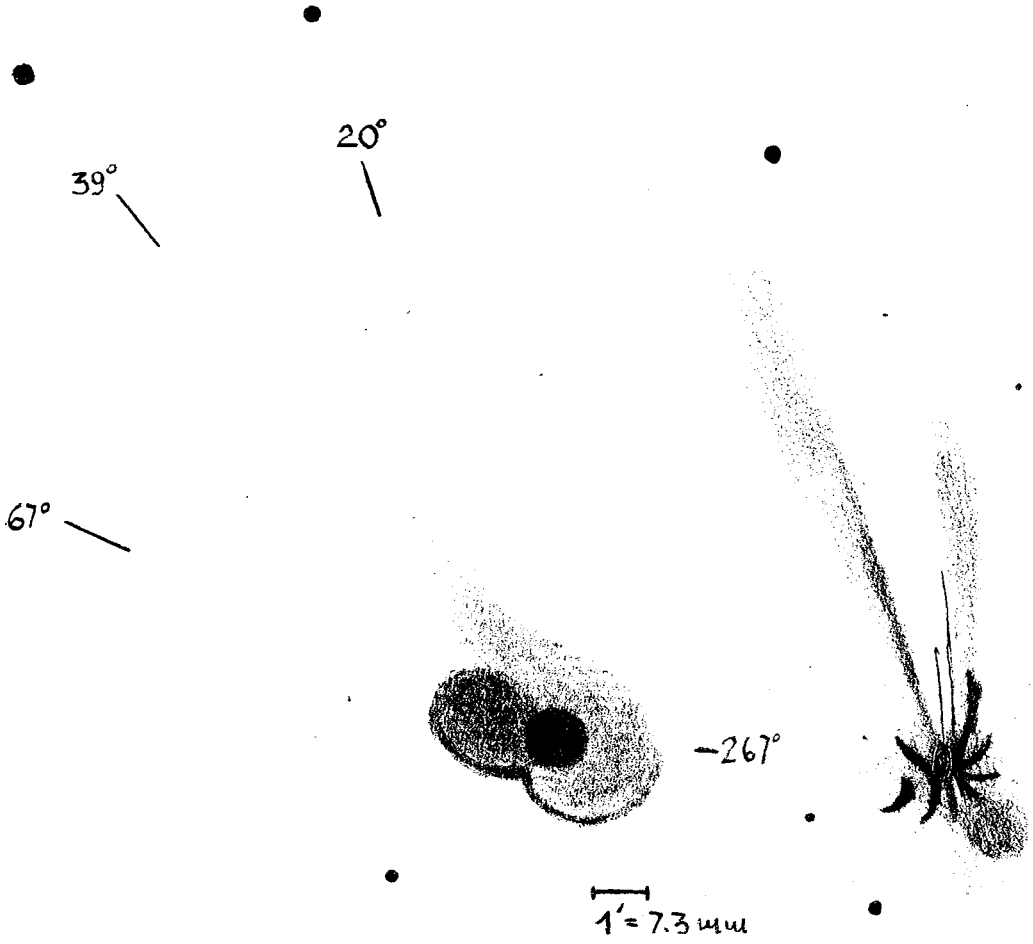
THE INTERNATIONAL COMET QUARTERLY

WHOLE NUMBER 43 JULY 1982 Vol. 4, No. 3

# COMET AUSTIN 1982G

1982 Aug. 22.84 UT
Drawing by M. Cavagna
10" f/3.9 reflector, 79x

1982 Aug. 26.04 UT
Drawing by Alain Porter
9" Clark f/12 refractor

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All cometary observations should be sent to C. S. Morris; Prospect Hill Rd.; Harvard, MA 01451, U.S.A. Back issues are available from Dr. T. L. Rokoske, Dept. of Physics and Astronomy; A.S.U.; Boone, NC 28608, U.S.A.



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## RECENT NEWS CONCERNING COMETS

On June 18, Rodney R. D. Austin, an amateur astronomer living in New Plymouth, New Zealand, and using a 15-cm f/8 refractor at 18 power, discovered a 10th-magnitude comet in the southern constellation Horologium (declination $-40^\circ$).

Comet Austin 1982g brightened gradually to at least total visual magnitude 4.5 in mid-August, as it passed some 30 million miles from the earth on August 10 and passed perihelion on August 24 at a distance of 0.65 AU. The first record of a tail is a photograph taken by David Herald on July 17.73 UT, upon which he noted a faint tail some 4 arcmin long in p. a. $\sim 230^\circ$. A 6-min exposure by Herald exactly 2 weeks later indicated length 9′ in the same position angle. Spectroscopic observations by the International Ultraviolet Explorer (IUE) satellite and by Curtis McCracken and Larry Brown, Goddard Space Flight Center, confirm the photographic and visual appearance of a long, thin ion tail (as opposed to a dust-type tail) in mid-August.

A. Pearce (Woodlands, Western Australia) followed comet 1982g from June 21 until August 3, noting a prominant central condensation from about July 1 onwards. Visual observers, including Pearce, D. A. J. Seargent (The Entrance, New South Wales, Australia), Maurice Clark (Tambellup, Western Australia), and V. F. de Assis

(Continued on page 56)

# J. G. PORTER (1900 - 1981)

John Guy Porter, author of Comets and Meteor Streams (1952) and Catalogue of Cometary Orbits (1961), died last year at the age of 80. As Director of the Computing Section of the British Astronomical Association for more than two decades, he almost single-handedly elevated the BAA Handbook to a standard that it has not achieved before or since. For many years the Handbook was the international source of data on the predicted orbits and ephemerides of comets, not to mention on the phenomena of Saturn's satellites and the mutual phenomena of Jupiter's satellites.

I am proud to have been one of JGP's band of workers during the latter half of the 1950s, a time when these extensive computations had to be done on hand-cranked machines or even -- horrors! -- by logarithms. (How many readers of the ICQ have ever made use of addition-and-subtraction logarithms?) But he was intimately familiar with all the methods ever devised for computing perturbations on the orbits of comets, and he trained us well, always impressing upon us the overriding importance of accuracy in all our work. During the past quarter of a century the art of computing has undergone more far-reaching changes than during all its previous history. It is only right that we should make use of these technological improvements. But this does not mean that any ignoramus should expect the canned program on his modern computer automatically and immediately to yield the correct answer to any astronomical problem. I have never for a moment regretted the experience of tracking a comet around its orbit, with the step-by-step attractions of Jupiter and Saturn being entered in an old-fashioned squared notebook and the numerical integrations necessary for producing the final result carefully recorded on oversize sheets of paper; all of this was under Porter's kindly guidance.

Comets and Meteor Streams is an excellent introduction to the basic physics and elementary mathematics of these phenomena, and I still recommend it to the novice who wants to know how to calculate an ephemeris. Porter's paper on the differential correction of orbits, published in 1949, is also still a worthwhile reference to the present-day student who thinks the next return of a comet can be predicted solely from a correct-to-the-last-place, least-squares fit to the observations at the last -- without any consideration whatsoever of the comet's observational history before that. In his preparation of the 1961 orbit catalogue, Porter did the most thorough piece of research of its type during the present century. The outcome was the most comprehensive such publication since Galle's orbit catalogue of 1894 -- which contained just half the number of entries! Except for a small catalogue published in the 1840s by Benjamin Peirce, Porter's was the first one in which all the orbits were referred to the same standard equinox. The file cards prepared by Porter were the basis for my own catalogues of orbits of the 1970s and 1980s. From 1954 to 1966, Porter wrote the very useful annual reports on comets in the Monthly Notices and Quarterly Journal of the Royal Astronomical Society; he also prepared shorter notes for The Observatory magazine, of which he served as chief editor from 1954 to 1960.

Professionally, Porter spent the first 30 years of his career as a high-school teacher of chemistry and mathematics. Only then did he take a senior position at the British Nautical Almanac Office. He also served for nine years as Chairman of IAU Commission 20's Working Group on Comets. His monthly radio program, "The Night Sky", made J. G. Porter one of the two or three best known astronomers in England during the 1950s. Like his other astronomical popularizations, "The Night Sky" was an informative and inspirational masterpiece of art and science -- a profound contrast to the brash astronomical popularizations of today.

-- Brian G. Marsden

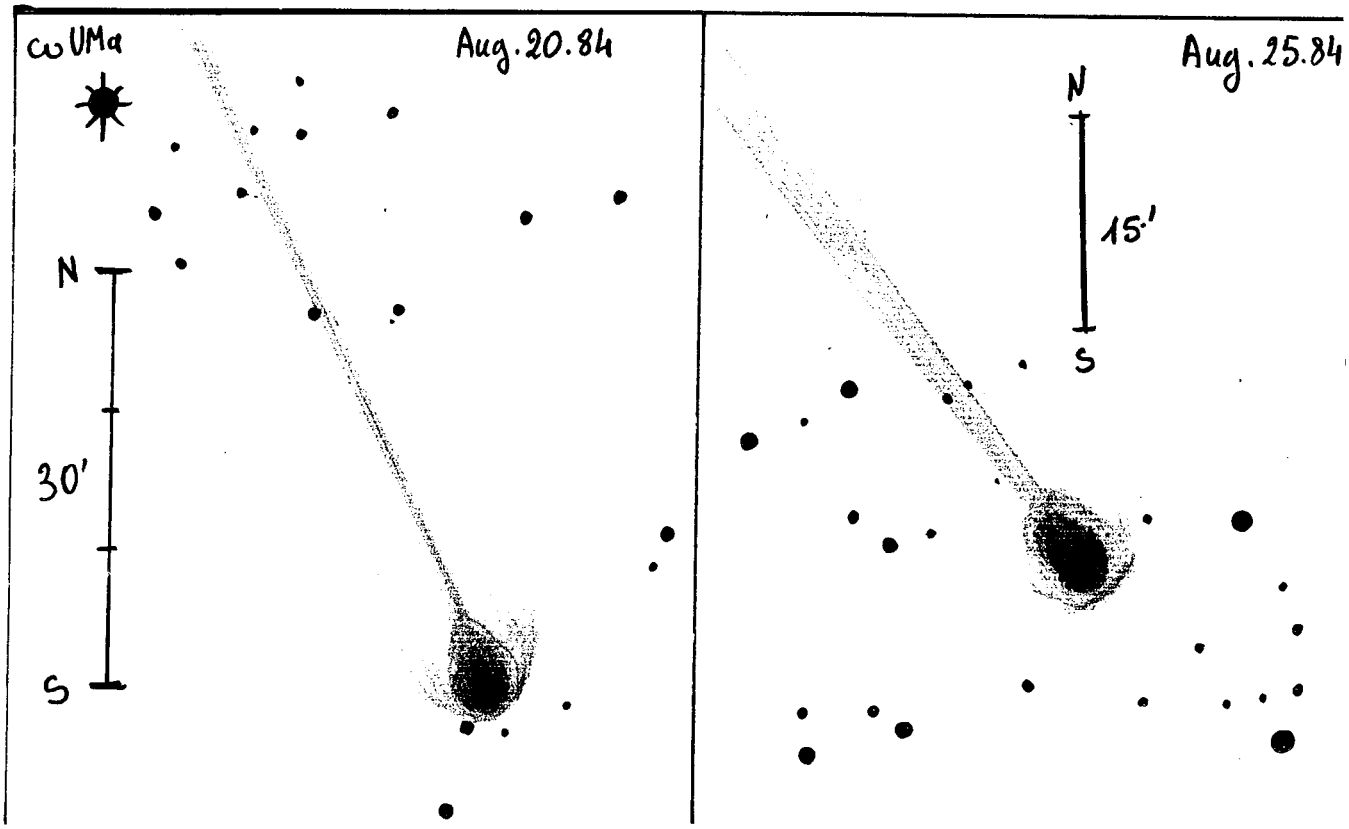
RECENT NEWS CONCERNING COMETS (cont. from page 54)

Neto (São Francisco de Oliveira, Brazil), found the tail to become quite noticeable, somewhat suddenly, during the last days of July and the first few days of August.

Around the time of closest approach to the earth, the comet was poorly placed for observation, being in very strong twilight for both northern- and southern-hemisphere observers as the object moved some four degrees per day northward across the celestial equator. No observations were made (at least none reported thus far) during the period August 10-14.

As the comet moved well north of the sun, northern hemisphere observers were treated to a nice view of the long, faint tail. Reports of numerous jets in the comet's coma (reports of the diameter of the faint outer coma go as high as 14'-15', by C. Spratt and Dennis Cassia) have been received. Marco Cavagna (Milan, Italy) observed a short, broad fan tail near the coma on Aug. 17 and 18. The drawing on the cover of this issue by Alain Porter, observing with the 9-inch Clark refractor at the Harvard College Observatory in Cambridge, Massachusetts, shows much inner coma detail, and reveals the off-center central condensation mentioned by many observers.

The drawing by Cavagna (also on page 53) some 3 days earlier, on the night of August 23/24, also vividly depicts the asymmetrical nature of the coma. He remarks on the sketch: "The field stars are SAO 043654 in p.a. 39° and an approximately-9.5-magnitude one in p.a. 20°. The brightness of the features is given in steps, where 0 is the central condensation and 7 is the sky brightness: (1) Central condensation (size = 0.3'), 0; (2) Bright spike in p.a. 267° (length = 0.4'), 1; (3) Inner coma (diameter = 1'), 2; INLET IN P.A. 147°: (4) envelope east of the inlet (= east "moustache"), 3; (5) Oval bubble with major axis in p.a. 67°, 4; (6) Envelope southwest of the inlet (= southwest "moustache"), 4; (7) Western outer coma, 5; (8) Tail, 6." His observation was made at




Above: Drawings by M. Verdenet (Bourbon-Lancy, France); see text.

