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The International Comet Quarterly (*ICQ*) is a journal devoted to news and observation of comets, published by the Smithsonian Astrophysical Observatory in Cambridge, Massachusetts. Regular issues are published 4 times per year (January, April, July, and October), with an annual *Comet Handbook* of ephemerides published normally in the first half of the year as a special fifth issue. An index to each volume normally is published in every other October issue (even-numbered years); the *ICQ* is also indexed in *Astronomy and Astrophysics Abstracts* and in *Science Abstracts Section A*.

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Cometary observations should be sent to the Editor in Cambridge; all data intended for publication in the *ICQ* that is not sent via computer electronic mail should be sent on standard *ICQ* observation report forms, which can be obtained upon request from the Editor. Those who can send observational data (or manuscripts) in machine-readable form are encouraged to do so [especially through e-mail via the computer networks *SPAN* (6700::DAN) or Internet (ICQ@CFA.HARVARD.EDU), or via floppy disks that can be read on an IBM PC], and should contact the Editor for further information. The *ICQ* has extensive information for comet observers on the World Wide Web, including the Keys to Abbreviations used in data tabulation (see URL http://cfa-www.harvard.edu/icq/icq.html). In early 1997, the *ICQ* published a 225-page *Guide to Observing Comets*; this edition is now out of print, but a revised edition is under preparation.

Most of the Observation Coordinators (OCs) listed below have e-mail contacts with the *ICQ* Editor; observers in the general area of such OCs who lack access to e-mail networks may send data to the OC for relay to the *ICQ* in electronic form.

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CORRIGENDA

• On the cover of the October 2001 issue, the Whole Number was incorrectly given as 116; it should, of course, read "120" (as given near the bottom of page 152 of that same issue).

• In the October 2001 issue (*ICQ* No. 120), p. 195, last line, the date *should read* 2001 08 14.86

• In the October 2001 issue (*ICQ* **23**, 174), Comet 19P, the coma diameter in the observation by GRA04 on 2001 10 23.06 *should read* 2.4

Review of Recent Literature: Research Concerning Comets*

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Comet C/1999 S4 (LINEAR)

During the summer of 2000, comet C/1999 S4 (LINEAR) graced the evening sky as it brightened to 6th magnitude. Suddenly late in July, the comet experienced a catastrophic disruption of its nucleus. The bright, centrally condensed coma devolved into a diffuse, elongated bar and slowly faded until the comet was too close to the sun for observations. Unlike earlier disintegrating comets, C/1999 S4 was heavily observed by professionals, some using the most largest and advanced telescopes available. An international team headed by Hal Weaver (John Hopkins University) observed the comet with the Hubble Space Telescope (HST) and the European Southern Observatory's Very Large Telescope (VLT). HST observations made between July 5 and 7 caught the comet experiencing an outburst, and observations at the end of that period detected a fragment that had split from the nucleus. After the disintegration event occurred about July 18, observations were quickly conducted with HST and the VLT. The data revealed that the nucleus had split into no fewer than 16 components, though by August 15 all of the components had faded from view. Photometric analysis of the fragments determined diameters of 50-120 meters for each nucleus component. The brightness of the dust tail was used to make an estimate of the amount of dust that was released during the breakup. If all the mass of the tail were rolled into a spherical nucleus, the nucleus would have a diameter of 120 meters, which is comparable to the largest observed fragments. This result confirms that the majority of the mass of the comet was still contained in the individual fragments.

Similar results were obtained with smaller professional telescopes. Observers using the 1.8-m Perkins and 1.1-m Hall telescopes at Lowell Observatory and led by Tony Farnham (University of Texas) determined that the disintegration of C/1999 S4 likely started on July 18 or 19. Their photometric models of the post-breakup dust tail agree with the Weaver *et al.* results that the tail contained 3×10^8 kilograms of mass, comparable to one of the HST/VLT observed fragments. In addition to visible-light observations, the comet was observed at radio wavelengths. Using five different radio telescopes, Dominique Bockelée-Morvan (Observatoire de Paris-Meudon, France) and others also confirmed that the final breakup started around July 18. Between the July 18 and 23, the nucleus underwent a continuous fragmentation, releasing a minimum of 1.1×10^9 kg of material, roughly equal to a sphere having a diameter of 162 meters. After the 24, the nuclear fragments contributed little to the gas production.

In addition to HST, the SOHO spacecraft was also keeping an eye on C/1999 S4 from above the earth's atmosphere. The Solar Wind ANisotropies (SWAN) instrument was observing LINEAR's hydrogen coma from the end of May through mid-August 2000. The SWAN team of J. Teemu T. Mäkinen (Finnish Meteorological Institute, Finland) *et al.* noticed that, in addition to an outburst event preceding the comet's breakup, five smaller outbursts were noted during June 3-4, 12-13, 17-19, July 5-7, and 12. The July 5-7 outburst coincides with the visible outburst and splitting event observed by HST. These SWAN-observed outbursts may have been other splitting events that were not resolved by ground-based observers. Two groups using different approaches have attempted to determine the location in the proto-solar system of LINEAR's birth. Michael Mumma (Goddard Space Flight Center, Greenbelt, Maryland) spearheaded a group that used high-resolution infrared spectroscopy in the range 2.0-4.7 μm at the W. M. Keck Observatory 10-m and the NASA Infrared Telescope Facility 3.5-m telescopes on Mauna Kea. The most highly volatile species, such as CO, CH_4, C_2H_6, C_2H_2, CH_3OH, and HCN, were significantly depleted with respect to the abundances found in comets 1P/Halley, C/1995 O1 (Hale-Bopp), C/1996 B2 (Hyakutake), and C/1999 H1 (Lee). A formation region in the outer solar system near Uranus and Neptune have been determined for the four above comets. Mumma theorizes that C/1999 S4 formed much closer to the sun, perhaps near the present orbit of Jupiter.

Hideyo Kawakita (Gunma Astronomical Observatory, Japan) and colleagues used another Mauna Kea telescope, the 8-m Subaru telescope, to obtain high-dispersion spectra in the optical region. The team concentrated on the emission lines produced by NH_2 molecules. It is believed that the observed NH_2 is produced by the photodissociation of ammonia (NH_3) by solar ultraviolet radiation. Molecules with two or more hydrogen atoms can be classified as 'ortho' or 'para', depending on whether or not the mechanical spin of the hydrogen atoms are aligned. The ratio of 'ortho' to 'para' ammonia is dependent on the temperature when the ammonia formed. Assuming that the ammonia has not been processed since formation, the ortho-to-para ratio points to a formation temperature of 28° K, which would place the birth of LINEAR between the orbits of Saturn and Uranus.

* This is the third installment of a semi-regular *ICQ* column; the last installment appeared in the January 2001 issue of the *ICQ*.

Jupiter-Family Comet Origins

Current thinking on Jupiter-family comets (JFCs) points to an origin in the trans-Neptunian 'belts' just beyond the orbit of Neptune. Though dynamical studies have strengthened the above thinking, physical studies have yet to make a definitive link between the physical characteristics of comet nuclei and trans-Neptunian objects (TNOs). David Jewitt (University of Hawaii) has published a comparison of the physical colors of comet nuclei, extinct-comet candidates (ECCs), Centaurs, and TNOs. In addition to reviewing previously published data, Jewitt presents new $V - R$ color data on comets 6P/d'Arrest and 143P/Kowal-Mrkos and on ECCs 1996 PW, 1999 LE_{31}, and 2000 HE_{46}. Comets 6P and 143P are moderately red objects with $V - R$ indices of $+0.54 \pm 0.04$ and $+0.58 \pm 0.02$, respectively. The three extinct-comet candidates have $V - R$ indices that are similar to the two above comets. Most previously published color indices for active comets and ECCs range from slightly blue to moderately red. This is in contrast to the majority of Centaurs and TNOs, which have much redder "ultrared" surfaces. In order to account for the lack of "ultrared" material among the JFCs, Jewitt provides evidence that the "ultrared" material is quickly buried by resurfacing events as the comets become active at small heliocentric distances. The search for a link between the physical surface properties of JFCs and TNOs continues.

Kreutz Sungrazers

A new investigation of Kreutz-family sungrazing comets has been conducted by Zdenek Sekanina (Jet Propulsion Laboratory, California Institute of Technology) using data taken from visual ground-based observers and space-based solar coronographic instruments. A continuation of his long running research on this class of comets, this work provides an overview of the similarities and differences of all sungrazers observed between 1843 and early 2001. Lightcurve studies show that the brightness difference between the brightest sungrazer (C/1882 R1) and the faintest Solar and Heliospheric Observatory (SOHO) comets is roughly 20 magnitudes, or a factor of 10^8. Nearly all of the SOHO sungrazers possessed narrow dust tails. Modeling of the tails shows that all were due to a brief burst of elevated dust activity roughly one day before perihelion; this elevated activity may be caused by the disruption of the comets' nuclei. In addition to the pygmy sungrazers discovered by SOHO and other space based telescopes, numerous bright sungrazers have been observed from the ground over the past few millennia. Ichiro Hasegawa (Otemae University, Japan) and Syuichi Nakano (*ICQ Comet Handbook* Editor) have searched ancient and medieval Chinese, Japanese, and Korean records for past sungrazer comets. Between the years −4 BC and AD 1702, twenty-four candidates were found, as well as twelve uncertain candidates. The identifications were based on the apparent location in the sky for each comet as recorded in the ancient texts.

Stellar Passages

The European Space Agency's Hipparcos spacecraft accurately measured astrometric positions, parallax, and proper motions for many bright, nearby stars. A team led by J. García-Sánchez (Universitat de Barcelona, Spain) analyzed these data for candidate stars that could make a close approach to our solar system. Of the candidates studied, 156 stars have passed or will pass within 5 pc of the sun during a 20-Myr period centered on the present. Correcting for observational incompleteness, a estimate of 11.7 ± 1.3 stellar systems per Myr will approach to within 1 pc of the sun, of which 73% are late-type, low-mass M dwarfs. Stellar passages within the Oort cloud may be a catalyst of extinction-causing comet storms on the earth. A single star, GL 710, has been identified to have a future passage through the Oort cloud in 1.36 ± 0.04 Myr at a distance of 0.337 ± 0.117 pc. GL 170 is a 9th-magnitude (V) K5 dwarf star that is currently located at $\alpha = 18^h19^m50^s.8$, $\delta = -1°56'19''$ (equinox 2000.0).

REFERENCES

Bockelée-Morvan, D.; N. Biver; R. Moreno; P. Colom; J. Crovisier; É. Gérard; F. Henry; D. Lis; H. Matthews; H. A. Weaver; M. Womack; and M. Festou (2001). "Outgassing behavior and composition of Comet C/1999 S4 (LINEAR) during its disruption", *Science* **292**, 1339-1343.

Farnham, T. L.; D. G. Schleicher; L. M. Woodney; P. V. Birch; C. A. Eberhardy; and L. Levy (2001). "Imaging and photometry of Comet C/1999 S4 (LINEAR) before perihelion and after breakup", *Science* **292**, 1348-1353.

García-Sánchez, J.; P. R. Weissman; R. A. Preston; D. L. Jones; J.-F. Lestrade; D. W. Latham; R. P. Stefanik; and J. M. Paredes (2001). "Stellar encounters with the solar system", *Astronomy and Astrophysics* **379**, 634-659.

Hasegawa, I.; and S. Nakano (2001). "Possible Kreutz sungrazing comets found in historical records", *Publications of the Astronomical Society of Japan* **53**, 931-949.

Jewitt, D. C. (2002). "From Kuiper belt object to cometary nucleus: the missing ultrared matter", *Astronomical Journal* **123**, 1039-1049.

Kawakita, H.; J.-i. Watanabe; H. Ando; W. Aoki; T. Fuse; S. Honda; H. Izumiura; T. Kajino; E. Kambe; S. Kawanomoto; K. Noguchi; K. Okita; K. Sadakane; B. Sato; M. Takada-Hidai; Y. Takeda; T. Usuda; E. Watanabe; and M. Yoshida (2001). "The spin temperature of NH3 in Comet C/1999S4 (LINEAR)", *Science* **294**, 1089-1091.

Mäkinen, J. T. T.; J.-L. Bertaux, M. R. Combi; and E. Quémerias (2001). "Water production of Comet C/1999 S4 (LINEAR) observed with the SWAN instrument", *Science* **292**, 1326-1329.

Mumma, M. J.; N. Dello Russo; M. A. DiSanti; K. Magee-Sauer; R. E. Novak; S. Brittain; T. Rettig; I. S. McLean; D. C. Reuter; and L.-H. Xu (2001). "Organic composition of C/1999 S4 (LINEAR): a comet formed near Jupiter?", *Science* **292**, 1334-1339.

Sekanina, Z. (2002). "Statistical investigation and modeling of sungrazing comets discovered with the Solar and Heliospheric Observatory", *Astrophysical Journal* **566**, 577-598.

Weaver, H. A.; Z. Sekanina; I. Toth; C. E. Delahodde; O. R. Hainaut; P. L. Lamy; J. M. Bauer; M. F. A'Hearn; C. Arpigny; M. R. Combi; J. K. Davies; P. D. Feldman; M. C. Festou; R. Hook; L. Jorda; M. S. W. Keesey; C. M. Lisse; B. G. Marsden; K. J. Meech; G. P. Tozzi; and R. West (2001). "HST and VLT investigations of the fragments of Comet C/1999 S4 (LINEAR)", *Science* **292**, 1329-1333.

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Tabulation of Comet Observations

In the October 2001 issue, it was announced that a new computer format for CCD observations (only) would be implemented in 2002. The first issue to contain such newly formatted CCD data will be the April 2002 issue. Many CCD observers have already been contributing in the new format. The new format was explained on pages 158-159 of the October 2001 *ICQ*. As a result of some feedback to that published format, we have some additions to report here for columns 106-110, the revised instructions for which are given below:

Column 106, C: 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.

Column 108, #: if accurate astrometry was performed and submitted formally to the *ICQ*/MPC/CBAT for publication, place either a "P" for "published" or a "U" for either "unpublished" or "publication status unknown" in column 108.

Column 109, #: (and, number of CCD frames taken of comet on same night, for verification of proper identification, in column 109; if more than 9 images were obtained on a single night of this comet and astrometry was also reported, simply put a "9" in column 109.

Column 110: place an asterisk (*) in this column to denote that the photometry was done from a number of co-added CCD frames (this number being placed in column 109).

Some three-character codes to specify the CCD camera, in columns 94-96 (additional codes will be announced in the *ICQ* as they are needed for contributed observations):
ST6 = SBIG ST-6V
ST7 = SBIG ST-7
ST8 = SBIG ST-8
ST9 = SBIG ST-9E
MX9 = Starlight MX-916
H24 = Hi-Sis 24

Some three-character code to specify the camera's CCD chip, in columns 98-100:
T25 = TC255
TK1 = thinned TK1024, Tektronik 1K 1024×1024
K26 = KAF0261E
K40 = KAF0400

Some three-character codes to denote the software package used to derive the magnitudes, in columns 102-104:
G70 = *Guide 7.0*;
FPr = *FitsPro*
OPS = *CCDOPS* (SBIG)

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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. The descriptive information below complements both the CCD/photographic tabulated data and the visual tabulated data (with non-visual and visual information combined into the same text).

◇ *Comet 16P/Brooks* ⟹ 2001 Nov. 10.65 and Dec. 7.57: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet 18P/Perrine-Mrkos* ⟹ 1995 Oct. 4-5: w/ 57-cm reflector + CCD, nothing cometary of mag 16 or brighter w/in $\Delta T = \pm$ 1 day of Marsden ephemeris [Jana Tichá, Kleť Observatory, Czech Republic].

◇ *Comet 19P/Borrelly* ⟹ 2001 Sept. 21.50: inner coma highly elongated, longer axis (2:1) aligned roughly E-W; broad fan-shaped coma extends 6′.7 in p.a. 270°; narrow dust tail (tab.) in p.a. 278° is slightly wavy [SCO01]. Oct. 24.06: faint; seen with averted vision [GRA04]. Oct. 25.83: 1′-long sunward jet in p.a. 110° [TSU02]. Oct. 25.83 and Nov. 14.83: GUIDE 6.0 software used for photometry [TSU02]. Oct. 27.06: 1′ anti-tail [LIG]. Nov. 10.72 and 24.76: GUIDE 7.0 software used for photometry [WAT01]. Nov. 13.09: comet barely visible [GRA04]. Nov. 14.12: comet appeared

[*cont. from previous page*]

elongated E-W, visibility clearly superior to that of C/2001 Q6 [GRA04]. Nov. 14.83: 1'.2-long sunward jet in p.a. 120° [TSU02]. Nov. 17.11: elongated 1′ × 3′ [RES]. Nov. 20.12: comet appeared elongated [GRA04]. Nov. 23.11: comet only faintly seen [GRA04]. Nov. 24.03: also 1′ anti-tail in p.a. 126° [LIG]. Nov. 24.76: coma elongated in p.a. 315° [WAT01]. Nov. 24.77 and Dec. 13.80: GUIDE 6.0 software used for photometry [NAG08]. Dec. 9.99: comet close to star of mag 7.4 [BOU]. Dec. 16.11: coma clearly elongated at ratio 2:1 (given size is 'average' extension; dark sky; mag ref = BAA VSS chart for U Gem [GRA04]. Dec. 22.83: GUIDE 7.0 software used for photometry [YOS02]. Dec. 24.01: also 1′ anti-tail in p.a. 136° [LIG].

◇ *Comet 24P/Schaumasse* ⟹ 2001 May 12.84: comet close to star of mag 8.9 [LEH].

◇ *Comet 47P/Ashbrook-Jackson* ⟹ 2001 Dec. 7.55: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet 51P/Harrington* ⟹ 2001 Dec. 7.58: GUIDE 6.0 software used for photometry; combined mag of components A and D [TSU02]. Dec. 9.83 and 16.83: astrometry provided to MPC for this and other comets around this date [LIG]. Dec. 18.60: m_1 is combined mag of components A and D; m_2 was measured within aperture of 10″ × 10″ for each component [NAK01].

◇ *Comet 73P/Schwassmann-Wachmann* ⟹ 2001 Sept. 20.49: very faint tail-like structure tab. in p.a. 245° [SCO01].

◇ *Comet 74P/Smirnova-Chernykh* ⟹ 2001 Feb. 25.07: comet close to star of mag 8.7 [LEH].

◇ *Comet 96P/Machholz* ⟹ 2001 Dec. 16.48 and 17.48: alt. 10° [MAT08].

◇ *Comet 110P/Hartley* ⟹ 2000 Nov. 16.83: at 162×, limiting mag 15.8; second detection not possible due to clouds [LEH]. Dec. 20.75: at 162×, limiting mag 16.5; second confirming obs. made at Dec. 20.86 [LEH]. Dec. 22.73: at 162×, limiting mag 16.0; second confirming obs. made at Dec. 22.83 [LEH]. Dec. 23.72: at 162×, limiting mag 16.0; second confirming obs. made at Dec. 23.81 [LEH]. Dec. 24.94: at 162×, limiting mag 16.5; second confirming obs. made at Dec. 25.06 [LEH]. 2001 Jan. 15.79: comet close to star of mag 6.7 [LEH].

◇ *Comet 151P/Helin* ⟹ 2001 Nov. 10.51: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet C/1997 BA$_6$ (Spacewatch)* ⟹ 2001 Nov. 7.42 and 10.49: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet C/1999 J2 (Skiff)* ⟹ 2001 May 23.90, 24.90, 25.90, and June 20.91: at 162×, limiting mag ~ 16.0-16.2; comet very clearly visible [LEH]. June 15.92, 24.92, and 25.91: at 162×, limiting mag ~ 16.0-16.5; second confirming detections made ~ 0.08 day later [LEH].

◇ *Comet C/1999 T1 (McNaught-Hartley)* ⟹ 2001 Mar. 31.84: obs. through aurora borealis [LEH]. June 26.89: comet close to star of mag 7.5 [LEH].

◇ *Comet C/1999 T2 (LINEAR)* ⟹ 2000 Aug. 26.89 and Sept. 1.91: ST-7 CCD used in binning 2×2; comparison stars from Hipparcos catalogue via CD-ROM Guide 6.0 [LIG].

◇ *Comet C/1999 U4 (Catalina-Skiff)* ⟹ 2000 Oct. 21.79, Nov. 1.74, Dec. 20.74, 22.72, 23.71, and 24.92: at 162×, limiting mag ~ 15.8-16.5; second confirming detections made 0.09-0.18 day later [LEH]. Oct. 22.78, 23.77, and Nov. 16.76: no second confirming detection on same night due to haze/clouds; at 162×, limiting mag ~ 15.5-16.0 [LEH]. 2001 Jan. 15.76: at 162×, limiting mag ~ 17.0; second detection made for confirmation at Jan. 15.90 [LEH]. Oct. 14.04: comet close to star of mag 10.5 [LEH]. Nov. 15.05: difficult obs.; plotted position matched that checked later w/ Guide6 software using orbital elements from *MPC* 43603; motion suspected, but comet not unambiguously detected over 30-35 min, but obs. position was clearly different from the predicted position of Nov. 14.98; a final check with the Digitized Sky Survey showed nothing present at the obs. position [BOU].

◇ *Comet C/1999 Y1 (LINEAR)* ⟹ 2000 Sept. 1.92, 22.86, Oct. 21.80, 23.77, and 28.79: ST-7 CCD used in binning 2×2; comparison stars from Hipparcos catalogue via CD-ROM Guide 6.0 (comparison star SAO 37020 on Oct. 23.77 and SAO 54224 on Oct. 28.79) [LIG]. Dec. 23.70 and 2001 Jan. 28.72: comet close to star of mag 13.4 [LEH].

◇ *Comet C/2000 K2 (LINEAR)* ⟹ 2000 Oct. 21.74, 22.74, and 23.74: at 162×, limiting mag ~ 15.5; no second confirming detection due to low alt. [LEH].

◇ *Comet P/2000 S1 (Skiff)* ⟹ 2000 Oct. 21.81: at 162×, limiting mag ~ 15.8; second confirming detection made at Oct. 21.98 [LEH].

◇ *Comet C/2000 SV$_{74}$ (LINEAR)* ⟹ 2000 Oct. 21.82, Dec. 20.76, 22.75, and 23.74: at 162×, limiting mag ~ 16.0-16.5; second confirming detections made 0.07-0.17 day later [LEH]. Oct. 22.82 and Nov. 16.78: at 162×, limiting mag ~ 15.8-16.0; no second confirming detection due to haze/clouds [LEH]. 2001 Jan. 15.78: limiting stellar mag ~ 16.5 at 162×; no confirming detection due to low alt. [LEH]. Nov. 4.39: GUIDE 6.0 software used for photometry [NAG08]. Nov. 4.73: comet close to star of mag 12.6 [HOR02]. Nov. 10.55, 22.50, Dec. 4.47, and 11.50: GUIDE 6.0 software used for photometry [TSU02]. Nov. 15.01: some interference from nearby star of mag 9.8 [BOU]. Nov. 15.84: comet close to star of mag 12.7 [HOR02]. Nov. 16.91: comet close to star [HOR02]. Dec. 8.72, 13.78, 14.69, and 23.74: second confirming detections made within 0.2 day of these UTs; limiting mag 16.5 at 162× [LEH]. Dec. 20.09: central cond of dia. < 3″ and mag 16.6; the coma, although irregularly bounded, appeared geometrically symmetrical with some indefinable internal structure; comet's apparent motion was measured as ≈ 18″/hr at p.a. 180° [ROQ].

◇ *Comet C/2000 WM$_1$ (LINEAR)* ⟹ 2001 Aug. 12.03: all obs. by LIG were made via comparison w/ star magnitudes from Hipparcos (on CD-ROM Guide 7.0) and USNO-A2.0 catalogues [LIG]. Oct. 12.84: comet close to bright star [HOR02]. Oct. 12.92: comet close to star of mag 9.8 [LEH]. Oct. 24.04: well seen despite its proximity to an 8th-mag star [GRA04]. Oct. 26.96, Nov. 1.91, and 5.85: moonlight [RES]. Oct. 29.09: very elongated coma (or tail?) towards p.a. 270°; E part of coma contained a nuclear cond. of mag 12 [KAR02]. Nov. 1.06: diffuse coma w/ central cond. of mag 12.7 (ref: AAVSO U Gem chart); comet visible despite an almost-full Moon [GRA04]. Nov. 1.87, 3.92, 20.87, and 24.86: astrometry provided to MPC for this and other comets around these dates [LIG]. Nov. 2.78 and 25.97: moonlight [HOR02]. Nov. 3.12: coma appeared elongated ≈ E-W direction, slightly brighter than M97 [GRA04]. Nov. 3.74: comet only barely seen due to a smaller instrument, thin clouds, and rising Moon [GRA04]. Nov. 4.00: Seti 245c CCD (manufacturer D.T.A.), Texas TC245 chip; Johnson-V-filter images show an outer faint halo in the coma (possibly a C_2 halo) [MIL02]. Nov. 4.40, 6.52, 10.60, 12.60, 14.58, 16.57, 17.60, 18.46, 19.45, 20.67, 21.64, 22.63, 23.62, 24.76, 26.65, Dec. 3.38, 7.46, 8.43, 9.41, 10.42, 11.41, 14.39, 17.39, 19.38, and 23.37: GUIDE 6.0 software used for photometry [NAG08]. Nov. 5.79: w/ 0.42-m f/5 L (81×), wide dust tail ∼ 9′ long in p.a. 217°; coma dia. 5′.4, DC = 4 [LEH]. Nov. 6.51, 14.50, 14.51, 17.75, 18.56, 20.62, Dec. 2.40, 4.44, 10.45, and 18.40: GUIDE 7.0 software used for photometry [YOS02]. Nov. 7.48, 8.44, 10.49, 15.50, 18.71, and 24.66: GUIDE 7.0 software used for photometry [WAT01]. Nov. 7.74: oval coma; tail visible by indirect vision [DUS]. Nov. 8.08: comet has become clearly condensed and an easy object despite a somewhat-light-polluted sky w/ last-quarter Moon; tail faint but sure of its reality; m_1 similar to that of M1 [GRA04]. Nov. 8.90: w/ 6.3-cm f/13 R (52×), m_2 = 9.3 [KOS]. Nov. 9.10: comet visible w/o much trouble despite less favorable conditions (snow-covered ground) [GRA04]. Nov. 9.98: w/ 25.6-cm L (169×), central cond. of mag 12.5 [BIV].

