

## ANNUAL REPORT OF THE DIRECTOR FOR FISCAL YEAR 1991 - 1992

Janet Akyüz Mattei  
Director, AAVSO  
25 Birch Street  
Cambridge, MA 02138

It is my privilege to present to you my 19th Annual Report for fiscal year 1991 - 1992.

### 1. Data Management and Data Processing

#### 1.1. Computer Facilities

Thanks to a grant from NASA and contributions from Clinton B. Ford, we have upgraded our Headquarters computer systems. We now have ten IBM-compatible MS-DOS personal computers (286, 386, and 486) all connected to each other by our LANtastic local area network. This networking provides access to programs and files in the system from every terminal, and gives us increased speed in accessing data from the database and in fulfilling the data support required for our various scientific responsibilities.

#### 1.2. Computer Program Development

Thanks to the efforts of our computer programming expert Grant Foster, we now have programs that accomplish the following:

- a. Plot on-screen the data for any star. This program also gives us the option of splitting the screen - that is, plotting on the same screen a second light curve, of the same star or another star;
- b. Expand any portion of a light curve on the screen;
- c. Identify the observation(s) of one or more observers on a light curve on the screen;
- d. Examine and evaluate an observation and change its status with the use of a mouse-driven cursor;
- e. Perform various data analyses on any portion of a light curve on the screen;
- g. Measure parameters of the light curve on the screen.

These programs have been developed to aid us in the high level of quality control that we exercise in the evaluation, publication, and dissemination of the data in the AAVSO International Database.

#### 1.3. Computerization and Processing of Current Data

We receive observations each month via a variety of media and means, including paper reports sent by mail, diskette files using standardized computer programs we provide to observers, electronic mail, and facsimile. Observations come from individuals from around the world and collectively from observers in Hungary, France, Netherlands, South Africa, South America, and New Zealand. It has been quite a challenging and time-consuming effort to eliminate duplicate observations that come from the same observer via different means and sources and in different months. We have developed computer programs to check for duplications within a month's data or within the archives, alert us, and eliminate the duplicate observations.

I am happy to report that we are up-to-date in the computerization and processing of the incoming observations each month. This is particularly important

because of the data support we are providing for the observations of long period variables with the HIPPARCOS satellite, the recently-launched EUVE satellite, and for other satellites.

We have developed programs to check thoroughly the computerization of the monthly observations. Before the monthly data are added to the AAVSO International Database of over 5 million observations, we use 13 different computer programs to fully process and check the data!

#### 1.4. Missing Data

I reported to you last year that some data, going back to October 1988, were missing from the data files due to a bad sector on a hard disk of one of the computers. I am happy to report that we have now completely recovered the missing data, and have corrected our data archives. The detailed procedures and programs we developed for this project continue to assure the integrity and completeness of the computerized current data.

I would like to share with you a note of interest. A little over four years ago, at the meeting of the AAVSO Computer Working Group on April 2, 1988, we discussed the computer needs of the AAVSO and made recommendations for absolute "musts" and "would-likes" for in-house computing and graphing capabilities.

Our absolute "musts" were:

- a. to be able to access one to three years of data on-screen;
- b. to produce a computer-generated light curve on-screen;
- c. to provide computer-generated light curves to the same scale as the hand-plotted ones (remember that in 1988 we were creating all our light curves by plotting all the data by hand).

Our "would-likes" were:

- a. to perform on-screen examination and evaluation of data with access to data identification;
- b. to have the capability to change the status of the data on-screen and/or in the data files, i.e., be able to indicate whether a data point is discordant or good;
- c. to be able to perform data analysis;
- d. to be able to prepare and publish light curves easily.

Our other, larger-scale "would-likes" were:

- a. to move toward self-sufficient in-house data processing rather than relying totally on the Smithsonian Astrophysical Observatory computers to process our data;
- b. to obtain an in-house multi-user computer system;
- c. to establish an AAVSO electronic bulletin board.

I am happy to say that we have accomplished all of the above, and much more, except for the bulletin board. The bulletin board has not been established at this time due to the time burden it would place on the existing limited number of technical staff at Headquarters. However, we have put information about the AAVSO on a commercial bulletin board, CompuServe, and we are discussing the possibilities of doing the same with another commercial bulletin board, GENie.

#### 1.5. Computerization of Archival Data from 1911 to 1963

The computerization of archival data from 1911 to 1963 is now 97% complete, and keying in of the rest of the data continues, thanks to a grant from the Perkin

## Fund.

Log sheets of total numbers of computerized data records per observer have been prepared and meticulously checked by comparing them with observer card totals.

We are preparing a plan for processing these two million observations and merging them into the existing AAVSO database.

## 2. Requests for AAVSO Data and Other Special Projects

### 2.1. Requests for AAVSO data

The observations that you, our observers, provide continue to play a major role in both ground- and space-based variable star research. This year we filled 190 requests for AAVSO data, including providing data support on variable stars for four satellites: International Ultraviolet Explorer (IUE), High Precision Parallax Collecting Satellite (HIPPARCOS), Hubble Space Telescope (HST), and Extreme Ultraviolet Explorer (EUVE). Table 4 lists those individuals requesting AAVSO data or services this year.

The list below and Figure 1 show the types of variable stars for which data have been requested:

- a. Cataclysmic variables (43%) - dwarf novae (23%), novae, recurrent novae, novalike, and supernovae (20%);
- b. Long period variables (26%) - Mira type (18%), semiregular (8%);
- c. R Coronae Borealis stars (10%);
- d. Eclipsing binaries (5%);
- e. Symbiotic stars (4%);
- f. RV Tauri stars (2%);
- g. The Sun (2%);
- h. Miscellaneous (8%) - Cepheids, S Doradus stars, RR Lyrae stars, flare stars.

The categories listed below and shown in Figure 2 give the areas in which AAVSO data and services have been used this year:

- a. Multiwavelength data correlation (28%);
- b. Scheduling observing runs using ground-based telescopes and satellites (27%);
- c. Reference materials for Ph.D. theses, articles, books, and research on variable stars and related subjects (15%);
- d. Data analysis using AAVSO observations (11%);
- e. Reporting variable star observations to the astronomical community via the *International Astronomical Union Circulars* (11%);
- f. Setting up observing programs for high schools and colleges (6%);
- g. Science projects for college and high school students (2%).

I would like to share with you the highlights of some of these requests.

The father of a 13-year old boy called to say that his son is a very enthusiastic observer, getting up at 4 AM to go out and observe, and asked if there was a way that he could become involved in variable star observing. We were delighted to hear this and sent him a package of information on how to start. It is youngsters like this that may grow to be truly significant figures in the AAVSO. For example, Clinton B. Ford started his observing program in a similar fashion at age 14 by writing to William Tyler Olcott and asking him for advice as to what he should observe. Later, Clint was connected up with an AAVSO member, Mr. Proctor, and the rest is a wonderful story of how Clint became "hooked" on variable stars for the rest of his life. So we're always very interested in helping young enthusiasts.

Drs. Geoff Clayton and Barbara Whitney continue their observations with the

IUE satellite of R Coronae Borealis stars during minima. Two stars they are monitoring particularly closely are V584 Centauri and V348 Sagittarii. We provide up-to-date information, usually by calling Danie Overbeek in South Africa and getting an update from him within a few minutes, before each of their observing runs.

In October of 1992 Danie Overbeek called to inform us that V348 Sgr, which had been in minimum for quite some time, was brightening. A few hours later we received a phone call from Dr. John Drilling informing us that this star was brightening and he asked if we had any recent observations of this object - he was going to observe it with the IUE satellite within the next two days if the star was still brightening, but not at maximum. Danie's phone observations as well as those from other observers such as Mark Adams were very much appreciated. The star stayed at about magnitude 13.0 - the ideal magnitude for Dr. Drilling's needs - and good data were obtained on it with the IUE.

It is particularly exciting to provide information for the observations of variable stars with the Hubble Space Telescope. Symbiotic stars, novae, and dwarf novae are among some of the many observing targets of HST. At our 81st Spring Meeting in Columbus, Ohio, our Banquet speaker, Dr. Al Holm from the Space Telescope Science Institute (STScI), explained how amateur astronomers played a crucial part in the scheduling of observations of OY Car with HST. Also, Dr. Howard Bond from STScI wanted to know what AG Carinae was doing so he could schedule observations of it with HST.

Later this year Dr. Bond wanted to know what the recent brightness of Nova Muscae 1991 was, for HST could not "see" it. A facsimile request to Tom Cragg in Australia cleared the picture. Tom responded that the nova must be fainter than magnitude 16, for he could not see it when he observed it with his medium-sized telescope.

John Hewitt is one of the four amateur astronomers who were selected to observe with the Hubble Space Telescope. His project is to search for an Oort comet cloud around a bright nova. John decided to carry out his research by observing the bright Nova Cygni 1992, discovered visually by our member and nova-searcher Peter Collins. How appropriate it is for an amateur astronomer to be the first to observe this nova, which was discovered by another amateur astronomer, with the HST! We provided up-to-date information on this nova to John for his HST observations.

