

**ANNUAL REPORT OF THE DIRECTOR
FOR FISCAL YEAR 1988 - 1989**

It is both a pleasure and a privilege for me to present my 16th Annual Report for fiscal year 1988 - 1989.

DATA MANAGEMENT

The AAVSO is increasingly becoming the center of variable star data around the world. We continue to receive observations from individuals worldwide, and collective observations from organizations in Argentina, Brazil, France, Hungary, the Netherlands, New Zealand, and Norway. These observations are included in our data files to make our files more complete. I am communicating with the Director of the Scandinavian Astronomical Association, Variable Star Section, who is interested in having that organization's data included in our files.

More and more observers are reporting their observations either on diskette or via electronic mail. These observations are reformatted as necessary to conform to our data format, using customized in-house software.

1. Current Data Processing: The computerization and processing of our current, incoming observations continue to be up to date. The IBM PC-compatible microcomputer we purchased last year through the Fund for Astrophysical Research grant has been invaluable in increasing the efficiency of our data processing. Since spring we have been able to process our data at Headquarters, thanks to the efforts of Jim Belfiore, a student whom I met during one of my talks last year and who is now an AAVSO member, and who converted the major portion of our FORTRAN computer programs written for the VAX to the format suitable for the IBM-PC's at Headquarters. Once the data have been processed we transfer them to the Center for Astrophysics via modem for archival storage. These improvements to our data processing procedures have immensely increased their efficiency and speed, increases essential in order to provide the AAVSO data support necessary for the HIPPARCOS mission in the observations of large-amplitude variable stars.

Presently we are investigating the market for large-volume storage media for the microcomputers at Headquarters so that we may transport all our data to Headquarters and have rapid access to them.

2. Computerization of the Archival Data from 1911 to 1963: Thanks to contributions from our members and grants from Clinton Ford and the Perkin Fund for the computerization of AAVSO archival data, we are continuing to computerize the 2 million observations made from 1911 to 1963. Presently, we have digitized and verified 77 percent of these observations, and are working with observations of observers whose last name begins with the letter M. However, we have already computerized the data of the most prolific AAVSO observers, such as L. Peltier, D. Rosebrugh, and C. Fernald.

3. Computerization of the plotting of observations: Until this spring, the light curve for each star in our observing program had been kept up to date by hand-plotting. We recognized that this procedure was not efficient but we had no choice because 1) we did not have facilities at Headquarters for storing large volumes of data, and 2) we did not have a computer program that could plot our data in a format and scale compatible with our existing light curves. One of our goals this year was to computerize the hand-plotting of data, and I am happy to report that we have now accomplished this, thanks to the efforts of staff members Edward Nguyen and, particularly, Grant Foster. Generating our light curves by computer will help immensely in keeping up-to-date and in being able to publish our data faster.

REQUESTS FOR AAVSO DATA

AAVSO data - your observing contributions - continue to be highly sought after by astronomers and other researchers throughout the world. This year, we have filled 169 such requests. These requests came from astronomers, researchers, students, and writers around the world. A list of names of individuals with their affiliation and location is given in Table IV at the end of my report. Figure 1 is a histogram of the number of requests for AAVSO data filled each year since 1974.

The list below and Figure 2 show the types of variable stars for which data have been requested.

1. Long period variables (44%) - Mira-type (27%),
semi-regular (17%)
2. Cataclysmic variables (34%) - dwarf novae (26%),
novae, recurrent novae, nova-like (8%)
3. R Coronae Borealis stars (5%)
4. RV Tauri stars (4%)
5. Sun (4%)
6. Eclipsing binaries (2%)
7. Symbiotic stars (1%)
8. Miscellaneous (6%) - suspected variables, RR Lyrae
stars, nebular variables

The categories listed below and shown in Figure 3 give the areas in which AAVSO data services have been used this year:

1. Reference material for articles and books on variable stars; research on variable stars and related subjects (31%);
2. Correlating ground-based and satellite (particularly IUE) multi-wavelength data with the optical (22%);
3. Scheduling observing runs using ground-based telescopes such as those at Lowell and LaPalma Observatories and satellites such as IUE and HIPPARCOS (22%);
4. Reporting variable star observations to the astronomical community via the **International Astronomical Union Circulars** (7%);
5. Setting up science projects for college and high school students (6%);
6. Simultaneous monitoring of targets during observing runs with ground-based telescopes and satellites (5%);
7. Data analysis using AAVSO observations (4%);
8. Setting up observing programs for high schools, colleges, and universities (3%).

I would like to share some examples of the requests for AAVSO data that we have filled this year.

The major scientific request this year has been to provide support for the observations of large-amplitude variable stars (long period variables) with the HIPPARCOS satellite. The HIPPARCOS Variable Star Coordinator and I worked closely to prepare the predicted light curves for 250 of these stars in preparation for their observation with the satellite. Computer-readable AAVSO observations covering 20 years, together with 75-year AAVSO data on the dates and magnitudes of maxima and minima of these stars, were used in the various methods of light curve predictions. These predicted light curves were then compared with recent observations, and discrepancies corrected. AAVSO data

processing procedures were revised to provide efficient data support during the lifetime of the satellite. For stars in HIPPARCOS' observing program but not the AAVSO's, AAVSO research assistant Margaret Lysaght surveyed Harvard Observatory's photographic plate collection and obtained revised and/or new elements and mean curves. For those stars in need of revision or new to the program, Headquarters staff and Charles Scovil carried out extensive chart revision and/or made new charts, utilizing photoelectric magnitudes of comparison stars provided by Dr. Michel Grenon and his team of observers.

The HIPPARCOS satellite was launched on August 8, 1989. However, a failure in the apogee booster motor prevented the satellite from rising above its initial low eccentric orbit. Efforts to raise its orbit were partially successful. At present the satellite's orbit has a 500 km perigee and a 36,000 km apogee, and with this low orbit, the lifetime of HIPPARCOS is unknown. These events have been distressing to all of us involved with the HIPPARCOS project.

Long period variables, in addition to being in the HIPPARCOS observing program, are once again becoming objects of great interest. As data from the **InfraRed Astronomical Satellite (IRAS)** continue to be used extensively by astronomers worldwide, AAVSO data on long period variable stars are playing a vital role in determining the phase and the optical brightness of these stars during the IRAS observations.

For example, Dr. Sander Slijkhuis of the University of Amsterdam, studying the spectra of Mira variables taken with IRAS, needed dates of maxima and minima covering over 5 years on 79 stars to determine their phases and to correlate the IRAS spectra.

Dr. Susan Kleinmann of the University of Massachusetts, another extensive user of both IRAS and AAVSO optical data, had an interesting situation with rho Cas, a bright supergiant semi-regular variable in the AAVSO observing program for decades. The pre-IRAS 10-micron infrared measurements were much fainter than the IRAS measurements, and the post-IRAS measurements were fainter than the IRAS measurements but brighter than the pre-IRAS ones. She contacted us to learn what had been the optical behavior of rho Cas. The AAVSO data showed that rho Cas had brightened at the time of the IRAS observations. Thus, our observations were very important in interpreting the infrared data.

Dr. Denis Gillet, of the Observatoire de Haut-Provence, France, also uses and acknowledges our long period variable data frequently in his publications. He is interested in shock-induced variability of emission lines, particularly H-alpha emission in long period variables. Recently, he became interested in another type of pulsating variable, RV Tauri stars, particularly AC Her. He requested our data on this star to correlate his spectroscopic observations with its optical behavior. He wrote "...the knowledge of the photometric variation of these long period stars was decisive to understand these kinds of pulsating stars, and I have appreciated and I appreciate again your constant help."

In the area of cataclysmic variables, this year again our services played a crucial role in correlating observations, scheduling observations made with ground-based telescopes and satellites, and interpreting multi-wavelength data.

For the IAU Colloquium on Novae held in Madrid, Spain, several astronomers requested our data to correlate their observations. For example, Dr. Robert Hjellming needed data on about ten novae to correlate his radio observations for a paper he was giving at this meeting, and Dr. Robert Gehrz requested optical data on six novae needed for the invited paper he was presenting on infrared results for classical novae.

Due to the success of the IUE observing run of Drs. Janet Drew and Frank Verbunt on YZ Cancri, they were granted IUE observing time for ten days to obtain the ultraviolet spectra of outbursts as early as possible at the onset for 15 cataclysmic variables with frequent eruptions. Thanks to the information phoned in by observers worldwide each night, we were able to inform them of the status of the stars in their program. They were able to obtain very early outburst spectra on YZ Cancri, SU Ursae Majoris, and RX Andromedae, to study these stars for mass loss through stellar wind.

We are a co-investigator with Dr. Albert Holm of the Computer Science Corporation at the Space Telescope Science Institute, observing at quiescence with the IUE a few cataclysmic variables with frequent outbursts, to search for the spectral characteristics of the white dwarf of these close binary systems. The goals of this search are to determine the distance and luminosity of the dwarf nova, to better understand the quiescent spectrum, and to provide evidence for the mechanism causing variations in stellar surface temperature following outbursts. For the three observing runs he had with the IUE, Dr. Holm was able to observe several target stars at quiescence, thanks to the information given by our observers.