## RECENT NEWS CONCERNING COMETS

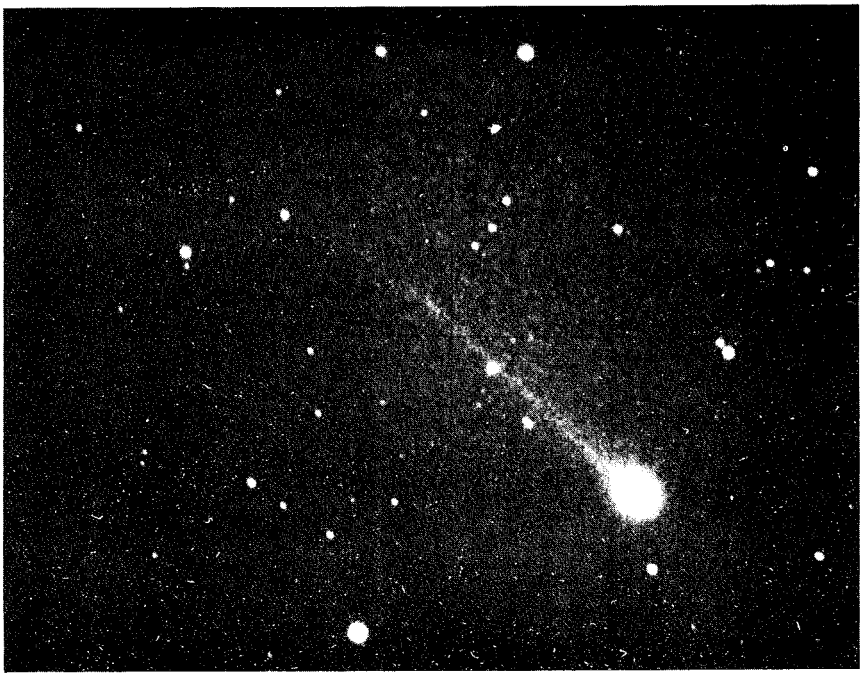
Missaglia, 31 km north-northeast of Milan.

The drawings by M. Verdenet of Bourbon-Lancy, France, on page 56 were made from observations using an 8-inch Celestron f/10 telescope at a magnification of 150. The photograph published here is a polaroid print made from a slide from Ben Mayer of California; his 7-min exposure at Aug. 22.18 with an 8-inch Schmidt f/1.6 camera and 400-ASA Ektachrome film shows a lengthy thin tail.

The ephemeris below shows that comet Austin 1982g will remain favorably placed for viewing by northern-hemisphere observers for the next few months; the elements are from elliptical orbit computations, based on 48 observations from June 19-September 6, by B. G. Marsden. The Tabulation of Comet Observations elsewhere in this issue document the many observations of this comet which have already been received by the ICQ.

Malcolm Hartley of the United Kingdom Schmidt Telescope Unit in Australia discovered a 15th-magnitude comet with the 1.2-m Schmidt on plates exposed July 11 and 13. Three individuals in Japan (H. Kosai, I. Hasegawa, and S. Nakano) subsequently suggested an identification with periodic comet Peters (1846 VI), which had not been observed since its discovery apparition. Further observations have shown comet 1982h to be indeed P/comet Peters-Hartley, with an 8-year period. The object was evidently missed for 16 revolutions due to the poor geometric circumstances which had placed it in conjunction with the sun for most of its perihelion encounters. Further details are available on IAUC 3715 and on Minor Planet Circular No. 7159. This comet has been fading as it recedes from the sun.

P/comet Churyumov-Gerasimenko was the sixth comet to be recovered/discovered in 1982 and consequently designated comet 1982f by the IAU's Central Bureau for Astronomical Telegrams



Above: Slide-photograph by Ben Mayer of comet 1982g on Aug. 22 (see text)

## RECENT NEWS CONCERNING COMETS

(cf. IAUC 3700). Jim Gibson recovered this object with the 48-inch Schmidt telescope at Palomar on plates taken May 31 and June 1; the object was stellar and around 19th magnitude.

Periodic comet d'Arrest 1982e should be within the visual reach of 8-inch (20-cm) reflectors during the coming weeks, and an ephemeris is provided below from elements by D. K. Yeomans, Jet Propulsion Laboratory, as published on IAUC 3697, with the $\Delta T$-correction taken into account.

Comet Bowell 1980b dropped rapidly in brightness during July and Aug., being quite difficult to see on August 20 with a 12.5-inch reflector by John E. Bortle (Brooks Observatory, Stormville, New York); on that date, he noted the comet to be just a diffuse patch, with no condensation.

-- D.W.E.G. (9/9/82)

ORBITAL ELEMENTS FOR COMET AUSTIN 1982g (see text above):
(perturbations by 9 planets, Mercury-Pluto, taken into account;
mean residual 1.13 arcsec; EPOCH 1982 August 19)

T = 1982 August 24.7271 ET
$\omega$ = 33°.8230
$\Omega$ = 325.5644 } 1950.0
i = 84.4914
q = 0.647801 AU
e = 0.999579

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Mag. |
|---|---|---|---|---|---|---|---|
| 1982 | 09 08 | 12h31m.45 | +42°52'.9 | 1.003 | 0.715 | 41°.6 | 6.5 |
| 1982 | 09 13 | 12 39.15 | +41 35.5 | | | | |
| 1982 | 09 18 | 12 44.31 | +40 17.9 | 1.256 | 0.822 | 40.8 | 7.6 |
| 1982 | 09 23 | 12 48.07 | +39 03.8 | | | | |
| 1982 | 09 28 | 12 51.03 | +37 55.2 | 1.464 | 0.956 | 40.4 | 8.6 |
| 1982 | 10 03 | 12 53.52 | +36 53.1 | | | | |
| 1982 | 10 08 | 12 55.70 | +35 57.7 | 1.629 | 1.102 | 41.5 | 9.5 |
| 1982 | 10 13 | 12 57.66 | +35 09.4 | | | | |
| 1982 | 10 18 | 12 59.43 | +34 28.3 | 1.755 | 1.252 | 44.3 | 10.2 |
| 1982 | 10 23 | 13 01.00 | +33 54.4 | | | | |
| 1982 | 10 28 | 13 02.34 | +33 27.7 | 1.844 | 1.403 | 48.7 | 10.8 |
| 1982 | 11 02 | 13 03.43 | +33 08.1 | | | | |
| 1982 | 11 07 | 13 04.22 | +32 55.7 | 1.901 | 1.553 | 54.6 | 11.3 |
| 1982 | 11 12 | 13 04.67 | +32 50.6 | | | | |
| 1982 | 11 17 | 13 04.72 | +32 52.8 | 1.930 | 1.700 | 61.7 | 11.7 |
| 1982 | 11 22 | 13 04.30 | +33 02.5 | | | | |
| 1982 | 11 27 | 13 03.32 | +33 19.7 | 1.937 | 1.846 | 69.9 | 12.1 |
| 1982 | 12 02 | 13 01.73 | +33 44.3 | | | | |
| 1982 | 12 07 | 12 59.41 | +34 16.2 | 1.925 | 1.989 | 79.0 | 12.4 |
| 1982 | 12 12 | 12 56.28 | +34 55.3 | | | | |
| 1982 | 12 17 | 12 52.23 | +35 41.3 | 1.904 | 2.129 | 89.1 | 12.7 |
| 1982 | 12 22 | 12 47.13 | +36 33.4 | | | | |
| 1982 | 12 27 | 12 40.88 | +37 30.8 | 1.879 | 2.267 | 100.0 | 12.9 |
| 1983 | 01 01 | 12 33.39 | +38 32.0 | | | | |
| 1983 | 01 06 | 12 24.57 | +39 35.3 | 1.861 | 2.402 | 111.4 | 13.2 |
| 1983 | 01 11 | 12 14.36 | +40 38.8 | | | | |
| 1983 | 01 16 | 12 02.78 | +41 39.8 | 1.860 | 2.535 | 123.1 | 13.4 |

Mag. = total visual magnitude = 8.0 + 5 log Delta + 10 log r.

EPHEMERIS FOR PERIODIC COMET D'ARREST 1982e (see text above):

| Date | ET | R. A. (1950) | Decl. | Delta | r | Elong. | Mag. |
|---|---|---|---|---|---|---|---|
| 1982 | 09 08 | 17h18m.06 | -18°05'.4 | 0.721 | 1.293 | 95°.4 | 10.4 |
| 1982 | 09 13 | 17 34.24 | -20 54.1 | | | | |
| 1982 | 09 18 | 17 51.72 | -23 31.5 | 0.748 | 1.292 | 93.8 | 10.5 |
| 1982 | 09 23 | 18 10.40 | -25 54.9 | | | | |
| 1982 | 09 28 | 18 30.15 | -28 01.5 | 0.787 | 1.301 | 92.6 | 10.6 |
| 1982 | 10 03 | 18 50.79 | -29 49.4 | | | | |
| 1982 | 10 08 | 19 12.09 | -31 17.1 | 0.838 | 1.322 | 91.6 | 10.8 |
| 1982 | 10 13 | 19 33.82 | -32 23.7 | | | | |
| 1982 | 10 18 | 19 55.71 | -33 09.3 | 0.903 | 1.352 | 90.6 | 11.1 |
| 1982 | 10 23 | 20 17.50 | -33 34.3 | | | | |
| 1982 | 10 28 | 20 38.96 | -33 40.1 | 0.981 | 1.391 | 89.6 | 11.4 |
| 1982 | 11 02 | 20 59.87 | -33 28.3 | | | | |
| 1982 | 11 07 | 21 20.07 | -33 00.8 | 1.070 | 1.438 | 88.4 | 11.7 |
| 1982 | 11 12 | 21 39.47 | -32 19.6 | | | | |
| 1982 | 11 17 | 21 58.02 | -31 26.7 | 1.172 | 1.491 | 86.9 | 12.1 |
| 1982 | 11 22 | 22 15.70 | -30 24.2 | | | | |
| 1982 | 11 27 | 22 32.52 | -29 13.8 | 1.285 | 1.550 | 85.0 | 12.4 |
| 1982 | 12 02 | 22 48.51 | -27 57.3 | | | | |
| 1982 | 12 07 | 23 03.72 | -26 36.0 | 1.407 | 1.613 | 82.8 | 12.8 |
| 1982 | 12 12 | 23 18.21 | -25 11.2 | | | | |
| 1982 | 12 17 | 23 32.05 | -23 44.0 | 1.539 | 1.680 | 80.2 | 13.2 |
| 1982 | 12 22 | 23 45.30 | -22 15.3 | | | | |
| 1982 | 12 27 | 23 58.02 | -20 45.8 | 1.680 | 1.749 | 77.3 | 13.6 |

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## RECENT OUTBURSTS OF P/COMET SCHWASSMANN-WACHMANN 1

Masaaki Huruhata
Hodozawa, Gotemba-shi, Japan

In the 1981-82 observing season, two outbursts and a minor one were observed of P/comet Schwassmann-Wachmann 1 with a Wright-Schmidt camera of 18-cm aperture and 85-cm focal length. Tri-X film with a yellow-green filter were used for the visual region, and 103a-O film for the B region. The photographs were measured by eye estimation and by a small iris photometer (cf. Huruhata 1981). The magnitudes of comparison stars were photographically determined with Selected Area 102 and the AAVSO variable star chart for TW Vir. Table I shows visual magnitudes by eye estimate (VE) and with the iris photometer (IP). In Table II are shown the B magnitudes in similar fashion. The values with colons (:) are poor ones, mainly because of fog by moonshine.

No outburst was observed between the end of 1981 October and 1982 January. The outburst on Feb. 25 was a faint one. The outburst on April 10 probably occurred one or two days before, judging from the image of the coma, though the observations had been interupted by a long period of bad weather. There was a doubtful image on June 12 exactly at the ephemeris position, but this is not reliable, as the sky was not good on that day or for some time thereafter.

In the tables below, the exposure time (minutes) is given in column 2, and the coma diameter (arcmin) is given in the final column.

(Tables on next page)

REFERENCE

Huruhata, M. (1981). ICQ 3, 77.

RECENT OUTBURSTS OF P/COMET SCHWASSMANN-WACHMANN 1 (cont.)

TABLE I. TOTAL VISUAL MAGNITUDES OF P/COMET SCHWASSMANN-WACHMANN 1

| DATE (1982 UT) | EXP. (MIN) | MAGNITUDE VE | MAGNITUDE IP | COMA DIA. |
|---|---|---|---|---|
| Jan. 12.84 | 5 | [14 | | |
| 16.87 | 3 | 12.3 | 12.2: | 0.2 |
| 18.80 | 5 | 12.5 | 12.4 | 0.4 |
| 19.73 | 5 | 12.7 | 12.5 | 0.4: |
| 20.77 | 5 | 13.5 | 13.1 | - |
| 21.73 | 5 | 13.2 | 12.8 | 0.5 |
| 23.67 | 10 | 12.5 | 12.2 | 0.7 |
| 24.69 | 10 | 13.1 | 12.6 | 0.8 |
| 25.71 | 10 | 12.8 | 12.2 | 0.8 |
| 27.68 | 10 | 12.9 | 12.2 | 0.9 |
| 29.76 | 10 | 13.0 | 12.5 | 1.2 |
| 30.75 | 10 | 13.0 | 12.5 | 1.3 |
| 31.68 | 10 | 13.0 | 12.6 | 1.6 |
| Feb. 1.69 | 10 | 13.5 | 12.7 | 1.8 |
| 2.71 | 4 | 14 : | | |
| 22.10 | 10 | [15 | | |
| 25.60 | 10 | 13.8 | 13.5 | 0.2 |
| 26.72 | 10 | 13.9 | 13.4: | 0.3 |
| 27.64 | 10 | 14.0 | 13.7 | 0.3 |
| Mar. 2.63 | 10 | 14.0 | 13.5: | 0.5 |
| 29.48 | 7 | [14 | | |
| Apr. 10.48 | 7 | 12.9 | 12.8 | * |
| 10.49 | 5 | 12.8 | 12.7 | * |
| 11.49 | 10 | 12.8 | 12.8 | * |
| 13.61 | 10 | 13.0 | 13.0 | 0.2 |
| 16.48 | 10 | 13.0 | 13.0 | 0.5 |
| 18.51 | 10 | 13.3 | 13.1 | 0.8 |
| 19.47 | 10 | 13.5 | 13.1 | 0.8: |
| June 13.49 | 7 | 12.8? | -- | |

* Star-like.