A very challenging and interesting request came from a colleague, Ed Sion, who had been granted time to observe with the HST the white dwarf component of the dwarf novae U Geminorum and VW Hydrae. For these observations he needed the stars to be at their minimum state, so he called to ask if we could help to determine when these stars would be at minimum. While the minima of U Gem may not be too difficult to predict, VW Hyi is quite a challenge, for it has frequent short outbursts and infrequent superoutbursts. After carefully analyzing our ten-year data on these stars, we predicted when the desired minimum states would occur in these stars and Ed accordingly requested the scheduling of these stars. Ten days before his observing run, U Gem went into outburst. However, thankfully, by the date of his observing run U Gem was back at minimum, and Ed was able to observe U Gem at the earliest minimum stage after an outburst - something that he said had never been done before with a satellite - and he was very happy and appreciative. Ed wrote:

"I am writing to convey my deepest gratitude for the indispensable observational ground-support and archival photometric data your organization has provided and will continue to provide for my Hubble Space Telescope project entitled 'Spectroscopic Observations of the Exposed White Dwarfs in the Dwarf Novae U Geminorum, WZ Sagittae and VW Hyi'. While I have received both valuable data from your observers and archival photometric information about selected cataclysmic variables from the

AAVSO before, the recent information on the detailed outburst histories of VW Hyi and U Gem were absolutely essential to scheduling and carrying out my time-critical HST experiments successfully. Moreover the information AAVSO provided was also critical to insuring that the Hubble telescope instrumentation would remain within safe brightness limits during the observations. The fear was that an outburst or superoutburst during acquisition would send the spacecraft into a 'deep safe mode.'

"In summary, without your data support and continued monitoring by your ground-based observers, scientific progress in understanding cataclysmic variables would be well-nigh impossible."

## 2.2. Special Projects

In addition to the many requests for AAVSO data that we filled this year, we have been actively involved in a number of special projects.

### 2.2.1. HIPPARCOS

This year, thanks to a grant from NASA, we continued to provide data support to the HIPPARCOS astrometric satellite for the observations of large amplitude variable stars. Periodically, the brightness predictions of 245 large amplitude variable stars are sent to us by Dr. M. O. Mennessier, the HIPPARCOS Variable Star Coordinator, for checking against the recent observations that we compile. After thorough checking, we inform Dr. Mennessier of any discrepancies in the predictions and send her recent data so that the satellite ephemerides for these stars can be revised. HIPPARCOS has been obtaining excellent astrometric and photometric data. Thousands of new, small amplitude variable stars and binary stars have been discovered with this satellite. The scientific results of this mission will significantly impact all areas of astrophysics, and we are proud to be contributing to its success.

One of our unexpected contributions to the satellite has been in the calibration of HIPPARCOS magnitudes of red variables. When the reduced HIPPARCOS (V) magnitudes of these stars were compared with our visual observations, large discrepancies of as much as 1 to 2 magnitudes were found. This indicated that the calibration of HIPPARCOS magnitudes might need to be revised. After extensive communication and exchange of data between the AAVSO and the HIPPARCOS Input Catalog team members, the calibration of photometry for the red stars of the satellite has been revised. At the recent meeting "Astronomy from Large Data Bases II," held in Haguenau, France, Dr. C. Turon, Input Catalog Team leader, in her review paper on the HIPPARCOS mission emphasized this contribution from the AAVSO as well as our contribution to the observations of large amplitude variable stars in the HIPPARCOS program, and thanked me personally. In addition, as a by-product of our collaboration, two assistants of Dr. Mennessier's with whom we have been working closely are obtaining their Ph.D. degrees in astronomy using extensive amounts of AAVSO data. Also, M. Lysaght, our former technical assistant who helped us with the HIPPARCOS project, is working towards her Ph.D. in astronomy.

### 2.2.2. Extreme Ultraviolet Explorer

The Extreme Ultraviolet Explorer, launched on June 7, 1992, started its all-sky survey in August. After much discussion with the EUVE Science Team we identified about 80 observing targets that needed to be monitored closely by our observers. Most of these stars were in our program; we prepared charts for almost all of the targets and distributed over 25,000 charts to observers worldwide. We established an 800 telephone number so that observers in USA could call in their observations to Headquarters free of charge. So far 103 observers (68 from USA and 35 from abroad) have contributed observations for the EUVE mission. We send these observations periodically to the Center for EUV Astrophysics so that they can be

correlated with the data that are coming from the satellite. The EUVE Science Team is very impressed, and is thankful to the observers from around the world for their participation in and contribution to this mission. We have been able to provide this data support to EUVE thanks to a NASA grant through the Center for Extreme Ultraviolet Astrophysics at the University of California at Berkeley.

### 2.2.3. NASA Astrophysics Data System (ADS) Project

Through a grant from the NASA Astrophysical Data Program, we placed a special information file on AAVSO program stars and the extent of the data in terms of time and coverage into the NASA ADS Directory, allowing easy access by the astronomical community. We are also examining and evaluating AAVSO data from 1978 to 1990 on 75 stars which have been observed with various NASA satellites. Once this evaluation is completed, we will then place the data in NASA's ADS Directory for fast and easy access by astronomers.

## 2.3. AAVSO Education Initiatives

### 2.3.1. Hands-on Astrophysics: Variable Stars in the Physics/Math Lab

I am very happy to inform you that our proposal to the Educational Division of the National Science Foundation has been accepted. We will prepare an educational package titled "Hands-On Astrophysics: Variable Stars in the Physics/Math Lab", targeted for high schools, astronomy clubs, and amateur astronomers, in which we will provide AAVSO long-term (30 years) data on 70 stars - altogether some one-million observations for data analysis. We will also provide slides, finder charts, and video tapes on variable stars and variable star observing. We are very excited that the National Science Foundation has recognized the importance of this project by funding it, and we look forward to developing this important work.

### 2.3.2. Partnership in Astronomy

We have received an educational supplement to one of our NASA Astrophysics grants for an educational project titled "Partnership in Astronomy". Through this project, local (Massachusetts) members Gerry Dyck, George East, Mike Mattei, and Mario Motta, with their home-built telescopes and observatories, are connected with local middle and high schools. They give talks, slide shows, and star parties, bringing to the students and teachers the excitement of astronomy, variable stars, and observing.

## 3. Collaborative Projects with Astronomers

Through the efforts of one of our part-time technical assistants, Sara Beck, we have been able to compile and make computer-readable a complete data file on several variable stars in order to study their long term behavior. This effort has already resulted in the following fruitful collaborations:

a. Dr. Margarita Karovska, Harvard-Smithsonian Center for Astrophysics (CfA): Studies of long period and symbiotic stars. We have already studied the behavior of the symbiotic star CH Cyg, and reported our results at the Columbus, Ohio, meeting and published our results in *Journ. AAVSO*, 21, 23.

b. Dr. John Cannizzo, Max-Planck Institute, Germany: Studies of cataclysmic variables. We have studied the long term behavior of SS Cygni from its discovery in 1896 to mid-1992, using the AAVSO data file made up of over 29,000 daily means reduced from over 180,000 observations. We have looked for correlations in various light curve parameters, and submitted a paper to the *Astrophysical Journal*, where it

will be published in December 1992.

c. Drs. Geoffrey Clayton, University of Colorado, and Barbara Whitney, CfA: Studies on R Coronae Borealis stars. We have studied 70 minima of R Coronae Borealis since 1853, and find that there may be a characteristic maximum interval between fadeings of approximately 1450 days. This may be related to dust formation and, possibly, the presence of spots. We have submitted our paper for publication in the *Publication of the Astronomical Society of the Pacific (PASP)*.

d. Drs. Joseph Patterson, Columbia University, and Howard Bond, Space Telescope Science Institute: We have studied the long term behavior of the cataclysmic variable VY Aquarii and have submitted our paper to the *PASP*.

#### 4. Summary of Observations

As always, our observers' enthusiasm and dedication to variable star astronomy is truly impressive. My very special thanks to each and every observer for their astronomical contribution, whether it is one observation or thousands.

Sometimes I am asked, in this era of automatic telescopes, if our work may become outdated. As the number of requests from astronomers increases, particularly from those who are observing with satellites or large ground-based telescopes, there is no question that the contribution of variable star observers will continue to be in demand because no automatic telescope at this time can receive an observing request, be programmed, and look at an object within minutes' notice, and provide information on the status of the star. In addition, there is no automatic telescope with the high quality, long term data archives that the AAVSO has. There are enough variable stars for all of us to continue to make our contributions to astronomy in the way that we do best!

During the fiscal year 1991 - 1992, we received 276,226 visual and photoelectric observations from 591 observers from around the world. These totals include 102,927 observations from 222 observers in 42 states of the United States and 173,299 observations from 369 observers in 34 countries. New York with 15,268 observations, Massachusetts with 11,242, and Indiana with 7,104 lead the states in the USA, while South Africa with 30,029 observations, Hungary with 21,517, and France with 20,802 lead the countries abroad.

