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The Archive of The Amateur Observation Network of The International Halley Watch

Volume 2: Comet Halley

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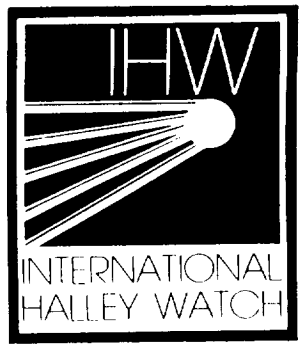

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ABSTRACT

The International Halley Watch (IHW) was organized for the purpose of gathering and archiving the most complete record of the apparition of a comet, Halley's Comet (1982i = 1986 III = 1P/Halley), ever compiled. The redirection of the International Sun-Earth Explorer 3 (ISEE-3) spacecraft, subsequently renamed the International Cometary Explorer (ICE), toward Comet Giacobini-Zinner (1984e = 1985 XIII = 21P/Giacobini-Zinner) prompted the initiation of a formal watch on that comet. All the data collected on P/Giacobini-Zinner and P/Halley have been published on CD-ROM in the *Comet Halley Archive*. This document contains a printed version of the archive data, collected by amateur astronomers, on these two comets. Volume 1 contains the Comet Giacobini-Zinner data archive and Volume 2 contains the Comet Halley archive. Both volumes include information on how to read the data in both archives, as well as a history of both comet watches (including the organizing of the network of astronomers and lessons learned from that experience).

ACKNOWLEDGEMENTS

Charles Morris, Daniel W. E. Green, and John E. Bortle were very helpful in supplying advice and information on many aspects of cometary magnitude estimates and the visual appearance. Richard H. Stanton made photoelectric checks on several AAVSO comparison star fields before copies were issued to IHW comet observers. James A. Morgan, Alan Hale, Ruthi Moore, Mike Morrow, John D. Sabia, John Sanford, Chris Spratt, David Seargent, E. Peter Bus, Marek Muciek, Jan Hollan, Antonio Milani, Jose Campos, Klim Churyumov, Graham Keitch, Harold Ridley, Gabor Sule, Jürgen Rendtel, and many other well-known observers served as collection points and forwarded much of the data to the Lead Center. Giulio Varsi, Sandor Trajmar, and B. Watson provided translations of some observers' notes. Murray Geller helped with the proofreading and supplied good advice and considerable encouragement. Richard West provided guidance. Ray L. Newburn, Jr. was helpful and supportive in ways too numerous to list. Pamela K. Stewart supplied very helpful database management routines. Without Mikael Aronsson's programming and patience and Tim Thompson's assistance the presentation of these data would not have been possible.

Table of Contents

Volumes 1 and 2

Table of Contents (continued)

Volumes 1 and 2

Tables

Figures

Table of Contents (continued)

THE ARCHIVE OF THE AMATEUR OBSERVATION NETWORK OF THE INTERNATIONAL HALLEY WATCH

Prologue

The International Halley Watch (IHW) was organized by the Jet Propulsion Laboratory (JPL) for the U.S. National Aeronautics and Space Administration (NASA) for the purpose of gathering and archiving the most complete record of the apparition of a comet, Halley's Comet (1982i = 1986 III = 1P/Halley), ever compiled. Descriptions of the IHW may be found in Edberg (1985) and in Edberg, Newburn, and Rahe (1988). The potential contribution of amateur astronomers was recognized at the outset (Brandt *et al.*, 1980) and the IHW was set up to include an Amateur Observation Network.

Detailed planning and publicity began in 1981 and *The International Halley Watch Amateur Observers' Manual for Scientific Comet Studies* (Edberg, 1983) was available in time for the IHW's trial run on Comet Crommelin (1983n = 1984 IV = 27P/Crommelin) in 1983-4. The data acquired during the trial run have been published in print (Sekanina and Aronsson, 1985) and by NASA on CD-ROM, that is, compact disc - read-only memory, in the *Comet Halley Archive*, Vol. 24 (IHW Staff, 1992).

The redirection of the International Sun-Earth Explorer 3 (ISEE-3) spacecraft, subsequently renamed the International Cometary Explorer (ICE), toward Comet Giacobini-Zinner (1984e = 1985 XIII = 21P/Giacobini-Zinner) prompted the initiation of a formal watch on that comet, even as Comet P/Halley was in the first stage of its 1985-6 apparition. All the data collected on P/Giacobini-Zinner and P/Halley have been published on CD-ROM in the *Comet Halley Archive* (IHW Staff, 1992; Vol. 24 and Vols. 1 - 23, respectively; Vols. 25 - 26 contain spacecraft data and complete the set). This document contains a printed version of the archive data, collected by amateur astronomers, on these two comets. Volume 1 contains the Comet Giacobini-Zinner data archive and Volume 2 contains the Comet Halley archive. Both volumes include information on how to read the data in both archives, as well as a history of both comet watches (including the organizing of the network of astronomers and lessons learned from that experience).

I. INTRODUCTION

Observations of Comets Halley and Giacobini-Zinner, compiled by the Discipline Specialist Team (Table I), can be grouped into four distinct categories:

(1) Visual-appearance descriptions.
(2) Drawings.
(3) Photographs.
(4) Spectrograms.

Amateur observations of Periodic Comet Giacobini-Zinner (G-Z) commenced with the visual recovery of the comet by C. S. Morris and S. J. Edberg on 1985 April 13. They ended with A. F. Jones' observation on 1985 December 10. Within that period 1016 magnitude and related visual appearance observations are included in the archive. Fifty-three drawings are listed spanning June - October and 20 photographs span July - September. Observations from 106 amateur astronomers were used in the G-Z archive.

Amateur observations of Periodic Comet Halley commenced with the visual recovery of the comet by S. J. O'Meara on 1985 January 23. They ended with D. H. Levy's observation on 1988 February 23. Within that period 11,641 magnitude and related visual appearance observations are listed in the Halley archive. Within the span of 1985 July 28 through 1986 June 30 there are 1309 drawings listed. Photographs cover the period 1985 August 12 to 1988 February 16 and total 2165. Spectra were obtained over the period 1985 December 4 through 1986 May 4 and 45 are listed.

The G-Z and Halley archives both carry identification numbers for every observation. These are called out in the amateur archive as AON#, whose leading digit is always 8 (numbers 1 - 7 identify the other disciplines in the IHW). The second (for Halley) or the third (for G-Z) digit identifies the subcollection of observations, as indicated below. The final digits were assigned to each observation in chronological order.

Because of the subjective nature of visual-appearance observation methods there is diversity in the type and quality of information recorded in the archive. When a range of values was given by the observer the more conservative value was adopted, i.e. a shorter tail, more diffuse condensation, smaller coma, and fainter magnitude. The AON# is always 1 for visual-appearance listings.

Drawings present the visual aspect of a comet. To be included in the archive a rendering must reproduce the detail discernible by the observer and provide information useful to an investigator. The AON# is always 3 for drawing listings.

All the photographic images listed in the archive are on file and were examined for quality before inclusion in the archive listings. The AON# is always 5 for photograph listings.

The spectra listed in the archive were made with either prism or grating spectrographs in a variety of modes. These spectra are perhaps the only ones in the complete IHW archive which cover the full range of visual wavelengths in one record. A few spectra extend into the photographic infrared. The AON# is always 7 for spectrogram listings.

Planning and Organization

The rationale for including amateur observations in IHW activities was described in the original IHW report by Brandt *et al.* (1980). The goal was to ensure that amateur observations would be as scientifically useful as possible. With that in mind the *IHW Amateur Observers' Manual for Scientific Comet Studies* (Edberg, 1983) was written. The philosophy was to provide detailed instructions that observers with some experience could follow. The manual was not intended to teach neophyte amateur astronomers how to begin the hobby, though it was available early enough that a novice, wishing to learn how to make amateur astronomical observations in general and observations of comets in particular,

TABLE I

Discipline Specialist Team

Team Member	Affiliation	Responsibility
Stephen J. Edberg	Earth & Space Sciences Div. Jet Propulsion Laboratory California Institute of Technology Pasadena, CA 91109, U. S. A.	Discipline Specialist, Coordinator for Amateur Observations
Charles S. Morris	Telecommunications Science & Engineering Division Jet Propulsion Laboratory	Associate Discipline Specialist
Warren Morrison	American Association of Variable Star Observers (AAVSO) Cambridge, MA 02138, U. S. A.	Data Recorder
Thomas R. Williams	AAVSO	Data Recorder
Michael J. Weiner	Earth and Space Sciences Div. Jet Propulsion Laboratory	Data Reduction Assistant 1985-1986
Mary L. Firth	Earth and Space Sciences Div. Jet Propulsion Laboratory	Data Reduction Assistant 1986-1988
Elizabeth La Vite	Earth and Space Sciences Div. Jet Propulsion Laboratory	Data Reduction Assistant 1988-1989

would have enough time and could find enough general references to learn the necessary techniques.

Inviting amateur astronomers to participate in the IHW was approached in several ways. Contacts with established organizations and well-known amateur observers were made. This did not reach the bulk of potential observers. These observers were contacted via the astronomical press and other public media.

Seeking scientific assistance from amateur astronomers had its pros and cons. Filling in observational gaps in professional coverage of the comet, for the professional Large Scale Phenomena Network and the Spectroscopy and Spectrophotometry Network to name two examples, and supplying numerous visual observations were genuine, positive contributions to the IHW. On the other hand the potentially large number of contributors and observations and the observations' uncertain quality could easily have overwhelmed efforts to manage and then prepare the data for inclusion in the archive. Marketing surveys, conducted for advertisers using astronomical magazines, estimated the number of amateur astronomers in the U.S. and Canada, alone, to number 300,000.

To ameliorate the problem, amateurs planning to register with the Amateur Observation Network were encouraged, via the Observer Index registration form, to read portions of the manual first to confirm their interest not just in joining in the IHW but in actually participating by making observations useful to the scientific community.

Ultimately, the numbers of participants and observations proved manageable. There were 1575 registrations and of these, 873 actually submitted observations of P/Halley. It is noteworthy that the latter figure includes submitters who did not register with the amateur network: their observations simply arrived in the mail.

The observations were collected at the IHW's JPL Lead Center. They were either sent there directly by the observers or were forwarded by designated observation collectors - usually experienced observers willing to collect observations and advise observers - from sites around the world. (These data recorders were listed in the *International Halley Watch Amateur Observer's Bulletin* (Edberg, 1982 - 1990) and in acknowledgment and update letters sent to registered observers.) Some of the collectors also provided their assessment of the quality of the observations. The final preparation of the archive involved an assessment of all the submitted observations by the Discipline Specialist.

Registration and Preparation

The Observer Index form in the *IHW Amateur Observers' Manual* was designed so that the observer's address and observing site particulars could be entered into computer files for later use. The information requested on telescopes, cameras, and other observing hardware, while not necessary at the time of registration (but required for observations), later proved useful on numerous

occasions when ambiguities of various types appeared in observation reports. Even the signature permitting use of the data in the archive was helpful at times.

Registrants received a letter of acknowledgement and, later, letters timed appropriately for the P/Crommelin trial run and the P/Giacobini-Zinner campaign. They were encouraged to request a free subscription to the *IHW Amateur Observer's Bulletin* (published for the IHW by the Planetary Society) so they would be informed about IHW activities.

In 1988, a short questionnaire requesting more details on each observer's past cometary and general astronomical experience was sent to all observation submitters for whom addresses were available. (Some observations were sent without the submitter's address and other observers moved without sending an address update.) Staff and time limitations prevented the inclusion of the ancillary Observer Index data and the questionnaire data in computer files, but the paper files will stay with the IHW archive for future use by those who are interested in the community of participating amateur astronomers.

The observing site coordinates, listed in Table VIII and by identification number with the observations in the archive, are mostly those supplied by the observer. They have appended to them the Discipline Specialist's subjective estimate of the accuracy of that position. Occasionally observers used additional sites for which they did not supply coordinates. For these sites any evidence available was used to estimate very approximate geographic coordinates and a very large position uncertainty estimate was attached to them, sometimes as large as a whole country.

The large number of observing sites that many individuals would use was not anticipated. Observers selected sites based on such characteristics as atmospheric conditions and weather, distance from home, height and darkness of the horizon, and the comet's azimuth, among others.

The observation report forms in the manual (as later modified and published in the *IHW Amateur Observer's Bulletin* and in letters to observers) were patterned on report forms used by various amateur astronomy organizations. Occasionally there was redundancy on the forms; this sometimes proved very helpful in preparing the data for input. The forms were as self-explanatory as possible, even though a complete glossary explaining the forms was in the Manual.

The report forms were formulated so that a selected parameter was the same for all observations reported on an individual form: for magnitudes the parameter was the comet observed; for drawings, photoelectric photometry, and meteor counts it was the date; and for all observations using photography it was photographic emulsion. Unfortunately, some observers did not follow the formulations, creating significant additional work to prepare mixed-parameter observation reports for entry in the archive.

The preparation of thousands of observations for entry in the archive leads to the following conclusion: the organizer of any activity of this nature must be prepared for the unexpected and

irrational. Sometimes instructions aren't followed, and the data system must have built-in flexibility and adaptability.

II. THE ARCHIVE

Visual Appearance

After discussions with the staff of the *International Comet Quarterly* (*ICQ*), their observation report form was adopted with added columns for additional data relevant to the analysis and understanding of the large number of magnitude estimates in the archive. It was a mistake not to ask for the comet's name on the report form: some observers sent in their data on P/Giacobini-Zinner and on P/Halley on separate forms but in the same mailing. Some G-Z observations were found mixed with Halley observations during the final Halley proofreading, when it was too late to add them to the G-Z archive. Another minor problem, fortunately made obvious by the observers, was that observations of brighter "comets of opportunity" discovered in 1985 were sometimes submitted with Halley observations on the same report form (this occurred with drawings as well).

UT Date was usually understood by observers but the time of observations was sometimes not correctly computed or not attached to the correct data. Some observers, responding to an IHW request, submitted their times as decimals of a day. A number of them incorrectly used the table to convert hours:minutes:seconds to decimals of a day, which was distributed in the acknowledgment letter and in the *Amateur Observer's Bulletin* (No. 11). Observations with ambiguous dates/times were discarded. With very few exceptions, decimal dates had to be specified to two or more decimal places for inclusion in the archives.

To better standardize the magnitude estimates, comparison star charts were included with the *Amateur Observers' Manual* (in Part II). These included reduced-size *AAVSO Variable Star Atlas* charts (Scovil, 1980) with their V and visual magnitudes and portions of the *B.A.A. Star Charts 1950.0* (Tirion, 1981) that had AAVSO Atlas magnitudes added to them. In addition, selected AAVSO variable star comparison charts, some checked photoelectrically by Richard Stanton (JPL, private communication) were mailed to registered observers. These efforts at standardization were thwarted both directly by the publication of other observing manuals with different star charts + magnitudes (Bouma *et al.*, 1985 and Bus, 1984) and indirectly by observers picking their own sources of comparison magnitudes. Later in this section the many reference sources used by the observers are listed. It is incumbent on any archive user to decide which set or sets of comparison charts are acceptable for research.

Some observers reported magnitudes made with the same instrument but with different magnifications on the same data line: these were discarded because of their ambiguity.

Degree of condensation, DC, often covered the full range from

0 to 9 on many nights. Charles Morris submits the following report on recent results:

> An interesting result of the February 1994 International Workshop on Cometary Astronomy concerns a comet's degree of condensation. For some time, there has been concern over the wide range of DC values (often including all possible values, 0-9) reported by different observers, even experienced observers, on a given night (S. J. Edberg, unpublished). During a panel discussion at the Workshop, led by John E. Bortle and Charles S. Morris, one reason for the spread was uncovered. Most American observers (and the IHW) define DC as a smoothly varying description of the intensity profile across a comet's head (Edberg, 1983). In particular, DC = 9 is used only when a comet is described as either wholly with a bright nuclear condensation with little surrounding coma (star-like in appearance) or with a notable, sharp-edged (planetary-like) disk. In this scheme, a diffuse coma with a stellar condensation would have a DC that is the weighted average of the two components. For instance, a totally diffuse coma (DC=0) with a faint stellar condensation might have a combined DC of two. If the same diffuse coma had a bright condensation, the DC might be six or seven.
>
> At the Workshop it was learned that British observers jump to DC = 9 immediately upon distinguishing any stellar condensation within the comet's head. While other European comet groups/observers at the Workshop indicated that they followed the American/IHW definition of DC, a visual DC test given to the participants (Shanklin, 1994) prior to the DC discussion showed good agreement among observers for all examples, except the one having a stellar condensation embedded in a diffuse coma. While not explaining all the scatter observed in the DC estimates (e.g., different instrumentation is another potential cause), it does suggest that significant confusion exists over the definition of DC when a stellar (or near-stellar) condensation is present in the comet's coma. Users of the archive should bear this in mind when analyzing DC data.

The Dark Adapted column asked for a simple yes/no response. The actual time spent dark adapting would have been a more useful datum.

The criteria for the retention of magnitude data in the archive were extensively debated. The extremes ranged from keeping the data from only a few, selected, experienced observers to keeping virtually all of them. One specific criterion and its rationale originated with Charles Morris (JPL, private communication): Exclude observers who made less than a specified number of observations (e.g., 1 observation per month on average)

during the prime 1985-86 observing period. This number should be selected so the criterion tends to filter out inexperienced observers while retaining sufficient quantities of data from the remaining observers to make meaningful intercomparisons.

Based on these discussions, the decision was made that for the archive all those data were included that, based on the report itself, appeared to have been made in the *Manual*-prescribed manner. Thus researchers may exercise the option of applying Morris' criterion. Even this liberal approach to data inclusion resulted in the discarding of roughly one-quarter of the submitted observations. Figure 1 presents light curves of G-Z and Halley. The light curve in Figure 1b was generated with a group of selected observers while Figure 1c used all of the observers.

The size of this data set will allow many more studies of interest - some of the observers perhaps, as well as of the comet - than would have been possible had a much more limited archive been produced. Workers interested in using experience as a selection criterion are referred to Table II, kindly supplied by Daniel Green (Central Bureau for Astronomical Telegrams; private communication), which lists observations by those whose data are in the *ICQ* files. Users are also referred to Green (1986) for additional data on *ICQ* observers of P/Halley. He lists both the most active *ICQ* observers of P/Halley as well as the most active observers of all comets in the *ICQ* archives.

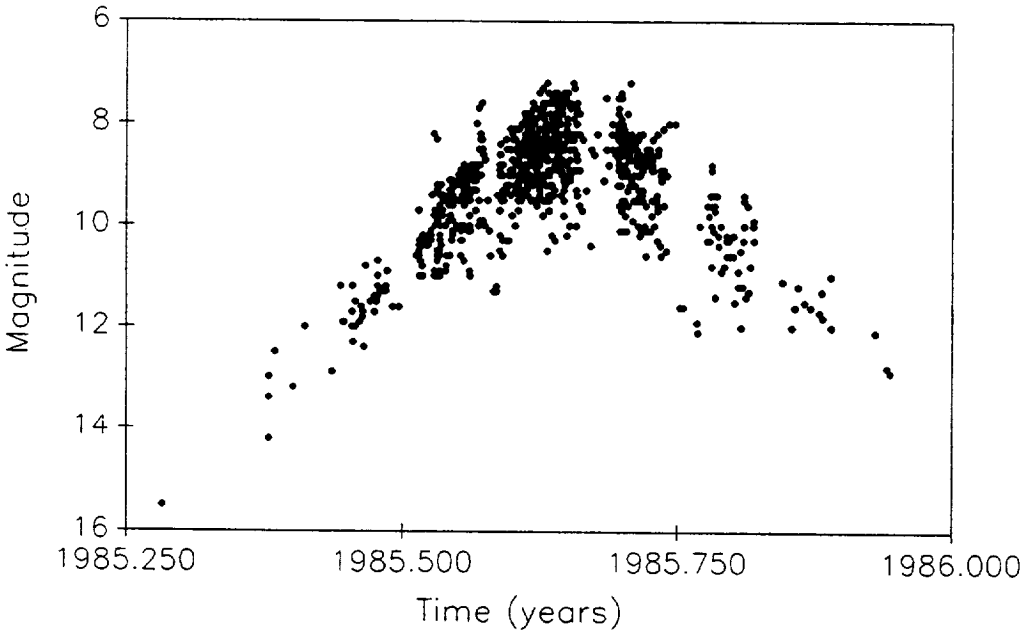


Figure 1. (a) The light curve of Comet Giacobini-Zinner, using the brightest total magnitude estimate (if more than one was made) by each observer on every night an observation was made. No aperture corrections have been applied. Breaks in the curve fall around full moon.

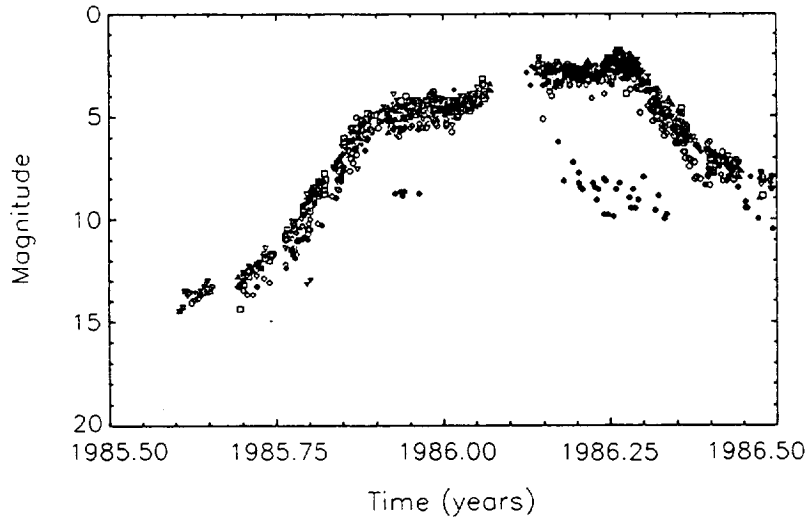


Figure 1. (b) The light curve of Comet Halley using the brightest magnitude estimate (if more than one was made) by observers J. Bortle, R. Bouma, D. W. E. Green, A. Hale, A. Jones, R. Keen, G. Keitch, C. S. Morris, W. Morrison, A. Pearce, D. Seargent, and J. Shanklin on every night an observation was made. Some "nuclear" magnitudes (m2) have been included, falling well below the total magnitude light curves. No aperture corrections have been applied. Breaks in the curve fall around full moon or perihelion.

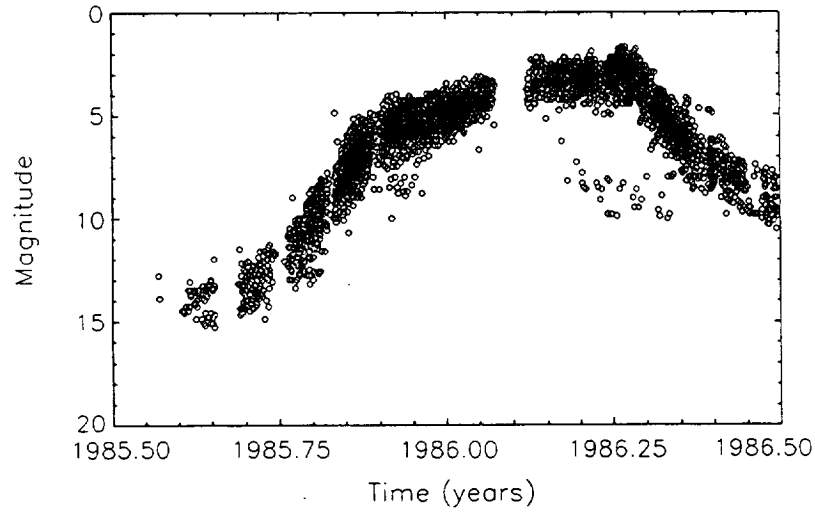


Figure 1. (c) The light curve of Comet Halley using the brightest magnitude estimate (if more than one was made) by all observers on every night an observation was made. Some "nuclear" magnitudes (m2) have been included, falling well below the total magnitude light curves. No aperture corrections have been applied. Breaks in the curve fall around full moon or perihelion.

TABLE II

The Most Active *ICQ* Observers

The top 24 active observers of all comets in the *ICQ* archive as of 1990 January 4 are listed below. The columns list observer's name, number of positive observations, and number of negative observations (comet not detected). Here, an observation is defined as a single *ICQ*-format 80-character data listing; in the *ICQ* archive there is often more than one observation per observer per comet per night, since observers use different methods and different instruments to determine the total visual magnitude. The vast majority of observations (> 95%) contain some sort of magnitude estimate while the remainder report only other aspects of the visual appearance.

Observer	Obs.	Neg.
John E. Bortle	1952	74
Albert Jones	1942	1
Charles S. Morris	1799	36
Reinder Bouma	914	8
Daniel W. E. Green	863	3
Andrew Pearce	801	43
Alan Hale	682	280
Graham Keitch	773	1
Jonathan Shanklin	657	18
Warren Morrison	622	
David Seargent	618	1
Richard Keen	607	
Chris Spratt	596	
Michael Moeller	533	
Maurice Clark	503	
Jean-Claude Merlin	480	19
Don Machholz	463	4
Eric Jacobson	391	20
Richard Fleet	354	5
Georg Comello	330	1
Kiyotaka Kanai	329	
Werner Hasubick	327	2
E. P. Bus	326	
Akimasa Nakamura	316	

Observers' notes, throughout the amateur archive, are usually reproduced as written by the observer, especially in the case of observers whose first language is not English. This can make for rough reading and ambiguity at times but it allows archive users to make their own judgments. Some observers supplied extensive notes not directly related to the comet or the observations. A few of these are scattered through the archive to supply a little color and context to the data and the times.

The column headings of the IHW Visual Appearance printed archive are described below:

Date(UT) Decimal date of the time of observation. Trailing zeroes are often mere space-fillers.

AON# Amateur observation network number, a unique reference number assigned to each observation.

m1 Total magnitude of the comet. A colon indicates that the given magnitude has lower than usual precision. A > indicates that the comet was fainter than the given magnitude.

MM The magnitude estimation method was one of four types:

- B - Bobrovnikoff method
- S - Sidgwick or In-Out method
- M - Morris method
- V - In-focus telescopic (as with variable stars) or naked eye estimates (made with or without defocusing; some observers remove corrective eyeglasses to defocus stars for comparison with the comet)

See Edberg (1983) for details of the first three methods.

Chart Source(s) of comparison star magnitudes:

(number < 179) Specific chart with V and/or visual magnitudes in the *American Association of Variable Star Observers (AAVSO) Variable Star Atlas* (Scovil, 1980).

(number + letter) Specific chart from the *B.A.A.* (British Astronomical Association, BAA) *Star Charts 1950.0* (Tirion, 1981) that was modified by the addition of AAVSO atlas magnitudes and published in the *IHW Amateur Observers' Manual* (Edberg, 1983).

(variable star designation) Variable star comparison chart published by the AAVSO, BAA, or Royal Astronomical Society of New Zealand (RASNZ), or AAVSO charts with V magnitudes (specially checked by R. H. Stanton, JPL; private communication). The latter were distributed by the IHW. A letter following the variable star designation identifies the specific chart used. R. W. Fleet (private communication) finds that comparison star magnitudes in the SX Leonis field are about 1/3 magnitude fainter than those in the S Sextantis field. J. Bortle (private communication) has also noted inconsistencies between comparison star fields in this part of the sky.

(numbers) *Smithsonian Astrophysical Observatory (SAO) Star Catalog* (1966) star number, or another catalog's number.

AA Chart from *The AAVSO Variable Star Atlas* (Scovil, 1980).

AAVSO Unspecified AAVSO source.

AUL UBV UBV photoelectric sequence described by Landolt (1973).

BAA Unspecified BAA source.

BSC Yale *Bright Star Catalog* (Hoffleit and Jaschek, 1982).

COELI *Atlas of the Heavens* (also called *Atlas Coeli 1950.0*; Becvar, 1958).

CZ List of white (B-V < 0.5) stars selected by J. Hollan of Copernicus Observatory & Planetarium, Brno, Czechoslovakia (private communication).

DCS Dutch Comet Section observing manual (Bus, 1984), with magnitudes based on *Sky Catalog 2000.0* (Hirshfeld and Sinnott, 1982). V magnitudes were converted to visual magnitudes.

E *Atlas Eclipticalis 1950.0* (Becvar, 1958).

IHW Unspecified IHW source; occasionally a specific chart is indicated.

IHW BAA Unspecified BAA chart published by the IHW.

LNES Lampkin's (1972) *Naked Eye Stars*.

M *Stellar Atlas* by A. A. Mikhaylov (1975) using *Henry Draper Catalogue* (HD; Cannon and Pickering, 1918-24) magnitudes.

MP *McCormick Photovisual Sequences* (published by the Univ. of Virginia; also Wirtanen and Vyssotsky, 1945).

NPS North Polar Sequence, published by the AAVSO.

PA Stars from the *Palomar Observatory Sky Survey*. Their V magnitudes were determined by comparison with the standard sequence in NGC 2119 (Hoag et al., 1961) and converted according to: (visual magnitude) = V + 0.16 [B-V] (K. Churyumov, private communication).

RASNZ Unspecified RASNZ source.

SA Selected area (Everhart, 1984), either numbered or unspecified.

SAO Smithsonian Astrophysical Observatory source.

SAO A/C *SAO Star Atlas* (1969) and *SAO Star Catalog* (1966).

SAO (+ numbers) Chart from the *SAO Star Atlas* (1969).

SC 2000 Unspecified stars from *Sky Catalog 2000.0* (Hirshfeld and Sinnot, 1982).

SPV Unspecified stars with photovisual magnitudes from the *Cape Photographic Catalog for 1950.0*.

USNOC United States Naval Observatory *Photoelectric Catalog* (Blanco et al., 1968).

VAS (+ numbers) Unspecified stars from a specific chart in Vehrenberg's (1971) *Atlas Stellarum 1950.0*.

Occasionally combinations of sources are specified, e.g. SA47SAO, SPER 16, AA NPS, AACZORI, etc. Additional sources were used by a small number of observers, about which little or no information was supplied.

Coma size — Coma diameter [arcmin]. For an elliptical coma the major and minor axes are given.

DC — Degree of condensation, a qualitative measure of the brightness profile across the coma. Values from 0 to 9 indicate increasing degrees of condensation from diffuse to stellar. See Edberg (1983) for details.

Tail — Length of a tail [deg]. In the printed archive additional tails are listed as notes.

PA — Position angle [deg] measured north through east. In the printed archive additional tails (and fans) are listed as notes.

Ap, Ins, f/, Pwr — Aperture size [m], type of instrument (see below), focal ratio, and magnification.

Type of instrument:

- B - Binoculars
- C - Cassegrainian
- EY - Naked eye
- JB - Jones-Bird
- M - Maksutov
- N - Newtonian
- R - Refractor
- SC - Schmidt-Cassegrainian
- SN - Schmidt-Newtonian

The Jones-Bird design is described by Jones (1957) and by Bird and Bowen (1979).

On a few occasions the stated telescope characteristics don't seem to match the telescope type listed, both as supplied by the observer. In the case of fast Schmidt-Cassegrainian telescopes, an auxiliary positive lens was probably used as a focal reducer (telecompressor), and a rather fast Cassegrainian telescope (f/10) is probably a Schmidt-Cassegrainian.

Lim — Limiting magnitude of stars visible to the naked eye. Interference with the observation is indicated by the letters C, M, T, or Z if used, which refer to city lights, moonlight, twilight, or zodiacal light, respectively.

DA The observer's dark adaptation (Y = yes, N = no). A few observers gave the time spent dark adapting; times greater than or equal to 10 minutes were assigned a Y, shorter times an N.

Site Observing site identification number (cf. Table VIII).

Observer(s) Name(s) of observer(s). Additional observers are indicated in notes.

Notes Observer's or editor's comments, if any.

Drawings

The discerning eyes and skilled hands of astronomical illustrators have historically provided images of comets. Today, unfortunately, few professional or amateur astronomers have the artistic skill and accuracy, in this age of photography and electronic detectors, that were once the common tools of many astronomers. Drawings of P/Halley still help to place the comet's 1986 apparition in the context of earlier ones, however. In addition, the large number of drawings on file offers investigators the opportunity to better understand eye-brain detector variations among observers, especially when the drawings are compared with images from the Near Nucleus Studies Network that were made by non-human detectors (though later processing by archive users will insert a form of personal bias into the images, or at least into their appearance). Figure 2 presents high quality drawings.

Some observers' reports of magnification used for their observations were ambiguous. For example, an observer may have indicated 58-271, listed in the archive as 58,271. It is not clear if the observer used an unspecified intermediate power or a range of powers for that particular drawing.

The intent in asking for U. T. Start/End was to determine how long it took the observer to make the drawing since it couldn't be made instantaneously. In a few cases a single time was given with the drawing but not in the space provided for Start/End. In such cases an editor's note was inserted and any evidence available, including other drawings or magnitude estimates, was used to suggest in the note whether the supplied time was for the start or end or middle.

The format of the list of drawings in the printed archive is described below:

Date(UT) Decimal date of the time of observation. Trailing zeroes are often mere space-fillers.

AON# Amateur observation network number, a unique reference number assigned to each observation.

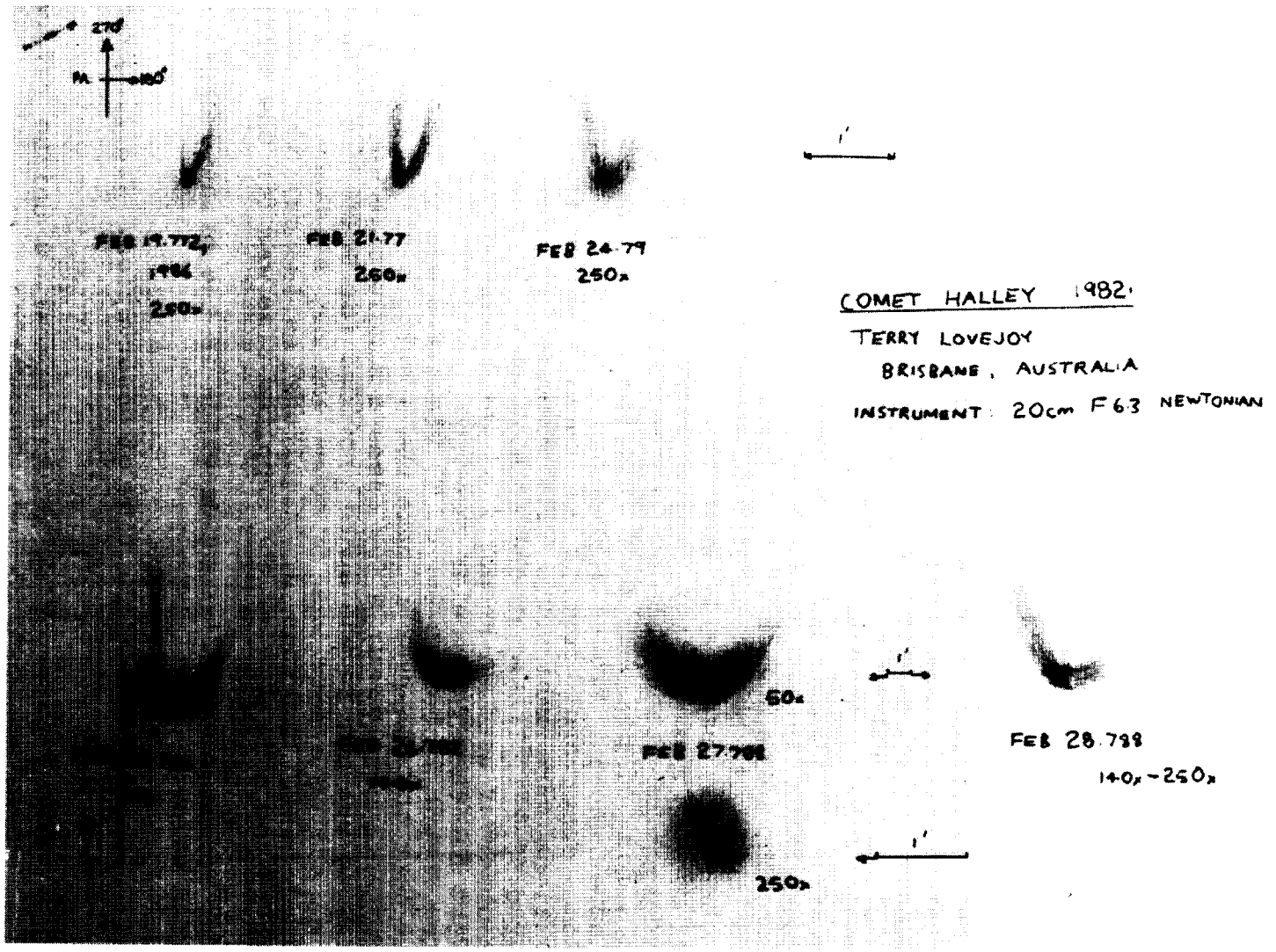


Figure 2. Terry Lovejoy supplied this collection of drawings of Comet Halley (AON#s 830847, 830850, 830855, 830857, 830860, 830863, and 830868).

Scale — Scale in minutes of arc per millimeter. Drawings lacking a scale are sometimes included.

Ap, Ins, f/, Pwr(s) — Aperture size [m], type of instrument (see below), focal ratio, and magnification(s).

Type of instrument:

- B - Binoculars
- C - Cassegrainian
- EY - Naked eye
- JB - Jones-Bird
- M - Maksutov
- N - Newtonian
- R - Refractor
- SC - Schmidt-Cassegrainian
- SN - Schmidt-Newtonian

The Jones-Bird design is described by Jones (1957) and by Bird and Bowen (1979).

On a few occasions the stated telescope characteristics don't seem to match the telescope type listed, both as supplied by the observer. In the case of fast Schmidt-Cassegrainian telescopes, an auxiliary positive lens was probably used as a telecompressor (focal reducer), and a rather fast Cassegrainian telescope (f/10) is probably a Schmidt-Cassegrainian.

DurM — Time [min] spent to execute the drawing.

Lim — Limiting magnitude of stars visible to the naked eye. Interference with the observation is indicated by the letters C, M, T, or Z if used, which refer to city lights, moonlight, twilight, or zodiacal light, respectively.

Site — Observing site identification number (cf. Table VIII).

Observer(s) — Name(s) of observer(s). Additional observers are indicated in notes.

Notes — Observer's or editor's comments, if any.

Photography

The photography report form, updated in *IHW Amateur Observer's Bulletin* No. 6 from the version in the *Manual*, was designed with intentionally redundant entries. This was occasionally helpful in interpreting an observer's report.

Images listed in the archive are those for which a quick

visual inspection without magnification suggested that the image could have use to someone studying the appearance of the comet. Even when an image is of doubtful quality it is listed, consistent with the philosophy that it is best to let archive users be aware of the availability of that image. Roughly one-eighth of the photos submitted were not included in the archive and neither are the numerous reports of photos taken for which no copy was included. The quality of the images in the files ranges from barely useful to superb, professional-level work. Figure 3 presents samples of both wide-angle and narrow-angle photographs.

The times listed in the archive were converted from exposure start and duration to mid-exposure time. Often the photographer gave the starting time to greater precision (in hours:minutes:seconds) than is indicated by the decimal conversion.

In the archive listing, telescopes used for photography commonly have the focal length, focal ratio, and aperture all (redundantly) specified. When camera lenses were used, only focal length and focal ratio are listed. The focal ratio listed for a camera lens is that used for the photograph, which may not be the widest-open aperture (lowest focal ratio) possible with the lens.

Auxiliary lenses are sometimes used on telescopes and cameras to increase or decrease the focal length. When re-imaging is not involved and a negative lens is used to increase the telescope's effective focal length for photography, the lens is commonly called a tele-extender or teleconverter. (Such a lens is called a Barlow lens when used visually.) A telecompressor or focal reducer is a positive lens that shortens the effective focal length without re-imaging.

The ISO (ASA/DIN) speed of the emulsion is given as supplied by the observer or manufacturer. Some emulsions do not have a speed (in the usual sense of the word) determined for them, so for these, and for emulsions that have been hypersensitized or push-processed, this column is left empty. For an emulsion for which different speeds are available by manufacturer's design and recommended processing, the speed as given by the observer is used.

Gas hypersensitizing and emulsion cooling both serve to increase the sensitivity of photographic emulsions or mitigate the effects of low intensity failure of the reciprocity law for photographic emulsions. Gas hypersensitized emulsions are available commercially (Lumicon and University Optics are two such suppliers) and are also prepared by observers themselves.

Considering the varying temperaments and world-wide locations of astrophotographers it would have been impossible to standardize photographic emulsions and processing. Thus, these details are provided with the archive listing.

Kodak developer D-19b is commonly used by European astrophotographers. It is an X-ray emulsion developer that is rather radically different in composition from its high contrast American namesake, D-19. Contact Eastman Kodak Co., Dept. 841-S, 343 State St., Rochester, NY 14650-0811, USA for details. Kodak can also provide details on the spectral transmission of their gelatin Wratten filter series (see *Kodak Filters for Scientific and*

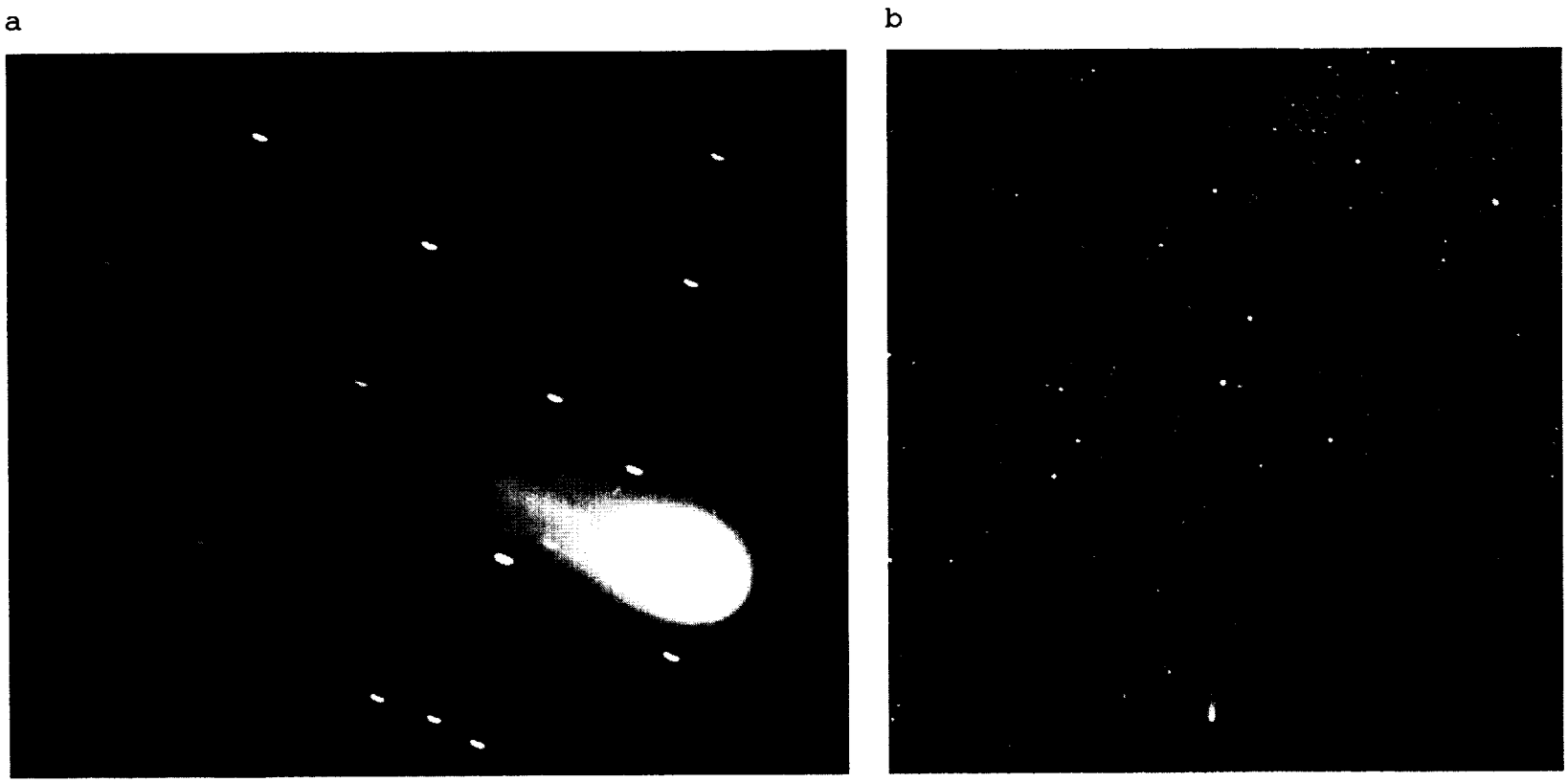


Figure 3. (a) Michael Crist obtained this photograph of Comet Halley's coma and tail root on 11 January 1986 (AON# 850760). (b) Stephen Edberg captured Comet Halley's tail extending towards the Milky Way in this photograph on 20 March 1986 (AON# 851187).

Technical Uses in the references; many Wratten filter designation numbers have been adopted for equivalent glass filters made by other manufacturers).

There were variations in the way observers indicated the dilutions of their developers: for example, both 1 + 4 and 1 : 4 were used.

It seemed likely that original negatives or positives of the comets would be too precious for observers to want to give up. While there are some originals in the files, the archive largely lists copies in the files, of one of the following types:

Contact Prints - positive images on paper made by placing the original negative in contact with the photographic paper.

Negatives - May be originals or copies: some are mounted in slide frames.

Prints - These are usually enlargements from the original; occasionally a halftone or xerographic (often of poor quality) copy. Composite prints are so noted but are listed as a single entry with a mid-time determined as halfway between the initial opening of the shutter and its final closing, no matter what the individual exposure times and their separations were. Negative prints were submitted rarely.