TABLE II. TOTAL B MAGNITUDES OF P/COMET SCHWASSMANN-WACHMANN 1

| DATE (1982 UT) | EXP. (MIN) | MAGNITUDE VE | MAGNITUDE IP | COMA DIA. |
|---|---|---|---|---|
| Jan. 19.77 | 5 | 13.0 | 12.8 | 0.5 |
| 20.77 | 5 | 13.0 | 12.8 | 0.6 |
| 21.76 | 5 | 13.2 | 13.1 | 0.7 |
| 23.68 | 5 | 13.0 | 12.8 | 0.6 |
| 24.70 | 7 | 13.1 | 12.9 | 0.8 |

TABLE II. TOTAL B MAGNITUDES OF P/COMET SCHWASSMANN-WACHMANN 1

| DATE (1982 UT) | EXP. (MIN) | MAGNITUDE VE | MAGNITUDE IP | COMA DIA. |
|---|---|---|---|---|
| Jan. 25.71 | 7 | 12.8 | 12.7 | 0.8 |
| 27.69 | 7 | 13.1 | 12.9 | 1.0 |
| 29.79 | 7 | 13.3 | 13.1 | 0.9: |
| 30.77 | 7 | 13.3 | 13.1 | 0.8: |
| 31.69 | 7 | 13.3 | 13.0 | 1.2 |
| Feb. 1.70 | 7 | 13.3 | 13.0 | 1.6 |
| Apr. 15.57 | 7 | 13.2 | 12.9 | 0.6 |
| 15.59 | 8 | 13.1 | 12.8 | 0.7 |
| 16.49 | 10 | 13.5 | 13.3: | 1.4: |
| 18.52 | 7 | 13.8 | -- | 1.2: |
| 19.48 | 7 | 14.0 | -- | - |

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## SOME NOTES ON COMET HUNTING

Donald Machholz
San Jose, California

It was in 1974 that I decided I needed a program of some sort in order to get me out to observe the night sky more often. Up until that time I had done some astrophotography, lunar, solar, and planetary observing, deep-sky-object locating, and meteor watching. I felt I needed a systematic program which could expand and improve my observing skills. Comet hunting could provide such an outlet -- it's a challenge which gives a reasonable chance of discovery if I persist, and, while a comet discovery would be nice, and I would try my best to discover one, it would not be necessary for me to enjoy such a persuit. After 7.5 years and over 2800 hours of comet hunting, and one comet discovery, I can say that this is true for me.

I began by using a 4.25-inch f/5 reflecting telescope at 20 power, mounted equatorially and clock-driven. Before my first year was up, I was using a 10-inch f/3.8 reflector at about 32 power with a 2.4-degree field.

(cont. on page 61)

## SOME NOTES ON COMET HUNTING (cont. from page 60)

This is the basic system I'm still using today, with a few major modifications. For instance, I'm now using a homemade eyepiece, giving me a magnification of 35 and a 2.8-degree field, and a new pipe mount allows me to sweep in the alt-azimuth mode with ease. Additionally, on occasion I use a 6-inch f/5 refractor at 24 power, which has been loaned to me to that I can compare it with my present reflector.

When I began my comet hunting, I was aiming on doing some 180 hours per year. However, as some of you know, comet hunting can be habit-forming, and I ended 1975 with a total of 307 hours of searching -- and no comet. (I count only the time my eye is to the eyepiece and I'm actually sweeping with the telescope. This is because I also count telescopic meteors and artificial satellites and I want accurate hourly rates.) I averaged over 515 hours and 185 observing sessions each year for the next 3 years. During this time (1976-8), I was covering the whole observable sky each month, weather permitting. (The only exception was a 300-square-degree area in Virgo, which I began sweeping in 1978 and now cover as any other region.) I then decided I could probably cut back on my observing time and still be "competitive" in the field. The past 3 years have seen about 270 hours/year and my present schedule calls for roughly 240 hours/year, covering 14 hours of right ascension each month, from the North Celestial Pole to the southern horizon. Much of this sky is re-swept during the 10 sessions I now get in each month. With all things considered, this 240 hours/year could probably be cut back even more without a significant loss of coverage.

Roughly 70 percent of my searching is done in the morning. Between 1980 January and 1981 May, I swept only the morning sky, because I wanted my evenings free. During these 17 months, three comets were discovered in the northern hemisphere evening sky!

In 1975 I swept from my backyard in Concord, California. For the past 6 years, my primary observing site has been a mountain known as Loma Prieta, 20 miles south of my home in San Jose.

My one comet discovery came on the morning of 1978 September 12. At 5:15 I was sweeping the southeastern sky and picked up a nebulous patch some 2° southwest of the star Sirius. I mapped its location, but twilight came before I could detect its motion. I sent a telegram to the Central Telegram Bureau anyway, calling it a "possible comet". It was confirmed within two days, and the object, which never got brighter than magnitude 10.5, is now known as comet Machholz 1978 XIII (= 19781). I observed it for a month as it continued to move south and away from the sun. It took 1700 hours of searching to find this comet.

Since I have no control over when or where new comets will appear, I'll keep searching as best I can, and perhaps another comet will come my way.

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## FOURTH EDITION OF COMET CATALOGUE NOW AVAILABLE

The 4th edition of the Catalogue of Cometary Orbits, by Brian G. Marsden, is now available from the Minor Planet Center (c/o Smithsonian Astrophysical Observatory, 60 Garden Street, Cambridge, MA 02138, U.S.A.) for $10.00 postpaid. Orbital information is included for 1109 cometary apparitions observed up to the end of 1982 May. The first part of the Catalogue lists comets and their orbital elements in order of perihelion passage, with the first orbit now referring to the apparition of P/Halley in 239 B.C. The other sections in the Catalogue contain names and observation intervals of comets, and detailed references and several statistical listings of short-period and long-period comets. This is an important reference for any amateur or professional.

# REVIEW OF MAGNITUDE SOURCES FOR VISUAL COMETARY PHOTOMETRY. II.

Charles S. Morris
Prospect Hill Observatory, Harvard, Massachusetts

and

Daniel W. E. Green
Harvard-Smithsonian Center for Astrophysics

ABSTRACT. This second paper in a series continues the discussion of sources of visual and photoelectric-V magnitudes for use in visual cometary photometry. This paper discusses the following references: Sky Catalogue 2000.0, Norton's Star Atlas and Reference Handbook, Webb's Atlas of the Stars, Bonner Durchmusterung, and the Cape Photographic Durchmusterung.

In this second paper of a series on the topic of magnitude sources for visual cometary photometry (see Green and Morris 1982), we have evaluated several references which have wide circulation among visual cometary observers. In connection with this review of magnitude sources, we have incorporated a new Reference Key for the Tabulation of Comet Observations in this issue (see p. 64).

## Sky Catalogue 2000.0

Sky Catalogue 2000.0 is the first new comprehensive star catalogue to become generally available in more than a decade. It is also the first to be produced specifically for epoch 2000.0. It gives proper motion, apparent and absolute magnitude, color index, spectral type, radial velocity, distance, and such star identifications as Flamsteed number, Bayer letter, classical name, HD number, and SAO number for 45,269 stars down to visual magnitude 8.05. The information presented in the catalogue is primarily from the recent NASA-Goddard SKYMAP project.

Sky Catalogue/SKYMAP, like other recent comprehensive catalogues, was compiled from a wide variety of sources. Photometric data were derived from four sources, including Mermilliod (1973), USNO Catalogue, SAO Catalog, and Henry Draper Catalogue. Almost all the data presented are in the form of photoelectric-V magnitudes. However, a large fraction of the V-magnitudes, particularly the fainter values, were derived statistically from photographic photometry and, hence, are of less precision. These data are only given to one decimal place (average error is quoted as 0.1 magnitude) whereas the standard photoelectric values are given to two decimal places. For a very small fraction of the magnitudes quoted, only the star's photoelectric-B (blue) magnitude was available. These cases are denoted by a "B".

The real photoelectric V-magnitudes are to be preferred over the statistically derived V-values. The B-magnitudes are to be avoided for comet photometry.

A complete review of Sky Catalogue is given by Morris (1982). Sky Catalogue can be obtained from Sky Publishing Corporation for $29.95 (paper) or $44.95 (cloth).

## Norton's Star Atlas and Reference Handbook

Norton's is probably the most popular star atlas ever produced. First published in 1910, there have been to date more than 15 editions printed. Unfortunately, Norton's is of little or no use for comet photometry. In recent editions, the only quantitative stellar magnitude data given is for the 25 brightest and 25 closest stars. As the source of this data is not known and the limited data

REVIEW OF MAGNITUDE SOURCES FOR VISUAL COMETARY PHOTOMETRY. II.

provided can be obtained elsewhere, use of Norton's is highly discouraged.

Webb's Atlas of the Stars

Published in the early 1940's, Webb's Atlas is the forerunner of the AAVSO Variable Star Atlas. The Atlas shows stars of ninth magnitude and brighter from the north celestial pole down to -23 degrees declination. A limited number of variable star comparison stars are provided. A random check shows that the fainter magnitudes provided are consistent with the values given on the AAVSO Atlas. However, magnitudes for stars brighter than 6.5 may differ because the AAVSO Atlas uses values derived from photoelectric photometry. The AAVSO Atlas, when available, is to be preferred over Webb's Atlas.

Bonner Durchmusterung

The Bonner Durchmusterung (BD) was compiled by F. W. A. Argelander and Eduard Schoenfeld at the Bonn Observatory. The initial venture by Argelander produced a set of large star charts and a 3-volume catalogue in 1863. This catalogue contains estimated visual magnitudes and approximate 1855 coordinates for well over 320,000 stars down to mag 9 and fainter, lying between declinations +90° and -2°. Schoenfeld's follow-up survey was completed in 1886 and extended the original BD to declination -23°; this is sometimes called the SBD.

Because the BD star positions are given for equinox 1855.0, and because the magnitudes were simply visually estimated by the observers at the eyepiece, this reference should only be used if absolutely necessary, although it is, historically, one of the greatest astronomical projects ever completed (cf. Ashbrook 1980a, b).

A random check of Durchmusterung magnitudes, in which 25 stars brighter than mag 6.5 were chosen and their magnitudes compared with those in the Yale Bright Star Catalogue, revealed that the average BD magnitude was 0.25 magnitude fainter than the Yale value. On the other hand, a similar random check of BD stars between magnitudes 6.5 and 9.0 indicate the BD magnitudes to be much more accurate in that range. In no circumstances whatsoever should BD magnitudes be used for stars fainter than 9.0, as Dr. J. Ashbrook found that all stars fainter than or equal to mag 9.5 were lumped under the single value of "9.5".

Cape Photographic Durchmusterung

The Cape Photographic Durchmusterung (CPD) contains positions of nearly 500,000 stars between declinations -19° and -90°. This spin-off from the BD project was constructed by measuring actual photographs taken during 1885-89 at the Royal Cape Observatory in South Africa. The magnitudes therein are thus photographic, and should in no way be used for visual cometary photometry.

REFERENCES

Ashbrook, J. (1980a). "Astronomical Scrapbook", Sky & Tel. 59, 300.
Ashbrook, J. (1980b). "Astronomical Scrapbook", Sky & Tel. 59, 389.
Green, D. W. E.; and C. S. Morris (1982). Int. Comet Q. 4, 5.
Mermilliod, J. (1973). Bulletin d'Information du Centre de Donnees Stellaires de Strasbourg 13, 90.
Morris, C. S. (1982). Sky & Tel. 64, 44.

TABLE I. ICQ RECOMMENDATIONS FOR USE OF COMPARISON STAR REFERENCES.

| REFERENCE | Magnitude Range: Brighter than 6.5 | 6.5 - 9.5 | Fainter |
|---|---|---|---|
| Sky Catalogue 2000.0 | S | S | U |
| Norton's Star Atlas | U | U | U |
| Webb's Atlas of the Stars | S | S | U |
| Bonner Durchmusterung | S | S | U |
| Cape Photographic Durchmusterung | U | U | U |

## TABULATION OF COMET OBSERVATONS

With this issue, we incorporate a new Magnitude-Reference Key, using a 2-letter code rather than the limited 1-letter code previously in use. We list below the new Key, with comparisons to old Reference Key code letters. Note that photographic and photoelectric magnitude estimates will no longer be listed under the References, but instead under the Magnitude Method (MM): Photographic magnitudes will be indicated there by the letter "P", and photoelectric magnitudes will be indicated there by the band letter ("L" for B, "U" for U, and "V" for V; new letters will be assigned as necessary). The letter "W" under MM stands for photoelectric magnitudes in which no specific band was mentioned (visual band assumed); this will no longer be acceptable for future observations, but is retained for observations which already exist in the ICQ master file. "I" under MM now stands for In-focus. Also new is the letter "A" for camera to the Instrument Key.

| Old Key | New Key | Source |
|---|---|---|
| A | A | Charts or Atlas of the A.A.V.S.O. |
| | AA | A.A.V.S.O. Variable Star Atlas |
| | AC | Charts of the Amer. Assn. of Var. Star Observers |
| F | AG | Astronomisches Gesellschaft Katalog |
| Z | AT | Arizona-Tonantzintla Catalog (publ. in Sky & Tel.) |
| B | BD | Bonner Durchmusterung (Argelander et al.) |
| C | CP | Cape Photographic Catalogs |
| G | GR | Groombridge |
| D | HD | Henry Draper Catalog (Harvard Coll. Obs. Annals) |
| | HP | Harvard Photometry (Harvard College Obs. Annals) |
| H | HR | Harvard Revised Photometry (H.C.O. Annals) |
| L | LN | Lampkin's Naked-Eye Stars |
| U | MP | McCormick Photovisual Sequence (Univ. of Virginia) |
| O | NO | U.S.N.O. Photoelectric Photometry Catalogue |
| N | NP | North Polar Sequence (publ. by the A.A.V.S.O.) |
| J | RC | Revue des Constellations |
| S | S | Smithsonian Astrophysical Obs. Star Catalog |
| K | SP | Skalnate-Pleso Atlas Catalog (Atlas Coeli Catalog) |
| V | V | Variable star charts from recognized sources |
| | VB | Variable star charts of the British Astr. Assn. |
| | VF | Variable star charts of the A.F.O.E.V. (France) |
| | VN | Variable star charts of the R.A.S. of New Zealand |
| Y | Y | Yale Bright Star Catalogue |

****** UNACCEPTABLE:

| | | |
|---|---|---|
| T | UA | Atlases Borealis, Eclipticalis, Australis |
| M | UM | Magnitudes of galaxies, nebulae, etc. |
| R | UN | Norton's Atlas |
| I, Q | UP | Any standard photographic atlas (e.g., Falkauer, Stellarium, etc.) |
| X | UX | Specific stars quoted, no catalogue given |

NOTE: We ask that all observers/coordinators sending observations to the ICQ that they now use new reference codes as given above.