Table 1 lists the number of observers and the total observational contribution from each country this fiscal year. Table 2 gives the same information for each state in the USA. Table 3 is an alphabetical list of observers, giving each person's observing initials, name, location, and annual totals of observations and 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, 12 between 2000 and 3000, 7 between 3000 and 4000, and 6 between 4000 and 5000. John Bortle reported 5,190 observations, Bill Albrecht 5,245, Wayne Lowder 5,339, Sergio Dominguez 5,552, Marvin Baldwin 5,628, and David York 5,815. Paul Vedrenne with 6,574 observations, Gerry Dyck with 10,068 observations, and Danie Overbeek with 22,472 observations are our top three observers this year.

Gerry Dyck sent in the highest number of inner sanctum observations with 5,965 (59% of his observations), followed by David York with 3,106 (53% of his observations), and Michel Verdenet with 2,542 (54% of his observations).

We have received 1,716 photoelectric observations from 25 of our photometrists. Howard Landis devotes his time generously to see that all our photoelectric data are computerized, reduced to a standard format, and archived by star. Scientific papers continue to be published using AAVSO photoelectric data.

## 5. International Cooperation

Our cooperation with variable star observers' groups around the world continues to increase.

We acknowledge with appreciation and thanks the observations sent to the AAVSO by members of the following variable star associations, either individually or as a group, for inclusion in the AAVSO International Database for dissemination to the astronomical community:

- a. Asociacion Argentina Amigos de la Astronomia;
- b. Association Française des Observateurs d'Étoiles Variables (France);
- c. Astronomical Society of Southern Africa, Variable Star Section;
- d. Astronomischer Jugendclub (Austria);
- e. Berliner Arbeitsgemeinschaft für Veranderliche Sterne (Germany);
- f. British Astronomical Association, Variable Star Section (England);
- g. British Astronomical Association of New South Wales (Australia);
- h. Israeli Astronomical Association, Variable Star Section;
- i. Liga Ibero-Americana de Astronomia (South America);
- j. Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands);
- k. Norsk Astronomisk Selskap, Variable Stjernegrupper (Norway);
- l. Planetario e Observatorio Astronomico do Colegio Estadual do Parana (Brazil);
- m. Magyar Csillagászati Egyesület, Változócsillag (Hungary);
- n. Red de Observadores de Estrellas Variables - MIRA (Spain);
- o. Royal Astronomical Society of Canada;
- p. Royal Astronomical Society of New Zealand, Variable Star Section;
- q. Scandinavian Astronomisk Selskap;
- r. Uniao Brasileira de Astronomia, Variable Star Commission (Brazil);
- s. Variable Star Observers League of Japan;
- t. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium).

We thank the following leaders of variable star observers abroad for sending the observations of their group collectively to the AAVSO:

H. Feijth (Netherlands); B. Granslo (Norway); J. Hers (South Africa); O. Klinting (Scandinavia); A. Mizser (Hungary); E. Ofek (Israel); E. Schweitzer (France); P. Van Caueren (Belgium).

We continue to receive valuable data from members of the Variable Star Section of the Royal Astronomical Society of New Zealand, sent by Director Dr. Frank Bateson. These data on southern long period variables help immensely in refining the annual predictions of maxima and minima dates for these stars. Dr. Bateson continues to telefax, monthly, the RASNZ observations of HIPPARCOS stars so they may be utilized in the checking of the satellite ephemerides. We very much appreciate this, and thank Frank for this fast transmission of data and for his usual efficiency.

We continue to exchange publications with observatories, universities, and colleges around the world.

## 6. Membership

This year, at the 81st Spring Meeting, held in Columbus, Ohio, we elected 54 new members. Of these, 46 joined as Adult-Annual, 6 as Junior-Annual, 1 as Sustaining, and 1 as Sponsored.



At the 81st Annual Meeting, held in Cambridge, Massachusetts, we elected 40 new members. Of these, 36 joined as Adult-Annual, 3 as Junior-Annual, and 1 as Sustaining.

This year 4 members changed their membership from Annual to Sustaining, thus supporting the operation of the Association doubly with their dues.

## 7. AAVSO Publications

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

a. *Variable Star Research: An International Perspective* - Proceedings of the first European meeting of the AAVSO: "International Cooperation and Coordination in Variable Star Research," edited by John R. Percy, Janet A. Mattei, and Christiaan Sterken;

b. *Journal of the AAVSO*, Volume 20, No. 1, edited by Charles A. Whitney and Elizabeth O. Waagen and prepared by Tanja E. Foulds;

c. *AAVSO Bulletin* 55, the 1992 Predicted Dates of Maxima and Minima of 561 Long Period Variable Stars, prepared by Janet A. Mattei;

d. *AAVSO Circular*, Nos. 252-263, edited by John E. Bortle, with assistance from Charles E. Scovil and Robert Leitner;

e. *AAVSO Alert Notices*, No. 149-162, prepared by Janet A. Mattei;

f. *AAVSO 1992 Ephemerides for Eclipsing Binaries and RR Lyrae Stars*, prepared by Gerard Samolyk and Marvin E. Baldwin;

g. *AAVSO Photoelectric Photometry Newsletter*, Vol. 12, Nos. 1-3, edited and published by John R. Percy;

h. *AAVSO Solar Bulletin*, Vol. 47, Nos. 9-12; Vol. 48, Nos. 1-8, edited and published by Peter O. Taylor;

i. *SID Technical Bulletin*, Vol. 2, No. 4; Vol. 3, Nos. 1-3, prepared by Arthur J. Stokes and Peter O. Taylor;

j. *AAVSO Newsletter*, No. 9, prepared by Tanja E. Foulds.

My very sincere thanks and appreciation go to Marvin E. Baldwin, John E. Bortle, Tanja E. Foulds, Robert Leitner, John R. Percy, Gerard Samolyk, Charles E. Scovil, Christiaan Sterken, 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 community and astronomical literature.

## 8. Other publications with AAVSO Participation

a. Predicted maxima dates of bright long period variables and ephemerides of a few easy-to-observe stars were published by Janet A. Mattei, together with an article on "W Cygni - Variable Star of the Year" with John R. Percy, in the 1992 *Observer's Handbook* of the Royal Astronomical Society of Canada.

b. Monthly predictions of maxima dates of bright long period variables were published by Janet A. Mattei in *Sky & Telescope*.

c. "Longterm AAVSO Observations of the Symbiotic System CH Cygni" was published by Margarita Karovska and Janet A. Mattei in *Journ. AAVSO*, 22, No. 1.

d. "AAVSO and Variable Star Observing" was published by Janet A. Mattei in *Variable Star Research: An International Perspective*.

e. "Coordination of Visual Observations" was published by Janet A. Mattei in *Variable Star Research: An International Perspective*.

f. "Computation of Ephemerides for Long-Period Variable Stars for the

HIPPARCOS Mission" was published by M. O. Mennessier, D. Barthes, H. Boughaleb, F. Figueras, J. A. Mattei in *Astronomy and Astrophysics*, 258, 99, 1992.

## 9. Meetings Attended and Talks Given

It is vital that the AAVSO be represented at meetings, particularly at those on variable stars and related topics where large numbers of astronomers in the field gather.

This year I have attended the following meetings:

- a. IAU Colloquium 135, titled "Complementary Approaches to Double and Multiple-Star Research," held in Atlanta, Georgia.
- b. The 181st Meeting of the American Astronomical Society, held in Columbus, Ohio, and held in conjunction with our 81st Spring Meeting.
- c. Meeting titled "Astronomy from Large Data Bases II," held in Hagenau, France, during which I presented a poster paper on the AAVSO and our International Database.
- d. Special meeting with some of the members of the HIPPARCOS Input Catalogue to discuss the large amplitude variable star ephemerides, the research on collaborative papers using AAVSO data, our participation in the HIPPARCOS mission, and future collaborations using the HIPPARCOS data.
- e. Special working group meeting with the EUVE Science Team to discuss the AAVSO's coordination of ground-based observations of variable stars in the EUVE survey program.

My trips to these meetings were funded with grants from NASA (HIPPARCOS grant and EUVE grant through the Center for EUV Astrophysics), and in part by the AAVSO. I gratefully acknowledge this support.

I have given the following talks this year:

- a. National Science Teachers' Association (NSTA) Meeting, Boston, MA, in which I participated in a panel discussion on variable star observing and astronomy by amateur astronomers.
- b. New England Astronomy Teachers' Organization Meeting, at which I gave a talk on the AAVSO, and to which I was invited by a teacher whom I had met at the NSTA meeting. This summer we hired two excellent high school students recommended by teachers who attended this talk. One never knows the connections one may make during these meetings.
- c. Tufts University Teachers' Workshop, at which I gave a presentation on Variable Stars and Variable Star Observing. This workshop was funded by the National Science Foundation and organized by Dr. George Mumford.
- d. A short documentary for a local television program on amateur astronomers and variable stars.

In addition to these talks that I have given, several members, such as John Percy, Gerry Dyck, and John Griesé, have been wonderful ambassadors for the AAVSO. My special thanks to them and others for their efforts in spreading the word about the AAVSO.