Nov. 10.27: central cond. of dia. < 3″ and mag 10.9; coma appeared strongly asymmetrical in p.a. 237°; although the broad, diffuse tail was w/o internal structure, minimal jet activity was evident at a small region near the tailhead [ROQ]. Nov. 10.62: GUIDE 7.0 software used for photometry [MIY01]. Nov. 10.68, 17.68, 23.65, Dec. 8.40, and 11.46: The Sky ver.5 software used for photometry [MIT]. Nov. 10.70, 14.53, 16.50, 21.60, 22.58, and 24.54: GUIDE 6.0 software used for photometry [TSU02]. Nov. 10.92: comet was easily visible also in 7×50 B [GRA04]. Nov. 10.93: w/ 25.6-cm L (169×), central cond. of mag 12.7 [BIV]. Nov. 11.80: coma slightly elongated; no visible central cond. [AND01]. Nov. 12.60: m_2 ∼ 11 [MAT08]. Nov. 14.86: w/ 15×80 B, short broad tail 0.3° long in p.a. 225° [BOU]. Nov. 15.84: w/ 6.3-cm f/13 R (52×), m_2 = 9.0 [KOS]. Nov. 15.88: coma appeared elongated E-W [GRA04]. Nov. 15.89: nuclear cond. of mag 9.8; elongated in p.a. 110° [CSU]. Nov. 15.92: w/ 10.0-cm f/5 L (20×), m_2 = 10.5 [KAR03]. Nov. 16.02: central cond. of dia. 3″ and mag 11.7; coma showed pronounced asymmetry and continued jet activity within this apparently active region [ROQ]. Nov. 17.01: w/ 20-cm f/8 L (40×), coma dia. 10′, DC = 6 [HOD02]. Nov. 17.05: w/ 25.6-cm L (169×), central cond. of mag 11.8 [BIV]. Nov. 17.52: w/ 50-cm L + CCD + V and Cousins I filters, anti-tail > 6′.5 long in p.a. 300° and main tail > 5′.4 long in p.a. 183° [FUK02]. Nov. 17.73: w/ 35-cm L + ST-6V CCD + R filter, 24 30-sec exp. were co-added into a 720-sec image showing three direct jets coming out of a very bright, pointlike nucleus; lengths and p.a. of the jets (from brightest to faintest) were 6′ in 179°, 3′ in 296°, and 2′ in 76°; main tail in p.a. ∼ 296°; coma dia. > 14′ [HOR02]. Nov. 17.75: obs. affected by aurora, incoming clouds, and not-fully-dark-adapted eyes [GRA04]. Nov. 17.75: w/ 6.3-cm f/13 R (52×), m_2 = 9.0 [KOS]. Nov. 17.87: nuclear cond. of mag 9.4; elongated in p.a. 110° [CSU]. Nov. 18.00: w/ 15.6-cm L (72×), nearly stellar cond. of mag 10-11; broad (dust) tail some 15′ long in p.a. ∼ 215° and a rather narrow anti-tail ∼ 8′ long in p.a. ∼ 345° [BOU]. Nov. 18.67: obs. from Norwegian-Finnish border (lat. +69°; temp −22° C); some interference from aurora and clouds, but quite dark; comet was not visible to naked eye [GRA04]. Nov. 18.87: nuclear cond. of mag 9.3; elongated in p.a. 110° [CSU]. Nov. 18.89: w/ 6.3-cm f/13 R (52×), m_2 = 8.8 [KOS]. Nov. 19.53: w/ Johnson V and Cousins I filters, anti-tail > 6′.2 long in p.a. 317° and main tail > 5′.9 long in p.a. 154° [FUK02]. Nov. 19.84: w/ 15.5-cm L (50×), anti-tail 17′ long in p.a. 316° [DIJ]. Nov. 19.85: also anti-tail ∼ 0°.5 long in p.a. ∼ 350° [RES]. Nov. 19.90-20.09: w/ 7.0-cm f/6.8 R (15×), elongated coma and faint tail; w/ 20.3-cm f/10 T (62×) on Nov. 19.91: w/ 25.4-cm J (88×), nearly stellar cond. of mag 11 visible; anti-tail ≈ 18′ long in p.a. 324° [BOU]. Nov. 19.98: comet barely visible to naked eye [SKI].

Nov. 20.09: apparently stellar nucleus of mag 11.7 (ref: AAVSO U Gem) surrounded by inner coma of integrated mag ≈ 9.5 (ref: TJ) and dia. 1′.4 [GRA04]. Nov. 20.13 and Dec. 4.27: w/ 20.3-cm L (95×), central cond. of mag 11.5 [BIV]. Nov. 20.13: w/ 20.3-cm L (40×), tails in p.a. 250° and 320° [BIV]. Nov. 20.55: false nucleus of m_2 ≈ 10.0; faint anti-tail(?) > 15′ long in p.a. ∼ 330° [MAT08]. Nov. 20.91: obs. affected by an incoming cloud front [GRA04]. Nov. 21.04 and 23.10: clouds interfered [AMO01]. Nov. 21.60: CCD frame obtained w/ a 300-mm-f.l. telephoto lens shows a 1°.0 plasma tail in p.a. 123°, and a 0°.5 dust tail in p.a. 340° [TSU02]. Nov. 21.87: comet appeared smaller but brighter than M33 (especially the inner part of its coma); fairly easily seen via naked eye, while M33 was a challenge [SKI]. Nov. 22.04: w/ 20.3-cm f/10 T (62×), apparent nucleus of mag 11.5 (ref: AAVSO U Gem) and a 0°.4 tail [GRA04]. Nov. 22.46: w/ Cousins I and Johnson V filters, anti-tail > 4′.7 long in p.a. 1° and 3′.2 main tail in p.a. 81° [FUK02]. Nov. 22.58: CCD frame obtained w/ a 300-mm-f.l. telephoto lens shows a 0°.8 plasma tail in p.a. 102°, and a 1°.1 dust tail in p.a. 347° [TSU02]. Nov. 22.82: w/ 6.3-cm f/13 R (52×), m_2 = 8.5 [KOS]. Nov. 22.91: appearance of comet quite similar to that of the open clusters M36, M37, and M38; not visible to naked eye [GRA04]. Nov. 22.94: w/ 20.0-cm L (42×), weak, broad anti-tail 0°.1 spanning p.a. 330°-25° [SCH04]. Nov. 22.98: seen w/ naked eye [SKI]. Nov. 23.06: w/ 20.3-cm L (95×), central cond. of mag 12.0; at 40×, complex, broad tail(s) in p.a. 310°-65° [BIV]. Nov. 24.09: central cond. of dia. < 3″ and mag 11.8; the coma remains strongly asymmetrical in p.a. 246°; the short, diffuse tail merging into the coma at p.a. 216° contains a somewhat brighter central core within its initial 20% of total tail length; the tail itself continues as a broad, curved fan of very low brightness relative to the coma [ROQ]. Nov. 24.66: w/ 25.0-cm L (69×), m_2 = 10.0 (Tycho comp. stars used, no specifics) [WAT01]. Nov. 25.04: moonlight, good transparency; asymmetrical coma; faint dust and ion tails [MIR01]. Nov. 25.09: moonlight [DES01]. Nov. 25.53: strong moonlight [PEA]. Nov. 26.86: strong moonlight (moon close to comet) [SVE01]. Nov. 26.90: obs. affected by moonlight and low clouds; comet appeared fainter than

[*cont. from previous page*]

M35, but clearly brighter than M33 [SKI]. Nov. 26.95: challenging obs., due to moonlight and drifting clouds; only the inner part of coma was visible w/o much trouble [GRA04].

Dec. 2.02: ellipsoidal coma in p.a. 60°; moonlight interference [YUM]. Dec. 2.53: obs. prior to moonrise [PEA]. Dec. 2.73: w/ 7-cm R, asymmetrical coma of size 12′ × 15′ [TIT]. Dec. 3.22: w/ 20.3-cm L (95×), central cond. of mag 11.0 [BIV]. Dec. 3.46: conditions poor with hazy sky [SEA]. Dec. 3.49: beautiful object in 25×100 B; false nucleus w/ $m_2 \sim$ 9.0; the brighter dust(?) tail is ∼ 30′ long, arching N from the fainter gas(?) tail (which is > 1°.3 long in p.a. 33°); w/ naked eye, $m_1 \simeq 5.7$ [MAT08]. Dec. 4.30: w/ 20.3-cm L (40×), 0°.6-long ion tail in p.a. 50° [BIV]. Dec. 4.91: ref. stars of mag 6.4 and 7.4; moonlight [SAN13]. Dec. 5.26: w/ 20.3-cm L (95×), central cond. of mag 11.6 [BIV]. Dec. 5.29: w/ 20.3-cm L (40×), 0°.3-long ion tail in p.a. 45° [BIV]. Dec. 6.00: resembles a dimmer version of C/1995 O1 in 16×80 B, w/ a 2° slightly curved dust tail in p.a. 15° and 1° gas tail in p.a. 25° [CRE01]. Dec. 6.30: w/ 20.3-cm L (95×), central cond. of mag 12.1; at 40×, tails 1°.0 long in p.a. 30° and 0°.4 long in p.a. 45° [BIV]. Dec. 6.80: comet clearly seen in binoculars despite the quite low alt. (15°); w/ 0.07-m *f*/6.8 R (24×), $m_1 = 5.6$ (ref: TJ), dia. 17′, DC = 5; there was an apparently stellar central cond. of mag ≈ 8.5 [GRA04]. Dec. 7.30: w/ 20.3-cm L (95×), central cond. of mag 11.4; at 40×, tails 1°.0 long in p.a. 40° and 0°.5 long in p.a. 50° [BIV]. Dec. 8.27: w/ 20.3-cm L (95×), central cond. of mag 11.9; at 40×, tails 1°.0 long in p.a. 30° and 0°.5 long in p.a. 50° [BIV]. Dec. 8.79: w/ 25×100 B, tail ∼ 2°.5 long in p.a. 45°; coma dia. 15′, DC = 4 [LEH]. Dec. 9.30: w/ 20.3-cm L (95×), central cond. of mag 11.6; at 40×, tails 0°.8 long in p.a. 30° and 0°.6 long in p.a. 50° [BIV]. Dec. 9.47: very faint tail toward N-NE (w/ 7×50 B); comet much more evident than nearby NGC 55 and NGC 253; comet just visible to naked eye; w/ 11.4-cm *f*/8 L (35×, 70×), coma dia. 20′, DC = 6, dust tail 1° long in p.a. 25°, broadening to 30′ wide at 0′.7-0′.8 from pseudo-nucleus that itself has dia. ∼ 5″ and mag 8.5-9.0; very faint tail extension out to 1°.5 in p.a. 40°; coma is noticeably asymmetric w/ densest part ∼ 5′ to SW of coma's geometric center [FAR01]. Dec. 11.26: w/ 20.3-cm L (95×), central cond. of mag 11.8; at 40×, tails 0°.9 long in p.a. 30° and 0°.6 long in p.a. 55° [BIV]. Dec. 12.28: w/ 20.3-cm L (95×), central cond. of mag 11.5; at 40×, tails 0°.8 long in p.a. 40° and 0°.6 long in p.a. 60° [BIV]. Dec. 13.74: alt. ∼ 1°.5 above S horizon [LEH]. Dec. 15.39: `GUIDE 6.0` software used for photometry [NAG08]. Dec. 16.04: ref. stars of mag 6.35 and 4.46 [MAN04]. Dec. 18.42: in 25×100 B, comet was a striking sight with two tails (a faint type-I tail 1°.6 long in p.a. 85° and a broad, curving type-II tail 0°.8 long w/ its edge curving toward p.a. 47°) [SEA]. Dec. 20.50: moonlight and haze [FAR01]. Dec. 21.52, 25.48, and 27.48: moonlight [MAT08]. Dec. 23.03, 24.04, and 26.07: moonlight [MAN04]. Dec. 26.99: w/ 23-cm L (76×, 92×), strong, small, disk-like central cond. [DES01].

2002 Jan. 1.45: 'extreme' B method used w/ both comet and comparison stars placed well out-of-focus to give low surface brightness; narrow, straight tail visible in 25×100 B to at least 1°, although smoke haze made actual length difficult to determine [SEA]. Jan. 4.48: w/ 8×40 B, faint, narrow tail; w/ 12×50 B, narrow tail is tab., but also a faint fan-shaped tail 25′-35′ long spanning p.a. 70°-120°; w/ 10.0-cm R (35×, 60×), nuclear cond. of size < 4″ and mag 8.0; fan-shaped tail seen (as in binoculars) but w/ several faint radial filaments within the fan, each up to 40′ long; w/ 43.0-cm L (100×), comet shows pale-yellow color, fading out to dull grey; only a hint of cyan green is seen in the immediate vicinity of the nucleus and in the 'root' of the 'ion' tail described above; narrow white arc (shell?) of radius ∼ 2″ over the sunward side of the nuclear cond., which itself has dia. < 2″ [FAR01].

◇ *Comet C/2001 A2 (LINEAR)* ⟹ 2001 May 6.47: tail easily visible, 24′ long in p.a. 120° even in bright moonlit sky [PEA]. May 9.48: tail easily visible, 17′ long in p.a. 133° even in bright moonlit sky [PEA]. May 11.44: another large increase in brightness over the last 48 hr; tail easily visible, 25′ long in p.a. 130° [PEA]. May 31.44: tail 1°.5 long in p.a. 170°; strong blue-green color of coma was quite evident even in binoculars [PEA]. June 4.44: tail 52′ long in p.a. 164°; "strong blue-green color of coma was still quite evident even in binoculars; comparison stars used were at a similar elevation as the comet, so estimate should be fairly accurate, even accounting for moonlit sky" [PEA]. June 11.91: "comet has undergone another significant brightness increase"; tail 1°.7 long in p.a. 192°; comparison stars υ^4 Eri (mag 3.5) and υ^1 Eri (mag 3.9); strongly condensed coma [PEA]. June 12.91: "comet still increasing in brightness; magnificent sight and certainly the best comet since C/1992 B2 and C/1995 O1; tail 3°.3 long in p.a. 208°; coma had a distinct greenish-blue hue in the 20×80 B" [PEA]. June 17.91: comet has faded significantly since last obs.; tail is now quite faint and ill-defined, 0°.5 long in p.a. 217° [PEA]. June 18.91: comet continuing to fade; comparison stars τ^3 Eri (mag 4.1) and τ^2 Eri (mag 4.9); tail still quite faint and ill-defined, 1°.1 long in p.a. 217° [PEA]. June 23.91: comet has brightened again somewhat since 3 days ago, appears distinctly non-stellar w/ the naked eye; comparison stars χ Cet (mag 4.7) and ζ Cet (mag 3.9) [PEA]. June 28.04: alt. ∼ 5°; strong twilight [LEH]. July 7.98: moonlight [BAR]. July 20.91 and 20.93: very good sky [BAR]. Sept. 26.82-Oct. 23.72: Tromso CCD Photometer CCD camera w/ a thinned TK 1024, Tektronik 1K 1024×1024 CCD chip [CHE03]. Oct. 23.47, Nov. 10.46, and 23.43: `GUIDE 6.0` software used for photometry [TSU02].

◇ *Comet C/2001 K3 (Skiff)* ⟹ 2001 June 25.01 and 25.99: no second confirming detection due to twilight; at 162×, limiting mag ∼ 16-16.3 [LEH].

◇ *Comet C/2001 K5 (LINEAR)* ⟹ 2001 June 24.93 and 25.90: no second confirming detection due to low alt.; at 162×, limiting mag ∼ 15 [LEH].

◇ *Comet C/2001 MD$_7$ (LINEAR)* ⟹ 2001 Oct. 23.43, Nov. 7.41, 12.44, 16.40, 23.40, and Dec. 7.47: `GUIDE 6.0` software used for photometry [TSU02]. Nov. 2.45: moonlight [MAT08]. Nov. 6.42, 14.44, Dec. 2.39, and 2002 Jan. 3.42: `GUIDE 7.0` software used for photometry [YOS02]. Nov. 6.42: GSC magnitudes around the comet seem to be too faint [YOS02]. Nov. 11.46: "comet must have brightened considerably since my previous (unsuccessful) attempt on Oct. 19; it was quite conspicuous at both 114× and 71×" [SEA]. Nov. 13.53: close to star of mag 14.2 [MAT08]. Dec. 9.50: $m_1 =$

12.0 w/ ref HS [MAT08]. Dec. 11.39: GUIDE 6.0 software used for photometry [NAG08]. Dec. 16.72: comet well visible, despite alt. of only 14°; comp. stars from AAVSO chart for V1494 Aql, based on seq. by Henden [BOU].

◇ *Comet C/2001 N2 (LINEAR)* ⟹ 2001 Oct. 23.45 and Nov. 12.46: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet P/2001 Q6 (Petriew)* ⟹ 2001 Aug. 22.11: independent discovery w/ 25×150 B [ZAN, at Colle Nivolet, Parco Nazionale Gran Paradiso, Italy]. Nov. 14.86: GUIDE 6.0 software used for photometry [TSU02]. Nov. 27.80: small outburst [KAD02].

◇ *Comet C/2001 Q4 (NEAT)* ⟹ 2001 Nov. 10.58 and Dec. 8.49: GUIDE 6.0 software used for photometry [TSU02]. Nov. 20.57: GUIDE 7.0 software used for photometry [NAK01].

◇ *Comet P/2001 Q5 (LINEAR-NEAT)* ⟹ 2001 Nov. 10.63: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet P/2001 Q6 (NEAT)* ⟹ 2001 Nov. 4.38, 10.57, 19.44, and Dec. 11.42: GUIDE 6.0 software used for photometry [NAG08]. Nov. 6.44 and 14.48: GUIDE 7.0 software used for photometry [YOS02]. Nov. 9.89: round coma [DUS]. Nov. 12.49, 16.38, 22.45, and Dec. 8.39: GUIDE 6.0 software used for photometry [TSU02]. Nov. 14.10: very difficult to detect [GRA04]. Nov. 16.74: comet close to star [LEH]. Dec. 16.81: comet only barely seen (precise location known from CCD images taken earlier on same evening); mag ref = AAVSO chart for SS Cyg w/ CCD V mags by A. Henden, USNO [GRA04].

◇ *Comet P/2001 R1 (LONEOS)* ⟹ 2001 Nov. 12.58: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet P/2001 R6 (LINEAR-Skiff)* ⟹ 2001 Nov. 10.61: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet C/2000 RX_{14} (LINEAR)* ⟹ 2001 Nov. 16.46 and Dec. 7.50: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet P/2001 T3 (NEAT)* ⟹ 2001 Dec. 11.53: GUIDE 6.0 software used for photometry [TSU02].

◇ *Comet C/2001 W2 (BATTERS)* ⟹ 2001 Nov. 23.38, 24.38, Dec. 8.37, and 10.37: GUIDE 6.0 software used for photometry [TSU02]. Dec. 4.42: GUIDE 7.0 software used for photometry [YOS02]. Dec. 7.74: "comet appears to be in outburst; very strong, nearly stellar cond. in faint coma; quite a contrast to appearance 24 hr ago" [BOU]. Dec. 8.35: another tail 0.′9 in p.a. 61° [KAD02]. Dec. 8.70: w/ 35-cm L + CCD ST-6V + R filter, co-addition of sixteen 60-sec exposures shows the comet in outburst; in p.a. 327° from bright pointlike nucleus, there is a bright circular dust cloud of dia. ∼ 10″; from this cloud, there emanates a very bright and sharp jet 30″ long in p.a. 52°, slightly curved in counterclockwise direction; there are apparent three narrow streamers forming a tail — the brightest is 6′ long in p.a. 33°, the second brightest is 2.′3 long in p.a. 35°, and the faintest one is 1.′5 long in p.a. 58°; coma dia. 0.′9; m_1 = 11.5 from co-added image; visual m_1 = 11.4 at 158×, w/ coma dia. 0.′9 and DC = 7/ on Dec. 8.72 UT (the very bright nuclear cond. and short jet were visible by eye) [HOR02]. Dec. 9.69: w/ 35-cm L + CCD ST-6V + R filter, 32 co-added 30-sec exp. show evolution of the outburst noted on Dec. 8.70; the circular dust cloud was not apparent; from the bright pointlike nuclear cond., there emanates in p.a. 0° a very bright and sharp jet, which at a distance of 13″ from the nucleus turns to p.a. 46° and is 1.′3 long (this jet is much brighter and longer than that observed there 1 day ago); there is a tail formed by three narrow streams with comparable brightnesses (the longest one is > 12′ long in p.a. 33°; the second longest is 3.′7 long in p.a. 40°, and the shortest is 3.′0 long in p.a. 56°); coma dia. 1.′0; co-added m_1 = 11.5 [HOR02]. Dec. 9.72: comet less condensed with a faint stellar cond., but w/ a more pronounced coma, as compared to 48 hr ago; outburst appears to be rather short-lived [BOU]. Dec. 11.38: GUIDE 6.0 software used for photometry [NAG08]. Dec. 14.71 and 16.71: comet faint and only slightly cond.; comparison stars from AAVSO chart for V1494 Aql, based on seq. by Henden [BOU].

◇ *Comet C/2001 X1 (LINEAR)* ⟹ 2001 Dec. 14.46: w/ LINEAR telescope (1.0-m f/2.15 L + CCD), slightly fan-shaped tail of length 15′15″ w/ center of fan at p.a. 293°; hazy sky [Robert Huber, Lincoln Lab., M.I.T.].

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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 [16 = Japanese observers (via Akimasa Nakamura, Kuma, Japan); etc.]. Those with asterisks (*) preceding the 5-character code are new additions to the Observer Key:*

ABB	07	James Abbott, Witham, Essex, U.K.
*AGU	35	Jose S. Agustoni, Brazil
AKA	16	Ayahiko Akahori, Matsumoto, Japan
ALV	35	Avelino A. Alves, Brazil
AMO01	35	Alexandre Amorim, Brazil
AND01		Karl-Gustav Andersson, Sweden
ARQ	35	Adrian Paulo Arquiola, Argentina
BAC03	45	Antonio Bachi, Uruguay
BAL04	32	János Balogh, Hungary
BAL07	35	Gustavo Enrique Ballan, Argentina
BEA	07	Sally Beaumont, Cumbria, England
*BEL07	35	Alvaro G. Vargas Beltran, Bolivia
BIV		Nicolas Biver, France
BON	07	Neil Bone, West Sussex, U.K.
BOU		Reinder J. Bouma, The Netherlands
CER01	23	Jakub Černý, Praha, Czech Rep.

CHE03	33	K. T. Cernis, Moletai, Lithuania
CHU		Klim I. Churyumov, Kiev, Ukraine
COE	35	A. C. Coelho, Brasilia, Brazil
COM	11	Georg Comello, The Netherlands
CRE01		Phillip J. Creed, OH, U.S.A.
CRE02	36	C. Cremaschini, Pompiano, Italy
CSU	32	Mátyás Csukás, Salonta, Romania
CSU01	32	István Csuti, Maglód, Hungary
DES01		Jose G. de Souza Aguiar, Brazil
DIE02		Alfons Diepvens, Belgium
DIJ		Edwin van Dijk, The Netherlands
DUS	18	Grzegorz Duszanowicz, Sweden
END	16	T. Endo, Matsumoto, Nagano, Japan
ENT	07	Len Entwisle, England
EZA	16	Y. Ezaki, Toyonaka, Osaka, Japan
FAR01		Fraser Farrell, S. Australia
FED03	48	D. V. Fedotov, Kharkov, Ukraine
FIL02	17	V. S. Filonenko, Kharkiv, Ukraine
FOG		Sergio Foglia, Italy
FRE01	45	Jose Rodriguez Freitas, Uruguay
FUK02	16	H. Fukushima, Tokyo, Japan
GIA01		A. Giambersio, Potenza, Italy
GIL01	11	G. Gilein, Noordwijk, Holland
GIU	07	Massimo Giuntoli, Italy
GON05		J. J. Gonzalez, Asturias, Spain
GRA04	24	Bjoern Haakon Granslo, Norway
GRE		Daniel W. E. Green, U.S.A.
HAS02		Werner Hasubick, Germany
HOD02	35	Juan M. Hodar, Campinas, Brazil
*HON02	35	Jose Honorio, Montevideo, Uruguay
HOR02	23	Kamil Hornoch, Czech Republic
KAD02	16	K. Kadota, Ageo, Saitama, Japan
KAN05		Ralf Kannenberg, Switzerland
KAR02	21	Timo Karhula, Virsbo, Sweden
*KAR03	32	Á. Kárpáti, Törökbálint, Hungary
KAS	19	I. Kasirin, Tuapse, Russia
KEM01		Paul Kemp, Auckland, New Zealand
KHO	47	P. M. Kholopov, Ukraine
KON06	23	Jiří Konečný, Litovel, Czech Rep.
KOR01	19	V. L. Korneev, Zelenograd, Russia
KOS		A. Kósa-Kiss, Salonta, Romania
KRA05	47	F. I. Kravtsov, Lisnyky, Ukraine
*KRI	48	I. V. Krivchenko, Ukraine
KUB	23	Pavel Kubicek, Czech Republic
*KUB01		Tomas Kubec, Czech Republic
KYS	23	J. Kysely, Czech Republic
LAU02	33	V. Laugalys, Vilnius, Lithuania
LEH		Martin Lehky, Czech Republic
LIG		Rolando Ligustri, Latisana, Italy
LIN04		Mike Linnolt, Makawao, HI, U.S.A
*MAC04	07	Gordon MacLeod, Caithness, U.K.
MAN04		L. Mansilla, Rosario, Argentina
MAR02	13	Jose Carvajal Martinez, Spain
MAR25	07	Steve Martin, Devon, U.K.
MAT08		Michael Mattiazzo, S. Australia
MER04		S. Merzlakov, Zelenograd, Russia
MER05	07	C. Meredith, Manchester, England
MIC	36	Marco Micheli, Pompiano, Italy
MIL02		G. Milani, Padova, Italy
MIR	47	A. S. Miroshnichenko, Tadjikstan
*MIR01		Jose Antonio Miravalles, Spain
MIT	16	S. Mitsuma, Honjo, Saitama, Japan
MIY01	16	Osamu Miyazaki, Ibaraki, Japan
MOE		Michael Moeller, Germany
MOR04	37	Vladimir G. Mormyl, Ukraine
NAG08	16	Y. Nagai, Koufu, Yamanashi, Japan
NAK01	16	A. Nakamura, Kuma, Ehime, Japan
NEK		A. N. Nekrasov, Baran, Belarus
NEV	42	V. S. Nevski, Vitebsk, Belarus
ORI	16	T. Oribe, Saji, Tottori, Japan
PAS02	47	S. V. Pasichnyk, Ukraine
PEA		Andrew R. Pearce, Australia
*PUS	32	Ferenc Puskás, Szarvas, Hungary
RES		M. Reszelski, Szamotuly, Poland
RIA	47	I. B. Riabenko, Ural U., Russia
ROQ		Paul Roques, AZ, U.S.A.
*ROS04	35	Carlos Rossatti, Uruguay
RSP	47	F. K. Rspaev, Kazakhstan
SAL02	35	Erwin Salazar G., Cusco, Peru
*SAL03		Raul Salvo, Montevideo, Uruguay
SAN04	38	Juan M. San Juan, Madrid, Spain
SAN13	36	J. L. Sanchez, Rosario, Argentina
SAR02	32	K. Sárneczky, Budapest, Hungary
SCH04	11	Alex H. Scholten, The Netherlands
SCO01		James V. Scotti, AZ, U.S.A.
SEA		David A. J. Seargent, Australia
SER	42	I. M. Sergey, Molodechno, Belaru
SER02		Jérome Serant, Chevillon, France
SHA02	07	J. D. Shanklin, Cambridge, U.K.
SHI03	19	A. Shirokov, Ryazan, Russia
SHU	42	S. E. Shurpakov, Baran, Belarus
SIE	33	Henryk Sielewicz, Lithuania
SIP	32	Brigitta Sipőcz, Hungary
SKI	24	Oddleiv Skilbrei, Norway
SOS01	47	S. V. Sosov, Petrodvorets, Russia
SOW	16	Toshihide Sowa, Wakayama, Japan
SPR		Christopher E. Spratt, BC, Canada
SVE	23	Milan Švehla, Czech Republic
SVE01	48	Denis A. Svechkarev, Ukraine
TAY	07	M. D. Taylor, Yorkshire, England
TEA	47	A. R. Tearo, Ural Univ., Russia
TEA01	47	A. V. Tearo, Ural Univ., Russia
TIT	48	R. E. Titarenko, Kharkov, Ukraine
TOT03	32	Zoltán Tóth, Hungary
TRO02	35	Victor Trombotto, Argentina
TSU02	16	M. Tsumura, Wakayama, Japan
WAT01	16	Nobuo Watanabe, Hokkaido, Japan
YOS02	16	Katsumi Yoshimoto, Hirao, Japan
YOS04	16	Seiichi Yoshida, Ibaraki, Japan
YUM	35	R. Yumi Shida, Sao Paulo, Brazil
YUT	47	N. Yu. Yutanov, Assy Obs., Tadjikstan
ZAN		Mauro Vittorio Zanotta, Italy
ZNO	23	Vladimír Znojil, Czech Republic

TABULATED DATA

NOTE: As begun in the October 2001 issue, the CCD and visual tabulated data are separated. The tabulated CCD data in this issue also are given in the old format (see Oct. issue, page 158, for more details); the new printed format will be displayed for the first time in the April 2002 issue (for CCD data only; no changes are being made for visual data).