Slides - 135-size (24 x 36 mm) positive black and white or color transparencies mounted in standard frames.

Transparencies - Positive images on film, unmounted, of 135-size or larger. Standard sizes are 135, providing an image area of approximately 24 x 36 mm, and 120, with an area of approximately 6 x 6 cm (sometimes 6 x 7 cm). Rarely, other larger films were used. The data files contain hard-copy images ranging in size from individual 135-size images to oversize prints.

For the purpose of standardization the *Amateur Observers' Manual* instructed observers to obtain calibration photos of M31, M83, and Orion's belt. Only a handful of observers cooperated. Calibration photos are stored with the comet photos but are not listed in the archive.

The format of the list of photographs in the printed archive is described below:

Date(UT) Decimal date of the time of observation. For photographs this is the middle of the exposure. Trailing zeroes are often mere space-fillers.

AON# Amateur observation network number, a unique reference number assigned to each observation.

FL, f/, and Ap Instrument focal length [m], focal ratio, and aperture [m]. Listed are the effective focal length and

effective focal ratio used. A note follows giving the nominal characteristics of the instrument if auxiliary optics were used in making the image.

FOV — Computed field of view for a 24 x 36 mm frame. Larger format emulsions are identified in the notes.

ExpM — Exposure time [min].

Emulsion — Type of emulsion.

ISO — The speed (ASA/DIN) of the emulsion.

Hyp — "Y" indicates a hypersensitized emulsion, "C" stands for an exposure with a cooled-emulsion camera; otherwise an "N".

Gdng — Type of guiding:

C - Computed offsets to telescope drive
M - By micrometer
O - Cross hairs on central condensation
S - Sidereal-rate drive or guiding on a star
T - Cross hairs tangent to coma
X - Cross hairs on a coma with no condensation

These methods are explained in Edberg (1983).

Id/Typ — IHW- or observer-assigned number and type of image on file:

C - Contact print
N - Negative
P - Enlarged print
S - Slide
T - Transparency

Site — Observing site identification number (cf. Table VIII).

Observer(s) — Name(s) of observer(s). Additional observers are indicated in notes.

Notes — Observer's or editor's comments, if any.

Astrometry

A few amateur astronomers have been contributing much-needed astrometric observations of comets for many years. These astronomers worked directly with the IHW Astrometry Network. Several other amateur astrometrists sent their measurements to the Amateur Observation Network. Astrometry Network Discipline

Specialist Donald K. Yeomans analyzed these data and, unfortunately, found them unacceptable. These observers were encouraged to continue improving their technique; good astrometric measurements of comets and asteroids continue to be sorely needed.

Spectroscopy

Amateur astronomers apparently generated the only low dispersion spectra of Comet Halley (Figure 4). Reports of spectroscopic observations were made on a form closely matching the photographic report form. (Both the photography report form and the spectroscopy report form were each similarly revised in *IHW Amateur Observer's Bulletin* No. 6 from their versions in the *Manual*.) The principal difference was the request for information on the type of telescope and spectroscopic system used and on disperser characteristics. The archive listings indicate camera lens specifically with a "CL" and a camera lens may also be inferred, as in the listings of direct photographs, from the empty column listing for aperture.

Observer W. Tom Buchanan's spectrograph has an unusual design. It is basically an objective grating spectrograph using a camera lens. He has added a complex optical system which allows wavelength reference marks to be placed on the film with the target spectrum. His detailed description is on file with his spectra.

The format of the list of spectrograms in the printed archive is described below:

Date(UT) Decimal date of the time of observation. For spectrograms this is the middle of the exposure. Trailing zeroes are often mere space-fillers.

AON# Amateur observation network number, a unique reference number assigned to each observation.

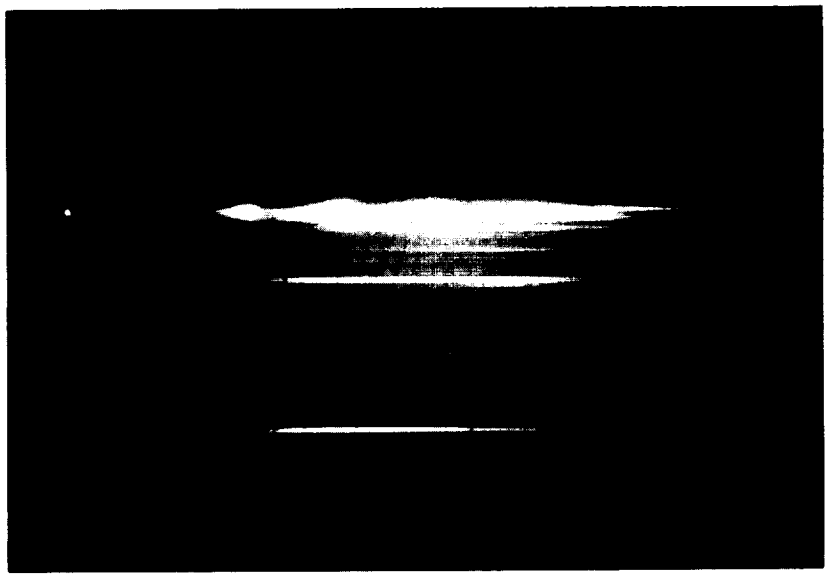
Config The type of spectrograph used. The initial number and letter pair indicates the disperser: the number gives the grooves/mm of Grating or the apex angle of a Prism. The second letter indicates the specific configuration used: Non-objective, Objective, or Slitless.

Ins The type of instrument used. An "N" indicates a Newtonian reflector, an "R" indicates a refractor, and "CL" indicates a camera lens was used.

FL, f/, and Ap Instrument focal length [m], focal ratio, and aperture [m]. Listed are the effective focal length and effective focal ratio used. A note follows giving the nominal characteristics of the instrument if auxiliary optics were used.

ExpM Exposure time [min].

a



b

Figure 4. (a) Spectrogram of Comet Halley by W. Tom Buchanan taken on 9 April 1986 (AON# 870136). The continuum of reflected sunlight is punctuated with emissions of CN (on the far left) and various carbon compounds to the right. (b) Spectra of Comet Halley extend on both sides of the zero order image in this photograph by Stephen Edberg taken on 17 March 1986 (AON# 870132).

Emulsion Type of emulsion.

ISO The ASA/DIN speed of the emulsion.

Hyp "Y" indicates a hypersensitized emulsion, "C" stands for an exposure with a cooled-emulsion camera; otherwise an "N".

Gdng Type of guiding:

C - Computed offsets to telescope drive
M - By micrometer
O - Cross hairs on central condensation
S - Sidereal-rate drive or guiding on a star
T - Cross hairs tangent to coma
X - Cross hairs on a coma with no condensation

These methods are explained in Edberg (1983).

Id/Typ IHW- or observer-assigned number and type of image on file:

C - Contact print
N - Negative
P - Enlarged print
S - Slide
T - Transparency

Site Observing site identification number (cf. Table VII).

Observer(s) Name(s) of observer(s). Additional observers are indicated in notes.

Notes Observer's or editor's comments, if any.

Photoelectric Photometry

Only one observer submitted photometric observations to the Amateur Observation Network, on his own report form (with the comment that the form in the manual was inadequate). These were forwarded to the professional Photometry and Polarimetry Network for disposition.

Meteor Observations

At the time the IHW was being organized a professional network of meteor observers was not included. Amateur meteor observations were solicited to ensure that at least some meteor data would be included in the archives, especially since this is a subject easily and traditionally studied by amateurs.

With much already known about these meteor showers, hourly counts, photography, and spectrophotography were emphasized. Halley Meteor Days were set from 1982-1987 for May 2-6 and October 20-24.

Visual hourly counts were emphasized initially (in the Manual) but with the encouragement and assistance of David Meisel of the American Meteor Society (AMS) radio counts were later added to the program. Mike Morrow and Ruthi Moore, the IHW Meteor Recorders, designed an improved Visual/Radio Meteor Observation Report form which was distributed and explained in the acknowledgement letter to observers and in Bulletin No. 5.

Well over a thousand meteor reports were received from several hundred observers. The majority of them observed only over periods of one or two hours, rather than the more desirable multiple hour periods. Efforts in meteor photography were minimal. Only three direct photos were submitted (one Eta Aquarid, one Orionid, and one sporadic meteor) and no spectra. The meteor photography report form was updated in parallel with that of photography and that of spectroscopy.

On the advice of the IHW's Steering Group, a professional Meteor Studies network was created and announced in *IHW Newsletter* (Edberg, 1982 - 1987) No. 7 (18 June 1985). With this network organized, all the amateur observations were forwarded to Discipline Specialist Anton Hajduk at the Astronomical Institute of the Slovak Academy of Sciences for inclusion in the meteor archive. Copies of all the data are also included with the paper files of the amateur archive.

III. FLEXIBLE IMAGE TRANSPORT SYSTEM (FITS) KEYWORDS IN THE DIGITAL ARCHIVE

FITS Headers

The amateur data are computer-archived on CD-ROM and magnetic tape according to the standard, extended FITS format. The visual data use a header with table extension format. All the other types include all the data in the primary header. To maintain consistency with the P/Crommelin data set, the header + table extension is used for the archives containing P/Giacobini-Zinner and P/Halley even though it would have been more efficient to include all the magnitude data in the primary header.

The FITS keyword sets used in the archive include both the FITS standard keywords and the table extension keyword set that is offered by FITS. The keywords used are described separately in Tables III - VII.

Table III. All Types of Data

```
SIMPLE  =                    T / THIS IS A FITS FILE
BITPIX  =                    8 / BITS PER PIXEL
NAXIS   =                    0 / NO IMAGE DATA ARRAY PRESENT
EXTEND  =                    T / THERE MAY BE STANDARD EXTENSIONS

OBJECT  = 'ooo...oo'           / NAME OF OBJECT
FILE-NUM=                8nnnnn / UNIQUE FILE IDENTIFICATION NO.
DATE-OBS= 'dd/mm/yy'           / DATE OF MIDDLE OF OBSERVATION (UT)
TIME-OBS=               .ttttt / TIME OF MIDDLE OF OBSERVATION (UT)
DATE-REL= 'dd/mm/yy'           / DATE OF PUBLIC RELEASE
DISCIPLN= 'AMATEUR '           / IHW DISCIPLINE
LONG-OBS= 'ddd/mm/ss'          / EAST LONGITUDE OF OBSERVING SITE
LAT--OBS= 'sdd/mm/ss'          / LATITUDE OF OBSERVING SITE
SYSTEM  = '8nnnttii'           / OBSERVING SYSTEM CODE
OBSERVER= 'ooo...oo'           / NAME OF OBSERVER
SUBMITTR= 'sss...ss'           / NAME OF SUBMITTER OF DATA
SPEC-EVT=                    s / SPECIAL EVENT FLAG
```

Table IV. Visual Appearance

```
DAT-FORM= 'ASCII   '           / FORM OF DATA

DAT-TYPE= 'VISUAL MAG. EST.'   / TYPE OF DATA
ELEV-OBS=                 eeee / ELEVATION OF OBSERVING SITE (METER)
INSTRUME= 'iii...ii'           / TYPE OF INSTRUMENT USED
APERTURE=                a.aaa / APERTURE SIZE (METER)
FRATIO  =                 ff.f / FOCAL RATIO
POWER   =                  ppp / MAGNIFICATION
ORIGIN  = 'JET PROPULSION LAB' / TAPE WRITING INSTITUTION
COMMENT ccc...cc
   :

END

XTENSION= 'TABLE   '           / TABLE EXTENSION
BITPIX  =                    8 / BITS PER PIXEL
NAXIS   =                    2 / 2-D MATRIX
NAXIS1  =                   71 / NO. OF CHARACTERS PER ROW
NAXIS2  =                    1 / NO. OF ROWS
PCOUNT  =                    0 / NO RANDOM PARAMETERS
GCOUNT  =                    1 / ONLY ONE GROUP
TFIELDS =                   16 / NO. OF FIELDS PER ROW

TTYPE1  = 'MAG. EST. METHOD'   / VALUES: B=BOBROVNIKOFF, M=MORRIS, S=SIDGWICK
TBCOL1  =                    1 / STARTING COLUMN
TFORM1  = 'A1      '           / FORMAT
TNULL1  = '?       '           / MISSING VALUE

TTYPE2  = 'COMA MAGNITUDE'     / TOTAL MAGNITUDE     (GIVEN AS ALPHANUMERIC
TBCOL2  =                    3 / STARTING COLUMN      STRING, SINCE 1ST COL. CAN
TFORM2  = 'A5      '           / FORMAT                 BE > SIGN, WHICH IMPLIES
TNULL2  = '-99.0   '           / MISSING VALUE          UPPER LIMIT)

TTYPE3  = 'MAGNITUDE COMMENT'  / INDICATES UNCERTAINTY IF VALUE IS : OR ?
TBCOL3  =                    8 / STARTING COLUMN
TFORM3  = 'A1      '           / FORMAT
TNULL3  = '        '           / MISSING VALUE

TTYPE4  = 'CHART NO.'          / USED FOR COMPARISON STARS  (SEE PRINTED CROMME-
TBCOL4  =                   10 / STARTING COLUMN             LIN ARCHIVE OR
TFORM4  = 'A7      '           / FORMAT                       INT'L. COMET QTRLY.
TNULL4  = '        '           / MISSING VALUE                FOR EXPLANATION)

TTYPE5  = 'COMA DIAMETER 1'    / CIRCULAR COMA DIAM. (OR MAJOR AXIS, ELLIPTICAL
TBCOL5  =                   18 / STARTING COLUMN                              COMA)
TFORM5  = 'E5.1    '           / FORMAT
TUNIT5  = 'ARCMIN. '           / UNIT
TNULL5  = '-99.0   '           / MISSING VALUE

TTYPE6  = 'COMA DIAMETER 2'    / MINOR AXIS, ELLIPTICAL COMA
TBCOL6  =                   24 / STARTING COLUMN
TFORM6  = 'E5.1    '           / FORMAT
TUNIT6  = 'ARCMIN. '           / UNIT
TNULL6  = '-99.0   '           / MISSING VALUE (OR CIRCULAR COMA)

TTYPE7  = 'DEGREE OF COND.'    / DEGREE OF CONDENSATION
TBCOL7  =                   30 / STARTING COLUMN
TFORM7  = 'I1      '           / FORMAT
TNULL7  = '        '           / MISSING VALUE

TTYPE8  = 'LENGTH OF TAIL 1'   / TAIL LENGTH (1ST TAIL)
TBCOL8  =                   32 / STARTING COLUMN
TFORM8  = 'E5.2    '           / FORMAT
TUNIT8  = 'DEGREE  '           / UNIT
TNULL8  = '-9.00   '           / MISSING VALUE

TTYPE9  = 'P.A. OF TAIL 1'     / POSITION ANGLE OF TAIL (1ST TAIL)
TBCOL9  =                   38 / STARTING COLUMN
TFORM9  = 'I3      '           / FORMAT
TUNIT9  = 'DEGREE  '           / UNIT
TNULL9  = '-99     '           / MISSING VALUE
```

Table IV. Visual Appearance (Cont'd)

```
TTYPE10 = 'LENGTH OF TAIL 2'    / TAIL LENGTH (2ND TAIL, IF SEEN)
TBCOL10 =                    42 / STARTING COLUMN
TFORM10 = 'E5.2     '           / FORMAT
TUNIT10 = 'DEGREE   '           / UNIT
TNULL10 = '-9.00    '           / MISSING VALUE

TTYPE11 = 'P.A. OF TAIL 2'      / POSITION ANGLE OF TAIL (2ND TAIL, IF SEEN)
TBCOL11 =                    48 / STARTING COLUMN
TFORM11 = 'I3       '           / FORMAT
TUNIT11 = 'DEGREE   '           / UNIT
TNULL11 = '-99      '           / MISSING VALUE

TTYPE12 = 'LENGTH OF TAIL 3'    / TAIL LENGTH (3RD TAIL, IF SEEN)
TBCOL12 =                    52 / STARTING COLUMN

TFORM12 = 'E5.2     '           / FORMAT
TUNIT12 = 'DEGREE   '           / UNIT
TNULL12 = '-9.00    '           / MISSING VALUE

TTYPE13 = 'P.A. OF TAIL 3'      / POSITION ANGLE OF TAIL (3RD TAIL, IF SEEN)
TBCOL13 =                    58 / STARTING COLUMN
TFORM13 = 'I3       '           / FORMAT
TUNIT13 = 'DEGREE   '           / UNIT
TNULL13 = '-99      '           / MISSING VALUE

TTYPE14 = 'LIMITING MAG.'       / MAGNITUDE OF FAINTEST STAR VISIBLE TO NAKED EYE
TBCOL14 =                    62 / STARTING COLUMN
TFORM14 = 'E4.1     '           / FORMAT
TNULL14 = '-9.0     '           / MISSING VALUE

TTYPE15 = 'SKY INTERFERENCE'    / LIGHT INTERFERING WITH OBSERVATION
TBCOL15 =                    66 / STARTING COLUMN  (C=CITY LIGHTS, M=MOONLIGHT,
TFORM15 = 'A4       '           / FORMAT                T=TWILIGHT, Z=ZODIACAL LIGHT)
TNULL15 = '         '           / MISSING VALUE (NO INTERFERENCE)
COMMENT VALUE EQUAL TO : IMPLIES UNCERTAINTY IN FAINTEST STAR MAG.

TTYPE16 = 'DARK ADAPTED'        / WAS OBSERVER DARK ADAPTED? (Y=YES, N=NO)
TBCOL16 =                    71 / STARTING COLUMN
TFORM16 = 'A1       '           / FORMAT
TNULL16 = '         '           / MISSING VALUE

END
```

Table V. Drawings

```
DAT-FORM= 'NODATA  '            / FORM OF DATA (NO DATA RECORDS)

DAT-TYPE= 'DRAWING '            / TYPE OF DATA
ELEV-OBS=                  eeee / ELEVATION OF OBSERVING SITE (METER)
INSTRUME= 'iii...ii'            / TYPE OF INSTRUMENT USED
APERTURE=                 a.aaa / APERTURE SIZE (METER)
FRATIO  =                  ff.f / FOCAL RATIO
N-POWER =                     n / NO. OF MAGNIFICATIONS USED
POWER   =                   ppp / MAGNIFICATION
    :
MAG-LIM =                   m.m / MAGNITUDE OF FAINTEST STAR VISIBLE TO NAKED EYE
PLTSCALE=                 ppp.p / PLATE (DRAWING) SCALE (ARCSEC/MM)
DURATION=                   ddd / TIME FOR MAKING DRAWING (SECOND)
ORIGIN  = 'JET PROPULSION LAB' / TAPE WRITING INSTITUTION
COMMENT ccc...cc
    :

END
```

Table VI. Photography

```
DAT-FORM= 'NODATA  '            / FORM OF DATA (NO DATA RECORDS)

DAT-TYPE= 'PHOTOGRAPH'          / TYPE OF DATA
ELEV-OBS=                  eeee / ELEVATION OF OBSERVING SITE (METER)
PRNCPLFL=                 p.ppp / PRIMARY, UNMODIFIED INSTR. FOCAL LENGTH (METER)
TELEFL  =                 t.ttt / EFFECTIVE FOCAL LENGTH (METER)
APERTURE=                 a.aaa / APERTURE SIZE (METER)
FRATIO  =                  ff.f / FOCAL RATIO
FOVLENGT=                  ff.f / COMPUTED FOV ASSUMING 135 FORMAT (DEGREE)
FOVWIDTH=                  ff.f / COMPUTED FOV ASSUMING 135 FORMAT (DEGREE)
PLTSCALE=                 ppp.p / PLATE SCALE (ARCSEC/MM)
EMULSION= 'eee...ee'            / TYPE OF EMULSION
ISO     = 'aaaa/dd '            / ISO (ASA/DIN)
HYPERED = 'hhh...hh'            / HYPERSENSITIZATION TREATMENT
TEMP-HYP=                    tt / HYPERSENSITIZATION TEMPERATURE (CELSIUS)
TIME-HYP=                 ttt.t / HYPERSENSITIZATION TIME (HOUR)
TEMPEMUL=                    tt / COLD CAMERA TEMPERATURE (CELSIUS)
DEVELOPR= 'ddd...dd'            / DEVELOPER USED
TEMP-DEV=                    tt / DEVELOPING TEMPERATURE (CELSIUS)
TIME-DEV=                   ttt / DEVELOPING TIME (SECOND)
GUIDING = 'ggg...gg'            / GUIDING METHOD
EXPOSURE=                  eeee / EXPOSURE TIME (SECOND)
IM-ID   = 'iii      '           / IMAGE IDENTIFICATION NO.
IM-TYPE = 'iii      '           / TYPE OF IMAGE ON FILE
ORIGIN  = 'JET PROPULSION LAB' / TAPE WRITING INSTITUTION
COMMENT ccc...cc
    :

END
```

Table VII. Spectroscopy

```
DAT-FORM= 'NODATA  '            / FORM OF DATA (NO DATA RECORDS)

DAT-TYPE= 'SPECTRUM'            / TYPE OF DATA
ELEV-OBS=                  eeee / ELEVATION OF OBSERVING SITE (METER)
INSTRUME= 'iii...ii'            / TYPE OF INSTRUMENT USED
PRNCPLFL=                 P.PPP / PRIMARY, UNMODIFIED INSTR. FOCAL LENGTH (METER)
TELEFL  =                 t.ttt / EFFECTIVE FOCAL LENGTH (METER)
APERTURE=                 a.aaa / APERTURE SIZE (METER)
FRATIO  =                  ff.f / FOCAL RATIO
EMULSION= 'eee...ee'            / TYPE OF EMULSION
ISO     = 'aaaa/dd '            / ISO (ASA/DIN)
HYPERED = 'hhh...hh'            / HYPERSENSITIZATION TREATMENT
TEMP-HYP=                    tt / HYPERSENSITIZATION TEMPERATURE (CELSIUS)
TIME-HYP=                 ttt.t / HYPERSENSITIZATION TIME (HOUR)
TEMPEMUL=                    tt / COLD CAMERA TEMPERATURE (CELSIUS)
DEVELOPR= 'ddd...dd'            / DEVELOPER USED
TEMP-DEV=                    tt / DEVELOPING TEMPERATURE (CELSIUS)
TIME-DEV=                   ttt / DEVELOPING TIME (SECOND)
GUIDING = 'ggg...gg'            / GUIDING METHOD
EXPOSURE=                  eeee / EXPOSURE TIME (SECOND)
GRATING =                 ggg.g / GRATING CONSTANT (GROOVES/MM)
ORDER   =                     o / BLAZE ORDER
APDSPRSR=                 a.aaaa / DISPERSER APERTURE (METER)
PROJDIST=                 P.PPPP / PROJECTION DISTANCE (METER)
APEX-ANG=                    aaa / PRISM APEX ANGLE (DEGREE)
GLASSTYP= 'ggg...gg'            / PRISM GLASS TYPE
AP-PRISM=                 a.aaaa / PRISM APERTURE (METER)
METHOD  = 'mmm...mm'            / SPECTROSCOPIC METHOD
IM-ID   = 'iii     '            / IMAGE IDENTIFICATION NO.
IM-TYPE = 'iii     '            / TYPE OF IMAGE ON FILE
ORIGIN  = 'JET PROPULSION LAB'  / TAPE WRITING INSTITUTION
COMMENT ccc...cc
   :

END
```

IV. OBSERVING SITE LIST

Listed in Table VIII below are the observers and all the comet observing sites they supplied to the IHW. Observers' names with diacritical marks on any letters were spelled, in this list, by adopting the closest English letter visually matching the letters with marks.

An observer may not have observed from all the sites listed. The site number preceding the site coordinates corresponds to the number in the Site column in the archive listings.

In some cases the geographic coordinates were estimated by the editor. Occasionally, different sites received the same coordinates because specific coordinates could not be found. Precision is the editor's subjective estimate of the observer's precision in reporting the site's coordinates. Especially large values indicate the editor estimated the site coordinates with an available map or atlas which did not show the place named by the observer. In a few cases the site position's precision was so high that it exceeded the space available in the format used here. Country is the IHW-assigned country code.

The country code, identified in Table IX, is in the last column.

V. CONCLUSIONS

Halley's Comet inspired amateur astronomers worldwide to contribute useful data to the IHW Archive. Halley is special, though, and the numbers of participants for any other comet or other significant astronomical event would probably be only a small fraction of this number. (One need only contemplate the small number of participants for the IHW-sponsored watches on P/Crommelin and P/Giacobini-Zinner to reach the same conclusion.) In another aspect of completeness, there are certainly numerous high quality photographs taken by amateurs which were not reported to the IHW. This is an unfortunate loss, as are the photos reported without copies submitted.

It was heartening to find that the majority of those participating took their efforts seriously enough to submit useful data. It was interesting to find that the observers new to the field of cometary observations followed directions better than the more experienced observers.

Future organizers of observational campaigns should certainly include amateur astronomers in their efforts. The talent available is a valuable resource that should be tapped. Do not expect even the most careful and lucid instructions to be followed rigorously, however. Even professional astronomers can be willful on occasion, and amateurs additionally may fail to appreciate the importance of standardizing observing techniques.

Table VIII. Observers

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Abbadessa,M.	1	017/40/00	+40/32/00	140	1 arcmin	7
	2	015/00/00	+35/26/00	300	1 arcmin	7
Abbott,J.	1	031/10/52	-17/43/35	1379	1 arcsec	59
	2	031/11/24	-17/42/44	1407	1 arcsec	59
	3	000/38/19	+51/48/12	24	1 arcsec	15
	4	000/35/42	+51/48/21	53	1 arcsec	15
Adamoli,G.	1	010/00/00	+45/00/00		5 deg	7
	2	012/00/00	+45/30/00		1 deg	7
Aerts,L.	1	004/44/00	+51/00/00	15	1 arcmin	29
	2	004/42/00	+51/02/00	10	1 arcmin	29
	3	006/01/24	+43/58/30	735	0.1 arcmin	4
	4	004/44/00	+51/08/00	25	1 arcmin	29
Afeltra,J.	1	301/35/58	-34/36/30	40	1 arcsec	27
	2	301/33/56	-34/36/19	35	1 arcsec	27
Akita,I.	1	135/47/26	+34/50/57	50	0.1 arcsec	8
	2	observing site unknown				
Aleynikov,A.	1	observing site unknown				
Allen,E.	1	287/27/30	+46/23/24	38	0.1 arcmin	21
	2	287/40/30	+46/28/30	33	0.1 arcmin	21
	3	287/44/42	+46/28/18	3	0.1 arcmin	21
Allen,M.T.	1	278/52/00	+37/59/00	671	1 arcmin	16
	2	281/02/00	+39/05/00	549	1 arcmin	16
	3	149/00/00	-35/18/00		1 deg	26
	4	144/00/00	-17/06/00		1 deg	26
Alvarez,M.L.	1	observing site unknown				
Alves,A.A.	1	311/28/24	-27/34/30		0.5 arcmin	2
	2	311/28/20	-27/34/34		0.5 arcmin	2
Amoretti,M.	1	007/45/54	+48/49/03	86	1 arcsec	7
Anklam,W.	1	013/21/11	+52/27/32	78	1 arcsec	25
Antal,M.	1	018/33/18	+53/05/48	91	0.1 arcmin	11
Arbour,R.	1	001/14/49	+51/07/13	122	0.1 arcsec	15
Ariail,R.B.	1	278/58/00	+34/00/00	18	1 arcmin	16
	2	277/37/00	+35/14/00	975	1 arcmin	16
Arpin,P.	1	286/31/00	+45/51/00	30	1 deg	21
	2	286/38/00	+45/18/00	30	1 deg	21
	3	285/41/00	+45/33/00	100	1 deg	21
	4	291/35/00	+12/06/00	5	1 arcmin	75
	5	286/32/00	+45/26/00		1 deg	21
Ashdown,M.	1	174/46/00	-41/17/00	250	1 arcmin	48
	2	172/38/00	-43/32/00	80	1 arcmin	48
	3	168/42/00	-45/02/00	700	1 arcmin	48
	4	174/20/00	-41/17/00	20	1 arcmin	48
Ashley,J.B.	1	241/37/48	+33/48/24	122	0.1 arcmin	16
	2	242/35/42	+33/32/54	823	0.1 arcmin	16
	3	243/16/48	+33/29/00	1329	0.1 arcmin	16
Association M31	1	055/18/00	-21/02/00	500	1 arcmin	70
Auckbur,R.	1	057/28/36	-20/16/00	360	0.1 arcmin	45
	2	057/26/54	-20/13/18	210	0.1 arcmin	45
Bagla,J.S.	1	077/12/00	+28/38/00	230	1 arcmin	5
	2	075/52/00	+26/55/00	220	1 arcmin	5
Bailey,G.	1	256/42/16	+44/05/12	1049	1 arcsec	16
	2	256/43/00	+43/50/00		1 deg	16
Barak,R.	1	016/58/00	+49/58/30	350	1 arcmin	35
Barclay,J.	1	153/06/56	-26/49/26		0.1 arcsec	26
	2	153/10/58	-27/27/15		0.1 arcsec	26
Baroni,S.	1	009/07/02	+45/27/19	138	0.1 arcsec	7
	2	009/11/37	+45/49/33	854	0.1 arcsec	7
	3	009/15/00	+46/26/00	1610	1 arcmin	7
	4	009/23/00	+45/51/00	1300	1 arcmin	7
	5	008/27/00	+45/53/00	1000	1 arcmin	7
	6	009/30/54	+45/47/21	1340	0.1 arcsec	7
Bartnik,M.	1	012/23/00	+51/18/00	120	1 arcmin	23
Battaini,P.	1	009/00/00	+46/00/00		2 deg	7
	2	015/31/00	+21/35/00	1165	0.01 deg	65
Battipede,F.	1	009/00/00	+46/00/00		2 deg	7
Batza,H.	1	observing site unknown				
	2	observing site unknown				
Bauer,H.-P.	1	011/37/08	+52/10/19	70	3.6 arcsec	23
	2	011/38/20	+52/10/16	70	3.6 arcsec	23
Beach,G.	1	279/03/32	+46/27/34	259	1 arcsec	21
	2	279/01/28	+46/28/03	294	1 arcsec	21
Begbie,M.J.R.	1	031/00/22	-17/49/39	1450	1 arcsec	59
	2	031/11/24	-17/42/44	1407	1 arcsec	59

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Belli,V.	1	009/00/00	+46/00/00		2 deg	7
Belyaev,D.	1	observing site unknown				
Bembrick,C.	1	151/12/12	-33/51/40	44	1 arcsec	26
	2	149/55/05	-33/28/37	990	1 arcsec	26
	3	144/39/00	-38/16/00		10 arcmin	26
	4	130/58/00	-25/11/00	782	1 arcmin	26
	5	149/00/30	-35/19/18	767	0.1 arcmin	26
Benavides,A.	1	293/04/00	+10/31/00		2 deg	17
	2	293/03/42	+10/31/12		0.1 arcsec	17
	3	293/51/00	+10/25/00		1 arcmin	17
	4	293/04/00	+10/31/00		2 deg	17
	5	293/05/00	+09/49/00		2 deg	17
Berge,P.M.	1	055/00/00	-21/00/00	500	1 deg	70
Bernabeu,M.	1	057/32/22	-20/01/34	2	1 arcsec	45
Bernardis,A.	1	008/47/00	+45/44/00	350	1 arcmin	7
	2	008/46/00	+45/52/00	1230	1 arcmin	7
	3	012/36/00	+35/32/00	100	1 arcmin	7
	4	007/52/00	+45/52/00	2390	1 arcmin	7
Bezrodniy,A.	1	observing site unknown				
Bhadriah,L.H.E.	1	076/42/00	+12/31/00	770	1 arcmin	5
Bigbie,B.	1	256/03/00	+30/38/00	488	5 arcmin	16
Bilek,V.	1	016/44/00	+49/06/00	200	1 arcmin	35
	2	016/07/00	+49/34/00	700	1 arcmin	35
Binnewies,S.	1	289/12/00	-29/13/00	2400	1 arcmin	32
Birkner,A.	1	272/20/46	+41/55/19	190	3.6 arcsec	16
Boetto,M.	1	008/36/00	+45/30/00	240	1 arcmin	7
Bohme,D.	1	012/01/15	+51/09/05	169	1 arcsec	23
Bonnet,M.C.	1	055/00/00	-21/00/00		2 deg	70
Bordignon,F.	1	009/00/00	+46/00/00		2 deg	7
Bortle,J.E.	1	286/15/24	+41/34/18	122	0.1 arcmin	16
	2	286/15/00	+41/49/00		1 arcmin	16
	3	286/20/00	+42/00/00		1 arcmin	16
	4	165/00/00	+15/00/00		10 deg	98
	5	151/00/00	-34/00/00		1 deg	26
	6	134/00/00	-23/42/00	457	1 deg	26
	7	130/54/00	-25/30/00	549	5 arcmin	26
Both,S.J.J.	1	004/43/00	+52/01/00	-2	1 arcmin	46
	2	004/46/00	+52/01/30	-2	1 arcmin	46
	3	008/25/00	+50/10/00		1 arcmin	22
Bottger,B.	1	008/26/24	+48/59/24	116	0.01 deg	25
	2	008/28/12	+48/51/00	400	0.01 deg	25
	3	008/31/58	+48/51/20	406	0.01 deg	25
	4	343/23/00	+28/15/00	2400	1 arcmin	74
	5	343/23/00	+28/15/00	100	1 arcmin	74
	6	343/23/00	+28/15/00	1400	1 arcmin	74
	7	343/23/00	+28/15/00	2100	1 arcmin	74
	8	343/23/00	+28/15/00	2200	1 arcmin	74
Bouma,R.J.	1	006/13/18	+53/23/12	0	0.1 arcmin	46
	2	006/39/12	+53/18/36	0	0.1 arcmin	46
	3	006/29/42	+53/14/24	0	0.1 arcmin	46
	4	006/01/24	+43/58/30	735	0.1 arcmin	46
	5	006/00/00	+53/00/00		1 deg	46
	6	006/33/00	+52/53/00		1 arcmin	46
	7	006/15/36	+53/20/36		0.1 arcmin	46
	8	006/34/18	+53/17/12		0.1 arcmin	46
	9	006/34/18	+53/15/00		0.1 arcmin	46
	10	006/34/18	+53/20/00		0.1 arcmin	46
	11	151/29/24	-33/19/48	30	0.01 arcmin	26
	12	138/41/00	-34/52/00	110	1 arcmin	26
	13	143/22/12	-34/22/12	60	0.01 arcmin	26
	14	149/04/12	-31/16/30	1125	0.1 arcmin	26
	15	149/16/06	-31/16/24	520	0.1 arcmin	26
	16	149/50/00	-31/40/00	450	1 arcmin	26
	17	153/10/30	-27/50/00	20	0.1 arcmin	26
	18	153/15/30	-27/41/00	0	0.1 arcmin	26
	19	153/16/54	-27/46/36	0	0.1 arcmin	26
	20	153/17/48	-27/43/24	0	0.1 arcmin	26
	21	153/20/12	-27/43/24	0	0.1 arcmin	26
	22	153/15/00	-27/35/00	85	1 arcmin	26
Bracken,R.	1	239/10/00	+35/18/00	61	1 arcmin	16
Bragadin,A.	1	011/25/00	+44/30/00	50	1 arcmin	7
	2	011/13/00	+44/18/00	300	1 arcmin	7
	3	012/18/00	+44/25/00	5	1 arcmin	7
	4	011/12/00	+44/10/00	450	1 arcmin	7
	5	010/00/00	+44/15/00	850	1 deg	7
Brancik,K.	1	017/00/00	+48/49/00	182	1 arcmin	35
	2	016/51/00	+48/50/00	155	1 arcmin	35
Brandli,W.	1	008/00/00	+47/30/00	690	4 deg	18
	2	008/00/00	+47/00/00	1200	4 deg	18
Bremseth,P.-J.	1	010/32/21	+63/25/32	5	1 arcsec	47
	2	344/21/00	+27/39/00		1 deg	74
	3	011/35/00	+63/25/00		1 deg	47

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Bretschneider,H.	1	012/38/12	+50/35/54	480	0.1 arcmin	23
	2	012/38/48	+50/35/54	430	0.1 arcmin	23
Briesemeister,J.	1	013/21/12	+52/27/30	78	0.1 arcmin	25
Bril,H.J.	1	005/48/48	+53/13/06	30	0.1 arcmin	46
	2	005/48/00	+50/57/00	50	1 arcmin	29
Bro,M.	1	267/16/00	+41/56/30	274	1 arcmin	16
Brogioni,A.	1	012/02/35	+43/07/45	250	5 arcsec	7
Bruhin,W.	1	007/27/15	+46/51/14	960	0.1 arcsec	18
Brutsche,E.	1	277/01/00	+41/25/00	196	1 arcmin	16
	2	279/00/00	+27/30/00	18	1 deg	16
	3	278/00/00	+26/00/00	14	1 deg	16
Bryant,K.	1	145/00/00	-38/00/00	61	1 deg	26
Buchanan,W.T.	1	275/15/00	+32/50/00	425	1 arcmin	16
	2	275/04/00	+33/47/00	323	1 arcmin	16
	3	277/01/00	+35/22/00	1847	1 arcmin	16
	4	275/09/00	+33/44/00	375	1 arcmin	16
	5	289/03/00	-29/22/00	1124	1 arcmin	32
Budilka,P.	1	observing site unknown				
Bukotkin,A.	1	observing site unknown				
Burch,J.Q.	1	237/22/00	+47/35/00	24	1 arcmin	16
	2	237/13/00	+47/34/00	515	1 arcmin	16
	3	237/17/00	+47/37/00	122	1 arcmin	16
	4	203/45/00	+20/10/00	3054	1 arcmin	76
Bus,E.P.	1	006/13/18	+53/23/12	0	0.1 arcmin	46
	2	006/39/12	+53/18/36	0	0.1 arcmin	46
	3	006/41/30	+53/10/42	0	0.1 arcmin	46
	4	006/01/24	+43/58/30	735	0.1 arcmin	4
	5	006/32/30	+53/13/12	0	0.1 arcmin	46
	6	006/15/36	+53/20/36	0	0.1 arcmin	46
	7	006/26/12	+53/14/24		0.1 arcmin	46
	8	345/55/54	+28/38/18	140	0.1 arcmin	74
	9	345/48/30	+28/44/42	2340	0.1 arcmin	74
Buso,V.	1	observing site unknown				
Campbell,R.N.	1	170/30/00	-45/54/00	80	1 arcmin	48
	2	168/42/00	-45/02/00	700	1 arcmin	48
Campos,J.	1	030/56/37	-29/55/25	112	1 arcsec	13
	2	031/06/20	-29/37/30	119	1 arcsec	13
	3	030/25/00	-29/45/00	850	1 arcmin	13
	4	030/40/50	-29/44/30	823	1 arcsec	13
	5	021/12/00	-28/18/00	1520	1 arcmin	13
	6	027/37/00	-28/20/00		1 deg	13
	7	032/00/00	-30/00/00	10668	10 deg	48
Camurri,L.	1	009/13/00	+45/32/00	130	1 arcmin	7
	2	009/28/00	+45/56/00	770	1 arcmin	7
	3	057/21/00	-20/18/00	0	1 arcmin	45
Cano,M.	1	359/07/00	+41/39/00		2 deg	14
Cappellari,M.	1	011/28/06	+45/32/33	184	1 arcsec	7
Cardiel,N.	1	357/04/00	+40/45/00	1005	1 arcmin	14
	2	355/52/15	+40/17/12	575	1 arcsec	14
	3	356/16/00	+40/19/00		1 deg	14
	4	355/55/00	+40/17/00		1 deg	14
	5	356/54/39	+40/31/24	929	1 arcsec	14
	6	355/52/00	+40/38/00		1 deg	14
	7	356/40/00	+40/56/00		2 deg	14
Carello,S.	1	observing site unknown				
Carragan,J.	1	286/26/30	+42/45/55	164	1 arcsec	16
	2	286/19/51	+42/42/36	98	1 arcsec	16
	3	286/03/39	+42/38/33	128	1 arcsec	16
	4	286/18/16	+42/41/28	67	1 arcsec	16
	5	288/31/00	-30/16/00		0.5 deg	32
	6	289/15/00	-30/01/00		0.5 deg	32
Carragan,W.	1	286/26/30	+42/45/55	164	1 arcsec	16
	2	286/19/51	+42/42/36	98	1 arcsec	16
	3	286/03/39	+42/38/33	128	1 arcsec	16
	4	286/18/16	+42/41/28	67	1 arcsec	16
	5	288/31/00	-30/16/00		0.5 deg	32
	6	289/15/00	-30/01/00		0.5 deg	32
Castineiras,R.S.J.	1	301/35/58	-34/36/30	40	1 arcsec	27
	2	301/33/56	-34/36/19		1 arcsec	27
	3	301/34/16	-34/37/07	20	0.1 arcsec	27
	4	301/35/02	-34/38/55		1 arcsec	27
Castino,R.	1	007/12/10	+44/57/04	627	1 arcsec	7
Castrillon,M.E.	1	296/06/00	-34/30/00	154	1 arcmin	27
Chernis,K.	1	observing site unknown				
Chester,G.R.	1	282/01/01	+38/36/25	146	1 arcsec	16
Chmielewski,W.	1	303/40/00	+35/15/00	20	1 arcmin	89
	2	292/52/00	+30/54/00	20	1 arcmin	89
	3	282/45/00	+25/48/00	20	1 arcmin	89
	4	278/15/00	+24/23/00	20	1 arcmin	88
	5	273/37/00	+26/48/00	20	1 arcmin	88
	6	269/10/00	+30/00/00	20	1 arcmin	16

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	7	269/05/00	+30/05/00	20	1 arcmin	16
	8	269/37/00	+27/25/00	20	1 arcmin	88
	9	275/10/00	+21/38/00	20	1 arcmin	87
	10	279/31/00	+22/09/00	20	1 arcmin	79
	11	298/20/00	+32/00/00	20	1 arcmin	89
Chodorowski,F.	1	023/06/46	+53/04/45	150	1 arcsec	11
Chuprakov,S.	1	observing site unknown				
Churyumov,K.	1	observing site unknown				
Cifuentes,E.	1	358/06/24	+43/17/01	120	1 arcsec	14
	2	358/00/57	+43/17/44	108	1 arcsec	14
	3	293/56/12	+18/22/48	25	1 arcsec	77
	4	292/49/42	+18/01/15	1	1 arcsec	77
	5	294/02/00	+18/18/18	175	1 arcsec	77
	6	057/32/22	-20/01/34	2	1 arcsec	45
Cimatti,A.	1	011/19/38	+44/29/00	50	1 arcmin	7
	2	011/15/13	+44/28/00	245	1 arcmin	7
	3	011/20/00	+43/59/00	750	10 arcmin	7
	4	011/15/00	+46/00/00	1610	2 deg	7
	5	057/32/22	-20/02/36		1 arcsec	45
Clark,M.L.	1	116/04/20	-32/07/18	274	1 arcsec	26
	2	115/00/00	-32/00/00		1 deg	26
	3	115/00/00	-30/00/00		10 deg	26
	4	115/00/00	-31/00/00		1 deg	26
Coco,M.	1	243/10/00	+33/50/00	914	5 arcmin	16
	2	240/55/00	+34/50/00	1570	5 arcmin	16
	3	241/50/00	+34/10/00	1554	5 arcmin	16
	4	242/55/00	+33/00/00	335	5 arcmin	16
Comello,G.	1	006/26/36	+53/07/42	4	0.1 arcmin	46
	2	006/24/00	+53/08/00	3	1 arcmin	46
	3	006/24/30	+53/08/24	5	0.1 arcmin	46
	4	006/01/00	+43/58/00	730	1 arcmin	4
	5	006/33/00	+52/53/00		1 arcmin	46
	6	006/29/30	+53/09/24		0.1 arcmin	46
	7	345/55/54	+28/38/18	140	0.1 arcmin	74
	8	345/48/00	+28/45/00	2300	1 arcmin	74
	9	009/24/54	+46/49/12	660	0.1 arcmin	18
Conrad,R.	1	016/20/03	+48/14/30	220	1 arcsec	28
	2	016/09/27	+48/17/01		1 arcsec	28
	3	343/30/00	+28/18/00	2300	1 arcmin	74
	4	343/26/25	+28/17/20	2350	1 arcsec	74
	5	013/23/00	+46/37/00		1 arcmin	28
Cook,A.J.	1	241/41/54	+34/06/47	357	0.1 arcsec	16
	2	241/18/00	+34/34/00	914	1 arcmin	16
	3	240/44/00	+34/47/00	2530	1 arcmin	16
	4	243/17/00	+33/44/00	1615	1 arcmin	16
	5	242/01/00	+34/15/00	1524	1 arcmin	16
	6	241/50/00	+34/05/00	300	1 arcmin	16
	7	133/53/00	-23/43/00	600	1 arcmin	26
	8	201/00/00	+15/00/00	11277	1 deg	98
	9	241/11/00	+34/10/00	300	1 arcmin	16
	10	242/00/00	+33/14/00	1500	1 arcmin	16
	11	244/34/00	+33/43/00	500	1 arcmin	16
	12	243/56/00	+30/20/00	4	1 arcmin	9
	13	245/12/00	+29/43/00	400	1 arcmin	9
	14	247/06/00	+27/23/00	1000	1 arcmin	9
	15	248/37/00	+26/00/00	2	1 arcmin	9
	16	250/17/00	+23/11/00	7	1 arcmin	9
	17	113/15/00	-24/27/00	500	1 arcmin	26
	18	131/01/00	-25/20/30	538	1 arcmin	26
	19	240/01/00	+34/44/00	1067	1 arcmin	16
	20	244/02/00	+33/47/00	1000	1 arcmin	16
Crist,M.	1	272/45/25	+36/02/38	222	0.1 arcsec	16
Crossley,G.	1	283/07/01	+41/00/00	125	1 deg	16
Csomos,G.	1	020/00/48	+48/23/36	210	0.1 arcsec	35
Csukas,M.	1	021/39/00	+46/48/00	90	1 arcmin	60
Cunningham,J.	1	253/05/00	+38/33/00	2515	1 arcmin	16
Curtis,D.	1	170/30/00	-45/50/00	100	0.5 deg	48
Cuthill,D.D.	1	285/26/51	+39/29/09	16	0.1 arcsec	16
	2	285/23/00	+39/48/00	48	1 deg	16
	3	285/04/25	+39/43/36		1 arcsec	16
Cuthill,L.	1	285/04/00	+39/48/37	48	1 arcsec	16
	2	285/04/25	+39/48/36	48	1 arcsec	16
	3	285/03/47	+39/48/23	48	1 arcsec	16
Czerniewski,W.	1	018/37/30	+54/23/11	3	1 arcsec	11
da Silva,L.A.L.	1	308/48/22	-30/03/17	13	0.1 arcsec	2
	2	308/59/16	-30/20/01	65	0.1 arcsec	2
	3	308/58/14	-30/20/59	60	0.1 arcsec	2
	4	308/29/15	-30/14/35	230	1 arcsec	2
	5	309/16/00	-29/48/00		3 arcmin	2
	6	309/00/00	-30/22/00		3 arcmin	2
	7	308/30/00	-30/05/00		3 arcmin	2
	8	309/48/00	-30/08/00		3 arcmin	2
Dal Santo,M.	1	011/32/00	+45/14/00	13	1 arcmin	7
	2	011/32/00	+45/14/00	12	1 arcmin	7
Danilov,M.	1	observing site unknown				
Darvann,T.A.	1	010/24/14	+59/46/33	210	1 arcsec	47