## 10. Personnel at Headquarters

I am very happy to report that once again this year we have had a great deal of stability with personnel at Headquarters. Everyone working at Headquarters is

dedicated to their positions and responsibilities.

Presently the Headquarters staff consist of eight full-time (including myself) and one part-time employees, three summer assistants, one volunteer summer assistant, and two volunteer assistants. I would like to express my very sincere appreciation and thanks to Elizabeth O. Waagen, my senior technical assistant; E. Grant Foster, our computer software specialist, William K. Mackiewicz and Michael Saladyga, our technical assistants; Pamela Moffat, our administrative assistant; Tanja E. Foulds, our project and meeting coordinator; Barbara J. Silva, our data entry technician; Sara J. Beck, our part-time technical assistant; Adam Burr, Gang Chen, and Maura Kennedy, our summer assistants; Sharon Seagal, our volunteer summer assistant; and Frank McCorrison and Dorothy Harvey, our volunteer assistants.

## 11. Acknowledgements

At this time, we remember Clinton B. Ford with love and gratitude for his generosity throughout his 65 years of membership, for providing us with a home, and for making it possible for many projects to become a reality.

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

a. National Aeronautics and Space Administration (NASA), for the grant awards to provide the vital data support for the HIPPARCOS satellite in the observations of large amplitude variable stars; to catalogue AAVSO optical data for the NASA Astrophysical Data Systems and the IUE; to provide astronomical partnerships between our local members and middle and high schools; to collaborate with Dr. Paula Szkody of the University of Washington in providing information and data support for the observations of dwarf novae with the IUE; and to collaborate with Dr. Ronald Polidan in providing data support in the observation of SS Cygni with the IUE.

b. National Science Foundation, for the Education grant for the preparation of our project Hands-On Astrophysics: Variable Stars in the Physics/Math Lab;

c. National Oceanographic and Atmospheric Administration (NOAA), for the continued grant award for the operation of the activities of our Solar Division.

Our very special thanks to the following institutions and individuals:

a. Erindale College of the University of Toronto, for the printing and mailing of the *AAVSO Photoelectric Photometry Newsletter* that John Percy so excellently edits and distributes.

b. Stamford Observatory, for allowing Charles Scovil and John Griesé to use the 22-inch telescope for making variable star observations, and for allowing Charles Scovil and Robert Leitner to use the facilities of the Observatory to prepare charts and the *AAVSO Circular*.

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

d. Joseph Patterson of Columbia University for providing a summer grant for his student Sharon Seagal to work at AAVSO Headquarters.

e. Hilde Luft for a generous contribution in memory of long-time AAVSO member Herbert Luft, for sponsoring active observers to membership;

f. Our members and friends who made generous contributions towards the operation of the Association.

My sincere thanks and appreciation go to our Committee Chairpersons Marvin Baldwin, Kenneth Beckmann, Priscilla Benson, Thomas Cragg, Robert Evans, Clinton Ford, Howard Landis, Charles Scovil, and Peter Taylor for carrying out the responsibilities of their respective committees efficiently and with dedication.

My special thanks go to Theodore H. N. Wales, our Treasurer, for managing the finances of the Association so well, for giving of his time to help with office financial matters, for his willingness to give me sound advice when I ask for it, and for his many contributions.

I gratefully thank our officers Martha Hazen, our President; Clinton Ford, may he rest in peace, our Secretary; Wayne Lowder and Paul Sventek, our Vice Presidents; and our council members Louis Cox, Richard Hill, Dorrit Hoffleit, Albert Holm, Walter Scott Houston, Gerry Samolyk, George Wallerstein, and Barbara Welther, for the contribution of their time and wisdom in assisting in the successful operation of the Association.

My personal thanks to my husband Mike, for his support and understanding.

My very sincere thanks go to each and every one of you for your support through your astronomical and financial contributions to the AAVSO. This year, with Clint Ford's passing, marks the end of an era, a legacy to the AAVSO. We look back with gratitude and find strength and inspiration in that legacy. We look forward with hope as we march on together with you, our devoted members and observers.

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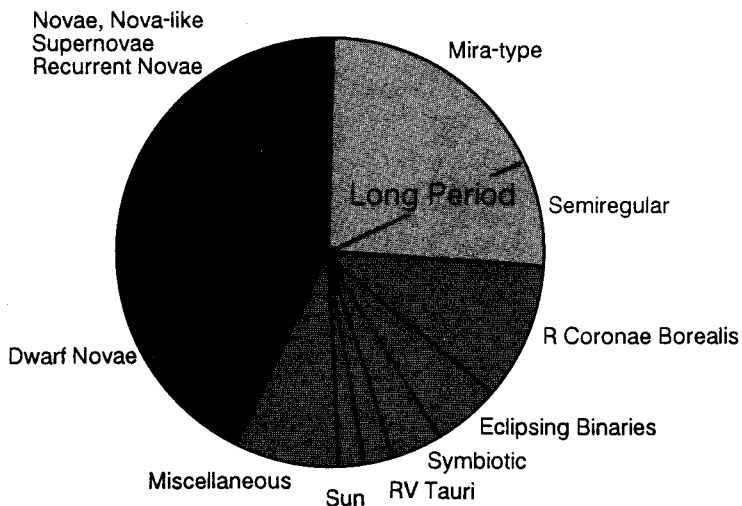


Figure 1. Types of variable stars for which AAVSO data have been requested in fiscal 1991 - 1992.

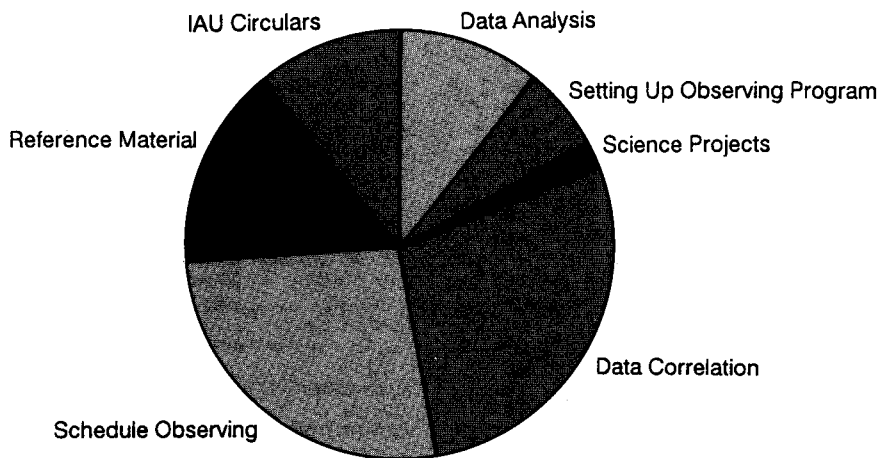


Figure 2. Areas in which AAVSO data and services have been used in fiscal 1991 - 1992.

Table 1. AAVSO Observer Totals 1991 - 1992 by Country

<i>Country</i>	<i>No. Observers</i>	<i>Obs.</i>	<i>Country</i>	<i>No. Observers</i>	<i>No. Obs.</i>
ARGENTINA	3	5653	ITALY	15	1773
AUSTRIA	3	459	JAPAN	3	1148
AUSTRALIA	4	2936	LITHUANIA	2	1088
BELGIUM	28	6745	MALAYSIA	1	47
BOTSWANA	1	1224	MALTA	1	70
BRAZIL	6	1323	NETHERLANDS	20	5088
CANADA	21	10760	NEW ZEALAND	26	2289
CROATIA	1	206	NORWAY	5	5767
CYPRUS	1	73	POLAND	9	7062
CZECHOSLOVAKIA	8	2236	PORTUGAL	1	59
DENMARK	7	1156	ROMANIA	3	5876
ENGLAND	5	6474	RUSSIA	1	87
FINLAND	2	3201	SOUTH AFRICA	15	30029
FRANCE	47	20802	SPAIN	22	4837
GERMANY	19	11511	SWITZERLAND	5	1132
GREECE	2	2970	USA	222	102927
HUNGARY	74	21517	ZIMBABWE	2	303
INDIA	1	732			
ISRAEL	4	6666	TOTAL	590	276226