SU Ursae Majoris is an SU UMA-type cataclysmic variable, the prototype of its kind. Even though this star gives its name to the subclass, superhumps, which are the signature of this type of dwarf novae and which occur during superoutbursts, had not been observed in its light curve until this year. The AAVSO played a key role in the discovery of superhumps in SU UMA. Dr. Andrej Udalski, a Polish astronomer at York University in Canada, is very interested in obtaining superhump data for these stars, and he had requested to be alerted when any of them had a superoutburst. Our observers informed us in April that SU UMA was having a superoutburst. We immediately alerted Dr. Udalski, who had returned that day from an observing run in Hawaii. He was able to observe SU UMA the next day at David Dunlop Observatory, near Toronto, and obtained excellent superhump high-speed photometric data. His three nights of photometric observing definitely showed superhumps with a period of 113 minutes, which is 3 percent longer than the orbital period of SU UMA. At last SU UMA became a "legitimate" SU UMA star.

We have been alerting Dr. Udalski to superoutburst occurrences in other dwarf nova, and he was able to obtain a superhump period for UV Persei, another suspected SU UMA star, again thanks to the notification from our observers of its eruption.

In addition to our frequent standard requests for AAVSO data and services, we occasionally receive extremely unusual ones. For example, someone called asking us for a list being compiled of citizens who want to travel to outer space. She had heard that there was such a legitimate list, and that the people in charge kept it current so they could contact those on the list at a moment's notice for their trip to space. We were not aware of such a list, so we referred her to NASA.

A stockbroker wanted to know if Jupiter was at opposition around August 2nd. Our investigation indicated that Saturn and Neptune were in opposition around that time, and that Jupiter's opposition would probably be around December 27th. When we asked what he wanted to do with this information, he told us he wanted to correlate a 60-year periodicity of Jupiter with the negative effect it might have on the stock market. Apparently, in 1929, at the time of the stock crash, Jupiter was in opposition, and he was curious to see if that would be the case in the summer of 1989.

These are only a few examples of the requests for AAVSO data and services we receive throughout the year. Astronomers depend upon the

unique service AAVSO observers provide by observing variable stars and alerting astronomers to the behavior of stars during observing runs. Thanks to the efforts of AAVSO observers, astronomers are able to obtain data on variable stars during very special or rare events.

RESEARCH COLLABORATIONS

We continue to participate in international collaborations with astronomers. This year we participated in collaborations with the following astronomers:

1. **Constanze la Dous, University of Cambridge, England**, who prepared a Catalogue of IUE Low-Resolution Spectra of Dwarf Novae and Nova-Like Objects, and included AAVSO light curves for 42 stars;

2. **Paula Szkody, University of Washington**, who is studying the ultraviolet and optical quiescence levels of cataclysmic variables to determine if there is a correlation between the changes of the levels in these two wavelength regions. We provided optical curves and extensive information on the stars observed with IUE during quiescence;

3. **Albert Holm, Computer Science Corporation, Space Telescope Science Institute**, who is observing cataclysmic variables at quiescence with the IUE;

4. **Roberto Viotti, CNR Astrofisica, Italy**, and **Scott Kenyon, Harvard-Smithsonian Center for Astrophysics**, who are preparing a monograph on symbiotic stars which will include the AAVSO optical light curves, showing the stars' historical behavior;

5. **John Cannizzo, McMaster University, Canada**, and **Annie Baglan and colleagues at the Meudon Observatory, France**, who are studying chaotic behavior in variable stars;

6. **Marie-Odile Mennessier, University of Montpellier** and **Bernard Diday, University of Paris, France**, who are attempting to predict the behavior of variable stars using artificial intelligence techniques in handling symbolic data;

7. **Graduate students of the Astronomy Department of Istanbul University**, and **Constanze la Dous**, who are studying cataclysmic variables;

8. **Ten astronomers from around the world**, who are preparing a book on the light curves of variable stars.

SUMMARY OF OBSERVATIONS

As always, our observers' enthusiasm, dedication, and devotion to variable star astronomy continue to amaze us each year. This year in particular the widespread participation in the observations of large-amplitude stars for the HIPPARCOS project has been truly impressive.

During the fiscal year 1988 - 1989, we received 234,944 visual and photoelectric observations from 546 observers, including 134 new observers, from around the world. These totals include 93,703 observations from 205 observers in 37 states of the United States and 141,241 observations from 341 observers in 33 countries. New York with 13,232 observations, Massachusetts with 11,801, and Colorado with 7,347 lead the states in the USA, while France with 21,732, South Africa with 18,309, and Hungary with 14,005 lead the countries abroad. These totals include the 988 adjusted observations of Orion variables, where ten observations count as one.

The grand total of observations recorded since the founding of the AAVSO in 1911 is 6,384,031.

Table I lists the number of observers and the total observational contribution from each country for this fiscal year. Table II gives the same information for each state in the USA. Table III is an alphabetical list of observers giving each person's observing initials, name, location, annual total of observations, and total of inner sanctum observations (magnitude 13.8 or fainter, and/or "fainter than" 14.0 or fainter).

This year 32 observers reported between 1000 and 2000 observations, 14 between 2000 and 3000, 7 between 3000 and 4000, and 5 between 4000 and 5000. Edward Halbach reported 5,220 and Bjorn Granslo 6,568 observations. Marvin Baldwin with 6,754, Gerald Dyck with 11,204, and Daniel Overbeek with 16,239 observations are our top three observers this year.

Gerald Dyck sent in the highest number of inner sanctum observations with 7,293 (65% of his observations), followed by Michel Verdenet with 2,158 (57% of his observations), and Michael Idem with 2,102 (45% of his observations).

We have received 940 photoelectric observations from 18 of our photometrists. Thanks to Howard Landis' dedication and tireless efforts, all our photoelectric data are computerized, reduced in a standard format, and archived by star. Several scientific papers have already been published using the AAVSO photoelectric data.

My special thanks go to each observer for his or her contribution. Remember, it is not the quantity but the quality of observations that counts. Sometimes, even one observation carries a lot of weight in trying to make sense of the behavior of a variable star.

My special thanks, also, to observers who call in their observations and keep us informed of the activity of some of the stars in our program. Also, I particularly thank observers who participate in ground-based and satellite observing programs for which our assistance is requested.

INTERNATIONAL COOPERATION

Our cooperation with variable star observers' groups around the world continues to increase, particularly due to the important role the observers are playing in the observations of large-amplitude stars for HIPPARCOS.

We continue to receive valuable data from members of the Variable Star Section of the Royal Astronomical Society of New Zealand, in a computerized form, kindly sent by Director Dr. Frank Bateson. These data on southern long period variables help immensely in refining the annual predictions for these stars. Frank Bateson, John Isles, the Director of the Variable Star Section of the British Astronomical Association, and Aare Kellomaki, the Director of the Scandinavian Variable Star Observers, disseminate to their observers the information in the **AAVSO Bulletin** on the predicted maxima and minima dates of long period variables.

Dr. Bateson also telefaxes monthly the RASNZ observations of HIPPARCOS stars so they may be included in our data files and utilized in checking the ephemerides prepared for the satellite. We very much appreciate this fast transmission of data on southern stars.

Members of the following variable star associations sent in

observations to the AAVSO either individually or as a group for inclusion in our data files for processing and publication:

1. Asociacion Argentina Amigos de la Astronomia
2. Association Francaise des Observateurs d'Étoiles Variables (France)
3. Astronomical Society of Southern Africa, Variable Star Section
4. Astronomischer Jugendclub (Austria)
5. Berliner Arbeitsgemeinschaft fur Veranderliche Sterne (West Germany)
6. British Astronomical Association, Variable Star Section (England)
7. British Astronomical Association of New South Wales (Australia)
8. Japan Astronomical Study Association
9. Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands)
10. Norsk Astronomisk Selskap, Variable Stjernegruppen (Norway)
11. Planetario e Observatorio Astronomico do Colegio Estadual do Parana (Brazil)
12. Pleione Valtozocsillageszlelo Halozat (Hungary)
13. Red de Observadores de Estrellas Variables - MIRA (Spain)
14. Royal Astronomical Society of Canada
15. Royal Astronomical Society of New Zealand, Variable Star Section
16. Scandinavian Astronomisk Selskap
17. Uniao Brasileira de Astronomia, Variable Star Commission (Brazil)
18. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium).

The exchange of literature with observatories, universities, and colleges around the world continues at an increasing rate.

The arrangements for the first European meeting of the AAVSO are continuing. During my trips to Europe for the preparation of the HIPPARCOS mission, I had the opportunity to have two meetings in Brussels with members of the Local Organizing Committee and Dr. Christiaan Sterken, and visit the sites where meeting activities will take place. We are looking forward to the participation of members, observers, and professional astronomers in this very special meeting.

As a testimony to our commitment to international cooperation and good will, the AAVSO Council has decided to invite John Isles, the Director of the British Astronomical Association, Variable Star Section, to attend our meeting in Brussels with the proceeds from last year's raffle.

MEMBERSHIP

This year, at the 77th Annual Meeting in Cambridge, Massachusetts, and the 78th Spring Meeting in Williamsburg, Virginia, we elected 75 new members. Of these, 65 joined as Adult-Annual, 5 as Junior-Annual, and 5 as Sustaining.

24 members changed their membership from Annual to Sustaining, thus supporting the operation of the Association doubly with their dues.

AAVSO PUBLICATIONS

The following were published by the AAVSO during this fiscal year:

Journal of the AAVSO, Vol. 17, No. 1 and 2, edited by Charles A. Whitney and prepared by Elizabeth O. Waagen and Susan M. Power. In

these two very large issues, Number 1 contained Author and Subject Indexes for Volumes 1 - 15, and Number 2 contained a significant number of papers as results of active variable star research by our members.