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°); '&' = 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 abbrevations 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 now available in the new *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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Non-Visual Data

Comet 16P/Brooks

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 10.65	x	C	15.2	HV	35.0	C	9	a120	0.5	5	1.0m	270	TSU02
2001 11 16.68		C	16.1	TJ	18.0	L	6	a180	0.35		0.5m	276	KAD02
2001 11 23.68		C	16.2	TJ	18.0	L	6	a240	0.35		0.4m	279	KAD02

Comet 16P/Brooks [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 24.65		C	14.9	GA	60.0	Y	6	a240	1.2		3.2m	280	NAK01
2001 12 07.57	x	C	15.7	HV	35.0	C	9	a180	0.4	3			TSU02
2001 12 07.73		C	16.4	TJ	18.0	L	6	a180	0.3				KAD02
2001 12 08.73		C	16.5	TJ	18.0	L	6	a180	0.3				KAD02
2001 12 18.59		C	15.9	GA	60.0	Y	6	a120	0.65		2.3m	282	NAK01

Comet 19P/Borrelly

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 09 21.50		c	17.2	OB	91.4	L	5		2.9		19.4m	278	SC001
2001 09 26.10		C	10.0	HS	35.0	M	4	a120	2.6		0.3	274	CHE03
2001 09 26.11		C	9.7	HS	35.0	M	4	a120	3.5		0.1	275	LAU02
2001 09 27.10		C	9.6	HS	35.0	M	4	a120	3.5		0.1		CHE03
2001 09 27.10		C	10.3	HS	35.0	M	4	a120	1.6		0.1		LAU02
2001 10 25.83	x	C	11.1	HV	35.0	C	9	a 60	1.5	5	2.5m	292	TSU02
2001 10 27.06		C	11.1	HV	35.5	L	5	a 30	+ 1.5		0.06	280	LIG
2001 10 27.06		C	13.5	HV	35.5	L	5	a 30	+ 0.2				LIG
2001 11 14.83	xa	C	11.0	HV	35.0	C	9	a 60	1.4	5	> 8.0m	284	TSU02
2001 11 16.02		C	11.4	HV	35.5	L	5	a 30	+ 1.5				LIG
2001 11 18.06		C	11.4	HV	35.5	L	5	a 30	+ 1.5				LIG
2001 11 24.03		C	11.4	HV	35.5	L	5	a 30	+ 1.5		5 m	289	LIG
2001 12 07.75	w	H	11.4	LA	50.0	C	12	a360	2.2	6	> 8.5m	296	FUK02
2001 12 08.67	w	H	11.1	LA	50.0	C	12	C240	2.2	6	> 9.1m	296	FUK02
2001 12 08.74	w	V	12.0	LA	50.0	C	12	B520	2.5	6	> 6.9m	297	FUK02
2001 12 11.72	w	H	11.0	LA	50.0	C	12	C840	3.2	6	> 9.6m	296	FUK02
2001 12 11.72	w	V	11.7	LA	50.0	C	12	a960	3.2	6	> 9.6m	296	FUK02
2001 12 16.03		C	12.8	HS	35.5	L	5	a 60	+ 0.6		0.13	299	LIG
2001 12 16.73	w	H	10.9	LA	50.0	C	12	A800	2.7	6	> 7.7m	298	FUK02
2001 12 24.01		C	12.6	HS	35.5	L	5	a120	+ 0.8		0.18	298	LIG
2002 01 03.66	w	H	11.0	LA	50.0	C	12	C240	3.5	5	>10.2m	300	FUK02
2002 01 03.70	w	V	12.0	LA	50.0	C	12	B160	3.5	5	>10.2m	300	FUK02

Comet 29P/Schwassmann-Wachmann

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 08 14.84		C	12.4	HS	35.5	L	5	a 30	+ 0.75				LIG
2001 08 14.85		C	12.1	HS	35.5	L	5	a 30	+ 0.75				LIG

Comet 44P/Reinmuth

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 24.67		C	16.0	GA	60.0	Y	6	a240	0.65				NAK01
2001 12 14.81		c	16.6	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 18.83		c	16.6	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 23.90		c	16.4	UO	35.5	L	5	a120	+ 0.2				LIG

Comet 47P/Ashbrook-Jackson

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 24.66		C	17.3	GA	60.0	Y	6	a240	0.35			250	NAK01
2001 12 07.55	x	C	17.2	HV	35.0	C	9	a180	0.3	3			TSU02

Comet 51P/Harrington

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 07.58	x	C	15.9	HV	35.0	C	9	a120	0.3	3			TSU02
2001 12 18.60		C	15.3	GA	60.0	Y	6	a240	0.9		3.2m	273	NAK01

Comet 51P/Harrington (Component A)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 09.30		C	19.6	OB	91.4	L	5		1.28		334.2s	270	SC001
2001 12 09.31		c	22.0	OB	91.4	L	5						SC001
2001 12 09.61	w	H	15.9	LA	50.0	C	12	a720	0.37	4	1.1m	273	FUK02
2001 12 09.83		C	16.6	UO	35.5	L	5	a 30	+ 0.2				LIG

Comet 51P/Harrington (Component A) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 10.61	w	V	16.3	LA	50.0	C	12	A440	0.40	4	1.9m	272	FUK02
2001 12 10.63	w	H	15.7	LA	50.0	C	12	I000	0.54	4	2.7m	272	FUK02
2001 12 10.77		c	16.6	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 11.56	w	H	15.9	LA	50.0	C	12	C240	0.3	3	2.3m	277	FUK02
2001 12 11.60	w	V	16.9	LA	50.0	C	12	A080	0.3	3	2.3m	277	FUK02
2001 12 12.85		c	16.6	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 14.66	w	H	16.0	LA	50.0	C	12	F120	0.32	4	1.0m	278	FUK02
2001 12 14.68	w	V	16.3	LA	50.0	C	12	B880	0.26	4			FUK02
2001 12 14.86		c	16.7	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 15.60	w	V	16.8	LA	50.0	C	12	B880	0.27	4			FUK02
2001 12 15.67	w	H	16.1	LA	50.0	C	12	D320	0.34	4	0.7m	275	FUK02
2001 12 16.60	w	H	15.8	LA	50.0	C	12	E040	0.31	4	1.1m	276	FUK02
2001 12 16.62	w	V	17.0	LA	50.0	C	12	C600	0.28	4			FUK02
2001 12 16.83		c	16.6	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 18.60		c	17.4	GA	60.0	Y	6	a240					NAK01
2001 12 18.85		c	16.7	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 20.54	w	H	16.0	LA	50.0	C	12	C600	0.33	4	1.3m	275	FUK02
2001 12 23.88		c	17.3	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 31.53	w	H	16.6	LA	50.0	C	12	B880	0.37	4	1.5m	274	FUK02
2002 01 03.60	w	H	16.5	LA	50.0	C	12	C600	0.53	3	1.7m	268	FUK02

Comet 51P/Harrington (Component D)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 09.30		c	22.5	OB	91.4	L	5						SCO01
2001 12 09.61	w	H	16.0	LA	50.0	C	12	a720	0.32	3	1.0m	273	FUK02
2001 12 09.83		C	16.4	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 12 10.61	w	V	16.2	LA	50.0	C	12	A440	0.33	3	1.4m	273	FUK02
2001 12 10.63	w	H	15.9	LA	50.0	C	12	I000	0.39	3	2.2m	273	FUK02
2001 12 10.77		c	16.8	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 11.56	w	H	16.3	LA	50.0	C	12	C240	0.3	3	2.3m	277	FUK02
2001 12 11.60	w	V	17.2	LA	50.0	C	12	A080	0.3	3	2.3m	277	FUK02
2001 12 12.85		c	16.7	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 14.66	w	H	16.5	LA	50.0	C	12	F120	0.26	3	0.8m	279	FUK02
2001 12 14.68	w	V	16.8	LA	50.0	C	12	B880	0.18	3			FUK02
2001 12 14.86		c	16.8	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 15.60	w	V	17.3	LA	50.0	C	12	B880	0.14	3			FUK02
2001 12 15.67	w	H	16.3	LA	50.0	C	12	D320	0.28	3	0.5m	274	FUK02
2001 12 16.60	w	H	16.5	LA	50.0	C	12	E040	0.19	3	0.9m	279	FUK02
2001 12 16.62	w	V	17.3	LA	50.0	C	12	C600	0.15	3			FUK02
2001 12 16.83		c	16.7	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 18.60		c	17.5	GA	60.0	Y	6	a240					NAK01
2001 12 18.85		c	16.7	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 20.54	w	H	16.2	LA	50.0	C	12	D320	0.26	3	0.9m	276	FUK02
2001 12 23.88		c	17.4	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 31.53	w	H	16.7	LA	50.0	C	12	B880	0.28	3	1.3m	274	FUK02
2002 01 03.60	w	H	16.5	LA	50.0	C	12	C600	0.48	3	1.3m	268	FUK02

Comet 61P/Shajn-Schaldach

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 24.69		C	18.7	GA	60.0	Y	6	a240	0.25				NAK01

Comet 73P/Schwassmann-Wachmann

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 09 20.49		C	20.6	OB	91.4	L	5		0.12		27.1m	245	SCO01
2001 09 20.49		c	22.3	OB	91.4	L	5						SCO01

Comet 116P/Wild

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 23.73		C	16.7	TJ	18.0	L	6	a240	0.3				KAD02
2001 12 08.79		C	16.2	TJ	18.0	L	6	a180	0.35				KAD02
2001 12 18.66		C	15.9	GA	60.0	Y	6	a120	0.45				NAK01

Comet 124P/Mrkos

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 18.58		C	19.4	GA	60.0	Y	6	a240	0.2				NAK01

Comet 147P/Kushida-Muramatsu

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 14.54		c	21.2	OB	91.4	L	5			9			SC001

Comet 151P/Helin

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 10.51	x	C	17.1	HV	35.0	C	9	a600	0.3	3			TSU02

Comet 152P/Helin-Lawrence

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 24.86	!	k	19.5	LA	103.0	C	4	a240	0.15		8 s	295	ORI

Comet C/1984 N1 (Austin)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1984 10 20.87		N	14.0	PK	40	A	4						KH0

Comet C/1984 V1 (Levy-Rudenko)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1985 01 31.01		P	11.1	PK	100	C							RSP

Comet C/1985 R1 (Hartley-Good)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1985 09 16.8		P	11.5:	PK	43	D							RIA
1986 01 11.00	!	L	12.6	PK	100	Y							CHU
1986 01 11.00	!	R	12.3	PK	100	Y							YUT
1986 01 11.00	!	V	11.7	PK	100	Y							MIR

Comet C/1985 T1 (Thiele)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1985 11 16.69		P	10.8	PK	40	A							TEA
1985 11 17.75		P	11.1	PK	40	A							TEA01

Comet C/1986 P1 (Wilson)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1986 09 02.83		P	16.0:	PK	70	C							KRA05
1986 09 08.81		P	15.5:	PK	70	C							KRA05
1986 09 28.74		P	15.3:	PK	70	C							PAS02

Comet C/1997 BA6 (Spacewatch)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 07.42	xa	C	15.6	HV	35.0	C	9	a240	0.3	3			TSU02
2001 11 10.49	x	C	16.8	HV	35.0	C	9	a 60	0.3	3			TSU02

Comet C/1999 U4 (Catalina-Skiff)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 10 14.90	d	k	15.6	FD	35	L	5	a720	0.75		2.2m	298	HOR02
2001 11 10.86	d	k	15.6	FD	35	L	5	a810	0.6		1.2m	312	HOR02
2001 11 16.00		C	16.4	U0	35.5	L	5	a 30	+ 0.2				LIG
2001 11 17.82	d	k	15.7	FD	35	L	5	a990	0.75		2.3m	308	HOR02
2001 11 20.88		C	16.5	U0	35.5	L	5	a 30	+ 0.2				LIG
2001 12 16.84		c	16.4	U0	35.5	L	5	a120	+ 0.2		0.03	307	LIG

Comet C/2000 K2 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 22.60		C	17.2	GA	60.0	Y	6	a120	0.35				NAK01

Comet C/2000 SV74 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 10 14.74		d k	13.3	FD	35	L	5	a630	0.8				HOR02
2001 11 03.87		C	13.7	HV	35.5	L	5	a 30	+ 0.6				LIG
2001 11 03.87		C	14.9	HV	35.5	L	5	a 30	+ 0.2				LIG
2001 11 04.40		C	13.8	TJ	18.0	L	6	a 90	0.8				KAD02
2001 11 10.55	x	C	14.0	HV	35.0	C	9	a 60	0.8	5			TSU02
2001 11 10.91		d k	13.4	FD	35	L	5	a630	1.0		0.6m	320	HOR02
2001 11 14.89		C	13.7	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 11 16.62		C	13.5	TJ	18.0	L	6	a120	0.85				KAD02
2001 11 17.01		C	13.7	HV	35.5	L	5	a 30	+ 0.6				LIG
2001 11 17.51		C	13.8	TJ	18.0	L	6	a120	0.8				KAD02
2001 11 17.74		d k	13.5	FD	35	L	5	a720	1.5				HOR02
2001 11 20.87		C	13.8	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 11 22.50	x	C	12.6	HV	35.0	C	9	a120	0.8	5	0.8m	320	TSU02
2001 11 23.42		C	13.5	TJ	18.0	L	6	a120	0.9				KAD02
2001 11 24.00		C	13.8	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 12 04.47	x	C	14.0	HV	35.0	C	9	a120	0.5	4			TSU02
2001 12 08.41		C	14.1	TJ	18.0	L	6	a120	0.7				KAD02
2001 12 08.61	w	H	14.5	LA	50.0	C	12	A080	0.5	4			FUK02
2001 12 11.50	x	C	14.2	HV	35.0	C	9	a120	0.8	4			TSU02
2001 12 12.80		c	15.1	UO	35.5	L	5	a120	+ 0.2				LIG
2001 12 16.02		c	15.3	UO	35.5	L	5	a 60	+ 0.2				LIG
2001 12 18.49		C	14.0	GA	60.0	Y	6	a120	1.1				NAK01
2001 12 20.09		J	14.8	SC	25.4	T	5	a100	1.42	s6			ROQ
2001 12 26.41	w	H	13.0	LA	50.0	C	12	E040	1.1	4			FUK02
2001 12 26.47	w	V	13.7	LA	50.0	C	12	B880	1.0	4			FUK02

Comet C/2000 WM1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 08 12.03		C	14.8	HS	35.5	L	5	a 30	+ 0.5		0.02	284	LIG
2001 08 12.92		C	14.5	HS	35.5	L	5	a 30	+ 0.5		0.02	283	LIG
2001 08 14.97		C	14.5	HS	35.5	L	5	a 30	+ 0.5		0.02	284	LIG
2001 08 15.97		C	14.6	HS	35.5	L	5	a 30	+ 0.5		0.01	286	LIG
2001 10 14.86		d k	11.3	FD	35	L	5	a630	2.9		9 m	274	HOR02
2001 10 27.04		C	11.2	HV	35.5	L	5	a 30	+ 1.0		0.08	253	LIG
2001 11 01.87		C	10.5	HV	35.5	L	5	a 30	+ 1.2		0.06	246	LIG
2001 11 01.87		C	12.6	HV	35.5	L	5	a 30	+ 0.2				LIG
2001 11 03.92		C	10.4	HV	35.5	L	5	a 30	+ 1.3		0.08	244	LIG
2001 11 03.92		C	12.4	HV	35.5	L	5	a 30	+ 0.2				LIG
2001 11 04.00		V	8.7	HV	20.0	L	4	a120	6.8				MIL02
2001 11 04.00		V	9.8	HV	20.0	L	4	a120	+ 2.6				MIL02
2001 11 04.00		V	10.4	HV	20.0	L	4	a120	+ 1.3				MIL02
2001 11 04.00		V	11.3	HV	20.0	L	4	a120	+ 0.7				MIL02
2001 11 10.27		J	7.7	SC	25.4	T	5	a100	2.3	s6	3.4m	231	ROQ
2001 11 14.87		C	9.1	HS	35.5	L	5	a 30	+ 2.0				LIG
2001 11 15.86		C	8.5	HV	35.5	L	5	a 30	+ 2.0				LIG
2001 11 15.98		V	7.7	HV	20.0	L	4	a 60	8.0				MIL02
2001 11 15.98		V	8.2	HV	20.0	L	4	a 60	+ 4.0				MIL02
2001 11 15.98		V	8.8	HV	20.0	L	4	a 60	+ 2.0				MIL02
2001 11 15.98		V	9.5	HV	20.0	L	4	a 60	+ 1.0				MIL02
2001 11 15.98		V	10.4	HV	20.0	L	4	a 60	+ 0.5				MIL02
2001 11 16.02		J	7.8	SC	25.4	T	5	a100	4.82	s6			ROQ
2001 11 16.50	w	H	6.9	LA	50.0	C	12	B400	10.3	s6	> 8.5m	283	FUK02
2001 11 16.60	w	V	7.6	LA	50.0	C	12	B400	10.3	s6	> 8.5m	283	FUK02
2001 11 17.52	w	V	7.8	LA	50.0	C	12	A200	10.9	s6	> 6.5m	300	FUK02
2001 11 17.54	w	H	6.7	LA	50.0	C	12	B 40	10.9	s6	> 6.5m	300	FUK02
2001 11 17.88		C	8.3	HV	35.5	L	5	a 30	+ 2.2				LIG
2001 11 18.53	w	H	6.8	LA	50.0	C	12	a540	11.3	s6	> 7.9m	302	FUK02
2001 11 19.53	w	V	7.4	LA	50.0	C	12	A350	11.6	s6	> 6.2m	317	FUK02
2001 11 19.55	w	H	6.6	LA	50.0	C	12	A620	11.6	s6	> 6.2m	317	FUK02

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 20.84		C	7.8	HV	35.5	L	5	a 30	+ 2.4				LIG
2001 11 22.46	w	H	6.4	LA	50.0	C	12	A620	12.8	s6	> 4.7m	1	FUK02
2001 11 22.49	w	V	6.9	LA	50.0	C	12	A140	12.8	s6	> 4.7m	1	FUK02
2001 11 23.92		C	7.6	HV	35.5	L	5	a 20	+ 2.7				LIG
2001 11 24.09		J	7.5	SC	25.4	T	5	a100	7.89	s6	1.5m	216	ROQ
2001 11 24.54	x	C	5.9	HV	8.6	R	4	a300	20	5	0.8	3	TSU02
2001 11 24.86		C	7.6	HV	35.5	L	5	a 20	+ 2.8				LIG
2001 11 27.51	w	H	6.5	LA	50.0	C	12	A380	10.6	s6	>10.2m	60	FUK02
2001 11 27.55	w	V	7.2	LA	50.0	C	12	A200	10.6	s6	>10.2m	60	FUK02
2001 11 28.55	w	V	7.0	LA	50.0	C	12	a945	9.1	s6	> 9.3m	57	FUK02
2001 12 01.75		k	7.2	HV	8.0	R	5	a 60	+ 3.1				LIG
2001 12 02.51	w	H	6.7	LA	50.0	C	12	a540	10.3	6	> 8.7m	53	FUK02
2001 12 02.74		C	7.6	HV	35.5	L	5	a 15	+ 3.1		12 m	56	LIG
2001 12 03.76		C	7.7	HV	35.5	L	5	a 15	+ 3.1				LIG
2001 12 07.74		C	7.5	HV	35.5	L	5	a 15	+ 3.0		15 m	55	LIG
2001 12 08.50	w	H	7.1	LA	50.0	C	12	C720	7.8	6	> 9.5m	57	FUK02
2001 12 08.51	w	V	7.0	LA	50.0	C	12	A320	8.3	6	> 8.8m	58	FUK02
2001 12 09.42	w	H	7.0	LA	50.0	C	12	C000	7.8	6	> 9.5m	59	FUK02
2001 12 09.45	w	V	6.9	LA	50.0	C	12	A200	8.1	6	> 8.5m	58	FUK02
2001 12 09.76		C	7.6	HV	35.5	L	5	a 20	+ 3.0				LIG
2001 12 10.44	w	H	7.1	LA	50.0	C	12	D440	7.8	5	> 9.7m	57	FUK02
2001 12 10.75		C	7.7	HV	35.5	L	5	a 20	+ 3.0				LIG
2001 12 11.46	w	V	6.9	LA	50.0	C	12	a960	7.9	5	> 8.4m	58	FUK02
2001 12 11.49	w	H	7.0	LA	50.0	C	12	A320	7.9	5	> 8.4m	58	FUK02
2001 12 14.41	w	H	6.7	LA	50.0	C	12	B070	6.6	5	> 8.6m	62	FUK02
2001 12 14.45	w	V	6.5	LA	50.0	C	12	B070	9.0	5	> 8.9m	63	FUK02
2001 12 15.40	w	H	6.8	LA	50.0	C	12	B160	8.1	5	> 9.4m	63	FUK02
2001 12 15.43	w	V	6.5	LA	50.0	C	12	A800	8.3	5	> 9.0m	65	FUK02
2001 12 16.37	w	H	7.0	LA	50.0	C	12	A320	6.3	5	> 8.3m	66	FUK02
2001 12 16.41	w	V	6.6	LA	50.0	C	12	A080	7.4	5	> 7.7m	66	FUK02
2001 12 19.36	w	H	7.6	LA	50.0	C	12	a220	4.0	5	> 7.8m	71	FUK02
2001 12 20.38	w	H	7.1	LA	50.0	C	12	B430	6.0	5	> 8.4m	74	FUK02

Comet C/2000 Y1 (Tubbiolo)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 21.62		C	19.4	GA	60.0	Y	6	a240	0.2				NAK01

Comet P/2000 Y3 (Scotti)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 09.53		C	19.6	OB	91.4	L	5		2.9		213 s	291	SC001

Comet C/2001 A2 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 07 07.97		C	9.2	UO	20.3	T	6	a 60	+ 2.0				LIG
2001 07 07.97		c	12.1	UO	20.3	T	6	a 60	+ 0.2				LIG
2001 07 07.98		k	9.6	UO	20.3	T	6	a 60	+ 2.0				LIG
2001 07 08.05		V	5.9	HV	20.0	L	4	a 60	+ 7.7				MIL02
2001 07 08.05		V	6.7	HV	20.0	L	4	a 60	+ 3.8				MIL02
2001 07 08.05		V	7.6	HV	20.0	L	4	a 60	+ 1.9				MIL02
2001 07 08.05		V	8.6	HV	20.0	L	4	a 60	+ 1.0				MIL02
2001 07 08.08		C	7.7	GA	20.0	L	4	a 60	+ 3.8				MIL02
2001 07 13.97		C	8.3	UO	20.3	T	6	a 60	+ 1.6				LIG
2001 07 13.97		c	11.6	UO	20.3	T	6	a 60	+ 0.2				LIG
2001 07 13.98		k	8.5	UO	20.3	T	6	a 60	+ 1.6				LIG
2001 07 14.89		C	8.4	UO	20.3	T	6	a 60	+ 1.6				LIG
2001 07 14.89		c	12.4	UO	20.3	T	6	a 60	+ 0.2				LIG
2001 07 14.90		k	9.0	UO	20.3	T	6	a 60	+ 1.6				LIG
2001 07 15.00		V	6.6	HV	20.0	L	4	a 60	+ 6.4				MIL02
2001 07 15.00		V	7.4	HV	20.0	L	4	a 60	+ 3.2				MIL02
2001 07 15.00		V	8.3	HV	20.0	L	4	a 60	+ 1.6				MIL02
2001 07 15.00		V	9.2	HV	20.0	L	4	a 60	+ 0.8				MIL02
2001 07 15.00		V	9.9	HV	20.0	L	4	a 60	+ 0.4				MIL02