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Date,M.	1	136/30/00	+35/00/00	200	0.1 deg	8
	2	136/37/48	+34/56/24	5	0.1 deg	8
de Assis Neto,V.F.	1	315/00/16	-20/47/22	920	1 arcsec	2
	2	315/00/15	-20/43/09	997	1 arcsec	2
de la Rosa Jr.,A.	1	266/06/00	+29/48/00	2	0.1 deg	16
de Luis,J.	1	357/04/00	+40/45/00	995	1 arcmin	14
DeYoung,J.A.	1	282/53/32	+38/44/32	9	0.1 arcsec	16
	2	282/56/07	+38/55/12	99	0.01 arcsec	16
	3	282/56/01	+38/55/17	93	0.01 arcsec	16
	4	281/45/32	+37/58/01	151	0.1 arcsec	16
	5	282/04/00	+38/41/12	244	0.1 arcmin	16
Deconinck,M.	1	004/33/28	+50/42/01	107	1 arcsec	29
	2	004/20/37	+50/47/43	79	1 arcsec	29
	3	004/27/42	+50/38/47	145	1 arcsec	29
	4	005/20/28	+50/45/47	185	1 arcsec	29
	5	007/24/00	+46/18/00	1515	1 arcmin	29
	6	007/32/30	+46/13/00	1600	1 arcmin	29
	7	002/49/00	+50/00/12	400	1 arcmin	29
Delfs,M.	1	013/21/11	+52/27/32	78	1 arcsec	25
Di Meglio,F.	1	013/56/55	+40/44/22	30	1 arcsec	7
	2	013/57/29	+40/43/57	25	1 arcsec	7
	3	013/56/48	+40/42/38	398	1 arcsec	7
	4	013/53/45	+40/43/45	787	1 arcsec	7
Diaz P.,E.	1	286/10/00	+05/07/00	3200	1 arcmin	33
	2	286/02/00	+04/43/00	2800	1 arcmin	33
	3	286/31/00	+05/01/00	1800	1 arcmin	33
	4	285/55/00	+05/06/00	2800	1 arcmin	33
	5	287/15/00	+07/20/00	3300	1 arcmin	33
	6	286/07/00	+04/52/00	2800	1 arcmin	33
	7	285/56/00	+04/05/00	2600	1 arcmin	33
Dietrich,M.	1	010/02/54	+51/15/12	380	0.1 arcmin	23
	2	015/51/24	-21/57/12	1300	0.1 arcmin	65
Dilsizian,R.	1	286/13/06	+41/23/59	296	1 arcsec	16
	2	286/20/00	+41/20/00	52	1 arcsec	16
	3	300/34/00	+13/07/30		1 arcmin	71
Dionisi,M.	1	012/27/15	+41/55/25	0	1 arcsec	7
	2	012/38/00	+41/26/00	0	1 arcmin	7
Dodd,W.J.	1	275/47/10	+39/51/13	293	1 arcsec	16
	2	278/38/00	+28/32/00		0.5 deg	16
	3	278/30/00	+28/00/00		8 deg	16
	4	275/37/22	+40/02/18		1 arcsec	16
Dominici,A.	1	012/06/15	+42/24/59	200	1 arcsec	7
Donatiello,G.	1	017/14/24	+40/30/00	124	1 arcmin	7
	2	017/14/42	+40/29/00	153	1 arcmin	7
Donth,D.	1	287/51/40	+43/26/47	274	1 arcsec	16
Douma,H.	1	006/55/24	+53/19/12	0	0.1 arcmin	46
	2	006/50/48	+53/21/36	0	0.1 arcmin	46
Dragesco,J.	1	029/46/00	+02/18/00	1750	20 arcmin	52
	2	024/00/00	+22/00/00		10 deg	64
Drapun,A.	1	observing site unknown				
Drapun,I.	1	observing site unknown				
Dyachuk,A.	1	observing site unknown				
Dzhultaev,K.	1	observing site unknown				
Dziura,W.	1	022/14/00	+49/56/00		1 arcmin	11
Edberg,S.J.	1	241/42/10	+34/16/25	488	2 arcsec	16
	2	240/54/34	+34/44/50	1570	2 arcsec	16
	3	242/00/30	+34/16/40	1524	1 arcsec	16
	4	242/19/12	+34/22/54	2287	1 arcsec	16
	5	241/17/03	+34/34/28	1006	1 arcsec	16
	6	241/24/12	+34/30/30	549	5 arcsec	16
	7	241/11/30	+34/43/30	899	2 arcmin	16
	8	241/58/00	+34/31/00	914	1 arcmin	16
	9	244/00/00	+34/08/00	610	2 arcmin	16
	10	210/23/00	-17/34/00	3	10 arcmin	61
	11	210/14/00	-17/31/00	3	10 arcmin	61
	12	243/30/00	+32/49/00	1372	1 arcmin	16
	13	243/13/00	+34/15/00	2286	2 arcmin	16
	14	242/03/00	+34/21/00	2134	1 arcmin	16
	15	241/27/00	+34/22/00	396	2 arcmin	16
	16	253/40/00	+39/35/00	3048	2 arcmin	16
	17	241/52/00	+34/19/00	762	2 arcmin	16
	18	241/55/00	+34/16/00	1372	2 arcmin	16
	19	245/00/00	+36/00/00	10600	4 deg	98
Elias,P.	1	015/55/18	+49/33/13	590	1 arcsec	35
Eltri,M.	1	012/22/08	+45/24/43	10	1 arcsec	7
	2	012/24/00	+45/24/00	3	0.1 deg	7
Emerson,G.	1	254/37/30	+39/52/30	2750	5 arcsec	16
	2	256/21/00	+29/18/00	1000	0.01 deg	16
Emrich,G.	1	observing site unknown				
Fabre,R.	1	202/04/12	+21/37/00	3	1 arcmin	76

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	2	201/57/00	+21/32/00	3	1 arcmin	76
	3	204/32/00	+19/50/00		1 arcmin	76
	4	201/53/00	+21/28/00		1 arcmin	76
Fabricius,J.	1	018/45/38	+48/43/40	440	0.1 arcsec	35
Falorni,M.	1	011/21/30	+43/41/30	420	1 arcsec	7
	2	011/26/00	+43/45/00	180	1 arcmin	7
Falsarella,N.	1	310/36/50	-20/48/56	468	1 arcsec	2
Falvo,S.A.	1	284/47/20	+43/05/50	131	1 arcsec	16
	2	284/41/19	+43/03/52	229	1 arcsec	16
	3	284/46/54	+43/03/06	335	1 arcsec	16
Farrington,W.R.	1	291/32/00	+45/58/00	244	1 arcmin	16
Farroni,G.	1	055/18/00	-21/02/00	500	1 arcmin	70
	2	000/44/56	+47/22/10	70	0.01 arcmin	4
Feijth,H.	1	005/48/48	+53/10/54	0	0.1 arcmin	46
	2	006/01/24	+43/58/30	735	0.1 arcmin	4
	3	005/48/48	+53/05/30		1 arcmin	46
Feisheng,J.	1	119/00/00	+33/00/00	2	1 deg	10
Fernandez,Y.	1	303/42/30	-34/52/30	29	10 arcmin	62
Ferrin,I.	1	289/08/00	+08/47/26	3600	1 arcsec	17
	2	288/52/37	+08/37/35	1880	1 arcsec	17
	3	observing site unknown				
	4	289/13/12	+08/54/12	4310	0.1 arcmin	17
Filimon,E.	1	013/36/33	+47/54/47	860	1 arcsec	28
	2	013/36/00	+47/57/36	486	3.6 arcsec	28
	3	013/36/17	+47/57/36	486	1 arcsec	28
Filimonchev,S.	1	observing site unknown				
Fischer,D.	1	007/06/00	+50/42/00	195	0.1 deg	25
	2	007/00/00	+50/00/00	300	1 deg	25
	3	006/38/00	+51/27/00		5 arcmin	25
	4	007/06/00	+50/44/00		5 arcmin	25
	5	016/00/00	-22/00/00	900	1 deg	65
Fitzgerald,P.	1	observing site unknown				
Fleet,R.W.	1	031/11/00	-17/43/00	1407	1 arcmin	59
	2	028/12/00	-25/42/00		0.1 deg	13
	3	029/15/00	-29/50/00		1 arcmin	13
	4	030/54/00	-29/42/00		0.1 deg	13
	5	031/41/00	-21/07/00		1 arcmin	59
	6	031/08/08	-17/41/55	1500	1 arcsec	59
Foster,G.	1	278/36/00	+28/18/00	21	1 arcmin	16
Foulkes,M.	1	359/45/48	+51/47/36	85	0.1 arcmin	15
	2	359/57/12	+53/33/24	0	0.1 arcmin	15
	3	359/57/30	+53/34/06	10	0.1 arcmin	15
	4	359/54/00	+51/46/12	70	0.1 arcmin	15
	5	359/49/30	+51/47/12	80	0.1 arcmin	15
	6	359/14/00	+51/15/00		1 arcmin	15
	7	359/46/00	+51/45/30	85	1 arcmin	15
	8	148/11/00	-33/09/00		1 arcmin	26
	9	149/18/00	-31/14/00		1 arcmin	26
	10	148/35/00	-32/11/00		5 arcmin	26
	11	133/50/00	-24/18/00		1 deg	26
	12	133/50/00	-24/07/00		1 deg	26
	13	131/03/00	-23/21/00		1 deg	26
	14	133/50/00	-23/51/00		1 deg	26
Fox,J.H.	1	267/11/30	+44/52/10	277	0.1 arcsec	16
Franch,J.	1	272/15/00	+41/52/00	258	1 arcmin	16
	2	271/46/00	+40/07/00	320	1 arcmin	16
Franciosi,C.	1	008/46/15	+45/52/04	1228	0.001 arcsec	7
	2	008/54/43	+45/49/17	394	0.01 arcsec	7
Freydank,E.	1	071/30/00	+04/30/00		4 deg	78
	2	013/21/11	+52/27/32	78	1 arcsec	25
Freydank,H.	1	013/21/11	+52/27/32	78	1 arcsec	25
	2	013/20/00	+52/31/00		1 deg	25
Frosina,A.	1	013/15/00	+38/08/00	14	4 arcmin	7
	2	014/15/00	+37/32/00	950	4 arcmin	7
	3	015/15/00	+37/02/00	30	4 arcmin	7
Furia,S.	1	008/46/15	+45/52/04	1226	0.001 arcsec	7
	2	015/51/00	-21/58/00	1165	1 arcmin	65
Gainsford,M.J.	1	358/39/50	+52/32/07	100	1 arcsec	15
	2	358/45/17	+52/33/53		1 arcsec	15
	3	358/41/02	+52/28/19		1 arcsec	15
	4	358/35/36	+52/35/42		0.1 arcmin	15
	5	358/22/42	+52/27/06		0.1 arcmin	15
	6	358/52/12	+52/38/18		0.1 arcmin	15
	7	observing site unknown				
Gallego,J.	1	357/04/00	+40/45/00	1005	1 arcmin	14
	2	356/07/00	+40/15/00		2 deg	14
	3	355/52/15	+40/17/12	575	1 arcsec	14
	4	356/18/00	+40/26/00		0.5 deg	14
	5	356/54/39	+40/31/24	929	1 arcsec	14
	6	355/52/00	+40/38/00		0.5 deg	14
Galli,A.	1	observing site unknown				

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	2	303/49/00	-34/53/00	8	1 arcmin	62
Garcia,A.	1	286/00/00	+05/00/00		5 deg	33
Garradd,G.	1	151/15/15	-31/26/57	1300	1 arcsec	26
	2	150/54/43	-30/55/50	447	1 arcsec	26
	3	151/07/54	-31/21/45	545	1 arcsec	26
	4	150/29/19	-30/52/21	330	1 arcsec	26
	5	150/45/49	-30/44/39	385	1 arcsec	26
	6	150/56/24	-31/05/01	450	1 arcsec	26
	7	151/08/38	-30/56/55	1320	1 arcsec	26
	8	150/50/55	-31/03/02	375	1 arcsec	26
	9	150/49/31	-31/09/14	478	1 arcsec	26
	10	150/13/00	-30/52/34	270	1 arcsec	26
	11	149/54/06	-31/42/34	865	1 arcsec	26
	12	149/04/10	-31/16/28	1126	1 arcsec	26
	13	150/09/21	-30/16/40	1400	1 arcsec	26
	14	150/40/29	-30/52/34	535	1 arcsec	26
	15	150/55/21	-31/01/58	470	1 arcsec	26
	16	150/34/17	-30/59/46	405	1 arcsec	26
	17	150/58/54	-31/09/13	425	1 arcsec	26
Gaucher,C.	1	291/42/00	-32/18/00		5 deg	62
Geenen,J.J.	1	005/42/00	+51/14/00	35	1 arcmin	46
	2	005/41/30	+51/15/00	35	1 arcmin	46
	3	005/42/00	+51/13/30	35	1 arcmin	46
Gelinas,M.A.	1	286/33/00	+45/30/00	26	1 arcmin	21
	2	287/17/00	+45/36/00	75	1 arcmin	21
Genebriera,J.	1	354/11/00	+41/23/00	50	1 arcmin	14
	2	354/30/00	+41/41/00	1060	1 arcmin	14
	3	004/00/00	+40/00/00		1 deg	14
Gerasimov,A.	1	observing site unknown				
Germann,R.	1	008/55/57	+47/16/29	770	0.1 arcsec	18
Ghione,G.	1	012/35/00	+42/36/00	676	1 arcmin	7
Giampaolo,G.	1	observing site unknown				
Gianforte,J.S.	1	289/08/05	+43/16/54	82	1 arcsec	16
	2	289/08/00	+43/19/00	91	1 arcmin	16
	3	289/08/30	+43/19/00	61	1 arcmin	16
Gigli,P.	1	010/50/00	+44/03/35	780	1 arcmin	7
Gilchrist,D.K.	1	279/49/00	+40/42/20	421	1 arcmin	16
	2	279/38/45	+40/29/45	73	1 arcsec	16
	3	279/40/00	+40/29/30	143	1 arcsec	16
	4	279/34/00	+40/29/15	149	1 arcsec	16
Girardo,M.M.	1	296/06/00	-34/30/00	154	1 arcmin	27
Giraudi,J.D.	1	301/35/58	-34/36/30	40	1 arcsec	27
	2	301/35/02	-34/36/27	35	0.1 arcsec	27
	3	301/00/00	-34/30/00	0	3 deg	27
Giuntoli,M.	1	010/47/11	+43/51/39	21	1 arcsec	7
Glassett,W.	1	243/38/42	+33/54/00	322	1 arcmin	16
	2	241/00/00	+34/45/00	1570	1 deg	16
	3	241/56/24	+34/13/00	1742	1 arcmin	16
	4	237/24/00	+48/42/00		1 arcmin	16
	5	241/41/00	+34/11/00		10 arcmin	16
Glowinski,C.	1	008/16/00	+50/00/00	100	1 deg	25
Gojdic,S.	1	021/54/40	+48/56/17	160	0.1 arcsec	35
Goldfarb,M.	1	observing site unknown				
Golubev,V.	1	observing site unknown				
Gomez,A.	1	357/04/00	+40/45/00	1005	1 arcmin	14
	2	355/52/15	+40/17/12	575	1 arcsec	14
	3	356/00/00	+40/30/00		2 deg	14
	4	356/00/00	+40/30/00		2 deg	14
	5	357/11/00	+41/19/00		0.5 deg	14
	6	356/33/00	+40/25/00		0.5 deg	14
	7	356/54/39	+40/31/24	929	1 arcsec	14
	8	355/45/00	+40/26/00		5 arcmin	14
Gomez,T.L.	1	357/04/00	+40/45/00	1005	1 arcmin	14
	2	359/30/00	+39/26/00		1 deg	14
	3	356/19/35	+40/24/28	614	1 arcsec	14
	4	356/07/00	+40/22/00		1 deg	14
	5	355/45/00	+40/26/00		5 arcmin	14
Gonzalez,A.	1	356/31/00	+40/29/00		1 deg	14
Gora,D.	1	021/04/00	+51/03/00	250	1 arcmin	11
Gorski,L.	1	270/10/58	+39/07/17	198	1 arcsec	16
	2	270/20/48	+39/49/26	174	1 arcsec	16
	3	270/12/14	+39/01/23	177	1 arcsec	16
	4	270/17/47	+39/05/41	207	1 arcsec	16
	5	279/23/00	+24/55/48	0	1 arcsec	16
	6	270/13/53	+39/03/27	192	1 arcsec	16
Gostev,A.	1	observing site unknown				
Gozzoli,E.	1	011/00/00	+44/30/00	120	1 deg	7
Granslo,B.H.	1	010/42/00	+59/54/00	150	0.1 deg	47
	2	010/48/00	+60/12/00	580	0.1 deg	47
	3	011/12/00	+64/06/00	75	0.1 deg	47

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	4	011/06/00	+64/06/00		0.1 deg	47
	5	343/30/12	+28/17/30	238	0.1 arcmin	74
	6	342/07/12	+28/45/30	2327	0.1 arcmin	74
Graves,D.	1	285/09/00	+39/59/00	18	1 arcmin	16
	2	285/22/00	+39/39/00	18	1 arcmin	16
Green,D.W.E.	1	observing site unknown				
Grieser,D.	1	276/57/01	+40/02/49	258	1 arcsec	16
	2	276/55/57	+40/06/25	274	1 arcsec	16
Grogel,O.	1	012/36/00	+48/54/00	330	0.1 deg	25
Gronek,J.D.	1	248/06/04	+33/28/41	351	1 arcsec	16
	2	248/37/15	+33/17/44	561	1 arcsec	16
Gruengard,E.	1	034/26/36	+30/23/24	837	1 arcsec	40
Guarro,J.	1	001/45/18	+41/31/24	324	1 arcsec	14
Gubo,H.	1	010/44/00	+48/02/00	620	1 arcmin	25
	2	010/44/00	+47/44/00	1020	1 arcmin	25
Guerrini,F.	1	012/12/00	+44/25/07		15 arcsec	7
Guhl,K.	1	013/28/40	+52/29/12	40	1 arcsec	23
Guryanov,S.	1	observing site unknown				
Guthier,O.	1	008/03/24	+49/57/48	250	0.1 arcmin	25
	2	observing site unknown				
	3	observing site unknown				
	4	016/00/00	-22/00/00		13 deg	65
Haagh,N.	1	149/12/42	-31/16/48	450	0.5 arcmin	26
Hajek,P.	1	017/01/34	+49/17/06	254	1 arcsec	35
Hale,A.	1	242/11/48	+34/22/18	2408	0.1 arcmin	16
	2	242/00/30	+34/16/54	1525	0.1 arcmin	16
	3	241/16/48	+34/34/36	915	0.1 arcmin	16
	4	241/17/06	+34/35/06	760	0.1 arcmin	16
	5	240/58/49	+34/48/03	1615	1 arcsec	16
	6	240/57/02	+34/45/20	1550	1 arcsec	16
	7	240/52/49	+34/42/29	1660	1 arcsec	16
	8	240/52/42	+34/42/12	1750	1 arcsec	16
	9	242/18/30	+34/22/48	2290	0.1 arcmin	16
	10	243/19/54	+32/49/54	760	0.1 arcmin	16
	11	243/30/24	+32/49/18	1370	0.1 arcmin	16
	12	243/33/18	+32/50/48	1675	0.1 arcmin	16
	13	243/35/00	+32/52/12	1830	0.1 arcmin	16
	14	243/17/54	+33/43/12	1620	0.1 arcmin	16
	15	243/08/48	+33/18/30	1580	0.1 arcmin	16
	16	243/15/42	+34/13/06	2225	0.1 arcmin	16
	17	240/54/00	+34/44/30	1585	0.1 arcmin	16
	18	240/54/18	+34/44/54	1585	0.1 arcmin	16
	19	241/11/12	+34/42/06	915	0.1 arcmin	16
	20	241/24/12	+34/30/54	550	0.1 arcmin	16
	21	241/43/24	+34/15/06	460	0.1 arcmin	16
	22	241/58/12	+34/30/18	915	0.1 arcmin	16
	23	241/53/48	+34/15/18	1280	0.1 arcmin	16
	24	241/56/48	+34/16/00	1370	0.1 arcmin	16
	25	242/00/12	+34/19/48	1825	0.1 arcmin	16
	26	242/04/12	+34/20/36	2135	0.1 arcmin	16
	27	240/23/24	+37/44/48	1209	0.1 arcmin	16
	28	247/52/54	+36/04/12	2093	0.1 arcmin	16
	29	249/21/36	+32/15/18	800	0.1 arcmin	16
	30	254/03/18	+32/52/18	1312	0.1 arcmin	16
	31	253/15/42	+32/22/00	1220	0.1 arcmin	16
	32	253/17/30	+32/17/06	1220	0.1 arcmin	16
	33	251/48/42	+33/02/12	1860	0.1 arcmin	16
	34	151/13/18	-33/59/12	45	0.1 arcmin	26
	35	148/42/36	-32/15/24	500	0.1 arcmin	26
	36	141/26/42	-31/57/48	300	0.1 arcmin	26
	37	139/20/48	-35/04/48	300	0.1 arcmin	26
	38	146/54/30	-36/42/00	800	0.1 arcmin	26
	39	176/14/24	-38/09/36	300	0.1 arcmin	48
	40	253/10/18	+32/21/00	1190	0.1 arcmin	16
	41	252/50/06	+32/29/30	2019	0.1 arcmin	16
Hall,B.	1	243/16/46	+33/29/02	1329	1 arcsec	16
Hannon,J.	1	286/55/00	+41/40/00	107	1 arcmin	16
Harrington,P.	1	286/46/10	+40/51/54	43	5 arcsec	16
	2	279/04/00	+25/08/10	0	5 arcsec	16
	3	287/25/00	+43/20/00		1 deg	16
Harris,L.A.	1	280/31/27	+09/01/30	176	1 arcsec	80
	2	280/30/00	+08/59/00	10	1 arcmin	80
Hasegawa,T.	1	140/06/00	+35/30/36	25	0.01 deg	8
	2	140/06/36	+35/31/12	20	0.01 deg	8
	3	140/12/00	+35/09/36	75	0.01 deg	8
	4	139/50/24	+34/54/00	0	0.01 deg	8
Hasubick,W.	1	010/44/00	+48/02/00	620	1 arcmin	25
	2	010/44/00	+47/44/00	1020	1 arcmin	25
	3	343/25/00	+28/15/00	2300	1 arcmin	74
Hathaway,W.	1	283/12/00	+38/59/00	43	1 arcmin	16
	2	283/11/00	+39/01/00	50	1 arcmin	16
	3	277/40/00	+34/40/00	2037	10 arcmin	16
Haver,R.	1	012/26/44	+41/55/48	125	0.01 deg	7
	2	012/03/36	+42/16/48	340	0.01 deg	7
	3	012/04/12	+42/04/12	300	0.01 deg	7
	4	013/12/36	+41/57/36	1845	0.01 deg	7

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	5	012/01/12	+42/06/00	425	0.01 deg	7
	6	011/10/12	+42/23/24	600	0.01 deg	7
	7	073/28/48	+03/39/00	1	0.01 deg	78
Havrilak,M.	1	021/54/40	+48/56/17	160	0.1 arcsec	35
Hayashi,A.	1	observing site unknown				
Hayashi,H.	1	139/37/00	+35/18/00	20	1 arcmin	8
	2	138/20/00	+35/53/00	1110	1 arcmin	8
	3	139/59/00	+35/02/00	5	1 arcmin	8
	4	138/54/00	+34/35/00		3 deg	8
	5	138/38/00	+35/48/00	1650	1 arcmin	8
Hays Jr.,R.H.	1	272/32/00	+41/09/00	213	1 arcmin	16
	2	272/12/00	+41/41/00	186	1 arcmin	16
	3	256/38/00	+29/28/00	914	1 arcmin	16
	4	256/28/00	+29/19/00	914	1 arcmin	16
	5	256/13/00	+30/56/00	1067	1 arcmin	16
	6	257/11/00	+31/38/00	823	1 arcmin	16
	7	260/48/00	+33/34/00	427	1 arcmin	16
Healy,D.	1	250/03/11	+31/21/11	1407	4 arcsec	16
Henshaw,C.	1	029/56/00	-18/20/00	1100	1 deg	59
	2	031/31/00	-18/11/00		1 deg	59
	3	043/12/00	-18/05/00	10058	10 deg	98
	4	057/36/00	-20/18/00		2 deg	45
Hernschier,W.	1	008/27/11	+49/01/31	119	0.1 arcsec	25
	2	343/30/00	+28/30/00		1 deg	74
Higuera,A.	1	286/00/00	+04/35/00		15 deg	33
Hilburn,A.P.	1	282/00/00	+34/00/00	12	2 deg	16
Hiraga,M.	1	131/10/00	+34/08/00	60	1 arcmin	8
	2	131/05/00	+34/02/00	0	1 arcmin	8
	3	131/00/00	+34/00/00	20	1 arcmin	8
Hirth,G.	1	023/00/00	+40/37/00	15	5 arcmin	25
	2	023/36/00	+41/06/00	100	5 arcmin	25
	3	021/48/00	+40/18/00	1100	5 arcmin	25
Hodonsky,K.	1	272/04/00	+41/48/00		1 deg	16
	2	270/53/00	+41/20/00		1 deg	16
	3	269/39/00	+40/56/00		1 deg	16
	4	266/43/00	+36/36/00		1 deg	16
	5	267/17/00	+37/40/00		1 deg	16
	6	266/31/00	+36/37/00		1 deg	16
Honko,M.	1	020/59/08	+52/12/56	115	1 arcsec	11
	2	023/09/36	+53/08/48	150	1 arcsec	11
	3	019/42/30	+54/22/07	41	1 arcsec	11
House,R.R.	1	280/47/39	+42/53/27	177	1 arcsec	21
	2	279/30/12	+43/16/59	320	1 arcsec	21
	3	279/33/36	+43/27/52	329	1 arcsec	21
	4	279/28/52	+43/28/28	335	1 arcsec	21
Hroch,F.	1	016/39/00	+49/21/00	365	1 arcmin	35
Hudak,D.M.	1	279/16/52	+41/03/48	325	1 arcsec	16
	2	279/21/52	+41/06/41	301	1 arcsec	16
	3	279/06/26	+41/00/28	341	1 arcsec	16
	4	278/39/31	+41/08/28	346	1 arcsec	16
Humenansky,J.	1	021/14/46	+48/59/47	268	1 arcsec	35
Hurst,G.M.	1	358/00/00	+51/30/00	80	1 deg	15
	2	359/04/00	+52/14/00		2 deg	15
Ichikawa,K.	1	139/22/48	+36/16/48	38	0.01 deg	8
	2	139/19/12	+36/15/00	35	0.01 deg	8
	3	139/12/00	+36/30/00	1750	0.01 deg	8
	4	139/16/48	+36/24/00	42	0.01 deg	8
	5	138/12/00	+36/42/00		5 deg	8
	6	observing site unknown				
	7	observing site unknown				
	8	observing site unknown				
	9	139/00/00	+36/00/00		5 deg	8
	10	observing site unknown				
Ino,Y.	1	134/43/48	+34/55/48	78	0.01 deg	8
	2	134/43/48	+34/45/36	69	0.01 deg	8
Isenhart,C.	1	130/54/00	-25/30/00	549	10 arcmin	26
Ivanov,V.	1	observing site unknown				
Iwaki,Y.	1	135/34/36	+34/18/36	100	1 arcsec	8
Izquierdo,J.	1	357/04/00	+40/45/00	1005	1 arcmin	14
Jacobs,T.	1	270/32/36	+43/02/24	305	0.1 arcmin	16
	2	270/34/24	+43/00/30	296	0.1 arcmin	16
	3	270/33/48	+42/47/30	308	0.1 arcmin	16
Jacobson,E.	1	264/18/00	+46/00/00	305	1 deg	16
	2	261/45/00	+35/13/00	305	1 deg	16
Jager,M.	1	016/36/12	+48/03/00	160	0.1 arcmin	28
	2	013/54/00	+48/07/36	360	0.1 arcmin	28
	3	015/43/30	+47/40/24	1070	0.1 arcmin	28
	4	342/58/00	+28/41/00		1 deg	74
Jahn,J.	1	010/41/46	+53/37/06	60	2 arcsec	25
	2	010/00/20	+53/40/44	40	2 arcsec	25

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Janecek,V.	1	015/55/00	+49/33/00	590	1 arcmin	35
Jannink,D.W.	1	005/10/16	+52/06/32	22	3.6 arcsec	46
	2	006/55/08	+52/14/28	70	3.6 arcsec	46
	3	010/24/00	+36/24/00		0.1 deg	84
	4	010/48/00	+33/36/00	10	0.1 deg	84
Jeffrey,J.	1	000/00/00	+00/00/00		99 deg	99
	2	238/45/00	+44/20/00		1 deg	16
	3	248/00/00	+34/00/00		5 deg	16
Johnstone,G.F.	1	358/29/00	+52/19/00	83	1 arcmin	15
Jones,A.	1	173/14/04	-41/19/07	15	1 arcsec	48
Jones,B.W.	1	023/25/00	-20/00/00	945	5 arcmin	64
	2	024/43/00	-25/50/00	1100	5 arcmin	64
Jordan,J.	1	271/41/35	+36/09/45	84	1 arcsec	16
Kabalin,V.	1	observing site unknown				
Kaila,K.	1	025/25/00	+65/04/12	10	0.1 arcmin	19
	2	026/34/18	+64/38/36	100	0.1 arcmin	19
	3	343/00/00	+28/00/00	2200	1 deg	74
Kalauch,K.-D.	1	013/53/48	+51/33/41	130	0.1 arcsec	23
	2	013/54/00	+51/32/00	150	1 arcmin	23
Kamenickj',M.	1	021/07/18	+48/46/00	470	0.1 arcsec	35
Kammerer,A.	1	008/21/12	+49/00/06	115	0.1 arcmin	25
	2	008/29/00	+48/51/24	400	0.1 arcmin	25
	3	008/29/24	+48/47/54	690	0.1 arcmin	25
	4	008/20/00	+48/08/00	900	1 arcmin	25
	5	359/54/00	+38/30/00		0.5 deg	14
Kampev,Y.	1	observing site unknown				
Kanai,K.	1	139/16/00	+36/15/00	40	1 arcmin	8
	2	139/15/00	+36/15/00	40	1 arcmin	8
Kasirin,I.	1	observing site unknown				
Kato,T.	1	135/47/00	+35/02/00	60	1 arcmin	8
	2	135/35/00	+34/43/00	6	1 arcmin	8
Kaufmann,R.	1	285/00/00	+40/00/00		2 deg	16
	2	284/15/00	+35/40/00		5 deg	16
Kauschke,A.	1	013/40/00	+53/15/00	50	1 arcmin	23
Keen,R.	1	254/37/00	+39/53/00	2730	1 arcmin	16
	2	257/00/00	+37/00/00	1517	5 deg	16
	3	256/02/00	+36/15/00		5 deg	16
	4	210/00/00	+23/00/00		30 deg	98
	5	177/00/00	-17/00/00		5 deg	81
	6	177/15/00	-17/50/00		5 deg	81
	7	172/38/00	-43/30/00		5 deg	48
	8	170/30/00	-44/02/00		5 deg	48
	9	169/58/00	-44/28/00		5 deg	48
	10	167/45/00	-45/25/00		5 deg	48
	11	170/12/00	-43/25/00		5 deg	48
	12	174/40/00	-36/55/00		5 deg	48
	13	210/15/00	-17/30/00		5 deg	61
	14	202/30/00	-15/00/00		10 deg	61
	15	210/25/00	-17/30/00		5 deg	61
Keijmel,P.C.	1	003/34/00	+51/28/00	1	1 arcmin	46
	2	003/38/00	+51/32/00	1	1 arcmin	46
Kellner,A.	1	observing site unknown				
Kemble,L.J.	1	245/32/31	+51/12/14	1228	0.1 arcsec	21
	2	245/33/00	+51/03/00		1 arcmin	21
	3	246/09/05	+49/12/00		1 arcmin	21
Kerber,F.	1	011/36/00	+48/06/00	530	0.1 deg	25
	2	316/30/00	-20/30/00	700	1 deg	2
	3	313/00/00	-23/30/00	1100	1 deg	2
Keszthelyi,S.	1	018/18/38	+46/06/49	202	1 arcsec	38
	2	018/18/37	+46/06/47	209	1 arcsec	38
	3	018/13/47	+46/05/02	290	1 arcsec	38
	4	032/50/00	+25/45/00	100	1 arcmin	66
	5	022/28/00	+40/05/00		1 arcmin	36
	6	022/25/00	+38/45/00		1 arcmin	36
	7	024/00/00	+38/08/00		1 arcmin	36
	8	021/40/00	+39/40/00		1 arcmin	36
Kieltyka,G.	1	022/32/35	+51/14/50	240	1 arcsec	11
	2	021/44/58	+49/41/18	280	1 arcsec	11
	3	022/56/12	+51/22/16	171	1 arcsec	11
Kiselev,N.	1	observing site unknown				
Kishi,A.	1	139/48/00	+35/44/00	40	0.1 deg	8
	2	observing site unknown				
Kitamura,K.	1	136/45/00	+35/17/00	50	1 arcmin	8
	2	137/00/00	+35/15/00		1 deg	8
Kliche,J.	1	014/02/00	+51/48/09	65	1 arcsec	23
Knain,E.	1	010/48/00	+63/24/50	100	1 arcmin	47
	2	010/00/00	+63/00/00		5 deg	47
Knight,S.	1	289/18/27	+44/12/10	191	1 arcsec	16
	2	289/18/41	+44/12/10	179	1 arcsec	16

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	3	289/18/50	+44/12/18	177	1 arcsec	16
	4	289/19/07	+44/12/08	164	1 arcsec	16
Knisely,D.	1	263/15/00	+40/17/00	402	0.01 deg	16
	2	263/17/00	+40/04/00	396	0.01 deg	16
	3	263/25/00	+40/14/00	427	0.01 deg	16
	4	263/31/00	+40/14/00	463	0.01 deg	16
Knyazyuk,N.	1	observing site unknown				
Kobayashi,J.	1	130/45/00	+32/40/42	65	0.01 deg	8
	2	145/45/00	+16/30/00		10 deg	82
Koch,B.	1	356/39/00	+36/57/00	1800	1 arcmin	14
	2	006/20/00	+50/40/00	450	1 arcmin	25
	3	018/00/00	-23/30/00	1700	0.1 deg	65
	4	006/57/40	+51/09/48	60	1 arcsec	25
Koch,B.O.	1	010/44/00	+48/02/00	620	1 arcmin	25
	2	010/44/00	+47/44/00	1020	1 arcmin	25
Koch,V.	1	010/44/00	+48/02/00	620	1 arcmin	25
	2	010/44/00	+47/44/00	1020	1 arcmin	25
Kohler,N.	1	011/36/00	+50/54/00	145	0.1 deg	23
	2	011/36/00	+50/54/00	349	0.1 deg	23
	3	011/36/00	+50/48/00	200	0.1 deg	23
Kojima,T.	1	139/29/00	+36/11/00	20	1 arcmin	8
	2	145/46/00	+15/10/00	50	1 arcmin	82
Kolchanov,V.	1	observing site unknown				
Kolomeyets,S.	1	observing site unknown				
Konstantinov,S.	1	observing site unknown				
Kopp,M.	1	007/02/15	+51/20/50	228	1 arcsec	25
	2	008/01/00	+51/01/00	450	1 arcsec	25
	3	006/58/20	+51/19/40	145	1 arcsec	25
	4	006/57/10	+51/18/55	120	1 arcsec	25
	5	007/08/05	+50/44/52	46	1 arcsec	25
Kopplin,J.	1	012/28/00	+50/57/00	220	1 arcmin	23
Korneev,V.	1	observing site unknown				
Korth,S.	1	006/50/54	+51/11/36	45	0.1 arcmin	25
	2	006/20/00	+50/40/00	490	1 arcmin	25
Kosa-Kiss,A.	1	021/39/00	+46/48/00	90	1 arcmin	60
	2	021/57/00	+47/04/00	150	1 arcmin	60
Koschny,D.	1	011/22/44	+48/12/24	350	1 arcsec	25
	2	011/14/34	+48/14/10	554	1 arcsec	25
	3	011/22/49	+48/12/20	500	1 arcsec	25
	4	011/22/19	+48/08/05	510	1 arcsec	25
Kosinski,J.	1	021/27/31	+52/36/20	97	1 arcsec	11
	2	020/59/08	+52/12/56	115	1 arcsec	11
	3	019/42/30	+54/22/04	41	1 arcsec	11
Kourimsky,M.	1	014/25/00	+50/02/00	250	1 arcmin	35
	2	015/36/00	+50/42/00	725	1 arcmin	35
	3	014/33/00	+49/55/00	470	1 arcmin	35
Kral,M.	1	015/55/00	+49/33/00	590	1 arcmin	35
Kraling,W.	1	008/49/53	+50/47/18	220	1 arcsec	25
Krisciunas,K.	1	204/32/36	+19/45/18	2804	0.1 arcmin	76
	2	204/31/42	+19/46/36	4200	0.1 arcmin	76
	3	205/01/42	+19/34/00	91	0.1 arcmin	76
	4	204/33/00	+19/45/00	2134	10 arcmin	76
	5	204/22/00	+19/50/00	1524	1 arcmin	76
Kronk,G.	1	270/04/35	+38/41/42	171	1 arcsec	16
Kroon,B.	1	005/57/06	+52/15/06	16	0.1 arcmin	46
	2	033/11/00	+15/39/00		1 arcmin	63
	3	033/14/00	+15/36/00		1 arcmin	63
	4	033/08/00	+15/43/00		1 arcmin	63
Krylov,A.	1	observing site unknown				
Kucera,P.	1	017/03/00	+49/04/00	300	1 arcmin	35
	2	015/53/00	+49/13/00	430	1 arcmin	35
Kuipers,G.	1	006/23/42	+53/13/42	2	0.1 arcmin	46
	2	006/23/00	+53/12/42	2	1 arcmin	46
Kukkonen,I.T.	1	024/48/24	+60/22/36	30	0.1 arcmin	19
	2	343/00/00	+28/00/00	2200	1 deg	74
Kurtsov,S.	1	observing site unknown				
Kusumi,E.	1	138/46/35	+37/33/52	36	1 arcsec	8
Lairet,R.	1	293/04/12	+10/30/23	1046	1 arcsec	17
	2	289/08/00	+08/47/26	3600	1 arcmin	17
	3	observing site unknown				
	4	observing site unknown				
	5	observing site unknown				
Lamb,J.F.	1	264/05/00	+33/15/00	171	1 arcmin	16
Laroche,Y.	1	285/42/38	+45/33/12	60	1 arcsec	21
Laszlo,A.	1	020/30/00	+46/13/00	85	1 arcmin	38

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Lavarack,N.	1	031/02/40	-29/45/40	183	5 arcsec	13
	2	031/06/20	-29/37/30	119	5 arcsec	13
	3	030/25/00	-29/45/00	850	5 arcmin	13
	4	030/40/50	-28/44/30	823	5 arcsec	13
Lazerson,H.	1	241/28/00	+34/03/00	183	1 arcmin	16
	2	240/50/00	+34/50/00	1524	1 arcmin	16
Lehmann,T.	1	011/00/00	+51/00/00	220	0.1 deg	23
	2	011/36/00	+50/54/00	300	0.1 deg	23
Leitao Jr.,C.	1	313/14/23	-23/18/45	780	1 arcsec	2
Levai,R.	1	313/17/00	-23/32/00	780	1 deg	2
	2	313/28/00	-23/10/00	800	1 deg	2
Levy,A.	1	260/28/37	+19/47/24	3070	1 arcsec	9
Levy,D.H.	1	249/14/00	+31/57/00	1036	1 arcmin	16
	2	249/12/36	+32/26/33	2783	2 arcmin	16
	3	256/00/00	+30/40/00		10 arcmin	16
	4	248/24/00	+31/57/48	2120	0.1 arcmin	16
	5	249/16/06	+32/25/00	2510	0.1 arcmin	16
	6	249/14/00	+32/13/00		5 arcmin	16
	7	288/08/00	-13/25/00		10 arcmin	67
	8	281/28/00	-00/17/00		1 deg	85
	9	272/15/00	-00/10/00		3 deg	73
Lewis,D.E.	1	273/24/46	+38/53/22	206	1 arcsec	16
	2	278/21/18	+28/03/58	38	1 arcsec	16
Li Causi,G.	1	012/27/00	+41/55/00		1 arcmin	7
	2	012/07/12	+42/25/12	750	0.01 deg	7
	3	011/42/00	+42/39/00	300	0.1 deg	7
	4	012/52/51	+41/27/52		0.01 arcmin	7
Lieder,F.	1	011/49/00	+50/47/00	325	1 arcmin	23
Lifgren Jr.,M.	1	286/10/00	+40/55/00	49	5 arcmin	16
	2	286/24/00	+41/00/00	229	5 arcmin	16
	3	285/59/00	+41/18/30	390	1 arcmin	16
Lilge,A.	1	243/08/00	+33/21/00		1 deg	16
Linder,J.	1	008/15/56	+48/56/00	110	1 arcsec	25
	2	008/18/16	+48/56/01	119	1 arcsec	25
	3	008/31/58	+48/51/20	406	1 arcsec	25
	4	008/30/59	+48/47/37	720	1 arcsec	25
	5	008/27/04	+48/49/21	622	1 arcsec	25
	6	008/24/55	+48/58/40	116	1 arcsec	25
	7	008/33/30	+48/47/00	610	1 arcmin	25
	8	343/20/00	+28/20/00	2200	1 deg	74
	9	343/20/00	+28/20/00	10	1 deg	74
	10	343/20/00	+28/20/00	1400	1 deg	74
	11	observing site unknown		10		
Linger,S.	1	359/05/00	+51/45/00	30	10 arcmin	15
Linke,H.	1	011/12/00	+51/48/00	220	0.1 deg	23
Lipski,P.	1	013/48/25	+51/02/45	120	0.1 arcsec	23
Llabres,J.	1	356/00/00	+40/00/00		5 deg	14
Lohvinenko,T.W.	1	262/36/18	+49/53/48	232	1 arcsec	21
	2	262/52/45	+49/38/43	234	1 arcsec	21
Lopez,E.V.A.	1	299/26/00	-33/52/00		1 arcmin	27
Losada,R.	1	344/21/00	+27/39/00	500	1 deg	74
	2	344/21/00	+27/39/00	1900	1 deg	74
	3	observing site unknown				
	4	356/18/00	+40/26/00		0.5 deg	14
	5	355/52/15	+40/17/12	575	1 arcsec	14
Lovejoy,T.	1	153/10/00	-27/39/00	20	1 arcmin	26
	2	150/10/00	-30/15/00	1524	1 arcmin	26
	3	152/59/00	-27/44/00	46	1 arcmin	26
	4	156/00/00	-27/00/00	10668	10 deg	98
	5	153/10/00	-27/30/00		1 deg	26
Lovera,A.	1	observing site unknown				
Lozano,L.	1	356/18/00	+40/26/00		5 deg	14
	2	356/15/00	+40/25/00	1000	5 deg	14
Lucius,D.	1	010/50/00	+52/25/00	70	1 arcmin	25
	2	010/51/00	+52/17/30	150	1 arcmin	25
	3	009/50/00	+51/37/00	160	1 arcmin	25
Ludewig O.,F.L.	1	291/29/00	+10/10/00		10 deg	17
	2	290/41/00	+10/04/00	566	2 deg	17
	3	observing site unknown				
Luga,M.	1	015/19/55	+51/37/05	120	0.5 arcmin	11
Lund,L.	1	275/52/02	+35/59/07	338	0.5 arcsec	16
	2	275/52/06	+35/39/09	335	1 arcsec	16
Lunde,R.	1	005/50/15	+62/20/53	27	0.1 arcsec	47
	2	005/55/10	+62/19/45	500	0.1 arcsec	47
Lupianez,B.	1	301/34/00	-34/36/18	20	1 arcmin	27
	2	301/31/12	-34/40/00	25	1 arcmin	27
	3	301/08/00	-34/47/00	30	1 arcmin	27
Luthen,H.	1	010/16/00	+53/39/00	53	1 arcmin	25
	2	343/30/00	+28/18/00	1500	1 arcmin	74

