6 | a120 | 0.7 | | | 230 | | S 0.7 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 02.65 | ax | C | 15.3 | HV | 35.0C | 9 | a120 | 0.4 | 5 | | 0.5m | 225 | S 0.50m | KAIa | SI3 | 5 | | ST2 | TSU02 |

Comet P/2003 H4 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|-----|---------|------|-----|---|---|-----|-------|
| 2003 05 05.66 | a | C | 18.4 | GA | 60.0Y | 6 | a240 | 0.2 | | | | | S 0.2 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 09.65 | ax | C | 17.3 | HV | 35.0C | 9 | a960 | 0.3 | 4 | | | | S 0.6 m | KAIa | SI3 | 5 | | ST2 | TSU02 |
| 2003 05 09.71 | a | C | 17.9 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 05 20.60 | a | C | 17.7 | GA | 60.0Y | 6 | a240 | 0.3 | | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 01.59 | | C | 17.4 | GA | 60.0Y | 6 | a240 | 0.35 | | | | | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.59 | | C | 17.6 | GA | 60.0Y | 6 | a240 | 0.3 | | | 0.7m | 235 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 25.58 | ax | C | 18.3 | HV | 35.0C | 9 | A080 | 0.3 | 4 | | | | S 0.55m | KAIa | SI3 | 5 | | ST2 | TSU02 |
| 2003 06 26.55 | | C | 18.2 | GA | 60.0Y | 6 | a120 | 0.3 | | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 07.50 | | C | 18.4 | GA | 60.0Y | 6 | a240 | 0.3 | | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 07 31.51 | | C | 19.4 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 J1 (NEAT)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 06 05.75 | x | C | 17.6 | HV | 60.0Y | 6 | a240 | 0.35 | | | | 330 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 K1 (Spacewatch)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|----|---------|-----|-----|---|---|-----|-------|
| 2003 06 01.57 | | C | 19.1 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.57 | | C | 19.2 | GA | 60.0Y | 6 | a240 | 0.25 | | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 20.55 | | C | 19.8 | GA | 60.0Y | 6 | a240 | 0.2 | | | | | S 0.2 m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet P/2003 K2 (Christensen)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 06 01.48 | | C | 15.4 | GA | 60.0Y | 6 | a120 | 0.6 | | | | 105 | S 0.6 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 20.48 | | C | 16.5 | GA | 60.0Y | 6 | a240 | 0.55 | | | | | S 0.55m | SIA | IPL | 5 | U | Ap7 | NAK01 |

Comet C/2003 K4 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|----|---|------|----|-------|---|------|------|------|----|------|----|---------|------|-----|-----|-----|-------|-------|
| 2003 06 01.73 | | C | 16.8 | GA | 60.0Y | 6 | a240 | 0.3 | | | | | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.02 | d | k | 16.6 | LA | 35 | L | 5 | A080 | 0.33 | | | | C 0.50m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 06 05.02 | d | k | 16.8 | LA | 35 | L | 5 | A080 | 0.33 | | | | C 0.33m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 06 05.77 | | C | 16.9 | GA | 60.0Y | 6 | a120 | 0.25 | 8 | | | | S 0.25m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 09.97 | d | k | 16.3 | LA | 35 | L | 5 | a840 | 0.37 | | | | C 0.37m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 06 11.99 | d | k | 16.6 | LA | 35 | L | 5 | A080 | 0.35 | | | | C 0.35m | T24 | GAI | 5*P | ST6 | HOR02 | |
| 2003 07 02.64 | ax | C | 15.8 | HV | 35.0C | 9 | a120 | 0.2 | 6 | | | | S 0.4 m | KAIa | SI3 | 5 | | ST2 | TSU02 |
| 2003 07 25.65 | ax | C | 16.1 | HV | 35.0C | 9 | a 90 | 0.3 | 5 | | | | S 0.4 m | KAIa | SI3 | 5 | | ST2 | TSU02 |

Comet P/2003 KV_2 (LINEAR)

| DATE (UT) | n | M | MAG. | RF | AP. | T | f/ | EXP. | COMA | DC | TAIL | PA | APERTUR | Chp | Sfw | C | P | Cam | OBS. |
|---------------|---|---|------|----|-------|---|------|------|------|----|------|-----|---------|-----|-----|---|---|-----|-------|
| 2003 06 01.51 | | C | 17.5 | GA | 60.0Y | 6 | a240 | 0.3 | | | 0.5m | 114 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 05.49 | | C | 17.3 | GA | 60.0Y | 6 | a240 | 0.3 | | | 0.5m | 113 | S 0.3 m | SIA | IPL | 5 | U | Ap7 | NAK01 |
| 2003 06 20.52 | | C | 17.2 | GA | 60.0Y | 6 | a240 | 0.35 | | | 0.8m | 108 | S 0.35m | SIA | IPL | 5 | U | Ap7 | NAK01 |