Table 2. AAVSO Observer Totals 1991 - 1992 USA by State

<i>State</i>	<i>No. Observers</i>	<i>No. Obs.</i>	<i>State</i>	<i>No. Observers</i>	<i>No. Obs.</i>
ALABAMA (AL)	2	71	NEVADA (NV)	2	44
ARIZONA (AZ)	8	1558	NEW HAMPSHIRE (NH)	3	1069
ARKANSAS (AR)	3	565	NEW JERSEY (NJ)	8	5261
CALIFORNIA (CA)	19	4135	NEW MEXICO (NM)	3	6021
COLORADO (CO)	8	6998	NEW YORK (NY)	12	15268
CONNECTICUT (CT)	12	2947	N. CAROLINA (NC)	1	11
FLORIDA (FL)	7	6502	OHIO (OH)	7	918
GEORGIA (GA)	1	91	OKLAHOMA (OK)	1	6
HAWAII (HI)	2	5299	PENNSYLVANIA (PA)	9	3245
IDAHO (ID)	1	73	RHODE ISLAND (RI)	2	91
ILLINOIS (IL)	9	4301	S. CAROLINA (SC)	1	30
INDIANA (IN)	7	7104	S. DAKOTA (SD)	1	432
IOWA (IA)	4	244	TENNESSEE (TN)	1	2
KANSAS (KS)	3	599	TEXAS (TX)	14	3351
LOUISIANA (LA)	2	47	UTAH (UT)	2	717
MAINE (ME)	3	554	VERMONT (VT)	4	395
MARYLAND (MD)	10	513	VIRGINIA (VA)	6	4285
MASSACHUSETTS (MA)	9	11242	WASHINGTON (WA)	4	331
MICHIGAN (MI)	4	271	WEST VIRGINIA (WV)	3	153
MINNESOTA (MN)	6	1200	WISCONSIN (WI)	12	6367
MISSOURI (MO)	5	339			
NEBRASKA (NE)	1	277	TOTAL	222	102927

TABLE 3. AAVSO Observers, 1991 - 1992

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
AAP	P. ABBOTT, CANADA	574	32	CLH	J. CLAES, BELGIUM	10	
AMT	M. ADAMS, FL	2959	390	CPH	* P. CLAISSE, FRANCE	36	
AEL	L. AERTS, BELGIUM	4		CLK	W. CLARK, MO	84	
AJO	* J. AFONSO, SPAIN	2		CWP	W. CLARKE, CA	206	
AB	W. ALBRECHT, HI	5245	49	CLG	L. CLUYSE, BELGIUM	15	
ALN	R. ALLISON, IA	8		CNL	O. COLE ARNAL, CANADA	210	
AAA	A. ALVES, BRAZIL	167		COL	P. COLLINS, CO	1080	
AMO	M. AMORETTI, ITALY	2		CMG	& G. COMELLO, NETHERLANDS	327	56
AMS	* A. AMOSSE, FRANCE	171	1	CNA	A. CONTI, ITALY	13	
AJ	J. ANDERER, AR	16		CK	S. COOK, AR	514	1
AJR	J. ANDRESS, AZ	57		COM	T. COOPER, SOUTH AFRICA	1381	45
ARN	* L. ARNOLD, FRANCE	12	4	COW	H. COWARD, TX	190	
BBJ	J. BAAB, BRAZIL	7		CR	T. CRAGG, AUSTRALIA	2813	847
BOZ	# B. BAGO, HUNGARY	5		CJH	J. CRAST, PA	36	
BGF	# G. BAKOS, HUNGARY	4		CCS	C. CREIGH, NV	10	
BM	M. BALDWIN, IN	5628		CSM	# M. CSUKAS, ROMANIA	1089	1
BVE	& B. VAN BALLEGOY, NETHERLANDS	5		CUO	D. Curott, AL	55	
BMQ	* M. BARANDA-GOMEZ, SPAIN	31		CDT	D. CURRIER, GERMANY	15	
BSF	S. BARNHART, OH	97		CSZ	# S. CZINIEL, HUNGARY	50	
BSR	S. BARONI, ITALY	329		DAH	H. DAHLE, NORWAY	1079	52
BTZ	# I. BARTA, HUNGARY	25		DMI	M. DAHM, GERMANY	1236	
ABA	A. BARTOLINI, ITALY	6	3	DYJ	* J. DAUBY, FRANCE	97	
BBA	B. BEAMAN, IL	253	38	DAJ	J. DAVIS, MD	6	
BVD	D. BEARD, PA	209		DBE	G. DE BEER, SOUTH AFRICA	54	
BJS	J. BEDIANT, MN	5		DBR	* B. DECOTTIGNIES, FRANCE	3	
BNY	R. BENGE, JR., TX	13	2	DJO	& J. DE JONG, NETHERLANDS	31	
BTY	T. BENNER, PA	724	177	DEA	R. DEMARTINO, CT	30	2
BID	% I. BENNIE, NEW ZEALAND	2		DFR	F. DEMPSEY, CANADA	165	
BBE	# B. BERENTE, HUNGARY	9	4	DEK	K. DE QUICK, BELGIUM	105	8
BEB	R. BERG, IN	304		DNO	O. DEREN, POLAND	1269	
BPM	* P. BERGE, FRANCE	19		DTE	T. DESLUPERE, BELGIUM	395	14
BIO	* P. BERRIOT, FRANCE	19	2	DVI	F. DE VILLIERS, SOUTH AFRICA	39	
BJZ	J. BEST, WI	9	1	DPA	A. DIEPVENS, BELGIUM	2818	114
BEZ	* J. BEZECOURT, FRANCE	11		DRG	R. DIETHELM-SUTTER, SWITZERLAND	39	
BIC	* L. BICHON, FRANCE	774	1	DRD	R. DIETZ, CO	3	
BIG	* N. BIGARRE, FRANCE	5		DIL	W. DILLON, TX	168	
BIS	N. BISSANTZ, GERMANY	8		MDS	M. DIONISI, ITALY	69	11
BLD	D. BLANE, SOUTH AFRICA	1184		DIO	M. DISKO, NJ	4	
HUO	D. BLOOM, UT	31		DPL	P. DOMBROWSKI, CT	773	106
BAX	A. BOATTINI, ITALY	422	64	GDB	# G. DOMENY, HUNGARY	3	
BOC	R. BOCCADORO, ITALY	13		DZS	S. DOMINGUEZ, ARGENTINA	5552	
BOH	D. BOEHME, GERMANY	403		DXX	% S. DREVES, NEW ZEALAND	19	
BOE	J. BOREL, CA	73		DAB	A. DUKES, JR., SC	30	1
BRJ	J. BORTLE, NY	5190	1463	DMO	* M. DUMONT, FRANCE	505	
BJB	* J.-G. BOSCH, SWITZERLAND	212		DUP	* P. DUPASQUIER, FRANCE	513	15
BME	& M. BOSMA, NETHERLANDS	1		DJI	J. DUSEK, CZECHOSLOVAKIA	15	
BMU	& R. BOUMA, NETHERLANDS	504	5	DGP	G. DYCK, MA	10068	5965
BPI	* P. BOURRET, FRANCE	136		EKR	# K. EDES, HUNGARY	59	
BMZ	& M. BOUWMAN, NETHERLANDS	1		EL	J. ELLERBE, SPAIN	4	
BDS	R. BOYD, CA	35		EWK	M. EWING, FL	2	
BYL	R. BOYLE, MD	10		FMA	M. FADDA, ITALY	200	
BMK	M. BRADBURY, IN	7		FEO	* E. FARKAS, HUNGARY	271	
BDT	D. BRANCHETT, FL	989		FMX	% F. FARRELL, NEW ZEALAND	22	
BDL	D. BRESLIN, MA	13		FJB	J.-B. FAURE, FRANCE	4	
BTB	T. BRETT, MN	5		FCA	C. FAUSEL, IN	38	
BHN	& H. BRIL, NETHERLANDS	34		FJH	& H. FEIJTH, NETHERLANDS	3668	839
BSM	S. BRINCAT, MALTA	70	2	FKJ	# J. FEKETE, HUNGARY	2062	2
BKF	F. BROCKMEIER, GERMANY	9		FRF	# R. FIDRICH, HUNGARY	1252	50
BOS	E. BROENS, BELGIUM	465		FSJ	J. FIS, FRANCE	227	
BBT	R. BROWNING, NJ	363		FTE	T. FISHER, NY	13	
BVY	* Y. BRUCHER, FRANCE	77		FEM	E. FLYNN, MO	75	
BOA	* A. BRUNO, FRANCE	344	23	FSE	S. FOGLIA, ITALY	132	
BZB	Z. BRZYLOWSKI, POLAND	32		FFC	* F. FOLDESI, HUNGARY	345	16
BUK	L. BULICKOVA, CZECHOSLOVAKIA	38		FMR	M. FONOVICH, CROATIA	206	
BGO	R. BUNGE, MD	1		FAP	* P. FONSECA, SPAIN	6	
BFS	J. BUTLER, JR., CT	6		FBM	B. FOX, OH	47	
CBA	R. CABRERA RODRIGUEZ, SPAIN	41		FML	& C. FRIDLUND, NETHERLANDS	121	
CMP	R. CAMPBELL, FL	55	4	FMG	G. FUGMAN, IA	86	5
CFN	* F. CAMPOS, SPAIN	22		GMB	M. GABLE, OH	130	
CEA	* B. CANDELA, FRANCE	473	11	GWV	W. GABLE, VA	10	
CAT	J. CASTANO, SPAIN	63		GBZ	O. GABZO, ISRAEL	3381	
CDX	D. CHALOUX, MD	18		GEC	E. GALE, IA	131	
CNT	D. CHANTILES, CA	488	3	GCZ	J. GANCARZ, NE	277	
CGF	G. CHAPLE, JR., MA	732	192	GPA	F. GARCIA DIAZ, SPAIN	5	
CYA	A. CICHY, POLAND	1736		GKR	R. GERCKELER, GERMANY	50	
CIR	R. CINTRON, VT	17	1	GCP	C. GERBER, GERMANY	831	