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	3	009/48/00	+53/27/00	40	1 arcmin	25
Lyubavin,A.	1	observing site unknown				
Maat,W.J.	1	006/52/54	+53/19/24	0	0.1 arcmin	46
	2	006/50/48	+53/21/36	0	0.1 arcmin	46
Mac Kenzie,G.	1	299/50/00	+46/07/59	8	3.6 arcsec	21
	2	299/44/13	+45/33/40	5	3.6 arcsec	21
Machholz,D.	1	238/06/00	+37/04/00	1024	0.1 deg	16
	2	237/54/00	+37/15/00	640	0.1 deg	16
	3	238/06/00	+37/18/00	21	0.1 deg	16
	4	239/40/00	+38/05/00		0.5 deg	16
	5	172/38/00	-43/30/00		2 deg	48
	6	169/55/00	-44/25/00		1 deg	48
	7	176/17/00	-38/07/00		1 deg	48
	8	176/25/00	-38/07/00		1 deg	48
	9	175/20/00	-38/02/00		1 deg	48
	10	238/20/00	+36/41/00		1 deg	16
	11	243/13/00	+34/15/00	2286	2 arcmin	16
	12	238/30/00	+37/10/00		0.5 deg	16
Maciejewski,W.	1	017/02/00	+51/05/35	130	1 arcmin	11
Madenberg,J.	1	269/00/00	-01/00/00		3 deg	73
Maeda,S.	1	133/51/24	+33/30/12	10	0.1 arcmin	8
Makino,J.	1	137/24/00	+35/05/00	760	1 arcmin	8
	2	137/11/00	+35/13/00	350	1 arcmin	8
	3	136/58/00	+35/10/00	30	1 arcmin	8
	4	136/58/00	+34/43/00	20	1 arcmin	8
	5	137/37/00	+34/47/00		1 arcmin	8
Maksimov,S.	1	observing site unknown				
Mamedov,V.	1	observing site unknown				
Manulis,I.	1	034/59/45	+31/55/40	225	1 arcsec	40
	2	034/27/36	+30/23/24	837	1 arcsec	40
Mao,A.	1	012/18/00	+45/25/00		2 deg	7
Marafie,A.H.	1	047/57/00	+28/33/00	145	1 arcmin	42
	2	048/05/00	+29/18/00	58	1 arcmin	42
Maraziti,A.	1	017/00/00	+38/54/00	0	0.1 deg	7
	2	016/36/00	+38/54/00	350	0.1 deg	7
	3	observing site unknown				
	4	observing site unknown				
Marekfia,G.	1	007/00/00	+49/00/00		1 deg	25
Martin,D.	1	358/43/00	+54/35/00	15	1 arcmin	15
	2	358/44/00	+54/22/00	250	1 arcmin	15
	3	359/03/00	+54/25/00	429	1 arcmin	15
	4	358/38/00	+54/37/00	21	1 arcmin	15
	5	149/15/03	-33/25/05		1 arcsec	26
	6	149/40/06	-31/20/05	1126	1 arcsec	26
	7	150/75/00	-33/35/02		1 arcsec	26
Martinez,C.	1	301/34/00	-34/36/18	20	1 arcmin	27
	2	301/35/00	-34/36/00	20	1 arcmin	27
	3	301/08/00	-34/47/00	30	1 arcmin	27
Martinez,P.	1	055/36/00	-21/06/00	100	1 arcmin	70
	2	055/18/00	-21/02/00	500	1 arcmin	70
Martis,A.	1	observing site unknown				
Marx,H.	1	009/11/51	+48/47/01	354	1 arcsec	25
	2	009/05/00	+48/48/00	300	1 arcmin	25
Matchett,V.	1	152/59/06	-27/30/47	10	3.6 arcsec	26
Maturkanic,M.	1	021/54/40	+48/56/17	160	0.1 arcsec	35
Maydik,A.	1	observing site unknown				
Maylisov,P.	1	observing site unknown				
McBain,J.	1	028/39/34	-20/05/09	1330	0.1 arcsec	59
McBride,P.	1	266/36/46	+36/19/43	378	0.1 arcsec	16
McNaught,R.H.	1	149/06/00	-31/18/00	1126	0.1 deg	26
Medway,K.	1	358/36/00	+50/56/21	50	2 arcmin	15
Melandri,F.	1	011/56/00	+44/33/00	6	1 arcmin	7
	2	011/45/00	+44/03/00	681	1 arcmin	7
	3	011/15/00	+44/28/00	246	1 arcmin	7
	4	011/56/00	+44/25/00	30	1 arcmin	7
	5	012/02/00	+44/32/00	5	1 arcmin	7
	6	012/11/00	+44/26/00	4	1 arcmin	7
	7	011/09/00	+44/16/00	250	1 arcmin	7
	8	011/33/00	+44/02/00	600	1 arcmin	7
	9	011/47/00	+44/03/00	767	1 arcmin	7
	10	011/48/00	+44/30/00	9	1 arcmin	7
	11	011/51/00	+44/25/00	13	1 arcmin	7
	12	057/00/00	-20/00/00		1 deg	45
Mendez,J.	1	359/19/00	+37/37/00		1 arcmin	14
	2	356/46/00	+40/05/00		1 arcmin	14
	3	359/16/00	+37/42/00		1 arcmin	14
	4	356/21/00	+40/18/00		1 arcmin	14
Menichetti,R.	1	012/34/37	+43/20/00	580	1 arcmin	7

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Meozzi,D.	1	012/18/50	+42/09/20	250	1 arcsec	7
	2	013/35/30	+42/07/34	1850	1 arcsec	7
	3	013/34/00	+42/09/30	1065	1 arcsec	7
	4	013/12/25	+41/57/20	1785	1 arcsec	7
	5	012/27/10	+41/55/20	20	1 arcsec	7
Merlin,J.-C.	1	004/26/06	+46/49/43	350	1 arcsec	4
	2	004/23/40	+46/49/20	455	1 arcsec	4
	3	006/55/36	+43/44/54	1270	0.1 arcmin	4
	4	315/00/16	-20/47/22	920	1 arcmin	2
Micek,I.	1	017/21/00	+48/40/00	200	1 arcmin	35
Mikuz,H.	1	014/04/33	+45/56/44	730	1 arcsec	35
Milani,G.	1	011/50/00	+45/25/00	30	5 arcmin	7
	2	011/50/00	+45/20/00	400	5 arcmin	7
	3	011/40/00	+45/50/00	600	5 arcmin	7
	4	011/30/00	+45/52/00	1300	5 arcmin	7
	5	011/25/00	+45/20/00	300	5 arcmin	7
Minton,R.B.	1	255/03/36	+39/35/24	1710	0.01 deg	16
	2	255/04/00	+39/27/00		3 arcmin	16
	3	210/30/00	-17/30/00		0.5 deg	61
Misuhin,A.	1	observing site unknown				
Mitchell,R.C.	1	239/16/36	+46/57/06	1198	0.1 arcmin	16
Mitsuma,S.	1	139/15/00	+36/14/00	40	1 arcmin	8
	2	139/06/36	+36/08/00	380	0.1 arcmin	8
	3	139/09/24	+36/08/30	320	0.1 arcmin	8
Mobberley,M.	1	000/47/06	+52/10/20	85	1 arcsec	15
	2	343/20/00	+28/00/00		1 arcmin	74
Moeller,M.	1	010/43/46	+53/51/38	22	1 arcsec	25
	2	010/50/18	+53/59/06	8	1 arcsec	25
	3	010/45/42	+54/01/45	3	1 arcsec	25
Molinari,L.	1	008/45/00	+46/00/00		1 deg	7
Moller,D.	1	013/20/00	+52/31/00		1 deg	25
Momose,M.	1	139/33/00	+35/36/00	50	1 arcmin	8
	2	137/26/00	+36/08/00	680	1 arcmin	8
	3	observing site unknown				
Monopoli,M.O.	1	301/34/00	-34/36/18	20	1 arcmin	27
Moore,A.J.	1	257/31/46	+31/44/50	925	1 arcsec	16
	2	257/14/30	+32/02/40	995	1 arcsec	16
Moreno,G.	1	301/57/00	-34/50/00	20	1 arcmin	27
	2	301/35/00	-34/36/00	30	1 arcmin	27
Moriya,M.	1	136/57/32	+35/09/16	40	0.01 arcsec	8
	2	139/22/00	+35/41/31		1 arcsec	8
Mormil,V.	1	observing site unknown				
Morris,C.S.	1	242/19/12	+34/22/54	2287	1 arcsec	16
	2	243/13/00	+34/15/00	2286	2 arcmin	16
	3	240/54/34	+34/44/50	1631	1 arcsec	16
	4	249/16/06	+32/25/00	2545	1 arcsec	16
	5	249/14/00	+31/57/00	1036	1 arcmin	16
	6	242/00/30	+34/16/40	1524	1 arcsec	16
	7	241/17/03	+34/34/28	1006	1 arcsec	16
	8	242/24/00	+34/24/00	2408	1 arcmin	16
	9	241/42/10	+34/16/25	488	1 arcsec	16
	10	241/45/00	+34/17/24	524	1 arcmin	16
	11	242/03/00	+34/21/00	2134	1 arcmin	16
	12	243/30/00	+32/49/00	1372	1 arcmin	16
	13	241/58/00	+34/31/00	914	1 arcmin	16
	14	241/48/00	+34/18/00	1067	1 arcmin	16
	15	241/54/00	+34/27/00	1219	1 arcmin	16
	16	241/11/30	+34/43/30	899	2 arcmin	16
	17	241/24/12	+34/30/30	549	5 arcsec	16
	18	241/27/00	+34/22/00	396	1 arcmin	16
	19	301/30/00	-34/45/00	61	1 arcmin	27
	20	305/02/50	-34/57/45	9	1 arcsec	89
	21	308/08/06	-32/48/04	9	1 arcsec	89
	22	312/36/18	-27/56/30	9	1 arcsec	89
	23	313/38/00	-25/03/00	9	1 arcmin	89
	24	316/45/00	-23/00/00	30	1 arcmin	2
	25	271/42/00	+03/12/00	10668	1 arcmin	98
	26	244/00/00	+35/00/00	10363	1 deg	98
	27	241/42/06	+34/07/06	362	1 arcsec	16
	28	198/00/00	+15/00/00	10668	1 deg	98
	29	151/30/00	-33/21/00	30	1 arcmin	26
	30	151/29/00	-33/24/00	107	1 arcmin	26
	31	149/04/12	-31/16/48	1181	1 arcsec	26
	32	150/45/00	-34/00/00	152	1 arcmin	26
	33	151/30/00	-34/00/00	9	1 arcmin	26
	34	134/00/00	-23/42/00	457	1 deg	26
	35	134/00/00	-23/36/00	10058	1 deg	98
	36	133/30/00	-24/30/00	457	1 arcmin	26
	37	130/54/00	-25/30/00	549	1 arcmin	26
	38	241/36/00	+34/24/00	366	1 arcmin	16
	39	240/56/24	+34/48/00	2591	1 arcmin	16
Morrisby,A.	1	028/37/00	-20/09/00	1340	1 arcmin	59
Morrison,W.	1	281/39/42	+44/17/18	195	0.1 arcmin	21
	2	281/33/48	+44/13/54	240	0.1 arcmin	21
	3	281/36/00	+44/12/54	200	0.1 arcmin	21
	4	281/38/34	+44/17/53	240	1 arcsec	21

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Mosch,J.	1	013/30/00	+51/10/00	100	1 arcmin	23
	2	013/45/00	+50/45/00	750	1 arcmin	23
	3	012/35/00	+54/25/00	5	1 arcmin	23
	4	013/02/00	+50/55/00	280	1 arcmin	23
Moskal,W.	1	021/46/09	+49/41/41	260	1 arcsec	11
Muller,R.D.	1	153/00/00	-29/00/00		2 deg	26
Muravyeva,Yu.	1	observing site unknown				
Nagele,A.	1	011/21/58	+48/08/06	532	3.6 arcsec	25
	2	011/21/58	+47/39/22	615	3.6 arcsec	25
Nakamura,A.	1	137/34/00	+35/17/00	1130	1 arcmin	8
	2	137/18/00	+35/12/00	250	1 arcmin	8
	3	137/35/00	+34/48/00	40	1 arcmin	8
	4	136/53/00	+34/45/00	100	1 arcmin	8
	5	137/36/00	+35/11/00	1050	1 arcmin	8
	6	137/23/00	+35/05/00	620	1 arcmin	8
	7	136/59/00	+35/01/00	30	1 arcmin	8
	8	137/51/00	+36/40/00	720	1 arcmin	8
	9	147/47/00	+13/17/00	0	1 arcmin	8
	10	140/08/00	+36/12/00	360	1 arcmin	8
Nakamura,Y.	1	136/33/00	+34/46/00	3	1 arcmin	8
	2	137/00/00	+38/00/00		15 deg	8
	3	137/00/00	+38/00/00		15 deg	8
	4	137/00/00	+38/00/00		15 deg	8
Nassr,J.L.	1	120/34/00	+16/24/39	1507	1 arcsec	50
	2	120/36/34	+16/24/36	1542	0.01 arcsec	50
Navalihin,M.	1	observing site unknown				
Nesterov,Yu.	1	observing site unknown				
Nieborek,T.	1	021/28/00	+52/36/00	90	1 arcmin	11
Niijima,T.	1	139/20/12	+36/14/43	34	0.1 arcsec	8
Nolle,M.	1	010/09/00	+48/26/00	560	1 arcmin	25
	2	009/42/00	+48/33/00	785	1 arcmin	25
Notley,M.	1	202/30/00	+21/10/00	70	0.01 deg	76
	2	202/30/36	+21/20/00	0	0.01 deg	76
Nowak,G.T.	1	286/50/00	+44/20/00	194	5 arcmin	16
	2	287/20/00	+43/25/00	274	5 arcmin	16
	3	287/10/00	+43/30/00	366	5 arcmin	16
O'Meara,S.J.	1	288/52/12	+42/22/48	24	0.1 arcmin	16
	2	204/32/00	+19/49/36	4215	1 arcmin	16
	3	288/26/30	+42/30/18	185	0.1 arcmin	16
	4	287/28/30	+42/21/57	110	0.1 arcmin	16
	5	288/39/00	+42/28/00		10 arcmin	16
	6	172/38/00	-43/30/00		1 deg	48
	7	130/54/00	-25/30/00	549	0.5 deg	26
	8	134/00/00	-23/42/00	457	0.5 deg	26
Ocampo M.,W.	1	286/30/00	+05/30/00	2000	0.5 deg	33
Oka,A.	1	131/51/00	+34/42/00	20	1 arcmin	8
	2	131/51/00	+34/32/00	250	1 arcmin	8
Okada,M.	1	135/43/00	+34/35/00	50	1 arcmin	8
	2	135/57/00	+34/37/00	458	1 arcmin	8
Okuda,M.	1	136/00/09	+34/34/02	400	0.36 arcsec	8
	2	136/00/51	+34/34/13	400	1 arcsec	8
	3	135/38/18	+34/52/23	50	1 deg	8
Okumura,S.	1	137/52/50	+35/30/38	428	1 arcsec	8
	2	137/45/36	+35/24/17	700	1 arcsec	8
Olesen,J.O.	1	014/43/18	+55/08/42	10	1 arcsec	22
Onofre D.,D.	1	308/49/53	-29/55/42	3	0.01 arcsec	2
	2	308/29/15	-30/14/35	200	1 arcsec	2
Oskin,E.	1	observing site unknown				
Pacholka,W.	1	243/54/00	+33/54/00	1067	0.1 deg	16
Padilla,S.	1	241/56/42	+34/13/00	1742	0.1 arcmin	16
Palko,Yu.	1	observing site unknown				
Paolinetti,R.	1	011/10/26	+43/43/41	140	0.01 arcsec	7
Paradowski,M.	1	022/32/35	+51/14/50	240	1 arcsec	11
	2	022/56/12	+51/22/16	171	1 arcsec	11
Parisio,R.	1	009/36/46	+45/27/59	150	1 arcsec	7
	2	009/29/16	+45/44/15	1800	1 arcsec	7
	3	009/00/00	+45/00/00	1300	10 deg	7
	4	009/00/00	+45/00/00	500	10 deg	7
	5	observing site unknown				
	6	315/00/00	+15/00/00		30 deg	98
	7	317/40/00	-22/50/00		5 deg	2
Parkinson,M.	1	152/58/54	-27/35/36	0	0.1 arcmin	26
	2	152/54/42	-27/35/12	0	0.1 arcmin	26
	3	151/34/12	-26/57/36	914	0.1 arcmin	26
	4	152/25/18	-28/04/30	750	0.1 arcmin	26
Paschenko,A.	1	observing site unknown				
Pashko,D.	1	observing site unknown				

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Passalacqua,P.	1	284/39/00	+43/14/00	152	1 arcmin	16
Paul,E.	1	013/36/00	+53/04/00	20	0.1 deg	23
Pawlutschenko,B.	1	observing site unknown				
Pearce,A.	1	115/47/17	-31/55/00	20	1 arcmin	26
	2	115/45/42	-31/55/08	35	1 arcsec	26
	3	116/09/47	-31/57/30	120	1 arcsec	26
	4	116/11/19	-31/48/17	290	1 arcsec	26
Pedersen,V.T.	1	344/00/00	+29/00/00		3 deg	74
Pedraz,S.	1	355/52/00	+40/38/00		0.5 deg	14
	2	355/52/15	+40/17/12	575	1 arcsec	14
	3	357/04/00	+40/45/00	1005	1 arcmin	14
Pena,E.D.	1	286/10/00	+05/07/00	3200	1 arcmin	33
Pennelli,G.	1	010/30/00	+43/09/00	20	30 arcmin	7
	2	010/30/00	+43/09/00	200	30 arcmin	7
Pereira,A.	1	350/45/51	+38/43/37	105	1 arcsec	51
	2	350/46/08	+38/42/00	29	1 arcsec	51
	3	350/31/26	+38/46/32	235	0.1 arcsec	51
Persell,D.	1	241/23/37	+34/15/33	293	1 arcsec	16
Pesci,S.	1	009/40/00	+45/30/00		0.5 deg	7
	2	006/50/00	+45/02/00	1800	1 arcmin	7
Petrov,P.	1	observing site unknown				
Pfitzner,E.	1	012/21/00	+50/44/00	330	1 arcmin	23
Phillips,J.	1	281/00/00	+33/00/00	2	1 deg	16
Piccinini,M.	1	012/28/07	+41/49/24	50	1 arcsec	7
	2	011/52/30	+42/02/26	15	1 arcsec	7
	3	014/15/56	+41/50/07	1540	1 arcsec	7
	4	012/44/03	+41/44/28	850	1 arcsec	7
	5	012/27/06	+41/43/00	20	1 arcsec	7
Pilch,R.	1	017/10/00	+51/05/00	120	1 arcmin	11
Pilski,A.	1	019/41/00	+54/20/30	46	0.1 arcmin	11
	2	020/00/42	+48/22/36	210	1 arcsec	11
Pishnenko,V.	1	observing site unknown				
Pizzi,R.	1	299/18/00	-32/57/00		1 deg	27
Pleshkunov,D.	1	observing site unknown				
Polak,J.	1	013/22/00	+49/44/00	340	1 arcmin	35
	2	013/10/00	+49/52/00	500	1 arcmin	35
Ponomaryov,E.	1	observing site unknown				
Poroshin,A.	1	observing site unknown				
Portela,A.	1	357/04/00	+40/45/00	1005	1 arcmin	14
	2	356/15/00	+40/20/00		1 deg	14
	3	356/00/00	+40/00/00		10 deg	14
	4	355/42/40	+40/26/40	910	1 arcsec	14
	5	356/53/35	+40/31/15	916	1 arcsec	14
Posa,O.	1	020/00/48	+48/22/36	210	0.1 arcsec	35
Poulos,D.	1	238/52/00	+37/14/00	610	1 arcmin	16
	2	238/10/00	+37/06/00	1012	1 arcmin	16
	3	238/18/00	+37/20/00	518	1 arcmin	16
	4	238/10/00	+37/20/00	107	1 arcmin	16
Pravec,P.	1	016/35/00	+49/33/00	350	1 arcmin	35
	2	018/21/00	+49/41/00	340	1 arcmin	35
	3	018/22/00	+49/41/00	350	1 arcmin	35
	4	016/07/00	+49/11/00	430	1 arcmin	35
Priester,D.C.	1	276/18/26	+32/55/36	145	1 arcsec	16
	2	276/19/25	+32/57/28	187	1 arcsec	16
	3	276/32/22	+32/27/33	101	0.5 arcsec	16
	4	276/30/57	+33/01/10	194	1 arcsec	16
	5	276/13/07	+33/01/37	145	1 arcsec	16
Pryal,J.	1	238/00/00	+48/00/00	305	1 deg	16
	2	236/00/00	+49/00/00	305	1 deg	21
	3	237/48/00	+47/46/00		1 deg	16
	4	238/00/00	+48/00/00		5 deg	16
	5	238/00/00	+48/00/00		5 deg	16
	6	237/49/00	+47/59/00		5 deg	16
	7	237/48/00	+47/37/00		1 deg	16
	8	203/58/00	+20/52/00		1 deg	76
	9	238/00/00	+48/00/00		5 deg	16
	10	238/00/00	+48/00/00		5 deg	16
Purvinskis,R.	1	116/06/00	-31/55/00	225	1 arcsec	26
	2	115/49/00	-32/04/00	25	1 arcsec	26
Raffaello,D.	1	011/11/00	+43/49/00	921	1 arcmin	7
	2	011/15/00	+43/46/00	55	1 arcmin	7
Rapavý,P.	1	020/00/48	+48/22/36	210	0.1 arcsec	35
	2	018/17/00	+47/52/00	110	1 arcmin	35
	3	019/09/15	+48/43/00	570	1 arcmin	35
Ratz,K.	1	010/14/00	+50/48/00	240	1 arcmin	23

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Ratz,M.	1	010/14/00	+50/48/00	240	1 arcmin	23
Riccabone,G.	1	007/38/04	+45/02/48	255	1 arcsec	7
	2	007/45/56	+45/02/46	532	1 arcsec	7
	3	007/46/45	+44/15/15	1474	1 arcsec	7
	4	007/28/52	+45/17/25		1 arcsec	7
Richardson,C.	1	115/35/00	-31/10/00		1 arcmin	26
Richert,M.	1	011/37/30	+52/10/00	70	1 arcsec	23
	2	011/39/00	+52/07/00		0.5 deg	23
Ridley,E.B.	1	357/15/42	+50/55/21	59	1 arcsec	15
Ripero,J.	1	357/04/00	+40/45/00	1005	1 arcmin	14
	2	356/28/00	+40/21/00	635	2 arcmin	14
Robertson,G.	1	172/20/59	-43/30/04	152	0.1 arcsec	48
	2	133/56/00	-23/42/00		1 arcmin	26
Robertson,T.	1	241/13/00	+34/16/00	364	1 arcmin	16
	2	242/11/00	+34/42/00		10 arcmin	16
	3	245/20/00	+32/40/00		1 deg	16
Robinson,P.C.	1	280/03/12	+39/39/06	335	0.1 arcmin	16
	2	280/08/42	+39/29/36	527	0.1 arcmin	16
	3	280/02/54	+39/34/54	411	0.1 arcmin	16
	4	279/57/48	+39/41/54	427	0.1 arcmin	16
Robinson,R.L.	1	280/03/12	+39/39/06	335	0.1 arcmin	16
	2	279/39/44	+40/41/54	335	1 arcsec	16
Robotham,R.	1	279/12/00	+42/48/00	275	0.1 deg	21
Rodriguez C.,J.A.	1	356/23/18	+41/00/24	1010	10 arcmin	14
	2	356/18/00	+40/26/00		0.5 deg	14
	3	357/04/00	+40/45/00	1005	1 arcmin	14
Rodriguez,J.	1	286/13/00	+05/06/00		0.5 deg	33
Rodriguez,V.	1	293/02/00	+10/30/00	885	5 deg	17
	2	293/02/00	+10/30/00		5 deg	17
	3	293/02/00	+10/30/00		5 deg	17
Rogers,J.H.	1	000/05/42	+52/12/48	30	0.1 arcmin	15
	2	000/16/00	+52/06/00	50	1 arcmin	15
	3	358/12/00	+54/24/00		0.1 deg	15
	4	343/18/00	+28/00/00	100	0.1 deg	74
	5	343/18/00	+28/00/00	1600	0.1 deg	74
	6	343/18/00	+28/00/00	1800	0.1 deg	74
	7	343/18/00	+28/00/00	2070	0.1 deg	74
Rogozin,V.	1	observing site unknown				
Roos,M.C.	1	004/36/00	+52/19/00	0	1 arcmin	46
	2	004/42/00	+52/18/00	0	1 arcmin	46
Rosenthal,D.	1	210/05/30	-17/30/42	0	1 arcsec	61
Rossi,L.	1	013/07/00	+43/26/42	505	0.1 arcmin	7
	2	013/04/06	+43/19/42	1200	0.1 arcmin	7
Rousom,J.	1	278/54/36	+43/01/12	278	0.01 deg	21
Royer,R.	1	242/21/00	+34/22/00	2134	2 arcmin	16
	2	149/04/00	-31/17/00	1100	0.5 deg	26
	3	241/51/00	+33/50/00		10 arcmin	16
	4	134/00/00	-24/00/00	610	40 deg	26
	5	243/00/00	+36/34/00	610	2 deg	16
	6	244/07/00	+34/02/00	1372	1 deg	16
	7	133/56/00	-23/38/00	610	2 deg	16
	8	134/00/00	-24/00/00	9	40 deg	26
	9	145/49/00	-17/02/00	30	2 deg	16
Ru-Hu,C.	1	121/27/00	+31/10/00	4	1 arcmin	10
	2	109/00/00	+19/00/00		1.5 deg	10
Rudakov,G.	1	observing site unknown				
Rudenko,S.	1	observing site unknown				
Rudolph,M.	1	011/38/31	+50/34/25	501	1 arcsec	23
	2	011/38/10	+50/34/12	533	1 arcsec	23
Rueda,N.	1	285/56/00	+04/35/00	2600	1 arcmin	33
	2	286/13/00	+05/06/00	2900	1 arcmin	33
	3	286/00/00	+05/00/00		5 deg	33
Ruiz,J.	1	356/12/00	+43/28/00	10	5 arcmin	14
Rumyantsev,I.	1	observing site unknown				
Sabers,D.	1	149/04/00	-31/17/00	610	0.5 deg	26
Sabia,J.D.	1	284/19/56	+41/35/47	399	1 arcsec	16
	2	287/28/50	+43/16/41	393	1 arcsec	16
	3	284/19/50	+41/30/44	439	1 arcsec	16
Sajtz,A.	1	021/43/00	+46/39/00	100	1 arcmin	60
Sakai,Y.	1	138/51/36	+35/00/57		1 arcsec	8
Sanchez,A.	1	249/39/55	+31/03/13	2460	1 arcsec	9
Sanford,J.	1	243/16/46	+33/29/02	1329	1 arcsec	16
	2	242/35/00	+33/38/00		10 arcmin	16
	3	242/25/00	+33/45/00		10 arcmin	16
	4	175/15/00	-37/45/00		10 arcmin	48

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	5	242/20/00	+33/47/00		0.5 deg	16
	6	171/30/00	-45/50/00		10 arcmin	48
Saraceno,J.	1	observing site unknown				
Sardini,D.	1	010/05/00	+45/36/00	203	1 arcmin	7
Sarocchi,D.	1	011/21/30	+43/41/30	420	1 arcsec	7
	2	010/55/00	+43/43/00		10 arcmin	7
	3	011/15/18	+43/45/12	184	0.1 arcmin	7
Savelyev,A.	1	observing site unknown				
Saxon,V.P.	1	242/04/40	+34/49/00	701	1 arcsec	16
	2	241/54/00	+34/42/00	732	1 arcmin	16
	3	241/50/00	+34/57/00	762	1 arcmin	16
Scardella,M.	1	012/45/00	+41/49/00		1 deg	7
Schambeck,C.M.	1	011/07/08	+48/12/03	540	0.05 arcmin	25
	2	344/25/56	+27/44/48	2	1 arcsec	74
	3	344/22/18	+27/45/23	75	1 arcsec	74
	4	344/25/37	+27/44/40	20	1 arcsec	74
Schmeer,P.	1	007/03/42	+49/12/52	293	1 arcsec	25
Schneidereit,J.	1	011/36/00	+50/54/00	145	0.1 deg	23
Scholten,A.	1	006/03/30	+52/06/54	17	0.1 arcmin	46
	2	006/07/18	+52/11/54	7	0.1 arcmin	46
	3	006/03/30	+52/09/00		1 arcmin	46
	4	011/00/00	+33/48/00	10	0.1 deg	84
	5	006/07/15	+52/11/52	7	1 arcsec	46
Schumacher,K.	1	007/40/00	+49/10/00	300	1 arcmin	25
Sciezor,T.	1	019/55/00	+50/05/00	220	2 arcmin	11
	2	019/49/00	+49/58/00	260	1 arcmin	11
Seargent,D.	1	151/29/37	-33/21/02	30	0.1 arcsec	26
Searles,M.	1	264/50/00	+29/28/00	2	1 arcmin	16
Sedelkin,D.	1	observing site unknown				
Selevich,G.	1	observing site unknown				
Shankar,A.	1	077/12/06	+28/30/12	240	0.1 arcmin	5
	2	076/53/18	+28/27/24	225	0.1 arcmin	5
	3	077/04/42	+28/28/36	236	0.1 arcmin	5
	4	077/10/00	+28/30/00	260	0.1 arcmin	5
Shanklin,J.D.	1	000/05/46	+52/12/47	10	3.6 arcsec	15
	2	000/10/12	+52/01/48	70	0.01 deg	15
	3	357/03/00	+53/08/24	20	0.01 deg	15
	4	000/06/00	+52/00/00		0.1 deg	15
	5	295/42/00	-65/18/00		0.1 deg	1
	6	291/36/00	-67/42/00		0.1 deg	1
	7	291/24/00	-66/30/00		0.1 deg	1
	8	295/42/00	-65/18/00		0.1 deg	1
	9	302/30/00	-55/06/00		0.1 deg	89
	10	302/12/00	-51/42/00		0.1 deg	89
	11	303/00/00	-52/12/00		0.1 deg	89
	12	306/36/00	-55/24/00		0.1 deg	89
	13	314/24/00	-60/42/00		0.1 deg	89
	14	322/00/00	-54/00/00		0.1 deg	89
	15	321/36/00	-53/12/00		0.1 deg	89
	16	321/36/00	-49/12/00		0.1 deg	89
	17	320/48/00	-45/06/00		0.1 deg	89
	18	319/48/00	-40/36/00		0.1 deg	89
	19	319/06/00	-36/18/00		0.1 deg	89
	20	318/30/00	-32/12/00		0.1 deg	89
	21	318/12/00	-30/36/00		0.1 deg	89
	22	317/42/00	-27/48/00		0.1 deg	89
	23	317/36/00	-27/12/00		0.1 deg	89
	24	317/24/00	-26/24/00		0.1 deg	89
	25	316/54/00	-22/48/00		0.1 deg	89
	26	316/48/00	-22/54/00		0.1 deg	89
	27	317/42/00	-23/06/00		0.1 deg	89
	28	321/18/00	-18/30/00		0.1 deg	89
	29	322/42/00	-15/06/00		0.1 deg	89
	30	324/18/00	-10/36/00		0.1 deg	89
	31	326/06/00	-06/06/00		0.1 deg	89
	32	333/30/00	+15/18/00		0.1 deg	89
	33	335/12/00	+19/18/00		0.1 deg	89
	34	337/12/00	+23/30/00		0.1 deg	89
	35	339/18/00	+27/30/00		0.1 deg	89
	36	341/48/00	+31/24/00		0.1 deg	89
	37	346/54/00	+39/06/00		0.1 deg	89
	38	349/30/00	+43/00/00		0.1 deg	89
Shilov,S.	1	observing site unknown				
Shirokov,A.	1	observing site unknown				
Shitikov,A.	1	observing site unknown				
Siccardi,L.	1	296/06/00	-34/30/00	154	5 arcmin	27
	2	observing site unknown				
Sicoli,P.	1	009/14/27	+45/47/32	271	1 arcsec	7
	2	009/13/37	+45/52/55	1182	1 arcsec	7
Sikoruk,L.	1	observing site unknown				
Silhan,J.	1	017/02/30	+49/04/00	300	2.5 arcmin	35
Simmons,K.	1	278/11/00	+30/30/00	11	1 arcmin	16

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
Simmons,W.	1	278/11/00	+30/30/00	11	1 arcmin	16
Skjaeraasen,O.	1	010/47/21	+59/55/12	50	2 arcsec	47
	2	010/40/06	+59/59/13	530	2 arcsec	47
	3	010/38/00	+59/54/00	10	1 arcmin	47
	4	010/00/00	+60/00/00		5 deg	47
Skorupa,W.	1	007/21/00	+51/20/00	281	1 arcmin	25
Skvarka,J.	1	019/09/00	+48/43/00	568	1 arcmin	35
Sladkov,Ya.	1	observing site unknown				
Slusarczyk,J.	1	020/13/23	+50/02/03	189	1 arcsec	11
Smith,A.	1	273/48/25	+35/07/40	299	1 arcsec	16
	2	273/54/15	+35/12/29	296	1 arcsec	16
Smith,D.	1	273/35/50	+35/44/25	204	1 arcsec	16
Snyder,L.F.	1	240/03/30	+39/15/10	2134	10 arcsec	16
	2	240/04/10	+39/12/00	2134	10 arcsec	16
	3	240/07/00	+39/19/00	2743	10 arcsec	16
Soc. Astro. de France	1	055/42/00	-21/13/00	2300	1 arcmin	70
	2	055/14/00	-21/02/00	100	1 arcmin	70
	3	002/13/54	+48/48/16	170	0.1 arcmin	4
	4	000/08/42	+42/56/12	2861	0.1 arcmin	4
Soder,J.	1	275/46/22	+40/14/56	309	1 arcsec	16
Spalding,G.H.	1	358/33/07	+51/37/26	70	3.6 arcsec	15
Speil,J.	1	015/33/36	+77/00/04	10	1 arcsec	11
Spratt,C.E.	1	236/49/12	+48/15/00	9	0.01 deg	21
	2	236/46/48	+48/18/00	9	0.01 deg	21
	3	236/49/48	+48/15/36	6	0.01 deg	21
	4	236/48/36	+48/16/48	21	0.01 deg	21
Stapleton,J.	1	242/14/00	+33/53/00	168	1 arcmin	16
	2	241/53/00	+33/51/00	12	1 arcmin	16
	3	243/51/00	+34/05/00	951	1 arcmin	16
	4	283/00/00	-10/00/00	0	10 deg	67
Stephan,C.	1	278/33/16	+27/31/23	39	0.1 arcsec	16
Sternwarte Frankfurt	1	016/24/00	-23/17/00	1780	1 arcmin	15
Sternwarte Hof	1	011/54/56	+50/18/05	521	1 arcsec	25
	2	011/52/36	+50/14/56	624	1 arcsec	25
	3	357/20/00	+36/55/00	2311	1 arcmin	14
	4	326/02/30	+09/30/00	2000	1 arcmin	69
Stolzen,P.	1	015/52/00	-22/00/00	1165	2 deg	65
Stomeo,E.	1	012/21/01	+45/23/17	10	0.36 arcsec	7
	2	012/24/00	+45/24/00	3	0.1 deg	7
Storey,D.	1	357/59/00	+51/30/00	156	1 arcmin	15
	2	358/06/20	+51/33/00	130	1 arcmin	15
	3	345/38/30	-07/56/00		1 arcmin	83
Stott,D.	1	358/42/24	+51/03/36	80	0.1 arcmin	15
Suzuki,K.	1	137/21/24	+35/10/12	420	0.1 arcmin	8
	2	137/15/24	+35/08/06	115	0.1 arcmin	8
	3	143/20/00	+14/00/00		1 deg	82
Swart,E.T.	1	005/29/54	+51/28/06	17	0.1 arcmin	46
Swavely,M.E.	1	282/05/00	+40/45/00	34	1 arcmin	16
	2	282/12/00	+40/42/00		1 arcmin	16
Szulc,M.	1	017/52/04	+53/35/04	128	0.1 arcsec	11
Szymocha,M.	1	019/20/00	+50/30/00	350	1 arcmin	11
Takacs,R.	1	019/09/11	+48/45/00	568	1 arcmin	35
Tanikawa,M.	1	146/00/00	+16/00/00	50	1 deg	8
	2	139/29/00	+35/55/00		1 deg	8
	3	139/00/00	+36/00/00		10 deg	8
	4	139/00/00	+36/00/00		10 deg	8
	5	observing site unknown				
	6	observing site unknown				
	7	139/31/00	+35/51/00		5 deg	82
Tanti,T.	1	014/26/54	+35/55/02	120	1 arcsec	44
	2	observing site unknown				
Tarnutzer,A.	1	008/19/21	+47/02/15	470	1 arcsec	18
	2	008/18/23	+47/02/23	487	1 arcsec	18
	3	313/10/17	-22/54/00	1100	1 arcsec	2
Tatarnikov,A.	1	observing site unknown				
Tatum,R.	1	282/25/12	+37/30/30	106	0.1 arcsec	16
Taylor,D.L.	1	288/34/00	-41/05/00		1 arcmin	27
Taylor,M.D.	1	358/28/56	+53/40/34	30	0.1 arcsec	15
	2	358/11/36	+53/54/12	350	0.1 arcmin	15
	3	343/21/30	+28/00/18	10	0.1 arcmin	74
Temprano,J.	1	359/44/49	+43/27/48		1 arcsec	14
Thomas,A.	1	006/47/00	+50/40/00	180	1 arcmin	25

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	2	008/17/00	+49/56/00	175	1 arcmin	25
	3	343/20/00	+28/11/00	2020	1 arcmin	74
	4	008/40/00	+49/47/00	150	1 arcmin	25
Thompson,G.	1	153/19/02	-27/39/40	130	1 arcsec	26
	2	153/08/04	-27/37/07	85	0.1 arcsec	26
	3	153/25/00	-27/43/00	30	1 arcmin	26
	4	153/23/00	-27/41/00	200	1 arcmin	26
	5	153/10/00	-27/50/00	5	1 arcmin	26
	6	153/16/00	-27/46/00	0	1 arcmin	26
	7	153/17/48	-27/43/24	0	0.1 arcmin	26
	8	153/10/00	-27/45/00	20	1 arcmin	26
	9	153/20/12	-27/43/16	0	0.1 arcmin	26
	10	153/25/00	-27/41/00	200	1 arcmin	26
	11	130/54/00	-25/30/00	549	1 deg	26
Torres,E.	1	358/06/24	+43/17/01	120	1 arcsec	14
	2	358/01/00	+43/19/00		1 deg	14
	3	293/20/00	+18/00/00		3 deg	77
	4	293/50/00	+18/30/00		1 deg	77
	5	293/20/00	+18/00/00		3 deg	77
	6	observing site unknown				
Townsend,R.	1	359/50/00	+51/53/00	95	1 arcmin	15
	2	359/52/00	+51/53/00	110	1 arcmin	15
	3	359/38/00	+51/59/00	61	1 arcmin	15
Travnik,N.A.S.	1	313/10/19	-22/53/59	1100	1 arcsec	2
Trebacz,A.	1	020/13/23	+50/02/03	198	1 arcsec	11
Tregaskis,T.B.	1	145/06/26	-38/11/06	110	1 arcsec	26
	2	145/11/00	-38/16/00		1 arcmin	26
	3	145/10/00	-37/49/00		20 arcmin	26
	4	145/17/00	-38/24/00		1 arcmin	26
	5	147/19/00	-42/54/00		1 arcmin	26
	6	145/03/00	-36/51/00		1 arcmin	26
	7	144/57/00	-37/18/00		1 arcmin	26
	8	145/06/00	-38/11/00		20 arcmin	26
Trixler,F.	1	011/31/00	+47/51/00	730	1 arcmin	25
	2	011/29/00	+47/51/00	600	1 arcmin	25
Troiani,D.M.	1	271/00/00	+42/30/00	299	1 deg	16
	2	271/00/00	+41/30/00	239	1 deg	16
	3	272/00/00	+42/30/00	216	1 deg	16
	4	269/00/00	+29/00/00	3072	1 deg	16
	5	271/30/00	+42/00/00		1 deg	16
	6	272/23/00	+41/49/00		1 deg	16
	7	272/00/00	+41/15/00		10 deg	16
	8	272/00/00	+41/49/00		10 deg	16
	9	272/07/00	+41/07/00		2 arcmin	16
	10	272/10/00	+41/56/00		2 arcmin	16
Trost,D.	1	observing site unknown				
Tsvetkov,L.	1	observing site unknown				
Tsygankov,D.	1	observing site unknown				
Turner,N.	1	151/46/00	-32/56/00	55	1 arcmin	26
	2	151/05/00	-32/05/00	305	1 arcmin	26
Tuten,J.	1	264/55/00	+29/31/00	6	1 arcmin	16
	2	262/49/30	+29/37/00	8	1 arcmin	16
	3	264/50/00	+29/28/00	2	1 arcmin	16
Uberti,M.	1	009/13/35	+45/26/40	137	0.1 arcsec	7
	2	009/30/20	+45/50/00	1400	1 arcsec	7
	3	009/07/15	+45/59/20	1322	1 arcsec	7
	4	009/06/23	+46/01/00	1100	1 arcsec	7
Uda,K.	1	136/04/42	+34/53/42	280	0.1 arcmin	8
	2	136/03/06	+34/52/48	350	0.1 arcmin	8
Ulbricht,S.	1	013/20/00	+52/31/00		1 deg	25
Underhay,E.	1	observing site unknown				
Urbanski,P.	1	019/37/00	+52/14/00	100	1 arcmin	11
Vaclik,F.	1	014/39/00	+48/54/00	500	1 arcmin	35
Valasek,V.	1	016/35/00	+49/02/00	200	1 arcmin	35
Valeriani,G.	1	289/35/34	+44/11/33	176	0.36 arcsec	16
	2	289/37/07	+44/11/29	253	0.36 arcsec	16
Valisa,P.	1	observing site unknown				
van Asperen,H.	1	005/58/18	+51/59/30		0.1 arcmin	46
van de Weg,R.L.W.	1	006/45/36	+52/17/42	15	0.1 arcmin	46
	2	006/47/18	+52/17/48	16	0.1 arcmin	46
	3	006/44/12	+52/17/06	17	0.1 arcmin	46
	4	003/54/45	+51/43/30	1	0.1 arcmin	46
	5	013/58/18	+46/40/36	511	0.1 arcmin	28
van der Laan,T.A.	1	007/12/06	+53/04/48	2	0.1 arcmin	46
van der Mey,L.	1	026/43/00	-27/58/00	1350	1 arcmin	13
	2	027/07/30	-28/18/30	1450	0.1 arcmin	13
van Loo,F.R.	1	004/42/48	+51/06/24	10	0.1 arcmin	29
	2	004/44/18	+51/02/24	15	0.1 arcmin	29
	3	006/01/24	+43/58/30	735	0.1 arcmin	4
	4	005/50/00	+44/06/00	1700	0.1 deg	4
	5	342/58/00	+28/41/00		0.5 deg	74
	6	observing site unknown				