Comet C/2001 A2 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 07 17.89		k	9.6	UO	20.3	T	6	a 60	+ 1.5				LIG
2001 07 17.91		C	9.5	UO	20.3	T	6	a 60	+ 1.5				LIG
2001 07 17.91		c	12.4	UO	20.3	T	6	a 60	+ 0.2				LIG
2001 07 21.87		k	10.1	UO	20.3	T	6	a 60	+ 1.3				LIG
2001 07 21.89		C	9.9	UO	20.3	T	6	a 60	+ 1.3				LIG
2001 07 21.89		c	12.8	UO	20.3	T	6	a 60	+ 0.2				LIG
2001 07 21.95		V	7.2	HV	20.0	L	4	a270	7.6				MIL02
2001 07 21.95		V	7.5	HV	20.0	L	4	a270	+ 5.1				MIL02
2001 07 21.95		V	8.4	HV	20.0	L	4	a270	+ 2.6				MIL02
2001 07 21.95		V	8.8	HV	20.0	L	4	a270	+ 1.3				MIL02
2001 07 21.95		V	10.2	HV	20.0	L	4	a270	+ 0.7				MIL02
2001 07 30.89		C	10.6	UO	20.3	T	6	a 60	+ 1.0				LIG
2001 07 30.89		c	13.0	UO	20.3	T	6	a 60	+ 0.2				LIG
2001 08 06.88		C	12.4	UO	35.5	L	5	a 30	+ 0.8				LIG
2001 08 06.88		c	13.2	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 11.83		C	12.0	HS	35.5	L	5	a 30	+ 1.0				LIG
2001 08 11.83		C	12.2	UO	35.5	L	5	a 30	+ 0.8				LIG
2001 08 11.83		c	13.2	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 12.85		C	12.0	HS	35.5	L	5	a 30	+ 1.0				LIG
2001 08 12.85		C	12.3	UO	35.5	L	5	a 30	+ 0.7				LIG
2001 08 12.85		c	13.4	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 14.83		C	11.8	HS	35.5	L	5	a 30	+ 1.0				LIG
2001 08 14.83		C	12.2	UO	35.5	L	5	a 30	+ 0.7				LIG
2001 08 14.83		c	13.4	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 15.84		C	12.0	HS	35.5	L	5	a 30	+ 1.0				LIG
2001 08 15.84		C	12.3	UO	35.5	L	5	a 30	+ 0.7				LIG
2001 08 15.84		c	13.3	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 16.86		C	12.3	UO	35.5	L	5	a 30	+ 0.7				LIG
2001 08 16.86		c	13.4	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 19.88		C	12.8	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 08 19.88		c	13.5	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 23.83		C	13.0	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 08 23.83		c	13.8	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 08 25.85		C	12.8	UO	35.5	L	5	a 30	+ 0.5				LIG
2001 08 25.85		c	13.6	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 09 05.83		C	13.5	UO	35.5	L	5	a 30	+ 0.45				LIG
2001 09 05.83		c	13.8	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 09 06.81		C	13.6	UO	35.5	L	5	a 30	+ 0.4				LIG
2001 09 06.81		c	13.8	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 09 09.79		C	13.5	UO	35.5	L	5	a 30	+ 0.4				LIG
2001 09 09.79		c	13.8	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 09 12.80		C	13.8	UO	35.5	L	5	a 30	+ 0.4				LIG
2001 09 12.80		c	14.2	UO	35.5	L	5	a 30	+ 0.2				LIG
2001 09 26.82		C	14.8	HS	35.0	M	4	a120	0.3				CHE03
2001 09 26.84		C	15.0	HS	35.0	M	4	a 30	0.3				LAU02
2001 09 27.83		C	14.9	HS	35.0	M	4	a120	0.3				CHE03
2001 09 27.84		C	15.3	HS	35.0	M	4	a 60	0.2				LAU02
2001 10 11.80		C	15.9	UO	20.3	T	6	a120	+ 0.3				LIG
2001 10 11.80		c	16.2	UO	20.3	T	6	a120	+ 0.2				LIG
2001 10 14.83	d	k	16.0	FD	35	L	5	a630	0.35				HOR02
2001 10 20.70		C	15.4	HS	35.0	M	4	a120	0.5				CHE03
2001 10 20.70		C	16.0	HS	35.0	M	4	a120	0.3				CHE03
2001 10 20.72		C	14.9	HS	35.0	M	4	a300	0.5				LAU02
2001 10 21.71		C	15.6	HS	35.0	M	4	a120	0.3				CHE03
2001 10 21.72		C	15.4	HS	35.0	M	4	a120	0.3				CHE03
2001 10 22.76		C	16.1	HS	35.0	M	4	a120	0.3				CHE03
2001 10 22.78		C	16.5	HS	35.0	M	4	a120	0.2				LAU02
2001 10 23.47	xa	C	16.8	HV	35.0	C	9	a720	0.3	3			TSU02
2001 10 23.70		C	15.6	HS	35.0	M	4	a120	0.35				CHE03
2001 10 23.72		C	15.7	HS	35.0	M	4	a120	0.3				LAU02
2001 11 10.46	xa	C	17.7	HV	35.0	C	9	A440	0.2	3			TSU02
2001 11 23.43	x	C	17.1	HV	35.0	C	9	A440	0.3	3			TSU02

Comet C/2001 B1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 22.64		C	17.9	GA	60.0	Y	6	a240	0.3				NAK01
2001 12 19.57		C	18.2:	GA	60.0	Y	6	a240	0.3				NAK01

Comet P/2001 MD7 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 10 23.43	x	C	13.4	HV	35.0	C	9	a120	0.5	5	0.8m	46	TSU02
2001 11 07.41	x	C	12.3	HV	35.0	C	9	a 60	0.8	5	1.5m	55	TSU02
2001 11 12.44	x	C	13.0:	HV	35.0	C	9	a 60	0.5	5			TSU02
2001 11 16.40	x	C	12.5:	HV	35.0	C	9	a 60	1.0	5	1.5m	40	TSU02
2001 11 23.40	x	C	12.6	HV	35.0	C	9	a 60	0.8	5	1.0m	44	TSU02
2001 11 28.39	a	C	12.4	GA	60.0	Y	6	a120	1.6		2.2m	70	NAK01
2001 12 02.39		C	13.0	TJ	18.0	L	6	a360	0.85		1.3m	49	KAD02
2001 12 07.47	x	C	12.0	HV	35.0	C	9	a 60	0.8	5	2.0m	60	TSU02
2001 12 08.37		C	12.7	TJ	18.0	L	6	a360	1.0		1.0m	45	KAD02
2001 12 16.74		C	13.9	UO	35.5	L	5	a120	+ 0.6		0.03	65	LIG
2001 12 18.74		C	13.0	UO	35.5	L	5	a120	+ 1.0		0.03	63	LIG
2001 12 22.39		C	12.6	TJ	18.0	L	6	a360	1.4		1.0m	42	KAD02

Comet C/2001 N2 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 10 23.45	x	C	16.6	HV	35.0	C	9	a240	0.2	3			TSU02
2001 11 12.46	x	C	16.2	HV	35.0	C	9	a480	0.2	3			TSU02

Comet P/2001 Q2 (Petriew)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 06.81		C	15.8:	TJ	18.0	L	6	a180	0.4		1.5m	284	KAD02
2001 11 10.83		C	15.3	TJ	18.0	L	6	a180	0.45		0.4m	288	KAD02
2001 11 14.86	x	C	15.4	HV	35.0	C	9	a480	0.3		2.0m	284	TSU02
2001 11 23.84		C	16.4	TJ	18.0	L	6	a180	0.35		0.9m	294	KAD02
2001 11 27.80		C	14.7	TJ	18.0	L	6	a240	0.65		0.7m	297	KAD02

Comet C/2001 Q4 (NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 10.58	x	C	16.6	HV	35.0	C	9	a900	0.4	2			TSU02
2001 11 20.57	x	C	18.1	TJ	60.0	Y	6	a240	0.25				NAK01
2001 12 08.49	x	C	18.4:	HV	35.0	C	9	A260	0.3	3			TSU02

Comet P/2001 Q5 (LINEAR-NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 10.63	x	C	17.1	HV	35.0	C	9	a600	0.3	4			TSU02
2001 11 10.89	d	k	16.2	FD	35	L	5	a810	0.3		0.3m	190	HOR02
2001 11 17.80	d	k	16.8	FD	35	L	5	a990	0.4				HOR02
2001 11 21.56		C	17.2	GA	60.0	Y	6	a240	0.55				NAK01
2001 12 19.56		C	18.7:	GA	60.0	Y	6	a240	0.3				NAK01

Comet P/2001 Q6 (NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 03.89		C	13.3	HV	35.5	L	5	a 30	+ 0.7				LIG
2001 11 03.89		C	14.7	HV	35.5	L	5	a 30	+ 0.2				LIG
2001 11 10.83	d	k	12.8	FD	35	L	5	a630	3.5		2.0m	77	HOR02
2001 11 12.49	xa	C	13.7	HV	35.0	C	9	a 60	1.2	5			TSU02
2001 11 14.91		C	13.6	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 11 16.38	x	C	13.1	HV	35.0	C	9	a480	1.2	5	3.0m	81	TSU02
2001 11 16.91		C	13.5	HV	35.5	L	5	a 30	+ 0.6				LIG
2001 11 17.69	d	k	12.9	FD	35	L	5	a900	2.8		1.9m	50	HOR02
2001 11 20.87		C	13.9	UO	35.5	L	5	a 30	+ 0.6				LIG
2001 11 21.46	a	C	12.1	GA	60.0	Y	6	a120	3.2				NAK01
2001 11 22.45	x	C	13.7	HV	35.0	C	9	a360	0.6	4	2.0m	55	TSU02
2001 11 24.01		C	13.9	UO	35.5	L	5	a 30	+ 0.6				LIG

Comet P/2001 Q6 (NEAT) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 08.39	xa	C	14.0	HV	35.0	C	9	a120	0.7	5	1.8m	32	TSU02
2001 12 12.88		c	15.5	UO	35.5	L	5	a120	+ 0.2		0.02	33	LIG
2001 12 16.75		c	15.6	UO	35.5	L	5	a120	+ 0.2		0.02	38	LIG
2001 12 18.75		c	15.8	UO	35.5	L	5	a120	+ 0.2		0.02	30	LIG

Comet P/2001 R1 (LONEOS)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 12.58	x	C	15.9	HV	35.0	C	9	a600	0.3	3			TSU02

Comet P/2001 R6 (LINEAR-Skiff)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 10.61	x	C	17.0	HV	35.0	C	9	a720	0.4	4			TSU02
2001 11 21.52	a	C	17.8	GA	60.0	Y	6	a240	0.3				NAK01
2001 12 19.52		C	18.1:	GA	60.0	Y	6	a240	0.4				NAK01

Comet C/2001 RX14 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 07.47		C	17.7	GA	40.0	L	6	a180	< 0.15	9			AKA
2001 11 16.46	x	C	18.1	HV	35.0	C	9	a900	0.2	6			TSU02
2001 11 20.60		C	17.4	GA	60.0	Y	6	a240		9			NAK01
2001 12 07.50	x	C	16.6	HV	35.0	C	9	a120	0.15	8			TSU02
2001 12 18.51		C	17.0	GA	60.0	Y	6	a240		9			NAK01

Comet P/2001 T3 (NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 20.59		C	17.4	GA	60.0	Y	6	a240	0.35				NAK01
2001 12 11.53	x	C	15.4	HV	35.0	C	9	a240	0.8	4			TSU02
2001 12 18.50		C	17.3	GA	60.0	Y	6	a240	0.35				NAK01

Comet C/2001 T4 (NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 21.54		C	19.3	GA	60.0	Y	6	a240	0.2				NAK01

Comet P/2001 TU80 (LINEAR-NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 18.67		C	16.9	GA	60.0	Y	6	a240	0.5				NAK01

Comet C/2001 W1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 21.66	a	C	18.0	GA	60.0	Y	6	a240	0.35				NAK01
2001 12 18.70		C	17.1	GA	60.0	Y	6	a240	0.45				NAK01

Comet C/2001 W2 (BATTERS)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 22.37	w	H	13.1	LA	50.0	C	12	C600	0.8	5	2.3m	32	FUK02
2001 11 22.39	a	C	13.2	GA	60.0	Y	6	a 60	1.6				NAK01
2001 11 22.41		C	13.9	TJ	18.0	L	6	a 60	0.6		0.5m	38	KAD02
2001 11 22.42		C	14.4	GA	40.0	L	6	a 30	0.6		1.5m	39	AKA
2001 11 22.45		C	13.9	HS	30.0	L	6	a 30	0.4	5			EZA
2001 11 23.38	x	C	13.8	HV	35.0	C	9	a 60	0.4	4	2.0m	26	TSU02
2001 11 24.38	x	C	12.9	HV	35.0	C	9	a 60	1.0	5	1.2m	29	TSU02
2001 11 24.41		C	13.3	HS	30.0	L	6	a 30	0.4	6			EZA
2001 11 28.39		C	12.7	GA	60.0	Y	6	a 60	1.2		2.4m	32	NAK01
2001 12 01.38		C	13.8	TJ	30.0	L	6	a 30	0.4	7	?		EZA
2001 12 08.35		C	11.7	TJ	18.0	L	6	a540	1.0		2.9m	31	KAD02
2001 12 08.37	x	C	12.0	HV	35.0	C	9	a 60	0.8	6	5.0m	29	TSU02
2001 12 10.37	xa	C	11.8	HV	35.0	C	9	a 60	0.8	6	2.8m	37	TSU02

Comet C/2001 W2 (BATTERS) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 12.36		L	13.4	TJ	30.0	L	6	a 60	0.6	8	?		EZA
2001 12 12.36		V	12.9	TJ	30.0	L	6	a 60	0.6	8	1.0m	30	EZA
2001 12 12.38		C	12.9	TJ	30.0	L	6	a 60	0.6	8	2.0m	30	EZA
2001 12 14.36	w	H	11.7	LA	50.0	C	12	A440	0.7	6	3.0m	25	FUK02
2001 12 15.36		C	13.1	TJ	18.0	L	6	a 60	0.6		3.3m	25	KAD02
2001 12 22.36		C	13.5	TJ	18.0	L	6	a360	0.6		1.0m	20	KAD02

Comet C/2001 X1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 15.80		C	14.5	TJ	18.0	L	6	a120	1.0		2.0m	302	KAD02
2001 12 17.84		C	14.7	TJ	18.0	L	6	a 90	0.9		0.5m	300	KAD02
2001 12 26.81		C	13.8	TJ	18.0	L	6	a420	1.6		12 m	303	KAD02
2002 01 03.77	w	H	14.1	LA	50.0	C	12	A500	0.6	3	6.6m	308	FUK02
2002 01 03.79	w	V	14.6	LA	50.0	C	12	a900	0.6	3	6.6m	308	FUK02

Comet P/2001 X2 (Scotti)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 18.65		C	19.1	GA	60.0	Y	6	a240	0.2				NAK01

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Visual Data

Comet 19P/Borrelly

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 08 16.05		S	10.9	GA	18	V	3	120	1.8	5			KOR01
2001 08 18.07		S	10.8	GA	25	L	6	85	1.6	5			KOR01
2001 08 19.07		S	10.8	GA	25	L	6	85	1.5	5			KOR01
2001 08 21.08		S	10.7	GA	25	L	6	85	1.8	5			KOR01
2001 08 22.09		S	10.6	GA	25	L	6	85	2	5			KOR01
2001 08 23.08		S	10.5	GA	25	L	6	85	2.1	5			KOR01
2001 08 25.09		S	10.4	GA	25	L	6	85	2.1	5			KOR01
2001 08 26.10		S	10.1	AA	25	L	6	85	3.2	5			KOR01
2001 08 27.09		S	10.0	AA	18	V	3	63	4.5	5			KOR01
2001 08 29.10		S	9.8	AA	18	V	3	63	4.5	5			KOR01
2001 08 30.11		S	9.7	AA	18	V	3	63	5	5			KOR01
2001 09 02.11		S	9.7	AA	18	V	3	63	4	5			KOR01
2001 09 11.05		S	9.1	AA	10	R	6	60	3.5	5			KOR01
2001 09 12.05		S	9.1	AA	10	R	6	60	3.5	5			KOR01
2001 09 14.06		S	9.0	AA	10	R	6	60	3.5	5			KOR01
2001 09 15.05		S	8.9	AA	10	R	6	60	4.0	5			KOR01
2001 09 16.06		S	8.9	AA	10	R	6	60	4.2	5			KOR01
2001 09 18.05		S	9.0	AA	10	R	6	60	4.0	5			KOR01
2001 09 19.07		S	9.0	AA	10	R	6	60	3.8	5			KOR01
2001 09 20.06		S	9.0	AA	10	R	6	60	3.8	5			KOR01
2001 09 21.07		S	9.1	AA	10	R	6	60	3.5	5			KOR01
2001 09 22.08		S	9.1	AA	10	R	6	60	3.5	5			KOR01
2001 09 26.10		S	9.4	AA	18	V	3	63	2.8	5			KOR01
2001 09 26.12		B	10.2	TJ	14.0	R	9	35	3	4			CHE03
2001 09 27.10		B	10.1	TJ	14.0	R	9	35	3	3			CHE03
2001 09 27.10		S	9.4	AA	18	V	3	63	2.5	5			KOR01
2001 09 28.10		B	8.8	TI	7.6	L	9	35	4				CER01
2001 09 28.11		S	9.5	AA	18	V	3	63	2.5	5			KOR01
2001 09 29.12		S	9.6	TT	8.0	B		10	5	2			HOR02
2001 10 14.03		M	8.8	TT	10	B	4	25	4.5	3			LEH
2001 10 14.12		S	9.2	TT	8.0	B		10	6	2/			HOR02
2001 10 15.06		M	8.8	TI	10	B	4	25	5	3			LEH
2001 10 20.16		S	10.2	TJ	30.5	T	10	56	2.5	2/			COM

Comet 19P/Borrelly [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 10 23.14		B	10.6	TJ	15.0	R	5	25	3	2			CHE03
2001 10 24.06		S	10.5	TJ	20.3	T	10	100	1.9	3			GRA04
2001 11 10.03		S	11.1:	TK	25.6	L	5	84	1	4			BIV
2001 11 10.72	x	B	10.8	TJ	25.0	L	6	69	4.7	3			WAT01
2001 11 11.04		S	11.2:	TK	25.6	L	5	84	1	4			BIV
2001 11 11.12		S	11.0	TJ	25.4	L	6	76	2.4	3			GRA04
2001 11 13.09		S	11.0	TJ	20.3	T	10	100	2.1	3			GRA04
2001 11 14.01		S	11.0	AC	41	L	5	121	1.5	2/			RES
2001 11 14.12		S	10.9	TJ	20.3	T	10	100	1.8	3/			GRA04
2001 11 15.02		S	10.6	TJ	31.0	J	6	72	2.5	3			BOU
2001 11 15.03		S	10.6	TJ	31.0	J	6	72	2.4	3			DIJ
2001 11 15.20		S	10.4	TJ	30.5	T	10	56	& 2	1			COM
2001 11 17.11		S	10.8	AC	41	L	5	121	2.5	4			RES
2001 11 17.18		S	11.2	TK	25.6	L	5	42	1.5	5			BIV
2001 11 20.12		S	10.9	TJ	20.3	T	10	100	1.9	2/			GRA04
2001 11 20.16		S	11.5	TK	20.3	L	6	95	1.3	3			BIV
2001 11 23.08		S	11.5	TK	20.3	L	6	95	1.4	3			BIV
2001 11 23.11		S	10.9	TJ	20.3	T	10	100	2.0	2/			GRA04
2001 11 23.73		S	11.4	HS	25.4	T	6	62	1.2	3			YOS04
2001 11 24.76	x	B	12.6	HS	25.0	L	6	69	2.3	2			WAT01
2001 11 24.77	xx	S	10.8	TJ	32.0	L	5	58	2.3	4			NAG08
2001 11 26.11		S	11.0	TJ	33	L	5	45	2.4	3			SHA02
2001 11 28.19		S	11.7	HS	20	T	10	75	1.0	4			SHA02
2001 11 28.21		S	10.9	TI	7.6	L	9	35	4				CER01
2001 12 07.63		S	12.0	TK	20.3	L	6	40	2.5	4			BIV
2001 12 08.63		S	11.9	TK	20.3	L	6	40	3.0	3			BIV
2001 12 08.97		S	10.8	TI	7.6	L	9	35	3.5				CER01
2001 12 09.08		M	10.7	TT	42	L	5	81	2	3			LEH
2001 12 09.97		M	11.4	AS	30	L	5	60	1.3	3			NEV
2001 12 09.98		S	10.5	TI	7.6	L	9	35	3.5				CER01
2001 12 09.99		S	11.0	TJ	25.4	J	6	88	2.0	2/			BOU
2001 12 10.00		S	10.9	TJ	25.4	J	6	88	1.4	1/			DIJ
2001 12 11.63		S	12.1	TK	20.3	L	6	40	2.6	4			BIV
2001 12 12.07		S	11.9	TT	20	T	10	75	2.1	4			SHA02
2001 12 13.80	x	S	12.0	HS	32.0	L	5	58	1.4	5/			NAG08
2001 12 13.99		S	11.0	TJ	31.0	J	6	72	2.1	2			DIJ
2001 12 13.99		S	11.2	TJ	31.0	J	6	72	2.5	3			BOU
2001 12 14.02		S	11.1	TI	7.6	L	9	35	2.5				CER01
2001 12 16.11		M	11.5	VB	25.4	L	6	76	2.5	3/			GRA04
2001 12 18.03		S	11.9	TK	20.3	L	6	48	2.0	4			BIV
2001 12 18.04		S	11.9	TK	20.3	L	6	95	2.0	4			BIV
2001 12 20.13		S	11.9	HS	20	T	10	100	0.8	5			SHA02
2001 12 21.08		M	11.8	GA	15	L	5	42	1	3			SHU
2001 12 21.12		M	11.4	TK	13	L	8	69	2.6	3			HOR02
2001 12 22.83	x	S	11.8	HS	25.4	L	4	46	2.3	4			YOS02
2001 12 24.03		S	12.2	HS	27.0	L	6	120	1.5	2/			TOT03
2001 12 24.08		M	11.0	TT	42	L	5	81	2.5	3/			LEH

Comet 24P/Schaumasse

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 03 14.76		M	11.7	HS	42	L	5	81	1.7	3			LEH
2001 04 12.81		M	11.2	TI	20	L	4	42	1.8	3			LEH
2001 04 13.86		M	11.0	TI	20	R	17	87	1.5	3/			LEH
2001 04 14.86		M	11.1	TT	20	R	17	87	1.5	3/			LEH
2001 04 26.85		M	10.9	TI	20	L	4	42	1.6	3			LEH
2001 04 29.83		M	10.0	TT	10	B	4	25	2.5	3			LEH
2001 05 10.84		M	10.1	TT	10	B	4	25	2.5	3			LEH
2001 05 11.88		M	10.1	TT	10	B	4	25	2.7	3			LEH
2001 05 12.84		M	10.1	TT	10	B	4	25	2	3			LEH
2001 05 16.86		M	10.2	TT	10	B	4	25	2.5	3			LEH

Comet 29P/Schwassmann-Wachmann

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 09 09.78		S	12.7	HS	34.0	L	6	120	0.8	2			TOT03

Comet 41P/Tuttle-Giacobini-Kresák

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 12 20.17		M	7.7	TT	20	L	4	42	5.5	3/			LEH
2000 12 21.16		M	7.6	TT	10	B	4	25	6	3			LEH

Comet 74P/Smirnova-Chernykh

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 01 28.94		B	13.5:	HS	42	L	5	162	1	4			LEH
2001 02 15.00		B	13.2	HS	42	L	5	162	1.2	3/			LEH
2001 02 25.07		B	13.3	HS	42	L	5	162	1.1	4			LEH
2001 02 27.97		B	13.4	HS	42	L	5	81	1.2	4			LEH
2001 04 24.92		B	13.2	HS	42	L	5	162	1.2	3/			LEH
2001 04 29.85		B	13.1	HS	42	L	5	162	1.6	4			LEH
2001 05 10.88		B	13.9	HS	42	L	5	162	1.2	4			LEH
2001 05 11.89		B	13.9	HS	42	L	5	162	1.3	4			LEH
2001 05 12.87		B	13.9	HS	42	L	5	162	1	4			LEH
2001 05 16.87		B	13.8	HS	42	L	5	162	1	4			LEH

Comet 96P/Machholz

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 16.48		S	13.5:	HS	28	L	10	156	0.5	3			MAT08
2001 12 17.48		S	13.5:	HS	28	L	10	156	0.5	3			MAT08

Comet 97P/Metcalf-Brewington

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 11 16.74		O	[13.0	HS	42	L	5	81	! 1.4				LEH
2000 11 19.77		O	[13.0	HS	42	L	5	81	! 1.3				LEH

Comet 110P/Hartley

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 11 16.83		B	14.1	HS	42	L	5	162	1	4			LEH
2000 12 20.75		B	13.9	HS	42	L	5	162	0.9	3			LEH
2000 12 22.73		B	13.6	HS	42	L	5	162	1.0	3			LEH
2000 12 23.72		B	13.6	HS	42	L	5	162	1.1	3			LEH
2000 12 24.94		B	13.7	HS	42	L	5	162	1.0	3/			LEH
2000 12 31.82		B	13.2	HS	42	L	5	162	1.3	3			LEH
2001 01 15.79		B	13.2	HS	42	L	5	81	1.3	3			LEH
2001 01 28.83		M	12.8:	HS	42	L	5	81	1.4	3			LEH
2001 02 11.78		M	13.2:	HS	42	L	5	81	1.2	4			LEH
2001 02 14.77		M	13.1	HS	42	L	5	81	1.0	4			LEH
2001 02 16.74		M	13.1	HS	42	L	5	81	1.1	4			LEH
2001 02 17.76		M	13.1	HS	42	L	5	81	1	4			LEH
2001 02 23.76		B	13.4	HS	42	L	5	162	1.1	3/			LEH
2001 02 24.83		B	13.4	HS	42	L	5	162	1.0	3			LEH
2001 02 27.74		B	13.6	HS	42	L	5	81	1.1	3			LEH
2001 03 14.77		B	13.7	HS	42	L	5	162	1.0	3			LEH

Comet C/1982 M1 (Austin)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1982 09 12.72		E	7.5	S	6.5	L	8	33	2.1	4			FIL02
1982 09 16.74		E	8.2	S	6.5	L	8	33	2.4	4			FIL02
1982 09 18.73		E	8.2	S	6.5	L	8	33	2.5	4			FIL02
1982 09 21.71		E	7.8	S	6.5	L	8	33	2.1	4			FIL02

Comet C/1985 R1 (Hartley-Good)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1985 10 28.85		B	7.5	S	8.0	B		10	3	2			SHI03
1985 11 03.68		B	7.2	S	8.0	B		10	7	3			SHI03
1985 11 04.71		B	7.1	S	11.0	B		20	5	2			SHI03
1985 11 04.73		B	7.3	S	11.0	B		20	3	3			SHI03
1985 11 12.72		B	7.6	S	8.0	B		10	3	3			SHI03
1985 11 14.67		S	7.2	S	8.0	B		10	4	3			SHI03
1985 11 14.70		S	7.0	S	3.0	B		8	6	2			SHI03
1985 12 02.74		S	7.2	S	8.0	B		10	3	3			SHI03
1985 12 03.75		S	7.5	S	4.0	B		10	2	3			SHI03
1985 12 09.74		S	7.2	S	8.0	B		10	3	3			SHI03