NEW ADDITIONS TO THE OBSERVER KEY: (cf. ICQ 4, 52)

| | |
|---|---|
| ANT01 | M. ANTILOCHUS (ENGLAND?) |
| HED | J. HEDLEY-ROBINSON, ENGLAND |
| HIC | TERRY HICKEY, AUSTRALIA |
| LAW | SHANE LAWRENCE, AUSTRALIA |
| MCC02 | ALAN MC CLURE, CA, U.S.A. |
| MCI01 | R. A. MC INTOSH, NEW ZEALAND |
| NEW | RUSSELL NEWMAN, AUSTRLIA |
| ORR | J. B. ORR, NEW ZEALAND |
| PAR01 | CHRIS PARFOOT, AUSTRALIA |
| PEA | A. PEARCE, AUSTRALIA |
| ROG02 | J. H. ROGERS, ENGLAND |
| SIM03 | E. SIMS, ENGLAND |
| SKO | J. SKORVE, NORWAY |
| TAB | VELLO TABUR, AUSTRALIA |
| VEN | S. C. VENTOR, SOUTH AFRICA |
| VET | J. C. VETTERLEIN, ENGLAND |
| WIL01 | THOMAS R. WILLIAMS, TX, U.S.A. |
| WRA | D. WRAIGE, ENGLAND |

Comet Bradfield (1979 X = 19791)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1980 02 01.77 | | 6.0 | BD | 8 | B | | 15 | 10 | | | | PAN |
| 1980 02 02.78 | | 6.3 | S | 8 | R | | 40 | 12 | 5 | | | RID |
| 1980 02 02.80 | | 6.3 | HR | 8 | B | | 15 | 12 | 4 | | | HUR |
| 1980 02 10.79 | | 7.4 | BD | 8 | B | | 15 | 11 | | | | PAN |
| 1980 02 10.79 | | 8.4 | S | 8 | R | | 40 | 9 | 5 | | | RID |
| 1980 02 10.79 | | | | 31 | L | 8 | 200 | | | 0.17 | 90 | PAN |
| 1980 02 10.79 | | 8.4 | S | 8 | B | | 10 | 10 | 2/ | | | SHA02 |
| 1980 02 10.79 | | 8.4 | S | 12 | R | 5 | 20 | 5 | | | | MIL01 |
| 1980 02 10.80 | S | 8.4 | S | 6 | B | | 13 | 9 | 2 | | | HEN |
| 1980 02 10.89 | S | 8.1 | S | 8 | B | | 15 | 13 | 4 | | | HUR |
| 1980 02 11.94 | | 8.1 | S | 8 | B | | 15 | 10 | 5 | | | HUR |
| 1980 02 11.95 | | 8.6 | S | 8 | R | | 40 | 8 | 2 | | | RID |
| 1980 02 13.80 | | 8.3 | S | 6 | B | | 13 | 9 | 2 | | | HEN |
| 1980 02 16.79 | | 8.7 | S | 8 | R | | 40 | 5 | 3 | | | RID |
| 1980 02 16.82 | | 8.3 | S | 8 | B | | 15 | 10 | | | | PAN |
| 1980 02 16.82 | | 8.8 | S | 8 | B | | 15 | 10 | 4 | | | HUR |
| 1980 02 16.84 | | 8.6 | S | 5 | B | | 10 | | | | | HUR |
| 1980 02 17.29 | | 9.5 | | 26 | L | | 80 | 5 | 3 | | | HUR |
| 1980 02 17.30 | | 9.2 | S | 8 | B | | 15 | 6 | 3 | | | HUR |
| 1980 02 17.31 | | 8.9 | S | 5 | B | | 10 | | | | | HUR |
| 1980 02 17.80 | | 8.6 | S | 8 | B | | 15 | 15 | | | | PAN |
| 1980 02 17.84 | | 8.9 | S | 8 | R | | 40 | 6 | 2 | | | RID |
| 1980 02 23.82 | | 9.9 | S | 26 | L | | 80 | 3 | 0 | | | HUR |
| 1980 03 03.82 | | 10.9 | V | 31 | L | 8 | 60 | 5 | | | | PAN |
| 1980 03 04.88 | | 10.5 | V | 26 | L | | 80 | 3.5 | 1 | | | HUR |
| 1980 03 09.83 | | 11.3 | V | 26 | L | | 80 | 3 | 3 | | | HUR |
| 1980 03 09.83 | | 11.7 | V | 31 | L | 8 | 60 | 7 | | | | PAN |
| 1980 03 13.88 | | 12.4 | V | 26 | L | | 176 | 1.4 | 2 | | | HUR |
| 1980 03 13.89 | | 11.9 | V | 31 | L | 8 | 100 | 3.5 | | | | PAN |

Comet Panther (1980u)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 03 06.62 | B | 8.6 | S | 12.0 | L | 8 | 33 | 5 | 4 | | | SAK |
| 1981 03 08.58 | B | 8.7 | S | 12.0 | L | 8 | 50 | 5 | 5 | ? | | SAK |
| 1981 03 11.61 | B | 8.5 | S | 12.0 | L | 8 | 50 | 5 | 5 | &0.17 | | SAK |
| 1981 03 12.61 | B | 8.6 | S | 12.0 | L | 8 | 33 | 4 | 4 | | | SAK |
| 1981 03 26.58 | B | 8.6 | S | 12.0 | L | 8 | 50 | 5 | 4 | 0.17 | 100 | SAK |
| 1981 05 12.94 | S | 11.0 | V | 30 | L | 5 | 62 | 0.6 | | | | KEI |
| 1981 05 21.94 | S | 11.2 | V | 30 | L | 5 | 89 | 1.2 | 2 | | | KEI |
| 1981 05 25.97 | S | 11.5 | V | 30 | L | 5 | 89 | 1.3 | 3 | | | KEI |

Comet Bowell (1980b)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 01 27.27 | S | 10.5: | A | 30 | L | 5 | 89 | 0.8 | | | | KEI |
| 1982 01 31.26 | S | 10.7: | A | 30 | L | 5 | 89 | 0.8 | | | | KEI |
| 1982 02 22.80 | S | 10.9 | V | 23 | L | 10 | 70 | 1 | 6 | | | CLA |
| 1982 02 27.21 | S | 11.0: | VF | 26.0 | L | 6 | 130 | 1.7 | 1 | | | MER |
| 1982 02 27.80 | S | 10.9 | V | 23 | L | 10 | 70 | 1 | 6 | | | CLA |
| 1982 03 01.22 | | 11.0: | | 30 | L | 5 | 89 | 1 | | | | KEI |
| 1982 03 02.22 | S | 11.3: | A | 30 | L | 5 | 142 | 0.6 | | | | KEI |
| 1982 03 03.75 | S | 11.1 | V | 23 | L | 10 | 70 | 1 | 6 | | | CLA |
| 1982 03 24.19 | S | 11.6 | A | 30 | L | 5 | 142 | 0.8 | | | | KEI |
| 1982 04 17.75 | S | 11.5 | V | 25 | L | 9 | 110 | 1.0 | 6 | | | CLA |
| 1982 04 21.75 | S | 11.8 | V | 25 | L | 9 | 110 | 0.8 | 5 | | | CLA |
| 1982 04 22.75 | S | 11.9 | V | 25 | L | 9 | 110 | 0.8 | 5 | | | CLA |
| 1982 05 20.6 | S | 11.5 | VN | 25 | L | 9 | 110 | 1 | 4 | | | CLA |
| 1982 05 25.95 | S | 11.4 | VF | 26.0 | L | 6 | 130 | 1.3 | 3 | | | MER |
| 1982 05 27.6 | S | 11.8 | VN | 25 | L | 9 | 110 | 1 | 4 | | | CLA |
| 1982 06 16.93 | S | 10.7 | VF | 26.0 | L | 6 | 130 | 0.8 | 4 | | | MER |
| 1982 06 17.54 | S | 11.8 | VN | 25 | L | 9 | 110 | 1 | 5 | | | CLA |
| 1982 06 18.96 | S | 10.3 | VF | 26.0 | L | 6 | 130 | 1.3 | 4 | | | MER |
| 1982 06 19.79 | S | 10.8 | V | 15.2 | L | 5 | 72 | 1 | 3 | | | PEA |
| 1982 06 19.94 | S | 10.3 | VF | 26.0 | L | 6 | 130 | 2.2 | 3 | | | MER |
| 1982 06 21.14 | S | 11.2 | A | 31.7 | L | 6 | 8 | 0.9 | 3 | | | BOR |
| 1982 06 21.54 | S | 11.6 | VN | 25 | L | 9 | 110 | 1 | 5 | | | CLA |
| 1982 06 22.56 | S | 11.8 | VN | 25 | L | 9 | 70 | 0.75 | 5 | | | CLA |
| 1982 06 23.89 | S | 11.9 | VN | 25 | L | 9 | 70 | 0.75 | 5 | | | CLA |
| 1982 06 25.16 | S | 11.2 | A | 31.7 | L | 6 | 8 | 0.9 | 4/ | | | BOR |
| 1982 06 25.67 | S | 10.0 | A | 25 | L | 6 | 56 | 1.0 | 5 | | | TAB |
| 1982 06 26.91 | S | 10.2 | VF | 26.0 | L | 6 | 130 | 1.1 | 4 | | | MER |
| 1982 06 29.94 | S | 10.3 | VF | 26.0 | L | 6 | 130 | 1.1 | 2 | | | MER |
| 1982 07 08.91 | S | 10.6 | VF | 26.0 | L | 6 | 130 | 1.5 | 3 | | | MER |
| 1982 07 10.12 | S | 11.3 | A | 31.7 | L | 6 | 8 | 1.0 | 3 | | | BOR |
| 1982 07 17.27 | S | 11.2 | A | 15.0 | L | 4 | 38 | 1.0 | 3 | | | SPR |
| 1982 07 17.93 | S | 10.7 | VF | 26.0 | L | 6 | 130 | & 1.5 | 4 | | | MER |
| 1982 07 18.28 | S | 10.9 | A | 20.0 | L | 10 | 65 | 1.25 | 3 | | | SPR |
| 1982 07 21.27 | S | 11.4 | A | 20.0 | L | 10 | 65 | 1.15 | 3 | | | SPR |
| 1982 07 22.12 | S | 12.0 | A | 31.7 | L | 6 | 8 | 0.5 | 2 | | | BOR |
| 1982 07 23.27 | S | 11.6 | A | 20.0 | L | 10 | 125 | 1.0 | 3 | | | SPR |
| 1982 07 24.17 | S | 11.9 | AC | 20.0 | L | 6 | 117 | 0.8 | 3 | | | MOR |
| 1982 07 24.29 | S | 11.6 | A | 25.0 | L | 5 | 38 | 1.25 | 4 | | | SPR |
| 1982 07 25.11 | S | 11.3 | A | 31.7 | L | 6 | 8 | 0.9 | 2 | | | BOR |
| 1982 07 25.29 | S | 11.5 | A | 32 | L | 7 | 71 | 1.5 | 3 | | | SPR |
| 1982 07 27.24 | S | 11.4 | A | 20 | L | 10 | 113 | 1.25 | 3 | | | SPR |
| 1982 07 28.25 | S | 11.5: | A | 20 | L | 10 | 125 | 1.0 | 3 | | | SPR |

Comet Bowell (1980b) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 08 09.23 | S | 11.8 | A | 20.0 | L | 10 | 125 | 0.75 | 2 | | | SPR |
| 1982 08 10.24 | S | 11.8 | A | 20.0 | L | 10 | 113 | 0.75 | 2 | | | SPR |
| 1982 08 16.24 | S | 11.9 | A | 20.0 | L | 10 | 125 | 0.55 | 2 | | | SPR |
| 1982 08 18.23 | S | 11.9 | A | 20.0 | L | 10 | 125 | 0.40 | 2 | | | SPR |
| 1982 08 19.09 | S | 12.6 | A | 50.7 | L | 5 | 96 | 0.3 | 1 | | | BOR |
| 1982 08 20.09 | S | 12.2 | A | 31.7 | L | 6 | 110 | 0.4 | 0 | | | BOR |