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	7	004/45/30	+51/06/29		1 arcmin	29
	8	343/20/38	+28/26/53		3.6 arcsec	74
van Munster,T.	1	005/04/48	+50/46/18	80	0.1 arcmin	29
Vanin,G.	1	011/54/42	+46/03/22	462	0.1 arcsec	7
	2	011/48/44	+45/58/18	1050	0.1 arcsec	7
	3	012/18/35	+46/04/51	1500	1 arcsec	7
	4	010/12/00	+46/33/00	2250	1 arcmin	7
	5	010/10/00	+46/33/00	1816	1 arcmin	7
	6	012/01/36	+46/00/48	1010	1 arcsec	7
	7	012/04/30	+46/37/42	3191	0.1 arcmin	7
	8	010/36/00	+34/36/00	0	1 arcmin	84
	9	009/01/00	+33/28/00	0	1 arcmin	84
	10	007/56/00	+34/26/00	900	1 arcmin	84
	11	009/37/00	+33/02/00	0	1 arcmin	84
Vargas B.,A.G.	1	293/56/00	-17/23/00	2500	1 arcmin	31
	2	294/25/00	-17/41/00	4200	1 arcmin	31
Velasco,E.	1	356/15/00	+40/20/00		1 deg	14
	2	356/27/10	+40/21/20	601	1 arcsec	14
	3	356/35/00	+40/14/00	640	1 deg	14
Velasco,P.	1	356/15/00	+40/20/00		1 deg	14
	2	356/27/10	+40/21/20	601	1 arcsec	14
Ventura,F.	1	014/25/44	+35/54/21	85	1 arcsec	44
Verdenet,M.	1	003/45/15	+46/37/20	250	1 arcsec	4
Verhoeven,P.G.	1	005/43/42	+50/47/42	56	0.1 arcmin	46
	2	005/42/18	+50/49/54	50	0.1 arcmin	46
Villa,M.	1	011/56/00	+44/33/00	6	1 arcmin	7
	2	011/45/00	+44/03/00	681	1 arcmin	7
	3	011/15/00	+44/28/00	246	1 arcmin	7
	4	011/56/00	+44/25/00	30	1 arcmin	7
	5	012/06/00	+44/27/00	5	1 arcmin	7
	6	012/01/00	+46/31/00	2117	1 arcmin	7
	7	011/47/00	+44/03/00	767	1 arcmin	7
	8	011/48/00	+44/30/00	9	1 arcmin	7
	9	011/51/00	+44/25/00	13	1 arcmin	7
	10	015/01/00	+37/07/00	695	1 arcmin	7
	11	015/07/00	+37/04/00	17	1 arcmin	7
	12	012/28/00	+42/30/00	200	1 arcmin	7
	13	011/54/00	+44/29/00	6	1 arcmin	7
	14	012/17/00	+41/44/00	3	1 arcmin	7
Villate,F.	1	285/00/00	+10/57/00		0.5 deg	33
Villegas,S.	1	301/35/00	-34/36/00	25	1 arcmin	27
	2	301/34/00	-34/36/18	20	1 arcmin	27
Vincent,F.	1	356/59/21	+56/27/54	152	1 arcsec	12
	2	357/11/24	+56/19/44	38	1 arcsec	12
	3	027/34/00	-29/36/00	1676	1 arcmin	68
	4	028/02/00	-29/51/00	2286	1 arcmin	68
Vincent,J.	1	031/30/00	-17/42/00	1500	0.1 deg	59
	2	031/06/26	-17/46/07	1510	0.1 arcsec	59
	3	025/00/00	-29/00/00		10 deg	13
	4	025/00/00	-29/00/00		10 deg	13
	5	030/00/00	-23/00/00		5 deg	13
Vohla,F.	1	012/28/00	+50/57/00	220	1 arcmin	23
Wagner,G.	1	008/15/54	+48/55/32	120	1 arcsec	25
	2	008/18/16	+48/56/01	119	1 arcsec	25
	3	008/31/58	+48/51/20	406	1 arcsec	25
	4	008/30/39	+48/47/37	720	1 arcsec	25
	5	008/27/04	+48/49/21	622	1 arcsec	25
	6	008/21/54	+48/58/40	116	1 arcsec	25
Wakatsuki,M.	1	139/27/20	+35/20/29	13	1 arcsec	8
	2	139/02/06	+35/13/00		1 arcsec	8
	3	139/02/53	+35/10/48		1 arcsec	8
Wallace,B.G.	1	277/15/41	+27/46/59	6	1 arcsec	16
	2	277/15/51	+27/37/45	2	0.1 arcsec	16
	3	277/19/33	+27/38/57	2	0.1 arcsec	16
	4	277/19/28	+27/39/21	2	0.1 arcsec	16
	5	277/42/11	+28/28/43	82	0.1 arcsec	16
Ward,A.	1	357/50/38	+51/38/19	116	1 arcsec	15
	2	149/04/00	-31/17/00		20 arcmin	26
	3	149/00/00	-31/00/00		5 deg	26
Washi,I.	1	136/00/09	+34/34/02	400	0.36 arcsec	8
	2	145/45/00	+15/11/00		1 deg	82
Washi,S.	1	136/00/09	+34/34/02	400	0.36 arcsec	8
	2	observing site unknown				
	3	145/45/00	+15/11/00		1 deg	82
Watanabe,A.	1	140/49/10	+38/13/47	100	1 arcsec	8
Watanabe,H.	1	140/49/10	+38/13/47	100	1 arcsec	8
Watanabe,N.	1	139/10/00	+37/55/00	10	1 arcmin	8
	2	139/30/00	+38/02/00	230	1 arcmin	8
	3	139/21/00	+37/56/00	20	1 arcmin	8
	4	140/30/00	+37/41/00	1500	1 arcmin	8
	5	139/04/00	+36/26/00		1 deg	8
	6	139/26/30	+38/12/15		0.1 arcmin	8
Webb,R.	1	238/19/51	+36/25/39	581	0.01 arcsec	16
Weissferdt,F.	1	008/23/43	+50/32/17	200	1 arcsec	25

Table VIII. Observers (Cont'd)

Observer	Site	Longitude	Latitude	Altitude	Precision	Country
	2	008/15/59	+50/22/09	220	1 arcsec	25
	3	015/30/00	-20/15/00	1150	1 arcmin	65
Westlund,M.	1	017/45/00	+59/53/42	25	0.1 arcmin	54
	2	017/06/00	+60/05/00	60	0.1 arcmin	54
	3	012/52/36	+60/48/54	570	0.1 arcmin	54
	4	012/51/12	+60/45/54	300	0.1 arcmin	54
	5	012/57/54	+60/17/48	520	0.1 arcmin	54
	6	342/18/00	+28/37/00	46	1 arcmin	74
	7	343/26/00	+28/17/00	2021	1 arcmin	74
	8	344/22/00	+27/45/00	18	1 arcmin	74
	9	017/24/36	+59/56/24	30	0.1 arcmin	54
	10	346/15/06	+28/59/36	186	0.1 arcmin	74
	11	343/30/00	+28/18/00	2387	1 arcmin	74
Wikholm,L.	1	025/03/54	+60/14/00	30	1 arcmin	19
Will,M.	1	270/57/07	+37/48/26	125	1 arcsec	16
	2	271/02/04	+37/47/38	139	1 arcsec	16
	3	281/34/00	+38/32/00	1006	1 arcmin	16
	4	281/37/00	+38/35/00	1006	1 arcmin	16
	5	284/32/00	+38/07/00	0	1 arcmin	16
	6	282/59/00	+39/00/00		1 arcmin	16
Williams,D.J.	1	271/00/00	+35/42/00	145	0.1 deg	16
Williams,J.	1	265/47/25	+39/06/23	244	1 arcsec	16
Williams,P.F.	1	150/59/44	-34/05/45	189	1 arcsec	26
	2	149/15/42	-31/20/00	1160	1 arcsec	26
	3	130/58/00	-25/11/00	860	1 arcmin	26
Wils,P.	1	004/19/54	+51/06/54	6	0.1 arcmin	29
	2	006/01/24	+43/58/30	735	0.1 arcmin	4
	3	343/20/38	+28/26/53	2400	3.6 arcsec	74
	4	342/58/00	+28/41/00	0	1 deg	74
Wilson,A.M.	1	249/59/30	+34/09/12	1981	3 arcsec	16
Winkler,R.	1	012/40/00	+51/30/00	114	1 arcmin	23
Wisniewski,P.	1	284/57/45	+42/03/30	45	1 arcsec	16
Witte,F.	1	014/34/30	+52/14/42	27	0.1 arcmin	23
	2	014/39/48	+52/09/54	35	0.1 arcmin	23
	3	014/25/18	+52/15/18	43	0.1 arcmin	23
Woidyla,B.	1	265/50/16	+45/33/38	317	1 arcsec	16
	2	265/36/29	+45/34/50	378	1 arcsec	16
	3	255/58/41	+30/40/19	1829	4 arcsec	16
Yasuki,M.	1	134/15/00	+35/28/00	10	1 arcmin	8
	2	134/20/00	+35/29/00	415	1 arcmin	8
	3	134/15/00	+35/28/00	20	1 arcmin	8
	4	134/17/00	+35/23/00	72	1 arcmin	8
Yen,B.	1	240/56/00	+34/48/00	2591	5 arcmin	16
	2	240/55/00	+34/42/00	1585	0.5 deg	16
	3	244/00/00	+33/40/00		1 deg	16
Young,J.W.	1	242/19/12	+34/22/54	2286	0.1 arcmin	16
Yurchenko,Yu.	1	observing site unknown				
Zagaynov,V.A.	1	observing site unknown				
Zalles,R.	1	295/00/00	-18/00/00		5 deg	31
Zanette,D.	1	289/00/00	-41/00/00		1 deg	27
Zanotta,M.V.	1	009/00/00	+46/00/00		2 deg	7
	2	006/45/00	+45/59/00	700	1 arcmin	7
	3	006/48/00	+45/59/00	1322	1 arcmin	7
	4	009/28/00	+45/52/00		2 deg	7
	5	009/03/00	+45/48/00		2 deg	7
Zanstra,W.T.	1	006/51/00	+53/19/00	0	2 arcmin	46
	2	006/50/48	+53/21/36	0	0.1 arcmin	46
	3	007/23/00	+47/14/00	1306	0.1 arcmin	18
	4	255/03/00	+42/05/00	1400	1 arcmin	16
Zanut,S.	1	012/47/24	+45/57/00		0.01 deg	7
	2	012/34/12	+46/06/00	400	0.1 deg	7
Zhigalev,A.	1	observing site unknown				
Zimnikoval,P.	1	019/09/11	+48/43/00	568	1 arcmin	35
Zinvyev,V.A.	1	observing site unknown				
Zische,E.	1	014/25/20	+51/06/56	330	1 arcsec	23
	2	014/25/57	+51/02/34	335	1 arcsec	23
	3	014/27/00	+51/11/00		3 deg	23
Znasik,M.	1	018/45/15	+49/12/21	404	0.1 arcsec	35

Table IX. Assigned Country Codes

Assigned Country Codes

(sorted by name)

98	Air borne
01	Antarctica
27	Argentina
83	Ascension Island
26	Australia
28	Austria
71	Barbados
29	Belgium
30	Bermuda
31	Bolivia
64	Botswana
02	Brazil
03	Bulgaria
21	Canada
74	Canary Islands
32	Chile
33	Colombia
34	Costa Rica
79	Cuba
35	Czechoslovakia
22	Denmark
85	Ecuador
66	Egypt
25	Federal Republic of Germany
81	Fiji
19	Finland
04	France
73	Galapagos Islands
23	German Democratic Republic
36	Greece
37	Hong Kong
38	Hungary
05	India
06	Indonesia
39	Ireland
40	Israel
07	Italy
08	Japan
41	Korea
42	Kuwait
68	Lesotho
43	Malaysia
78	Maldive Islands
44	Malta
82	Mariana Islands (Guam & Saipan)
45	Mauritius
09	Mexico
65	Namibia
46	Netherlands
75	Netherlands Antilles
48	New Zealand
47	Norway
80	Panama
49	Papua New Guinea
10	People's Republic of China
67	Peru
50	Philippines
11	Poland
51	Portugal
77	Puerto Rico
70	Reunion Island
60	Romania
52	Rwanda
89	Sea borne (Atlantic Ocean)
87	Sea borne (Carribean)
88	Sea borne (Gulf of Mexico)
53	Singapore
61	Society Islands (Tahiti)
13	South Africa
99	Space borne
14	Spain
63	Sudan
54	Sweden
18	Switzerland
55	Taiwan
69	Tanzania
56	Trinidad & Tobago
84	Tunisia
57	Turkey
20	U.S.S.R. (also: 24)
12	United Kingdom (also: 15, 72)
16	United States (also: 76)
62	Uruguay
17	Venezuela
58	Yugoslavia
59	Zimbabwe

(sorted by code)

01	Antarctica
02	Brazil
03	Bulgaria
04	France
05	India
06	Indonesia
07	Italy
08	Japan
09	Mexico
10	People's Republic of China
11	Poland
12	United Kingdom (also: 15, 72)
13	South Africa
14	Spain
16	United States (also: 76)
17	Venezuela
18	Switzerland
19	Finland
20	U.S.S.R. (also: 24)
21	Canada
22	Denmark
23	German Democratic Republic
25	Federal Republic of Germany
26	Australia
27	Argentina
28	Austria
29	Belgium
30	Bermuda
31	Bolivia
32	Chile
33	Colombia
34	Costa Rica
35	Czechoslovakia
36	Greece
37	Hong Kong
38	Hungary
39	Ireland
40	Israel
41	Korea
42	Kuwait
43	Malaysia
44	Malta
45	Mauritius
46	Netherlands
47	Norway
48	New Zealand
49	Papua New Guinea
50	Philippines
51	Portugal
52	Rwanda
53	Singapore
54	Sweden
55	Taiwan
56	Trinidad & Tobago
57	Turkey
58	Yugoslavia
59	Zimbabwe
60	Romania
61	Society Islands (Tahiti)
62	Uruguay
63	Sudan
64	Botswana
65	Namibia
66	Egypt
67	Peru
68	Lesotho
69	Tanzania
70	Reunion Island
71	Barbados
73	Galapagos Islands
74	Canary Islands
75	Netherlands Antilles
77	Puerto Rico
78	Maldive Islands
79	Cuba
80	Panama
81	Fiji
82	Mariana Islands (Guam & Saipan)
83	Ascension Island
84	Tunisia
85	Ecuador
87	Sea borne (Carribean)
88	Sea borne (Gulf of Mexico)
89	Sea borne (Atlantic Ocean)
98	Air borne
99	Space borne

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Amateur Observation Network Data on Comet Giacobini-Zinner

DATE: 13 APR 1985 DATE: 13 APR 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
13.47	801001	15.5	S	SA 57	0.3	1			0.610	C	16.0	375	7.0	Y	1	Morris,C.S	
13.47	801002	15.5	V	SA 57	0.3	1			0.61	C	16	375		Y	4	Edberg,S	A

NOTE A Comet sufficiently stellar for in-focus comparison. Observation made by C. Morris and S. Edberg.

DATE: 18 MAY 1985

DATE: 18 MAY 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
18.35	801003	13.4	S	SX CYG	0.5	3			0.610	C	16.0	375	6.5	Y	1	Morris,C.S	A
18.36	801004	14.2	S	SX CYG	0.5	2			0.610	C	16.0	244	6.5	Y	1	Morris,C.S	B
18.39	801005	>13.0	S	SX CYG					0.256	N	4.5	156	6.5	Y	1	Morris,C.S	C

NOTE A Hint of stellar condensation, m2 = 16:.
NOTE B DC uncertain.
NOTE C Comet not seen.

DATE: 20 MAY 1985

DATE: 20 MAY 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
20.31	801006	>12.5	?						0.317	N	5.6	110	6.5	Y	1	Bortle,J.E	A

NOTE A Comet not seen.

DATE: 26 MAY 1985

DATE: 26 MAY 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
26.46	801007	13.2	S	PW VUL		4			0.200	N	6	122	6.5	Y	16	Hale,A
26.47	801008	13.2	S	N VUL1	0.7	4			0.200	N	6.0	117	7.0	Y	2	Morris,C.S

DATE: 30 MAY 1985 DATE: 30 MAY 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
30.31	801009	12.0	S	AAVSO	1.5	3			0.317	N	5.6	88	6.0	Y	1	Bortle,J.E	A

NOTE A DC not certain. At 110x there is a very dense, tiny condensation of magnitude 13.5 or so. The surrounding coma is of much lower surface brightness.

DATE: 8 JUN 1985

DATE: 8 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
8.30	801010	12.9	S	PW VUL		3			0.200	N	6	122	6.5	Y	5	Hale,A

DATE: 11 JUN 1985

DATE: 11 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
11.15	801011	11.2	S	AAVSO	2.6	3			0.317	N	5.6	88	6.5	Y	1	Bortle,J.E	A
11.99	801012	11.9	S	SS CYG		5			0.203	SC	10	80	6 T	Y	3	Comello,G	

NOTE A At 68x the coma is seen to contain a very dense and small central condensation about 0.7 arc min. in diameter. At 170x this condensation is much smaller but does not contain any stellar or sharp nucleus.

DATE: 12 JUN 1985

DATE: 12 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
12.29	801013	11.9	M	NPS	1.2	4			0.256	N	4.5	67	7.0	Y	3	Morris,C.S	
12.29	801014	11.9	M	NPS	1.2	4			0.256	N	4.5	111	7.0	Y	3	Morris,C.S	A

NOTE A Hint of stellar condensation.

DATE: 14 JUN 1985

DATE: 14 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
14.97	801015	11.7	S	SS CYG		4			0.203	SC	10	80	6 T	Y	3	Comello,G
14.98	801016	12.0	S	SS CYG	1	2			0.254	JB	6	73	6 T	N	2	Bouma,R.J

DATE: 15 JUN 1985

DATE: 15 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
15.16	801017	11.2	S	AAVSO	1.3	3			0.317	N	5.6	88	6.0	Y	1	Bortle,J.E	A
15.279	801018	12.3	S	SS CYG	1.2	2			0.15	R	5	62	6.5	Y	2	Morrison,W	B
15.96	801019	12.0	S	SS CYG		4			0.203	SC	10	80	5.5T	N	3	Comello,G	
15.98	801020	11.5:	S	V CAS	1.5				0.254	JB	6	59	5.5T	Y	2	Bus,E.P	C

NOTE A At 170x the central region of the coma is quite dense but is no longer clearly offset from the surrounding coma. It lacks any stellar nucleus.
NOTE B (Observer indicated uncertainty in limiting magnitude. Ed.)
NOTE C Involved with 2 stars.

DATE: 16 JUN 1985

DATE: 16 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
16.28	801021				0.4	7	0.07	230	1.549	C	13.5		7.0	Y	4	Morris,C.S	A

NOTE A Magnification used uncertain, 600x? Tail rather broad.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
16.474	803001	0.10	0.33	N	4.5	155	15	7.0	1	Fabre,R	A

NOTE A Tail PA 100 deg. Southern section of tail longer than northern section.

DATE: 17 JUN 1985

DATE: 17 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
17.31	801022	11.9	M	NPS	1.2	5	0.03	230	0.406	N	5.0	64	7.0	Y	5	Morris,C.S	
17.31	801023	11.9	M	NPS	1.2	5	0.03	230	0.406	N	5.0	156	7.0	Y	5	Morris,C.S	A
17.94	801024	11.6	S	AAVSO	1.6	4			0.305	N	5.0	60				Zanotta,M	B

NOTE A Short stubby tail.
NOTE B The coma was circular at 60x, but at 94x, 150x and 250x it appeared fan-shaped with axis on PA 225 deg.

DATE: 18 JUN 1985

DATE: 18 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
18.31	801025	11.8	M	NPS	1.2	5	0.03	230	0.406	N	5.0	64	7.0	Y	5	Morris,C.S	A
18.31	801026	11.8	M	NPS	1.2	5	0.03	230	0.406	N	5.0	156	7.0	Y	5	Morris,C.S	A
18.37	801027	11.7	S	SS CYG					0.200	N	6	61	6	Y	29	Hale,A	
18.85	801028	12.4	S	SS CYG		2			0.203	N	6	116	6.2	Y		Pearce,A	

NOTE A Coma diameter uncertain.

DATE: 19 JUN 1985

DATE: 19 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
19.31	801029	10.8	S	AAVSO	2.6	4			0.317	N	5.6	68	6.5	Y	1	Bortle,J.E	A

NOTE A At 110x, the coma appears more highly condensed (DC 6) than at 68x, with a very dense, small core. At 170x there is a tiny, strikingly sharp but not stellar nucleus only a few arc sec. in diameter surrounded by a dense, condensed region.

DATE: 20 JUN 1985 DATE: 20 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
20.95	801030	11.5	S	AAVSO	2.2	4			0.305	N	5.0	60				Zanotta,M	A

NOTE A At 94x (June 20.96 UT) I found DC 5, and with 150x I was able to see a star-like nuclear region. At 300x I found a central condensation whose diameter was 0.5 arc min.

DATE: 21 JUN 1985

DATE: 21 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
21.00	801031	11.5	S	AAVSO	1.9				0.254	N	4.5	71				Zanotta,M

DATE: 22 JUN 1985

DATE: 22 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
22.28	801032	11.7	S	NPS	2	2			0.254	N	4	111				Green,D.W.E	A
22.29	801033	11.4:	S	NPS	1.9				0.256	N	4.5	45	5.0	Y	6	Morris,C.S	B
22.98	801034	11.5	S	AAVSO	1.9	3			0.305	N	5.0	60				Zanotta,M	C

NOTE A Coma diameter approximate.
NOTE B Poor night; comet involved with stars.
NOTE C The comet appeared diffuse with central condensation fainter than on 850620, but with more obvious star-like nuclear region of magnitude 13.5. The coma appeared elongated (60x) and there was a PROBABLE little tail or coma elongation (2 arc min.) at PA 225 deg. (250x).

DATE: 23 JUN 1985

DATE: 23 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
23.33	801035	10.7	S	SS CYG	5.0	2			0.256	N	4.5	45	7.0	Y	7	Morris,C.S	A
23.33	801036	11.4	S	SS CYG	0.6	6			0.256	N	4.5	156	7.0	Y	7	Morris,C.S	
23.36	801037	11.0	S	SS CYG	2.1	5			0.256	N	4.5	67	7.0	Y	7	Morris,C.S	
23.36	801038	11.2	S	SS CYG	1.1	5			0.256	N	4.5	111	7.0	Y	7	Morris,C.S	
23.96	801039	11.3	S	AAVSO	1.5	3			0.305	N	5.0	60				Zanotta,M	B

NOTE A Small 1 min. condensation surrounded by very faint outer coma seen only at low power. There was a suggestion of a stellar condensation. Coma was elongated toward PA 255:. Lumicon comet filter made the diffuse outer coma easier to see.

NOTE B The comet appeared diffuse and circular (60x) with central condensation (0.3 arc min. at 250x) and possible star-like nuclear region. At 94x I found DC 4.

DATE: 24 JUN 1985 DATE: 24 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
24.98	801040	11.3	S	AAVSO	1.4	4			0.305	N	5.0	60				Zanotta,M	A

NOTE A The comet appeared circular (60x). At 94x I found a star-like nuclear region of magnitude 13.8. At the same power I found DC 5.

DATE: 26 JUN 1985

DATE: 26 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
26.01	801041	11.2	S	AAVSO	1.8	5			0.305	N	5.0	60				Zanotta,M	A
26.04	801042	11.3	S	AAVSO	1.8	3			0.254	N	4.5	46				Zanotta,M	
26.44	801043	10.9	M	SS CYG	3.4	5			0.256	N	4.5	45	7.0	Y	7	Morris,C.S	B
26.44	801044				2.3	6			0.256	N	4.5	67	7.0	Y	7	Morris,C.S	

NOTE A Circular coma with a star-like nuclear region of magnitude 13.0 (94x). At 300x I found DC 5/.
NOTE B Outer coma not as obvious.

DATE: 28 JUN 1985

DATE: 28 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
28.278	801045	11.6	S	SS CYG	1.0				0.15	R	5	62		Y	3	Morrison,W

DATE: 30 JUN 1985

DATE: 30 JUN 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
30.314	801046	11.6	S	SS CYG	1.4	2			0.15	R	5	62		Y	3	Morrison,W

DATE: 5 JUL 1985

DATE: 5 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
5.97	801047	10.6	S	AAVSO	1.4	3	0.03	225	0.298	N	5	62			1	Keitch,G.S

DATE: 6 JUL 1985

DATE: 6 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
6.890	801048	9.7	S	AAVSO	5.0	4			0.080	B		15	6.2	Y	3	Haver,R
6.91	801049	10.4	S	V CAS		3			0.254	JB	6	49	6	Y	2	Feijth,H
6.91	801050	10.5	S	V CAS		3			0.254	JB	6	38	6	Y	4	Comello,G
6.92	801051	10.5	S		1.5	3	0.04	243	0.400	N	5	81	6.0	Y	2	Merlin,J.C
6.96	801052	10.6	S	AAVSO	1.6	4	0.03	256	0.298	N	5	62			1	Keitch,G.S
6.97	801053	10.5	S	V CAS	1.3	7			0.250	N	10	100	6 CT	Y	1	van Loo,F.R

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
6.938	803002	0.09	0.40	N	5.0	254	10	6.0	2	Merlin,J.C	A

NOTE A Tail at PA 243 deg.

DATE: 7 JUL 1985

DATE: 7 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
7.03	801054	10.3	S	V CAS		3			0.203	SC	10	50	6	Y	4	Comello,G	
7.154	801055	11.0	S	SS CYG	1.9	4			0.15	R	5	62	6.1	Y	3	Morrison,W	
7.26	801056	10.7	S	R CAS					0.200	N	6	61	6	Y	11	Hale,A	
7.924	801057	10.8	B	SA 19	4.2	1			0.125	R	6	35		Y	1	Guthier,O	A
7.96	801058	10.4	S	V CAS	1.5	7			0.250	N	10	100	6.5T	Y	1	van Loo,F.R	

NOTE A Condensation about 1.0 arc min.

DATE: 8 JUL 1985

DATE: 8 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
8.130	801059	11.0	S	SS CYG	1.4	5			0.15	R	5	62		Y	3	Morrison,W	
8.24	801060	10.2	M	NPS	2.2	5	0.03	225	0.256	N	4.5	67	6.0	Y	6	Morris,C.S	A
8.889	801061				2	1			0.200	SC	10.0	77	5.0	Y		Maraziti,A	
8.92	801062	10.4	S		2.5	3	0.08	243	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
8.96	801063	10.3	S	V CAS		4			0.203	SC	10	50	6	Y	4	Comello,G	

NOTE A SS Cyg chart also used as comparison star source.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
8.903	803003	0.07	0.40	N	5	254	10	6.0	2	Merlin,J.C	A

NOTE A Jet at PA 125 deg.; tail at PA 243 deg.

DATE: 9 JUL 1985

DATE: 9 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
9.11	801064	10.4	S	AAVSO	2.2	6			0.317	N	5.6	68	5.5	Y	1	Bortle,J.E	A
9.89	801065	10.4	S		2.0	3	0.02	268	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
9.93	801066	10.2	S	V CAS	1	6			0.250	N	10	100	6 CT	Y	1	van Loo,F.R	B
9.96	801067	10.3	S	V CAS		3			0.203	SC	10	50	6.5	Y	4	Comello,G	

NOTE A At 110x and 170x a nucleus, stellar or nearly so, is noted at the center of condensation. No internal structure is noted surrounding the nucleus.
NOTE B Asymmetric coma.

DATE: 10 JUL 1985

DATE: 10 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
10.93	801068	10.2:	S	V CAS					0.156	N	5	45	4.5TC	N	5	Bouma,R.J	
10.93	801069	10.1	S	V CAS	2	6			0.250	N	10	100	6.5T	Y	1	van Loo,F.R	
10.95	801070	10.2	S	V CAS	2	6			0.100	B		14	6.5T	Y	1	van Loo,F.R	
10.96	801071	10.3	S	AAVSO	1.5	4	0.03	262	0.298	N	5	62			1	Keitch,G.S	A

NOTE A Also 1 arc min. jet PA 14 deg.; 4 arc min. jet PA 198 deg.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
10.927	803004	0.75	0.114	N	8.7	50, 67	30		2	Gomez,T.L	A

NOTE A Very diffuse; no traces of tail.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)
10.674	805101	0.300	1.5	0.203	6.9 x 4.6	20.00	Kodak 2415		Y	S	1/P	1	Nassr,J

DATE: 11 JUL 1985

DATE: 11 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
11.24	801072	9.4	S	V CAS	2.5	2			0.20	SC	10	81	5.5	Y	1	Spratt,C.E	A
11.87	801073	8.2	B	AA	4	6			0.110	B		20				Chernis,K	
11.931	801074	9.8	S	V CAS	2.5	2			0.200	SC	10.0	44	5.2	Y		Maraziti,A	
11.986	801075	11.0	B		2.1	2			0.125	R	6	35		Y	1	Guthier,O	B

NOTE A Distinct nucleus. (Observer indicated uncertainty in DC value. Ed.)
NOTE B Condensation about 1.0 arc min.

DATE: 12 JUL 1985

DATE: 12 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
12.125	801076	10.9	S	SS CYG	1.6	4			0.15	R	5	62	6.0	Y	3	Morrison,W	
12.22	801077								0.317	N	5.6	170				Bortle,J.E	A
12.25	801078	10.0	M	NPS	3.2	5			0.256	N	4.5	67	6.0	Y	6	Morris,C.S	
12.25	801079	9.7	S	V CAS	2.0	4			0.20	SC	10	81	6.0	Y	1	Spratt,C.E	B
12.87	801080	8.3	B	AA	4	6			0.110	B		20				Chernis,K	
12.924	801081	10.7	S		1.0	6			0.205	N	4.5	52	6.0	Y	1	Hasubick,W	C
12.925	801082	9.7	B	SAO	2.7	4			0.203	SC	10	52	5.0	Y	2	Bottger,B	
12.928	801083	11.0	B	SA 19	2.5	1			0.125	R	6	35		Y	1	Guthier,O	D
12.934	801084	10.6	S	V CAS D	2.5	2			0.152	N	5	44		Y	2	Moeller,M	E
12.938	801085	10.5	S		2.1	7			0.205	N	4.5	52	6.0	Y	1	Koch,V	
12.94	801086	9.3	S		2.2	5			0.203	SC	10	63	5.0	Y	2	Kammerer,A	F
12.950	801087	9.2:	S	SAO	1.5	4			0.203	SC	10	62	5.5	Y	3	Linder,J	
12.95	801088	9.9	S		3.0	3	0.03	267	0.100	R	15	60	6.0	Y	3	Merlin,J.C	
12.99	801089	9.7	S	V CAS		3			0.254	JB	6	49	6	Y	2	Feijth,H	

NOTE A Using 170x there is a fairly hard stellar nucleus which may not be singular. This nucleus occasionally appears "clumpy" in nature. Material surrounding the nucleus is bright and dense with its major portion to the southwest of the nucleus.
NOTE B Very diffuse.
NOTE C Coma diameter uncertain.
NOTE D Condensation about 1.0 arc min.
NOTE E Hazy. (Observer gave limit as 11.9. Ed.)
NOTE F Nucleus: 12 mag.; light haze. Comparison star AG +54 1606.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
12.938	803005	0.17	0.10	R	15	120	10	6.0	3	Merlin,J.C	A

NOTE A Tail at PA 267 deg. Quite different aspect from other observations. Curved feature eastward.

DATE: 13 JUL 1985

DATE: 13 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
13.00	801090	9.9	S	V CAS		3			0.203	SC	10	50	6.5	Y	4	Comello,G	
13.02	801091	9.7	S						0.115	N	8	45	6.0	Y	3	Merlin,J.C	
13.27	801092	9.3	S	V CAS	3.0	5			0.20	SC	10	81	5.7	Y	1	Spratt,C.E	A
13.326	801093	9.9	M	V CAS	1.6	4			0.254	N	4.5	46	4.5	Y	1	De Young,J	B
13.917	801094	10.5	S		1.8	6			0.205	N	4.5	52	6.0	Y	1	Hasubick,W	
13.917	801095	10.3	S		2.8	6			0.205	N	4.5	52	6.0	Y	1	Koch,V	
13.92	801096	10.2	S	V CAS	1	6			0.100	B		14	5.5CT	Y	1	van Loo,F.R	
13.928	801097	10.9	B	SA 19	2.5	2			0.125	R	6	35		Y	1	Guthier,O	
13.95	801098	9.4	S	V CAS		3			0.254	JB	6	49	6	Y	2	Feijth,H	
13.96	801099	9.4	S	V CAS		3			0.20	SC	10	50	6.5	Y	4	Comello,G	
13.97	801100	9.6	S	V CAS	3	4			0.254	JB	6	48	5.5T	Y	2	Bouma,R.J	
13.97	801101	9.8	S						0.150	N	5	23	6.5	Y	3	Merlin,J.C	
13.971	801102	10.6	S	V CAS D	3	2			0.152	N	5	44		Y	2	Moeller,M	C
13.98	801103	10.3	S	V CAS	2	4			0.254	JB	6	48	5.5T	Y	2	Bus,E.P	

NOTE A Distinct nucleus; diffuse.
NOTE B Coma possibly parabolic shaped.
NOTE C (Observer gave limit as 12.1. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
13.115	803006		0.256	N	6.0	40			3	Gallego,J	A
13.915	803007	0.17	0.257	N	4.6	47,148	15	6.5	3	Merlin,J.C	B

NOTE A Field of view 60 arc min. at 40x. Mag. 10.1, coma dia. about 1 arc min. Central condensation clearly visible. Observation made by S. Pedraz and J. Gallego. (Duration not indicated. Time of observation is assumed to be end time. Ed.)
NOTE B Tail at PA 220 deg. Diffuse extensions toward north and south/southeast. (Additional note grammatically undecipherable. Ed.)

DATE: 14 JUL 1985

DATE: 14 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
14.040	801104	10.0:	?	13?	2.0		3		225	0.203	SC	10	50	4.5	Y	1	Dietrich,M	A
14.063	801105	11.0:	B		5					0.15	N	5	38		Y	1	Velasco,P	B
14.28	801106	9.2	S	V CAS	2.5		3			0.20	SC	10	81	6.0	Y	1	Spratt,C.E	C
14.455	801107	10.4	B		3.0	2.5				0.063	R	13	34	5.9	Y	1	Zische,E	
14.938	801108	9.7	S	V CAS	2		2			0.200	SC	10.0	44	5.3	Y		Maraziti,A	
14.94	801109				2.8		5			0.254	N	4.5	46				Zanotta,M	D
14.945	801110	9.5	S		4.5		4			0.080	B		15	6.6	Y	4	Haver,R	
14.95	801111	9.8	S	AAVSO	1.3		5	0.03	180	0.298	N	5	62			1	Keitch,G.S	E
14.95	801112	9.7	S	AAVSO	3.3					0.080	B		20			1	Keitch,G.S	
14.97	801113	9.4	S	T CAS			3			0.203	SC	10	80	6	Y	4	Comello,G	
14.99	801114	9.5	S	V CAS	1.3		3			0.254	JB	6	49	6	Y	2	Feijth,H	

NOTE A Distinctly elongated. (Translated by IHW staff. Observer indicated "A" method [Argelander?]. Ed.)
NOTE B (Coma diameter uncertain. Observation made by E. Velasco and P. Velasco. Ed.)
NOTE C Distinct nucleus; coma V-shaped. (Observer indicated uncertainty in limiting magnitude. Ed.)
NOTE D The comet was circular and diffuse, with a star-like central condensation.
NOTE E Broad dust tail 0.03 deg. long PA 180 deg.; gas tail 0.05 deg. long PA 242 deg. Central cond [sic] 27 arc sec. diameter offset to NE.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
14.057	803008		0.15	N	5	38	15		1	Velasco,P	A

NOTE A Field 2 deg. at 38x. "False" nucleus visible. Observation made by E. Velasco and P. Velasco.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
14.066	805102	0.300	1.5	0.200	6.9 x 4.6	10.00	Kodak 2415		Y	S	2/S	2	Genebriera,J	A
14.078	805103	0.300	1.5	0.200	6.9 x 4.6	10.00	Kodak 2415		Y	S	3/S	2	Genebriera,J	A

NOTE A (Observer's image identifier is followed by suffix A. Ed.)

DATE: 15 JUL 1985 DATE: 15 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
15.00	801115	9.5	S	AAVSO	3.3				0.050	B		10			1	Keitch,G.S	
15.45	801116	10.0	M	R CAS		5			0.200	N	6	61	6.5	Y	5	Hale,A	
15.63	801117	9.5	S	AAVSO	3	3			0.13	N	6.3	44	5.5	Y		Hayashi,A	
15.928	801118	10.9	B	SA 19	2.8	2			0.125	R	6	50		Y	1	Guthier,O	A
15.958	801119	10.0:	?	13?	2.0	3		240	0.203	SC	10	50	4.7	Y	1	Dietrich,M	B
15.969	801120	10.8	B	SA 19	3.8	3			0.125	R	6	35		Y	1	Guthier,O	C

NOTE A Inner coma elliptical, DC 3-4. (Observer gave limit as 13.5. Ed.)
NOTE B (Observer indicated "A" method [Argelander?]. Ed.)
NOTE C (Observer gave limit as 13.2. Ed.)

DATE: 16 JUL 1985

DATE: 16 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
16.136	801121	10.6	S	V CAS	1.9	4			0.15	R	5	62	6.1	Y	3	Morrison,W	
16.96	801122	9.6	S	AAVSO	3.2				0.080	B		20			1	Keitch,G.S	
16.96	801123	9.9	S	AAVSO	2.2	6	0.08	225	0.298	N	5.0	53			1	Keitch,G.S	A

NOTE A Gas tail 0.08 deg. long PA 225 deg.; curved tail 0.06 deg. long PA 288 deg. for 2 arc min., then 1.5 arc min. in PA 268 deg.

DATE: 17 JUL 1985

DATE: 17 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
17.00	801124	9.4	S	AAVSO	3.6				0.050	B		10			1	Keitch,G.S	
17.17	801125	9.9	S	AAVSO	2.7	6			0.317	N	5.6	68	6.5	Y	1	Bortle,J.E	A
17.17	801126	9.3	S	AAVSO	5	3			0.080	B		20	6.5	Y	1	Bortle,J.E	
17.170	801127	10.6	S	V CAS	1.9	5			0.15	R	5	62	6.3	Y	3	Morrison,W	
17.24	801128	9.1	S	NPS	8	2			0.080	B		20	6.5	Y	6	Morris,C.S	
17.24	801129	9.4	M	NPS	3	5	0.03	240	0.256	N	4.5	45	6.5	Y	6	Morris,C.S	B
17.306	801130	9.8	M	V CAS	2.1	3			0.254	N	4.5	46	4.5	Y	1	De Young,J	
17.92	801131	9.3	S		2.5	3	0.09	240	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
17.931	801132	10.3	B	SA 19	5.3	2			0.125	R	6	35		Y	1	Guthier,O	C
17.94	801133	9.6	S	AAVSO	1.9	5			0.305	N	5.0	60				Zanotta,M	D
17.95	801134	9.1	S	V CAS	5	6			0.100	B		14	6.5T	Y	1	Van Loo,F.R	
17.979	801135	10.1	S	V CAS D	3	4			0.152	N	5	44		Y	2	Moeller,M	E
17.989	801136			14	2	4		235	0.203	SC	10	50	5.0	Y	1	Dietrich,M	

NOTE A Using 170x there is a fairly obvious stellar or near-stellar nucleus of about magnitude 13. The major portion of the surrounding bright coma material lays south of the nucleus. There seem to be vague west and eastward pointing jets coming off the nucleus.
NOTE B Broad tail at PA 235-250 deg.
NOTE C Inner coma 1.0 arc min. (Observer gave limit as 13.5. Ed.)
NOTE D The comet was diffuse with outer coma elongated in PA 250 deg. At 94x I saw a star-like central condensation.
NOTE E (Observer gave limit as 12.5. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
17.927	803009	0.07	0.40	N	5	254	10	6.0	2	Merlin,J.C	A

NOTE A Jet at PA 19 deg., very diffuse.; jet at PA 138 deg.; tail at PA 240 deg., straight and well defined.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
17.898	805104	0.300	1.5	0.200	6.9 x 4.6	9.00	Kodak 2415		Y	S	10/S	2	Genebriera,J	A

NOTE A (Observer's image identifier is followed by suffix A. Ed.)

DATE: 18 JUL 1985

DATE: 18 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
18.13	801137	9.9	S	AA	3	4			0.229	R	12	96				Green,D.W.E	A
18.133	801138	10.2	S	V CAS	2.2	4			0.15	R	5	62	6.1	Y	3	Morrison,W	
18.15	801139	9.6	S	AAVSO	3.6	7		225	0.317	N	5.6	68	6.5	Y	1	Bortle,J.E	B
18.15	801140	9.2	S	AAVSO	5.8	3			0.080	B		20	6.5	Y	1	Bortle,J.E	
18.22	801141	9.2	S	NPS	8	2			0.080	B		20	7.0	Y	7	Morris,C.S	
18.22	801142	9.4	M	NPS	3	5	0.10	250	0.256	N	4.5	45	7.0	Y	7	Morris,C.S	
18.322	801143	9.5	M	V CAS	2.9	4			0.254	N	4.5	46	4.5	Y	1	De Young,J	
18.538	801144	10.1	B		2.5				0.063	R	13	34	5.5	Y	1	Zische,E	
18.910	801145	9.5	S	V CAS	2.5	2			0.200	SC	10.0	44	5.3	Y		Maraziti,A	
18.92	801146	9.2	S	V CAS	5	5			0.100	B		14	6.5T	Y	1	van Loo,F.R	

NOTE A Coma diameter approximate.
NOTE B At 68x coma is large and roughly circular. Inner 15% of coma really quite bright and strongly condensed. Area of greatest condensation slightly offset to the northeast of the coma's center.

DATE: 19 JUL 1985

DATE: 19 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
19.498	801147	10.0	B		2.5				0.063	R	13	34	5.9	Y	1	Zische,E
19.92	801148	9.2	S	V CAS	3	4			0.100	B		14	5.5CT	N	1	van Loo,F.R
19.937	801149	9.5	B		2.0	3			0.165	N	8.7	57	6.5	Y	1	Bohme,D

DATE: 20 JUL 1985

DATE: 20 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
20.02	801150	9.1	S	AAVSO	3.6	5	0.07	238	0.080	B		20			1	Keitch,G.S	A
20.02	801151	9.1	S	AAVSO	4				0.050	B		10			1	Keitch,G.S	
20.047	801152			14	2	5	0.04	230	0.203	SC	10	50	4.8	Y	1	Dietrich,M	B
20.08	801153	9.0	S		2.0	3	0.08	253	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
20.27	801154	9.0	S	V CAS	3.5	5			0.20	SC	10	81	5.0	Y	1	Spratt,C.E	C
20.42	801155	9.5	S	NPS			0.05		0.050	B		10	7	Y	1	Hale,A	D
20.894	801156	10.6	S	V CAS		6			0.203	SC	10	50		Y		Conte,G	
20.900	801157	10.3	B	SA 19	4.2	2			0.125	R	6	35		Y	1	Guthier,O	
20.929	801158	10.1	S	V CAS D	2.5	4			0.152	N	5	44		Y	2	Moeller,M	E
20.94	801159	9.1	S		2.4	3	0.06	233	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
20.944	801160	10 :	B		4	3			0.114		3.7	21		Y	1	Gomez,T.L	F
20.95	801161	8.9	S	USNOC	2.5	5	0.13	244	0.080	B		20			1	Keitch,G.S	G
20.96	801162	8.9	S	V CAS	3	4			0.08	B		20	6 T	Y	2	Bouma,R.J	
20.96	801163	9.5	S	V CAS	2	8			0.100	B		14	6.5	Y	1	van Loo,F.R	H
20.97	801164	9.2	S	V CAS	2.5	6			0.254	JB	6	48	6 T	Y	2	Bouma,R.J	
20.981	801165			14	2	5	0.05	290	0.203	SC	10	50	4.8	Y	1	Dietrich,M	I

NOTE A Gas tail 0.07 deg. long PA 238 deg.; jet 0.03 deg. long PA 15 deg.
NOTE B Coma remarkably lengthened. (Translated by IHW staff. Ed.)
NOTE C Stellar nucleus; diffuse.
NOTE D 3 arc min. tail observed with 0.200 Newtonian; direction not measured.
NOTE E (Observer gave limit as 12.6. Ed.)
NOTE F Rich-field telescope.
NOTE G 29.8 cm f/5 reflector 62x shows several tails.
NOTE H (Observer indicated uncertainty in coma diameter. Ed.)
NOTE I Beginning of tail. (Translated by IHW staff. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
20.083	803010	0.08	0.40	N	5	254	10	6.0	2	Merlin,J.C	A
20.925	803011	0.07	0.40	N	5	254	5	6.0	2	Merlin,J.C	B
20.950	803012	0.9	0.114		3.7	21, 28	16		1	Gomez,T.L	C

NOTE A Jet at PA 82 deg.; jet at PA 228 deg.; tail at PA 253 deg., diffuse. Inner coma "half-moon" shaped.
NOTE B Jet at PA 61 deg.; jet at PA 112 deg.; tail at PA 233 deg. Diffuse extension southward. Star embedded in coma at about 10 arc sec. from nucleus at PA about 230 deg.
NOTE C Rich-field telescope used.