TABLE 3. AAVSO Observers, 1991 - 1992 (continued)

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
GMJ	M. GEYSER, SOUTH AFRICA	18		JMP	M. JANES, AZ	15	
GLN	* J.-M. GILLAIN, BELGIUM	87		JGA	# G. JANKOVICS, HUNGARY	31	
GVN	V. GIOVANNONE, NY	262		JAJ	J. JANSSENS, BELGIUM	131	1
GGT	G. GLENN, KS	68	1	JJK	K. JENSEN, NORWAY	9	
GLG	G. GILBA, MD	88		JCH	& C. JOHANNINK, NETHERLANDS	14	
GPX	% W. GOLTZ, NEW ZEALAND	290	24	JRJ	& R. JOHANNIS, NETHERLANDS	2	
GEA	E. GOMEZ, CA	3		JOG	G. JOHNSON, MD	152	2
GOT	* T. GOMEZ, SPAIN	9	2	JR	R. JOHNSON, MD	18	1
GNI	* N. GONZALEZ, SPAIN	26		JON	K. JONCKHEERE, BELGIUM	143	
GOP	P. GOODWIN, LA	30	3	JA	% A. JONES, NEW ZEALAND	460	2
GLM	* L. GORSKI, IL	11		JRW	R. JONES, SOUTH AFRICA	2234	3
GOY	* W. GOUY, FRANCE	129		JJL	J. JOOSTE, SOUTH AFRICA	38	
GFG	F. GRAHAM, OH	8		KDA	D. KAISER, IN	139	
GRL	B. GRANSLO, NORWAY	4259	33	KAP	# P. KALOCZY, HUNGARY	12	
GMI	M. GRENON, SWITZERLAND	57	6	KE	W. KAMINSKI, SD	432	18
GRI	J. GRIESE, III, CT	1244	827	KEI	E. KATO, AUSTRALIA	68	4
GOC	R. GROCHOWSKI, POLAND	531		KTL	L. KEITH, WI	444	
GSC	* C. GROS, FRANCE	75		KDK	D. KELLINGTON, CANADA	17	
GML	M. GRUNANGER, AUSTRIA	18		KAK	# A. KERESZTURI, HUNGARY	524	
GCT	C. GRUNNET, DENMARK	146		KKP	& P. KERKVIJLIET, NETHERLANDS	91	
GUB	G. GUBBELS, BELGIUM	480		KSZ	# S. KESZTHELYI, HUNGARY	14	
GMM	M. GUMBLER, TX	13		KZB	# B. KESZTHELYI, HUNGARY	4	
GUN	* J. GUNTHER, FRANCE	2012	10	KZD	# D. KESZTHELYI, HUNGARY	4	
GYP	* P. GYENIZSE, HUNGARY	141		KRB	R. KING, MN	400	107
HCS	# C. HADHAZI, HUNGARY	179		KBR	B. KIRSHNER, CA	66	
HTY	T. HAGER, CT	341	115	KIL	# L. KISS, HUNGARY	811	
HJT	# A. HAJDU, HUNGARY	2		KON	O. KLINTING, DENMARK	2	
HKB	B. HAKES, IL	4		KPL	P. KNEIPP, LA	17	
HK	E. HALBACH, CO	4494	37	KGT	G. KNIGHT, ME	90	
HTT	P. HALLETT, CANADA	166		KSP	S. KNIGHT, ME	140	21
HMG	# G. HALMI, HUNGARY	91		KS	J. KNOWLES, NH	126	
HMR	R. HAM, CO	1084		KDF	D. KOCYLA, CT	33	
HMM	M. HAMILTON, CO	2		KKF	K. KOEHLER, AZ	284	
HAN	J. HANNON, CT	82		KLK	G. KOHL, AZ	30	
HDC	D. HARPER, NC	11		KHL	M. KOHL, SWITZERLAND	678	
HDX	% E. HARRIS-HARRIES, NEW ZEALAND	36		KRS	R. KOLMAN, IL	858	86
HAV	R. HARVAN, MD	87	16	KMA	M. KOMOROUS, CANADA	756	
HAI	A. HASTINGS, MA	27		KYA	# A. KONYA, HUNGARY	35	
HDO	# D. HAVASSY, HUNGARY	12		KRT	S. KORTH, GERMANY	11	1
HAB	R. HAYS, JR., IL	1064		KOS	# A. KOSA-KISS, ROMANIA	2071	6
HY	A. HEASLEY, FL	1		KAV	S. KOSHIAPPAS, CYPRUS	73	
HLS	L. HEEN, NORWAY	395		KVI	# I. KOVACS, HUNGARY	124	
HEF	M. HEIFNER, CO	323	67	KRN	N. KRIEK, SOUTH AFRICA	63	
HEN	C. HENSHAW, BOTSWANA	1224		KIS	G. KRISCH, GERMANY	1434	
HGZ	# Z. HERCEG, HUNGARY	5		KKK	K. KRSCIUNAS, HI	54	2
HGC	% G. HERDMAN, NEW ZEALAND	47		KRU	J. KRUTA, CZECHOSLOVAKIA	53	
HUN	J. HERS, SOUTH AFRICA	604	104	KSA	A. KUCINSKAS, LITHUANIA	792	
HEV	# Z. HEVESI, HUNGARY	61		KPG	& G. KUIPERS, NETHERLANDS	51	3
HJR	# Z. HEVESI, JR., HUNGARY	7		KUO	C.-S. KUO, MA	1	
ZSO	# Z. HIDI, HUNGARY	28		KBO	R. KUPLIN, PA	29	
HE	L. HIETT, VA	2798		LDT	# T. LADANYI, HUNGARY	7	2
HIM	M. HILL, MA	68		LBR	* B. LAFRANCE, FRANCE	4	
HRI	R. HILL, AZ	637	3	LAR	R. LAMBERT, TX	49	
HIR	Y. HIRASAWA, JAPAN	592	39	LGU	G. LAMBRECHTS, BELGIUM	166	
HWD	W. HODGSON, ENGLAND	42		LND	H. LANDIS, GA	91	
HEK	E. HOEG, DENMARK	10		LMP	M. LARA, BRAZIL	271	
HFF	T. HOFFELDER, CA	9		LKG	K. LARSON, CA	1292	396
HFO	* G. HOFFER, GERMANY	201		LSK	S. LASKOWSKI, WI	39	
HDN	D. HOLMES, AL	16	1	LTR	* B. LATOUR, FRANCE	2	
HLT	G. HOLTER, WA	10		LVH	H. LAVERGE, BELGIUM	21	
HJO	& J. HOLTROP, NETHERLANDS	69		LZT	T. LAZUKA, IL	407	
HZJ	J. HOLTZ, PA	349		LEB	* R. LEBERT, FRANCE	518	
HOO	& G. HOOGVEEN, NETHERLANDS	24		LST	* S. LECOMTE, FRANCE	4	
HRB	P. HORNBY, CA	778	6	LRY	* R. LEGENDRE, FRANCE	5	
HSR	S. HOSTE, BELGIUM	66	7	LPI	* P. LEISY, FRANCE	49	2
HVA	A. HOUVENAEGHEZ, BELGIUM	8		LMA	D. LEMAY, CANADA	81	
HJA	J. HUDSON, CA	54		LNZ	G. LENZ, CT	24	
HGX	% O. HULL, NEW ZEALAND	268		LSX	% M. LESLIE, NEW ZEALAND	12	
HUT	T. HUNTER, AZ	6		LGE	* G. LETELLIER, FRANCE	14	
IML	M. IDEM, NY	344	191	LEV	A. LEVEQUE, CA	77	
IPA	P. INGRASSIA, ARGENTINA	18		LOB	* J. LOBO-RODRIGUEZ, SPAIN	30	
IDE	D. ISAACSON, CT	11		LWT	T. LOHVINENKO, CANADA	218	
ILS	J. ISLES, MI	130		LGN	G. LOPRIORE, MA	43	
IFJ	% F. IVES, NEW ZEALAND	313		LRZ	# M. LORINCZ, HUNGARY	62	
JTP	* P. JACQUET, FRANCE	76		LEJ	E. LOS, NH	19	
JJA	J. JAHN, GERMANY	37		LHR	H. LOURENCO, BRAZIL	75	



TABLE 3. AAVSO Observers, 1991 - 1992 (continued)