Comet Austin (1982g)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 06 18.67 | | 10 | | | | | | | | | | AUS |
| 1982 06 19.62 | | 10 | | | | | | | | | | AUS |
| 1982 06 21.75 | S | 9.6 | A | 8.0 | B | | 15 | & 2.5 | 4 | | | SEA |
| 1982 06 21.81 | | 10.2 | | | | | | & 2 | | | | HER |
| 1982 06 21.87 | S | 10.2 | V | 25 | L | 9 | 110 | 2 | 4 | | | CLA |
| 1982 06 21.93 | S | 9.7 | A | 15.2 | L | 5 | 30 | & 2 | 2 | | | PEA |
| 1982 06 21.93 | S | 10 : | A | 15.2 | L | 5 | 72 | & 1.5 | 4 | | | PEA |
| 1982 06 22.79 | S | 9.6 | A | 8.0 | B | | 15 | 3 | 5 | | | SEA |
| 1982 06 22.88 | S | 10.1 | V | 25 | L | 9 | 70 | 2 | 4 | ?0.05 | 15 | CLA |
| 1982 06 25.82 | S | 9.7 | V | 25 | L | 9 | 70 | 2.5 | 4 | | | CLA |
| 1982 06 26.75 | S | 9.2 | A | 8.0 | B | | 15 | 3.5 | 5 | | | SEA |
| 1982 06 26.76 | S | 10.8 | VN | 31.7 | L | 5 | 86 | 0.5 | 3 | | | JON |
| 1982 06 26.79 | | 11.0 | A | 15.0 | L | 10 | 75 | 4 | | | | HIC |
| 1982 06 26.79 | S | 9.2 | A | 6.5 | B | | 20 | | | | | SEA |
| 1982 06 26.92 | S | 9.6 | A | 15.2 | L | 5 | 30 | 2.2 | 3 | | | PEA |
| 1982 06 27.74 | S | 9.2 | A | 8.0 | B | | 15 | 3 | 5 | | | SEA |
| 1982 06 27.75 | S | 9.2 | A | 5.0 | B | | 10 | | | | | SEA |
| 1982 06 27.77 | S | 9.4 | A | 6.0 | R | 15 | 22 | 2 | | | | SEA |
| 1982 06 27.77 | S | 9.2 | A | 6.0 | R | 15 | 36 | 2 | | | | SEA |
| 1982 06 27.9 | S | 9.6 | V | 25 | L | 9 | 70 | 2.5 | 4 | 0.05 | 15 | CLA |
| 1982 06 29.81 | S | 9.1 | A | 8.0 | B | | 15 | 3.5 | 5 | | | SEA |
| 1982 06 29.87 | S | 9.5 | V | 25 | L | 9 | 70 | 2.5 | 4 | | | CLA |
| 1982 06 29.90 | S | 9.5 | A | 15.2 | L | 5 | 30 | 2.4 | 4 | | | PEA |
| 1982 07 01.90 | S | 9.4 | A | 15.2 | L | 5 | 30 | 2.5 | 5 | | | PEA |
| 1982 07 02.31 | | 9.4 | | 9.6 | L | | | | | | | DEA |
| 1982 07 02.77 | | 9.5 | A | 15.0 | L | 10 | 75 | | | | | HIC |
| 1982 07 03.35 | | 9.4 | | 9.6 | L | | | 2.0 | | | | DEA |
| 1982 07 03.82 | S | 8.8 | A | 8.0 | B | | 15 | 4.0 | 5 | | | SEA |
| 1982 07 10.90 | S | 8.1 | A | 15.2 | L | 5 | 30 | 2.5 | 6 | | | PEA |
| 1982 07 13.85 | S | 8.4 | A | 25 | L | 9 | 70 | 5 | 5 | | | CLA |
| 1982 07 13.90 | S | 7.9 | A | 15.2 | L | 5 | 30 | 3.2 | 6 | | | PEA |
| 1982 07 14.76 | | 8.0 | | 4.5 | R | | | | | | | JON |
| 1982 07 15.74 | | 7.4 | | 4.5 | R | | | | | | | JON |
| 1982 07 16.77 | S | 7.6 | A | 8.0 | B | | 15 | 4 | 4/ | | | SEA |
| 1982 07 17.90 | S | 7.6 | A | 15.2 | L | 5 | 30 | 4 | 6 | | | PEA |
| 1982 07 18.31 | | 7.9 | | 7.0 | B | | 10 | 5.0 | | | | DEA |
| 1982 07 19.8 | | 5.8 | A | | E | | | | 6 | | | THO |
| 1982 07 19.8 | B | 5.7 | A | 3.0 | B | | 8 | 5 | 6 | | | THO |
| 1982 07 21.77 | S | 6.8 | A | 8.0 | B | | 15 | 5 | 5 | | | SEA |
| 1982 07 22.31 | | 7.2 | | 7.0 | B | | 10 | 6.0 | | | | DEA |
| 1982 07 22.71 | | 7.0 | | 5.0 | R | | 7 | 6. | | | | GIL |
| 1982 07 23.79 | | 6.4 | | 5.0 | R | | 7 | 8. | | | | GIL |
| 1982 07 23.89 | S | 6.7 | A | 15.2 | L | 5 | 30 | 5.5 | 6 | | | PEA |
| 1982 07 24.31 | B | 6.8 | S | 7.0 | B | | 10 | 7.0 | | | | DEA |

Comet Austin (1982g) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 07 24.75 | I | 6.3 | A | 2.5 | B | | 2 | | | | | SEA |
| 1982 07 24.77 | B | 7.1: | A | 8 | R | 5 | 30 | | 4 | | | PAR01 |
| 1982 07 24.79 | | 6.1 | A | | E | | | | | | | SEA |
| 1982 07 24.85 | S | 6.4 | A | 6.5 | B | | 20 | 6.2 | 6 | | | PEA |
| 1982 07 24.85 | S | 6.8 | A | 32 | L | 8 | 75 | | 6 | | | PEA |
| 1982 07 24.85 | S | 6.7 | A | 31 | L | 7 | 105 | 7 | 5 | 0.42 | 220 | CLA |
| 1982 07 24.86 | S | 6.4 | A | 6.5 | B | | 20 | 7 | 5 | | | CLA |
| 1982 07 25.73 | | 6.5: | | | E | | | | | | | GIL |
| 1982 07 25.79 | | 5.9 | A | | E | | | | | | | SEA |
| 1982 07 25.79 | | | | 8.0 | B | | 15 | 6 | 5 | | | SEA |
| 1982 07 26.32 | B | 5.7 | S | 7.0 | B | | 10 | | | | | DEA |
| 1982 07 26.70 | | 6.4 | | | E | | | | | | | GIL |
| 1982 07 27.83 | S | 6.0 | A | 20 | L | | 36 | | | | | NEW |
| 1982 07 27.85 | S | 6.1 | A | 25 | L | 9 | 70 | 8 | 6 | 0.6 | 223 | CLA |
| 1982 07 27.86 | S | 5.9 | A | 5.0 | B | | 10 | 8 | 6 | | | CLA |
| 1982 07 27.90 | S | 5.8 | A | 6.5 | B | | 20 | 7.0 | 6 | 0.08 | 220 | PEA |
| 1982 07 28.32 | B | 6.2 | S | 7.0 | B | | 10 | | | | | DEA |
| 1982 07 28.75 | | 5.9 | A | 5.0 | B | | 8 | | | | | MAT01 |
| 1982 07 28.79 | | | | 8.0 | B | | 15 | 6 | 6 | 0.1 | 220 | SEA |
| 1982 07 28.79 | | 5.4 | A | | E | | | | | | | SEA |
| 1982 07 29.77 | | | | 8.0 | B | | 15 | | | 0.1 | | SEA |
| 1982 07 29.77 | | 5.5 | A | | E | | | | | | | SEA |
| 1982 07 29.87 | S | 5.8 | A | 25 | L | 9 | 70 | 9 | 6 | 0.75 | 231 | CLA |
| 1982 07 29.88 | S | 5.4 | A | 6.5 | B | | 20 | 7.5 | 6 | 0.08 | 235 | PEA |
| 1982 07 29.88 | S | 5.6 | A | 5.0 | B | | 10 | | 6 | | | CLA |
| 1982 07 30.78 | | 4.9 | A | 5.0 | B | | 8 | | | | 225 | MAT01 |
| 1982 07 30.78 | | 4.9 | A | | E | | | | | | | MAT01 |
| 1982 07 30.79 | | 5.1 | A | | E | | | | | | | SEA |
| 1982 07 30.79 | | | | 8.0 | B | | 15 | 6 | 6 | 1.0 | 235 | SEA |
| 1982 07 30.8 | B | 5.2 | A | 3.0 | B | | 8 | 6 | 6 | | | THO |
| 1982 07 30.8 | | 5.2 | A | | E | | | | 6 | | | THO |
| 1982 07 30.8 | S | 5.8 | A | 20 | L | | 36 | | | | | NEW |
| 1982 07 30.90 | S | 5.2 | A | 6.5 | B | | 20 | 8.0 | 7 | 0.17 | 235 | PEA |
| 1982 07 30.90 | S | 5.4 | A | 15.2 | L | 5 | 30 | 7.0 | 7 | 0.25 | 235 | PEA |
| 1982 07 31.77 | B | 5.5 | A | 8 | R | 5 | 20 | & 3.5 | 6 | | | PAR01 |
| 1982 07 31.8 | B | 5.1 | A | 3.0 | B | | 8 | | 6 | | | THO |
| 1982 07 31.8 | | | | 8.0 | B | | 20 | 7 | 6 | | | THO |
| 1982 07 31.90 | S | 5.0 | A | 6.5 | B | | 20 | 10 | 7 | 0.42 | 235 | PEA |
| 1982 08 01.31 | B | 5.3 | S | 7.0 | B | | 10 | | | 1.30 | 228 | DEA |
| 1982 08 01.78 | S | 5.4 | A | 3.2 | B | | 8 | | | | | NEW |
| 1982 08 01.80 | | 4.9 | A | | E | | | | | | | SEA |
| 1982 08 01.80 | | | | 8.0 | B | | 15 | & 4.5 | 6 | 1.3 | 234 | SEA |
| 1982 08 01.89 | S | 5.5 | A | 25 | L | 9 | 70 | 9 | 6 | 1.9 | 233 | CLA |
| 1982 08 01.89 | S | 5.2 | A | 5.0 | B | | 10 | 9 | 6 | 1.4 | 233 | CLA |
| 1982 08 02.32 | B | 5.3 | S | 7.0 | B | | 10 | | | | | DEA |
| 1982 08 02.8 | S | 5.1 | A | 20 | L | | 36 | | | | | NEW |
| 1982 08 02.8 | S | 5.2 | A | 4 | R | | 25 | | | | | NEW |
| 1982 08 02.8 | S | 5.3 | A | 3.2 | B | | 8 | | | | | NEW |
| 1982 08 02.8 | E | 5.3 | A | 20 | L | | 36 | | | | | NEW |
| 1982 08 02.80 | | 5.0 | A | | E | | | | | | | SEA |
| 1982 08 02.80 | I | 5.2 | A | 2.5 | B | | 2 | | | | | SEA |
| 1982 08 02.81 | | | | 8.0 | B | | 15 | & 5.5 | 6 | 0.3 | 225 | SEA |
| 1982 08 03.8 | B | 4.8: | A | 3.0 | B | | 8 | | 6 | | | THO |
| 1982 08 03.80 | I | 4.9 | A | 2.5 | B | | 2 | | | | | SEA |

Comet Austin (1982g) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 08 03.80 | E | 5.2 | A | 3.5 | B | | 15 | 10 | 1 | | | LAW |
| 1982 08 03.81 | S | 5.0 | A | 3.5 | B | | 15 | 10 | 1 | | | LAW |
| 1982 08 03.81 | M | 5.0 | A | 3.5 | B | | 15 | 10 | 1 | | | LAW |
| 1982 08 03.81 | B | 5.1 | A | 3.5 | B | | 15 | 10 | 1 | | | LAW |
| 1982 08 03.82 | S | 5.1 | A | 5.0 | R | 12 | 24 | 12 | 1 | | | LAW |
| 1982 08 03.83 | S | 5.0 | A | 15.0 | L | 8 | 30 | 15 | 1 | | | LAW |
| 1982 08 03.90 | S | 4.5 | A | 15.2 | L | 5 | 30 | 7.2 | 7 | 0.08 | 225 | PEA |
| 1982 08 03.91 | S | 4.3 | A | 6.5 | B | | 20 | 7.5 | 7 | 0.17 | 225 | PEA |
| 1982 08 03.91 | S | 5.0 | A | 25 | L | 9 | 70 | 10 | 7 | 1.5 | 231 | CLA |
| 1982 08 05.80 | M | 4.6 | A | 8.0 | B | | 15 | & 4 | 6 | | | SEA |
| 1982 08 05.89 | S | 4.6 | A | 25 | L | 9 | 70 | 9 | 6 | 1.0 | 230 | CLA |
| 1982 08 05.90 | S | 4.3 | A | 5.0 | B | | 10 | | | | | CLA |
| 1982 08 07.32 | B | 5.4 | S | 9.6 | L | 9 | 30 | | | | | DEA |
| 1982 08 07.81 | S | 4.5 | A | 3.2 | B | | 8 | | | | | SEA |
| 1982 08 07.81 | | | | 8.0 | B | | 15 | | 6 | | | SEA |
| 1982 08 08.32 | B | 5.2 | S | 7.0 | B | | 10 | | | | | DEA |
| 1982 08 08.80 | S | 4.1 | A | 8.0 | B | | 15 | | 6 | | | SEA |
| 1982 08 09.81 | S | 4.2: | A | 8.0 | B | | 15 | | 6 | | | SEA |
| 1982 08 15.36 | S | 4.9 | NO | 8.0 | B | | 15 | & 3.5 | | | | BOR |
| 1982 08 17.20 | S | 4.0 | A | 8.0 | B | | 11 | 12.0 | 6 | 0.20 | 5 | SPR |
| 1982 08 17.85 | S | 4.1 | AT | 5.0 | B | | 10 | 6.5 | 6 | 1.2 | 9 | CAV |
| 1982 08 17.85 | S | 4.2 | AT | 8.0 | B | | 20 | 5.8 | 5 | 0.8 | 9 | CAV |
| 1982 08 17.85 | S | 4.1 | AT | | E | | | | | | | CAV |
| 1982 08 18.20 | S | 4.1 | A | 8.0 | B | | 11 | 14.0 | 7 | 0.75 | 10 | SPR |
| 1982 08 18.84 | S | 4.3 | AT | | E | | | | | | | CAV |
| 1982 08 18.84 | S | 4.5 | AT | 8.0 | B | | 20 | 12 | 9 | 1.1 | 19 | CAV |
| 1982 08 18.84 | S | 4.4 | AT | 5.0 | B | | 10 | 9 | 6 | 1.7 | 19 | CAV |
| 1982 08 19.0 | S | 4.3 | A | 3.5 | B | | 7 | 5 | 3 | | | LYN |
| 1982 08 19.04 | M | 4.9 | AA | 8.0 | B | | 20 | 4 | 7 | 2.0 | 31 | MOR |
| 1982 08 19.04 | B | 4.9 | AA | 8.0 | B | | 20 | | | | | MOR |
| 1982 08 19.04 | S | 4.9 | AA | 8.0 | B | | 20 | | | | | MOR |
| 1982 08 19.05 | B | 4.9 | AA | 8.0 | B | | 20 | & 5.5 | 7 | &1.5 | 45 | GRE |
| 1982 08 19.05 | B | 4.7 | NO | 5.0 | B | | 10 | 5.0 | | | | BOR |
| 1982 08 19.05 | S | 4.8 | AA | 5.0 | B | | 12 | | | | | GRE |
| 1982 08 19.05 | B | 4.9 | AA | 5.0 | B | | 12 | & 8.5 | 7 | &1.75 | 45 | GRE |
| 1982 08 19.05 | | | | 12.0 | B | | 20 | 5.5 | 7 | 0.7 | 35 | BOR |
| 1982 08 19.05 | S | 4.8 | AA | 5.0 | B | | 12 | 4.5 | 7 | | | MOR |
| 1982 08 19.06 | | | | 20.0 | L | | 45 | 2.6 | | | | MOR |
| 1982 08 19.21 | S | 4.3 | A | 8.0 | B | | 11 | 14.0 | 8 | 1.00 | 25 | SPR |
| 1982 08 19.97 | S | 4.5 | A | 3.5 | B | | 7 | 5 | 3 | | | LYN |
| 1982 08 20.0 | S | 4.5 | A | 12.5 | R | 5 | 70 | 5 | 3 | 0.5 | 30 | LYN |
| 1982 08 20.04 | S | 4.8 | AA | 8.0 | B | | 20 | & 5.5 | 6/ | &1.25 | | GRE |
| 1982 08 20.07 | B | 4.7 | NO | 5.0 | B | | 10 | 7.0 | 6 | | | BOR |
| 1982 08 20.07 | | | | 12.0 | B | | 20 | 4.7 | 6 | | | BOR |
| 1982 08 20.21 | S | 4.6 | A | 8.0 | B | | 11 | 14.0 | 8 | 1.00 | 30 | SPR |
| 1982 08 20.84 | S | 4.6 | AT | 5.0 | B | | 10 | 6 | 6 | | | CAV |
| 1982 08 20.84 | S | 4.6 | AT | 8.0 | B | | 20 | 4 | 5 | 0.3 | 30 | CAV |
| 1982 08 21.03 | S | 4.7 | AA | 8.0 | B | | 20 | & 5 | | &1 | 30 | GRE |
| 1982 08 21.03 | S | 4.6 | AA | 5.0 | B | | 10 | | | | | GRE |
| 1982 08 21.03 | B | 4.7 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 21.03 | B | 4.7 | AA | 5.0 | B | | 10 | | | | | GRE |
| 1982 08 21.04 | M | 4.8 | AA | 8.0 | B | | 20 | 4 | 7 | 1.17 | 33 | MOR |
| 1982 08 21.05 | S | 4.8 | AA | 5.0 | B | | 12 | | 6 | | | MOR |
| 1982 08 21.08 | B | 5.0 | A | 13 | R | | | 3.5 | | | | MAL |