DATE: 21 JUL 1985 DATE: 21 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
21.05	801166	9.5	S	V CAS	3	7			0.100	B		14	6.5	Y	1	van Loo,F.R	
21.198	801167	10.3	S	V CAS	2.0	5	0.07	245	0.15	R	5	62	6.5	Y	3	Morrison,W	A
21.28	801168	8.9	S	V CAS	3.5	6			0.25	N	4.8	38	5.7	Y	2	Spratt,C.E	B
21.44	801169	9.4	S	NPS	6	2			0.080	B		20	7.0	Y	8	Morris,C.S	
21.875	801170	9.4	S	V CAS	3	2			0.200	SC	10.0	44	5.1	Y		Maraziti,A	
21.875	801171	9.2	B		2.0	4			0.127	SC	10	60	6.0	Y	1	Hasubick,W	
21.892	801172	10.0	S	V CAS D	3.5	3			0.152	N	5	44	T	N	2	Moeller,M	C
21.894	801173	10.7	S	V CAS		7			0.203	SC	10	50	5	Y		Conte,G	
21.905	801174	9.2	S		4.5	4			0.080	B		15	6.1	Y	3	Haver,R	
21.91	801175	8.9:	S	S35889	2.2	6			0.203	SC	10	81	4.5	Y	1	Kammerer,A	D
21.920	801176	9.3:	B	SAO	2 1.6	5			0.203	SC	10	62	6	Y	1	Linder,J	E
21.931	801177					1			0.114	N	8.7	50	5.0	Y	1	Villa,M	
21.95	801178	8.8	S	T CAS	3	6			0.156	N	5	24	6 T	Y	2	Bouma,R.J	
21.95	801179	8.9	S	V CAS	7	5			0.06	B		12	6.5	Y	5	van de Weg,R.L.W	
21.96	801180	8.8	S	T CAS					0.05	B		10	6 T	Y	2	Bouma,R.J	
21.96	801181	9.0	B	V CAS					0.06	B		12	6.5	Y	5	van de Weg,R.L.W	
21.98	801182	9.5	S	AAVSO	1.6	5	0.03	250	0.305	N	5.0	60				Zanotta,M	F
21.990	801183	9.5	B	SAO	3	0	0.13	255	0.11	R	11	30	6.5	Y	1	Adamoli,G	G

NOTE A Clock face method used to estimate tail PA.
NOTE B Diffuse, nucleus star-like.
NOTE C (Observer gave limit as 11.5. Ed.)
NOTE D Coma elliptical, major axis SW-NE. Coma diameter uncertain.
NOTE E Coma elliptical, size uncertain. (Observer indicated uncertainty in limiting magnitude. Ed.)
NOTE F At 60x and 94x I saw a ghostly narrow and straight tail, and at 300x I found a circular central condensation whose diameter was 0.4 arc min.
NOTE G Magnification of 70x also used.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
21.021	803013		0.203	N	6.0	60			1	Gallego,J	A
21.958	803014		0.203	N	6.0	120	10	5.9	1	Gomez,A	B

NOTE A Field of view 1 deg. 5 arc min. at 60x. Mag. 9.9, coma dia. about 4 arc min. Diffuse with sharp boundary. Dim star visible behind coma. (Duration not indicated. Time of observation is assumed to be end time. Ed.)
NOTE B Field 20 arc min. Mag. 10, DC = 3, coma dia. 3 arc min. Coma very asymmetric with respect to the central condensation. The coma has a distinct peak of light in the nuclear zone, perhaps of 11 mag. An hour later, I was able to see faint stars within the coma as the comet swept across the sky. With 50x and a Lumicon nebular filter, the size of the coma appeared a little big. [sic]

DATE: 22 JUL 1985

DATE: 22 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
22.00	801184	9.5	S	AAVSO	1.9	5			0.254	N	4.5	46				Zanotta,M	
22.02	801185	9.6	S	AAVSO	4.3	4			0.080	B		20				Zanotta,M	A
22.42	801186	9.1	S	NPS					0.080	B		20	7.0	Y	8	Morris,C.S	
22.868	801187	9.3	B		2.5	5			0.100	B		14	6.0	Y	1	Hasubick,W	
22.872	801188	9.2	B		2.3	5			0.205	N	4.5	52	6.0	Y	1	Hasubick,W	
22.875	801189	9.3	S		2.3	5			0.205	N	4.5	52	6.0	Y	1	Koch,V	
22.889	801190	9.5	S	V CAS	3	3			0.200	SC	10.0	44	5.5	Y		Maraziti,A	
22.915	801191	9.1	S		4.5	5			0.080	B		15	6.1	Y	3	Haver,R	
22.92	801192	9.0	S		2.8	3	0.06	252	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
22.93	801193	9.3	S	14	4	3			0.080	B	5	20	5.5C	Y	1	Milani,G.A	
22.95	801194	8.9	S	V CAS	7	4	0.25	250	0.06	B		12	6	Y	5	van de Weg,R.L.W	
22.95	801195	9.1	B	V CAS					0.06	B		12	6	Y	5	van de Weg,R.L.W	
22.97	801196	9.2	S	T CAS		3			0.203	SC	10	80	6	Y	3	Comello,G	
22.98	801197	9.5	S	AAVSO	2.5	5		255	0.305	N	5.0	60				Zanotta,M	B

NOTE A The comet was well visible with averted vision in a 9x60 finder.
NOTE B At 60x the coma was round and diffuse with indefinite edges. At 94x I saw a probable ghostly narrow straight tail. At 250x I found a circular central condensation whose diameter was 0.4 arc min.

DATE: 23 JUL 1985 DATE: 23 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
23.00	801198	9.4	S	AAVSO	3.5	4			0.080	B		20				Zanotta,M	A
23.02	801199	9.4	S	AAVSO	2.9	4	0.05	252	0.254	N	4.5	46				Zanotta,M	B
23.185	801200	10.1	S	V CAS	1.8	6			0.15	R	5	62	6.5	Y	3	Morrison,W	
23.81	801201	10	S	M	1				0.060	R		30				Solodkin,V	
23.903	801202	9.8	B	SA19SAO	4.2	2			0.125	R	6	35		Y	1	Guthier,O	C
23.905	801203	10.1	B	SA19SAO					0.125	R	6	50		Y	1	Guthier,O	
23.906	801204	10.0	S	V CAS D	3	4			0.483	N	4.3	115		N	1	Moeller,M	D
23.91	801205	8.9	S		2.6	4	0.05	240	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
23.913	801206	9.4	B		5.5	4			0.165	N	8.7	57	6.0	Y	1	Bohme,D	
23.917	801207	10.9	B	V CAS	1.0				0.11	R	11	70	6	Y	1	Adamoli,G	
23.94	801208	9.3	S	14	4	4			0.080	B	5	20	6.5	Y	4	Milani,G.A	
23.95	801209	9.5	S	AAVSO	2.1	4			0.305	N	5.0	60				Zanotta,M	E
23.958	801210			14	2.5	5	0.07	250	0.203	SC	10	50	5.5	Y	1	Dietrich,M	F
23.96	801211	8.9	S	T CAS					0.156	N	5	36	6 T	Y	2	Bouma,R.J	

NOTE A The was difficult due to proximity of the bright star Beta Cas. [sic]
NOTE B I found a ghostly narrow straight tail and a central condensation of magnitude 12.0.
NOTE C Elliptical coma, inner DC 3-4.
NOTE D Cloudy. (Observer gave limit as 14. Ed.)
NOTE E The observation was very difficult due to proximity of the bright star Beta Cas. The coma was little fan-shaped, and at 94x I saw a central condensation whose diameter was 0.5 arc min. At 150x a star-like nuclear region became visible.
NOTE F Coma somewhat blended with Beta Cas. (Translated by IHW staff. Ed.)

DATE: 24 JUL 1985

DATE: 24 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
24.000	801212	11.0	?		1.0		1			0.110	R	6.8	125	C	Y	1	Lipski,P	A
24.02	801213						7			0.300	N		80	6	Y	3	Zanstra,W.T	
24.172	801214	10.1	S	V CAS	2.2		6			0.15	R	5	62	6.5	Y	3	Morrison,W	
24.345	801215	8.8	M	V CAS	2.5		4			0.254	N	4.5	36	4.5	Y	1	De Young,J	
24.896	801216	9.3	B	SAO	5.8	3.0				0.125	R	6	50		Y	1	Guthier,O	B
24.907	801217	9.1	B	SAO						0.125	R	6	35		Y	1	Guthier,O	
24.917	801218	9.0	S		2.3		3			0.205	N	4.5	52	6.0	Y	1	Koch,V	
24.92	801219	8.9:	S	S21225	2.0		5			0.203	SC	10	81	4.0	Y	1	Kammerer,A	C
24.927	801220	9.0	B		1.4		5			0.205	N	4.5	52	6.0	Y	1	Hasubick,W	
24.934	801221	8.9	B		2.0		5			0.10	B		14	6.0	Y	1	Hasubick,W	
24.94	801222	9.3	S	V CAS	2		6			0.100	B		14	5.5	Y	1	van Loo,F.R	
24.95	801223	8.8	S	USNOC	3.4		6			0.080	B		20			1	Keitch,G.S	
24.96	801224				3		6			0.300	N		40	6	Y	3	Zanstra,W.T	

NOTE A Blending through Beta Cas. (Translated by IHW staff. Observer gave limit as 12.0. Ed.)
NOTE B Elliptical coma. DC on long axis 3-4, DC on short axis 4-5.
NOTE C Bright sky background. Comparison star 21257 also used. Coma diameter uncertain.

DATE: 25 JUL 1985

DATE: 25 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
25.05	801225	9.1	S	T CAS	3	6			0.125	R		30	6	Y	3	Zanstra,W.T	
25.74	801226	9.3	S	AAVSO	3	4			0.13	N	6.3	44	5.0	Y		Hayashi,A	
25.75	801227	9.1	S	AAVSO	3.5	3			0.13	N	6.3	24	5.0	Y		Hayashi,A	
25.878	801228	8.9:	B		2.1	4			0.127	SC	10	60	5.5M	Y	1	Hasubick,W	
25.878	801229	8.9:	B		2.1	4			0.10	B		14	5.5M	Y	1	Hasubick,W	
25.884	801230	9.7	S	V CAS D	3	4			0.152	N	5	44		N	2	Moeller,M	A
25.96	801231	9.3	S	V CAS	2.5	8			0.100	B		14	6	Y	1	van Loo,F.R	B
25.99	801232	8.8	S	V CAS	7.5	4	0.20	240	0.06	B		12	6 T	Y	1	van de Weg,R.L.W	
25.99	801233	9.0	B	V CAS					0.06	B		12	6 T	Y	1	van de Weg,R.L.W	

NOTE A Cirrus. (Observer gave limit as 11.5. Ed.)
NOTE B Elongated in PA 240 deg.

DATE: 26 JUL 1985

DATE: 26 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
26.000	801234	9.1	S		4.0	4	0.13	250	0.080	B		15	6.2	Y	3	Haver,R	
26.00	801235	9.1	S	T CAS	4	3			0.125	R		30	5.5	Y	3	Zanstra,W.T	
26.02	801236	9.1	S	T CAS	4	5			0.300	N		40	5.5	Y	3	Zanstra,W.T	
26.23	801237	8.8	S	AAVSO	3.4	7	0.1	250	0.317	N	5.6	68	6.5	Y	1	Bortle,J.E	A
26.23	801238	8.0	S	AAVSO	12.5	3			0.050	B		10	6.5	Y	1	Bortle,J.E	
26.85	801239	10	S	M	1				0.060	R		30				Solodkin,V	
26.95	801240	7.7	B	AA	6	6			0.110	B		20				Chernis,K	
26.958	801241	9.5:	S						0.089	R	5.5	36	5.0	N	1	Ventura,F	B

NOTE A With 170x the nucleus is seen to be surrounded by a small parabolic envelope which opens toward PA 250 deg. (toward the tail). The nucleus is almost stellar in appearance. At lower magnification the area of greatest condensation is offset slightly sunward of the coma's center.

NOTE B Coma diameter 2-3 arc min. Elongated coma, tail?

DATE: 27 JUL 1985

DATE: 27 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
27.05	801242	8.5	S		2.5	4	0.05	255	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
27.24	801243	8.8	S	V CAS	4.0	4			0.20	SC	10	64	5.9	Y	1	Spratt,C.E	A
27.330	801244	9.9	S	V CAS	2.3	6			0.15	R	5	62	6.5	Y	3	Morrison,W	B
27.41	801245	8.3	M		7	4	0.35	242	0.080	B		20	7.0	Y	1	Morris,C.S	
27.42	801246				2.1	6			0.150	R	10.0	60	7.0	Y	1	Morris,C.S	
27.43	801247	8.2	S		9	3			0.050	B		12	7.0	Y	1	Morris,C.S	
27.43	801248				0.5	4			0.610	C	16.0	390	7.0	Y	1	Morris,C.S	C
27.44	801249	9.0	S	R CAS			0.13		0.050	B		10	7	Y	1	Hale,A	D
27.99	801250	7.6	B	AA	6	7			0.110	B		20				Chernis,K	

NOTE A Diffuse.
NOTE B (Observer indicated uncertainty in limiting magnitude. Ed.)
NOTE C Bulge on south side of coma.
NOTE D 8 arc min. tail observed with 0.200 Newtonian; direction not measured.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
27.054	803015	0.08	0.40	N	5	254	5	6.0	2	Merlin,J.C	A

NOTE A Spike at PA 50 deg.; jet at PA 102 deg.; jet at PA 266 deg.; tail at PA 255 deg. Diffuse extension northward.

DATE: 28 JUL 1985

DATE: 28 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
28.00	801251	8.3	S	T CAS	3	6			0.156	N	5	24	6 T	Y	2	Bouma,R.J	
28.05	801252	8.5	S		2.5	3	0.10	239	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
28.295	801253	9.9	S	V CAS	1.7	6	0.07	250	0.15	R	5	62	6.7	Y	3	Morrison,W	A
28.326	801254	8.6	M	V CAS	2.4	4			0.254	N	4.5	36	4.5	Y	1	De Young,J	
28.41	801255	8.6	M		6.5	6	0.12	260	0.080	B		20	6.5	Y	1	Morris,C.S	
28.89	801256	10	S	M	1				0.060	R		30				Solodkin,V	

NOTE A Clock face method used to estimate tail PA.

DATE: 29 JUL 1985

DATE: 29 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
29.01	801257	8.7	S	V CAS	4	6			0.100	B		14	5.5M	N	1	van Loo,F.R	
29.892	801258	9.5	S	V CAS D	3.5	5			0.152	N	5	44	M	Y	2	Moeller,M	A
29.985	801259			14	2.5	5	0.07	230	0.203	SC	10	50	4.5	Y	1	Dietrich,M	

NOTE A (Observer gave limit as 11.9. Ed.)

DATE: 30 JUL 1985

DATE: 30 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
30.347	801260	10.1	S	V CAS	1.6	5			0.15	R	5	62	6.5	Y	3	Morrison,W
30.77	801261	10.6	S	M	1.5	5			0.290	N	13.5	96				Guryanov,S
30.77	801262	10.6	S	M	1.5	5			0.290	N	13.5	96				Sventitskiy,V

DATE: 31 JUL 1985

DATE: 31 JUL 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
31.77	801263	11.3	S	M	1.2	6			0.290	N	13.5	96				Guryanov,S	A

NOTE A m2 = 11.6 mag.

DATE: 1 AUG 1985

DATE: 1 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
1.77	801264	11.2	S	M	2	4			0.290	N	13.5	96				Guryanov,S
1.77	801265	11.3	S	M					0.290	N	13.5	96				Sventitskiy,V

DATE: 2 AUG 1985

DATE: 2 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
2.163	801266	9.4	S	S PER	2.3	4			0.15	R	5	62	5.3M	N	3	Morrison,W	A
2.77	801267	10.5	S	M	2.5	4			0.290	N	13.5	96				Guryanov,S	
2.844	801268	9.7	S	AAVSO		3			0.20	SC	10	50	4.8M	N	1	Sicoli,P	
2.868	801269	8.8	B	SAO	2.6	2			0.125	R	6	35		Y	1	Guthier,O	B
2.868	801270	8.9:	S		2.6	4			0.127	SC	10	60	5.5M	Y	1	Hasubick,W	
2.906	801271	8.6	S	15	1.8	4			0.140	SN	3.6	45	5.2M	N	1	Linder,J	

NOTE A Moon prevents dark adaptation.
NOTE B Inner coma DC 3-4.

DATE: 3 AUG 1985

DATE: 3 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
3.000	801272	9.0	?		2.5	2.0	4			0.110	R	6.8	47	M	Y	1	Lipski,P	A
3.014	801273	10.2	S	V CAS	1		3			0.11	R	11	70	5 M	Y	1	Adamoli,G	
3.07	801274	8.6	S	AAVSO	2.8		7	0.1	240	0.317	N	5.6	68	6.0	Y	1	Bortle,J.E	B
3.11	801275	8.4	S	AA	3.3		5			0.229	R	12	86				Green,D.W.E	C
3.347	801276	9.5	S	S PER	1.8		5			0.15	R	5	62	5.3M	N	3	Morrison,W	D
3.78	801277	10.3	S	M	1					0.060	R		30				Solodkin,V	
3.79	801278	10.6	S	M	2.5		4			0.290	N	13.5	96				Guryanov,S	
3.86	801279	9.3	S	V CAS			3			0.200	SC	10.0	44	5.0M	Y	1	Maraziti,A	
3.86	801280	8.8	S	S PER	3		6	0.17	231	0.100	B		14	6.5T	N	1	van Loo,F.R	
3.889	801281	9.4	S	S PER B	3.5		5			0.152	N	5	44	6.0	Y	2	Moeller,M	E
3.93	801282	9.0	S	S PER	5		6			0.15	R	8	36	5.5M	N	1	Aerts,L	

NOTE A Oval with nucleus. (Translated by IHW staff. Observer gave limit as 11.5. Ed.)
NOTE B At 170x there is a stellar or almost stellar nucleus of magnitude 12.5-13 with a possible short tail spine extending from it to the southwest. The central region of the coma is very bright.
NOTE C Coma diameter approximate.
NOTE D Moon prevents dark adaptation.
NOTE E Cloudy.

DATE: 4 AUG 1985

DATE: 4 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
4.111	801283	9.5	S	S PER	1.9	5			0.15	R	5	62	5.3M	N	3	Morrison,W	A
4.882	801284	9.3	S	S PER	1	8	0.04	230	0.254	N	3.9	79		Y	2	Cavagna,M	
4.90	801285	8.3	S		2.7	3	0.17	246	0.400	N	5	81	6.5	Y	2	Merlin,J.C	
4.944	801286	10.3	S	V CAS	0.7				0.11	R	11	70	5 M	Y	1	Adamoli,G	

NOTE A Moon prevents dark adaptation.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
4.899	803016	0.06	0.40	N	5	254	10	6.5	2	Merlin,J.C	A

NOTE A Jet at PA 88 deg.; tail streamer at PA 221 deg.; tail at PA 246 deg.; tail streamer at PA 263 deg.; jet at PA 359 deg.

DATE: 5 AUG 1985

DATE: 5 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
5.115	801287	9.2	S	S PER	2.0	6			0.15	R	5	62	5.8	Y	3	Morrison,W	
5.22	801288	8.5	S	S PER	3.0	5	0.05	265	0.20	SC	10	64	6.0	Y	1	Spratt,C.E	A
5.80	801289	10.3	S	M	1				0.060	R		30				Solodkin,V	
5.870	801290	9.0	S	S PER B	3.0	5			0.061	R	12	25	6.0	N	2	Moeller,M	B
5.875	801291	9.2	S	AA XCAS	3	5			0.19		4	38	M	Y	1	Mikuz,H	C

NOTE A V-shaped coma. (Observer indicated uncertainty in limiting magnitude. Ed.)
NOTE B Cloudy.
NOTE C Instrument is flat-field Schmidt. Clouds passing occasionally.

DATE: 6 AUG 1985

DATE: 6 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
6.21	801292	8.5	S	S PER	3.0	5	0.04	278	0.20	SC	10	64	5.0	Y	1	Spratt,C.E	A
6.30	801293	8.9	S	R CAS			0.08		0.050	B		10	6 M	Y	8	Hale,A	B
6.45	801294	8.1	M	SAO	8.5	4	0.28	200	0.080	B		20	5.5	Y	6	Morris,C.S	C
6.45	801295				8.5	4			0.256	N	4.5	23	5.5	Y	6	Morris,C.S	
6.45	801296				6.8	4			0.256	N	4.5	29	5.5	Y	6	Morris,C.S	
6.45	801297				5.1	5			0.256	N	4.5	45	5.5	Y	6	Morris,C.S	
6.45	801298				4.3	5			0.256	N	4.5	67	5.5	Y	6	Morris,C.S	
6.45	801299				3.4	6			0.256	N	4.5	72	5.5	Y	6	Morris,C.S	
6.45	801300				3.4	6			0.256	N	4.5	92	5.5	Y	6	Morris,C.S	
6.45	801301				2.8	7			0.256	N	4.5	111	5.5	Y	6	Morris,C.S	
6.45	801302	9.4:	M	SAO	2.8	7			0.256	N	4.5	156	5.5	Y	6	Morris,C.S	
6.75	801303	9.8	S	M	1.5	2			0.060	R		30				Solodkin,V	
6.875	801304					2			0.114	N	8.7	110	5.0	Y	1	Villa,M	
6.88	801305	8.7	S	S PER	3	6	0.10		0.100	B		14	5.5T	Y	1	van Loo,F.R	
6.896	801306	8.9	S	S PER B	4.0	5			0.152	N	5	44	6.0	Y	2	Moeller,M	D
6.91	801307	8.9	S	RR PER		5			0.203	SC	10	80	6 M	Y	3	Comello,G	
6.92	801308	8.2	S	S PER	4	4			0.156	N	5	29	5.5TM	Y	2	Bouma,R.J	

NOTE A Very active.
NOTE B Some interference from moonlight. 5 arc min. tail observed with 0.200 Newtonian; direction not measured.
NOTE C Tail PA uncertain.
NOTE D Cirrus.

DATE: 7 AUG 1985

DATE: 7 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
7.11	801309	9.0	S	S PER	3.5	6			0.15	R	8	36	5 M	N	1	Aerts,L	
7.25	801310	8.3	S	S PER	7.5	4			0.080	B		20	4.5	Y	9	Morris,C.S	A
7.83	801311	10 :	B	M	3	3			0.110	B		20				Shirokov,A	B
7.861	801312	8.5	S	S PER		4			0.140	SN	3.6	19	6.1	Y	1	Meozzi,D	
7.868	801313	9.3	S	S PER		5			0.20	SC	10	50	5.8	Y	1	Sicoli,P	
7.88	801314	9.2	S	V CAS	4 3	6	0.17	275	0.200	SC	10.0	44	5.8	Y	1	Maraziti,A	
7.90	801315	8.1	S		3.6	3	0.13	251	0.400	N	5	81	6.5	Y	2	Merlin,J.C	
7.902	801316	8.8	S	S PER B	4.0	6	0.33	280	0.152	N	5	44	6.1	Y	2	Moeller,M	
7.92	801317	8.8	S	S PER	3.5	4			0.080	B	5	20	5.8C	Y	1	Milani,G.A	
7.95	801318	8.3	S	AAVSO	5.3	6	0.18	250	0.080	B		20			1	Keitch,G.S	C
7.993	801319	8.5:	M			0			0.07	R	20.3	70	6.0	Y	1	Luga,M	D

NOTE A SAO also used. Coma diameter uncertain.
NOTE B m2 = 11.5 mag.
NOTE C 0.18 deg. tail at PA 250 deg. is gas tail; tail with PA 250-335 deg. is dust tail (no length given. Ed.).
NOTE D Tail invisible.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
7.880	803017	0.07	0.40	N	5	254	15	6.5	2	Merlin,J.C	A

NOTE A Jet at PA 39 deg.; jet at PA 75 deg.; tail streamer at PA 215 deg.; tail at PA 251 deg.; tail streamer at PA 293 deg.

DATE: 8 AUG 1985 DATE: 8 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
8.00	801320	8.3	S	S PER	7		5	0.33		0.100	B		14	6.5	Y	1	van Loo,F.R	
8.83	801321	9.5	S	M	2		2			0.060	R		30				Solodkin,V	
8.865	801322	9.4	S	S PER						0.30	N	6	73	5.5	Y	1	Remo,S	
8.87	801323	8.5	S	S PER	4		7			0.300	N		80	5.5	Y	3	Zanstra,W.T	
8.87	801324	9.5	B	M	4					0.088	B		20				Mormil,V	
8.872	801325	9.5	S	S PER			5			0.20	SC	10	50	5.6	Y	1	Sicoli,P	
8.878	801326	9.0	B	15	2.0		6			0.356	SC	11	156	5.5	Y	1	Korth,S	
8.889	801327	8.5	S	S PER			5			0.140	SN	3.6	19	6.2	Y	1	Meozzi,D	
8.89	801328	8.1	S		3.8		3	0.15	261	0.400	N	5	81	6.5	Y	2	Merlin,J.C	
8.893	801329	8.7	B	S PER B	4.0		6	0.33	285	0.152	N	5	44	6.0	Y	2	Moeller,M	
8.896	801330	9.7	S				3			0.064	R	6.3	25	6 M	Y	2	Paradowski,M	
8.90	801331	9.0	S	S PER	4.5		5			0.150	R	8	64	5 C	N	1	Aerts,L	
8.90	801332	9.0	S	S PER	4.5		5			0.15	R	8	64	5 C	N	1	Aerts,L	
8.90	801333	8.7	S	15	2.2		6	0.05	260	0.203	SC	10	81	5.0	Y	1	Kammerer,A	A
8.902	801334	8.5	B	SAO	3.9	1.9	4			0.125	R	6	35		Y	1	Guthier,O	B
8.91	801335	9.2	S	V CAS	4	3	6	0.17	270	0.200	SC	10.0	44	6.0	Y	1	Maraziti,A	
8.91	801336	8.7	S	S PER			5			0.080	B	5	20	5.8C	Y	1	Milani,G.A	
8.931	801337	8.7	B	SAO	3.8	1.0		0.17	268	0.250	N	6.0	75		Y	1	Guthier,O	C
8.939	801338	8.6:	?	15	2		5	0.05	280	0.203	SC	10	50	5.0	Y	1	Dietrich,M	D
8.944	801339	8.8	B	S PER B	4.0		6	0.25	285	0.152	N	5	44	6.0M	Y	2	Moeller,M	
8.950	801340	9.1	B	SAO	1.0		3			0.15	N	8	60	4.5C	Y	1	Bottger,B	
8.962	801341	9.3	B	S PER	2		6	0.1	245	0.11	R	11	70	5	Y	1	Adamoli,G	
8.979	801342	8.4	B	S PER	5.6		6			0.140	SN	3.6	28	5.5	Y	5	Linder,J	
8.979	801343							0.22	225	0.406	N	4.5	138	5.5	Y	5	Linder,J	

NOTE A Extension broad. (Tail length marked "extension 3'" on original report form. Ed.)
NOTE B Inner coma DC 6.
NOTE C DC on long axis 5, DC on short axis 7.
NOTE D (Observer indicated "A" method [Argelander?]. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
8.887	803018	0.06	0.40	N	5	254	5	6.5	2	Merlin,J.C	A

NOTE A Spike at PA 82 deg., very diffuse; tail at PA 261 deg.; jet at PA 282 deg. Diffuse extension southward.

DATE: 9 AUG 1985

DATE: 9 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
9.24	801344	8.1	S	S PER	9	4			0.080	B		20	4.5	Y	9	Morris,C.S	
9.82	801345	9.5	S	M	2	3			0.060	R		30				Solodkin,V	
9.860	801346	8.6	S	S PER B	3.5	7			0.152	N	5	44	5.7T	N	2	Moeller,M	
9.86	801347	9.5	B	M	4	3			0.080	B		30				Shirokov,A	A
9.861	801348	8.4	B		3.1	3			0.10	B		14	6.0	Y	1	Hasubick,W	
9.863	801349	8.4	S	S PER		5			0.140	SN	3.6	19	6.2	N	1	Meozzi,D	
9.875	801350	9.4	?		4	3			0.13	N	8	25	6.0	Y	1	Lieder,F	
9.88	801351	8.6	S	S PER	4	7			0.300	N		80	4.5	Y	3	Zanstra,W.T	
9.881	801352	9.3	B		2.5	5			0.063	R	13	34	6.0	Y	1	Zische,E	
9.885	801353	8.5	M		2.6	3			0.127	SC	10	60	6.0	Y	1	Hasubick,W	
9.91	801354	8.9:	S	S PER	2.5	5		240	0.200	N	4	50	5.5	Y	1	Milani,G.A	B
9.917	801355				3				0.089	R	5.5	36	5.0	N	1	Ventura,F	
9.92	801356	8.8	S	S PER	3				0.080	B	5	20	5.5C	Y	1	Milani,G.A	
9.930	801357	8.4	S		5.0	5			0.080	B		15	6.0	Y	2	Haver,R	
9.941	801358	9.4	B		2.3	4			0.063	R	13	34	5.5	Y	1	Zische,E	
9.950	801359	8.6	B		4.2	2			0.165	N	8.7	57	5.5	Y	1	Bohme,D	
9.958	801360	8.5	M		3 2	3			0.114	N	8.7	110	5.5	Y	2	Villa,M	
9.96	801361					5			0.145	N	8	30	5.5M	Y	1	van der Laan,T.A	

NOTE A m2 = 11.5 mag.
NOTE B Asymmetric coma, extended in PA 240 deg.

DATE: 10 AUG 1985 DATE: 10 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
10.000	801362	8.6	?		2.0		3			0.110	R	6.8	19	M	Y	1	Lipski,P	A
10.16	801363	8.4	S	AAVSO	2.7		6	0.2	260	0.317	N	5.6	55	6.0	Y	1	Bortle,J.E	B
10.16	801364	8.0	B	AAVSO	8		4			0.080	B		20	6.0	Y	1	Bortle,J.E	
10.188	801365	8.9	S	S PER	2.3		6	0.03	252	0.15	R	5	62	6.3	Y	3	Morrison,W	C
10.26	801366	8.0	M	S PER	6		4			0.080	B		20	7.0	Y	1	Morris,C.S	D
10.84	801367	9.0	S	M	3		3			0.060	R		30				Solodkin,V	
10.85	801368	9.4	B	M	4					0.088	B		20				Mormil,V	
10.876	801369	9.3	B		2.0		5			0.063	R	13	34	6.0	Y	1	Zische,E	
10.895	801370	9.4	?		4		3			0.13	N	8	25	6.0	Y	1	Lieder,F	
10.897	801371	8.4	S	S PER			5			0.140	SN	3.6	19	6.1	Y	1	Meozzi,D	
10.90	801372	8.8	S	S PER	5		5	0.12		0.15	R	8	64	6	Y	1	Aerts,L	
10.91	801373	8.9	S	S PER			6			0.125	R	5.0	19	5.5C	Y	1	Poitevin,P	
10.931	801374	8.5	B	SAO	5.3	1.7				0.125	R	6.0	35		Y	1	Guthier,O	E
10.94	801375	8.6:	S	S PER						0.080	B	5	20	5.5	Y	3	Milani,G.A	F
10.94	801376	7.8	S		4.5		3	0.18	255	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
10.94	801377	8.3	S	S PER	8		4	0.22	265	0.06	B		12	6.5	Y	1	van de Weg,R.L.W	
10.94	801378	8.4	B	S PER						0.06	B		12	6.5	Y	1	van de Weg,R.L.W	
10.960	801379	9.1	B	SAO	1.0		5			0.15	N	8	60	4.5C	Y	1	Bottger,B	
10.965	801380	8.6	B	SAO	2.7	0.9		0.13	265	0.250	N	6.0	75		Y	1	Guthier,O	G
10.993	801381	8.4	M				0			0.07	R	20.3	70	6.0	Y	1	Luga,M	

NOTE A (Observer gave limit as 11.8. Ed.)
NOTE B At 68x the coma is very bright, large and parabolic in outline, opening toward the southwest.
NOTE C Clock face method used to estimate tail PA.
NOTE D Coma appeared "dense". Tail seen, but not recorded.
NOTE E Round coma. DC on long axis 4-5, DC on short axis 5.
NOTE F Haze.
NOTE G Tail streak. DC on long axis 5, DC on short axis 6.

DATE: 11 AUG 1985

DATE: 11 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
11.014	801382	8.4:	B	16	3.6		5	0.07	265	0.140	SN	3.6	25	5.0	Y	1	Linder,J	
11.05	801383	8.5	S	W PER			5			0.145	N	8	30	5.5M	Y	1	van der Laan,T.A	
11.080	801384	9.1	M	15			2			0.23	R	15	144	3.8M	Y	1	Sabia,J.D	
11.125	801385	9.0	B	16	2.5		5			0.113	N	8	22			1	Schambeck,C	
11.22	801386	8.2	S	S PER	3.5		4	0.05	270	0.20	SC	10	64	5.5	Y	1	Spratt,C.E	A
11.23	801387	8.0	S	S PER	5		4			0.08	B		11	5.0	Y	1	Spratt,C.E	
11.35	801388	7.9	M	S PER	6		6	0.50	255	0.080	B		20	7.0	Y	1	Morris,C.S	B
11.354	801389	8.8	S	S PER	2.0		6			0.15	R	5	62	6.5	Y	3	Morrison,W	
11.37	801390				2.5		7			0.610	C	16.0	139	7.0	Y	1	Morris,C.S	C
11.38	801391				2.0		7			0.610	C	16.0	177	7.0	Y	1	Morris,C.S	
11.39	801392				1.2		8			0.610	C	16.0	390	7.0	Y	1	Morris,C.S	
11.396	801393	8.5	B		4.8	3.2	2			0.165	N	8.7	57	6.2	Y	1	Bohme,D	
11.76	801394	8.9	S	AAVSO	4		4			0.13	N	6.3	24	5.0M	Y		Hayashi,A	D
11.76	801395	9.0	S	M	3		3			0.060	R		30				Solodkin,V	
11.85	801396	9.3	B	M	5					0.088	B		30				Mormil,V	
11.871	801397	9.1	B		2.5		5			0.063	R	13	34	6.5	Y	1	Zische,E	
11.885	801398	8.3	S	S PER			5			0.140	SN	3.6	19	6.1	Y	1	Meozzi,D	
11.901	801399	8.5	B	CZ						0.05	B		7	5.3C	Y	2	Kourimsky,M	
11.91	801400	8.0	S	S PER	4		5			0.156	N	5	24	6.5	Y	4	Bouma,R.J	
11.91	801401	8.6	S	S PER	4		5	0.10	260	0.156	N	5	24	6	Y	4	Bus,E.P	
11.910	801402	8.5	B		3.6		3			0.10	B		14	6.0	Y	1	Hasubick,W	
11.92	801403	9.0	B	S PER						0.156	N	5	24	6	Y	4	Bus,E.P	
11.93	801404	7.8	S		4.5		3	0.15	253	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
11.946	801405	9.2	B		2.5		5			0.063	R	13	34	6.5	Y	1	Zische,E	
11.95	801406	8.1	S	AAVSO	3.8		6	0.35	266	0.050	B		10			1	Keitch,G.S	E
11.95	801407	8.2	S	USNOC	3.8			0.35	266	0.080	B		20			1	Keitch,G.S	F
11.96	801408	8.6	S	AA WPER	4		6	0.08	255	0.19		4	38		Y	1	Mikuz,H	G
11.970	801409	9.4	S	S PER			7			0.203	SC	10	80	5	Y		Conte,G	H
11.97	801410							0.08	262	0.406	N	5.6	126	6.5	Y	4	Bouma,R.J	
11.97	801411	7.8	S							0.060	B		9	6.5	Y	2	Merlin,J.C	
11.97	801412	8.2	S		4.5		3	0.13	267	0.400	N	5	81	6.5	Y	2	Merlin,J.C	
11.997	801413	8.4	M				1			0.07	R	20.3	70	6.0	Y	1	Luga,M	

NOTE A Activity over 2 hour period.
NOTE B Tail was straight. Width 6 arc min. at head, expanding slightly toward end.
NOTE C Distinct bulge on south side of coma. Condensation was slightly non-stellar.
NOTE D Tail length = yes? [sic]
NOTE E 29.8 cm reflector shows 18 arc sec. nuclear condensation, several tails. USNOC also used for comparison magnitudes.
NOTE F 29.8 cm reflector shows 18 arc sec. nuclear condensation, several tails. Gas tail 0.35 deg. long PA 266 deg. USNOC also used for comparison magnitudes.
NOTE G Instrument is flat-field Schmidt. Excellent conditions.
NOTE H Faint tail.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
11.976	803019	0.05	0.40	N	5	254	10	6.5	2	Merlin,J.C	A

NOTE A Spike at PA 62 deg., nearly sunward; tail streamer at PA 237 deg.; tail at PA 267 deg.; tail streamer at PA 297 deg.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
11.963	805105	0.700	5.0		2.9 x 2.0	20.00	Kodak IIa-F		N	M	006/P	1	Ridley,H.B	A

NOTE A (Observer's image identifier is ZA6. Ed.)

DATE: 12 AUG 1985 DATE: 12 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	m1	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
12.01	801414	8.5	S	S PER	4	2			0.08	B		15	6	Y	1	Scholten,A	A
12.06	801415	8.0	S	S PER	5	5	0.42		0.100	B		14	7	Y	4	van Loo,F.R	
12.10	801416	8.6	S	16	3	3			0.050	B		10	6.0M	Y	1	Rossi,L	B
12.236	801417	8.8	S	S PER	2.3	6	0.06	258	0.15	R	5	62	6.5	Y	3	Morrison,W	C
12.31	801418	8.6	B	AAVSO	4.7	7	0.2	250	0.317	N	5.6	68	6.0	Y	1	Bortle,J.E	D
12.31	801419	7.9	S	AAVSO	8.5	4			0.080	B		20	6.0	Y	1	Bortle,J.E	
12.35	801420	8.3	M	RZ CAS			0.9	265	0.050	B		10	7	Y	9	Hale,A	
12.40	801421	8.1	M	S PER	5	6	0.83	264	0.080	B		20	7.0	Y	1	Morris,C.S	
12.75	801422	9.0	S	AAVSO	3.3	4			0.13	N	6.3	24	4.5M	Y		Hayashi,A	E
12.865	801423	8.5	S	S PER B	4.5	5			0.152	N	5	44	5.5	Y	2	Moeller,M	F
12.87	801424	9.2	S	M	4	4			0.060	R		30				Solodkin,V	G
12.875	801425	8.3	S	S PER		4			0.140	SN	3.6	19	5.7	Y	1	Meozzi,D	
12.89	801426	8.8	S	W PER	5	6	0.12		0.15	R	8	64	6	Y	1	Aerts,L	
12.89	801427	9.2	B	M	4				0.088	B		20				Mormil,V	
12.89	801428	8.3	S	M	1	3			0.065	N	7.7	33				Serov,V	
12.90	801429	8.5:	S	16		5			0.080	B	5	20	5.5	Y	3	Milani,G.A	H
12.91	801430	8.6	S	S PER		5			0.080	B	5	20	5.5	Y	3	Milani,G.A	H
12.92	801431	8.3	S	S PER	9	5			0.05	B		10	6	Y	4	Bus,E.P	
12.924	801432	8.7	B	16	2.5	5			0.356	SC	11	156	6.0	Y	1	Korth,S	
12.928	801433	8.6	S	AA WPER	4.5	5	0.13	255	0.19		4	38		Y	1	Mikuz,H	I
12.94	801434	8.4	S	RR PER		4	0.25		0.203	SC	10	50	6.5	Y	3	Comello,G	
12.97	801435	8.3	S	W PER					0.080	B		15	5.5C	Y	1	Feijth,H	
12.98	801436	7.8	S	S PER	6	2			0.05	B		10	6.5	Y	4	Bouma,R.J	
12.985	801437	9.2	S	S PER		7			0.203	SC	10	80	5	Y		Conte,G	
12.990	801438	9.5	S		3	5			0.089	R	5.5	36	5.0	N	1	Ventura,F	
12.99	801439	8.1	S	S PER	8	4	0.25	250	0.06	B		12	6.5	Y	1	van de Weg,R.L.W	
12.99	801440	8.3	B	S PER					0.06	B		12	6.5	Y	1	van de Weg,R.L.W	
12.997	801441	8.7	B	W PER	7.6	1			0.080	B		11	6.0	Y	2	Stomeo,E	

NOTE A Coma elongated in PA 30, tail? [sic]
NOTE B DC uncertain.
NOTE C Clock face method used to estimate tail PA.
NOTE D Using 110x there is a bright central region no more than 0.5 arc min. in diameter. With 170x there is a bright, almost stellar nucleus visible within the condensed region.
NOTE E Tail length = yes? [sic]
NOTE F Hazy.
NOTE G m2 = 9.5 mag., d = 20 arc sec.
NOTE H Haze.
NOTE I Instrument is flat-field Schmidt. Excellent conditions.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
12.925	803020		0.356	SC	11	156	5	6	1	Korth,S	A

NOTE A Field diameter 16 arc min.

DATE: 13 AUG 1985

DATE: 13 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
13.01	801442	8.5:	S	16	3	5			0.080	B		15	5.1	Y	1	Glowinski,C	A
13.010	801443	8.5	S	16	3.5	1			0.114	N	7.8	72	5	Y	1	Gozzoli,E	
13.02	801444	9.1	B	R CAS	2.5	8	0.07	260	0.254	N	5.0	70	6.0C	Y	1	Kuipers,G	
13.08	801445	7.9	S	S PER	6	6	0.42		0.100	B		14	7.5	Y	4	van Loo,F.R	
13.22	801446	8.1	S	S PER	4.5	4	0.08	275	0.20	SC	10	64	5.8	Y	1	Spratt,C.E	B
13.288	801447	8.8	S	S PER	2.9	6	0.07	255	0.15	R	5	62	6.5	Y	3	Morrison,W	C
13.315	801448	8.3	M	S PER	2.2	4			0.254	N	4.5	46	4.5	Y	1	De Young,J	
13.32	801449	8.1	S	AAVSO	7.5	5			0.080	B		20	6.5	Y	1	Bortle,J.E	
13.75	801450	8.8	S	AAVSO	4	4	0.17		0.13	N	6.3	24	5.0M	Y		Hayashi,A	
13.85	801451	9.2	S	M	3	3			0.060	R		30				Solodkin,V	D
13.87	801452	7.6	S		5.4	2	0.20	270	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
13.873	801453	8.3	S	CZ					0.05	B		7	5.2C	Y	2	Kourimsky,M	
13.89	801454	9.1	B	M	4				0.088	B		20				Mormil,V	
13.896	801455	9.5	S			4			0.064	R	6.3	25	6	Y	2	Paradowski,M	
13.91	801456	9.1	S	V CAS	3	6	0.08	275	0.200	SC	10.0	44	5.5	Y	1	Maraziti,A	
13.92	801457	8.5:	S	S PER	2	5			0.080	B	5	20	5.7	Y	3	Milani,G.A	E
13.93	801458	7.7	S	S PER	7	2			0.05	B		10	7	Y	4	Bouma,R.J	
13.95	801459	8.2	S	S PER	9	5			0.05	B		10	6.5	Y	4	Bus,E.P	
13.96	801460	8.5	B	S PER					0.05	B		10	6.5	Y	4	Bus,E.P	
13.986	801461	8.5	B		4.9	4			0.10	B		14	6.0	Y	1	Hasubick,W	
13.990	801462	9.2	S		2.8	3			0.089	R	5.5	36	4.5	N	1	Ventura,F	

NOTE A Coma diameter approximate.
NOTE B Distinct coma halos.
NOTE C Clock face method used to estimate tail PA.
NOTE D m2 = 9.5 mag., d = 20 arc sec.
NOTE E AAVSO Atlas Chart 16 also used as comparison star source.

DATE: 14 AUG 1985 DATE: 14 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
14.007	801463	8.6	B		3.9		4			0.10	B		14	6.0	Y	1	Koch,B.O	
14.007	801464	8.6	B		4.9		3			0.10	B		14	6.0	Y	1	Koch,V	
14.02	801465	9.2	S		2.5		6			0.114	N	8.7	50	5.2		1	Nolle,M	
14.07	801466	8.4	S	S PER			2			0.08	B		15	6	Y	2	Scholten,A	
14.13	801467	8.5	S	16	2		4			0.080	B		11	5.0MT	N	1	Rossi,L	
14.22	801468	8.0	S	S PER	4.0		5	0.08	275	0.20	SC	10	64	5.5	Y	1	Spratt,C.E	A
14.23	801469	7.9	S	S PER	5		4			0.08	B		11	5.5	Y	1	Spratt,C.E	
14.75	801470	8.7	S	AAVSO	4.5		5	0.17		0.13	N	6.3	24	5.5	Y		Hayashi,A	B
14.84	801471	8.2	B	M	1.2		3	0.1		0.065	N	7.7	33				Serov,V	
14.875	801472	8.7	B	16			6			0.356	SC	11	156	5.0	Y	1	Korth,S	C
14.878	801473	8.6	B		5.8		3			0.10	B		14	6.0	Y	1	Hasubick,W	
14.882	801474	8.9	B		4.3		4			0.08	B		20	6.0	Y	1	Koch,B.O	
14.89	801475	9.1	B	XX CAM	3		5			0.08	R	15	43	4.5C	Y	1	Cluyse,L	D
14.89	801476	9.1	B	M	4					0.088	B		20				Mormil,V	
14.896	801477	9.5	S		4.7	0.1	5			0.064	R	6.3	25	6	Y	2	Paradowski,M	
14.896	801478	8.3	B		5.8		4.			0.08	B		20	6.0	Y	1	Koch,V	
14.90	801479	8.3	S	16						0.063	B		9	5.5	Y	4	Kammerer,A	E
14.90	801480				3.6		6	0.17	280	0.203	SC	10	51	5.5	Y	4	Kammerer,A	E
14.92	801481	7.7	S	USNOC	4.0					0.050	B		10			1	Keitch,G.S	
14.92	801482	7.9	S	USNOC	4.2		6	0.25	266	0.080	B		20			1	Keitch,G.S	F
14.924	801483	8.4	S	CZ						0.05	B		7	5.4C	Y	2	Kourimsky,M	
14.93	801484	7.7	S	S PER	6		2			0.05	B		10	7	Y	4	Bouma,R.J	
14.94	801485	8.7	S	S PER	5.5		7	0.17		0.150	R	8	43	6 C	Y	4	Aerts,L	
14.94	801486	8.5	S	16	1.7		6	0.07	265	0.080	B	5	20	6.5	Y	3	Milani,G.A	
14.94	801487	8.7	S	S PER	5.5		7	0.17		0.15	R	8	43	6	Y	4	Aerts,L	
14.941	801488	9.0	S	AAVSO			5			0.20	SC	10	50	4.5	N	1	Sicoli,P	
14.948	801489	8.5	S	AA WPER	5		5	0.17	255	0.19		4	38		Y	1	Mikuz,E	G
14.959	801490	8.6	S	S PER	4.3			0.35	270	0.050	B		10		Y	5	Cavagna,M	
14.959	801491				2.2		7	0.23		0.400	N	4.5	90		Y	5	Cavagna,M	
14.98	801492	9.6	B	M	1.5					0.080	R		29				Nesterov,Yu	
14.99	801493	8.3	S	RR PER			4	0.23		0.203	SC	10	50	6.5	Y	3	Comello,G	
14.99	801494	8.7	S		3		6			0.114	N	8.7	50	5.8		1	Nolle,M	

NOTE A Active coma; stellar nucleus. (Observer indicated uncertainty in DC. Ed.)
NOTE B Tail PA 290 to 330.
NOTE C Some clouds during observation.
NOTE D V magnitudes from AAVSO Atlas chart 16.
NOTE E Inner coma 2 arc min., very diffuse outer coma, tail 30 deg. broad.
NOTE F Two jets for 3 arc min. in PA 54 deg., 132 deg. Gas tail 0.25 deg. long PA 266 deg.; dust tail 0.17 deg. long PA 241-300 deg.
NOTE G Instrument is flat-field Schmidt. Very good conditions.