AAVSO Bulletin 52, the 1989 predicted dates of maxima and minima of 559 long period variable stars, prepared by Janet A. Mattei. This publication is used extensively by observers in planning their observations and by astronomers in scheduling observing runs.

AAVSO Circular, No. 217 - 227, edited and published by John E. Bortle and Charles E. Scovil;

AAVSO Alert Notices, No. 107 - 119, prepared by Janet A. Mattei.

AAVSO 1989 Ephemerides for Eclipsing Binaries and RR Lyrae Stars, prepared by Gerard Samolyk and Marvin E. Baldwin.

AAVSO Photoelectric Photometry Newsletter, Vol. 9, No. 1 - 3, edited and published by John R. Percy.

AAVSO Solar Bulletin, Vol. 44, No. 9 - 12, Vol. 45, No. 1 - 9, edited and published by Peter O. Taylor.

AAVSO Newsletter, No. 5 - 6, prepared by Susan M. Power.

My very sincere thanks and appreciation go to Marvin E. Baldwin, John E. Bortle, John R. Percy, Susan M. Power, Gerard Samolyk, Charles E. Scovil, Peter O. Taylor, Elizabeth O. Waagen, and Charles A. Whitney for the contribution of their time, wisdom, and expertise in the preparation of the above publications, which represent the AAVSO in the astronomical literature.

OTHER PUBLICATIONS WITH AAVSO PARTICIPATION

Predicted maxima and minima dates of bright long period variables and ephemerides of a few easy-to-observe stars were published by Janet A. Mattei in the Variable Stars section of the **1989 Observers' Handbook** of the Royal Astronomical Society of Canada.

Monthly Maxima and Minima of Bright Long Period Variables were published by Janet A. Mattei in **Sky & Telescope** magazine.

An article titled **The Services of the American Association of Variable Star Observers (AAVSO) to Astronomers** was published by Janet A. Mattei in the **AAS Newsletter**, No. 44 (March 1989).

IUE - ULDA Access Guide No. 1, International Ultraviolet Explorer - Uniform Low Dispersion Archive Dwarf Novae and Nova-like Stars - ESA SP 1114 was compiled by Constanze la Dous and published by the European Space Agency. In this publication, AAVSO light curves on 42 stars appear along with their IUE spectra.

Margaret Lysaght, AAVSO research assistant for the HIPPARCOS project, published four articles in **JAAVSO: Vol. 17**, 102 (1988), and **Vol. 18**, 10, 17, 28 (1989), on her photographic investigation of the Harvard College Observatory plate collection on those HIPPARCOS variable stars for which the AAVSO had no data.

Todd Veldhuizen, a high school student and participant in the University of Toronto Mentorship Program under the direction of John R. Percy, prepared a report on "Evidence of Chaotic Behavior in R Scuti."

MEETINGS ATTENDED AND TALKS GIVEN

This year has been an extremely busy one for me with an extraordinary number of meetings that I attended and talks that I gave on the AAVSO. I express my sincere thanks to NASA, NATO, and the AAVSO for the travel funds that made it possible for me to attend the following meetings:

1. "From Einstein to AXAF", in Cambridge, Massachusetts. This meeting celebrated the tenth anniversary of the Einstein HEAO-2 satellite. Papers were presented on significant findings with Einstein and there were extensive discussions on AXAF, NASA's x-ray satellite to be launched in the mid-1990's.

2. "Astroseismology", in Vienna, Austria. This meeting concentrated on various methods of studying the variability of stars, and on which methods work best for which types of stars and why.

3. "176th Meeting of the American Astronomical Society", in Boston, Massachusetts. This meeting was particularly valuable in obtaining information on recent research areas and findings and in meeting colleagues.

4. NATO Advanced Study Institute Meeting on "Active Close Binaries," in Kusadasi, Turkey. I gave an invited paper on cataclysmic variables, served on the Scientific Organizing Committee, and helped to plan and run the meeting.

5. Two meetings with some of the members of the HIPPARCOS Input Catalogue Consortium, in Paris, France. The first meeting was to discuss the details and procedures of the data support the AAVSO will provide before the launch and during the HIPPARCOS mission, the revision of comparison star magnitude sequences for a significant number of existing finder charts, and the acquisition of sequences using photoelectric photometry for HIPPARCOS stars newly added to the AAVSO observing program. The second meeting was to evaluate the AAVSO's newly developed data processing procedures for support of this project, to review the status of chart revision, and to identify areas in the data support for which we need to make improvements for maximum efficiency.

6. Meeting with the HIPPARCOS Variable Star Coordinator, in Montpellier, France. This meeting was to discuss the various methods used on the 250 large-amplitude variable stars for the preparation of their ephemerides, to evaluate the predictions on each of these stars, and to make the needed revisions to the ephemerides on those stars that showed discrepancies with recent observations.

7. Meeting with the Local Organizing Committee members of the First European AAVSO Meeting, in Brussels, Belgium. This meeting was to discuss meeting arrangements and check the meeting site and facilities.

I gave talks at the following educational institutions:

1. Wellesley College, on "Variable Stars and Related Student Projects";

2. Exeter Academy, on "Student Projects Appropriate for the Academy Astronomy Complex Currently Under Construction;"

3. Kufner Observatory, in Vienna, on "The AAVSO and Its Activities." I met several of our members and observers at this talk.

4. At the Astroseismology meeting in Vienna, a brief talk on some of "The AAVSO's Historical Light Curves;"

5. Southern Cross Astronomical Star Party, in Florida, on "The AAVSO and Its Activities;"

6. NASA Science Operations Management Operations Working Group, on "The AAVSO and Its Activities, and the Importance of Ground-Based Observations for Satellite Space Research." As a result of this talk, I was asked to prepare an article for the **AAS Newsletter** to inform the astronomical community at large of our activities.

7. American Collegiate Institute, in Izmir, Turkey, on "The AAVSO and Its Activities." This high school is the one from which I graduated, and so it was particularly rewarding for to me to give a talk on the AAVSO there.

8. Tufts University, College and University Teachers' Workshops, on variable stars and how to set up variable star observing programs.

9. Houston Astronomical Society, on "The AAVSO and Its Involvement in Space Research;"

10. Geneva Observatory, Switzerland, on "The AAVSO and Its Involvement with HIPPARCOS and other Space Research."

PERSONNEL AT HEADQUARTERS

We have had a significant turn-over in the Headquarters staff this year. Thus, it has been a challenge for the remaining staff members to carry out the day-to-day operations of the Association, and to meet the demands of the responsibilities we have assumed with various astronomical projects. I am happy to report that with the dedication, hard work, conscientiousness, and team spirit of the staff we are meeting these challenges. We are looking at the changes not as disasters but as opportunities, for it has given me the opportunity to re-organize the staff as will best meet our needs.

Presently the Headquarters staff consist of 6 full-time (including myself) and two part-time employees and three volunteer assistants. I would like to express my very sincere appreciation and thanks to Elizabeth O. Waagen, my senior technical assistant; Susan M. Power, our administrative assistant; Barbara Silva, our data entry technician; E. Grant Foster, our technical assistant; Melissa Gallagher, our office assistant; Michael Saladyga and Edward Nyguen, our part-time assistants; and Katherine Hazen, Frank McCorrison, Tomotaka Miyake, and George Raymond, our volunteer assistants.

ACKNOWLEDGEMENTS

We wish to express our special thanks and gratitude to Dr. Clinton B. Ford for his continuing generous support of the Association through his grants for special projects, for his generous contributions to our operations, and of course, for the permanent Headquarters which he has provided for the AAVSO and which we continue to enjoy and try to utilize to the fullest.

We have been very fortunate to receive strong financial support from government agencies and institutions this year. We gratefully acknowledge the financial support of the following government agencies:

National Aeronautics and Space Administration (NASA), for the grant award to provide data support for the HIPPARCOS satellite in the observation of large-amplitude variable stars;

National Oceanic and Atmospheric Administration (NOAA), for its

continued grant award for the operation of the activities of the AAVSO Solar Division.

Our special thanks go to the following institutions and individuals:

Smithsonian Astrophysical Observatory, for the computer time granted to us through the efforts of Prof. Owen Gingerich and Barbara Welther;

Erindale College of the University of Toronto, for the funding of the printing and mailing of the **AAVSO Photoelectric Photometry Newsletter**;

Stamford Museum, for allowing Charles Scovil and John Griese to use the 22-inch telescope at Stamford Observatory for variable star observations, and for Charles to use the facilities of the observatory to prepare charts and the **AAVSO Circular** and to revise the **AAVSO Variable Star Atlas**;

Dr. Michel Grenon and his observing team at Geneva Observatory in Switzerland, for obtaining photoelectric sequences for 51 stars in the HIPPARCOS observing program;

The Guide Star Catalog Team, in particular Conrad Sturch, at Space Telescope Science Institute, for providing us with finder charts and sequences for 47 stars in the HIPPARCOS observing program;

Dr. Martha Hazen of the Harvard-Smithsonian Center for Astrophysics, for granting us permission to use the Harvard photographic plates for research on those HIPPARCOS stars for which there were no AAVSO data;

The Astronomy Department at Colgate University, and particularly Dr. Thomas Balonek, for loaning their Cuffey photometer to us for the preparation of sequences for our finder charts;

Van Vleck Observatory of Wesleyan University, for allowing John Griese to use its astronomical facilities to obtain photoelectric sequences for some of our charts.