Comet Austin (1982g) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 08 21.20 | S | 4.8 | A | 8.0 | B | | 11 | 12.0 | 7 | 0.75 | 45 | SPR |
| 1982 08 21.49 | S | 5.0 | A | 8.0 | R | | 19 | 10.0 | 7 | 0.10 | 45 | SPR |
| 1982 08 21.82 | S | 4.6 | AT | 5.0 | B | | 10 | 7 | | | | CAV |
| 1982 08 21.82 | S | 4.7 | AT | 8.0 | B | | 20 | 5 | | | | CAV |
| 1982 08 21.97 | S | 4.9 | AC | 3.5 | B | | 7 | 6 | 3 | 0.75 | 40 | LYN |
| 1982 08 22.0 | S | 4.9 | AC | 11 | R | 6 | 25 | 6 | 3 | 0.75 | 40 | LYN |
| 1982 08 22.05 | M | 4.9 | AA | 1.5 | B | | 6 | | | | | MOR |
| 1982 08 22.05 | B | 5.0 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 08 22.05 | M | 4.9 | AA | 8.0 | B | | 20 | 4 | 7 | 2.0 | 30 | MOR |
| 1982 08 22.05 | S | 4.8 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 22.05 | B | 4.9 | AA | 1.5 | B | | 6 | | | | | MOR |
| 1982 08 22.05 | M | 4.9 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 08 22.06 | | | | 50.0 | L | 5 | 78 | 4.7 | | >1 | 37 | BOR |
| 1982 08 22.06 | | | | 12.0 | B | | 20 | 4.7 | 7 | 1.5 | 37 | BOR |
| 1982 08 22.06 | P | | | 20.0 | A | 2 | | 5 | | >5.2 | 37 | BOR |
| 1982 08 22.06 | M | 5.0 | AA | 8.0 | B | | 20 | & 9 | 6/ | 1.75 | | GRE |
| 1982 08 22.06 | B | 4.9 | NO | 5.0 | B | | 10 | 6.5 | 7 | | | BOR |
| 1982 08 22.07 | B | 4.8 | AA | 1.5 | B | | 6 | | | | | GRE |
| 1982 08 22.08 | S | 4.8: | AA | 5.0 | B | | 10 | | | | | GRE |
| 1982 08 22.09 | M | 4.9: | AA | 5.0 | B | | 10 | | | | | GRE |
| 1982 08 22.10 | E | 5.0: | UX | 7.0 | B | | 10 | &30 | | &1.34 | 350 | WIL01 |
| 1982 08 22.19 | S | 5.0 | A | 8 | R | 4 | 19 | 10.0 | 7 | 0.05 | 35 | SPR |
| 1982 08 22.48 | S | 5.1 | A | 8 | R | 4 | 19 | 11.0 | 7 | 0.05 | 38 | SPR |
| 1982 08 22.84 | S | 4.8 | AT | 5.0 | B | | 10 | 9 | 7 | 1.6 | 36 | CAV |
| 1982 08 22.84 | S | 4.7 | AT | | E | | | | | | | CAV |
| 1982 08 23.08 | B | 5.4 | A | 13 | R | | | 2.9 | | | | MAL |
| 1982 08 23.20 | S | 4.9 | A | 8.0 | B | | 11 | 13.0 | 8 | 1.50 | 45 | SPR |
| 1982 08 24.19 | S | 4.8 | A | 8 | R | 4 | 19 | 14.0 | 8 | 1.25 | 40 | SPR |
| 1982 08 24.96 | S | 5.0 | A | 3.5 | B | | 7 | 6 | 3 | 0.75 | 40 | LYN |
| 1982 08 25.03 | M | 5.2 | AA | 8.0 | B | | 20 | 5 | 7 | 2.5 | 30 | MOR |
| 1982 08 25.05 | S | 5.0: | AA | 8.0 | B | | 20 | & 5 | 5 | &1.5 | 58 | GRE |
| 1982 08 25.20 | S | 4.9 | A | 8 | R | 4 | 19 | 11.0 | 8 | 1.00 | 45 | SPR |
| 1982 08 26.03 | S | 5.1 | AA | 8.0 | B | | 20 | & 5 | | &3 | 47 | GRE |
| 1982 08 26.03 | B | 5.3 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 26.03 | M | 5.2 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 26.05 | | | | 30.5 | R | 15 | 115 | 7 | | 0.25 | 52 | DEY |
| 1982 08 26.05 | | 5.3 | AA | 5.0 | B | | 7 | | | | | DEY |
| 1982 08 26.07 | M | 5.3 | AA | 5.0 | B | | 12 | | | 5 | 34 | MOR |
| 1982 08 26.07 | B | 5.4 | AA | 1.5 | B | | 6 | | | | | MOR |
| 1982 08 26.07 | B | 5.3 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 08 26.07 | M | 5.3 | AA | 8.0 | B | | 20 | 6.5 | 7 | 3 | 34 | MOR |
| 1982 08 26.18 | S | 5.2 | A | 8 | R | 4 | 19 | 9.0 | 7 | 0.50 | 40 | SPR |
| 1982 08 27.02 | S | 5.1: | AA | 8.0 | B | | 20 | & 5 | | &2 | 45 | GRE |
| 1982 08 27.03 | M | 5.3: | AA | 8.0 | B | | 20 | | | | | MOR |
| 1982 08 27.03 | M | 5.2: | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 27.08 | B | 5.5 | AA | 13.0 | R | 5 | 20 | & 8 | | 1.5 | 40 | MAL |
| 1982 08 27.18 | S | 5.5 | A | 15 | L | 4 | 24 | 7.0 | 7 | 0.25 | 40 | SPR |
| 1982 08 27.97 | S | 5.2 | A | 3.5 | B | | 7 | 4 | 3 | | | LYN |
| 1982 08 27.97 | S | 5.2 | A | 11 | R | 6 | 39 | 4 | 3 | 0.75 | 40 | LYN |
| 1982 08 28.03 | S | 5.3 | AA | 8.0 | B | | 20 | & 4 | | &1 | 45 | GRE |
| 1982 08 28.03 | M | 5.3 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 28.05 | M | 5.3 | AA | 8.0 | B | | 20 | 6 | 7 | 3. | 30 | MOR |
| 1982 08 28.08 | B | 6.0 | AA | 13.0 | R | 5 | 20 | 5 | | 2 | 45 | MAL |
| 1982 08 29.03 | S | 5.4 | AA | 8.0 | B | | 20 | & 4 | 6 | &1 | | GRE |

Comet Austin (1982g) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 08 29.06 | S | 5.4 | A | 3.5 | B | | 40 | 5 | 3 | &1.75 | 40 | LYN |
| 1982 08 29.06 | M | 5.4 | AA | 8.0 | B | | 20 | 6 | 7 | >3 | 30 | MOR |
| 1982 08 30.01 | S | 5.7 | A | 3.5 | B | | 7 | 4 | 3 | | | LYN |
| 1982 08 30.02 | M | 5.5 | AA | 8.0 | B | | 20 | | 7 | | | MOR |
| 1982 08 30.03 | S | 5.4 | AA | 8.0 | B | | 20 | & 8 | 6/ | &2 | | GRE |
| 1982 08 30.03 | M | 5.4 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 08 30.08 | B | 6.2 | AA | 13.0 | R | 5 | 20 | 5 | | | | MAL |
| 1982 08 31.03 | M | 5.8 | AA | 8.0 | B | | 20 | | 7 | >2 | | MOR |
| 1982 08 31.07 | S | 5.4: | AA | 8.0 | B | | 20 | | 5/ | | | GRE |
| 1982 09 02.07 | B | 6.5 | AA | 13.0 | R | 5 | 20 | 5 | | 2 | 50 | MAL |
| 1982 09 04.02 | M | 5.9 | AA | 3.5 | B | | 7 | | | | | MOR |
| 1982 09 04.03 | M | 5.9 | AA | 8.0 | B | | 20 | | 6 | 2.0 | | MOR |
| 1982 09 04.06 | S | 6.0 | AA | 8.0 | B | | 20 | & 8 | 4 | &0.5 | 40 | GRE |
| 1982 09 04.06 | M | 5.9 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 09 05.02 | M | 5.9 | AA | 8.0 | B | | 20 | & 5.5 | 7 | &1.5 | 40 | GRE |
| 1982 09 05.02 | S | 5.9 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 09 05.02 | M | 6.0 | AA | 8.0 | B | | 20 | 4 | 7 | 2.0 | 38 | MOR |
| 1982 09 05.03 | M | 6.0 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 09 05.03 | M | 6.0 | AA | 4.0 | R | | 12 | | | | | MOR |
| 1982 09 05.03 | S | 6.0 | AA | 1.5 | B | | 6 | | | | | MOR |
| 1982 09 05.04 | M | 6.4: | AA | 25 | L | 7 | 68 | 1.5 | | | | MOR |
| 1982 09 06.02 | B | 6.1 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 09 06.02 | S | 5.9 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 09 06.02 | M | 5.9 | AA | 8.0 | B | | 20 | & 8 | 7 | &2 | 35 | GRE |
| 1982 09 06.03 | B | 6.1 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 09 06.03 | B | 6.2 | AA | 1.5 | B | | 6 | | | | | MOR |
| 1982 09 06.03 | M | 6.1 | AA | 8.0 | B | | 20 | 4 | 8 | 2.5 | 32 | MOR |
| 1982 09 06.03 | M | 6.1 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 09 06.03 | M | 6.2 | AA | 1.5 | B | | 6 | | | | | MOR |
| 1982 09 07.01 | M | 6.0 | AA | 8.0 | B | | 20 | & 9 | 7 | &1.5 | | GRE |
| 1982 09 07.01 | S | 6.1 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 09 07.01 | B | 6.5 | AA | 8.0 | B | | 20 | | | | | GRE |
| 1982 09 07.03 | M | 6.3 | AA | 5.0 | B | | 12 | | | | | MOR |
| 1982 09 07.03 | M | 6.3 | AA | 8.0 | B | | 20 | 4 | 7 | 2.0 | | MOR |

Periodic Comet Grigg-Skjellerup (1982a)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 04 20.87 | P | 12.5 | | 26.0 | L | 6 | | & 1 | 2 | | | MER |
| 1982 04 26.85 | S | 12.1 | VF | 26.0 | L | 6 | 130 | 1.8 | 2 | | | MER |
| 1982 04 27.5 | S | 11.9 | V | 25 | L | 9 | 110 | 1.5 | 3 | | | CLA |
| 1982 05 10.35 | S | 10.1 | A | 28.0 | B | | 15 | | | | | SEA |
| 1982 05 11.39 | S | 10.1 | A | 28.0 | B | | 15 | 3.5 | 2 | | | SEA |
| 1982 05 12.45 | S | 10.9 | AC | 25 | L | 9 | 110 | 3.0 | 2 | | | CLA |
| 1982 05 14.86 | S | 11.1 | VF | 26.0 | L | 6 | 63 | 5.3 | 2 | | | MER |
| 1982 05 14.90 | S | 10.9 | VF | 26.0 | L | 6 | 63 | | | | | MER |
| 1982 05 15.39 | S | 10.0 | A | 28.0 | B | | 15 | 3.5 | 2 | | | SEA |
| 1982 05 15.90 | S | 10.7 | VF | 26.0 | L | 6 | 63 | & 3.5 | 2 | | | MER |
| 1982 05 16.38 | S | 9.7 | A | 28.0 | B | | 15 | & 3 | 3 | | | SEA |
| 1982 05 17.40 | S | 9.8 | A | 28.0 | B | | 15 | | | | | SEA |
| 1982 05 18.38 | S | 10.0 | A | 28.0 | B | | 15 | | | | | SEA |
| 1982 05 19.21 | S | 10.1 | A | 20.0 | L | 10 | 125 | 2.5 | 3 | | | SPR |
| 1982 05 20.5 | S | 10.6 | AC | 25 | L | 9 | 110 | 3.5 | 2 | | | CLA |