Comet C/1987 P1 (Bradfield)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1987 10 11.74		M	6.9	S	6.0	B		20	5				SOS01
1987 10 12.72		M	6.6	S	6.0	B		20	4				SOS01
1987 10 16.61		B	6.2	S	6.0	B		20	5		0.3		SOS01
1987 10 17.62		M	6.0	S	6.0	B		20	5		0.3		SOS01
1987 10 29.63		B	5.8	S	6.0	B		20	5		0.3		SOS01
1987 10 30.64		B	5.5	S	5.0	B		7	6		0.35		SOS01
1987 10 31.60		B	5.8	S	5.0	B		7	5		0.3		SOS01
1987 11 07.68		M	5.9	S	5.0	B		7	5		0.3		SOS01
1987 11 08.62		M	6.3:	S	6.0	B		20	5		0.2		SOS01
1987 12 02.59		M	6.5	S	4.0	B		12	7	3	0.2		SOS01
1987 12 08.58		B	6.0	S	4.0	B		12	7		0.5		SOS01
1987 12 14.58		M	6.3	S	6.0	B		20	6	6	0.3		SOS01
1987 12 16.57		M	6.5	S	6.0	B		20	6	6	0.3		SOS01
1987 12 22.62		B	6.9	S	6.0	B		20	5	5	0.4		SOS01
1987 12 31.71		B	6.7	S	6.0	B		20	6	3	0.25		SOS01
1988 01 03.69		B	6.7	S	6.0	B		20	6	5			SOS01
1988 01 03.72		S	6.9	S	6.0	B		20	5	5	0.2		SOS01
1988 01 06.74		S	7.0	S	6.0	B		20	5				SOS01
1988 01 11.73		S	7.6	S	6.0	B		20	4				SOS01
1988 01 18.73		S	7.9	S	6.0	B		20	4				SOS01
1988 01 24.73		S	8.1	S	6.0	B		20	4				SOS01
1988 01 25.73		S	8.1	S	6.0	B		20	4				SOS01
1988 01 26.73		S	8.1	S	6.0	B		20	4		0.2		SOS01
1988 01 26.78		B	8.3	S	6.0	B		20	4	5	0.3		SOS01
1988 01 27.72		S	8.4	S	6.0	B		20	4	6	0.3		SOS01
1988 01 28.73		S	8.3	S	6.0	B		20	4	5	0.2		SOS01
1988 02 03.72		S	8.3	S	6.0	B		20	5	5	0.2		SOS01
1988 02 04.71		S	8.2	S	6.0	B		20	4	7			SOS01

Comet C/1988 A1 (Liller)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
1988 04 10.75		B	6.5	SP	5.0	B		10	2	4	0.5	350	KAS
1988 04 12.90		B	6.3	SP	5.0	B		10	3	4	0.5	355	KAS
1988 04 13.90		B	6.3	SP	5.0	B		10	3	4	0.3	355	KAS
1988 04 18.92		B	6.0	SP	5.0	B		10	3	5	0.5	355	KAS
1988 04 19.92		B	6.2	SP	5.0	B		10	3	5	0.3	358	KAS
1988 04 20.92		B	6.1	SP	5.0	B		10	3	5	0.5	360	KAS
1988 05 10.81		B	6.3	SP	5.0	B		7	6	5	1	28	MOR04

Comet C/1999 J2 (Skiff)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 04 24.97		B	14.3	HS	42	L	5	162	0.8	4			LEH
2001 05 23.90		B	14.5	HS	42	L	5	162	0.7	4			LEH
2001 05 24.90		B	14.4	HS	42	L	5	162	0.6	4			LEH
2001 05 25.90		B	14.4	HS	42	L	5	162	0.6	4			LEH
2001 06 15.92		B	14.5	HS	42	L	5	162	0.5	4			LEH
2001 06 20.91		B	14.3	HS	42	L	5	162	0.8	4			LEH
2001 06 24.92		B	14.8	HS	42	L	5	162	0.5	4			LEH
2001 06 25.91		B	14.8	HS	42	L	5	162	0.5	4/			LEH

Comet C/1999 K8 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 21.83		B	13.2	HS	42	L	5	81	1.3	3			LEH
2000 10 22.81		B	13.1	HS	42	L	5	162	1.2	3/			LEH
2000 10 23.97		M	13.6	HS	42	L	5	162	1.1	3			LEH
2000 11 16.85		B	13.3:	HS	42	L	5	162	1.3	3			LEH

Comet C/1999 S4 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 07 06.06		S	8.7:	TI	20.3	T	10	80	& 1	6	& 3 m	260	MIC
2000 07 10.07	*	S	7.8	TI	20.3	T	10	80	3	4	15 m	285	MIC

Comet C/1999 T1 (McNaught-Hartley)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 12 20.19		M	7.9	TT	20	L	4	42	4.5	3/			LEH
2000 12 21.17		M	7.7	TT	10	B	4	25	5	3			LEH
2001 01 01.19		M	7.6	TT	10	B	4	25	7	4			LEH
2001 01 16.18		M	7.4	TT	20	L	4	42	8	3			LEH
2001 01 28.17		M	8.0	TT	20	L	4	42	6	3/			LEH
2001 01 29.18		M	8.0	TT	20	L	4	42	6	3/			LEH
2001 02 15.04		M	9.2	TI	10	B	4	25	4	3			LEH
2001 02 17.05		M	8.9	TT	10	B	4	25	4.6	3			LEH
2001 02 25.09		M	8.8	TT	42	L	5	66	5.5	3			LEH
2001 02 27.99		M	9.2	TT	10	B	4	25	4	3			LEH
2001 03 03.05		M	8.6	TT	10	B	4	25	5	3			LEH
2001 03 07.06		M	8.9	TT	10	B	4	25	4.5	3			LEH
2001 03 31.84		M	9.8	TT	10	B	4	25	3.5	3			LEH
2001 04 01.02		S	9.8	AA	24	L	5	64	2.5	3/	0.1	270	KOR01
2001 04 01.03		S	9.9	AA	24	L	5	115	2.6	4	0.1	270	KOR01
2001 04 01.83		M	9.9	TT	20	L	4	42	3	3			LEH
2001 04 02.85		M	10.3	TT	10	B	4	25	3.0	3			LEH
2001 04 12.83		M	10.5	TT	20	L	4	42	1.6	3			LEH
2001 04 24.94		M	11.0	TI	42	L	5	81	1.4	3			LEH
2001 04 29.86		M	11.7	TI	42	L	5	81	2.4	3/			LEH
2001 05 01.91		M	11.6	TT	20	R	17	87	1.8	3/			LEH
2001 05 02.86		M	11.6	TT	42	L	5	81	2	3			LEH
2001 05 10.86		M	11.6	TI	42	L	5	81	1.7	3			LEH
2001 05 11.94		M	11.6	TI	42	L	5	81	1.8	3			LEH
2001 05 12.99		M	11.6	TI	42	L	5	81	2	3			LEH
2001 05 14.86		M	11.2	TI	42	L	5	81	2	3			LEH
2001 05 16.88		M	11.7	TI	42	L	5	81	2	3			LEH
2001 05 21.97		M	12.2	HS	42	L	5	81	1.7	3			LEH
2001 05 22.91		M	12.2	HS	42	L	5	81	1.7	3			LEH
2001 05 23.88		M	12.0	HS	42	L	5	81	1.5	3			LEH
2001 05 24.89		M	12.0	HS	42	L	5	81	1.5	3			LEH
2001 05 25.89		M	12.3	HS	42	L	5	81	1.5	3			LEH
2001 06 13.89		M	12.4	HS	42	L	5	81	1.5	3			LEH
2001 06 15.90		M	12.0	HS	42	L	5	81	1.6	3			LEH
2001 06 20.90		M	12.4	HS	42	L	5	81	1.5	3			LEH
2001 06 24.90		M	12.1	HS	42	L	5	81	1.4	3			LEH
2001 06 25.93		M	12.1	HS	42	L	5	81	1.5	3			LEH
2001 06 26.89		M	12.1	HS	42	L	5	81	1.4	3			LEH
2001 06 27.99		M	12.1	HS	42	L	5	81	1.3	3			LEH
2001 06 29.90		M	12.1	HS	42	L	5	81	1.4	3			LEH
2001 09 20.90		S	13.9	GA	35	L	5	230	1.2	1			KOR01
2001 09 21.90		S	13.9	GA	35	L	5	230	1.1	1			KOR01
2001 09 22.93		S	14.0	GA	35	L	5	230	1.0	1			KOR01

Comet C/1999 T2 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 05.75		M	12.9	HS	42	L	5	81	1.4	3			LEH
2000 10 17.74		M	12.6	HS	20	L	4	106	1.5	3			LEH
2000 10 21.72		M	12.6	HS	42	L	5	81	1.5	3			LEH
2000 10 22.72		M	12.5	HS	42	L	5	81	1.4	3			LEH

Comet C/1999 T2 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 23.72		M	12.5	HS	42	L	5	81	1.5	3			LEH
2000 11 01.71		M	12.6	HS	42	L	5	81	1.3	3			LEH
2000 11 02.70		M	12.6	HS	42	L	5	81	1.4	3			LEH
2000 11 19.69		B	13.3	HS	42	L	5	81	1	3			LEH
2001 02 28.09		M	12.8	HS	42	L	5	81	1.4	3			LEH
2001 04 24.95		M	12.7	HS	42	L	5	81	1.3	3			LEH
2001 04 26.86		M	12.5	HS	20	L	4	106	1.5	3			LEH
2001 04 29.88		M	12.1	HS	42	L	5	81	2	3			LEH
2001 05 01.85		M	11.9	TI	20	R	17	140	1.8	4			LEH
2001 05 02.85		M	11.9	TI	42	L	5	81	1.7	3			LEH
2001 05 10.85		M	12.5	HS	42	L	5	81	1.8	3			LEH
2001 05 11.93		M	12.7	HS	42	L	5	81	1.7	3			LEH
2001 05 12.98		M	12.7	HS	42	L	5	81	1.5	3			LEH
2001 05 14.85		M	12.1	HS	42	L	5	81	1.7	3			LEH
2001 05 16.85		M	12.7	HS	42	L	5	81	1.4	3			LEH
2001 05 21.86		M	13.1	HS	42	L	5	81	1.3	3			LEH
2001 05 22.88		B	13.4	HS	42	L	5	81	1.6	3			LEH
2001 05 23.86		B	13.4	HS	42	L	5	81	1.5	3			LEH
2001 05 24.87		B	13.4	HS	42	L	5	81	1.5	3			LEH
2001 05 25.86		B	13.4	HS	42	L	5	81	1.4	3			LEH
2001 06 13.88		M	13.1	HS	42	L	5	81	1.3	3			LEH
2001 06 15.89		M	12.7	HS	42	L	5	162	1.4	3			LEH
2001 06 20.88		M	12.7	HS	42	L	5	162	1.4	3			LEH
2001 06 24.89		B	13.2	HS	42	L	5	162	1.4	3			LEH
2001 06 25.89		B	13.2	HS	42	L	5	162	1.5	3			LEH

Comet C/1999 U4 (Catalina-Skiff)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 21.79		B	14.0	HS	42	L	5	162	0.8	4			LEH
2000 10 22.78		B	14.2	HS	42	L	5	162	0.8	4			LEH
2000 10 23.77		B	14.1	HS	42	L	5	162	0.6	4			LEH
2000 11 01.74		B	13.9	HS	42	L	5	162	0.8	4			LEH
2000 11 16.76		B	14.2:	HS	42	L	5	162	0.7	4			LEH
2000 12 20.74		B	13.9:	HS	42	L	5	162	0.8	4			LEH
2000 12 22.72		B	13.9:	HS	42	L	5	162	0.7	4			LEH
2000 12 23.71		B	13.9:	HS	42	L	5	162	0.7	4			LEH
2000 12 24.92		B	14.0:	HS	42	L	5	162	0.6	4			LEH
2000 12 31.81		B	13.9:	HS	42	L	5	162	0.6	4			LEH
2001 01 15.76		B	13.7	HS	42	L	5	162	1.2	4			LEH
2001 01 28.81		B	13.5	HS	42	L	5	162	1	4			LEH
2001 02 14.81		B	13.4	HS	42	L	5	162	1	4			LEH
2001 02 16.75		B	13.4	HS	42	L	5	162	0.8	4			LEH
2001 02 17.77		B	13.4	HS	42	L	5	162	0.9	4			LEH
2001 02 24.85		B	13.5	HS	42	L	5	162	1.1	4			LEH
2001 02 27.76		B	13.4	HS	42	L	5	81	1.1	4			LEH
2001 03 14.79		B	13.6	HS	42	L	5	81	0.8	4			LEH
2001 09 21.05		S	13.3	GA	35	L	5	172	1.3	4			KOR01
2001 09 22.06		S	13.4	GA	35	L	5	172	1.2	4			KOR01
2001 10 14.04		M	13.1	HS	42	L	5	81	1.3	4			LEH
2001 10 15.05		M	13.1	HS	42	L	5	81	1.2	3			LEH
2001 11 15.05		S	14.0:	HS	31.0	J	6	143	& 0.5	4			BOU
2001 11 15.86		S	13.6	HS	35	L	5	158	0.9	2/			HOR02
2001 11 17.85		S	13.9	HS	35	L	5	158	1.0	2/			HOR02
2001 11 26.13		S	13.5:	HS	33	L	5	150	0.6	3			SHA02
2001 12 16.80		S	13.9	HS	31.0	J	6	143	0.6	4			BOU
2001 12 16.81		S	14.1	HS	31.0	J	6	143		1/			DIJ
2001 12 20.15		S[	13.5	HS	20	T	10	135					SHA02

Comet C/1999 Y1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 05.76		M	12.6	HS	42	L	5	81	1.5	3			LEH
2000 10 17.76		M	12.2	HS	20	L	4	106	1.7	3			LEH
2000 10 21.77		M	12.5	HS	42	L	5	81	1.8	4			LEH

Comet C/1999 Y1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 22.76		M	12.3	HS	42	L	5	81	1.9	3/			LEH
2000 10 23.76		M	12.1	HS	42	L	5	81	1.8	3			LEH
2000 10 28.92		M	12.6	HS	20	R	17	87	1.4	4			LEH
2000 11 01.73		M	12.5	HS	42	L	5	81	1.7	3/			LEH
2000 11 02.73		M	12.4	HS	42	L	5	81	1.8	3/			LEH
2000 11 08.77		M	11.6	HS	20	R	17	87	1.8	4			LEH
2000 11 16.75		M	11.6	HS	42	L	5	81	2	3			LEH
2000 11 19.75		M	12.2	HS	42	L	5	81	1.5	3			LEH
2000 11 22.90		B	12.3	TT	20	R	17	87	1.7	4			LEH
2000 11 29.77		M	12.5	HS	20	R	17	87	1.5	3			LEH
2000 12 01.80		M	12.5	HS	20	R	17	140	1.6	3/			LEH
2000 12 20.72		M	12.4	HS	42	L	5	81	1.4	3/			LEH
2000 12 22.70		M	12.7	HS	42	L	5	81	1.6	3/			LEH
2000 12 23.70		M	12.7	HS	42	L	5	81	1.5	3/			LEH
2000 12 24.91		M	12.8	HS	42	L	5	81	1.5	3			LEH
2000 12 31.79		M	12.3	HS	42	L	5	81	1.8	3			LEH
2001 01 15.74		M	12.9	HS	42	L	5	162	1.2	3			LEH
2001 01 16.81		M	13.0	HS	42	L	5	81	1.1	3			LEH
2001 01 28.72		M	13.0	HS	42	L	5	81	1.3	3			LEH
2001 11 06.51		S	13.9	HS	28	L	10	156	0.8	5			MAT08
2001 11 09.54		S	14.0	HS	28	L	10	156	0.6	5			MAT08
2001 12 17.50		S	14.3:	HS	28	L	10	156	0.5	4			MAT08

Comet C/2000 K2 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 21.74		B	14.5:	HS	42	L	5	162	0.5	4			LEH
2000 10 22.74		B	14.3:	HS	42	L	5	162	0.5	4			LEH
2000 10 23.74		B	14.2:	HS	42	L	5	162	0.5	4			LEH

Comet P/2000 S1 (Skiff)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 21.81		B	15.1	HS	42	L	5	162	0.4	4/			LEH
2000 10 22.79		O[	15.1	HS	42	L	5	162	! 0.5				LEH

Comet C/2000 SV74 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2000 10 21.82		B	14.9	HS	42	L	5	162	0.5	4			LEH
2000 10 22.82		B	14.9	HS	42	L	5	162	0.6	4/			LEH
2000 11 16.78		B	14.6:	HS	42	L	5	162	0.5	4			LEH
2000 12 20.76		B	14.8	HS	42	L	5	162	0.5	4			LEH
2000 12 22.75		B	14.8	HS	42	L	5	162	0.5	4			LEH
2000 12 23.74		B	14.8	HS	42	L	5	162	0.6	4			LEH
2001 01 15.78		B	14.4:	HS	42	L	5	162	0.8	4			LEH
2001 01 28.74		O[	14.5	HS	42	L	5	162	! 0.5				LEH
2001 08 15.99		S	13.7	GA	40	L	5	232	0.9	2/			KOR01
2001 08 16.98		S	13.7	GA	40	L	5	232	1.0	2/			KOR01
2001 08 18.94		S	13.5	GA	40	L	5	232	1.2	2/			KOR01
2001 08 19.93		S	13.5	GA	40	L	5	232	1.2	2/			KOR01
2001 08 21.96		S	13.7	GA	40	L	5	232	1.1	2/			KOR01
2001 08 22.95		S	13.6	GA	40	L	5	232	1.0	2/			KOR01
2001 08 22.96		S	13.7	GA	40	L	5	232	1.1	2/			KOR01
2001 08 23.99		S	13.4	GA	40	L	5	232	1.4	2/			KOR01
2001 08 25.94		S	13.2	GA	40	L	5	232	1.6	2/			KOR01
2001 08 26.95		S	13.1	GA	40	L	5	232	1.4	2/			KOR01
2001 08 27.92		S	13.3	GA	40	L	5	232	1.2	2/			KOR01
2001 08 29.99		S	13.5	GA	40	L	5	232	1.2	2/			KOR01
2001 08 31.00		S	13.6	GA	40	L	5	232	1.3	2/			KOR01
2001 09 01.00		S	13.7	GA	40	L	5	232	1.1	2/			KOR01
2001 09 03.01		S	13.6	GA	40	L	5	232	0.9	2/			KOR01
2001 09 04.03		S	13.5	GA	40	L	5	232	1.0	2/			KOR01
2001 09 08.90		S	13.3	GA	40	L	5	232	1.2	2/			KOR01
2001 09 11.87		S	13.1	GA	35	L	5	172	1.7	2/			KOR01

Comet C/2000 SV74 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 09 11.89		S	12.8	HS	34.0	L	4	120	1.0	3			TOT03
2001 09 12.88		S	13.0	GA	35	L	5	172	1.7	2/			KOR01
2001 09 13.87		S	13.0	GA	35	L	5	172	1.5	2/			KOR01
2001 09 14.84		S	12.9	GA	35	L	5	172	1.5	2/			KOR01
2001 09 15.84		S	12.8	GA	35	L	5	172	1.5	2/			KOR01
2001 09 16.88		S	12.7	GA	35	L	5	172	1.2	2/			KOR01
2001 09 18.87		S	12.4	GA	35	L	5	172	1.3	2/			KOR01
2001 09 19.91		S	12.3	GA	35	L	5	172	1.3	2/			KOR01
2001 09 20.90		S	12.2	GA	35	L	5	172	1.5	2/			KOR01
2001 09 21.94		S	12.2	GA	35	L	5	172	1.7	2/			KOR01
2001 09 22.91		S	12.1	GA	35	L	5	172	1.6	2/			KOR01
2001 09 26.89		S	12.3	GA	40	L	5	232	0.9	2/			KOR01
2001 09 27.89		S	12.3	GA	40	L	5	232	1.0	2/			KOR01
2001 09 28.94		S	12.2	GA	40	L	5	232	0.9	2/			KOR01
2001 10 06.79		S	12.0	HS	13	L	8	69	1.2	2/			HOR02
2001 10 08.76		S	13.0	HS	34.0	L	4	167	1.0	3			TOT03
2001 10 11.81		S	12.2	HS	13	L	8	69	1.0	1/			HOR02
2001 10 12.75		S	12.6	HS	35	L	5	158	1.3	1/			HOR02
2001 10 12.77		M	12.6	HS	42	L	5	81	1.4	3			LEH
2001 10 13.78		M	12.6	HS	42	L	5	162	1.5	3			LEH
2001 10 13.81		S	12.5	HS	35	L	5	158	1.3	2			HOR02
2001 10 14.78		S	12.6	HS	35	L	5	158	1.3	2			HOR02
2001 10 14.80		M	12.2	HS	42	L	5	81	1.3	3			LEH
2001 10 15.77		M	12.2	HS	42	L	5	81	1.2	3			LEH
2001 10 15.80		S	12.6	HS	35	L	5	158	1.2	2/			HOR02
2001 10 22.75		S	12.7	HS	35	L	5	158	1.4	2/			HOR02
2001 11 04.39	x	S	13.0:	HS	32.0	L	5	91	1.2	3			NAG08
2001 11 04.73		S	12.5:	HS	13	L	8	69	1.2	2			HOR02
2001 11 05.76		M	12.9	HS	42	L	5	81	1.3	3			LEH
2001 11 09.76		S	12.9	AC	41	L	5	121	1.2	3/			RES
2001 11 09.93		S	13.4:	VB	33	L	5	100	0.7	3			SHA02
2001 11 10.56	x	M	13.2	HS	35.0	C	9	125					TSU02
2001 11 10.88		S	12.6	AC	41	L	5	121	1.5	3/			RES
2001 11 10.92		S	13.0	HS	35	L	5	158	1.2	3			HOR02
2001 11 13.75		S	12.8	AC	41	L	5	121	1.2	3/	0.5	250	RES
2001 11 14.02		S	12.9	AC	25.4	J	6	88	1.0	3/			BOU
2001 11 14.73		S	12.8	AC	41	L	5	121	1.5	2/			RES
2001 11 14.77		M	13.0	HS	35	L	5	158	1.3	3			HOR02
2001 11 15.01		S	13.0	AC	31.0	J	6	143	0.9	3			BOU
2001 11 15.02		S	12.9	HS	31.0	J	6	143	1	1			DIJ
2001 11 15.84		S	12.9	HS	35	L	5	158	1.2	3			HOR02
2001 11 16.73		M	12.8	HS	42	L	5	81	1.3	3			LEH
2001 11 16.91		S	13.0:	HS	35	L	5	158	1.3	3			HOR02
2001 11 17.06		S	12.7	AC	41	L	5	121	1.3	3			RES
2001 11 17.75		S	13.2	HS	35	L	5	158	1.3	3			HOR02
2001 11 19.86		S	12.9	AC	41	L	5	121	1.0	2/			RES
2001 11 19.94		S	12.8	GA	25.4	J	6	100	1.0	3			BOU
2001 12 06.80		S	12.8	HS	31.0	J	6	124	1.2	2/			BOU
2001 12 07.78		S	12.9	HS	31.0	J	6	124	1.0	2/			BOU
2001 12 08.72		M	12.6	HS	42	L	5	81	1.6	3			LEH
2001 12 08.83		S[	12.0	HS	33	L	5	150					SHA02
2001 12 09.73		S	12.9	HS	44.0	L	5	156	0.5	4			HAS02
2001 12 12.06		S[	12.5	HS	20	T	10	75					SHA02
2001 12 13.78		M	12.9	HS	42	L	5	81	1.1	3			LEH
2001 12 13.96	a	S	13.0	GA	31.0	J	6	109	1.2	3/			BOU
2001 12 13.97		S	12.9	GA	31.0	J	6	109	1.1	2/			DIJ
2001 12 14.69		M	12.9	HS	42	L	5	81	1	3			LEH
2001 12 14.75		S[	12.5	HS	33	L	5	150					SHA02
2001 12 16.76		S	13.0	AC	31.0	J	6	109	0.9	4			BOU
2001 12 16.76		S	13.1	AC	31.0	J	6	109	0.9	2			DIJ
2001 12 23.74		M	12.3:	HS	42	L	5	81	1.3	3			LEH