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
LVT	J. LOVETT, NH	924	4	OSV	# L. OSVALD, HUNGARY	6	
LX	W. LOWDER, NY	5339		OB	M. OVERBEEK, SOUTH AFRICA	22472	114
LTB	T. LUBBERS, MN	345		PLA	F. PADILLA FILHO, BRAZIL	703	
LBG	G. LUBCKE, WI	1442	199	PCC	# C. PAR, HUNGARY	2	
LKA	K. LUDEKE, NM	148		PCC	R. PAPINI, ITALY	24	
LEX	% E. LUMLEY, NEW ZEALAND	62		PFS	# S. PAPP, HUNGARY	2895	182
LRE	R. LUNSFORD, CA	42		PLI	* L. PARMEGGIANI, FRANCE	9	
LBB	B. LUX, PA	3		PPI	P. PASSCHYN, BELGIUM	18	
MWJ	& W. MAAT, NETHERLANDS	1		PAK	# A. PATAK, HUNGARY	93	
MDW	W. MACDONALD, II, CANADA	184	2	PN	A. PEARLMUTTER, MA	87	
MDH	H. MADDOCKS, VA	96		PEI	E. PEDERSEN, DENMARK	23	2
MMS	M. MAES, BELGIUM	8		PEG	* C. PEGUET, FRANCE	132	
MZG	* G. MAINTZ, GERMANY	218		PJH	J. PERALA, FINLAND	11	
MLI	L. MAISLER, NY	462	2	PMR	M. PERALA, FINLAND	3190	180
MKE	R. MANSKE, WI	49		PML	* M. PERRROT, FRANCE	1	
MJZ	* J. MANZORRO, SPAIN	270		POD	* G. PESTANA GALVAN, SPAIN	72	
MCO	M. MARCARIO, TX	5		PKI	O. PIECHOWSKI, MI	5	
MIC	* C. MARILLER, FRANCE	318	42	PTZ	* J. PIETZ, GERMANY	835	
MJH	* J. MARTINS, SPAIN	5		PSC	S. PINAULT, NJ	41	
MRX	H. MARX, GERMANY	1534	101	PFU	* F. PINEAU, FRANCE	10	
MGA	G. MASON, NY	2		PBE	B. PIOLON, BELGIUM	128	
MAV	D. MATSNEV, RUSSIA	87		PIJ	# J. PIRITI, HUNGARY	38	
MGE	G. MAVROFRIDIS, GREECE	2721		PWA	A. PLANCK, CO	2	
MYR	E. MAYER, OH	573	187	PLR	R. POOLE, PA	172	1
MJW	J. MAYER, PA	653	8	PMI	M. POTTER, MD	17	
MGU	T. MCCAGUE, IL	17		PWR	R. POWASKI, OH	14	
MCB	R. MCCALLUM, CANADA	97		POX	M. POXON, ENGLAND	3504	264
MDV	D. MCCOLLUM, VA	32		PDO	D. PRAY, RI	38	
MCV	P. MCCORHAN, AUSTRALIA	18		PDQ	D. PROUST, FRANCE	47	
MKJ	J. MCKENNA, NJ	1520	65	PJI	J. PRYAL, WA	6	
MJB	J. MCMATH, AR	35		PUJ	F. PUJOL, SPAIN	5	5
MIB	I. MEDIAAS, NORWAY	25		QPF	P. QUINN, WI	1	
MED	K. MEDWAY, ENGLAND	1942	3	RAA	R. RAASCH, TX	132	4
MNZ	E. MENEGUZZO, ITALY	79		RRB	R. RAPHAEL, ME	324	32
MDI	I. MIDDLEMIST, ENGLAND	782	1	RCO	* R. RECSEK, HUNGARY	7	
MOK	O. MIDTSKOGEN, DENMARK	762	280	REC	C. REESE, TN	2	
MCQ	C. MILLER, NJ	4		REP	P. REINHARD, AUSTRIA	32	
MRU	R. MILLER, TX	162	1	RDX	% T. RICHARDS, NEW ZEALAND	15	
MSF	S. MINARDI, ITALY	52		RJI	J. RIGGS, NY	20	1
MZS	# A. MIZSER, HUNGARY	1407	132	RPR	P. ROBBINS, KS	457	43
MCE	E. MOCHIZUKI, JAPAN	127		RNB	N. ROBINSON, SOUTH AFRICA	342	
MMI	M. MOELLER, GERMANY	4389		RLR	R. ROBINSON, WV	2	
MGY	# I. MOGYOROSI, HUNGARY	28		RZD	D. RODRIGUEZ, SPAIN	1	1
MOD	D. MOHRBACHER, OH	49		RIA	* J. ROHART, FRANCE	358	
MOL	J. MOLNAR, VA	1344		RGB	G. ROSENBERG, CA	37	
MLF	L. MONARD, SOUTH AFRICA	635		RGL	G. ROTEM, ISRAEL	140	1
MJ	A. MONTAGUE, MI	120		RWL	D. ROWLEY, VA	5	
MP	F. MONTAGUE, MA	203	1	RR	R. ROYER, CA	358	37
MOI	* E. MORILLON, FRANCE	217	3	RJV	* J. RUIZ, SPAIN	57	
MOW	W. MORRISON, CANADA	4368	111	RPH	H. RUMBALL-PETRE, WA	13	
MKH	S. MUKHERJEE, INDIA	732		RZM	M. RZEPKA, POLAND	62	
MNS	* S. MUNIER, FRANCE	8		SLX	* A. SAILLOL, FRANCE	78	
MGX	% A. MURRAY, NEW ZEALAND	7		SJQ	A. SAJTZ, ROMANIA	2716	
NAG	# G. NAGY, HUNGARY	787		SSU	S. SAKUMA, JAPAN	429	35
NZO	# Z. NAGY, HUNGARY	750		SPX	% P. SALE, NEW ZEALAND	22	
NMA	# A. NAGY-MELIKUTI, HUNGARY	451		SAH	G. SAMOLYK, WI	3461	26
NMS	M. NALL, MO	120		SEP	* F. SANCHEZ, SPAIN	28	
NTL	M. NATALE, NJ	26	3	SGI	* M. CARDOSO SANTOS, PORTUGAL	59	
NKE	K. NAYLOR, SOUTH AFRICA	3		SPO	* C. SAPI, HUNGARY	830	17
NTO	T. NEJESCHLEBA, CZECHOSLOVAKIA	10		SGU	* G. SARI, HUNGARY	205	
NLX	% P. NELSON, NEW ZEALAND	15		SKI	# K. SARNECZYK, HUNGARY	58	
NRH	R. NELSON, CANADA	57		SGN	G. SCHEMBRI, NY	8	
NFC	F. CRUZ NICOLAU, ARGENTINA	83		SPK	P. SCHEEER, GERMANY	152	1
NBY	J. NORDBY, MN	434	33	SMF	F. SCHMIDT, NY	7	
NTS	T. NORTON, WV	70		SRD	R. SCHMIDT, MN	11	
NVK	M. NOVAK, TX	122	6	SAQ	& A. SCHOLTEN, NETHERLANDS	52	
NOG	G. NOWAK, VT	149		SLZ	G. SCHOTT, GERMANY	7	
OCN	S. O'CONNOR, CANADA	275		SOY	* O. SCHRAMM, HUNGARY	54	
OES	D. OESPER, IA	19		SCZ	* E. SCHWEITZER, FRANCE	950	15
OER	E. OFEK, ISRAEL	2721		SCX	E. SCIARONI, MO	3	
OKJ	% J. O'KANE, NEW ZEALAND	14		SCE	C. SCOVIL, CT	212	68
OJO	J. OLESEN, DENMARK	146		SRZ	# Z. SERES, HUNGARY	67	
ON	L. ONDRA, CZECHOSLOVAKIA	34		SVY	N. SEVERIJNS, BELGIUM	9	
OV	E. ORAVEC, NY	3495		SHS	S. SHARPE, CANADA	1567	11
ORW	W. ORTEL, RI	53		SSA	A. SHARPLESS, WA	302	4
OJR	J. OSORIO RIPERO, SPAIN	4017	530	SHQ	O. SHEMMER, ISRAEL	424	

TABLE 3. AAVSO Observers, 1991 - 1992 (continued)