Periodic Comet Grigg-Skjellerup (1982a) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 05 21.38 | S | 9.9 | A | 28.0 | B | | 15 | 3.0 | 3 | | | SEA |
| 1982 05 22.38 | S | 9.8 | A | 28.0 | B | | 15 | | | | | SEA |
| 1982 05 23.38 | S | 9.8 | A | 28.0 | B | | 15 | 3.0 | | | | SEA |
| 1982 05 24.88 | S | 10.0 | VF | 26.0 | L | 6 | 39 | 5.4 | 2 | | | MER |
| 1982 05 24.90 | S | 9.7 | VF | 9.0 | L | 9 | 28 | | | | | MER |
| 1982 05 25.88 | S | 9.7 | VF | 26.0 | L | 6 | 39 | 5.4 | 3 | | | MER |
| 1982 05 26.11 | S | 9.8 | NP | 15.0 | L | 4 | 36 | 5 | 2/ | ? | 345 | MOR |
| 1982 05 26.89 | S | 9.6 | VF | 26.0 | L | 6 | 39 | 5.7 | 3 | | | MER |
| 1982 05 27.08 | S | 9.8 | NP | 15.0 | L | 4 | 36 | 5 | 2 | 0.05 | 320 | MOR |
| 1982 05 28.96 | S | 9.6 | VF | 26.0 | L | 6 | 63 | | 3 | | | MER |
| 1982 05 29.25 | S | 10.2: | A | 25.0 | L | 5 | 60 | & 2.5 | 2 | | | SPR |
| 1982 06 10.10 | S | 10.4 | A | 31.7 | L | 6 | 6 | 2.5 | 1 | | | BOR |
| 1982 06 15.10 | S | 10.4 | A | 31.7 | L | 6 | 6 | 3.0 | 1 | | | BOR |
| 1982 06 15.90 | S | 10.2 | VF | 26.0 | L | 6 | 63 | 5.2 | 3 | | | MER |
| 1982 06 16.90 | S | 10.3 | VF | 26.0 | L | 6 | 63 | | | | | MER |
| 1982 06 18.92 | S | 10.5 | VF | 26.0 | L | 6 | 63 | 3.7 | 3 | | | MER |
| 1982 06 19.17 | S | 10.6 | AC | 25.0 | L | 7 | 68 | & 2.5 | 1/ | | | MOR |
| 1982 06 19.92 | S | 10.7 | VF | 26.0 | L | 6 | 63 | 4.7 | 2 | | | MER |
| 1982 06 21.10 | S | 10.7 | AC | 25.0 | L | 7 | 68 | 2.8 | 2 | | | MOR |
| 1982 06 21.11 | S | 10.8 | AC | 25.0 | L | 7 | 103 | | | | | MOR |
| 1982 06 21.11 | S | 10.6 | A | 31.7 | L | 6 | 6 | 2.5 | 0/ | | | BOR |
| 1982 06 24.13 | S | 11.0 | AC | 25.0 | L | 7 | 68 | & 3 | 1 | | | MOR |
| 1982 06 25.15 | S | 10.9 | A | 31.7 | L | 6 | 6 | 2.2 | 0 | | | BOR |
| 1982 06 26.92 | S | 11.2 | VF | 26.0 | L | 6 | 63 | 3.4 | 2 | | | MER |
| 1982 06 27.17 | S | 10.8 | AC | 25.0 | L | 7 | 68 | | 1 | | | MOR |
| 1982 06 29.91 | S | 11.4 | VF | 26.0 | L | 6 | 63 | 3.5 | 2 | | | MER |
| 1982 07 08.90 | S | 11.9 | VF | 26.0 | L | 6 | 63 | 3.4 | 1 | | | MER |
| 1982 07 10.11 | S | 11.3 | A | 50.0 | L | 5 | 7 | 2.6 | 0 | | | BOR |
| 1982 07 10.11 | S | 11.0 | AC | 25.0 | L | 7 | 68 | 3.2 | 1 | | | MOR |
| 1982 07 10.90 | S | 12.1 | VF | 26.0 | L | 6 | 63 | & 2.5 | 1 | | | MER |
| 1982 07 15.12 | S | 11.2 | AC | 25.0 | L | 7 | 68 | & 3 | 0/ | | | MOR |
| 1982 07 18.27 | S | 11.7 | A | 20.0 | L | 10 | 125 | 0.75 | 1 | | | SPR |
| 1982 07 22.10 | | ? | | 50.0 | L | 5 | 7 | ? 2.5 | | | | BOR |

Periodic Comet d'Arrest (1982e)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 08 22.08 | S | 12.0 | A | 50 | L | 5 | 78 | 2 | 0 | | | BOR |

Periodic Comet Swift-Gehrels (1981j)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 11 04.97 | S | 11.8 | A | 30 | L | 5 | 89 | 1.8 | 2 | | | KEI |
| 1981 11 17.75 | | 13.2 | V | 32 | R | | 95 | 1.6 | 0 | | | SHA02 |
| 1981 11 18.85 | S | 11.9 | A | 30 | L | 5 | 62 | 2.0 | | 0.07 | 140 | KEI |
| 1981 11 18.85 | | | | 30 | L | 5 | 62 | | | 0.05 | 243 | KEI |
| 1981 11 18.92 | | 12.6 | V | 32 | R | | 95 | 1.1 | 2 | | | SHA02 |
| 1981 11 20.88 | | 12.7 | V | 32 | R | | 95 | 1.5 | 1 | | | SHA02 |
| 1981 11 23.76 | | 12.9 | V | 32 | R | | 95 | 1.5 | 1 | | | SHA02 |

Periodic Comet Swift-Gehrels (1981j) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 11 23.77 | S | 11.8 | A | 30 | L | 5 | 62 | 2.1 | 3/ | | | KEI |
| 1981 11 23.77 | S | 11.1 | A | 8 | B | | 20 | 2.4 | | | | KEI |
| 1981 11 23.78 | | 11.2 | V | 28 | L | | 93 | 3.1 | 1 | | | SHA02 |
| 1981 11 23.83 | | 11.2 | V | 15 | L | | 67 | 3 | 1 | | | SHA02 |
| 1981 11 23.88 | | 11.6 | A | 26 | L | | 80 | 2.5 | 2 | | | HUR |
| 1981 11 24.77 | S | 11.8 | A | 30 | L | 5 | 62 | 2.2 | | | | KEI |
| 1981 11 24.77 | B | 12.0 | A | 22.5 | R | | 65 | 3 | 2/ | | | COM |
| 1981 11 24.78 | | 12.5 | V | 32 | R | | 95 | 2.2 | 1 | | | SHA02 |
| 1981 11 24.78 | M | 10.8 | A | 22.5 | R | | 65 | & 7.5 | 2/ | | | BUS01 |
| 1981 11 24.78 | M | 10.7 | A | 22.5 | R | | 65 | & 7 | 2/ | | | BOU |
| 1981 11 24.80 | | 11.6 | V | 20 | R | | 95 | 2.4 | 1 | | | SHA02 |
| 1981 11 24.81 | | 11.2 | V | 28 | L | | 88 | 2.4 | 1 | | | SHA02 |
| 1981 11 24.87 | B | 11.2 | A | 22.5 | R | | 65 | & 7.5 | 2/ | | | BUS01 |
| 1981 11 25.75 | B | 12.0 | A | 22.5 | R | | 65 | & 3.5 | 2 | | | COM |
| 1981 11 25.76 | M | 10.2 | AC | 15.6 | L | 5 | 30 | & 6 | 2 | &0.05 | | BOU |
| 1981 11 25.79 | M | 10.3 | AC | 15.6 | L | 5 | 30 | | | | | BUS01 |
| 1981 11 25.79 | B | 11.6 | A | 25.4 | L | | 70 | 2 | 4 | | | KUI |
| 1981 11 25.87 | S | 11.8 | A | 30 | L | 5 | 62 | 2.0 | | | | KEI |
| 1981 11 27.76 | M | 10.3 | A | 15.6 | L | | 30 | 6 | 2 | | | BOU |
| 1981 11 27.76 | B | 11.5 | A | 25.4 | L | | 70 | 2.5 | 3 | | | KUI |
| 1981 11 27.77 | | | | 30 | L | 5 | 62 | | | 0.03 | 45 | KEI |
| 1981 11 27.77 | S | 11.2 | A | 7 | R | | 40 | 2.2 | | | | KEI |
| 1981 11 27.77 | S | 11.2 | A | 8 | B | | 20 | 2.2 | | | | KEI |
| 1981 11 27.77 | S | 11.9 | A | 30 | L | 5 | 62 | 2.1 | 3 | 0.03 | 284 | KEI |
| 1981 11 27.80 | M | 10.2 | A | 15.6 | L | | 30 | | 2/ | | | BUS01 |
| 1981 11 27.91 | | 11.1 | V | 28 | L | | 88 | 3.6 | 1 | | | SHA02 |
| 1981 11 27.97 | | 12.5 | V | 32 | R | | 95 | 2.4 | 1/ | | | SHA02 |
| 1981 11 28.74 | S | 11.9 | A | 30 | L | 5 | 62 | 2.6 | 3 | | | KEI |
| 1981 11 28.74 | S | 11.0 | A | 7 | R | | 27 | 3.9 | | | | KEI |
| 1981 11 28.76 | | 11.2 | A | 25.6 | L | | 57 | 4 | 5 | | | KUI |
| 1981 11 28.77 | B | 11.5 | A | 22.5 | R | | 65 | | | | | FEI |
| 1981 11 28.77 | B | 11.8 | A | 22.5 | R | | 65 | 6 | 2 | | | COM |
| 1981 11 28.77 | B | 11.7 | A | 22.5 | R | | 65 | | | | | BRI |
| 1981 11 28.82 | M | 10.0 | A | 15.6 | L | | 30 | & 8.5 | 2 | | | BOU |
| 1981 11 28.83 | M | 9.8 | A | 8.0 | B | | 20 | | | | | BUS01 |
| 1981 11 28.83 | M | 9.8 | A | 8.0 | B | | 20 | &10.5 | 1/ | | | BOU |
| 1981 11 28.83 | M | 10.1 | A | 15.6 | L | | 30 | &10 | 2/ | | | BUS01 |
| 1981 11 29.82 | M | 9.6 | A | 6.0 | R | | 12 | | | | | BUS01 |
| 1981 11 29.83 | M | 9.7 | A | 8.0 | B | | 20 | | | | | BOU |
| 1981 11 29.83 | M | 9.9 | A | 15.6 | L | | 30 | | | | | BOU |
| 1981 11 29.83 | M | 10.1 | A | 15.6 | L | | 30 | & 7.5 | 3 | | | BUS01 |
| 1981 11 30.85 | M | 9.7 | A | 8.0 | B | | 20 | | 1 | | | BOU |
| 1981 11 30.88 | B | 11.0 | A | 25.4 | L | | 70 | 3 | 5 | | | KUI |
| 1981 11 30.89 | | 11.6 | A | 26 | L | | 80 | 3.5 | 2 | | | HUR |
| 1981 11 30.92 | | 11.6 | V | 32 | R | | 95 | 2.5 | 1/ | | | SHA02 |
| 1981 11 30.93 | | 11.0 | V | 28 | L | | 60 | 4.3 | 1 | | | SHA02 |
| 1981 11 30.95 | | 12.3 | NP | 25 | L | 4 | 44 | 4.5 | 2 | | | PAN |
| 1981 12 01.78 | S | 11.8 | A | 30 | L | 5 | 62 | 1.9 | 3/ | | | KEI |
| 1981 12 01.85 | | 11.9 | V | 32 | R | | 95 | 2.5 | 1 | | | SHA02 |
| 1981 12 01.86 | | 12.3 | NP | 25 | L | 4 | 44 | 4 | 2 | | | PAN |
| 1981 12 02.77 | S | 11.8 | A | 30 | L | 5 | 62 | 2.0 | 3/ | | | KEI |
| 1981 12 02.87 | B | 11.6 | A | 22.5 | R | | 65 | | 3 | | | COM |

Periodic Comet Swift-Gehrels (1981j) Cont.