Comet C/2000 WM1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 08 15.97		S	13.8	GA	40	L	5	232	0.6	2			KORO1
2001 08 16.93		S	13.9	GA	40	L	5	232	0.7	2/			KORO1
2001 08 18.97		S	13.9	GA	40	L	5	232	0.7	2/			KORO1
2001 08 19.96		S	13.9	GA	40	L	5	232	0.7	2/			KORO1
2001 08 21.97		S	13.9	GA	40	L	5	232	0.8	2			KORO1
2001 08 22.98		S	13.7	GA	40	L	5	232	1.0	2/			KORO1
2001 08 23.99		S	13.4	GA	40	L	5	232	1.4	2/			KORO1
2001 08 25.99		S	13.2	GA	40	L	5	232	1.6	2/			KORO1
2001 08 26.97		S	13.4	GA	40	L	5	232	1.8	2/			KORO1
2001 08 27.93		S	13.1	GA	40	L	5	232	1.7	2/			KORO1
2001 08 29.97		S	13.0	GA	40	L	5	232	1.6	2			KORO1
2001 08 30.03		S	12.8	GA	40	L	5	232	1.7	2			KORO1
2001 08 31.01		S	13.0	GA	40	L	5	232	1.6	2			KORO1
2001 09 01.00		S	13.2	GA	40	L	5	232	1.4	2/			KORO1
2001 09 02.02		S	13.4	GA	40	L	5	232	1.1	2/			KORO1
2001 09 03.00		S	13.5	GA	40	L	5	232	1.1	2/			KORO1
2001 09 04.02		S	13.5	GA	40	L	5	232	1.2	2/			KORO1
2001 09 07.98		S	13.6	GA	40	L	5	232	1.1	2/			KORO1
2001 09 08.95		S	13.8	GA	40	L	5	232	1.0	2			KORO1
2001 09 11.90		S	13.0	HS	34.0	L	4	167	0.7	2			TOTO3
2001 09 11.93		S	13.5	GA	35	L	5	172	1.6	3			KORO1
2001 09 12.97		S	13.4	GA	35	L	5	172	1.8	3			KORO1
2001 09 13.93		S	13.1	GA	35	L	5	172	2.0	3			KORO1
2001 09 14.96		S	12.9	GA	35	L	5	172	2.1	3			KORO1
2001 09 15.92		S	12.7	GA	35	L	5	172	2.2	2/			KORO1
2001 09 16.97		S	12.5	GA	35	L	5	172	2.2	3			KORO1
2001 09 18.93		S	12.2	GA	35	L	5	172	2.1	3			KORO1
2001 09 19.91		S	12.0	GA	35	L	5	172	1.9	2/			KORO1
2001 09 20.89		S	11.9	GA	35	L	5	172	1.7	2/			KORO1
2001 09 21.86		S	11.8	GA	35	L	5	172	1.9	2/			KORO1
2001 09 22.85		S	11.6	GA	35	L	5	172	2.1	2/			KORO1
2001 09 26.87		S	11.5	GA	40	L	5	232	2.1	3			KORO1
2001 09 27.88		S	11.4	GA	40	L	5	232	1.7	3			KORO1
2001 09 28.03		S	10.6	TI	7.6	L	9	35	3				CERO1
2001 09 28.88		S	11.2	GA	40	L	5	232	1.9	3			KORO1
2001 09 29.08		S	10.6	TI	7.6	L	9	35	3				CERO1
2001 09 29.11		S	11.7	TT	13	L	8	69	1.3	3			HORO2
2001 10 07.78		S	10.8	AC	6.3	R	13	52	2	1			KOS
2001 10 11.82		S	11.0	TT	13	L	8	69	1.6	3			HORO2
2001 10 12.84		S	11.0	TT	35	L	5	68	2.2	5/			HORO2
2001 10 12.88		S	10.3	AC	6.3	R	13	52	3	1			KOS
2001 10 12.92		M	11.1	TT	42	L	5	81	1.8	4/			LEH
2001 10 13.82		M	10.7	TT	35	L	5	68	2.4	4/			HORO2
2001 10 13.85		M	10.9	TT	42	L	5	81	2	4			LEH
2001 10 14.73		S	10.3	AC	6.3	R	13	52	3	1			KOS
2001 10 14.85		M	10.9	TT	42	L	5	81	2	4			LEH
2001 10 14.87		M	10.7	TT	35	L	5	68	2.1	5	3 m	280	HORO2
2001 10 15.80		S	10.3	AC	6.3	R	13	52	3	1			KOS
2001 10 15.82		M	10.6	TT	35	L	5	68	2.5	4	3.5m	280	HORO2
2001 10 15.88		M	10.7	TT	42	L	5	81	2.2	4			LEH
2001 10 20.07		S	10.3	TJ	30.5	T	10	56	2.5	3			COM
2001 10 22.79		M	10.0	TT	10	B	4	25	3	3			LEH
2001 10 22.83		M	10.3	TT	35	L	5	68	2.6	4/	3 m	265	HORO2
2001 10 24.04		S	10.0	TJ	20.3	T	10	100	3.1	4			GRAO4
2001 10 25.04		B	10.4	TT	15	L	5	32	4	3			DUS
2001 10 26.96		S	9.6	AC	41	L	5	121	& 3	3/			RES
2001 10 28.21		S	9.0	AA	20	T	10	80	2	2	0.08	320	BEA
2001 10 28.21		S	9.0	AA	20	T	10	80	2	2	0.08	320	BEA
2001 10 29.09		S	9.8	TT	20	T	10	64	3.2	7	<0.1	270	KARO2
2001 11 01.06		S	9.4	TJ	20.3	T	10	100	2.8	4			GRAO4
2001 11 01.77		S	9.1:	TJ	20	R	14	90	1.6	4			SHAO2
2001 11 01.81		M	8.8	TT	42	L	5	81	4	4			LEH
2001 11 01.91		S	9.5	TJ	41	L	5	121	& 2.5	4	&10 m		RES
2001 11 02.75		M	8.4	TT	42	L	5	81	6	4			LEH
2001 11 02.78		S	9.0	TT	13	L	8	69	3	4			HORO2

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 03.12		S	9.2	TJ	20.3	T	10	100	3.0	4			GRA04
2001 11 03.70		S	10.0	AC	6.3	R	13	52	3	1			KOS
2001 11 03.74		S	9.0	TJ	7.0	R	7	24	4	4/			GRA04
2001 11 04.40	xa	S	9.4	TJ	32.0	L	5	58	3.4	5	5 m	245	NAG08
2001 11 04.72		M	8.9	TT	13	L	8	69	3.5	4	6 m	220	HOR02
2001 11 04.73		M	8.2	TT	8.0	B		10	11	3/			HOR02
2001 11 04.73		S	9.8	AC	6.3	R	13	52	3	1			KOS
2001 11 04.74		S	9.0:	AC	20.0	T	6	60	2	2/			BAL04
2001 11 04.78		S	9.4	TJ	33	L	5	45	2.9	4			SHA02
2001 11 05.75		S	9.2	TJ	15.2	L	5	42	4.5	3			MOE
2001 11 05.76		M	8.3	S	10	B		25	7	2			KUB
2001 11 05.77		M	8.2	TT	8.0	B		10	10	4			HOR02
2001 11 05.77		M	8.7	TJ	25.4	J	6	47	4.5	5			BOU
2001 11 05.77		S	8.9	TJ	25.4	J	6	47	6	4/			DIJ
2001 11 05.78		M	8.3	TT	10	B	4	25	8	3			LEH
2001 11 05.85		S	8.8	AC	41	L	5	121	3.5	3/			RES
2001 11 06.51	x	M	9.9	TT	25.4	L	4	46	2.1	5	5 m	250	YOS02
2001 11 06.52	x	S	9.9	TJ	32.0	L	5	58	2.5	4			NAG08
2001 11 06.85		S	8.6	AC	6.0	B		20	4	3/			RES
2001 11 07.48	x	B	10.2	TJ	25.0	L	6	69	3.7	5			WAT01
2001 11 07.49	x	B	9.2	TJ	8.0	B		11	5.7	1			WAT01
2001 11 07.74		B	9.2	TT	15	L	5	32	5	5	&5	257	DUS
2001 11 07.75		S	8.8	TJ	15.2	L	5	42	5.5	3			MOE
2001 11 08.08		S	8.5	TJ	15.2	L	5	38	4.5	5	0.16	245	GRA04
2001 11 08.44	x	B	9.5	TJ	25.0	L	6	69	3.4	4			WAT01
2001 11 08.77		S	9.3	AA	15.0	R	8	30	2	5			DIE02
2001 11 08.80		S	8.9	TJ	15.2	L	5	42	5	2			MOE
2001 11 08.84		M	8.7	TJ	30.5	T	10	56	& 4	4	0.3		COM
2001 11 08.90		S	7.6	AA	6.3	R	13	52	6	s3			KOS
2001 11 09.10		S	8.4	TJ	7.0	R	7	24	5	5			GRA04
2001 11 09.74		S	8.2	TJ	8.0	B		15	7.5	4			BOU
2001 11 09.75		S	8.4	TJ	6.0	B		20	5	3/			RES
2001 11 09.76		S	8.7	TJ	15.2	L	5	42	5	2			MOE
2001 11 09.77		S	8.2	AA	20	T	10	80	3	3	0.12	310	BEA
2001 11 09.78		B	8.9	TI	7.6	L	9	35	7				CER01
2001 11 09.83		S	8.4	TJ	30.5	L	5	72	& 4	4	0.3	230	GIL01
2001 11 09.84		S	8.6	AA	15.0	R	8	30	3	5			DIE02
2001 11 09.85		B	8.5	TI	5.0	B		10	14				CER01
2001 11 09.85		B	9.3	TT	15	L	5	32	3	5	&0.1	266	DUS
2001 11 09.87		S	9.4	TT	30.0	L	5	60	4	3/			SCH04
2001 11 09.88		M	8.1	TT	10	B	4	25	8	3			LEH
2001 11 09.89		M	7.6	TT	8.0	B		10	12	4			HOR02
2001 11 09.92		S	8.8	TJ	33	L	5	45	2.9	5	0.07	260	SHA02
2001 11 09.96		S	8.4	TJ	8.0	B		10	7.7	3			SHA02
2001 11 09.97		S	8.2	TK	5.0	B		7	7	4			BIV
2001 11 09.97		S	8.4	TK	25.6	L	5	42	6	5	0.25	255	BIV
2001 11 10.49	x	B	8.5	TJ	8.0	B		11	8.7	5			WAT01
2001 11 10.50	x	B	9.3	TJ	25.0	L	6	69	2.8	7			WAT01
2001 11 10.60	x	S	8.1	TJ	5.0	B		12	6	7			NAG08
2001 11 10.62	x	S	8.0	TJ	12.0	B		20	3.5	4/	10 m	245	MIY01
2001 11 10.68	x	M	8.8	TJ	15.0	B		25	4	6			MIT
2001 11 10.70	x	M	8.0	TJ	12.5	L	6	23	5	4			TSU02
2001 11 10.74		M	7.5	TT	8.0	B		10	14	4	0.7	250	HOR02
2001 11 10.74		M	7.8	TT	10	B	4	25	10	3			LEH
2001 11 10.76		M	8.3	S	10	B		25	6.5	2			KUB
2001 11 10.79		S	8.6	AA	15.0	R	8	30	3	5			DIE02
2001 11 10.81		S	8.7	TT	6	R		38	4.5	6			SVE
2001 11 10.84		B	8.6	TJ	12.0	R	5	27	7	4			SIE
2001 11 10.84		S	8.5	TT	10.0	B		25	4.6	4			HAS02
2001 11 10.88		S	8.4	TJ	6.0	B		20	6	3/			RES
2001 11 10.91		S	8.4	TK	25.6	L	5	42	5.5	5	0.2	240	BIV
2001 11 10.92		M	7.7	TJ	7.0	R	7	24	7	5			GRA04
2001 11 10.93		B	8.6	TI	15.0	M	10	27	5	7		200	SER02
2001 11 10.93		M	8.9	TI	10	R	5	25	4	4/			MAR02
2001 11 10.95		S	8.0	TK	5.0	B		7	8	5			BIV

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 11.15		S	8.6	TT	6	R		38	4.5	5	0.2		SVE
2001 11 11.27		S	8.3	TK	25	L	4	45	6	6	20	m 270	LIN04
2001 11 11.80		S	8.6	HS	8.0	B		20	5.0	4			AND01
2001 11 11.86		S	9.1	TT	6	R		38	3.8	6	0.3		SVE
2001 11 11.87		S	8.1	TT	10.0	B		25	7.1	4			HAS02
2001 11 11.93		B	7.9	TI	15.0	M	10	27	5	7	7	m 230	SER02
2001 11 11.94		S	7.8	TJ	8.0	B		15	&10	4			BOU
2001 11 12.05		M	7.6	TJ	7.0	R	7	24	8	5			GRA04
2001 11 12.06		S	7.4	TJ	8.0	B		20	7.4	3			SHA02
2001 11 12.19		B	8.0	TK	25	L	4	45	3				BEL07
2001 11 12.60		B	8.3	TJ	10	B		25	4	5			MAT08
2001 11 12.60	x	S	7.4	TJ	8.0	B		11	7	5			NAG08
2001 11 12.64		B	8.5	TJ	12.0	R	5	27	7	4			SIE
2001 11 12.81		S	8.5	TJ	15.2	L	5	42	6	4			MOE
2001 11 13.02		S	7.7	TJ	8.0	B		15	9	4			BOU
2001 11 13.04		M	7.5	TJ	15.5	L	5	50	8	5/	0.4	240	DIJ
2001 11 13.07		M	7.5	TJ	7.0	R	7	15	8	5			GRA04
2001 11 13.13		B	7.5	TK	25	L	4	45	6	4			BEL07
2001 11 13.73		B	8.1	TJ	12.0	R	5	27	8	4			SIE
2001 11 13.73		S	8.5	TJ	15.2	L	5	42	6	3			MOE
2001 11 13.74		M	6.5	TT	20	L	4	42	9	3/			LEH
2001 11 13.75		S	7.6	TJ	6.0	B		20	8	5/			RES
2001 11 13.79		M	7.3	TJ	15.5	L	5	50	7	5/	0.4	218	DIJ
2001 11 13.81		M	8.1	S	10	B		25	7	2			KUB
2001 11 13.90		S	7.2	AA	5.0	B		10	7.0	3			ABB
2001 11 13.96		S	7.6	TJ	8.0	B		15	9	4/			BOU
2001 11 14.04		M	7.2	TJ	7.0	R	7	15	9	5			GRA04
2001 11 14.21		B	8.0	TK	25	L	4	45	3	3			BEL07
2001 11 14.50	x	M	8.1	TT	10.0	B		20	5	5	10	m 250	YOS02
2001 11 14.51	x	S	7.4	TT	3.5	B		7	& 6	4			YOS02
2001 11 14.53	x	M	7.3	TJ	12.5	L	6	23	5	4			TSU02
2001 11 14.58	x	S	7.0	TJ	5.0	B		12	9	6			NAG08
2001 11 14.71		B	7.8	TJ	12.0	R	5	27	9	4			SIE
2001 11 14.72		S	8.2	TJ	15.2	L	5	42	7	3			MOE
2001 11 14.73		S	7.3	TJ	6.0	B		20	10	4/			RES
2001 11 14.74		M	6.9	TT	8.0	B		10	14	4			HOR02
2001 11 14.77		S	7.0	AA	20	T	10	80	4	3	0.15	310	BEA
2001 11 14.82		S	7.1	TJ	15.5	L	5	50	12	6			DIJ
2001 11 14.85		M	7.2	TJ	8.0	B		15	9	5	0.3	225	BOU
2001 11 14.86		S	7.1	TJ	5.0	B		7	10	3/			BOU
2001 11 14.87		S	7.8	TJ	30.5	T	5	72	9	5	0.3	225	GIL01
2001 11 14.88		S	7.9	TT	8.0	B		15	8	5			SCH04
2001 11 14.90		S	7.0	AA	5.0	B		10	10	2			ABB
2001 11 14.90		S	7.3	HD	6.0	B		20	13				SAR02
2001 11 14.90		S	7.8	AA	15.0	R	8	30	6	5	2.0	230	DIE02
2001 11 15.03		S	6.9	TJ	5.0	B		7	10	3/			MAR25
2001 11 15.16		S	7.9	TJ	30.5	T	10	56	8	4	0.3		COM
2001 11 15.50	x	B	7.5	TJ	8.0	B		11	7.2	6			WAT01
2001 11 15.51	x	B	8.8	TJ	25.0	L	6	69	4.0	7			WAT01
2001 11 15.60		B	8.1	TJ	10	B		25	4.5	6			MAT08
2001 11 15.67		S	7.1	TJ	8.0	B		20	10	4	0.17	270	SHA02
2001 11 15.78		M	7.0	TT	8.0	B		10	13	4			HOR02
2001 11 15.79		S	7.8	TI	20.0	T	6	60	4	5			BAL04
2001 11 15.83		M	7.8	S	10	B		25	7	4			KUB
2001 11 15.84		S	6.7	AA	6.3	R	13	52	8	s3			KOS
2001 11 15.88		B	8.1	TJ	5.0	B		10	7	3			MOE
2001 11 15.88		M	6.8	TJ	5.0	B		7	12	5			GRA04
2001 11 15.89		S	7.5	AA	6.0	B		20	10	S5			CSU
2001 11 15.89		S	7.5	AA	6.0	B		20	10	s5			CSU
2001 11 15.90		S	8.0	TT	7.0	B		15	12	5			ENT
2001 11 15.92		S	7.5	HD	10.0	T	5	20	7	s4	0.13	260	KAR03
2001 11 15.93		B	7.6	TI	8.0	B		12	10	5		230	SER02
2001 11 15.93		S	7.5	S	7.0	B		15	6	0			MER05
2001 11 15.99		S	7.4	HV	6.0	R		20	6	5			MIL02
2001 11 16.03		S	6.8	HD	6.0	B		20	12				SAR02

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 16.09		S	8.0	TK	8.0	B		20	5	3			AMO01
2001 11 16.50	x	M	7.6	HV	12.5	L	6	23	7	4			TSU02
2001 11 16.57	x	S	6.8	TJ	5.0	B		12	12	5			NAG08
2001 11 16.66		S	7.2	TJ	8.0	B		20	10	5			SHA02
2001 11 16.67	x	B	7.1	TT	8.0	B		20	10.5	4			PEA
2001 11 16.71		S	8.0	TJ	15.2	L	5	42	6.5	3			MOE
2001 11 16.74		M	6.5	TT	8.0	B		10	12	3/			LEH
2001 11 16.76		B	7.2	TI	10.0	T	6	60	4	5			CSU01
2001 11 16.76		B	7.3	TJ	12.0	R	5	27	7	4/			SIE
2001 11 16.79		S	7.7:	TI	7.0	B		11	& 9	3/			MIC
2001 11 16.79		S	7.8	TJ	7.0	B		16	15	3			GIA01
2001 11 16.82		M	6.7	TT	8.0	B		10	15	4	0.7	255	HOR02
2001 11 16.85		M	6.3	S	3.0	B		6	13	3			KUB
2001 11 17.00		S	6.7	TJ	6.0	B		20	10	4/	0.7	250	RES
2001 11 17.01		S	7.6	TK	4.0	B		8					HOD02
2001 11 17.04		S	7.0	TK	5.0	B		7	10	5			BIV
2001 11 17.06		S	7.3	TK	25.6	L	5	42	8	5	0.3	240	BIV
2001 11 17.15		S	7.9	TJ	8.0	B		11	5	2			DES01
2001 11 17.17		S	6.9	TK	5.0	B		7	10	4			BIV
2001 11 17.24		S	6.5	HV	5.0	B		12	&11	3			GRE
2001 11 17.24		S	7.0	HV	8.0	B		20	& 8	4/			GRE
2001 11 17.53		S	7.1	TJ	8.0	B		20	14	4			SHA02
2001 11 17.54		S	7.3	TJ	25.4	T	6	32	10	7			YOS04
2001 11 17.59		S	6.0	TJ	0.7	E		1	10	3			SHA02
2001 11 17.60	x	S	6.8	TJ	5.0	B		12	12	6			NAG08
2001 11 17.62	x	B	7.2	TT	8.0	B		20	9.5	4			PEA
2001 11 17.68	x	M	7.2	TJ	15.0	B		25	9	5			MIT
2001 11 17.69	x	M	7.1	TJ	8.0	B		11	10	5			MIT
2001 11 17.70		M	6.6	TT	8.0	B		10	13	4/	0.6	260	HOR02
2001 11 17.70		S	7.8	TJ	15.2	L	5	42	7.5	3			MOE
2001 11 17.75		M	6.5	TJ	5.0	B		7	15	5			GRA04
2001 11 17.75		S	6.6	AA	6.3	R	13	52	10	s3			KOS
2001 11 17.75	x	S	6.7	TT	3.5	B		7	12	5			YOS02
2001 11 17.87		S	7.2	AA	6.0	B		20	10	s5			CSU
2001 11 17.87		S	7.2	AA	6.0	B		20	10	S5			CSU
2001 11 17.89	w	S	7.6	S	11	L	7	32	7	2	6 m		TIT
2001 11 17.93		S	6.3	HD	6	R	5	25	14		0.5	240	SAR02
2001 11 18.00		M	6.5	TJ	5.0	B		7	14	6			DIJ
2001 11 18.00		S	6.6	TJ	5.0	B		7	14	4			BOU
2001 11 18.01		M	6.4	TT	5.0	B		10	15	3/			LEH
2001 11 18.14		B	7.6	TK	25	L	4	45	5	4			BEL07
2001 11 18.22		S	6.5	TJ	8.0	B		20	& 8	3/			GRE
2001 11 18.23		M	6.1	AA	0.0	E		1	8	4			CRE01
2001 11 18.23		S	6.5	TJ	5.0	B		12	&10	1/			GRE
2001 11 18.46	x	S	6.6	TJ	5.0	B		12	12	5			NAG08
2001 11 18.52		S	6.4	TK	5.0	B		10	10	4			LIN04
2001 11 18.56	x	M	6.3	TT	3.5	B		7	13	6			YOS02
2001 11 18.63		S	6.8	TJ	5	R		8	20	6			YOS04
2001 11 18.63		S	7.0	TJ	8.0	B		20	13	5			SHA02
2001 11 18.63		S	7.0	TJ	25.4	T	6	32	15	6			YOS04
2001 11 18.67		M	6.4	TJ	5.0	B		7	16	5			GRA04
2001 11 18.71	x	B	7.0	TJ	8.0	B		11	4.0	5			WAT01
2001 11 18.72		B	7.4	TJ	12.0	R	5	27	6	4			SIE
2001 11 18.75		S	7.2	TJ	7.0	B		16	12	3			GIA01
2001 11 18.75	x	B	7.2	TT	8.0	B		20	11	4			PEA
2001 11 18.85		M	7.2	S	7.0	B		10	8	5			MAR02
2001 11 18.87		S	7.2	AA	6.0	B		20	10	S5			CSU
2001 11 18.87		S	7.2	AA	6.0	B		20	10	s5			CSU
2001 11 18.89		S	6.4	AA	6.3	R	13	52	7	s4			KOS
2001 11 19.02		S	7.4	TK	5.0	B		7	6	4			AMO01
2001 11 19.04		S	6.5	TK	5.0	B		7	12	5			BIV
2001 11 19.45	x	S	6.5	TJ	5.0	B		12	12	5			NAG08
2001 11 19.69		S	5.7	TJ	5	R		8	14	6			YOS04
2001 11 19.71		S	7.5	TJ	15.2	L	5	42	9	4	0.3	140	MOE
2001 11 19.84		M	6.4	TJ	5.0	B		7	14	5			DIJ

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 19.85		M	6.1	TT	8.0	B		10	15	3			LEH
2001 11 19.85		S	6.5	TJ	6.0	B		20	12	4/	0.8	250	RES
2001 11 19.90		M	6.2	TJ	5.0	B		7	18	5			GRA04
2001 11 19.91		M	6.3	TJ	5.0	B		7	16	4/			BOU
2001 11 19.92		M	6.6	TT	8.0	B		10	14	5			HOR02
2001 11 19.93		S	6.6	TT	7.0	B		16	12	3			TAY
2001 11 19.94		M	6.7	S	7.0	B		10	12	4			MAR02
2001 11 19.96		M	7.0	S	10	R	5	25	10	6/			MAR02
2001 11 19.98		B	6.4	TJ	5.0	B		7	15	4/			SKI
2001 11 20.08		M	6.4	TJ	7.0	R	7	15	16	5	0.4	315	GRA04
2001 11 20.11		S	6.5	TK	5.0	B		7	15	5	0.5	320	BIV
2001 11 20.12		S	7.1	TK	20.3	L	6	40	12	5	0.4	320	BIV
2001 11 20.13		S	6.4	YG	5.0	B		7	10	4			AMO01
2001 11 20.14		S	6.6	TJ	8.0	B		11	8	3/			DES01
2001 11 20.16		S	6.2	TJ	5.0	B		12	&14	4			GRE
2001 11 20.55		B	6.7	TT	5.0	B		7	10	6			MAT08
2001 11 20.62	x	M	6.3	TT	3.5	B		7	13	6			YOS02
2001 11 20.67	x	S	6.2	TJ	5.0	B		12	15	5			NAG08
2001 11 20.71		B	7.2	TJ	12.0	R	5	27	6	4/			SIE
2001 11 20.71		B	7.2	TJ	12.0	R	5	27	6	4/			SIE
2001 11 20.74		B	6.7	TT	5.0	B		10	8.6	4			HAS02
2001 11 20.74		M	6.2	AA	11	B		20	12	6			NEV
2001 11 20.79		B	7.1	TJ	12.0	R	5	27	7	5			SIE
2001 11 20.79		S	6.3	TJ	5.0	B		10	14	6			GIL01
2001 11 20.80		S	6.8	TI	4.0	B		8					MAC04
2001 11 20.87		B	7.1	TJ	5.0	B		7	8	4			CHE03
2001 11 20.88		M	6.5	TT	8.0	B		10	15	5			HOR02
2001 11 20.91		M	6.2	TJ	5.0	B		7	17	4/			GRA04
2001 11 20.93		S	6.6	TT	7.0	B		16	9	3			TAY
2001 11 20.95		S	6.7:	SC	5.0	B		10	&10	3			KAN05
2001 11 21.04		S	6.3:	YG	5.0	B		7	10	3			AMO01
2001 11 21.09		S	6.1	TJ	3.5	B		7	&15	5			GRE
2001 11 21.09		S	6.2	TJ	5.0	B		12	&14	4			GRE
2001 11 21.10		B	6.7	TJ	8.0	B		20					GRE
2001 11 21.10		S	6.4	TJ	8.0	B		20	& 9	4			GRE
2001 11 21.14		S	6.5	YG	8.0	B		11	10	3/			DES01
2001 11 21.60	x	M	6.2	TJ	8.0	B		11	14	5			TSU02
2001 11 21.64	x	S	5.5:	TJ	0.0	E		1		8			NAG08
2001 11 21.64	x	S	6.0	TJ	3.5	B		7	16	6			NAG08
2001 11 21.73		B	6.5	TT	5.0	B		10	15.1	3			HAS02
2001 11 21.74		S	6.5	TI	6.0	B		20	10	6			BAL04
2001 11 21.87		S	5.9	TJ	5.0	B		7	15	5			SKI
2001 11 21.87		S	6.8	TJ	7.0	B		16	20	4			GIA01
2001 11 21.89		S	6.6:	SC	5.0	B		10	&15	2/			KAN05
2001 11 21.90		M	6.4	TT	8.0	B		10	15	5			HOR02
2001 11 22.01		S	6.2	TK	4.0	B		8	30	6			HOD02
2001 11 22.04		M	6.0	TJ	5.0	B		7	19	5			GRA04
2001 11 22.07		S	6.4	TJ	5.0	B		12	8	3			YUM
2001 11 22.14		B	6.6	YG	25	L	4	45	7	5			BEL07
2001 11 22.14		S	6.3	YG	8.0	B		11	15	4			DES01
2001 11 22.54	x	B	6.7	TT	4.0	B		8	10.5	4			PEA
2001 11 22.58	x	M	6.3	TJ	8.0	B		11	18	5			TSU02
2001 11 22.63		S	5.8	TJ	7.0	B		10	15	6	&1	315	END
2001 11 22.63	x	S	5.9	TJ	4.0	B		10	15	5			NAG08
2001 11 22.67		B	7.0	TJ	12.0	R	5	27	7	5			SIE
2001 11 22.73		B	6.8	TJ	5.0	B		10	12	4			MOE
2001 11 22.75		S	6.5	AA	20	T	10	80	10	4	0.20	310	BEA
2001 11 22.78		S	6.9	TT	7.0	B		16	18	2			TAY
2001 11 22.80		S	6.4	TK	5.0	B		7	17	4			BIV
2001 11 22.82		S	6.3	AA	6.3	R	13	52	6	s4			KOS
2001 11 22.84		S	6.5	AA	5.0	B		10	18	4			ABB
2001 11 22.86		S	6.0	TY	5.0	B		20	8	6			DIE02
2001 11 22.87		S	7.1	TT	7.0	B		15	12	4			ENT
2001 11 22.89		M	6.2	TJ	5.0	B		7	22	5			DIJ
2001 11 22.91		M	5.8	TJ	5.0	B		7	20	5			GRA04