My sincere appreciation and thanks go to our Committee Chairmen, Marvin Baldwin, Kenneth Beckmann, Thomas Cragg, Robert Evans, Clinton Ford, Howard Landis, Charles Scovil, and Peter Taylor, who give very generously of their time and wisdom to run their committees.

My gratitude and thanks go to our Officers, Keith Danskin, Clinton Ford, John Percy, and Martha Hazen, and to our Council Members, Lewis Cook, Charles Fausel, George Fortier, John Griese, Wayne Lowder, Gerard Samolyk, Arthur Stokes, and Barbara Welther, for the truly generous contributions of their time and wisdom to assist in the successful operation of the Association.

My special thanks go to Theodore Wales, our Treasurer, for managing the finances of the Association so well, and for giving so much of his wisdom and time to help with financial matters of the operations of our Association, and for always being willing to give me sound advice when I ask for it.

My personal thanks go to my husband Mike, for his support, understanding, and tolerance of my long hours of work and absence to attend meetings.

Our sincere thanks go to our members who have continued their membership in the AAVSO despite the 100% increase in dues, and our

special thanks to those who have additionally contributed generously toward the operation of the Association to carry out its scientific responsibilities.

Our deep gratitude and thanks go to our untiring, dedicated, and devoted observers, who are the "blood" of the AAVSO. It is our observers' efforts and valuable astronomical contributions that make the AAVSO one of the leading astronomical institutions in the field of variable stars.

Janet Akyüz Mattei
Director

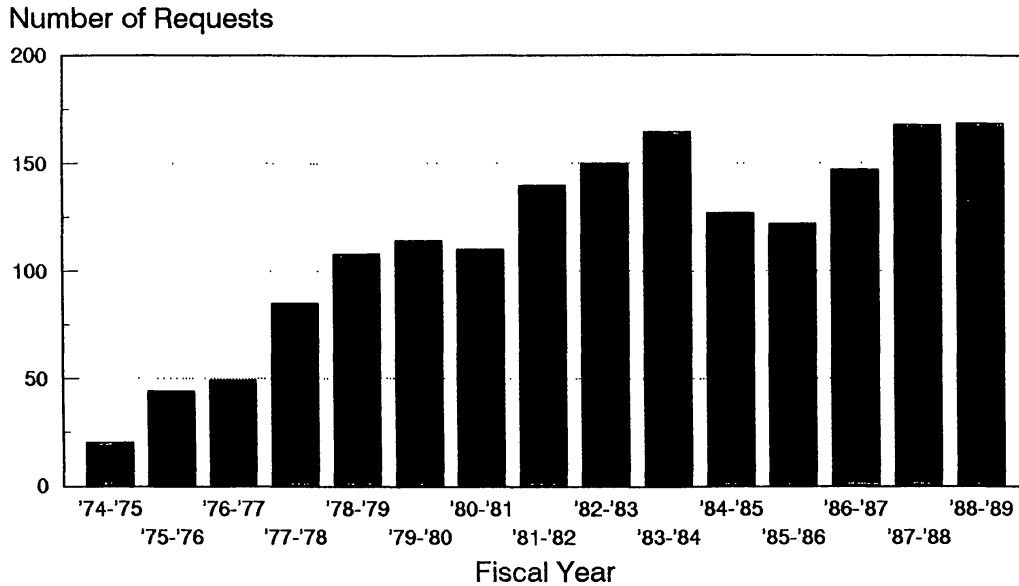


Figure 1. Number of requests for AAVSO data filled each fiscal year since 1974.

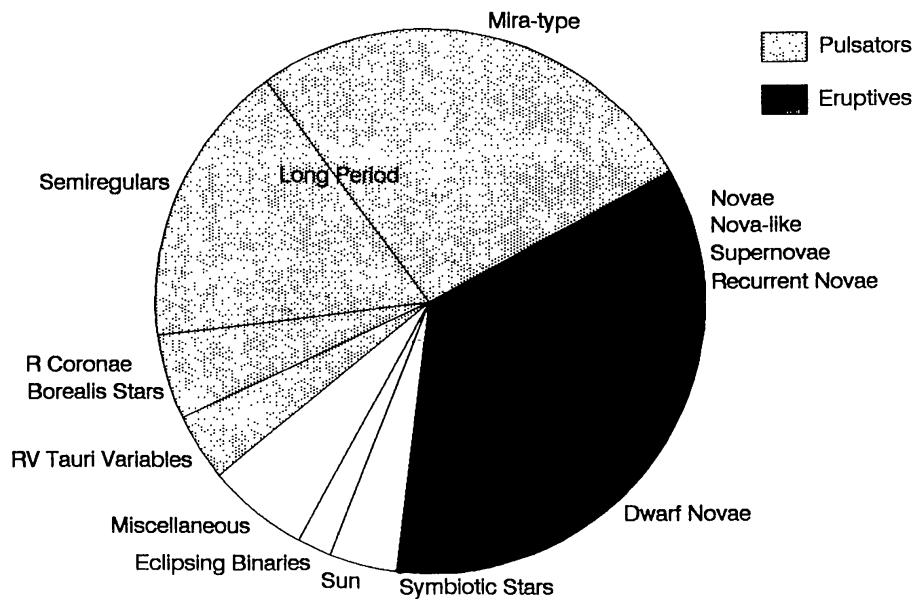


Figure 2. Types of variable stars for which AAVSO data were requested in fiscal 1988-1989.

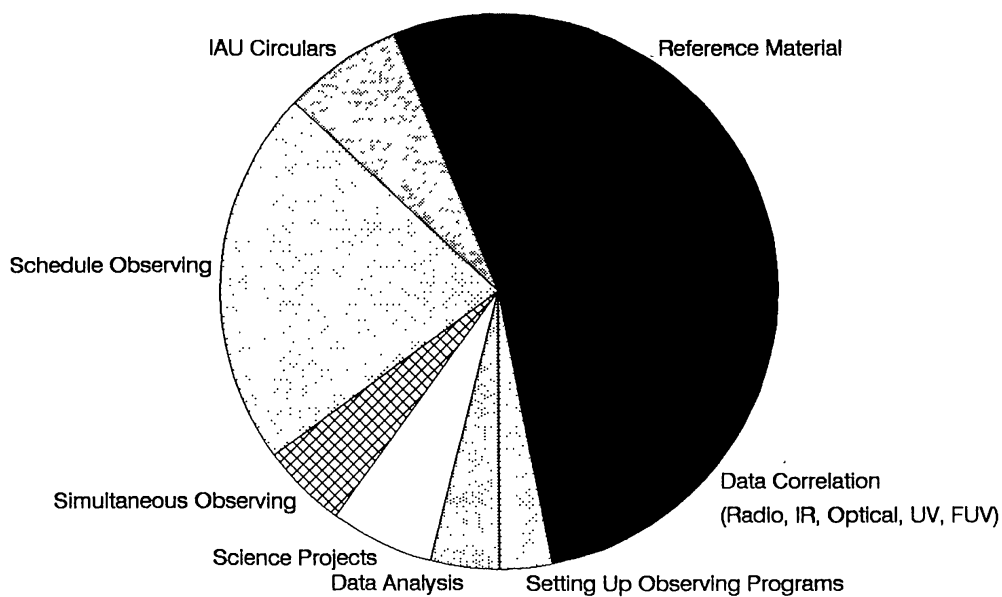


Figure 3. Areas in which AAVSO services were used in fiscal 1988-1989.

TABLE I

AAVSO Observer Totals by Country
1988 - 1989

Australia	4	1801	Israel	2	323
Argentina	5	2480	Italy	17	2556
Austria	3	246	Japan	17	3966
Belgium	16	3475	Malta	2	875
Brazil	5	2414	Malaysia	1	29
Canada	22	12148	Netherlands	15	8392
Costa Rica	1	27	Norway	16	10178
Czechoslovakia	4	165	New Zealand	22	807
Denmark	7	2001	Poland	7	4325
England	9	4644	Portugal	1	298
Finland	1	2767	Romania	2	2249
France	54	21732	USA	205	93703
German Dem Rep	1	225	USSR	2	1050
Greece	2	178	South Africa	11	18309
Fed Rep Germany	11	9916	Scotland	1	11
Haiti	1	7	Spain	11	8585
Hungary	66	14005	Switzerland	<u>1</u>	<u>931</u>
India	1	126	TOTAL	546	234944

TABLE II

U.S.A. AAVSO Observer Totals by State
1988 - 1989

Alabama	(AL)	1	36	Missouri	(MO)	4	189
Arkansas	(AR)	1	138	North Carolina	(NC)	1	381
Arizona	(AZ)	10	4015	New Hampshire	(NH)	3	45
California	(CA)	27	3255	New Jersey	(NJ)	5	3346
Colorado	(CO)	5	7347	Nevada	(NV)	1	25
Connecticut	(CT)	12	4061	New York	(NY)	11	13232
Florida	(FL)	9	4372	Ohio	(OH)	5	1355
Georgia	(GA)	2	110	Oklahoma	(OK)	3	137
Hawaii	(HI)	2	5001	Oregon	(OR)	1	21
Iowa	(IA)	3	154	Pennsylvania	(PA)	9	1579
Illinois	(IL)	11	7014	Rhode Island	(RI)	2	62
Indiana	(IN)	6	7033	Tennessee	(TN)	2	13
Kansas	(KS)	1	18	Texas	(TX)	15	3437
Louisiana	(LA)	3	244	Virginia	(VA)	3	3344
Massachusetts	(MA)	11	11801	Vermont	(VT)	2	454
Maryland	(MD)	7	2847	Washington	(WA)	6	2065
Maine	(ME)	2	318	Wisconsin	(WI)	7	4522
Michigan	(MI)	5	509	West Virginia	(WV)	<u>2</u>	<u>230</u>
Minnesota	(MN)	5	993	TOTAL		205	93703