DATE: 15 AUG 1985

DATE: 15 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
15.000	801495	8.7	B	16	1.4	3			0.15	N	8	60	4.0C	Y	1	Bottger,B	
15.04	801496	8.2	S	S PER	9		0.08		0.05	B		10	6.5	Y	4	Bus,E.P	
15.07	801497	7.7	S	S PER	7	6	0.57		0.100	B		14	7	Y	4	van Loo,F.R	
15.75	801498	8.7	S	AAVSO	4.3	4	0.17		0.13	N	6.3	24	5.5	Y		Hayashi,A	A
15.83	801499	9.0	B		5				0.088	B		20				Mormil,V	
15.868	801500	8.3	S	C2					0.05	B		7	5.2	Y	2	Kourimsky,M	B
15.90	801501	8.5	S	16					0.080	B	5	20	5.0	Y	3	Milani,G.A	C
15.90	801502	8.8	S	S PER	6	6	0.17		0.15	R	8	43	6	Y	1	Aerts,L	
15.91	801503	9.4	B	XX CAM	3	4			0.08	R	15	43	4.5C	Y	1	Cluyse,L	D
15.92	801504	9.2	B	M	8	3			0.080	B		20				Shirokov,A	
15.949	801505	8.5:	?	16	2	5	0.08	275	0.203	SC	10	80	4.6	Y	1	Dietrich,M	E
15.953	801506	8.6	S	S PER		7			0.203	SC	10	80	4	Y		Conte,G	
15.98	801507	9.0	S	M	5	3			0.060	R		30				Solodkin,V	F
15.98	801508	9.2	B	M	2.5		0.1		0.080	R		29				Nesterov,Yu	

NOTE A Tail PA 270 to 320.
NOTE B Fog.
NOTE C Haze.
NOTE D V magnitudes from AAVSO Atlas chart 16.
NOTE E (Observer indicated "A" method [Argelander?]. Ed.)
NOTE F m2 = 9.5 mag., d = 20 arc sec.

DATE: 16 AUG 1985 DATE: 16 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	m1	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
16.00	801509	8.1	S	XX CAM		7			0.125	R	5.0	19	6	Y	4	Poitevin,P	
16.00	801510	9.3	S	M	4	3	0.1		0.110	B		20				Shirokov,A	
16.02	801511	7.4	S		6.4	2	0.25	265	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
16.03	801512	8.7	S	S PER	6	6	0.17		0.15	R	8	43	6	Y	1	Aerts,L	
16.03	801513	8.3	S	S PER		2			0.08	B		15	6	Y	2	Scholten,A	
16.10	801514	7.8	S	S PER	6	6	0.67		0.05	B		7	7	Y	4	van Loo,F.R	
16.23	801515	8.3	S	S PER	3.0	3	0.05	270	0.20	SC	10	64	4.8	Y	1	Spratt,C.E	A
16.41	801516	7.8	S	S PER	6	5	0.83	268	0.080	B		20	6.0	Y	10	Morris,C.S	B
16.583	801517	7.7	?		2	6	0.07	280	0.440	N	4.5	90		Y	3	Fabre,R	C
16.87	801518	9.0	S	M	5	3			0.060	R		30				Solodkin,V	D
16.889	801519	9.1	S	AAVSO		3			0.08	B		20	5.8	Y	2	Sicoli,P	
16.896	801520	8.3	B	SAO		5			0.125	R	6.0	35		Y	1	Guthier,O	E
16.910	801521	8.4	S	AA	5	7	0.17	265	0.19		4	38		Y	1	Mikuz,H	F
16.91	801522	8.3	S	S PER		2			0.08	B		15		N	1	Scholten,A	
16.92	801523					6	0.13	265	0.406	N	5.6	82	6.5	Y	4	Bouma,R.J	
16.94	801524	8.1	S	S PER	10	3	0.18		0.05	B		10	6	Y	4	Bus,E.P	
16.979	801525	9.5	S			5			0.064	R	6.3	25	6.5	Y	2	Paradowski,M	
16.99	801526	9.8	B	M	3.5				0.080	R		29				Nesterov,Yu	G

NOTE A Active coma. (Observer indicated uncertainty in DC. Ed.)
NOTE B Tail was straight. It increased in width from 6 to 8 arc min. at end.
NOTE C (Observer gives limit as 16.2. Ed.)
NOTE D m2 = 10.0 mag., d = 20 arc sec.
NOTE E Coma nearly round, diameter 3-4 arc min.
NOTE F XX Cam also used for comparison stars. Instrument is flat-field Schmidt. Good conditions.
NOTE G Very thin tail by I Bredihin's class, elliptical head. [sic]

DATE: 17 AUG 1985

DATE: 17 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
17.00	801527	7.8	S	USNOC	4.8	6	0.05	38	0.080	B		20			1	Keitch,G.S	A
17.01	801528	7.6	S	S PER	7	2			0.05	B		10	6.5	Y	4	Bouma,R.J	
17.04	801529	7.3	S		5.9	2	0.27	288	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
17.08	801530	7.8	S	USNOC			0.28	259	0.080	B		20			1	Keitch,G.S	B
17.12	801531	8.6	S	16	4.2	4			0.080	B		11	6.0	Y	1	Rossi,L	
17.153	801532	7.7	S	S PER	7 3	5			0.050	B		10	5.8	Y	2	Sabia,J.D	C
17.16	801533						0.3	275	0.150	B		25				Bortle,J.E	D
17.16	801534	7.7	S	USNOC	10	5			0.05	B		10				Bortle,J.E	
17.22	801535	8.1	S	S PER	3.5	4	0.07	272	0.20	SC	10	64	5.0	Y	1	Spratt,C.E	E
17.23	801536	7.9	S	S PER	5	3			0.08	B		11	4.5	Y	1	Spratt,C.E	
17.319	801537	8.4	M	S PER	3.2	7	0.12	274	0.15	R	5	62	6.6	Y	3	Morrison,W	F
17.71	801538	8.6	S	AAVSO	5	5	0.25		0.13	N	6.3	24	6.5	Y		Hayashi,A	G
17.86	801539	9.0	B	M	5				0.088	B		20				Mormil,V	
17.874	801540	8.2	S	S PER B	4.5	5	0.25	290	0.152	N	5	44	5.8	Y	2	Moeller,M	H
17.885	801541	8.7	B		5.2	3			0.10	B		14	6.0	Y	1	Hasubick,W	
17.90	801542	7.6	S	S PER	7	3	.		0.05	B		10	6.5	Y	4	Bouma,R.J	
17.90	801543	8.0	S	S PER	10	3			0.05	B		10	6	Y	4	Bus,E.P	
17.91	801544	8.4:	S	16	2.0	6			0.080	B	5	20	5.3	Y	3	Milani,G.A	
17.92	801545	8.2	B	M	1.2	3	0.1		0.047	R		20				Serov,V	
17.922	801546	8.1	S	S PER		4			0.140	SN	3.6	19	6.0	Y	1	Meozzi,D	
17.94	801547	9.2	B	XX CAM	3	3			0.08	R	15	43	4.5C	Y	1	Cluyse,L	I
17.97	801548	9.5	B	M	3				0.080	R		20				Nesterov,Yu	
17.98	801549	8.4	S	16	4.7	5			0.080	B		11	5.5	Y	1	Rossi,L	
17.983	801550	8.5	B		4	6	0.27		0.203	N	6	100		Y	1	Gomez,A	
17.997	801551	8.3	S		4 3	5			0.114	N	8.7	50	6.0	Y	1	Fabrizio,M	
17.997	801552	8.6	B	AAVSO	5	5	0.17	90	0.250	SC	10	125	5.8	Y	1	Rodriguez,D	J

NOTE A Jet 0.05 deg. long PA 38 deg.; gas tail 0.12 deg. long PA 245 deg.; dust fan 0.08 deg. long PA 270-228 deg.
NOTE B Straight tail 0.28 deg. long PA 259 deg. 2 arc min. wide; dust tail 0.12 deg. long PA 319-230 deg.
NOTE C Tail length = 7. [sic]
NOTE D Coma's shape difficult to define but is definitely extended toward the southwest. Possibly the coma can be classed as slightly elliptical in shape (northeast-southwest). Bright central region is circular in outline. (Instrument used for this note not specified. Ed.)
NOTE E Coma active, V-shaped. (Observer indicated uncertainty in DC. Ed.)
NOTE F Clock face method used to estimate tail PA.
NOTE G Tail PA 280 to 320.
NOTE H Hazy.
NOTE I V magnitudes from AAVSO Atlas chart 16.
NOTE J (Coma and tail data are inconsistent with data on drawing report form. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
17.976	803021		0.203	N	6.0	100	20		1	Gomez,A	A
17.991	803022		0.250	SC	10	125	15	5.8	1	Rodriguez,D	B

NOTE A Field 30 arc min. at 100x. Central condensation very visible.
NOTE B Field 0.5 deg. at 125x. Mag. 8.6, diameter 10 arc min. (Scale indication uninterpretable. Ed.)

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
17.062	805106	0.135	2.8		15.2 x10.2	20.00	Kodak 2415		Y	M	1/P	1	Izquierdo,J	A
17.089	805107	0.300	1.5	0.200	6.9 x 4.6	15.00	Fujichrome	100/21	N	O	12/S	2	Genebriera,J	
17.480	805108	0.135	2.8		15.2 x10.2	15.00	Fujichr. 400		N	S	000/P	1	Sanford,J	B

NOTE A (Observer reports emulsion cooled to 8 C. Ed.)
NOTE B Push-processed to 800 ASA.

DATE: 18 AUG 1985 DATE: 18 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
18.00	801553	8.2	S	XX CAM		7			0.125	R	5.0	19	5.5	Y	4	Poitevin,P	
18.01	801554	8.2	S	16	5.2	4			0.050	B		10	6.0	Y	1	Rossi,L	
18.02	801555	8.5	S	16	4	5		270	0.080	B		15	5.1	Y	1	Glowinski,C	
18.024	801556	8.5	B		4	6	0.27		0.25	SC	10	78		Y	1	Gomez,A	
18.036	801557	8.0:	?	16	2	5	0.08	260	0.080	B		15	5.0	Y	1	Dietrich,M	A
18.06	801558	8.4	S	16		5			0.145	N	8	30	5.5	Y	1	van der Laan,T.A	
18.104	801559	9.0:	B		4	6	0.17		0.256	N	5.6	90	5.5	Y	1	Pedraz,S	
18.24	801560	8.1	S	S PER	4.0	5	0.09	275	0.20	SC	10	64	5.5	Y	1	Spratt,C.E	B
18.278	801561	8.5	S	S PER	3.3	5	0.05		0.15	R	5	62	6.4	Y	3	Morrison,W	
18.41	801562	7.2	M	AA	8.5	6	1.50	262	0.080	B		20	7.0	Y	8	Morris,C.S	C
18.55	801563	10.5	B	M					0.215	N	9	100				Knyazyuk,N	
18.85	801564	7.4	S		14.0	3	0.42	253	0.050	B		7	7.0	Y		Merlin,J.C	
18.86	801565	8.9	B	M	5				0.088	B		20				Mormil,V	
18.90	801566	9.4:	S	M	4	3	0.1		0.110	B		20				Shirokov,A	D
18.906	801567	8.5	S	S PER	4.7	7	0.22	267	0.080	B		20		Y	2	Cavagna,M	
18.910	801568	8.4	B	SAO	2.3 0.6		0.23	272	0.125	R	6.0	35		Y	2	Guthier,O	E
18.934	801569	8.1	S	S PER		4			0.140	SN	3.6	19	6.2	Y	1	Meozzi,D	
18.94	801570	8.7	S	S PER	3	7	0.17	277	0.200	SC	10.0	44	5.8	Y	1	Maraziti,A	
18.95	801571	9.5	S	M	4	1			0.110	B		20				Shirokov,A	
18.951	801572	9.0	S	AAVSO		5			0.20	SC	10	50	5.0	Y	1	Sicoli,P	
18.96	801573	7.6	S	S PER	7	3	0.23		0.05	B		10	6.5	Y	4	Bouma,R.J	
18.99	801574	9.7	B	M	2.5				0.080	R		29				Nesterov,Yu	

NOTE A (Observer indicated "A" method [Argelander?]. Ed.)
NOTE B Very active. (Observer indicated uncertainty in DC. Ed.)
NOTE C Comet distinctly brighter. Tail has fanned appearance near coma with fan swinging north of main tail. Length of fan 15: arc min.
NOTE D m2 = 11.0 mag.
NOTE E Condensation almost stellar. DC on long axis 5-6, DC on short axis 7. Shorter tail was broad, covering PA 302-322 deg.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
18.099	803023		0.256	N	5.6	90	15	5.5	1	Pedraz,S	A
18.102	803024		0.25	SC 10		78	15		1	Gomez,A	B
18.990	803025	1	0.114		3.7	21, 28, 70	30	5.5	1	Gomez,T.L	C

NOTE A Field 1 deg. at 90x. Asymmetric tail - northern part appeared brighter than the other. [sic]
NOTE B Field 1 deg. at 78x. With this instrument and the wide field eyepiece (Erfle 32), the dust tail appeared more prominent than in other telescopes. The tail showed a "bell" shape rather than cylindrical shape in the previous observation (17/08/85, Ed.).
NOTE C Central condensation very visible. Coma 4 arc min. Dust tail 7 arc min. at PA 285 deg. Rich-field telescope used.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
18.094	805109	0.135	2.8	15.2	x10.2	30.00	Kodak 2415		Y	S	000/P	1	Izquierdo,J	A

NOTE A The comet appear slightly moved. [sic] Very good seeing during all exposure. [sic]

DATE: 19 AUG 1985

DATE: 19 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
19.01	801575	9.2	B	M	5	4			0.080	R		30				Maydik,A	
19.04	801576	8.4	S	AAVSO	8.5	6			0.080	B		20				Zanotta,M	A
19.10	801577	7.8	S	S PER	6	5	0.67		0.05	B		7	7	Y	3	van Loo,F.R	
19.11	801578	8.3	B	16	4	3			0.080	B		11	5.5	Y	1	Rossi,L	
19.465	801579	9.2	?	S PER	1.3		0.23		0.203	N	5	120	6.2	Y	1	Underhay,E	B
19.83	801580	8.1	B	M	2	4	0.1		0.047	R		20				Serov,V	
19.89	801581	8.3	S	S PER					0.08	B		15	5.5	N	1	Scholten,A	
19.90	801582	9.4	S	M	2	1	0.1		0.110	B		20				Shirokov,A	
19.907	801583	8.1	S	17		5			0.140	SN	3.6	19	6.5	Y	1	Meozzi,D	C
19.93	801584	8.9	B	XX CAM	2	6			0.08	R	15	43	4.5C	Y	1	Cluyse,L	D
19.950	801585	8.0	S		6.0	5	0.15	285	0.080	B		15	5.8	Y	3	Haver,R	
19.980	801586	9.2	S		4.5	6			0.089	R	5.5	18	5.5	N	1	Ventura,F	E
19.98	801587	9.4	B	M	2	0			0.110	B		20				Shirokov,A	
19.99	801588	8.5	S	16	3.1	6			0.060	R	11.7	18	5.5	Y	1	Rossi,L	F
19.990	801589	8.4	M			1			0.07	R	20.3	70	6.0	Y	1	Luga,M	G

NOTE A I found a central condensation whose diameter was approximately 1.2 arc min.
NOTE B Condensation behind coma. Narrow ray for type I tail. The comet was definitely seen as a faint smudge in my 8x30 finder.
NOTE C SS Aur also used as comparison star source.
NOTE D V magnitudes from AAVSO Atlas chart 16.
NOTE E Tail observed.
NOTE F DC uncertain.
NOTE G Tail probably visible.

DATE: 20 AUG 1985 DATE: 20 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
20.00	801590	10.2	B	M	2				0.080	R		29				Nesterov,Yu	A
20.01	801591	7.9	S	S PER	10	3			0.05	B		10	6.5	Y	4	Bus,E.P	
20.02	801592					5	0.33	271	0.254	JB	6	48	6.5	Y	4	Bouma,R.J	
20.02	801593	7.5	S	S PER		3			0.05	B		10	6.5	Y	4	Bouma,R.J	
20.02	801594	9.4	S	M	2	3			0.110	B		20				Shirokov,A	B
20.111	801595	7.6:	S	16	8	5			0.140	SN	3.6	25	5	Y	1	Linder,J	C
20.41	801596	7.9	M	S PER	6.5	5	2.0	271	0.080	B		20	6.0	Y	10	Morris,C.S	
20.469	801597	9.4	?	S PER	1.1		0.23		0.203	N	5	120	6.1	Y	1	Underhay,E	D
20.85	801598	7.4	S		9.0	3	0.47	282	0.050	B		7	6.5	Y		Merlin,J.C	
20.863	801599	8.2	S	S PER B	5	5	0.25	290	0.152	N	5	44	6.1	Y		Moeller,M	E
20.875	801600	9.3	?		6	3			0.13	N	8	25	6.0	Y	1	Lieder,F	
20.90	801601	8.8	S		3	5			0.114	N	8.7	50	5.2		1	Nolle,M	
20.92	801602	7.8	S	S PER	6	6	0.75		0.05	B		7	7	Y	3	van Loo,F.R	
20.924	801603				1.8	4	0.06	282	0.203	SC	10	50	6.0	Y	1	Hasubick,W	
20.938	801604	8.3	B		3.6	4			0.10	B		14	6.0	Y	1	Hasubick,W	
20.938	801605	8.3	B		3.6	4			0.108	B		14	6.0	Y	1	Koch,V	
20.942	801606	8.0:	?	16	2	5	0.08	275	0.203	SC	10	50	4.5	Y	1	Dietrich,M	F
20.955	801607	8.3	B		3.6	4			0.08	B		20	6.0	Y	1	Koch,B.O	G
20.96	801608	7.6	S	16,17	6	5			0.156	N	5	24	6.5	Y	4	Bouma,R.J	
20.962	801609	8.7	B	17	2.2	6			0.113	N	8	22	5.5	Y	1	Schambeck,C	
20.97	801610	7.9	S	16	6	5			0.156	N	5	24	6.5	Y	4	Bus,E.P	
20.99	801611	10.3	B	M	1.8				0.080	R		29				Nesterov,Yu	A

NOTE A Granulation in the central condensation.
NOTE B m2 = 10.5 mag.
NOTE C Coma diameter uncertain. Some clouds.
NOTE D Condensation behind coma. Narrow ray for type I tail. The comet was definitely seen as a faint smudge in my 8x30 finder.
NOTE E Site is Schwarzwald = Black Forest.
NOTE F (Observer indicated "A" method [Argelander?]. Ed.)
NOTE G Faint tail.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
20.076	805110	0.300	1.5	0.200	6.9 x 4.6	25.00	Kodak 2415		N	X	000/S	2	Genebriera,J	A

NOTE A (Observer gives EFL = 300x4 (mm) on original report form. Ed.)

DATE: 21 AUG 1985

DATE: 21 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
21.02	801612	8.2	S	16					0.063	B		9	5.2	Y	1	Kammerer,A	A
21.02	801613				2.5	5	0.08	280	0.203	SC	10	81	5.2	Y	1	Kammerer,A	A
21.031	801614	8.5	B	16	3.4	5	0.10	285	0.140	SN	3.6	25	5.5	Y	4	Linder,J	
21.035	801615	8.5	B	16	2.7	4	0.18	285	0.14	SN	3.6	25	5.5	Y		Bottger,B	
21.04	801616	8.4	S		3.5	6	0.01	325	0.114	N	8.7	50	6.0		1	Nolle,M	B
21.05	801617	8.3	S	AAVSO	6.2	4			0.080	B		20				Zanotta,M	C
21.07	801618						0.22	275	0.305	N	5.0	60				Zanotta,M	D
21.22	801619	7.6	S	AA	8	2			0.080	B		20				Green,D.W.E	E
21.24	801620	8.1	M	AA	2.5	7			0.229	R	12	86				Green,D.W.E	E
21.24	801621	8.3	S	AA	2.5	7			0.229	R	12	86				Green,D.W.E	E
21.44	801622	7.5	M	AA	8	6	1.25	270	0.080	B		20	7.0	Y	8	Morris,C.S	
21.85	801623	7.4	S		11.0	3	0.57	271	0.050	B		7	6.5	Y		Merlin,J.C	
21.86	801624	8.9	S		2		0.25	85	0.410	N	4.2	86	6.8	Y	1	Clark,M	
21.861	801625	8.4	B		5.3	3			0.10	B		14	6.0	Y	1	Hasubick,W	
21.910	801626	8.7	B		4.4	4			0.08	B		20	6.0	Y	1	Koch,B.O	
21.917	801627	8.3:	?	16	2	5	0.08	270	0.080	B		15	4.6	Y	1	Dietrich,M	F
21.947	801628	8.4	B	SAO	3.2		0.13		0.125	R	6.0	35		Y	2	Guthier,O	G
21.96	801629	8.6	S		3.5	5	0.02	325	0.114	N	8.7	50	5.6			Nolle,M	H
21.983	801630	8.2	B	17	4.0	5			0.113	N	8	22	5.5	Y	1	Schambeck,C	
21.997	801631	8.7	B		3.0	4	0.05	312	0.063	R	13	34	6.0	Y	1	Zische,E	

NOTE A Tail very difficult, 30 deg. broad.
NOTE B Tail length 0.5 arc min.
NOTE C The observation was troubled by haze and by a nearby bright star.
NOTE D At 60x I found a circular central condensation with a star-like central point.
NOTE E Coma diameter approximate.
NOTE F (Observer indicated "A" method [Argelander?]. Ed.)
NOTE G (Observer gives 2 values for DC: 8 and 6-7. Tail PA 305-312 deg. Additional notes illegible. Ed.)
NOTE H Tail length 1 arc min. See drawing.

DATE: 22 AUG 1985

DATE: 22 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
22.01	801632	8.2	S	17	6.0	5			0.080	B		11	6.0	Y	1	Rossi,L	
22.010	801633	8.6	B	16		5		240	0.15	N	8	30	5.0	Y	1	Bottger,B	
22.01	801634	8.4	S	RR PER		4	0.25	265	0.203	SC	10	50	6.5	Y	3	Comello,G	
22.01	801635	8.3	S	16	6	3			0.155	N	5	30	5	Y	1	Zanstra,W.T	
22.02	801636	7.9	B	SC2000	5.1	6			0.050	B		7	6.0	Y	1	Rossi,L	
22.030	801637	8.0	S		6.0	5	0.23	280	0.080	B		15	6.1	Y	3	Haver,R	
22.043	801638	8.0	S	17		5			0.203	SC	10	51	6.3	Y	1	Meozzi,D	A
22.05	801639	8.3	S	S PER	7	5	0.17		0.150	R	8	34	6	Y	1	Aerts,L	
22.05	801640	8.3	S	S PER	7	5	0.17		0.15	R	8	34	6	Y	1	Aerts,L	
22.08	801641	7.5	S	16,17		3			0.05	B		10	6.5	Y	4	Bouma,R.J	
22.085	801642	8.5	B		2.8	4	0.08	312	0.063	R	13	34	6.0	Y	1	Zische,E	
22.12	801643	7.7	S	S PER		3			0.05	B		7	6.5	Y	4	Bus,E.P	
22.25	801644	8.3	S	S PER	3.5	5	0.03	265	0.20	SC	10	64	5.0	Y	1	Spratt,C.E	B
22.319	801645	8.6	S	S PER	3.4	5	0.06	257	0.15	R	5	62	6.5	Y	3	Morrison,W	C
22.392	801646	8.0	M	S PER	2.3	5			0.254	N	4.5	46	4.5	Y	1	De Young,J	
22.89	801647	8.8	B	XX CAM	3	4			0.08	R	15	43	4.5C	Y	1	Cluyse,L	D
22.931	801648	9.4:	?		5.4	5			0.064	R	6.3	25	6	Y	2	Paradowski,M	

NOTE A SS Aur also used as comparison star source.
NOTE B (Observer indicated uncertainty in DC. Ed.)
NOTE C Clock face method used to estimate tail PA.
NOTE D V magnitudes from AAVSO Atlas chart 16.

DATE: 23 AUG 1985

DATE: 23 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	m1	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
23.040	801649	8.0	S		6.0	5	0.30	285	0.080	B		15	6.2	Y	3	Haver,R	A
23.05	801650	8.2	S	AAVSO	7.8	4			0.080	B		20				Zanotta,M	B
23.081	801651	8.9	B	AAVSO	5	4	0.23	85	0.350	N	4.5	85	6	Y	1	Rodriguez,D	C
23.176	801652	7.6	S	17		5			0.050	B		10	5.3	Y	1	Sabia,J.D	
23.25	801653	8.4	S	S PER	3.8	5	0.03	265	0.20	SC	10	64	5.7	Y	1	Spratt,C.E	D
23.32	801654	7.6	S	USNOC	11	5			0.05	B		10				Bortle,J.E	
23.32	801655	7.7	S	USNOC	8.5	5			0.08	B		20				Bortle,J.E	
23.333	801656	8.7	S	S PER	3.6	5	0.08	267	0.15	R	5	62	6.6	Y	3	Morrison,W	E
23.358	801657	7.8	M	S PER	4.5	5	0.33	274	0.254	N	4.5	36	6.5	Y	4	De Young,J	F
23.43	801658	7.5	M	AAVSO	8	6	1.00	275	0.080	B		20	7.0	Y	11	Morris,C.S	G
23.458	801659	9.0	?	S PER	1.3	4	0.28		0.203	N	5	120	6.1	Y	1	Underhay,E	H
23.75	801660	8.5	S	AAVSO	4.5	5	0.17		0.13	N	6.3	24	5.0	Y		Hayashi,A	I
23.896	801661	9.5:	?		4.5	5			0.064	R	6.3	25	6	Y	2	Paradowski,M	
23.937	801662	9.3	?		6	3			0.13	N	8	25	6.0	Y	1	Lieder,F	
23.94	801663	9.1	B	M	3	4	0.1		0.110	B		20				Shirokov,A	J
23.958	801664	8.2:	?		3	6	0.13		0.203	SC	10	80	4.8	N	1	Dietrich,M	K
23.98	801665	9.8	B	M	2.5				0.080	R		29				Nesterov,Yu	L

NOTE A Fan shaped coma.
NOTE B The sky was hazy and luminescent. In my Newtonian reflector (0.305 meter, f/5) at 60x I found a circular central condensatio whose diameter was 0.9 arc min. with a smaller and brighter concentric one. The coma appeared little fan shaped on PA 270 deg.
NOTE C Jet of 3 arc min. (Coma and tail data are inconsistent with data on drawing report form. Ed.)
NOTE D (Observer indicated uncertainty in DC. Ed.)
NOTE E Clock face method used to estimate tail PA.
NOTE F Tail sharp edge to the south, diffuse to the north.
NOTE G 15 arc min. fan tail from main tail to PA 300 deg. Tails were fainter.
NOTE H The comet was definitely seen as a faint smudge in my 8x30 finder.
NOTE I Tail PA 300 to 330.
NOTE J m2 = 10.5 mag.
NOTE K (Observer indicated "A" method [Argelander?]. Ed.)
NOTE L Granulation in the central condensation.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
23.077	803026		0.350	N	4.5	85	11	6	1	Rodriguez,D	A

NOTE A Jet 3 arc min. in length at PA 80 deg. Mag. 8.9; diameter 14 arc min. (Scale indication uninterpretable. Ed.)

DATE: 24 AUG 1985

DATE: 24 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
24.000	801666	8.5	B		4	7	0.17		0.345	N	4.5	75		Y	1	Gomez,A	A
24.02	801667	9.0	S	M	4	3			0.110	B		20				Shirokov,A	
24.02	801668	9.0	B	M	5	4			0.080	R		30				Maydik,A	
24.035	801669	8.5	B	17	1.8	4			0.15	N	8	30	4.0C	Y	1	Bottger,B	
24.07	801670	7.4	S	17	9	3			0.05	B		10	6.5	Y	4	Bouma,R.J	
24.08	801671					5	0.33	271	0.406	N	5.6	67	6.5	Y	4	Bouma,R.J	
24.083	801672	9.0	?				0.07		0.335	N	4.5	75		Y	1	Ripero,J	B
24.09	801673	7.6	S	17	11	4			0.05	B		10	6.5	Y	4	Bus,E.P	
24.11	801674	8.4	B	17	5.5	6			0.080	B		11	6.0	Y	1	Rossi,L	
24.13	801675	7.6	S		5.0	3	0.13	289	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
24.308	801676	9.2	B	AA		5			0.15	N	8	30	5.5	Y	2	Ferrin,I	
24.43	801677	7.5	M	AA	8	7	0.83	281	0.080	B		20	7.0	Y	8	Morris,C.S	C
24.45	801678	7.4	S	XX PER			0.6	260	0.050	B		10	7	Y	1	Hale,A	
24.615	801679	7.5	?		2	6	0.07	270	0.440	N	4.5	90		Y	3	Fabre,R	D
24.96	801680	8.8	S	M	5	5	0.2		0.110	B		20				Shirokov,A	
24.993	801681	8.1	S	17		5			0.203	SC	10	51	6.3	Y	1	Meozzi,D	E

NOTE A Wind.
NOTE B Drawing #1. (Tail length reported as 4-5 arc min. Ed.)
NOTE C 10 arc min. fan tail from main tail to PA 310 deg.
NOTE D (Observer gives limit as 16.2. Ed.)
NOTE E SS Aur also used as comparison star source.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
24.089	803027		0.335	N	4.5	75	15	5.6	1	Ripero,J	A
24.247	803028		0.457	R	16	725	70		4	O'Meara,S.J	B
24.615	803029	0.50	0.44	N	4.5	90,225	10		3	Fabre,R	C
24.997	803030		0.345	N	4.5	75	10		1	Gomez,A	D

NOTE A Field 0.6 deg. at 75x. Star visible behind coma and tail, besides the central condensation of 8th mag., a jet from the comet's nucleus with an apparent size of 1 arc min. in longitude appeared at about 2350 UT. (Date not specified. Ed.)
NOTE B (A collection of 7 drawings made at UT 0520, 0530, 0609, 0615 and 0630 are combined in this listing. Individual drawing durations were not specified. A page of notes describing them is condensed here, with the observer's interpretations removed. Ed.) At 0520 UT a condensation was observed 0.96 arc sec. away from the nucleus at a PA of 62 deg. It was observed to move 1.28 arc sec. from the nucleus to a PA of 108.5 deg. in 10 minutes. Thirty-nine minutes later the inner coma was drawn again. The condensation observed previously was not seen near the positions given above, but a similar condensation was observed 0.6 arc sec. from the nucleus at PA 273 deg. An extension of material (jet) emanated from this condensation. My last observation came 21 minutes later. A condensation was observed 1.28 arc sec. from the nucleus at PA 360 deg. The appearance this feature was weaker than the observation before. [sic] A jet was associated with it and was curved, starting from the condensation and fanning westward. At 0615 UT a condensation located due east and 0.64 arc sec. from the nucleus was observed to grow and fade in only 3 seconds of time. At its brightest, this condensation rivaled the nucleus. Throughout the observations, the inner coma varied in intensity. Measurements of intensity were not made because of the above observations, but were probably only in the order of tenths of a magnitude. This varied appearance was very striking and appeared to occur sporadically. A spine (tail) observed at PA 250 deg. was not connected to the main nuclear condensation, rather it started from a point bordering the innermost coma. This inner spine seemed skewed by approximately 10-15 deg. to overall tail (dust and ion) viewed at low magnification at PA 265 deg.
NOTE C Bright central spike in tail at PA 270 deg. Possible gas jet at PA 300 deg. Overall tail at PA 270 deg. (Observer gave limit as 16.2. Ed.)
NOTE D Field 40 arc min. at 75x. Concentred [sic] coma, shorter tail in comparison with previous observations. (One observer reported a jet before I could saw [sic] the comet.)

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
24.094	805111	0.135	2.8		15.2 x10.2	30.00	Kodak 2415		Y	S	000/P	1	Portela,A	
24.202	805112	0.305	1.5	0.203	6.8 x 4.5	3.00	Kodak 2415		Y	X	000/P	1	Sabia,J.D	
24.212	805113	0.305	1.5	0.203	6.8 x 4.5	3.00	Kodak 2415		Y	X	0/P	1	Sabia,J.D	A

NOTE A (Observer's image identifier is 0A-1. Ed.)

DATE: 25 AUG 1985

DATE: 25 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
25.00	801682	10.2	B	M	1.8					0.080	R		29				Nesterov,Yu	A
25.055	801683	7.9	S		7.0		5	0.43	280	0.080	B		15	6.8	Y	4	Haver,R	B
25.07	801684	8.0	S	SC2000	7.5		4			0.050	B		7	6.0	Y	1	Rossi,L	
25.07	801685	8.3	S	16			4	0.08	248	0.145	N	8	30	6	N	1	van der Laan,T.A	
25.08	801686	7.6	S	AAVSO	5.0		6	0.10	255	0.080	B		20			1	Keitch,G.S	C
25.08	801687	7.6	S	AAVSO	5.6					0.050	B		10			1	Keitch,G.S	
25.10	801688	8.3	S	S PER	6		6	0.20		0.150	R	8	34	5.5C	Y	1	Aerts,L	
25.10	801689	8.3	S	S PER	6		6	0.20		0.15	R	8	34	5.5C	Y	1	Aerts,L	
25.44	801690	7.4	M	AA	6		7	0.67	275	0.080	B		20	7.0	Y	11	Morris,C.S	D
25.85	801691	8.7	S	M	0.3		9		15	0.110	N	7	54				Aleynikov,A	
25.95	801692	9.1	B	XX CAM	2.5		4			0.08	R	15	43	4.5CM	Y	1	Cluyse,L	E
25.954	801693	8.5	B	SAO	2.3	0.5				0.125	R	6.0	35		Y	2	Guthier,O	F
25.98	801694	10.0	B	M	2.5					0.080	R		29				Nesterov,Yu	A
25.99	801695	8.9	B	M	5		4			0.080	R		30				Maydik,A	

NOTE A Granulation in the central condensation.
NOTE B Fan shaped coma.
NOTE C Spike 0.10 deg. long PA 255 deg.; gas tail 0.17 deg. long PA 300 deg.; dust fan 0.28 deg. long PA 255-300 deg.
NOTE D 10 arc min. fan tail from main tail to PA 310 deg.
NOTE E V magnitudes from AAVSO Atlas chart 16.
NOTE F Comet diffuse. DC on long axis 6, DC on short axis 7-8.

DATE: 26 AUG 1985

DATE: 26 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
26.02	801696						0.25	278	0.254	JB	6	48	6.5	Y	4	Bouma,R.J	
26.02	801697	8.2	S	R PER		4	0.33	270	0.203	SC	10	50	6.5	Y	3	Comello,G	
26.04	801698	7.6	S	16,17	6	2			0.05	B		10	6.5	Y	4	Bouma,R.J	
26.05	801699	7.6	S	S PER	10	5			0.05	B		10	6.5	Y	4	Bus,E.P	
26.06	801700	8.3	S	S PER	6	6	0.11		0.15	R	8	34	6	Y	1	Aerts,L	
26.06	801701	8.2	S	SS AUR		3			0.08	B		15	6	Y	1	Scholten,A	
26.10	801702	8.3	S	17	2.5	5		290	0.080	B		15	5.4	Y	1	Glowinski,C	
26.100	801703	9.0	S		5	6			0.089	R	5.5	18		N	1	Ventura,F	A
26.16	801704	7.7	S	AAVSO	4.8	6	0.50	300	0.050	B		10			1	Keitch,G.S	
26.79	801705	8.2	S	SAO					0.08	B		15	5	Y	1	Seargent,D	B
26.98	801706	8.9	B	M	5	4			0.080	R		30				Maydik,A	

NOTE A Tail observed.
NOTE B Very low. (Observer indicated uncertainty in limiting magnitude. Ed.)

DATE: 27 AUG 1985

DATE: 27 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
27.051	801707	8.2	B	SAO	3.7	0.8		0.13	289	0.125	R	6.0	35		Y	2	Guthier,O	A
27.06	801708	8.3:	B	SC2000	4.3		7			0.080	B		11	6.0	Y	1	Rossi,L	B
27.10	801709	7.2	S	SS AUR						0.080	B		15	6 C	Y	1	Feijth,H	
27.301	801710	8.5	B	AA						0.15	N	8	30	5.6	Y	2	Ferrin,I	
27.301	801711	7.9	B	AA						0.20	C	10	50	5.6	Y	2	Ferrin,I	C
27.43	801712	7.3	M	AA	8		7	1.50	290	0.080	B		20	7.0	Y	3	Morris,C.S	
27.458	801713	8.9	?	S PER	1.1		4	0.25		0.203	N	5	120	6.2	Y	1	Underhay,E	D
27.46	801714	7.3	S	XX PER				0.6	275	0.050	B		10	7	Y	1	Hale,A	

NOTE A Coma deformed. DC on long axis 6, DC on short axis 7-8.
NOTE B As. coma PA 255 deg.
NOTE C (Instrument characteristics suggest Schmidt-Cass. Ed.)
NOTE D The comet was definitely seen as a faint smudge in my 8x30 finder.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
27.950	803031	0.24	0.114	N	8.7	50	5	5.6	1	Nolle,M	A

NOTE A Nucleus good to see, coma like an egg, tail (?). South-east line seems sharper. (Notes translated from German by IHW staff. Ed.)

DATE: 28 AUG 1985

DATE: 28 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
28.00	801715	8.9	B	M	5	4			0.080	R		30				Maydik,A	
28.00	801716	10.0	B	M	2.3				0.080	R		29				Nesterov,Yu	A
28.02	801717	9.3	B	M	2.6	5			0.110	N	7	54				Aleynikov,A	
28.05	801718	7.8	B	M					0.050	B		7				Mormil,V	
28.05	801719				6		0.3		0.160	N		50				Mormil,V	
28.067	801720	8.6	B	SAO	3.5				0.125	R	6.0	35		Y	2	Guthier,O	B
28.07	801721	8.0	S	AAVSO	7.4	4			0.080	B		20	M			Zanotta,M	C
28.10	801722	7.7	S	SS AUR	5	6	0.17		0.05	B		10	6	N	1	van Loo,F.R	
28.11	801723	7.7	S	SS AUR	8	4	0.28	265	0.06	B		12	6.5	Y	1	van de Weg,R.L.W	
28.11	801724	8.0	B	SS AUR					0.06	B		12	6.5	Y	1	van de Weg,R.L.W	
28.12	801725	7.6	S		5.0	3	0.25	269	0.150	N	5	25	6.5	Y	2	Merlin,J.C	
28.13	801726	8.2	S	S PER	6	6	0.12		0.15	R	8	34	5.5T	N	1	Aerts,L	
28.153	801727				0.9	7			0.203	SC	10	160	5	Y		Conte,G	
28.153	801728						0.13	270	0.203	SC	10	80	5	Y		Conte,G	
28.313	801729	8.7	S		7	0			0.444	N	4.4	221	5.6	Y	1	Glassett,W	
28.33	801730	7.6	S	USNOC	6.5	5			0.08	B		20				Bortle,J.E	D
28.368	801731	9.4	S	SS AUR	3.0	5			0.15	R	5	62	6.2	Y	3	Morrison,W	

NOTE A Granulation in the central condensation.
NOTE B Hint of broader tail. (Observer gives 2 values for DC: 7 and 5. Ed.)
NOTE C Moonlight.
NOTE D With 50 cm reflector at 96x coma appears small but highly elongated in a tear-drop shape with an extraordinarily sharp, intense condensation. Straight, narrow gas tail (only 1/3 as wide as coma's diameter) stretches across field of view.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
28.139	803032	0.06	0.40	N	5	81,254,407	20	6.5	2	Merlin,J.C	A

NOTE A Spike at PA 75 deg., diffuse; jet at PA 212 deg.; tail at PA 252 deg., bright and narrow spike on south edge of the diffuse tail, not exactly "centered" on nucleus; jet at PA 301 deg., then curved along the tail. Non-stellar nucleus; denser area northward; very dark on south side of the tail. (A second drawing is included to show detail of inner structure at same scale. Ed.)

DATE: 29 AUG 1985

DATE: 29 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
29.04	801732	9.6	B	M		8	0.1	45	0.110	N	7	54				Aleynikov,A	
29.04	801733	8.9	B	M	5	4			0.080	R		30				Maydik,A	
29.05	801734	7.8	B	M					0.050	B		7				Mormil,V	
29.05	801735				6		0.2		0.160	N		50				Mormil,V	
29.09	801736	8.2	S	SS AUR	5	6	0.05		0.150	R	8	34	4 M	N	1	Aerts,L	A
29.09	801737	8.2	S	SS AUR	5	6	0.05		0.15	R	8	34	4 M	N	1	Aerts,L	A

NOTE A X AUR also used as comparison star source.

DATE: 30 AUG 1985

DATE: 30 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
30.00	801738	9.7	?		2.5				0.035	R	4					Guryanov,S	A
30.102	801739	8.3	?		2.0	3			0.110	R	6.8	125	M	Y	1	Lipski,P	B

NOTE A Magnitude method = photographic.
NOTE B With brighter nucleus. (Translated by IHW staff. Observer gave limit as 11.0. Ed.)

DATE: 31 AUG 1985 DATE: 31 AUG 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
31.354	801740	9.3	S	SS AUR	3.6	4			0.15	R	5	62	5.6M	N	3	Morrison,W	A

NOTE A Moon prevents dark adaptation.

DATE: 1 SEP 1985

DATE: 1 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
1.88	801741	10.4:	S	M	1.7	5			0.290	N	14	96				Guryanov,S

DATE: 2 SEP 1985

DATE: 2 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
2.08	801742	8.5	S	SS AUR	3	7			0.200	SC	10.0	66	4.8M	Y	1	Maraziti,A

DATE: 3 SEP 1985

DATE: 3 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
3.08	801743	8.6	S	SS AUR	3	6			0.200	SC	10.0	44	4.8M	Y	1	Maraziti,A

DATE: 4 SEP 1985

DATE: 4 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
4.04	801744	8.2	B	E					0.050	B		7				Mormil,V
4.04	801745				5				0.160	N		50				Mormil,V

DATE: 6 SEP 1985

DATE: 6 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
6.16	801746	9.1	?	SS AUR		3			0.250	N		250	5.5C	Y	1	van Loo,F.R
6.16	801747	9.1	?	SS AUR		3			0.250	N		250	5.5C	Y	1	van Loo,F.R

DATE: 7 SEP 1985

DATE: 7 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
7.00	801748	7.5:	S	AAVSO	8				0.080	B		20	M		1	Keitch,G.S	A
7.074	801749	8.5	B	SAO	3.6	3			0.125	R	6.0	35		Y	1	Guthier,O	B
7.75	801750	8.8	S	AAVSO	3	3			0.13	N	6.3	44	3.5M	Y		Hayashi,A	

NOTE A Bright moon 10 deg. away. Coma diameter uncertain.
NOTE B Diffuse condensation.

DATE: 8 SEP 1985

DATE: 8 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
8.836	801751	8.2:	S	35	4	2			0.080	B		20	5 M	Y	1	Gozzoli,E	
8.939	801752	8.5	S	SS AUR	5	5			0.483	N	4.3	115	5.4	Y	1	Moeller,M	A
8.94	801753	8 :	B	AA					0.110	B		20				Chernis,K	

NOTE A Hazy.

DATE: 10 SEP 1985 DATE: 10 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
10.02	801754	8.6	S	SS AUR	6		7	0.17	260	0.080	B		15	6 M	Y	1	van Loo,F.R	
10.063	801755	8.6	B	SAO	2.5		3			0.125	R	6.0	35		Y	1	Guthier,O	A
10.113	801756	8.2	B		4.5		5			0.110	R	6.8	47		Y		Lipski,P	B
10.119	801757	8.2	B		4.5		5			0.110	R	6.8	47		Y		Lipski,P	B
10.4542	801758	8.5	S	SAO	5		6	0.15	293	0.254	N	3.8	32	M		1	Machholz,D	C
10.77	801759	8.6	S	CZ ORI						0.08	B		15	6.2	Y	1	Seargent,D	
10.77	801760				1.8		5			0.152	N	5	76			1	Seargent,D	
10.97	801761	9.2	S	SS AUR	3		4			0.200	SC	10.0	77	5.0C	Y	2	Maraziti,A	
10.979	801762	8.3	S		2.5	2.0	3	0.02	280	0.080	B		20	6.5	Y	2	Parisio,R	

NOTE A Diffuse.
NOTE B Round, star occultation. (Observer gave limit as 12.0. Ed.)
NOTE C 23% moon up.