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 22.91		S	7.0	S	7.0	B		15	15	0			MER05
2001 11 22.92		S	5.7	TJ	5.0	B		7	12	4			SHA02
2001 11 22.93		S	7.7	TT	8	R		16	8	4	0.25	30	TAY
2001 11 22.94		M	6.0	TJ	5.0	B		7	18	5			BOU
2001 11 22.94		S	6.2	TT	4.0	B		8	&15	5			SCH04
2001 11 22.98		M	5.8	TJ	5.0	B		7	20	5			SKI
2001 11 22.98		S	6.8	TJ	5.0	B		10		3			COE
2001 11 23.05		S	6.1	TK	5.0	B		7	18	5	0.8	10	BIV
2001 11 23.07		S	6.7	TK	20.3	L	6	40	12	5	0.5	355	BIV
2001 11 23.10		S	6.0	YG	5.0	B		7	15	2			AMO01
2001 11 23.62	x	S	5.6	TJ	3.5	B		7	18	6			NAG08
2001 11 23.65		S	5.5	TJ	10.0	R		13	18	5	1.4	330	END
2001 11 23.65	x	M	6.5	HV	8.0	B		11	11	5			MIT
2001 11 23.67		S	5.6	TJ	7.0	B		10	20	5	&2	330	END
2001 11 23.70		B	6.3	TJ	5	R		8	25	6			YOS04
2001 11 23.70		S	5.9	TJ	5	R		8	25	6			YOS04
2001 11 23.72		B	6.7	TJ	5.0	B		10	12	3			MOE
2001 11 23.75		B	7.2	TI	10.0	T	6	19	4	S5	0.25	50	CSU01
2001 11 23.79		S	6.7	HI	8.0	B		20	10	5			FOG
2001 11 23.81		S	6.0	TI	7.0	B		11	15	6			CRE02
2001 11 23.81		S	6.2	TI	7.0	B		11	15	4			MIC
2001 11 23.93		S	6.1	AA	4.2	B		7	11	4/			ZAN
2001 11 23.98		S	6.2	YG	5.0	B		7	10	1/			AMO01
2001 11 24.06		S	6.1	TJ	5.0	B		7	18	5			GON05
2001 11 24.07		S	6.2	HV	5.0	B		12	11	3/			YUM
2001 11 24.08		S	6.2	YG	8.0	B		11	15	4			DES01
2001 11 24.14		B	6.0	YG	25	L	4	45	8	5			BEL07
2001 11 24.20		S	6.0	TJ	5.0	B		12	& 8	3			GRE
2001 11 24.51	x	B	6.7	TT	8.0	B		20	11	3			PEA
2001 11 24.66	x	B	7.0	HV	8.0	B		11	8.5	6			WAT01
2001 11 24.69		S	5.5	TJ	7.0	B		10	20	5	&2	330	END
2001 11 24.76		S	6.6	TI	4.0	B		8					MAC04
2001 11 24.76	xa	S	5.4	TJ	3.5	B		7	18	6			NAG08
2001 11 24.77		S	6.5	HI	8.0	B		20	9	4			FOG
2001 11 24.87		B	5.6	AA	3	R		8	2	2	0.2	36	SER
2001 11 24.92		S	7.0	HD	10.0	T	5	20	10	s4	0.2	10	KAR03
2001 11 24.98		S	6.1	AA	4.2	B		7	11	4/			ZAN
2001 11 25.03		S	6.8	HD	10	B		14	10	6/	0.3	310	ARQ
2001 11 25.04		M	5.4	HV	8.0	B		20	22	5	3	210	MIR01
2001 11 25.04		S	5.9	TI	7.0	B		11	18	5/			CRE02
2001 11 25.04		S	6.2:	TK	4.0	B		8		6			HOD02
2001 11 25.05		S	5.9	TI	7.0	B		11	17	4/			MIC
2001 11 25.09		S	6.2	YG	8.0	B		11		3/			DES01
2001 11 25.15		S	6.5:	HV	5.0	B		12	9	2			YUM
2001 11 25.17		S	6.5	S	7.0	B		15	18	0			MER05
2001 11 25.53	x	M	6.6	TT	8.0	B		20	10	5			PEA
2001 11 25.72		M	5.9	TT	5.0	B		10	18	3			LEH
2001 11 25.75		S	5.9	TJ	5.0	B		7	20	4			GIA01
2001 11 25.77		S	6.3	AA	20	T	10	80	6	4	0.17	310	BEA
2001 11 25.87		S	7.3	TT	7.0	B		16	8	3			TAY
2001 11 25.97		M	6.1	TT	8.0	B		10	16	4/			HOR02
2001 11 26.08		S	5.6	TJ	5.0	B		7	23	4			SHA02
2001 11 26.08		S	7.0:	TK	5.0	B		7	25	0/			BAL07
2001 11 26.65	x	S	5.3	TJ	5.0	B		12	20	6			NAG08
2001 11 26.84		S	5.8	TJ	8.0	B		20	8	4			SHA02
2001 11 26.86	w	S	6.0:	S	5.0	B		10	15	3			SVE01
2001 11 26.90		M	5.7	TJ	5.0	B		7	15	5			SKI
2001 11 26.95		M	5.7	TJ	5.0	B		7	20	5			GRA04
2001 11 30.78		S	5.7	TJ	5.0	B		7	15	4			GON05
2001 11 30.79		M	5.4	TT	8.0	B		10	15	3/			LEH
2001 12 01.30		S	6.0	TK	5.0	B		10	11	4			LIN04
2001 12 01.92		S	6.8	TJ	8.0	B		20	10	4			SHA02
2001 12 02.02		B	6.1	HV	5.0	B		12	14	4/			YUM
2001 12 02.02		B	6.1	HV	5.0	B		12	14	4/			YUM
2001 12 02.04		S	6.0	YG	5.0	B		7	12	4			AMO01

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 02.40	x	M	5.8	TT	3.5	B		7	20	6			YOS02
2001 12 02.53	x	M	6.2	TT	4.0	B		8	13	5			PEA
2001 12 02.53	x	M	6.2	TT	8.0	B		20	12	5	0.75	35	PEA
2001 12 02.73	w	S	7.1	S	7	R	4	12	8	1	12 m		TIT
2001 12 02.80		M	5.9	S	7.0	B		10	11	4			MAR02
2001 12 02.95		S	6.0	YG	5.0	B		7	14	5			AMO01
2001 12 02.96		B	6.1	YG	5.0	B		12	14	4/			YUM
2001 12 03.02		S	6.0	YG	8.0	B		11	20	3/			DES01
2001 12 03.02		S	6.2:	HI	8.0	B		20	7.2	4			SHA02
2001 12 03.23		B	5.8	HV	5.0	R		18	16	5	1.0	40	BIV
2001 12 03.23		S	5.5	HV	0.0	E		1	15	5			BIV
2001 12 03.23		S	6.4:	HV	20.3	L	6	40	14	5	0.9	35	BIV
2001 12 03.38	x	S	5.4	TJ	3.5	B		7	21	4			NAG08
2001 12 03.46		S	5.8	AA	5.0	B		10					SEA
2001 12 03.49		B	5.8	TT	5.0	B		7	12	6	>1	33	MAT08
2001 12 03.66		B	6.4	TJ	12.0	R	5	27	15	5/	0.6	355	SIE
2001 12 03.66		M	5.8	AA	11	B		20	12	6			NEV
2001 12 03.72	w	S	7.2	S	7	R	4	12	6	1	10 m		TIT
2001 12 03.73	w	S	6.5	S	4.0	B		7					KRI
2001 12 03.78		I	5.5	TJ	0.0	E		1					GON05
2001 12 03.79		S	5.3	TJ	5.0	B		7	10	6	1.5	30	GON05
2001 12 03.83		B	6.5:	TJ	5.0	B		7	10				CHE03
2001 12 04.00		S	6.0	HV	5.0	B		12	15	5/			YUM
2001 12 04.01		S	5.9	YG	8.0	B		11	20	4	0.48		DES01
2001 12 04.28		B	5.4	HV	0.0	E		1	15	5			BIV
2001 12 04.29		B	5.5	HV	5.0	R		18	16	5	1.2	30	BIV
2001 12 04.30		S	5.8	HV	20.3	L	6	40	10	5	1.0	25	BIV
2001 12 04.43		B	6.0	AA	5.0	B		7	20	4			SOW
2001 12 04.44	x	M	5.8	TT	3.5	B		7	18	6	40 m	35	YOS02
2001 12 04.48		B	5.7	TT	5.0	B		7	12	6	>1	33	MAT08
2001 12 04.69		M	6.3	HD	7	R	4	12	9	5	60 m	38	SHU
2001 12 04.70		M	6.3	S	7	R	4	12	5.5	4/	66 m	39	NEK
2001 12 04.73		B	6.1	TJ	12.0	R	5	27	15	5/	1.3	359	SIE
2001 12 04.73		M	6.3	HD	7	M	10	47	5.5	5/			SHU
2001 12 04.73	w	S	6.5:	S	4.0	B		7					KRI
2001 12 04.77		S	5.9	TY	5.0	B		20	12	7			DIE02
2001 12 04.78	w	S	5.7	S	5.0	B		10	11	2/	22 m		SVE01
2001 12 04.80	w	S	7.0	S	7	R	4	12	5	2	9 m		TIT
2001 12 04.91		B	5.8	TJ	5.0	B		7	9	6			SAN13
2001 12 05.01		S	9.0	S	25.4	L	6	125	2	6			GIU
2001 12 05.03		B	5.8	TK	5.0	B		7	20	5			BAL07
2001 12 05.08		B	7.2	AA	20	L	6	50	10	6			TRO02
2001 12 05.28		S	5.5	HV	0.0	E		1	15	4			BIV
2001 12 05.28		S	5.7	HV	5.0	R		18	16	4	1.1	40	BIV
2001 12 05.29		S	6.0	HV	20.3	L	6	40	13	5	1.3	35	BIV
2001 12 05.53	x	M	5.8	TJ	4.0	B		8	13	4			PEA
2001 12 05.66		M	6.1	HD	7	R	4	12	10	5			SHU
2001 12 05.69		M	6.3	HD	7	M	10	47	5	5	30 m		SHU
2001 12 05.72		M	6.0	TI	5.0	B		7	13	6			KYS
2001 12 05.73		B	6.0	TJ	12.0	R	5	27	15	5	0.6	3	SIE
2001 12 05.75		S	6.0	HI	8.0	B		10	11	3			SHA02
2001 12 05.79		M	5.4	S	7.0	B		10	12	5/			MAR02
2001 12 05.82		M	6.1	HD	5	R	4	5	10	2/			SHU
2001 12 05.82	w	S	5.8	S	5.0	B		7	10	2/	20 m		FED03
2001 12 05.82	w	S	7.4:	S	7	R	4	12	7	1			TIT
2001 12 05.85		B	5.8	TJ	5.0	B		7	15				CHE03
2001 12 06.00		M	5.3	AA	0.0	E		1	15	3			CRE01
2001 12 06.11		B	6.5	TI	5	B		7	10	4			SAL03
2001 12 06.32		S	5.6	HV	5.0	R		18	15	5	1.0	40	BIV
2001 12 06.33		S	5.5	HV	0.0	E		1	18	5			BIV
2001 12 06.51		B	5.8	TT	5.0	B		7	11	6	>1	30	MAT08
2001 12 06.53	x	M	5.8	TJ	4.0	B		8	19	5			PEA
2001 12 06.53	x	M	5.8	TJ	8.0	B		20	13	5	1.4	41	PEA
2001 12 06.70		B	5.9	TJ	12.0	R	5	27	15	5	0.7	16	SIE
2001 12 06.74	a	M	5.3	TJ	5.0	B		7	16	5	1.5	40	BOU

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 06.75		M	5.8	HD	7	R	4	12	13	5	60 m		SHU
2001 12 06.75		S	5.8	TT	8.0	B		15	&15	6			SCH04
2001 12 06.76		S	5.8	HI	8.0	B		20	11	4			SHA02
2001 12 06.76		S	5.8	TI	7.0	B		11	14	5/			CRE02
2001 12 06.77		M	5.6	AA	11	B		20	12	6	1.5	60	NEV
2001 12 06.77		S	5.4	TJ	5.0	B		7	16	6	2.5	43	DIJ
2001 12 06.78		S	5.9	TY	5.0	B		20	12	7			DIE02
2001 12 06.79		S	5.3	TJ	5.0	B		7	12	5	1.5	35	GON05
2001 12 06.80		M	5.5	TJ	5.0	B		7	20	5			GRA04
2001 12 06.82		B	5.9	TI	5.0	B		7	10	4	0.7	40	SER02
2001 12 07.02		S	5.9	YG	5.0	B		7	14	5			AM001
2001 12 07.04		S	6.8	AA	20	L	6	50	14				ALV
2001 12 07.05		S	6.0	TI	20	L	5	50		4			ROS04
2001 12 07.05		S	6.1	TI	5.0	B		10		5			HON02
2001 12 07.05		S	6.1	TI	32	L	5	110		5			BAC03
2001 12 07.08		S	6.1	TI	4.0	B		10		4			FRE01
2001 12 07.11		S	5.2	AA	5.0	B		7	12	5			SPR
2001 12 07.22		S	5.3	HV	5.4	R		5	18	5	1.0	40	BIV
2001 12 07.27		S	5.3	HV	0.0	E		1	20	4			BIV
2001 12 07.28		S	5.6	HV	5.0	R		18	15	4	0.8	45	BIV
2001 12 07.46	x	S	5.2	TJ	3.5	B		7	22	5/	&1	45	NAG08
2001 12 07.71		B	5.8	TJ	12.0	R	5	27	16	4/			SIE
2001 12 07.72		M	5.4	TI	5.0	B		10	19				CER01
2001 12 07.73		M	5.3	AA	4.2	B		7	17	5	1	65	ZAN
2001 12 07.73		S	5.4	TJ	5.0	B		7	16	5	3.0	41	DIJ
2001 12 07.75	a	M	5.5	TJ	5.0	B		7	14	5/	2.2	40	BOU
2001 12 07.78		M	5.6	HD	7	R	4	12	13	6			SHU
2001 12 07.82	w	S	6.4	S	11	L	7	32		2			TIT
2001 12 07.83		M	5.4	TT	0.8	E		1	20	4			LEH
2001 12 07.84		B	5.5	TT	5.0	B		10	18	3			HAS02
2001 12 07.85		M	5.1	S	3.0	B		6	14	6	1.5	35	MAR02
2001 12 07.85		S	4.8	S	0.0	E		1					MAR02
2001 12 07.94		M	5.4	S	3.0	B		6	15	4	1.5	45	SAN04
2001 12 08.02		S	5.5:	YG	0.0	E		1		3			AM001
2001 12 08.06		S	5.7	YG	5.0	B		7	20	5	0.3	50	AM001
2001 12 08.26		S	5.4	HV	0.0	E		1	20	4			BIV
2001 12 08.26		S	5.5	HV	5.4	R		5	16	5	1.1	30	BIV
2001 12 08.36		S	5.7	HV	5.0	R		18	17	5	1.0	35	BIV
2001 12 08.40	x	M	6.0	HV	8.0	B		11	14	6	0.8	35	MIT
2001 12 08.43	x	S	5.2	TJ	3.5	B		7	20	5	1.5	35	NAG08
2001 12 08.56	x	M	5.7	TJ	4.0	B		8	14	5			PEA
2001 12 08.56	x	M	5.7	TJ	8.0	B		20	11	5	1.1	34	PEA
2001 12 08.66		B	5.8	TJ	12.0	R	5	27	16	4	0.5	30	SIE
2001 12 08.69		M	5.5	HD	7	R	4	12	14	6	60 m	61	SHU
2001 12 08.70		M	5.4	TI	5.0	B		10	19		1.8	60	CER01
2001 12 08.72		O	6.2:	TI	5.0	B		7	13	4			KYS
2001 12 08.74		S	5.8	AA	6.0	B		20	10	6			CSU
2001 12 08.77		S	6.1	TY	5.0	B		20	10	7			DIE02
2001 12 08.78		B	5.8	TT	10	B		25	25	5/			KON06
2001 12 08.78		B	6.1	TI	5.0	B		7	10	4	0.5	40	SER02
2001 12 08.78		M	5.7	TT	8.0	B		10	18	3/	1.0	45	HOR02
2001 12 08.78	w	S	6.6	S	11	L	7	32		1/			TIT
2001 12 08.79		S	5.4	TJ	5.0	B		7	10	5	2	35	GON05
2001 12 08.81		S	7.2:	TI	33	L	5	45	3.2	5			SHA02
2001 12 08.85		M	5.3	TT	0.8	E		1	20	4			LEH
2001 12 09.05		B	5.6	HP	5	M	15	7	20	5	0.5	45	BAL07
2001 12 09.05		S	5.9	S	5.0	B		7	12	4			MAN04
2001 12 09.24		M	5.7	TK	5.0	B		10	12	4	70 m	50	LIN04
2001 12 09.31		S	5.6	HV	5.0	B		10	18	5	1.4	35	BIV
2001 12 09.32		S	5.7	HV	0.0	E		1	15	5			BIV
2001 12 09.41		S	5.4	TJ	5	R		8	30	4			YOS04
2001 12 09.41	x	S	5.6	TJ	3.5	B		7	16	5	&1	30	NAG08
2001 12 09.47		B	5.5	TJ	5.0	B		7	15	5	30 m		FAR01
2001 12 09.51		B	5.8	TT	5.0	B		7	10	6	>1	50	MAT08
2001 12 09.53	x	M	5.9	TJ	4.0	B		8	16	5			PEA

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 09.53	x	M	6.0	TJ	8.0	B		20	14	5	0.75	36	PEA
2001 12 09.72		B	5.5	TT	5.0	B		10	19.4	4	0.85	55	HAS02
2001 12 09.73		M	5.6	TI	5.0	B		10	18		1.6	60	CER01
2001 12 09.73		S	5.3	TJ	5.0	B		7	18	5			DIJ
2001 12 09.73		S	5.4	TJ	5.0	B		7	15	5			BOU
2001 12 09.74		B	7.0	TI	10.0	T	6	19	10	5	0.16	65	CSU01
2001 12 09.74		M	5.3	TT	0.8	E		1	20	4/			LEH
2001 12 09.77		B	6.3	TI	5.0	B		7	10	4	0.3	50	SER02
2001 12 09.78		M	5.6	TT	8.0	B		10	17	3/			HOR02
2001 12 09.79		S	5.4	TJ	5.0	B		7	10	5	1.5	35	GON05
2001 12 10.05		B	5.8	TI	5	B		8	9	3			SAL03
2001 12 10.05		S	5.7	S	5.0	B		7	15	4			MAN04
2001 12 10.06		M	5.8	AA	7.0	B		11	16	6	2.0	25	CRE01
2001 12 10.08		S	5.8	TT	5.0	B		12		6			SAL02
2001 12 10.10		S	5.3	HD	10	B		14	10	6/	0.3		ARQ
2001 12 10.25		S	5.5	HV	0.0	E		1	15	4			BIV
2001 12 10.26		B	5.5	HV	4.0	B		8	15	5	1.3	30	BIV
2001 12 10.42	xa	S	5.8	TJ	10.0	B		20	14	4	0.4	25	NAG08
2001 12 10.45	x	M	5.5	TT	3.5	B		7	14	5	1.1	45	YOS02
2001 12 10.46		S	5.4	AA	0.0	E		1					SEA
2001 12 10.54	x	M	5.8	TT	4.0	B		8	13	5			PEA
2001 12 10.54	x	M	5.8	TT	8.0	B		20	11	5	0.9	46	PEA
2001 12 10.71		B	5.5	TT	5.0	B		10	16	4	1.15	67	HAS02
2001 12 10.77		B	6.0	TI	5.0	B		7	10	4	0.3	40	SER02
2001 12 10.78		O	5.2	TT	0.0	E		1	15	5			ZNO
2001 12 10.85		M	5.5	HV	8.0	B		20	14	6	2.5	34	MIR01
2001 12 11.04		S	5.6	S	5.0	B		7	15	5			MAN04
2001 12 11.04		S	5.6	TI	6.0	B		9		4			BAC03
2001 12 11.08		S	5.8	TI	4.0	B		10		5			FRE01
2001 12 11.08		S	5.9	TT	5.0	B		12		6			SAL02
2001 12 11.24		B	5.7	HV	4.0	B		8	16	5	1.2	35	BIV
2001 12 11.24		S	5.5	HV	0.0	E		1	15	5			BIV
2001 12 11.41	xa	S	5.9	TJ	5.0	B		12	12	5			NAG08
2001 12 11.46	x	M	6.3	HV	8.0	B		11	9	4			MIT
2001 12 11.57		B	5.9	TT	5.0	B		7	9	6	>0.75	45	MAT08
2001 12 11.57	x	M	5.7	TT	4.0	B		8	13.5	5			PEA
2001 12 11.57	x	M	5.8	TT	8.0	B		20	11.5	5	0.9	52	PEA
2001 12 11.76		B	6.1	TI	5.0	B		7	10	4	0.3	40	SER02
2001 12 12.05		S	5.7	TT	5.0	B		12		6			SAL02
2001 12 12.09		S	5.6	TI	4.0	B		10		5			FRE01
2001 12 12.26		B	5.8	HV	4.0	B		8	12	5	1.0	50	BIV
2001 12 12.26		S	5.7	HV	0.0	E		1	12	5			BIV
2001 12 12.56		B	5.7	TT	5.0	B		7	8	6	>0.5	50	MAT08
2001 12 12.79	w	S	5.5	TJ	5.0	B		7	10	5	1	35	GON05
2001 12 12.80		M	5.7	S	3.0	B		6	13	5	<1	40	MAR02
2001 12 13.07		S	5.6	TT	5.0	B		12		6			SAL02
2001 12 13.50		M	5.7	AA	5.0	B		10					SEA
2001 12 13.55	x	M	5.8	TT	4.0	B		8	12	6			PEA
2001 12 13.55	x	M	5.9	TT	8.0	B		20	9	6	1.4	42	PEA
2001 12 13.72		M	5.3	TI	5.0	B		10	15				CER01
2001 12 13.74		M	5.3:	TT	10	B	4	25	10	4			LEH
2001 12 14.01		S	5.3	TI	4.0	B		10		4			BAC03
2001 12 14.04		S	5.6	TI	4.0	B		10		5			FRE01
2001 12 14.39	xw	S	5.7	TJ	8.0	B		11	9	6	0.3	55	NAG08
2001 12 14.65	x	M	5.8	TT	4.0	B		8	12	6			PEA
2001 12 14.72		M	5.2	TI	5.0	B		10	15				CER01
2001 12 15.01		S	5.7	TI	4.0	B		10		4			BAC03
2001 12 15.06		S	5.5	S	5.0	B		7	12	5			MAN04
2001 12 15.09		S	5.6	YG	5.0	B		7	20	5/			AMO01
2001 12 15.09		S	5.7	YG	8.0	B		20	15	5	0.3	60	AMO01
2001 12 15.39	xw	S	5.6	TJ	10.0	B		20	8	6			NAG08
2001 12 15.52		B	5.8	TT	5.0	B		7	8	6	>1	60	MAT08
2001 12 15.55	x	M	5.7	TT	4.0	B		8	17	6			PEA
2001 12 15.55	x	M	5.9	TT	8.0	B		20	12	6	1.2	52	PEA
2001 12 16.04		S	5.6	S	5.0	B		7	10	5			MAN04

Comet C/2000 WM1 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 16.54		B	5.9	TT	5.0	B		7	8	6	1	65	MAT08
2001 12 16.54	x	M	5.8	TT	4.0	B		8	10	6			PEA
2001 12 16.54	x	M	5.9	TT	8.0	B		20	9.5	6	1.0	48	PEA
2001 12 16.79	$	S	5.5	TJ	5.0	B		7	8	5	0.5	35	GON05
2001 12 17.01		S	5.1	HD	10	B		14	12	6/	0.4		ARQ
2001 12 17.01		S	5.6	YG	8.0	B		11	15	5	0.48		DES01
2001 12 17.02		S	5.5	HV	5.0	B		12	13	6			YUM
2001 12 17.24		M	5.7	TK	5.0	B		10	11	4			LIN04
2001 12 17.39	xw	S	5.6	TJ	8.0	B		11	9	6/	0.5	60	NAG08
2001 12 17.45		S	5.6	AA	0.0	E		1					SEA
2001 12 17.54		B	6.0	TT	5.0	B		7	7	6	>1	60	MAT08
2001 12 17.80	$	S	5.5	TJ	8.0	B		11	8	5		35	GON05
2001 12 18.00		S	5.5	YG	8.0	B		11	15	5/	0.48		DES01
2001 12 18.06		S	5.5	S	5.0	B		7	10	4			MAN04
2001 12 18.21		M	5.7	TK	5.0	B		10	12	4	20 m	65	LIN04
2001 12 18.40	xw	M	5.9	TT	3.5	B		7	12	5			YOS02
2001 12 18.42		S	5.6	AA	0.0	E		1					SEA
2001 12 19.00		S	5.6	HV	5.0	B		12	12	6	0.3	75	YUM
2001 12 19.03		S	5.4	S	5.0	B		7	12	4			MAN04
2001 12 19.38	xw	S	5.5	TJ	8.0	B		11	9	6/			NAG08
2001 12 19.40		B	5.6	TJ	5.0	B			16	6			KEM01
2001 12 19.45		S	5.6	AA	0.0	E		1					SEA
2001 12 19.95		S	5.6	HV	5.0	B		12	9	5/			YUM
2001 12 19.96		S	5.7	YG	8.0	B		20	10	6	0.5	65	AMO01
2001 12 19.97		S	5.6	YG	5.0	B		7	16	6			AMO01
2001 12 19.98		S	5.8	TJ	5.0	B		10	8	0			AGU
2001 12 20.01		S	5.6	YG	8.0	B		11	15	6	0.55		DES01
2001 12 20.28		M	5.9	TK	5.0	B		10	8	4			LIN04
2001 12 20.50		B	5.6	TJ	5.0	B		7	10	6/			FAR01
2001 12 20.58		B	6.1	TT	5.0	B		7	6	6			MAT08
2001 12 21.52		B	6.1	TT	5.0	B		7	5	6			MAT08
2001 12 23.03		M	5.8	S	5.0	B		7	8	6			MAN04
2001 12 23.11		M	6.0:	TT	5.0	B		7	10	6			BAL07
2001 12 23.37	x$	S	5.9	TJ	10.0	B		20	5	6/			NAG08
2001 12 23.96		S	5.9	YG	8.0	B		20	6	6	0.25	70	AMO01
2001 12 23.97		S	5.8	YG	5.0	B		7	9	6/			AMO01
2001 12 24.04		M	6.1	S	5.0	B		7	8	6			MAN04
2001 12 24.93		S	5.8	YG	8.0	B		11	15	5/			DES01
2001 12 24.97		S	5.8	YG	8.0	B		20	5	6			AMO01
2001 12 24.98		S	5.7	YG	5.0	B		7	9	6/			AMO01
2001 12 25.48		B	6.3	TT	5.0	B		7	4	7			MAT08
2001 12 25.92		S	5.8	YG	8.0	B		11		5/			DES01
2001 12 26.07		M	6.4	S	5.0	B		7	6	6			MAN04
2001 12 26.99		S	5.9	YG	8.0	B		11	16	6	0.48		DES01
2001 12 27.48		B	6.2	TT	5.0	B		7	4	7			MAT08
2002 01 01.45		B	5.8	AA	5.0	B		10					SEA
2002 01 04.48		B	5.6	TJ	4.0	B		8	6	6	40 m	70	FAR01
2002 01 04.49		B	5.4	TJ	5.0	B		12	8	7	60 m	70	FAR01