TABLE III

AAVSO Observers 1988 - 1989

AAP A. P. ABBOTT, CANADA	561-	19	CMN R. D. CAMERON, AUSTRALIA	56	
ABT T. ABRAHAMSEN, NORWAY	148-	7	CMP R. J. CAMPBELL, FL	102-	1
AHA H. M. ADAMS, CANADA	14		CJA J.D. CAMPOS, SOUTH AFRICA	200	
AB W. B. ALBRECHT, HI	4967-	57	CXX*R. CAMPOS, FRANCE	2	
ADT D. ALTEWEIER, F.R.GERMANY	42		CIA L. CAMURRI, ITALY	14	
AAA A. A. ALVES, BRAZIL	429		CEA*B. CANDELA, FRANCE	387	
AMO M. AMORETTI, ITALY	3		CJR J. R. CARUSO, MA	19-	3
AOD O. I. ANDERSEN, NORWAY	59		CGF G. F. CHAPLE, JR., MA	79-	29
AJR J. R. ANDRESS, AZ	229		CYA A. CICHY, POLAND	233	
AWR R. S. ANDREWS, CA	47		TCE*E. CIFUENTES-TORRES, SPAIN	957-	2
ACA P. ANECA, BELGIUM	14		CPH*P. CLAISSE, FRANCE	57	
ANG M. ANGEL-BARANDA, SPAIN	62		CLK W. E. CLARK, MO	114-	2
AZP P. ANTALICZ, HUNGARY	13		CWP W. P. CLARKE, CA	86	
ARN*L. ARNOLD, FRANCE	46-	1	CJN J. COGGINS, ENGLAND	242	
ARZ*M. AROZENA, SPAIN	13		CMJ M. J. COLLINS, ENGLAND	32	
ARQ*B. ARQUIER, FRANCE	1		COL P. L. COLLINS, AZ	1014-	1
AKT T. W. ATKIN, HAITI	7		CMG&G. COMELLO, NETHERLANDS	3953-	392
ATW P. ATWOOD, CA	542		CGG G. CONLIN, WA	149	
BOZ~B. BAGO, HUNGARY	602-	61	CKX G. W. COOK, NEW ZEALAND	2	
BZA~A. BALAZS, HUNGARY	5		COO L. M. COOK, CA	129-	55
BM M. E. BALDWIN, IN	6754		CK S. P. COOK, AR	138	
BMQ*M. BARANDA-GOMEZ, SPAIN	105		COM T. COOPER, SOUTH AFRICA	573-	9
BEW W. L. BARNES, ENGLAND	28		CBT B. COPELAND, GA	6	
BSR S. BARONI, ITALY	363		CMK M. G. COUCKE, OK	3	
BBA B. B. BEAMAN, IL	197-	51	CLX L. B. COX, CANADA	15-	3
BJS J. R. BEDIANT, MN	8		CR T. A. CRAGG, AUSTRALIA	1679-	435
BTY T. BENNER, PA	501-	193	CRR R. E. CRUMRINE, NY	119	
BBE~B. BERENTE, HUNGARY	40-	7	CSE-D. CSERI, HUNGARY	3	
BNS*S. BERGERON, FRANCE	178		CZT~T. CSISZAR, HUNGARY	43	
BJK J. BERMAN, MA	2		CSI-I. CSOTI, HUNGARY	104	
BSA M. BESANA, ITALY	2		CGS M. J. CUMMINGS, IL	25	
BEZ*J. BEZECOURT, FRANCE	56		CUO D. R. CUROTT, AL	36	
BIC*L. BICHON, FRANCE	3693		DAH H. DAHLE, NORWAY	23	
BIG*N. BIGARRE, FRANCE	2		DOC-C. DANKO, HUNGARY	8	
BIL G. A. BILODEAU, CA	17-	11	DN P. DARNELL, DENMARK	7	
BKN A. J. BIRKNER, IL	20		DTA T. A. DARVANN, NORWAY	3	
BKL J. A. BLACKWELL, MA	15		DYJ*J. DAUBY, FRANCE	130	
BGB B. BLAGG, TX	68		DAJ J. F. DAVIS, MD	12	
BAX A. BOATTINI, ITALY	943-	142	DMA M. A. DAVIS, VA	21	
BOH D. BOHME, GERMAN DEM REP	225		DBR*B. DECOTTIGNIES, FRANCE	97	
BFK&F. BOINCK, NETHERLANDS	199		DFE*C. DEFFAYET, FRANCE	255-	20
BZL~L. BONCZ, HUNGARY	1		DEA R. DEMARTINO, CT	318-	7
BYR J. R. BONDONO, MI	42		DFR F. S. DEMPSEY, CANADA	30	
BRJ J. E. BORTLE, NY	4646-1347		DPB B. DE PONTIEU, BELGIUM	9	
BMU&R. BOUMA, NETHERLANDS	1041-	16	DNO O. A. DEREN, POLAND	167	
BDS R. R. BOYD, CA	220		DWJ J. DE WEERDT, BELGIUM	3	
BTB T. C. BRETIL, MN	140-	36	DPA A. DIEPVEN, BELGIUM	1336-	22
BHN&H. BRIL, NETHERLANDS	37		DRD R. D. DIETZ, CO	6	
BSM S. M. BRINCAT, MALTA	768		DIS-I. DINNYES, HUNGARY	4	
BKF F. BROCKMEIER, F.R.GERMANY	72		MDS M. DIONISI, ITALY	71	
BOS E. BROENS, BELGIUM	470		DAX A. W. DODSON, NEW ZEALAND	11	
BBT R. R. BROWNING, NJ	488		DPL P. L. DOMBROWSKI, CT	735-	144
BYV*Y. BRUCHER, FRANCE	53		DZS S. DOMINGUEZ, ARGENTINA	2266	
BOA*A. BRUNO, FRANCE	18		DUS*R. DUBOIS, FRANCE	37	
BDX D. BRUNT, NEW ZEALAND	4		DMO*M. DUMONT, FRANCE	295	
BYD R. K. BRYDEN, CANADA	64-	23	DUP*P. DUPASQUIER, FRANCE	332-	11
BUI*H. BURILLIER, FRANCE	42		DDV D. DURHAM, NEW ZEALAND	44	
CBB B. CABAKOVA, CZECHOSLOVAKIA	2		DGP G. P. DYCK, MA	11204-7293	
CBA*A. CABRERA-RODRIGUEZ, SPAIN	1768		EL J. E. ELLERBE, SPAIN	37	

TABLE III (cont'd)