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 12 04.75 | | 12.1 | A | 26 | L | | 80 | 3 | 1 | | | HUR |
| 1981 12 12.74 | | 12.4 | V | 32 | R | | 95 | 1.3 | 2 | | | SHA02 |
| 1981 12 15.76 | M | 10.0 | A | 6.7 | R | | 12 | | 1/ | | | BUS01 |
| 1981 12 15.76 | M | 10.3 | A | 15.6 | L | | 30 | | 1/ | | | BOU |
| 1981 12 15.76 | | 12.8 | V | 32 | R | | 95 | 1.6 | 1 | | | SHA02 |
| 1981 12 15.79 | S | 11.6 | A | 22.5 | R | | 65 | | 1 | | | COM |
| 1981 12 16.81 | S | 11.7 | A | 30 | L | 5 | 62 | 2.1 | 3/ | | 270 | KEI |
| 1981 12 17.00 | | 12.2 | NP | 25 | L | | 40 | 3 | 2 | | | PAN |
| 1981 12 17.91 | | 12.9 | V | 32 | R | | 95 | 0.5 | 1/ | | | SHA02 |
| 1981 12 18.76 | S | 10.9 | A | 30 | L | 5 | 62 | 2.0 | 4 | | | KEI |
| 1981 12 19.73 | M | 9.8 | A | 15.6 | L | | 30 | | 3 | | | BOU |
| 1981 12 19.76 | M | 10.2 | A | 15.6 | L | | 30 | | 1/ | | | BUS01 |
| 1981 12 19.77 | M | 10.2 | A | 6.0 | R | | 12 | | | | | BUS01 |
| 1981 12 19.77 | M | 9.8 | A | 6.7 | R | | 12 | | | | | BUS01 |
| 1981 12 19.80 | M | 9.5 | A | 8.0 | B | | 20 | 6 | 1/ | | | BOU |
| 1981 12 25.87 | S | 10.7 | A | 30 | L | 5 | 62 | 2.3 | 3/ | | | KEI |
| 1981 12 29.76 | S | 10.3 | A | 7 | R | | 27 | 3.5 | | | | KEI |
| 1981 12 29.76 | S | 10.7 | A | 30 | L | 5 | 62 | 2.6 | 4 | 0.07 | 80 | KEI |
| 1981 12 31.76 | S | 10.7 | A | 30 | L | 5 | 62 | 2.2 | 3/ | 0.07 | 80 | KEI |
| 1982 01 09.83 | M | 10.5 | A | 11.0 | R | | 15 | 6 | 0 | | | BUS01 |
| 1982 01 09.84 | | 10.6 | A | 11.0 | R | | 15 | | | | | COM |
| 1982 01 12.75 | S | 11.7 | A | 22.5 | R | | 65 | | 1/ | | | COM |
| 1982 01 12.78 | S | 11.3 | A | 15.6 | L | | 30 | 3 | 1 | | | BOU |
| 1982 01 12.79 | M | 11.2 | A | 22.5 | R | | 65 | 3 | 0 | | | BUS01 |
| 1982 01 12.79 | M | 11.4 | A | 15.6 | L | | 30 | 2 | 0 | | | BUS01 |
| 1982 01 13.76 | S | 10.5 | A | 30 | L | 5 | 62 | 1.2 | 3 | | | KEI |
| 1982 01 14.78 | S | 11.0 | A | 22.5 | R | | 65 | | 2 | | | COM |
| 1982 01 15.78 | | 11.3 | A | 22.5 | R | | 65 | | 2 | | | COM |
| 1982 01 15.80 | S | 10.3 | A | 30 | L | 5 | 62 | 3.4 | 3 | | | KEI |
| 1982 01 16.75 | M | 10.6 | A | 15.6 | L | | 30 | 6 | 2 | | | BOU |
| 1982 01 16.76 | M | 10.5 | A | 15.6 | L | | 30 | & 6 | 1/ | | | BUS01 |
| 1982 01 16.78 | S | 10.5 | A | 15.6 | L | | 30 | | | | | BOU |
| 1982 01 16.79 | M | 11.0 | A | 22.5 | R | | 65 | 3 | 1/ | | | BUS01 |
| 1982 01 16.79 | S | 10.1 | A | 8.0 | B | | 20 | & 9 | 0 | | | BOU |
| 1982 01 16.80 | M | 11.1 | A | 22.5 | R | | 65 | 4 | 1 | | | BOU |
| 1982 01 20.78 | S | 9.8 | A | 30 | L | 5 | 62 | 3.2 | 3 | | | KEI |
| 1982 01 20.78 | S | 9.6 | A | 8 | B | | 20 | 3.1 | | | | KEI |
| 1982 01 20.87 | | 11.8 | A | 22.5 | R | | 65 | | 2 | | | COM |
| 1982 01 22.77 | S | 10.0 | A | 30 | L | 5 | 62 | 3.0 | 3 | | | KEI |
| 1982 01 26.82 | S | 10.2 | A | 30 | L | 5 | 62 | 3.0 | 3/ | 0.07 | 95 | KEI |
| 1982 01 27.77 | S | 10.9 | A | 15.6 | L | | 30 | 4 | 0/ | | | BOU |
| 1982 01 27.78 | S | 11.0 | A | 15.6 | L | | 30 | 3 | 0 | | | BUS01 |
| 1982 01 27.79 | | 11.2 | A | 25.4 | L | | 70 | 2 | 0 | | | KUI |
| 1982 01 27.86 | S | 10.8 | A | 30 | L | 5 | 62 | 2.3 | 0 | | | KEI |
| 1982 01 27.86 | S | 11.2 | A | 30 | L | 5 | 89 | | | | | KEI |
| 1982 01 29.86 | S | 12.1 | A | 30 | L | 5 | 89 | 1.0 | 0 | | | KEI |
| 1982 02 11.88 | S | 12.7 | A | 30 | L | 5 | 89 | 1.2 | | | | KEI |
| 1982 02 14.78 | | 12.5: | A | 25.4 | L | | 38 | & 1.5 | 0 | | | BUS01 |
| 1982 02 19.86 | S | 12.0 | A | 25.4 | L | | 61 | 2 | 1 | | | BOU |
| 1982 02 19.86 | S | 12.0 | A | 25.4 | L | | 61 | 2 | 0 | | | BUS01 |
| 1982 02 20.79 | S | 12.0 | A | 25.4 | L | | 61 | 2 | 0 | | | BUS01 |
| 1982 02 20.82 | S | 12.2 | A | 25.4 | L | | 61 | 1.5 | 0/ | | | BOU |
| 1982 02 21.87 | | | | 25.4 | L | | 61 | 2 | 0 | | | BUS01 |
| 1982 02 21.87 | S | 12.6 | A | 22.5 | R | | 65 | | | | | COM |

Periodic Comet Kearns-Kwee (1981h)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1981 11 28.03 | S | 13.6 | A | 30 | L | 5 | 89 | 0.6 | | | | KEI |
| 1981 11 29.05 | S | 13.7 | A | 30 | L | 5 | 89 | 0.5 | | | | KEI |
| 1981 12 01.14 | S | 13.6 | A | 30 | L | 5 | 89 | 0.7 | 6 | | | KEI |
| 1981 12 03.13 | S | 13.6 | A | 30 | L | 5 | 89 | 0.7 | | 0.02 | 273 | KEI |
| 1981 12 09.22 | S | 13.6 | A | 30 | L | 5 | 89 | 0.8 | | | | KEI |

Periodic Comet Pons-Brooks (1954 VII = 1953c)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1953 10 11.80 | P | 12.6 | | 15.0 | | 4 | | 3 | 2 | | | WAT |
| 1953 10 30.85 | | 12.5: | | 76.0 | L | | 150 | 1.5 | 3 | | | STE06 |
| 1953 11 01.80 | | 13 : | | 20.0 | | 2 | | | | | | MER02 |
| 1953 11 01.80 | | 13 : | | 15.0 | | 4 | | | | | | WAT |
| 1953 11 01.85 | | 12.5: | | 76.0 | L | | 140 | | | | | STE06 |
| 1953 11 02.85 | | 13 : | | 76.0 | L | | 150 | 2 | | | | STE06 |
| 1953 11 04.85 | | 13.3: | | 76.0 | L | | 150 | | | | | STE06 |
| 1953 11 28.75 | | 13.3 | | 76.0 | L | | 150 | 2 | | | | STE06 |
| 1953 12 29.85 | | 12.5: | | 76.0 | L | | 140 | 2 | 2 | | | STE06 |
| 1954 01 01.75 | | 12.3: | | 76.0 | L | | 140 | | | | | STE06 |
| 1954 01 04.75 | | 10.5: | | 76.0 | L | | 140 | 1.5 | 3 | | | STE06 |
| 1954 01 05.76 | | 10.7 | | 10.0 | R | | 30 | 3.5 | 6 | | | ALC |
| 1954 01 07.75 | | 11.0 | | 10.0 | R | | 30 | 4 | 6 | | | ALC |
| 1954 01 30.80 | | 10.7 | | 32.0 | R | | 230 | 2 | 5 | | | MER02 |
| 1954 02 03.80 | | 10.5 | | 32.0 | R | | 230 | 1.5 | 2 | | | MER02 |
| 1954 02 26.80 | | 9.8: | | 10.0 | R | | 30 | 5 | 2 | | | ALC |
| 1954 02 26.80 | | 8.5: | | 76.0 | L | | 140 | 4 | | | | STE06 |
| 1954 03 03.80 | | 8.8 | | 32.0 | R | | 230 | 2 | 2 | | | MER02 |
| 1954 03 07.80 | S | 8.8 | HD | 10.0 | R | | 30 | 6 | 3 | | | ALC |
| 1954 03 07.80 | S | 8.5 | HD | 7.0 | R | | 25 | 4 | | | | STE06 |
| 1954 03 28.80 | S | 7.5 | BD | 10.0 | R | | 30 | 7 | | 0.25 | 330 | ALC |
| 1954 03 28.80 | | 7.6 | BD | 32.0 | R | | 240 | 3 | 5 | | | MER02 |
| 1954 03 28.84 | S | 6.4 | BD | 5.0 | R | | 7 | | | | | STE06 |
| 1954 03 28.85 | | 7.2 | BD | 15.0 | R | | 40 | 5 | 8 | | 340 | GRA |
| 1954 03 31.80 | S | 7.2 | BD | 10.0 | R | | 30 | 5.5 | 8 | 0.75 | 15 | ALC |
| 1954 03 31.85 | S | 7.9 | BD | 7.0 | R | | 38 | 5 | 5 | | | HEN |
| 1954 04 04.87 | S | 7.0 | BD | 13.0 | L | | 80 | 10 | 5 | | | PAN |
| 1954 04 04.90 | S | 6.0 | BD | 10.0 | R | | 30 | 6 | 7 | 0.3 | 345 | ALC |
| 1954 04 06.17 | | 6.5 | UM | 7.0 | R | | 30 | 6 | | | | STO01 |
| 1954 04 19.90 | S | 6.0 | | 10.0 | R | | 30 | 8 | 7 | 0.75 | 360 | ALC |
| 1954 06 22.28 | S | 6.1 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 06 23.27 | S | 6.3 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 06 23.27 | | | | 14.0 | R | | 42 | 3 | 7 | | | JON |
| 1954 06 28.27 | S | 6.1 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 07 01.27 | S | 6.6 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 07 01.27 | | | | 32.0 | L | | 48 | 3 | 5 | | | JON |
| 1954 07 02.27 | S | 6.7 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 07 02.27 | | | | 32.0 | L | | 86 | | 5 | | | JON |
| 1954 07 03.27 | S | 7.5 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 07 03.27 | | | | 32.0 | L | | 48 | 3 | 5 | | | JON |
| 1954 07 05.27 | S | 6.7 | HD | 5.0 | R | | 7 | | | | | JON |

Periodic Comet Pons-Brooks (1954 VII = 1953c)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1954 07 07.77 | S | 7.2 | HD | 5.0 | R | | 7 | | | | | JON |
| 1954 07 09.77 | S | 7.4 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 07 13.78 | S | 8.0 | V | 7.0 | R | | 23 | | | | | JON |
| 1954 07 13.78 | | | | 32.0 | L | | 48 | 2.5 | 5 | | | JON |
| 1954 07 23.33 | | | | 32.0 | L | | 48 | 2.5 | 3 | | | JON |
| 1954 07 23.33 | S | 8.7 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 07 24.32 | S | 8.4 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 07 27.34 | S | 8.7 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 07 27.77 | | | | 32.0 | L | | 48 | 2.5 | 2 | | | JON |
| 1954 07 27.77 | S | 8.3 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 07 29.77 | S | 8.2 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 07 29.77 | | | | 32.0 | L | | 48 | 2.5 | 3 | | | JON |
| 1954 08 07.76 | S | 8.6 | HD | 7.0 | R | | 23 | | 1 | | | JON |
| 1954 08 09.76 | | | | 32.0 | L | | 86 | 2.5 | 2 | | | JON |
| 1954 08 09.76 | S | 9.7 | HD | 7.0 | R | | 23 | | | | | JON |
| 1954 08 16.33 | S | 10.0 | V | 7.0 | R | | 23 | | 2 | | | JON |
| 1954 08 24.33 | S | 10.9 | V | 32.0 | L | | 48 | 2 | 2 | | | JON |
| 1954 08 24.33 | S | 10.3 | V | 7.0 | R | | 23 | | | | | JON |
| 1954 08 27.73 | S | 10.3 | V | 7.0 | R | | 23 | | | | | JON |
| 1954 08 27.73 | | | | 32.0 | L | | 86 | 2 | | | | JON |
| 1954 08 29.36 | | | | 32.0 | L | | 86 | 3 | 1 | | | JON |
| 1954 08 29.36 | S | 10.6 | V | 7.0 | R | | 23 | | | | | JON |
| 1954 09 08.72 | S | 11.3 | V | 32.0 | L | | 48 | 3 | 0 | | | JON |
| 1954 09 24.36 | S | 11.8 | V | 20.0 | L | | 35 | 2.5 | | | | JON |
| 1954 09 25.36 | S | 11.6 | V | 20.0 | L | | 52 | 2.5 | 1 | | | JON |

Periodic Comet Schwassmann-Wachmann 1 (1974 II)

| DATE (UT) | MM | MAG. | RF | AP. | T | F/ | PWR | COMA | DC | TAIL | PA | OBS. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1982 04 14.87 | | 11.6 | A | 26 | L | | 120 | 2 | 2 | | | HUR |
| 1982 04 15.85 | S | 11.6 | VF | 26.0 | L | 6 | 130 | 1.3 | 3 | | 145 | MER |
| 1982 04 16.87 | S | 11.8 | VF | 26.0 | L | 6 | 130 | & 1.1 | 3 | | | MER |
| 1982 04 16.94 | S | 12.1 | V | 30 | L | 5 | 62 | 1.1 | 6 | | 135 | KEI |
| 1982 04 17.90 | S | 12.4 | V | 30 | L | 5 | 62 | 1.0 | | | | KEI |
| 1982 04 18.87 | S | 12.1 | VF | 26.0 | L | 6 | 130 | 1.2 | 1 | | | MER |
| 1982 04 18.89 | | 11.9 | A | 26 | L | | 80 | 1 | 1 | | | HUR |
| 1982 04 18.93 | S | 12.2 | V | 30 | L | 5 | 62 | 1.2 | | | 158 | KEI |
| 1982 04 19.84 | S | 12.0 | VF | 26.0 | L | 6 | 130 | 1.4 | 2 | | | MER |
| 1982 04 20.89 | S | 12.3 | VF | 26.0 | L | 6 | 130 | & 1.1 | 1 | | | MER |
| 1982 04 22.90 | S | 12.2 | VF | 26.0 | L | 6 | 130 | 1.5 | 1 | | | MER |
| 1982 04 26.89 | S | 12.6 | VF | 26.0 | L | 6 | 130 | 0.8 | 1 | | | MER |

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UNIVERSAL TIME (UT): This time based on the Greenwich meridian is used throughout the ICQ; it is 24-hour time, from midnight to midnight. In North America, add the following numbers to standard times to convert to UT: EST, 5; CST, 6; MST, 7; PST, 8. For daylight savings time, add 4, 5, 6, and 7 hours, respectively.