Comet C/2001 A2 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 03 31.80		M	7.4	TT	10	B	4	25	4.6	3			LEH
2001 04 01.81		M	7.6	TT	20	L	4	42	4	3			LEH
2001 04 02.80		M	7.4	TT	10	B	4	25	4.5	3/			LEH
2001 04 12.80		M	7.8	TT	20	L	4	42	5.5	4			LEH
2001 04 14.00		S	7.7	HV	8.0	B		20	6				MIL02
2001 05 06.47	x	S	5.8	TT	4.0	B		8	7	6			PEA
2001 05 06.47	x	S	6.0	TT	8.0	B		20	6.5	6	0.4	120	PEA
2001 05 09.48	x	S	6.1	TT	4.0	B		8	8.5	6			PEA
2001 05 09.48	x	S	6.2	TT	8.0	B		20	6.5	6	0.28	133	PEA
2001 05 11.44	x	S	5.3	TT	8.0	B		20	7	6	0.42	130	PEA
2001 05 13.49	x	S	5.2	TT	8.0	B		20	6	6/	0.87	132	PEA
2001 05 13.49	x	S	5.3	TT	4.0	B		8	6	6			PEA
2001 05 14.49	x	S	5.4	TT	4.0	B		8	6	6			PEA

Comet C/2001 A2 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 05 14.49	x	S	5.4	TT	8.0	B		20	5.5	6/	0.7	135	PEA
2001 05 15.49	x	S	5.4	TT	8.0	B		20	7	6	0.7	130	PEA
2001 05 20.44	x	S	5.4	TT	4.0	B		8	7	7			PEA
2001 05 20.44	x	S	5.4	TT	8.0	B		20	6.5	6	0.57	139	PEA
2001 05 21.44	x	S	5.4	TT	4.0	B		8	6	7			PEA
2001 05 21.44	x	S	5.4	TT	8.0	B		20	5.5	6/	1.0	141	PEA
2001 05 22.46	x	S	5.2	TT	8.0	B		20	6	6	0.9	147	PEA
2001 05 23.45	x	S	5.2	TT	8.0	B		20	7	6	1.0	149	PEA
2001 05 26.44	x	S	5.0	TT	4.0	B		8	9	7			PEA
2001 05 26.44	x	S	5.2	TT	8.0	B		20	8	6	1.1	157	PEA
2001 05 27.44	x	S	5.0	TT	4.0	B		8	8	7			PEA
2001 05 27.44	x	S	5.1	TT	8.0	B		20	7.5	6	1.3	161	PEA
2001 05 28.44	x	S	5.1	TT	8.0	B		20	7	6	1.1	155	PEA
2001 05 31.44	x	S	4.8	TT	4.0	B		8	8.5	7/			PEA
2001 05 31.44	x	S	4.8	TT	8.0	B		20	7.5	7	1.5	170	PEA
2001 06 02.44	x	S	4.7	TT	8.0	B		20		7			PEA
2001 06 04.44	x	S	4.8	TT	4.0	B		8	9.5	7/			PEA
2001 06 04.44	x	S	4.9	TT	8.0	B		20	7.5	7	0.87	164	PEA
2001 06 06.90	x	S	4.6	TT	8.0	B		20	7	7			PEA
2001 06 11.91	x	B	3.6	TT	4.0	B		8	14	7/			PEA
2001 06 11.91	x	B	3.6	TT	8.0	B		20	12	7	1.7	192	PEA
2001 06 11.91	x	I	3.6	TT	0.0	E		1		9			PEA
2001 06 12.91	x	B	3.3	TT	4.0	B		8	12	7/			PEA
2001 06 12.91	x	B	3.4	TT	8.0	B		20	13	7	3.3	208	PEA
2001 06 12.91	x	S	3.3	TT	0.0	E		1	24	8			PEA
2001 06 17.91	x	B	4.3	TT	4.0	B		8	13	7			PEA
2001 06 17.91	x	B	4.3	TT	8.0	B		20	12	6	0.5	217	PEA
2001 06 17.91	x	S	4.5	TT	0.0	E		1		8			PEA
2001 06 18.91	x	B	4.5	TT	4.0	B		8	14	6			PEA
2001 06 18.91	x	I	4.5	TT	0.0	E		1		8			PEA
2001 06 19.90	x	B	4.6	TT	4.0	B		8	14	7	2.1	217	PEA
2001 06 23.91	x	B	4.1	TT	4.0	B		8	22	6	2.5	236	PEA
2001 06 23.91	x	S	4.1	TT	0.0	E		1	26	7			PEA
2001 06 27.01		S	4.4	AA	6.0	B		15	15	6			KORO1
2001 06 28.04		M	4.8:	TT	10	B	4	25	8	3			LEH
2001 06 28.04		S	4.5	AA	6.0	B		15	15	6			KORO1
2001 06 29.04		S	4.6	AA	6.0	B		15	15	6			KORO1
2001 07 01.05		S	4.7	AA	6.0	B		15	15	6			KORO1
2001 07 01.83	x	B	4.9	TT	4.0	B		8	16	6			PEA
2001 07 01.83	x	S	4.8	TT	0.0	E		1		7			PEA
2001 07 02.06		S	4.9	TI	7.0	B		11	15	5			MIC
2001 07 04.05		S	4.8	AA	6.0	B		15	10	6			KORO1
2001 07 05.02		M	4.5	TT	5.0	B		10	20	3			KUBO1
2001 07 05.02		S	5.1	AA	15	V	5	38	10	6			MERO4
2001 07 06.02		S	5.3	AA	10	R	6	34	8	4			MERO4
2001 07 08.03		S	4.9	TI	7.0	B		11	16	3			MIC
2001 07 08.05		S	6.2	HV	8.0	B		20	6				MIL02
2001 07 12.06		S	6.0	TT	5.0	B		7	15	6			SVE
2001 07 13.91		M	4.8	TT	8.0	B		10	19	4			KUBO1
2001 07 13.95		B	5.5	SC	5.0	B		10	8.5	7	0.75	240	BON
2001 07 14.91		S	6.3	TT	5.0	B		7	41	6/			SVE
2001 07 14.99		M	4.9	TT	8.0	B		10	18	6			KUBO1
2001 07 15.97		B	6.5	SC	5.0	B		10	6.5	7			BON
2001 07 16.97		S	5.3	TJ	8.0	R	5	16	&13	5			GIL01
2001 07 20.85		S	6.2	AC	3.0	M		10	5	3			PUS
2001 07 21.89		M	6.0	TT	5.0	B		10	16	4			KUBO1
2001 07 21.94		S	6.8	TT	5.0	B		7	21	6	0.9		SVE
2001 07 21.96		S	7.2	HV	8.0	B		20	7	3			MIL02
2001 07 22.89		M	5.8	TT	8.0	B		10	17	6			KUBO1
2001 07 22.91		B	7.1	SC	5.0	B		10	10	1/			BON
2001 07 23.94		B	7.4	SC	5.0	B		10		3			BON
2001 07 25.94		B	7.4	SC	5.0	B		10	12.5				BON
2001 07 26.89		S	6.4	AA	10	R	6	34	20	4			KORO1
2001 07 28.87		S	6.7	AA	10	R	6	34	17	3/			KORO1
2001 07 29.01		M	7.2	TT	5.0	B		20	11	4			KUBO1

Comet C/2001 A2 (LINEAR) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 07 29.90		S	6.8	AA	10	R	6	34	15	3/			KORO1
2001 07 30.87		M	7.1	TT	10	B	4	25	12	5			KUBO1
2001 07 30.88		S	6.9	AA	10	R	6	34	15	3/			KORO1
2001 08 01.90		S	7.2	AA	10	R	6	34	12	3			KORO1
2001 08 02.85		S	7.2	AA	10	R	6	34	12	3			KORO1
2001 08 02.93		M	7.8	TT	10	B	4	25	5	3			KUBO1
2001 08 03.84		S	7.3	AA	10	R	6	34	11	3			KORO1
2001 08 05.82		S	7.5	AA	24	L	5	42	9	3			KORO1
2001 08 05.85		S	7.7	AA	24	L	5	42	6	2/			MERO4
2001 08 06.84		S	7.5	AA	10	R	6	60	10	3			KORO1
2001 08 07.83		S	7.6	AA	10	R	6	60	9	3			KORO1
2001 08 08.90		S	7.7	AA	10	R	6	60	10	3			KORO1
2001 08 09.87		S	7.7	AA	10	R	6	60	10	3			KORO1
2001 08 09.90		B	8.3	TI	5.0	B		10	5				CERO1
2001 08 09.95		B	8.3	TJ	5.0	B		7	6	4			CHEO3
2001 08 10.93		B	8.5	TJ	5.0	B		7	6	4			CHEO3
2001 08 11.85		S	7.8	AA	10	R	6	60	9	3			KORO1
2001 08 12.89		S	7.8	AA	10	R	6	60	9	3			KORO1
2001 08 13.90		S	7.9	AA	10	R	6	60	8	3			KORO1
2001 08 14.83		S	8.7	AA	10	R	6	60	7	2			KORO1
2001 08 14.84		M	8.9	TT	10	B	4	25	5	4			KUBO1
2001 08 15.86		S	8.9	AA	10	R	6	60	6	2/			KORO1
2001 08 15.90		B	8.1:	TJ	5.0	B		7					CHEO3
2001 08 16.88		S	9.1	AA	10	R	6	60	5	2			KORO1
2001 08 18.89		S	9.2	AA	10	R	6	60	7	2			KORO1
2001 08 18.91		B	9.1	TJ	5.0	B		7	5	1			CHEO3
2001 08 19.90		S	9.2	AA	10	R	6	60	7	2			KORO1
2001 08 21.88		S	9.4	AA	10	R	6	60	6	1/			KORO1
2001 08 22.85		B	9.4:	TJ	5.0	B		7	3	1			CHEO3
2001 08 22.92		S	9.6	AA	10	R	6	60	5	1/			KORO1
2001 08 23.87		M	10.3	TI	10	B		25	3.5	1			KUB
2001 08 23.90		S	9.9	AA	25	L	6	85	5	2			KORO1
2001 08 24.83		M	10.2	TT	42	L	4	66	3	3			KUBO1
2001 08 24.86		M	10.3	TI	10	B		25	3.5	1			KUB
2001 08 25.88		S	10.2	GA	25	L	6	85	3.5	1/			KORO1
2001 08 26.85		M	10.6	TT	42	L	4	66	2	3			KUBO1
2001 08 26.93		S	10.4	GA	25	L	6	85	3	1			KORO1
2001 08 27.91		S	10.5	GA	25	L	6	85	3	1			KORO1
2001 08 29.90		S	10.6	GA	25	L	6	85	2	1/			KORO1
2001 08 30.89		S	10.7	GA	25	L	6	85	2.5	1/			KORO1
2001 08 31.91		S	10.9	GA	25	L	6	85	2	1/			KORO1
2001 09 02.90		S	11.2	GA	40	L	5	130	2	1			KORO1
2001 09 03.92		S	11.2	GA	40	L	5	130	1.5	1			KORO1
2001 09 04.89		S	11.3	GA	40	L	5	130	1.5	1/			KORO1
2001 09 07.87		S	11.7	GA	40	L	5	130	1.2	1			KORO1
2001 09 08.89		S	11.8	GA	40	L	5	130	1.3	1			KORO1
2001 09 11.88		S	12.2	GA	35	L	5	172	1.2	1			KORO1
2001 09 12.89		S	12.5	GA	35	L	5	172	1.1	1			KORO1
2001 09 13.85		S	12.5	GA	35	L	5	172	1.3	1			KORO1
2001 09 14.85		S	12.6	GA	35	L	5	172	1.2	1			KORO1
2001 09 15.86		S	12.6	GA	35	L	5	172	1.8	1/			KORO1
2001 09 16.84		S	12.6	GA	35	L	5	172	1.9	1/			KORO1
2001 09 18.85		S	12.7	GA	35	L	5	172	1.6	1/			KORO1
2001 09 19.83		S	12.7	GA	35	L	5	172	1.5	1/			KORO1
2001 09 20.84		S	12.7	GA	35	L	5	172	1.5	2			KORO1
2001 09 21.83		S	12.8	GA	35	L	5	172	1.5	1/			KORO1
2001 09 22.85		S	12.8	GA	35	L	5	172	1.4	1/			KORO1
2001 09 26.88		S	13.1	GA	40	L	5	232	1.2	1			KORO1
2001 09 27.88		S	13.1	GA	40	L	5	232	1.1	1			KORO1
2001 09 28.87		S	13.2	GA	40	L	5	232	1	1			KORO1
2001 10 12.76		M	12.5	HS	42	L	5	81	1.2	3/			LEH
2001 10 12.83		S	13.0	HS	35	L	5	158	2.0	1			HORO2
2001 10 13.76		M	12.6	HS	42	L	5	81	1	3			LEH
2001 10 13.84		S	12.9	HS	35	L	5	158	1.9	1			HORO2
2001 10 14.78		M	12.6	HS	42	L	5	162	1.2	3			LEH

Comet P/2001 Q6 (NEAT) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 08.39	xa	C	14.0	HV	35.0	C	9	a120	0.7	5	1.8m	32	TSU02
2001 12 12.88		c	15.5	UO	35.5	L	5	a120	+ 0.2		0.02	33	LIG
2001 12 16.75		c	15.6	UO	35.5	L	5	a120	+ 0.2		0.02	38	LIG
2001 12 18.75		c	15.8	UO	35.5	L	5	a120	+ 0.2		0.02	30	LIG

Comet P/2001 R1 (LONEOS)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 12.58	x	C	15.9	HV	35.0	C	9	a600	0.3	3			TSU02

Comet P/2001 R6 (LINEAR-Skiff)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 10.61	x	C	17.0	HV	35.0	C	9	a720	0.4	4			TSU02
2001 11 21.52	a	C	17.8	GA	60.0	Y	6	a240	0.3				NAK01
2001 12 19.52		C	18.1:	GA	60.0	Y	6	a240	0.4				NAK01

Comet C/2001 RX14 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 07.47		C	17.7	GA	40.0	L	6	a180	< 0.15	9			AKA
2001 11 16.46	x	C	18.1	HV	35.0	C	9	a900	0.2	6			TSU02
2001 11 20.60		C	17.4	GA	60.0	Y	6	a240		9			NAK01
2001 12 07.50	x	C	16.6	HV	35.0	C	9	a120	0.15	8			TSU02
2001 12 18.51		C	17.0	GA	60.0	Y	6	a240		9			NAK01

Comet P/2001 T3 (NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 20.59		C	17.4	GA	60.0	Y	6	a240	0.35				NAK01
2001 12 11.53	x	C	15.4	HV	35.0	C	9	a240	0.8	4			TSU02
2001 12 18.50		C	17.3	GA	60.0	Y	6	a240	0.35				NAK01

Comet C/2001 T4 (NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 21.54		C	19.3	GA	60.0	Y	6	a240	0.2				NAK01

Comet P/2001 TU80 (LINEAR-NEAT)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 18.67		C	16.9	GA	60.0	Y	6	a240	0.5				NAK01

Comet C/2001 W1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 21.66	a	C	18.0	GA	60.0	Y	6	a240	0.35				NAK01
2001 12 18.70		C	17.1	GA	60.0	Y	6	a240	0.45				NAK01

Comet C/2001 W2 (BATTERS)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 11 22.37	w	H	13.1	LA	50.0	C	12	C600	0.8	5	2.3m	32	FUK02
2001 11 22.39	a	C	13.2	GA	60.0	Y	6	a 60	1.6				NAK01
2001 11 22.41		C	13.9	TJ	18.0	L	6	a 60	0.6		0.5m	38	KAD02
2001 11 22.42		C	14.4	GA	40.0	L	6	a 30	0.6		1.5m	39	AKA
2001 11 22.45		C	13.9	HS	30.0	L	6	a 30	0.4	5			EZA
2001 11 23.38	x	C	13.8	HV	35.0	C	9	a 60	0.4	4	2.0m	26	TSU02
2001 11 24.38	x	C	12.9	HV	35.0	C	9	a 60	1.0	5	1.2m	29	TSU02
2001 11 24.41		C	13.3	HS	30.0	L	6	a 30	0.4	6			EZA
2001 11 28.39		C	12.7	GA	60.0	Y	6	a 60	1.2		2.4m	32	NAK01
2001 12 01.38		C	13.8	TJ	30.0	L	6	a 30	0.4	7	?		EZA
2001 12 08.35		C	11.7	TJ	18.0	L	6	a540	1.0		2.9m	31	KAD02
2001 12 08.37	x	C	12.0	HV	35.0	C	9	a 60	0.8	6	5.0m	29	TSU02
2001 12 10.37	xa	C	11.8	HV	35.0	C	9	a 60	0.8	6	2.8m	37	TSU02

Comet C/2001 W2 (BATTERS) [cont.]

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 12.36		L	13.4	TJ	30.0	L	6	a 60	0.6	8	?		EZA
2001 12 12.36		V	12.9	TJ	30.0	L	6	a 60	0.6	8	1.0m	30	EZA
2001 12 12.38		C	12.9	TJ	30.0	L	6	a 60	0.6	8	2.0m	30	EZA
2001 12 14.36	w	H	11.7	LA	50.0	C	12	A440	0.7	6	3.0m	25	FUK02
2001 12 15.36		C	13.1	TJ	18.0	L	6	a 60	0.6		3.3m	25	KAD02
2001 12 22.36		C	13.5	TJ	18.0	L	6	a360	0.6		1.0m	20	KAD02

Comet C/2001 X1 (LINEAR)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 15.80		C	14.5	TJ	18.0	L	6	a120	1.0		2.0m	302	KAD02
2001 12 17.84		C	14.7	TJ	18.0	L	6	a 90	0.9		0.5m	300	KAD02
2001 12 26.81		C	13.8	TJ	18.0	L	6	a420	1.6		12 m	303	KAD02
2002 01 03.77	w	H	14.1	LA	50.0	C	12	A500	0.6	3	6.6m	308	FUK02
2002 01 03.79	w	V	14.6	LA	50.0	C	12	a900	0.6	3	6.6m	308	FUK02

Comet P/2001 X2 (Scotti)

DATE (UT)	N	MM	MAG.	RF	AP.	T	F/	PWR	COMA	DC	TAIL	PA	OBS.
2001 12 18.65		C	19.1	GA	60.0	Y	6	a240	0.2				NAK01

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CORRIGENDA

J. N. Marcus has alerted us to some revisions to his obituary on J. M. Greenberg in the October 2001 issue, pp. 153-155. In the fifth paragraph on page 153, third line, the sizes of the interstellar-grain *should read* 0.2 μm × 0.4 μm (not 0.2 mm × 0.4 mm). The Greenberg *et al.* (2000) reference should read as follows:

Greenberg, J. M.; J. S. Gillette; G. M. Muñoz Caro; T. B. Mahajan; R. N. Zare; A. Li; W. A. Schutte; M. de Groot; and C. Mendoza-Gomez (2000). "Ultraviolet photoprocessing of interstellar dust mantles as a source of polycyclic aromatic hydrocarbons and other conjugated molecules", *Astrophys. J.* **531**, L71-L73.

Marcus also adds that Greenberg was a co-investigator on the COSIMA and COSAC instruments on the ROSETTA probe, which is scheduled to sample the nucleus of 46P/Wirtanen in 2012.

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DESIGNATIONS OF RECENT COMETS

Listed on page 142, for handy reference, are the last 50 comets to have been given designations in the new system. The name, preceded by a star ($\star$) if the comet was a new discovery (compared to a recovery from predictions of a previously-known short-period comet) or a # if a re-discovery of a 'lost' comet. Also given are such values as the orbital period (in years) for periodic comets, date of perihelion, T (month/date/year), and the perihelion distance (q, in AU). Four-digit numbers in the last column indicate the *IAU Circular* (4-digit number) containing the discovery/recovery or permanent-number announcement.

Not included below are numerous recently-discovered comets observed only with the SOHO spacecraft — and seen only close to the sun with the SOHO instruments — most of which are presumed to be no longer in existence. Earlier lists and references to such comets appeared in the October 2001 issue (p. 198) and references therein. Maik Meyer and Brian G. Marsden recently showed that there are apparently at least two groups of these small-q SOHO comets besides the famous Kreutz sungrazers (see *IAUC* 7832; note that some earlier comets noted on these pages have been placed into one or the other of the two new groups). Recent SOHO discoveries were reported on *IAUC* 7797, 7807, 7839, 7841, 7842, 7850, 7853, 7854, 7862, 7863, 7873, 7882, 7886, 7897, 7898, 7899, 7909, 7913, 7916, 7918, 7919, 7922, 7930, and 7931, and include the following comets (Kreutz unless noted 'Me' for Meyer group, 'Ma' for Marsden group, or * for no apparent membership in either of these three groups): C/1996 Y2; C/1997 G7 (Me), H4 (Me), H5 (Me), O2 (Me), S4 (*), U8 (Me), U9 (Me); C/1998 A2 (Ma), A3 (Ma), A4 (Ma), H5, H6, V8 (Me), V9, W7 (Me), X12; C/1999 F3 (Me), H8, H9, J13, K16 (Me), K17, L9 (Me), M3 (Ma), N5 (Ma), N6 (Ma), P6 (Ma), P7 (Me), P8 (Ma), P9 (Ma), W2; C/2000 B8 (Me), C7, F2, F3, T6, T6, X9 (Me), H6, H7, J8 (Me), N4 (Me); C/2001 H8, J5, K10, X4, X5, X6, X7, X8 (Me), X9, Y2, Y3, Y4, Y5; C/2002 A4 (Me), C3, C4, D1, E1, E3, F2, F3, G1 (*), G2, G3 (*), G4, G5, H1, H3, H4, H5, H6, J1, J2, J3, J6, J7, J8, K3, K5, K6, K7, L1, L2, L3, L4, L5, L6, L7, L8, M1, and M2.

[This list updates that in the October 2001 issue, p. 198. For explanation regarding new usage of 'C/' instead of 'P/' for intermediate-period comets, see editorial note on page 2 of the January 2000 issue.]

DESIGNATIONS OF RECENT COMETS

[cont. from page 141]

	New-Style Designation	*P*	*T*	*q*	*IAUC*
	151P/2001 M1 (Helin)	14.1	9/23/01	2.53	7648
⋆	C/2001 M10 (NEAT)	138	6/20/01	5.29	7654
⋆	P/2001 MD_7 (LINEAR)	7.91	11/30/01	1.25	7660
⋆	C/2001 N2 (LINEAR)		8/19/02	2.67	7661
⋆	C/2001 O2 (NEAT)		10/18/99	4.8	7673
⋆	C/2001 Q1 (NEAT)		9/21/01	5.8	7685
⋆	P/2001 Q2 (Petriew)	5.50	9/1/01	0.95	7686
	39P/2001 P3 (Oterma)	19.5	12/22/02	5.47	7689
⋆	C/2001 Q4 (NEAT)		5/16/04	1.00	7695
⋆	P/2001 Q5 (LINEAR-NEAT)	6.55	6/11/01	2.04	7697
⋆	P/2001 Q6 (NEAT)	22.6	11/9/01	1.41	7698
⋆	P/2001 R1 (LONEOS)	6.5	2/17/02	1.36	7713
⋆	P/2001 R6 (LINEAR-Skiff)	8.35	10/27/01	2.12	7723
⋆	C/2001 RX_{14} (LINEAR)		1/18/03	2.06	7739
⋆	C/2001 S1 (Skiff)		6/2/01	3.75	7725
⋆	P/2001 T3 (NEAT)	16.6	2/1/02	2.51	7733
⋆	C/2001 T4 (NEAT)	51.9	5/15/02	8.6	7738
⋆	P/2001 TU_{80} (LINEAR-NEAT)	7.00	12/10/01	1.93	7753
⋆	C/2001 U6 (LINEAR)		8/8/02	4.41	7746
⋆	C/2001 W1 (LINEAR)		12/24/01	2.40	7754
⋆	C/2001 W2 (BATTERS)	75.0	12/23/01	1.05	7758
⋆	C/2001 X1 (LINEAR)		1/8/02	1.70	7774
⋆	P/2001 X2 (Scotti)	7.34	10/14/01	3.42	7775
#	11P/2001 X3 (Tempel-Swift-LINEAR)	6.37	12/30/01	1.58	7778
⋆	C/2002 A1 (LINEAR)	77.7	12/3/01	4.71	7788
⋆	C/2002 A2 (LINEAR)	76.6	12/9/01	4.71	7788
	152P/2001 Y1 (Helin-Lawrence)	9.52	12/22/02	3.11	7790
⋆	C/2002 A2 (LINEAR)		4/24/02	5.15	7799
⋆	C/2002 C1 (Ikeya-Zhang)		3/18/02	0.51	7812
⋆	C/2001 OG_{108} (LONEOS)	48.5	3/15/02	0.99	7814
⋆	C/2002 C2 (LINEAR)		4/10/02	3.25	7815
⋆	C/2002 B1 (LINEAR)	31.2	4/20/02	2.27	7817
⋆	C/2002 B2 (LINEAR)		4/6/02	3.84	7821
⋆	C/2002 B3 (LINEAR)		1/14/02	6.05	7826
⋆	P/2001 WF_2 (LONEOS)	5.01	1/29/02	0.98	7827
⋆	P/2001 YX_{127} (LINEAR)	8.54	3/6/03	3.42	7828
⋆	C/2002 E2 (Snyder-Murakami)		2/21/02	1.47	7850
⋆	C/2002 F1 (Utsunomiya)		4/22/02	0.44	7854
⋆	P/2002 CW_{134} (LINEAR)	6.84	2/28/02	1.84	7858
⋆	P/2002 AR_2 (LINEAR)	12.4	1/16/02	2.06	7869
⋆	C/2002 H2 (LINEAR)		3/23/02	1.63	7883
⋆	C/2000 S5		10/27/00	0.6	7885
⋆	P/2002 EJ_{57} (LINEAR)	16.5	12/19/01	2.64	7890
⋆	P/2002 BV (Yeung)	6.59	3/11/02	2.24	7896
⋆	C/2002 J4 (NEAT)		10/3/03	3.63	7899
⋆	C/2002 K1 (NEAT)		6/16/02	3.23	7902
⋆	C/2002 J5 (LINEAR)		9/19/03	5.73	7904
⋆	C/2002 K2 (LINEAR)		1/6/02	5.24	7904
⋆	P/2002 JN_{16} (LINEAR)	6.50	7/27/02	1.79	7907
⋆	C/2002 K4 (NEAT)	75.0	7/13/02	2.77	7909