AAVSO Observers 1988 - 1989

EWK K. EWING, FL	7	HAB R. H. HAYS, JR., IL	1140
FMA M. FADDA, ITALY	61	HY A. S. HEASLEY, FL	9
FJB*J.-B. FAURE, FRANCE	42	HLS L. T. HEEN, NORWAY	2490
FCA C. A. FAUSEL, MI	11	HEF M. A. HEIFNER, CO	502- 108
FJH&H. FEIJTH, NETHERLANDS	2482- 631	HCE C. E. HEIL, MD	28
FKJ~J. FEKETE, HUNGARY	366	HEL K. HELBAK, NORWAY	5
FRF~R. FIDRICH, HUNGARY	1676- 99	HGZ~Z. HERCEG, HUNGARY	39
FLO~Z. FILO, HUNGARY	3	HGC G. C.HERDMAN, NEW ZEALAND	40
FLT R. W. FLEET, ENGLAND	34- 11	HJN J. HERS, SOUTH AFRICA	180- 58
FEM E. M. FLYNN, MO	16	HES C.W. HESSELTINE, WI	13
FDA~A. FODOR, HUNGARY	93	HEV~Z. HEVESI, HUNGARY	223- 2
FFC~F. FOLDESI, HUNGARY	866- 16	HE F. L. HIETT, VA	3292
FD C. B. FORD, CT	63- 47	HNA N. A. HIGGINBOTHAM, LA	118
FT G. L. FORTIER, CANADA	57	HRI R. E. HILL, AZ	1000
FSR R. FRASER, SCOTLAND	11	HIR Y. HIRASAWA, JAPAN	1023- 176
FYE E. FREY, TX	18	HWD W. D. HODGSON, ENGLAND	12
FRH*A. FRICH, FRANCE	126	HLT G. M. HOLTER, WA	148
FAA A. FROSINA, ITALY	45	HZJ J. W. HOLTZ, PA	259
FMG G. C. FUGMAN, IA	85	HOO&G.HOOGVEEN, NETHERLANDS	45
GAK K. GAARDER, NORWAY	25	HDT D. H. HOROWITZ, TX	21
GEC E. C. GALE, IA	18	HFE~F. HORVATH, HUNGARY	24
GFA F. GALLI, ITALY	16	HSR S. HOSTE, BELGIUM	428- 17
GCA A. GARCIA, ARGENTINA	118	HJA J. A. HUDSON, CA	119
GMK M. GASKILL, TX	1	HOX O. R. HULL, NEW ZEALAND	15
GKR R.D.GECKELER, F.R.GERMANY	52	IML M. IDEM, NY	4656-2102
GCP C. GERBER, F.R.GERMANY	343	ILE~E. ILLES, HUNGARY	22
GZS~Z. GERE, HUNGARY	2	IPA P. A. INGRASSIA, ARGENTINA	8
GMJ M. J.GEYSER, SOUTH AFRICA	18	IFJ F. J. IVES, NEW ZEALAND	259
GIR W. A. GILCHRIST, JR., TX	45	JM R. A. JAMES, WI	21
GDI D. P. GILL, OH	23- 1	JKK K. K. JENSEN, NORWAY	7
GLF F. R. GLENN, NY	49	JCH&C. JOHANNINK, NETHERLANDS	12
GLW W. H. GLENN, NY	49	JOG G. E. JOHNSON, MD	238- 2
GPX W. GOLTZ, NEW ZEALAND	32	JR R. G. JOHNSON, MD	102- 9
GOT*T. GOMEZ, SPAIN	35	JON K. JONCKHEERE, BELGIUM	1
GOP P. N. GOODWIN, LA	115- 22	JA A. F. JONES, NEW ZEALAND	83
GOY*W. GOUY, FRANCE	18	JRX R. N. JONES, NEW ZEALAND	129- 1
GFG F. G. GRAHAM, PA	5	JRW R. W.JONES, SOUTH AFRICA	683
GRL B. H. GRANSLO, NORWAY	6568- 177	JOO~I. JOO, HUNGARY	11
GEZ~Z. GREGOR, HUNGARY	18	JJL J. L.JOOSTE, SOUTH AFRICA	17
GRI J. W. GRIESE, III, CT	1260- 850	KJO J. KAPLAN, IN	28
GIA A. GRIMA, MALTA	107	KYJ~L. KAROLY, HUNGARY	7
GSC*C. GROS, FRANCE	152- 12	KEI E. KATO, AUSTRALIA	41- 3
GML M. GRUNANGER, AUSTRIA	186	KTA*T. KATO, JAPAN	103
GCT C. GRUNNET, DENMARK	241	KTL L. KEITH, WI	79
GUB G. GUBBELS, BELGIUM	121	KNA~A. KELEMEN, HUNGARY	8
GMM M. G. GUMLER, TX	7	KRI~K. KERI, HUNGARY	1
GUN*J. GUNTHER, FRANCE	726- 13	KKP&P. KERKVLIT, NETHERLANDS	69
GMF M. A. GUTRIDGE, OK	5	KZT~T. KERTESZ, HUNGARY	3
HTY T. HAGER, CT	202- 44	KGD D. L. KING, CANADA	10
HK E. A. HALBACH, CO	5220- 223	KRB R. P. KING, MN	464- 166
HMG~G. HALMI, HUNGARY	615	KSI*S. KIYOTA, JAPAN	27
HMR R. HAM, CO	1551- 8	KLC C. F. KLAUSING, FL	46
HNJ J. T. HANSEN, CA	3	KON O. KLINTING, DENMARK	5
HPR C. T. HARPER, NH	13	KER E. KNAIN, NORWAY	17
HAV R. P. HARVAN, MD	221- 67	KPL P. W. KNEIPP, LA	11
HNO*N. HASEGAWA, JAPAN	29	KGT G. KNIGHT, ME	213
HKP K. P. HASLAG, VA	31	KSP S. P. KNIGHT, ME	105- 14
HSB W. HASUBICK, F.R.GERMANY	586- 4	KS J. KNOWLES, NH	10
HDO~D. HAVASSY, HUNGARY	20	KOC~A. KOCSIS, HUNGARY	1090

TABLE III (cont'd)

AAVSO Observers 1988 - 1989

KDF D. F. KOCYLA, CT	116		MSM*M. MASSON, FRANCE	12
KKF K. F. KOEHLER, AZ	653-	1	MTH H. MATSUYAMA, JAPAN	13
KLK G. A. KOHL, AZ	87		MLS A. MATTIONI, ITALY	7
KHL M. KOHL, SWITZERLAND	931		MGE G. MAVROFRIDIS, GREECE	103
KRS R. S. KOLMAN, IL	2135-	289	MYR E. H. MAYER, OH	1236- 539
KMA M. A. KOMOROUS, CANADA	1079		MJW J. W. MAYER, PA	256- 7
KMC M. KONACKI, POLAND	834		MAZ M. J. MAZUREK, CA	132
KRF R. F. KONIOR, NY	258-	8	MGU T. J. MCCAGUE, IL	6
KRT S. KORTH, F.R.GERMANY	1252-	534	MDP P. MCDONALD, CANADA	22
KOS~A. KOSA-KISS, ROMANIA	1365-	14	MGG G. L. MCGINNIS, WA	797- 127
KOA M. KOSHIRO, JAPAN	1645-	546	MKJ J. F. MCKENNA, NJ	1187- 54
KVI~I. KOVACS, HUNGARY	158		MBC B. P. MCMILLAN, NC	381
KVK~K. KOVACS, HUNGARY	8		MIB I. B. MEDIAS, NORWAY	283
KZZ~Z. KRANICZ, HUNGARY	16		MED K. J. MEDWAY, ENGLAND	2470
KWO*W. KRIEBEL, F.R. GERMANY	39		MDG D. L. MEGGINSON, MO	15
KIS G. KRISCH, F.R. GERMANY	848		MNZ E. MENEGUZZO, ITALY	183
KRK K. KRISCIUNAS, HI	34		MPY P. MEYERS, SOUTH AFRICA	48
KRU J. KRUTA, CZECHOSLOVAKIA	73		MDI I.A.MIDDLEMIST, ENGLAND	1209- 10
KUC*S. KUCHTO, FRANCE	434		MOK O. MIDTSKOGEN, DENMARK	1448- 497
KSA*A. KUCINSKAS, USSR	973		MIU M. MIKUTIS, IA	51
KUD~G. KUDOR, HUNGARY	2		MTL R. E. MILTON, CA	111
KPG&G. KUIPERS, NETHERLANDS	77-	5	MJI J. R. MINER, IN	4
LCZ~A. LACZKO, HUNGARY	7		MZS~A. MIZSER, HUNGARY	2237- 46
LDT~T. LADANYI, HUNGARY	1		MCE E. MOCHIZUKI, JAPAN	174
LAR R. LAMBERT, TX	28		MMI M. MOELLER, F.R.GERMANY	2703
LND H. J. LANDIS, GA	104		MOD D. G. MOHRBACHER, OH	82
LBO B. J. LANGFJAERAN, NORWAY	17		MMM*M. MOMOSE, JAPAN	41
LMF M. F. LARA, BRAZIL	378		MAR R. MONELLA, ITALY	341- 188
LJS J. J. LAVIGNE, FL	76-	8	MDE D. R. MONGER, FL	42
LZT T. LAZUKA, IL	1439		MOR R. L. MONSKE, PA	193- 2
LKD D. C. LEAKE, IL	332		MJ A. C. MONTAGUE, MI	287
LEB*R. LEBERT, FRANCE	141		MOA A. MONTANELLI, ARGENTINA	20
LST*S. LECOMTE, FRANCE	88		MOJ J. E. MORGAN, AZ	2- 1
LRU*R. LEGENDRE, FRANCE	2		MOI*E. MORILLON, FRANCE	444- 5
LPI*P. LEISY, FRANCE	43		MYM*M. MORIYAMA, JAPAN	2
LNZ G. F. LENZ, CT	33-	2	MOW W. C. MORRISON, CANADA	4680- 159
LSX A. LESLIE, NEW ZEALAND	7		MKH S. MUKHERJEE, INDIA	126
LEV A. J. LEVEQUE, CA	68		MNS*S. MUNIER, FRANCE	8
LWO W. LEWANDOWSKI, POLAND	1094		MSU S. K. MURPHY, TX	6
LJK J. LINGAAS, NORWAY	167		MUY E. MUYLLAERT, BELGIUM	368
LKB K. B. LINSLEY, MA	20		NYI~I. NAGY, HUNGARY	2
LJH J. H. C. LIU, CA	2		NZO~Z. NAGY, HUNGARY	444
LWT T. W. LOHVINENKO, CANADA	226		NMA~A. NAGY-MELIKUTI, HUNGARY	11
LGV G. V. LOPATYNSKI, CA	33-	6	NKA*K. NARUMI, JAPAN	243
LGN G. R. LOPRIORE, MA	123		NRH R. H. NELSON, CANADA	279- 8
LOS*S. LORSIGNOL, FRANCE	20		NWL&W. NOBEL, NETHERLANDS	200
LEJ E. J. LOS, NH	22		NVK M. W. NOVAK, TX	324- 26
LOT H. LOUTH, WA	605		NVD~D. NOVOTNY, HUNGARY	24
LTB T. F. LUBBERS, MN	372		NOG G. T. NOWAK, VT	130
LBK S. J. LUBBOCK, ENGLAND	404-	197	OBT T. V. O'BRIEN, CT	4
LBG G. C. LUBCKE, WI	529-	9	OCN S. O'CONNOR, CANADA	209
LKA K. D. LUEDEKE, WA	160		OER E. OFEK, ISRAEL	298
LEX E. LUMLEY, NEW ZEALAND	20		OKJ J. O'KANE, NEW ZEALAND	7
LJO&J. O. LUURS, NETHERLANDS	11		OJO J. O. OLESEN, DENMARK	163
LBB B. A. LUX, PA	278		ONO*O. ONODERA, JAPAN	52
MKE R. P. MANSKE, WI	438		OV E. G. ORAVEC, NY	2925
MCO M. MARCARIO, CA	201-	16	ORW R. W. ORTEL, RI	10
MJG*J.-G. MARTIN, FRANCE	10		OSK K. OSAER, BELGIUM	12
MRX H. MARX, F.R.GERMANY	1642-	105	OJR J. RIPERO OSORIO, SPAIN	4199- 863