DATE: 11 SEP 1985

DATE: 11 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
11.030	801763	8.1	S		6.0		4	0.37	300	0.080	B		15	6.4M	Y	4	Haver,R	A
11.04	801764	8.6	B	E						0.050	B		7				Mormil,V	
11.04	801765				4					0.160	N		50				Mormil,V	
11.06	801766	8.9:	S	59	1.5		7	0.03		0.200	N	4	50	5.0C	Y	1	Milani,G.A	
11.06	801767	8.3	S	AAVSO	6.8		2			0.080	B		20				Zanotta,M	B
11.067	801768	8.9	B	SAO	3.1		3			0.125	R	6.0	35		Y	1	Guthier,O	C
11.069	801769	8.0	B		6.6		4			0.10	B		14	6.0	Y	1	Hasubick,W	
11.08	801770	8.1	S	USNO	6.5	4.0	3			0.080	B		11	6.0	Y	1	Rossi,L	D
11.08	801771	8.7	S	59	2.1		5			0.203	SC	10	81	5.0	Y	1	Kammerer,A	
11.097	801772	7.8	B							0.08	B		20	6.0	Y	1	Koch,V	
11.10	801773	7.5	S	AAVSO	7.1			0.30		0.080	B		20			1	Keitch,G.S	E
11.10	801774	7.5	S	AAVSO			5			0.050	B		10			1	Keitch,G.S	
11.101	801775	8.8	S	AAVSO			5			0.20	SC	10	50	5.4	N	1	Sicoli,P	
11.107	801776	8.0	B							0.08	B		20	6.0	Y	1	Koch,B.O	
11.115	801777	9.2	B	59	1.7		3			0.150	N	8	30	5.5	Y	1	Bottger,B	
11.153	801778	8.0	B		4					0.203	N	6	60		Y	2	Gallego,J	F
11.160	801779	8.0	B		4					0.203	N	6	120		Y	2	Gallego,J	G
11.229	801780	7.7	S	59			1			0.050	B		10	5.5M	Y	3	Sabia,J.D	
11.368	801781	9.6	S	CZ ORI	2.4		5			0.15	R	5	62	6.3	Y	3	Morrison,W	
11.71	801782	10.1	S	CZ ORI	0.6		2			0.317	N	5	86		Y	1	Jones,A	H
11.85	801783	8.9	S	AA	2		4	0.2	289	0.312	N	5	49	6.0	Y		Pearce,A	
11.91	801784	9.2	S	SS AUR	3		5			0.200	SC	10.0	77	5.0C	Y	2	Maraziti,A	
11.94	801785	8.2	B	AA	4			0.2	275	0.110	B		20				Chernis,K	
11.958	801786	8.8	S	SS AUR	4		4			0.483	N	4.3	115	4.0	Y	1	Moeller,M	I

NOTE A Central condensation 0.5-1 arc min.
NOTE B The comet appeared extremely diffuse, with no visible central condensation and low surface brightness.
NOTE C Diffuse, little condensation.
NOTE D As. coma in PA 270 deg.
NOTE E Tail PA 309-324 deg. Inner mass 3.6 arc min. diameter.
NOTE F Drawing #1.
NOTE G Drawing #2.
NOTE H Clear sky.
NOTE I Hazy.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
11.153	803033		0.203	N	6.0	60			1	Gallego,J	A
11.160	803034		0.203	N	6.0	120			1	Gallego,J	B

NOTE A Drawing 1. Field 1 deg. 5 arc min. at 60x. (Duration not indicated. Time of observation is assumed to be end time. Ed.)
NOTE B Drawing 2. Field 32 arc min. (Duration not indicated. Time of observation is assumed to be end time. Drawing data inferred from magnitude report form. Ed.)

DATE: 12 SEP 1985

DATE: 12 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
12.02	801787	9.0	S	SS AUR	2.5	5			0.200	SC	10.0	77	5.0C	Y	2	Maraziti,A	
12.02	801788	8.8	B	SAO	2.0	5			0.203	SC	10	81	5.2	Y	1	Kammerer,A	A
12.03	801789	8.8	B	E					0.050	B		7				Mormil,V	
12.03	801790				4		0.1		0.160	N		50				Mormil,V	
12.063	801791	8.5	S	AA	6	2			0.080	B		10		Y	1	Mikuz,H	B
12.07	801792	8.4	M	USNO	5.5				0.080	B		11	6.0	Y	1	Rossi,L	
12.090	801793	9.7	B	59	1.4	3			0.150	N	8	30	5.0C	Y	1	Bottger,B	
12.09	801794	7.4	S		5.0	3	0.50	268	0.060	B		9	6.5	Y	2	Merlin,J.C	
12.10	801795	7.9	S	AAVSO	8.1	5	0.23	278	0.080	B		20			1	Keitch,G.S	C
12.10	801796	7.9	S	AAVSO					0.050	B		10			1	Keitch,G.S	
12.30	801797	8.2	S	AA	4.5	3			0.080	B		20				Green,D.W.E	D
12.33	801798	7.5	S	AAVSO	5.3	3			0.08	B		20				Bortle,J.E	
12.33	801799				2.4	7	0.5	293	0.317	N	6	68				Bortle,J.E	E
12.330	801800	9.5	S	CZ ORI	2.7	5	0.14	285	0.15	R	5	62	6.3	Y	3	Morrison,W	F
12.392	801801	8 :	M	AAVSO	5.0	5	0.33	274	0.61		13.5	110	4.0	Y	3	De Young,J	
12.45	801802	8.6	M	NPS			0,4	305	0.050	B		10	6.5	Y	2	Hale,A	
12.45	801803	8.6	M	NPS	6	4	0.67	295	0.080	B		20	6.5	Y	6	Morris,C.S	
12.4618	801804	8.6	S	SAO	4	6	0.22	280	0.254	N	3.8	32			1	Machholz,D	
12.70	801805	10.1	S	CZ ORI	1	3			0.317	N	5	86		Y	1	Jones,A	
12.78	801806	8.9	S	AAVSO	5	3	0.12	320	0.13	N	6.3	24	5.0	Y		Hayashi,A	
12.95	801807	8.6	B	AA	3	5	0.2	275	0.110	B		20				Chernis,K	

NOTE A Condensation east of center, elliptical, no nucleus.
NOTE B CZ Ori also used for comparison stars. Excellent conditions.
NOTE C Gas tail 0.23 deg. long PA 278 deg.; narrow dust fan 0.12 deg. long PA 278 deg.
NOTE D Coma diameter approximate.
NOTE E At 55x coma is sharply condensed and fan-shaped. Fan is perhaps 35 deg. in PA wide, opening toward PA 293 deg. At 68x coma is fan-shaped and overall fairly diffuse except for a tiny, sharply condensed region with an almost stellar center which is drastically offset ESE of coma's center (PA 113 deg.). This offset places the condensation 2/3 of the way from the coma's "center" to the leading, sunward edge of the coma. At 170x condensation less stellar and without internal structure but very dense and bright. 170x indicates presence of narrow tail spine WNW from nucleus. Straight tail, as wide as coma's diameter initially, extends 30 arc min. in PA 293. Tail possibly more sharply defined on its southern edge.
NOTE F Clock face method used to estimate tail PA.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
12.109	803035	0.05	0.40	N	5	81,254	15	6.5	2	Merlin,J.C	A

NOTE A Spike at PA 111 deg., diffuse, about sunward; tail streamer at PA 240 deg., then curved westward along the tail; tail at PA 268 deg.; tail streamer at PA 292 deg., then curved slightly northward. Parabolic-shaped [sic] envelope with clearly defined limits. More diffuse north of the tail, darker between tail southern edge and the limit of the coma.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)
12.096	805114	2.000	5.0	0.400	1.0 x 0.7	10.00	Kodak Tri-X	400/27	N		1/P	1	Arbour,R

DATE: 13 SEP 1985

DATE: 13 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
13.083	801808	9.5	M	CZ ORI	2.5	1			0.130	R	4	21	5.8	Y	2	Campos,J.A.S	A
13.083	801809	8.8	B	SAO	2.9	3			0.125	R	6.0	35		Y	1	Guthier,O	B
13.083	801810	8.1	B		5.0	4			0.110	R	6.8	47		Y		Lipski,P	C
13.101	801811	9.6	M	CZ ORI	2.0	2			0.200	SC	10	35	5.8	Y	2	Campos,J.A.S	A
13.11	801812	8.2	S	AAVSO	5.4	5	0.20		0.080	B		20			1	Keitch,G.S	D
13.13	801813	8.8	S	SS AUR	4	5	0.10		0.080	B		15	6	Y	1	van Loo,F.R	
13.132	801814	9 :	S	60	1.1	3			0.203	SC	10	62	4	Y	1	Linder,J	E
13.135	801815	8.3	B		4				0.203	N	6	120		Y	3	Gallego,J	F
13.368	801816	8.4	M	CZ ORI	2.3	4	0.08	269	0.254	N	4.5	46	4.5	Y	1	De Young,J	G
13.392	801817	9.8	S	CZ ORI	2.1	4			0.15	R	5	62	6.6	Y	3	Morrison,W	
13.72	801818	10.1	S	CZ ORI	1	3			0.317	N	5	86		Y	1	Jones,A	H
13.79	801819	8.9	S	AAVSO	5	3	0.10	300	0.13	N	6.3	24	5.5	Y		Hayashi,A	
13.95	801820	8.6	B	AA	3	5	0.2	275	0.110	B		20				Chernis,K	

NOTE A Seeing good.
NOTE B Diffuse, hint of tail.
NOTE C Round. (Observer gave limit as 12.2. Ed.)
NOTE D Tail recorded is fan PA 267-284 deg.
NOTE E Hazy and cloudy.
NOTE F Drawing #3.
NOTE G Coma more diffuse and magnitude fainter, still has strong central condensation.
NOTE H Coma diameter approximate.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
13.135	803036		0.20	N	6.0	120			2	Gallego,J	A

NOTE A Drawing 3. Field 32 arc min. (Duration not indicated. Time of observation is assumed to be end time. Drawing data inferred from magnitude report form. Ed.)

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
13.355	805115	0.305	1.5	0.203	6.8 x 4.5	3.00	Kodak 2415		Y	S	1/P	1	Dilsizian,R	A

NOTE A Giacobini-Zinner and Halley. Exposure duration approximate.

DATE: 14 SEP 1985

DATE: 14 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
14.00	801821	8.3	M	M					0.065	N	7.7	33				Serov,V	
14.09	801822					2			0.145	N	8.0	30	5.5	Y	1	van der Laan,T.A	
14.09	801823	8.5	S	CZ ORI	6	1	0.25	285	0.08	B		20	6.5	Y	2	Bouma,R.J	
14.09	801824	8.2	S	CZ ORI		1	0.25	310	0.08	B		15	6	Y	1	Scholten,A	
14.10	801825	8.4	S	U ORI					0.110	N	5	24	5 C	Y	1	Feijth,H	
14.11	801826	9.0	S	SS AUR	5	4	0.13	265	0.080	B		15	6 C	Y	1	van Loo,F.R	
14.115	801827	9	B		4	3	0.18		0.256	N	5.6	85	5.5	Y	2	Cardiel,N	A
14.12	801828	7.8	S	SU TAU	6	3	0.50		0.254	JB	6	59	6.5	Y	2	Bus,E.P	
14.121	801829	9.0	B		3	1	0.13	302	0.114		3.7	70	5.4	Y	1	Gomez,T.L	B
14.125	801830	8.5	B		4	5	0.17		0.256	N	5.6	85	5.5	Y	1	Gallego,J	C
14.129	801831	8.5	B		4	5	0.17		0.203	SC	10	100	5.6	Y	1	Gomez,A	D
14.135	801832	9.3	B		4	3	0.17		0.25	SC	10	125	5.5	Y	2	Cardiel,N	E
14.137	801833	8.5	B		4		0.17		0.250	SC	10	78	5.5	Y	1	Sanz,A	
14.146	801834	8.5:	B		5	5	0.17		0.256	N	5.6	85	5.5	Y	1	Pedraz,S	
14.323	801835	9.6	S	CZ ORI	3.1	4			0.15	R	5	62	6.3	Y	3	Morrison,W	
14.34	801836	8.5	S	USNO	5	2			0.08	B		20				Bortle,J.E	F
14.34	801837	9.0	S	USNO	2.9	5	0.6	305	0.317	N	6	68				Bortle,J.E	G
14.382	801838	8.5	M	CZ ORI	2.1	4	0.07	315	0.254	N	4.5	46	4.5	Y	1	De Young,J	
14.39	801839	8.4:	S	AA	5.5	2			0.080	B		20				Green,D.W.E	H
14.51	801840	8.6	S	NPS	9	5	1.50	289	0.080	B		20	7.0	Y	12	Morris,C.S	
14.52	801841	8.7	M	NPS					0.050	B		10	6.5	Y	11	Hale,A	
14.52	801842						0.33	310	0.200	N	6	61	6.5	Y	11	Hale,A	
14.85	801843	9.2	S	AA	2.5	5	0.45	280	0.41	N	4.2	86	6.3	Y		Pearce,A	

NOTE A Drawing #1.
NOTE B Rich-field telescope.
NOTE C Drawing #4.
NOTE D Tail length approximate.
NOTE E Drawing #2.
NOTE F Comet much fainter.
NOTE G Very wide coma/tail. With 50 cm reflector working at 96x G-Z appears as a large comet in miniature: parabolic coma, sharp bright condensation, long ever widening tail. With 32 cm reflector edges of tail very diffuse overall but tail brighter by a factor of at least 5 times than any period in August. Comet drastically fainter!
NOTE H Coma diameter approximate.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
14.111	803037		0.26	N	5.6	85	10	5.5	1	Cardiel,N	A
14.118	803038		0.114		3.7	21, 70	9	5.4	1	Gomez,T.L	B
14.125	803039		0.256	N	5.6	85			3	Gallego,J	C
14.127	803040		0.203	SC	10	100	6	5.6	1	Gomez,A	D
14.135	803041		0.25	SC	10	78	8	5.5	1	Sanz,A	
14.135	803042		0.25	SC	10	125		5.5	1	Cardiel,N	E
14.141	803043		0.256	N	5.6	85	15	5.5	1	Pedraz,S	F
14.427	803044		0.438	N	4.5	220	9	5.8		Troiani,D.M	G

NOTE A Drawing 1. Tail about 11 arc min. Field 45 arc min. at 85x.
NOTE B Coma 3 arc min. Tail 8 arc min. at PA 302 deg. Rich-field telescope used.
NOTE C Drawing 4. Field 45 arc min. Two tails visible with structure. (Duration not indicated. Time of observation is assumed to be end time. Drawing data inferred from magnitude report form. Ed.)
NOTE D Field 30 arc min. at 100x. Coma 4 arc min. Tail about 10 arc min. Tail & coma less developed (delta effect?). (In certain moments I was sometimes able to perceive "multiple" tails pointing westward.) With major instruments, it was clearly visible other tail, possibly, the dust tail. [sic]
NOTE E Drawing 2. Field 25 arc min. (Duration not indicated. Time of observation is assumed to be end time. Drawing data inferred from magnitude report form. Ed.)
NOTE F Field 45 arc min. at 85x. Two tails visible (gas & dust).
NOTE G DC = 5, tail PA 230 deg.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
14.304	805116	0.305	1.5	0.203	6.8 x 4.5	5.00	Kodak 2415		Y	X	15/P	1	Sabia,J.D	
14.355	805117	0.305	1.5	0.203	6.8 x 4.5	3.00	Kodak 2415		Y	S	2/P	1	Dilsizian,R	A
14.476	805118	0.500	3.6	0.140	4.1 x 2.7	12.00	3M 1000	1000/31	N	O	1/N	12	Edberg,S	
14.487	805119	0.500	3.6	0.140	4.1 x 2.7	8.00	3M 1000	1000/31	N	O	2/N	12	Edberg,S	B

NOTE A Giacobini-Zinner and Halley. Exposure duration approximate.
NOTE B No Halley image visible.

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
15.06	801844	7.2	S		13.0	3			0.060	B		9	6.5	Y	2	Merlin,J.C	
15.118	801845	8.3	B	V MON	2.1	5		30	0.330	N	4.5	59	6.5	Y	1	Castino,R	A
15.34	801846	8.5	S	AAVSO	7	4			0.08	B		20				Bortle,J.E	
15.34	801847	9.1	S	AAVSO	1.4	6	0.2	280	0.317	N	6	68				Bortle,J.E	B
15.386	801848	8.2	M	CZ ORI					0.05	B		7	6.5	Y	4	De Young,J	
15.386	801849	8.7	M	CZ ORI	3.1	3	0.15	278	0.254	N	4.5	46	6.5	Y	4	De Young,J	
15.5125	801850	8.7	S	SAO	3	6	0.15	287	0.254	N	3.8	32			1	Machholz,D	
15.75	801851	8.4	S	CZ ORI					0.08	B		15	6.2	Y	1	Seargent,D	
15.75	801852						0.13		0.152	N	5	29			1	Seargent,D	
15.77	801853	9.9	B	M					0.215	N	9	100				Knyazyuk,N	

NOTE A (Observer gives tail length as 7 min. 90 sec. Ed.)
NOTE B Coma diameter uncertain. At 68x coma consists of a small, dense, bright condensation 0.3 arc min. in diameter, surrounded by a totally diffuse shell of material which is parabolic in outline. At 170x at the center of the condensed region is a tiny "nucleus" only a few arc sec. in diameter. Tail initially as wide as opening of parabolic envelope. Thereafter widening as it advances. Tail perhaps 5x to 10x brighter than in August.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
15.080	803045	0.08	0.40	N	5	254	10	6.5	2	Merlin,J.C	A

NOTE A Jet at PA 8 deg.; spike at PA 97 deg., nearly sunward; tail streamer at PA 238 deg.; tail at PA 268 deg.; tail streamer at PA 285 deg.

SUB-NETWORK: PHOTOGRAPHY

Date(UT)	AON#	FL	f/	Ap	FOV	ExpM	Emulsion	ISO	Hyp	Gdng	Id/Typ	Site	Observer(s)	Notes
15.339	805120	0.63	1.8	0.35	3.3 x 2.2	4.50	Kodak 103a-F		N		4/P	1	Ferrin,I	A

NOTE A Giacobini-Zinner and Halley. Instrument is Schmidt camera.

DATE: 16 SEP 1985

DATE: 16 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
16.05	801854	9.2	B	E					0.050	B		7				Mormil,V	
16.05	801855				5		0.2		0.160	N		50				Mormil,V	
16.097	801856	9.2	B	SAOSA74	3.8	3			0.125	R	6.0	35		Y	1	Guthier,O	A
16.10	801857	9.0	S	CZ ORI	3	6			0.100	B		14	5.5C	Y	1	van Loo,F.R	
16.10	801858	8.3	B	M					0.065	N	7.7	33				Serov,V	
16.167	801859	9.5:	B		6				0.203	N	6	120		Y	2	Gallego,J	B
16.337	801860	9.5	S	CZ ORI	2.8	4			0.15	R	5	62	6.3	Y	3	Morrison,W	
16.37	801861	9.2	S	AAVSO	4.0	3	0.2	290	0.317	N	6	68				Bortle,J.E	C
16.37	801862	8.4	S	AAVSO	8	3			0.08	B		20				Bortle,J.E	
16.371	801863						0.18	275	0.445	N	4.5	80	6.3	Y	3	Morrison,W	D
16.45	801864	8.3	M	AA	9	4	1.50	308	0.080	B		20	7.0	Y	11	Morris,C.S	E

NOTE A Diffuse, some brightness recovered.
NOTE B Drawing #5.
NOTE C Parabolic, rather sharply condensed coma. No division between coma and beginnings of tail. Dense flow of bright material extends tailward from "nucleus" at 68x and 110x. The "nucleus" is much less pronounced than in August.
NOTE D Clock face method used to estimate tail PA.
NOTE E NPS also used as comparison star source.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
16.167	803046		0.203	N	6.0	120			1	Gallego,J	A

NOTE A Drawing 5. Field 32 arc min. Two tails visible with structure. (Duration not indicated. Time of observation is assumed to be end time. Drawing data inferred from magnitude report form. Ed.)

DATE: 17 SEP 1985

DATE: 17 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
17.05	801865	9.5	B	M					0.050	B		7				Mormil,V	
17.05	801866				4		0.1		0.160	N		50				Mormil,V	
17.08	801867	8.5	S	AAVSO	7.1	4	0.45	295	0.080	B		20				Zanotta,M	A
17.28	801868	8.8	S	AA	7.2	5			0.203	N	6	38				Green,D.W.E	B
17.29	801869	8.3	S	AA	10.2	2			0.080	B		20				Green,D.W.E	B
17.35	801870	8.6	S	AAVSO	4	3			0.08	B		20				Bortle,J.E	
17.35	801871	9.0	S	AAVSO	2.6	5	0.2	280	0.317	N	6	68				Bortle,J.E	C
17.47	801872	8.3	S	AA	8.5	4	0.92	295	0.080	B		20	7.0	Y	6	Morris,C.S	D
17.5097	801873	8.8	S	AA	3	6	0.25	279	0.254	N	3.8	32			1	Machholz,D	
17.68	801874	10.0	S	CZ ORI	1.2	5			0.317	N	5	86		Y	1	Jones,A	
17.757	801875	8.7	S	CZ ORI					0.08	B		15	5.7	Y	1	Seargent,D	E
17.82	801876	9.3	S	AA	1.6	4	0.17	258	0.317	N	5	49	6.2	Y		Pearce,A	

NOTE A With my 0.305 meter f/5 Newtonian reflector at 60x and 150x I was able to see a strong round central condensation.
NOTE B Coma diameter approximate.
NOTE C At 170x there is a not quite stellar nucleus at the focus of the parabolic envelope, heavily imbedded in bright material. Tail long and relatively bright. Initially as wide as coma's diameter, widening thereafter.
NOTE D Comet involved with stars. Tail extremely faint.
NOTE E Haze.

DATE: 18 SEP 1985

DATE: 18 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
18.000	801877	8.2:	S	60	3	1			0.080	B		20	5	N	1	Gozzoli,E	A
18.02	801878	9.4	S	Y MON		3			0.203	SC	10	80	6	Y	3	Comello,G	
18.03	801879	9.3	S	SS AUR					0.200	SC	10.0	44	C	Y	2	Maraziti,A	
18.10	801880	9.0	S	CZ ORI	3	4	0.17		0.203	SC	10.0	80	6	Y	3	Comello,G	
18.11	801881	8.7	S	CZ ORI	3	3	0.17	270	0.254	JB	6	48	6.5	Y	2	Bouma,R.J	
18.11	801882	9.5	S	CZ ORI	3	1			0.145	N	8.0	48	6.5	Y	1	van der Laan,T.A	
18.13	801883	10.2	B	SU TAU	2.5	7	0.05		0.254	N	5.0	70	5.5C	Y	1	Kuipers,G	
18.132	801884	9.3	S	CZ ORI	4	3			0.080	B		10		Y	1	Mikuz,H	B
18.14	801885	8.6	S	AAVSO	6.4	4	0.43	292	0.080	B		20				Zanotta,M	C
18.70	801886	10.1	S	CZ ORI	1	5			0.317	N	5	86		Y	1	Jones,A	
18.85	801887	9.4	S	AA	1.8	5	0.17	270	0.317	N	5	49	6.1	Y		Pearce,A	

NOTE A Haze.
NOTE B Faintest star on sequence 10.6 mag. Excellent conditions.
NOTE C I found a disk-like central condensation and a star-like nuclear region at 60x with my 0.305 meter f/5 Newtonian telescope.

DATE: 19 SEP 1985

DATE: 19 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
19.00	801888	8.2	B	M					0.065	N	7.7	33				Serov,V	
19.069	801889	8.7	S		6.2	4			0.10	B		14	6.0	Y	1	Hasubick,W	
19.073	801890	8.7	S	60	7.1	3			0.100	B		14	5	Y	1	Linder,J	
19.097	801891	9.3	B	SAOSA74	3.8	2			0.125	R	6	35		Y	1	Guthier,O	A
19.10	801892	9.3	S	CZ ORI	8	3			0.15	R	8	34	6 C	Y	1	Aerts,L	
19.122	801893	8.8	S	SAO	7.1	3			0.140	SN	3.6	25	5	Y	1	Linder,J	
19.125	801894	8.9	S	CZ ORI	5	3	0.20	282	0.080	B		10		Y	1	Mikuz,H	B
19.128	801895	9.5	B		3.0	4	0.10	277	0.150	R	15	56	6.5	Y	2	Zische,E	
19.14	801896	9.3	S	CZ ORI	3	6			0.100	B		25	6 C	Y	1	van Loo,F.R	
19.358	801897	10.1	S	CZ ORI	3.2	5	0.06	265	0.15	R	5	62	6.3	Y	3	Morrison,W	C
19.71	801898	10.0:	S	CZ ORI	1.4	5			0.317	N	5	86		Y	1	Jones,A	D

NOTE A Coma strongly elliptical. (Translated by IHW staff. Ed.)
NOTE B Faintest star on sequence 10.6 mag. Excellent conditions.
NOTE C Clock face method used to estimate tail PA.
NOTE D Thin cloud?

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
19.347	803047		0.254	N	6	185	16	6.5	1	Troiani,D.M	A

NOTE A DC = 5.5 [sic], tail PA 260 deg.

DATE: 20 SEP 1985 DATE: 20 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
20.111	801899	8.6	B		2.0	1			0.110	R	6.8	47		Y		Lipski,P	A
20.122	801900	8.8	S	CZ ORI	5	4			0.080	B		10		Y	1	Mikuz,H	B
20.125	801901	8.8	S		5.7	4			0.10	B		14	6.0	Y	1	Hasubick,W	
20.130	801902	10.6	B		2.5	5			0.40	C	15	120	5.5	N	3	Zische,E	C
20.135	801903	9.6	S	60		1			0.113	N	8	22	5.5	Y	1	Schambeck,C	
20.45	801904	8.5	S	AA	6.4	2			0.080	B		20	6.5	Y	6	Morris,C.S	D
20.47	801905	8.5	M	AA	2.1	5	0.25	265	0.256	N	4.5	45	6.5	Y	6	Morris,C.S	E
20.72	801906	10.1	S	CZ ORI	1	4			0.317	N	5	86		Y	1	Jones,A	F

NOTE A (Observer gave limit as 10.5. Ed.)
NOTE B Faintest star on sequence 10.6 mag. Excellent conditions.
NOTE C Site - Bautzen.
NOTE D CZ ORI chart also used as comparison star source. Hint of tail.
NOTE E CZ ORI chart also used as comparison star source. Coma had bulge toward the south. Tail boundary sharper on north side.
NOTE F Clear.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
20.333	803048		0.254	N	6	185	23	6.6	1	Troiani,D.M	A

NOTE A DC = 6, tail PA 260 deg. Faint envelope around front of coma at PA 278 deg.

DATE: 21 SEP 1985

DATE: 21 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
21.40	801907	8.8	S	AA	4	3			0.229	R	12	86				Green,D.W.E	A
21.47	801908	8.5	S	AA	6.4	2			0.080	B		20	6.5	Y	6	Morris,C.S	B
21.47	801909	8.5	M		2.1	5	0.20	283	0.080	B		20	6.5	Y	6	Morris,C.S	C
21.4944	801910	8.7	S	SAO	4	6	0.17	264	0.254	N	3.8	32			1	Machholz,D	
21.71	801911	10.1	S	CZ ORI	1	4			0.317	N	5	86		Y	1	Jones,A	

NOTE A Coma diameter approximate.
NOTE B CZ ORI chart also used as comparison star source.
NOTE C Comet has parabolic shape. Tail is very faint.

DATE: 22 SEP 1985

DATE: 22 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
22.06	801912	8.6	S		3.0	3	0.33	281	0.400	N	5	81	6.0	Y	2	Merlin,J.C	
22.080	801913	8.8	S		5.0	3	0.23	280	0.080	B		15	6.3	Y	4	Haver,R	A
22.083	801914	9.5	S		5				0.114	N	8.7	50	6.0	Y	2	Villa,M	
22.118	801915	9.8	S	60	4.7 3.8	3			0.140	SN	3.6	25	5.0	Y	3	Bottger,B	
22.128	801916	8.8	S	CZ ORI	6	1			0.080	B		10		Y	1	Mikuz,H	B
22.132	801917	8.9	B	V MON	1.8	3	0.05	25	0.330	N	4.5	59	6.0	Y	1	Castino,R	
22.44	801918	8.8	S	CZ ORI	6.4	1			0.080	B		20	6.5	Y	6	Morris,C.S	
22.44	801919	8.7	M	CZ ORI	2.1	5	0.10	260	0.256	N	4.5	45	6.5	Y	6	Morris,C.S	C
22.4431	801920	8.7	S	SAO	3	7	0.17	287	0.254	N	3.8	32			1	Machholz,D	
22.542	801921	8.3	?		2	5	0.05	260	0.330	N	4.5	75		Y	3	Fabre,R	D
22.785	801922	8.9	S						0.152	N	5	29	5 T	Y	1	Seargent,D	E

NOTE A Diffuse.
NOTE B Faintest star on sequence 10.6 mag. Excellent conditions.
NOTE C Tail PA uncertain.
NOTE D (Observer gives limit as 14.4. Ed.)
NOTE E To light. [sic] (Observer indicated uncertainty in limiting magnitude. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
22.078	803049	0.06	0.40	N	5	254	15	6.0	2	Merlin,J.C	A
22.543	803050	2.0	0.33	N	4.5	75,125	15		3	Fabre,R	B

NOTE A Tail at PA 281 deg.; jet at PA 247 deg.; jet at PA 290 deg.; jet at PA 355 deg., very diffuse. Structures at PA 247 and PA 290 are possible tail streamers.
NOTE B Tail PA 260 deg. (Observer gave limit as 14.4. Ed.)

DATE: 23 SEP 1985

DATE: 23 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
23.083	801923	10.0	S		5				0.114	N	8.7	50	6.0	Y	2	Fabrizio,M
23.156	801924	9.5	B	SAOSA74	4.1	3			0.125	R	6	35		Y	1	Guthier,O
23.83	801925	9.4	S	AAVSO	2	6	0.2	80	0.410	N	4.2	86	6.5	Y		Clark,M
23.85	801926	9.5	S	AA	1.5	5	0.15	264	0.317	N	5	49	6.2	Y		Pearce,A

DATE: 24 SEP 1985

DATE: 24 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size		DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
24.00	801927	8.2	B	M						0.065	N	7.7	33				Serov,V	
24.05	801928	10.3	B	M						0.050	B		7				Mormil,V	
24.05	801929				3			0.1		0.160	N		50				Mormil,V	
24.11	801930	8.6	S		3.0		3	0.10	268	0.400	N	5	81	5.5	Y	2	Merlin,J.C	
24.125	801931	9.7	B	SA 74	6.0	5.3	2			0.125	R	6	35		Y	1	Guthier,O	A
24.17	801932	9.6	S	SU TAU	2		2	0.05		0.250	N	10.0	100	5.5C	Y	1	van Loo,F.R	
24.17	801933	9.6	S	SU TAU	2		2	0.05		0.250	N	10	100	5.5C	Y	1	van Loo,F.R	
24.441	801934	8.5	S		6			0.17	260	0.444	N	4.4	221	5.5	Y	1	Glassett,W	

NOTE A Very diffuse, elliptical. (Translated by IHW staff. Ed.)

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
24.120	803051	0.05	0.40	N	5	254	15	5.5	2	Merlin,J.C	A

NOTE A Tail at PA 268 deg.; jet at PA 220 deg., faint & diffuse, glimpsed; jet at PA 40 deg., faint & diffuse, glimpsed; jet at about PA 310 deg., very diffuse. Structures at PA 220 and about PA 310 are possible tail streamers.

DATE: 25 SEP 1985

DATE: 25 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
25.05	801935	10.4	B	M					0.050	B		7				Mormil,V	
25.05	801936				3				0.160	N		50				Mormil,V	
25.135	801937	8.9	S		4.0	2	0.20	295	0.080	B		15	6.6	Y	4	Haver,R	A
25.15	801938	9.0	S	AAVSO	2.1	4			0.305	N	5.0	60				Zanotta,M	B
25.354	801939	10.6	S	V MON	2.1	4			0.15	R	5	62	6.5	Y	3	Morrison,W	
25.4444	801940	9.1	S	SAO	3	7	0.08	272	0.254	N	3.8	32			1	Machholz,D	

NOTE A Diffuse.
NOTE B The sky wasn't very good. The observation was extremely troubled by the proximity of a bright field star.

DATE: 26 SEP 1985

DATE: 26 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
26.00	801941	8.1	B	M					0.065	N	7.7	33				Serov,V
26.12	801942	8.9	S	S MON	4	1			0.080	B		20	6.5	Y	2	Bouma,R.J
26.13	801943	9.6	S	V MON		4	0.17		0.203	SC	10.0	80	6	Y	3	Comello,G
26.19	801944	8.9	S	AAVSO	3.9	2	0.20	281	0.080	B		20			1	Keitch,G.S
26.21	801945	9.6	S	V MON		3	0.17		0.203	SC	10	80	6	Y	3	Comello,G

DATE: 27 SEP 1985

DATE: 27 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
27.06	801946	10.5	B	M					0.050	B		7				Mormil,V	
27.06	801947				3				0.160	N		50				Mormil,V	
27.115	801948	9.0	B		3.0	3			0.110	R	6.8	19		Y		Lipski,P	A

NOTE A Round. (Observer gave limit as 12.2. Ed.)

DATE: 28 SEP 1985

DATE: 28 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ids	f/	Pwr	Lim	DA	Site	Observer(s)
28.00	801949	8.0	B	M					0.065	N	7.7	33				Serov,V

DATE: 30 SEP 1985

DATE: 30 SEP 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
30.00	801950	8.0	B	M					0.065	N	7.7	33				Serov,V

DATE: 1 OCT 1985 DATE: 1 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
1.70	801951	11.6:	S	RASNZ					0.317	N	5	86		Y	1	Jones,A	A

NOTE A Clear - moon 17 days.

DATE: 2 OCT 1985

DATE: 2 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
2.69	801952	11.6:	S	RASNZ					0.317	N	5	86		Y	1	Jones,A	A

NOTE A Clear - moon 18 days.

DATE: 7 OCT 1985

DATE: 7 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
7.376	801953	11.9	S	V MON	0.7	4			0.445	N	4.5	167	5.5M	Y	3	Morrison,W	A
7.68	801954	12.1:	S	RASNZ	1	2			0.317	N	5	86		Y	1	Jones,A	B

NOTE A Involved with stars of cluster Messier 50.
NOTE B Clear - moon 23 days.

DATE: 8 OCT 1985

DATE: 8 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
8.36	801955	10.0	S	AAVSO	2.1	2			0.317	N	6	68				Bortle,J.E	A

NOTE A Very vague object, little better seen than P/Halley but larger in size. Circular coma shows little indication of condensing toward center. Moonlight.

DATE: 10 OCT 1985

DATE: 10 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
10.83	801956	10.3	S		0.8	5			0.317	N	5	63	6.3	Y		Pearce,A

DATE: 11 OCT 1985

DATE: 11 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
11.045	801957	9.6	S		4.5	2			0.080	B		15	6.2	Y	4	Haver,R	A
11.4924	801958	9.8	S	SAO	4 2	7			0.254	N	3.8	64			1	Machholz,D	B
11.80	801959	10.3	S		0.9	6			0.317	N	5	63	6.2	Y		Pearce,A	

NOTE A Very diffuse.
NOTE B Coma shape is 2x4 arc min. elongated E-W.

DATE: 12 OCT 1985

DATE: 12 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
12.06	801960	9.4	S		2.0	2	0.08	274	0.400	N	5	81	5.5	Y	2	Merlin,J.C	A
12.36	801961	8.8	S	AA	5.2	3			0.203	N	7	55				Green,D.W.E	B
12.367	801962	10.8	S	V MON	2.1	2			0.15	R	5	62	6.4	Y	3	Morrison,W	
12.37	801963	8.9	S	AA	8.4	2			0.080	B		20				Green,D.W.E	B
12.39	801964	10.0	S	AAVSO	1.4	6	0.1	270	0.317	N	6	68				Bortle,J.E	C
12.47	801965	9.6	M	V MON	1.5	7	0.13	270	0.256	N	4.5	67	7.0	Y	1	Morris,C.S	D

NOTE A Low altitude.
NOTE B Coma diameter approximate.
NOTE C With 68x coma consists of a small circular, well condensed feature superimposed on a bright wedge or fan-shaped envelope opening toward the due west (270 deg.). Outer portion of coma very faint and best seen with averted vision. Fan shaped envelope much brighter than this. Fan is about 35 deg. in PA wide. Lumicon "Comet Filter" enhances brightness of comet.
NOTE D Coma has parabolic shape. Tail PA uncertain.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
12.057	803052	0.18	0.40	N	5	81	15	5.5	2	Merlin,J.C	A

NOTE A Jet at PA 6 deg.; tail at PA 274 deg.

DATE: 13 OCT 1985

DATE: 13 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
13.14	801966	9.4	S		2.0	3	0.08	267	0.400	N	5	81	5.5	Y	2	Merlin,J.C	A
13.15	801967	10.1	S	AAVSO	1.7	6	0.14	262	0.305	N	5.0	60				Zanotta,M	B
13.45	801968	9.6	M	V MON	1.7	7	0.12	260	0.256	N	4.5	67	6.5	Y	1	Morris,C.S	C
13.54	801969	9.7	M	Z PUP					0.200	N	6	61	6.5	Y	2	Hale,A	
13.69	801970	11.4	S	RASNZ	1	6			0.317	N	5	86		Y	1	Jones,A	D

NOTE A Low altitude.
NOTE B The coma appeared fan-shaped on PA 262 deg. I saw an extremely strong and well defined central condensation (diameter 0.2, DC 7/) asymmetrically placed in the comet's coma (it was shifted on PA 82 deg.) 94x. [sic] The tail was straight, narrow, (but not as narrow as in July, August, and September) and easily visible.
NOTE C Tail PA uncertain.
NOTE D Clear. Coma diameter approximate.

SUB-NETWORK: DRAWING

Date(UT)	AON#	Scale	Ap	Ins	f/	Pwr(s)	DurM	Lim	Site	Observer(s)	Notes
13.141	803053	0.17	0.40	N	5	81	15	5.5	2	Merlin,J.C	A

NOTE A Jet at PA 87 deg., sunward spike, tail at PA 267 deg.

DATE: 14 OCT 1985

DATE: 14 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
14.18	801971	9.4	S	AAVSO	2.6	4			0.298	N	5.0	62			1	Keitch,G.S	
14.762	801972	10.2	S	109	0.7	2			0.150	N	8.0	64		Y	1	Tregaskis,T.B	A
14.82	801973	10.4	S		1.2	6	0.18	279	0.317	N	5	63	6.2	Y		Pearce,A	

NOTE A Clear. Comet over 11 mag. star. (Observer gave limit as 12.7. Ed.)

DATE: 15 OCT 1985

DATE: 15 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
15.4750	801974	10.0	S	SAO	3.0	7			0.254	N	3.8	32			1	Machholz,D
15.80	801975	10.9	S	AAVSO	2	3			0.13	N	6.3	64	5.5	Y		Hayashi,A

DATE: 16 OCT 1985 DATE: 16 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
16.67	801976	10.8	S	RASNZ	0.8	5			0.317	N	5	86		Y	1	Jones,A	A

NOTE A Clear.

DATE: 17 OCT 1985

DATE: 17 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
17.46	801977	10.2	M	Z PUP					0.200	N	6	61	6.5	Y	2	Hale,A	
17.5313	801978	10.3	S	SAO	1.5	7			0.254	N	3.8	64			1	Machholz,D	
17.68	801979	10.6	S	RASNZ	2	6			0.317	N	5	86		Y	1	Jones,A	A

NOTE A Coma diameter approximate.

DATE: 18 OCT 1985

DATE: 18 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
18.11	801980	10.3	S	AAVSO	1.8	5	0.11	265	0.254	N	4.5	46				Zanotta,M	A
18.67	801981	10.6	S	RASNZ	1.5	6			0.317	N	5	86		Y	1	Jones,A	

NOTE A Fan shaped coma and central condensation. The central condensation was "arrow point"-like, with diameter 0.5 arc min.

DATE: 19 OCT 1985

DATE: 19 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
19.44	801982	10.2	M	Z PUP	1.8	7	0.08	290	0.256	N	4.5	67	7	Y	6	Morris,C.S	A
19.68	801983	10.6	S	RASNZ	1.5	5			0.317	N	5	86		Y	1	Jones,A	
19.84	801984	10.2	S	SU TAU	1.8	6	0.25	83	0.410	N	4.2	86	6.5	Y		Clark,M	

NOTE A Tail PA uncertain.

DATE: 20 OCT 1985

DATE: 20 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
20.167	801985	11.5:		B	1.5	2			0.250	N	6.0	75		Y	1	Guthier,O	A

NOTE A Difficult to find.

DATE: 21 OCT 1985

DATE: 21 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
21.370	801986	10.9	S	Z PUP	1.9				0.15	R	5	62	6.4	Y	3	Morrison,W	
21.396	801987	11.2	S	Z PUP	0.9	4	0.02	300	0.445	N	4.5	167	6.4	Y	3	Morrison,W	A

NOTE A Clock face method used to estimate tail PA.

DATE: 22 OCT 1985

DATE: 22 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
22.17	801988	10.5	S	AAVSO	1.9	3			0.254	N	4.5	91				Zanotta,M	A
22.181	801989	12.0:	B		2.0	1			0.250	N	6.0	75		Y	1	Guthier,O	B
22.375	801990	11.2	M	Z PUP	1.0	5	0.07	283	0.254	N	5.6	120	6.3	Y	1	Knight,S	
22.81	801991	11.2	S	AAVSO	2	3			0.13	N	6.3	44	5.5	Y		Hayashi,A	

NOTE A Bad sky. (The observer placed an "&" on his report form in front of his magnitude estimate: &10.5, probably indicating approximate. Ed.)
NOTE B Very diffuse.

DATE: 23 OCT 1985

DATE: 23 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
23.10	801992	10.3	S	AAVSO	1.5	4	0.06	265	0.254	N	4.5	91				Zanotta,M	A
23.38	801993	10.0	S	AAVSO	2.0	4		270	0.317	N	6	68				Bortle,J.E	B
23.39	801994	9.4	S	LNES	4.4	4			0.203	N	6	116				Green,D.W.E	C
23.39	801995	9.5	S	LNES	5.3	3			0.203	N	6	38				Green,D.W.E	C
23.81	801996	11.4	S	AAVSO	2	2			0.13	N	6.3	64	5.0	Y		Hayashi,A	

NOTE A At 91x I found the comet's coma and central condensation elongated on PA 265 deg. The tail was at least 4 arc min. long, straight and quite broad where it joined coma.

NOTE B Tail PA uncertain. Circular coma suddenly condensed near the center with very diffuse boundaries. At 68x area of significant condensation is 0.5 arc min. in diameter (entire coma 2.0 arc min.). At 110x a tiny knot of bright material noted at coma's center, possibly displaying a very short fan of material toward the due west and not more than 0.5 arc min. in length. This feature perhaps represents the old fan tail seen previously.

NOTE C Coma diameter approximate.

DATE: 24 OCT 1985

DATE: 24 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
24.41	801997	9.6	S	LNES	5.9	3			0.203	N	6	38				Green,D.W.E	A
24.83	801998	11.3	S	AAVSO	2	2			0.13	N	6.3	64	6.0	Y		Hayashi,A	

NOTE A Coma diameter approximate.

DATE: 25 OCT 1985

DATE: 25 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
25.379	801999	10.8	S	Z PUP	1.7	2			0.15	R	5	62	6.2	Y	3	Morrison,W

DATE: 26 OCT 1985

DATE: 26 OCT 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
26.20	802000	10.0	S		2.0	3			0.400	N	5	81	5.0	Y	2	Merlin,J.C	A
26.36	802001	9.9	S	LNES	5.0	2			0.203	N	6	38				Green,D.W.E	B
26.5208	802002	10.3	S	SAO	1.5	5	0.04	270	0.254	N	3.8	64			1	Machholz,D	

NOTE A Very low altitude.
NOTE B Coma diameter approximate.

DATE: 4 NOV 1985

DATE: 4 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
4.66	802003	11.1	S	Z PUP					0.317	N	5	86		Y	1	Jones,A	A

NOTE A Moon 21 days.

DATE: 7 NOV 1985 DATE: 7 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
7.65	802004	12.0	S	Z PUP		1			0.317	N	5	86		Y	1	Jones,A	A

NOTE A Comet among faint stars.

DATE: 8 NOV 1985

DATE: 8 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
8.66	802005	11.6	S	Z PUP		4			0.317	N	5	86		Y	1	Jones,A	A

NOTE A Twilight.

DATE: 9 NOV 1985

DATE: 9 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
9.73	802006	11.2	S	SU TAU	0.8	3	0.08	85	0.410	N	4.2	86	6.6	Y		Clark,M

DATE: 11 NOV 1985

DATE: 11 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
11.79	802007	11.5	S	AAVSO	1.5	3			0.13	N	6.3	64	5.5	Y		Hayashi,A

DATE: 13 NOV 1985

DATE: 13 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
13.77	802008	11.6	S	AAVSO	1.5	3			0.13	N	6.3	64	6.0	Y		Hayashi,A

DATE: 16 NOV 1985

DATE: 16 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
16.76	802009	11.7	S	SU TAU	1	2	0.03	90	0.410	N	4.2	86	6.4	Y		Clark,M

DATE: 17 NOV 1985

DATE: 17 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
17.52	802010	11.3	S	Z PUP					0.200	N	6	122	6.5	Y	2	Hale,A
17.75	802011	11.8	S	AAVSO	1.5	2			0.13	N	6.3	64	5.5	Y		Hayashi,A

DATE: 20 NOV 1985

DATE: 20 NOV 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
20.63	802012	11.0	S	RASNZ	1.5	5			0.317	N	5	86	5.8	Y	1	Jones,A
20.75	802013	12.0	S	AAVSO	1	3			0.13	N	6.3	64	5.5	Y		Hayashi,A

DATE: 5 DEC 1985 DATE: 5 DEC 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)
5.57	802014	12.1	S	RASNZ	1.4	4			0.317	N	5	86	6.0	Y	1	Jones,A

DATE: 9 DEC 1985

DATE: 9 DEC 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
9.48	802015	12.8	S	RASNZ	0.8	1			0.317	N	5	86	6.0	Y	1	Jones,A	A

NOTE A Clear.

DATE: 10 DEC 1985

DATE: 10 DEC 1985

NETWORK: AMATEUR OBSERVATION

SUB-NETWORK: VISUAL APPEARANCE

Date(UT)	AON#	ml	MM	Chart	Coma size	DC	Tail	PA	Ap	Ins	f/	Pwr	Lim	DA	Site	Observer(s)	Notes
10.45	802016	12.9	S	RASNZ		1			0.317	N	5	86	6.0	Y	1	Jones,A	A

NOTE A Clear.