TABLE III (cont'd)

AAVSO Observers 1988 - 1989

OSV~L. OSVALD, HUNGARY	66	SDS D. J. SANDS, AZ	4
OB M.D.OVERBEEK,S.AFRICA	16239- 179	SGU~G. SARI, HUNGARY	270
PLA A. PADILLA FILHO,BRAZIL	556	SCK B. E. SCHAEFER, MD	18
PTH T. G. PANNUTI, NY	3	SCQ T. A. SCHELL, TX	122- 2
PAO S. PAOLANTONIO,ARGENTINA	68	SSC S. M. SCHIMPF, CA	27
PPS~S. PAPP, HUNGARY	2820- 60	SMF F. SCHMIDT, NY	24
PLI*L. PARMEGGIANI, ITALY	103	SRD R. H. SCHMIDT, MN	9
PLZ L. PAZZI, SOUTH AFRICA	38	SAQ&A. SCHOLTEN, NETHERLANDS	65
PDN D. C. PEARCE, TX	11	SCZ*E. SCHWEITZER, FRANCE	1795- 72
PN A. E. PEARLMUTTER, MA	237	SCX E. SCIARONI, MO	44
PEI E. PEDERSEN, DENMARK	74- 10	SCE C. E. SCOVIL, CT	984- 509
PEG*C. PEGUET, FRANCE	150- 1	SEZ*J. SEGONZAT, FRANCE	334
PMR M. R. PERALA, FINLAND	2767- 122	SRZ~Z. SERES, HUNGARY	148
PAE A. J. PEREIRA, PORTUGAL	298- 2	SEN&P. SERNE, NETHERLANDS	127
PZA*A.PEREZ-REVILLA,FRANCE	1282	SVY N. SEVERIJNS, BELGIUM	114
POD*D.PESTANA-GALVAN,SPAIN	1323	SHS S. B. SHARPE, CANADA	3109- 51
PKM M. PETEK, BRAZIL	4	SSA A. P. SHARPLESS, WA	206- 2
PED D. B. PETTENGILL, FL	274- 4	SHQ O. SHEMER, ISRAEL	25
PKT J. A. PICKETT, AZ	96	SHW W. R. SHERMAN, IN	182
PKI O. R. PIECHOWSKI, MI	25	SIH*M. SILHOL, FRANCE	1031
PIA A. PIEMONTE, ITALY	52	SOF O. SKJAERAASEN, NORWAY	17
PTZ*J. PIETZ, F.R.GERMANY	67	SJX J. A. SMIT,SOUTH AFRICA	256
PIJ~J. PIRITI, HUNGARY	86	SMQ M. S. SMITH, AZ	892
PLS G. PLESIER, BELGIUM	193	SRV R. V. SMITH, CA	108
PLR R. M. POOLE, TX	60	SNX L. F. SNYDER, NV	25
PLL M. R. PORCELLINO, IL	13	SSZ~Z. SOOS, HUNGARY	85
POS*O. POSA, CZECHOSLOVAKIA	33	SOH H. SORENSEN, DENMARK	63
POH*T. POSCH, FED REP GERMANY	3	SJZ J. SPEIL, POLAND	1070
PSZ~K. POSZTOBANYI, HUNGARY	4	SPO J. SPONGSVEEN, NORWAY	346
PWR R. E. POWASKI, OH	12	SC C. E. SPRATT, CANADA	74- 2
PHD H. D. POWELL, TN	8	SFJ F. J. ST. LOUIS, CANADA	7
POX M. POXON, ENGLAND	213	SSP P. A. STAMUS, CO	68
PJN*J. PRAT, FRANCE	18	SYJ J. B. STANBURY, JR., MA	28
PDO D. P. PRAY, RI	52	SKS T. STECKNER, CANADA	9
PCJ C. J. PREDOM, CT	117	STF G.STEFANOPOULOS,BRAZIL	1047
PDQ*D. PROUST, FRANCE	72	STI P. C. STEFFEY, FL	2970- 523
PSL F. PUJOL, SPAIN	8- 2	SGP P. E. STEGMANN, NJ	88
RJT J. T. REED, OK	129- 1	SET C. STEPHAN, FL	846- 40
REC C. C. REESE, TN	5	SWT R. J. STEWART, NJ	487- 3
REP P. REINHARD, AUSTRIA	17	STQ N. STOIKIDIS, GREECE	75
RNT C. C. REINHART, OH	2	SUK M. T. STUKA, CA	3
RJI J. I. RIGGS, NY	374- 57	SUS D. SUSSMAN,F.R.GERMANY	2330
RLR R. L. ROBINSON, WV	17- 1	SVM M. A. SVANEMSLI, NORWAY	3
RZD D. RODRIGUEZ, SPAIN	6- 1	SVN P. L. SVENTEK, TX	2514- 73
RWJ W. J. ROEDER, PA	1	SBG~G. K. SZABO, HUNGARY	14
RGP P. ROGGEMANS, BELGIUM	115	SZW R. SZAJ, POLAND	52
RJA*J.-P. ROHART, FRANCE	36	SZX~Z. SZALMA, HUNGARY	39
RGB G. B. ROSENBERG, CA	155	SKV~L. SZARKA, HUNGARY	55
RSW W. ROSENTHAL, CA	2	SAO~A. SZAUER, HUNGARY	170
ROG G. M. ROSS, MI	144- 46	SZK~G. SZITKAY, HUNGARY	7
RLU*L. ROSSI, ITALY	234- 4	SUZ~P. SZUTOR, HUNGARY	111
RR R. E. ROYER, CA	202- 24	TDB D. B. TAYLOR, CANADA	1025- 26
RPH H. RUMBALL-PETRE, CA	13	TNX N. W. TAYLOR,NEW ZEALAND	27
RKR K. RUMINSKI, POLAND	875	TSZ~S. TEICHNER, HUNGARY	56
SJQ A. SAJTZ, ROMANIA	884	TNI N. TENERIFFA, ITALY	19
SSU S. SAKUMA, JAPAN	395- 61	TPS~I. TEPLICZKY, HUNGARY	442
SYX R. SALISBURY, NEW ZEALAND	5	TSE*S. TERABAYASHI, JAPAN	53
SAH G. SAMOLYK, WI	3234- 10	TMS*F. TEMIS-SOTO, SPAIN	85
SSR R. SAMPSON, CANADA	321	TAX A. THOMAS, F.R.GERMANY	46

TABLE III (cont'd)

AAVSO Observers 1988 - 1989

TMR R. THOMAS, CA	195	WKP P. R. WALKER, VT	324-	24
THR R. R. THOMPSON, CANADA	226	WKR T. D. WALKER, OR	21	
THU*B. THOUET, FRANCE	304	WND*D. WALLIAN, FRANCE	154	
TSR~I. TISZINGER, HUNGARY	55	WMA*M. WATANABE, JAPAN	53	
TJO J. H. TOBIN, CT	22	WTT*T. WATANABE, JAPAN	7	
T9 K. TOMITA, JAPAN	61-	1 WDX D. WATSON (MRS.), NEW ZEALAND	20	
TTE~E. TOTH, HUNGARY	2	WER R. J. WEBER, KS	18	
TTK~K. TOTH, HUNGARY	148	WC R. E. WEND, IL	1596-	9
TTH~T. TOTH, HUNGARY	92	WDP D. P. WERNER, CA	1	
TFN F. N. TRAYNOR, AUSTRALIA	25	WEF F. R. WEST, MD	2228	
TBX B. TREGASKIS, NEW ZEALAND	3	WTJ J. E. WEST, TX	202-	70
TDM D. M. TROIANI, IL	111-	2 WRA R. A. WEST, AZ	38	
TCK G. E. TUCKER, MA	3	WMB&M. WESTENBROEK, NETHERLANDS	68	
TUD~B. TUDOS, HUNGARY	135	WTK~K. WIESZT, HUNGARY	84	
TUC C. TURK, SOUTH AFRICA	57	WI D. B. WILLIAMS, IN	46-	14
TDX D. TURNER, NEW ZEALAND	5	WPX P. WILLIAMS, NEW ZEALAND	46	
TYS R. L. TYSON, NY	129	WLX L. WILLIAMSON, NEW ZEALAND	14	
UND G. E. UNDERHAY, CA	154	WJY J. WILMS, BELGIUM	253	
VFR*F. VACLIC, CZECHOSLOVAKIA	57	WLP P. WILS, BELGIUM	25	
VAI*J.-P. VAIDIS, FRANCE	5	WSN T. W. WILSON, WV	213-	77
VKA&A. VANKALMTHOUT, NETHERLANDS	6	WNB B. I. WINGATE, NJ	1096	
VNL F. R. VAN LOO, BELGIUM	13-	3 WUX R. D. WINNETT, NEW ZEALAND	26	
VVR~R. VAVREK, HUNGARY	9	WCL C. L. WOMACK, TX	10	
VED*P. VEDRENNE, FRANCE	3835	WNG L. WONG, MALAYSIA	29	
VTR R. VENDITTI, ITALY	66	WJM J. E. WOOD, CA	401	
VC C. VENIMORE, NEW ZEALAND	8	WMI M. J. WRIGHT, WI	208	
VRG R. VENNE, CANADA	108	WRO R. L. WRIGHT, CA	229	
VET*M. VERDENET, FRANCE	3777-2158	YAM*M. YAMADA, JAPAN	45	
VEZ*T. VEZAUSKAS, USSR	77	YRK D. O. YORK, CA	55-	4
VIA*J. VIALLE, FRANCE	46	YON R. R. YOUNG, PA	14	
VNZ~Z. VICIAN, HUNGARY	163	YUR J. A. YURCHESYN, CANADA	23	
VGP*P. VIGNIER, FRANCE	716-	36 ZLT~T. ZALEZSAK, HUNGARY	96-	1
VLL A. VILLALOBOSCHAVES, COSTA RICA	27	ZUT S. ZANUT, ITALY	136	
VMI*M. VINCENZI, FRANCE	5	ZPA P. A. ZELLER, IN	19	
VGJ G. J. VINCI, CT	207-	15 ZIN S. T. ZINN, PA	72	
VOI~P. VOITH, HUNGARY	27	ZRE R. E. ZISSELL, MA	71	
VOL W. VOLLMAN, AUSTRIA	43	ZSJ~J. ZSELI, HUNGARY	1	

* also member of Association Française des Observateurs d'Étoiles Variables (AFOEV).

~ also member of Pleione Valtozocsillag-eszlelo Halozat (PHV) (Hungary).

& also member of Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (NVVS,WVS).

TABLE IV

Individuals Requesting AAVSO Data
During Fiscal Year 1988 - 1989*

Name	Affiliation
Bagchi, S.	Birla Industrial and Technical Museum, India
Barbieri, J.	Phoenixville, PA
Barrette, M.	Dudley, MA
Belserene, E.	Maria Mitchell Observatory, MA
Benjamin, R.	University of Texas, TX
Benson, P.	Wellesley College, MA
Bird, M.	Radio Australia
Blair, W.	Johns Hopkins University, MD
Bopp, B.	University of Toledo, OH
Buta, R.	University of Alabama, AL
Cadmus, R.	Grinnell College, IA
Cannizzo, J.	McMaster University, Canada
Chapin, C.	Time-Life Books, MD
Charles, P.	University of Oxford, England
Ciccariello, P.	Port Washington Public Library, NY
Clafin, S.	Lockheed Palo Alto Research Laboratory, CA
Clayton, G.	NASA Headquarters, DC
Collins, D.	Warren Wilson College, NC
Collins, P.	Scottsdale, AZ
Crifo, F.	Observatoire de Meudon, France
Crifo, F.	Observatoire de Meudon, France
Crifo, F.	Observatoire de Meudon, France
Crifo, F.	Observatoire de Meudon, France
Crifo, F.	Observatoire de Meudon, France
Dixon, E.	Time-Life Books, MD
Downes, R.	Applied Research Corporation, MD
Drew, J.	University of Oxford, England
Drew, J. <u>et al.</u>	University of Oxford, England
Drew, J. <u>et al.</u>	University of Oxford, England
Drew, J. <u>et al.</u>	University of Oxford, England
Drummond, D.	Rockdale, TX
Figer, D.	Northwestern University, IL
Figer, D.	Northwestern University, IL
Flood, J.	Greenville, SC
Friedlander, B.	Final Frontiers magazine, VA
Fullbright, H.	University of Rochester, NY
Gale, E.	Audubon, IA
Garnavich, P.	University of Washington, WA
Gehrz, R.	University of Minnesota, MN
Gehrz, R.	University of Minnesota, MN
Gerencer, J.	Moravian College, PA
Gillet, D.	Observatoire de Haute-Provence, France
Graham, J.	Carnegie Institute, DC
Grenon, M.	Observatoire de Geneve, Switzerland
Groleau, R.	WGBH-TV, Boston, MA
Groshek, M.	Gareth Stevens Publishing, WI
Harper, C.	Phillips Exeter Academy, NH
Hartkopf, B.	Georgia State University, GA
Hartmann, L.	Harvard-Smithsonian Center for Astrophysics, MA
Hill, R.	Tucson, AZ
Hjellming, R.	National Radio Astronomy Observatory, NM
Holm, A.	Computer Science Corporation, MD
Houck, J.	Cornell University, NY
Hron, J.	Universitat Wien, Austria
Hull, G.	NASA Ames Research Center, CA
Jarman, M.	Pensacola, FL
Kaiser, D.	Columbus, IN
Kaiser, D.	Columbus, IN

TABLE IV (cont'd)

 Individuals Requesting AAVSO Data
 During Fiscal Year 1988 - 1989*

Kameswararao, N.	Indian Institute of Astrophysics, India
Karovska, M.	Harvard-Smithsonian Center for Astrophysics, MA
Kenyon, S.	Harvard-Smithsonian Center for Astrophysics, MA
Kleinman, S.	University of Massachusetts, MA
Kleinman, S.	University of Massachusetts, MA
Kleinman, S.	University of Massachusetts, MA
laDous, C.	University of Cambridge, England
laDous, C.	University of Cambridge, England
laDous, C.	University of Cambridge, England
Lamb, D.	University of Chicago, IL
Lehar, J.	Massachusetts Institute of Technology, MA
LeVan, P.	Air Force Geophysics Laboratory, MA
Levy, D.	Tucson, AZ
Lopez, C.	Yale University, CT
MacRobert, A.	Sky & Telescope magazine, MA
MacRobert, A.	Sky & Telescope magazine, MA
MacRobert, A.	Sky & Telescope magazine, MA
MacRobert, A.	Sky & Telescope magazine, MA
MacRobert, A.	Sky & Telescope magazine, MA
Maizels, C.	University of California, CA
Maizels, C.	University of California, CA
Mansperger, C.	Ohio State University, OH
Mansperger, C.	Ohio State University, OH
Mansperger, C.	Ohio State University, OH
Mapp, J.	Wisconsin Energy Office, WI
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsden, B.	Harvard-Smithsonian Center for Astrophysics, MA
Marsh, T.	Space Telescope Science Institute, MD
Marsh, T.	Space Telescope Science Institute, MD
Marsh, T.	Space Telescope Science Institute, MD
Mattei, M.	Lincoln Laboratories, MA
Mattei, M.	Lincoln Laboratories, MA
Mauche, C.	Los Alamos National Laboratory, NM
Mauche, C.	Los Alamos National Laboratory, NM
Mauche, C.	Los Alamos National Laboratory, NM
Mauche, C.	Los Alamos National Laboratory, NM
Mauche, C.	Los Alamos National Laboratory, NM
Mauche, C.	Los Alamos National Laboratory, NM
McCullough, P.	Space Sciences Laboratory, CA
McHugh, J.	Waterbury, CT
McRae, A.	Marshall Simmons Middle School, MA
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France

TABLE IV (cont'd)

 Individuals Requesting AAVSO Data
 During Fiscal Year 1988 - 1989*

Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menessier, M.-O.	USTL, Montpellier, France
Menten, K.	Harvard-Smithsonian Center for Astrophysics, MA
Miller, G	Fontana, CA
Moore, C.	Massachusetts Institute of Technology, MA
Mumford, G.	Tufts University, MA
Nook, M.	University of Wisconsin, WI
Paresce, F.	Space Telescope Science Institute, MD
Pasquini, L.	European Southern Observatory, Chile
Patel, N.	Raman Research Institute, India
Percy, J.	University of Toronto, Canada
Percy, J.	University of Toronto, Canada
Polomski, E.	Boston University, MA
Porcellino, M.	Chicago, IL
Raymond, J.	Harvard-Smithsonian Center for Astrophysics, MA
Robinson, L.	Sky & Telescope magazine, MA
Robinson, L.	Sky & Telescope magazine, MA
Schacter, J.	University of California, CA
Schell, E.	U.S. Kids magazine, CT
Sheane, C.	Arlington, VA
Shinbu, M.	Japan Economic Journal , Japan
Simpson, W.	Lawrence, KS
Slijkhuis, S.	University of Amsterdam, Netherlands
Slijkhuis, S.	University of Amsterdam, Netherlands
Slovak, M.	University of Wisconsin, WI
Smith, M.	NASA Goddard Space Flight Center, MD
Smith, R.	Oxnard, CA
Stencel, R.	University of Colorado, CO
Stone, D.	Moraga, CA
Szkody, P.	University of Washington, WA
Torres, G.	Harvard-Smithsonian Center for Astrophysics, MA
Tung, J.	Flushing, NY
Udalski, A.	York University, Canada
Udalski, A.	York University, Canada
Udalski, A.	York University, Canada
van Amerongen, S.	University of Amsterdam, Netherlands
Vinson, E.	Duncan, OK
Wallerstein, G.	University of Washington, WA
Wallerstein, G.	University of Washington, WA
Wallerstein, G.	University of Washington, WA
Watson, M.	University of Leicester, England
White, R.	Draper Laboratories, MA
Wingle, K.	Auburn, PA
Wood, J.	University of Cambridge, England
Wood, J.	University of Cambridge, England
Wood, J.	University of Cambridge, England
Zsoldos, E.	Konkoly Observatory, Hungary

* Name repeated for each request