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
SHW	W. SHERMAN, IN	316		TDM	D. TROIANI, IL	329	3
SKO	# M. SIKLOSI, HUNGARY	3		TUC	C. TURK, SOUTH AFRICA	37	
SIH	* M. SILHOL, CZECHOSLOVAKIA	1320		TDX	% D. TURNER, NEW ZEALAND	32	
SNE	N. SIMMONS, UT	686	325	TYS	R. TYSON, NY	121	
SJX	J. SMIT, SOUTH AFRICA	925		UAN	# A. UHRIN, HUNGARY	6	
SDU	D. SMITH, WI	187	44	UND	G. UNDERHAY, CA	10	
SHA	H. SMITH, MI	16		UCA	C. UNREIN, ID	73	
SMQ	M. SMITH, AZ	388		VFR	* F. VACLIC, CZECHOSLOVAKIA	85	
SX	L. SNYDER, NV	34		VBR	B. VAN BEMMEL, CANADA	71	2
SSZ	# Z. SOOS, HUNGARY	154		VCP	P. VAN CAUTEREN, BELGIUM	322	75
SOH	H. SORENSEN, DENMARK	67		VDH	& H. VAN DEN HIL, NETHERLANDS	87	
SOI	M. SOUKUP, NM	58		VDL	J. VAN DER LOOY, BELGIUM	422	
SJZ	J. SPEIL, POLAND	1809		VHD	D. VAN HESSCHE, BELGIUM	46	
SC	C. SPRATT, CANADA	374	3	VNL	F. VAN LOO, BELGIUM	185	1
SSP	P. STAMUS, CO	10		VMT	T. VANMUNSTER, BELGIUM	83	
STR	R. STANTON, CA	68	54	VSJ	J. VANSTEEBLANDT, BELGIUM	2	
STI	P. STEFFEY, FL	1577	178	VLE	& J. VAN 'T LEUVEN, NETHERLANDS	1	
SGP	P. STEGMANN, NJ	32		VGA	# B. VARGA, HUNGARY	42	
SET	C. STEPHAN, FL	919	36	VGY	# G. VASKUTI, HUNGARY	4	
SWT	R. STEWART, NJ	3271	855	VED	* P. VEDRENNE, FRANCE	6574	
STO	N. STOIKIDIS, GREECE	249		VMA	* M. VELASCO, SPAIN	20	
SKX	% M. STOKER, NEW ZEALAND	3		VC	% C. VENIMORE, NEW ZEALAND	2	
STO	M. STONE, MO	57	10	VET	* M. VERDENET, FRANCE	4666	2542
SOA	J. STROBBE, BELGIUM	257	11	VLU	L. VERGA, ITALY	1	
SAX	A. STUDER, VT	1		VEZ	T. VEZAUSKAS, LITHUANIA	296	
SUE	# P. SULC, HUNGARY	77		VIA	* J. VIALLE, FRANCE	98	
SUS	D. SUSSMANN, GERMANY	106		VJF	J.-F. VIENS, CANADA	51	
SVL	L. SVENNINGSEN, CT	179		VGP	* P. VIGNIER, FRANCE	232	41
SVN	P. SVENTEK, TX	1677	9	VIN	J. VINCENT, ZIMBABWE	92	
SWV	D. SWANN, TX	383		VII	# I. VINCZE, HUNGARY	375	1
SSW	S. SWIERCZYNSKI, POLAND	818		VHC	H. VITAL, BRAZIL	100	1
SBT	# R. SZABO, HUNGARY	1362		VJS	S. VOJTECH, CZECHOSLOVAKIA	681	1
SSI	* S. SZABO, HUNGARY	15		VOL	W. VOLLMANN, AUSTRIA	409	1
SZW	R. SZAJ, POLAND	256		WMX	% S. WADHWA, NEW ZEALAND	5	
SZ	# Z. SZALMA, HUNGARY	11		WKF	P. WALKER, VT	228	39
SKV	# L. SZARKA, HUNGARY	1311	12	WAJ	J. WALLER, OK	6	
SAO	# A. SZAUER, HUNGARY	136		WND	* D. WALLIAN, FRANCE	25	
SNO	# L. SZENTASKO, HUNGARY	1329	662	WSM	S. WALSH, ZIMBABWE	211	5
SOP	# P. SZENTEI, HUNGARY	3		WQX	% P. WARNES, NEW ZEALAND	34	
SZK	# G. SZITKA, HUNGARY	60	2	WSI	R. WASATONIC, MD	116	
SOO	% A. SZOLLOSI, HUNGARY	266	2	WDX	% M. WATSON, NEW ZEALAND	132	
SUZ	# P. SZUTOR, HUNGARY	707	11	WER	R. WEBER, KS	74	
TAI	* M. TARNAL, HUNGARY	12		WEI	D. WEIER, WI	458	105
TPI	* P. TASSIE, FRANCE	32		WJU	J. WEIER, WI	13	2
TDB	D. TAYLOR, CANADA	639	94	WC	R. WEND, IL	1358	3
TNX	% N. TAYLOR, NEW ZEALAND	182	3	WET	T. WESELAK, POLAND	549	
TSZ	# S. TEICHNER, HUNGARY	50		WEM	M. WESOLOWSKI, CANADA	15	
TBA	B. TEKATCH, CANADA	29		WEJ	J. WEST, ENGLAND	204	2
TJV	* J. TEMPFRANO, SPAIN	122		WEF	F. WEST, PA	1070	
TPS	# I. TEPLICZKY, HUNGARY	1006		WTJ	J. WEST, TX	23	2
TMS	* F. TERMIS-SOTO, SPAIN	1		WYT	T. WEYENBERG, WI	13	
TAX	A. THOMAS, GERMANY	35		WTK	# K. WIEBZT, HUNGARY	137	
TMR	R. THOMAS, CA	93		WI	D. WILLIAMS, IN	672	40
THR	R. THOMPSON, CANADA	846		WPX	% P. WILLIAMS, NEW ZEALAND	146	
THU	* B. THOUET, FRANCE	733		WLX	% L. WILLIAMSON, NEW ZEALAND	68	
TIA	# A. TIMAR, HUNGARY	64		WJY	J. WILMS, BELGIUM	324	12
TSR	# I. TISZINGER, HUNGARY	46		WLP	P. WILS, BELGIUM	32	
TJO	J. TOBIN, CT	12		WBC	B. WILSON, TX	1	
TRL	R. TOGNI, AZ	141		WDN	D. WILSON, TX	413	31
TMB	M. TOMBELLI, ITALY	422	21	WSN	T. WILSON, WV	81	17
TRT	# T. TORDAI, HUNGARY	30		WNG	L. WONG, MALAYSIA	47	
TGO	# G. TOTH, HUNGARY	14		WJM	J. WOOD, CA	331	
TTK	# K. TOTH, HUNGARY	323		WRO	R. WRIGHT, CA	115	
TTH	# T. TOTH, HUNGARY	57		YRK	D. YORK, NM	5815	3106
TFN	F. TRAYNOR, AUSTRALIA	37		ZWT	& W. ZANSTRA, NETHERLANDS	4	
TRF	C. TREFZGER, SWITZERLAND	146	29	ZUT	S. ZANUT, ITALY	9	
TBX	% B. TREGASKIS, NEW ZEALAND	81		ZT	R. ZIT, WI	251	29
TBX	% B. TREGASKIS, NEW ZEALAND	81					

\* ALSO MEMBER OF OR OBSERVATIONS RECEIVED BY AAVSO THROUGH ASSOCIATION FRANÇAISE DES OBSERVATEURS D'ÉTOILES VARIABLES (AFOEV).

& ALSO MEMBER OF NEDERLANDSE VERENIGING VOOR WEER-EN STERRENKUNDE, WERK GROEP VERANDERLIJKE STERREN (NETHERLANDS).

# ALSO MEMBER OF OR OBSERVATIONS RECEIVED BY AAVSO THROUGH MAGYAR CSILLAGÁSZATI EGYESÜLET, VÁLTOZÓCSILLAGOK (HUNGARY).

% ALSO MEMBER OF OR OBSERVATIONS RECEIVED BY AAVSO THROUGH ROYAL ASTRONOMICAL SOCIETY OF NEW ZEALAND (RASNZ).

Table 4. Individuals Requesting AAVSO Data During Fiscal Year 1991 - 1992.

<i>Name</i>	<i>Affiliation</i>
J. Africano	Rockwell International Co., CO
D. Barry	Georgia State University, GA
T. Belloni	Max Planck Institut fur Astrophysik, Germany
E. Belserene	Port Angeles, WA
P. Penson	Wellesley College, MA
G. Bertiaux	Draper Laboratories, FL
J. Bevelock (4)	Kearfott Guidance and Navigation Co., NJ
B. Blair	Johns Hopkins University, MD
H. Bond	Space Telescope Science Institute, MD
J. Bortle	Stormville, NY
P. Bowers	SFA, Inc., MA
C. Bueter	Adler Planetarium, IL
G. Carlson	Citrus College, CA
T. Chatterton	Arvada, CO
G. Clayton (9)	University of Colorado, CO
S. Cook	Arkansas Tech University, AR
F. Cordova (2)	Pennsylvania State University, PA
R. Cowen (2)	<i>Science News</i> , NY
R. Crosby	Talcott Mountain Academy, CT
J. Dickinson	University of Pittsburgh at Johnstown, PA
J. Drilling (2)	Louisiana State University, LA
H. Duerbeck (2)	Westfaelische Wilhelms-Universitaet, Astronomisches Institut, Germany
G. Evans	Snohomish, WA
T. Field	Massachusetts Institute of Technology, MA
R. Garfinkle	Union City, CA
M. Grabek	Consolidated School District of New Britain, CT
L. Greenhill	University of California at Berkeley, CA
J. Grindlay	Harvard-Smithsonian Center for Astrophysics, MA
A. Gutierrez-Moreno	Universidad de Chile, Chile
E. Halbach	Estes Park, CO
D. Hanzl	Astronomicky Ustav, Czech Republic
M. Hazen	Harvard-Smithsonian Center for Astrophysics, MA
T. Henna	Space-The Final Fronteir, OR
J. Hewitt (8)	Berkeley, CA
D. Hoffleit	Yale University, CT
M. Hollis	NASA/Goddard Space Flight Center, MD
K. Horne	Astronomische Institute, Netherlands
J. Houck	Cornell University, NY
S. Howell (2)	Planetary Science Institute, AZ
J. Hron	Institut fur Astronomie, Austria
T. Hunt	Indiana University, IN
K. Janes	Boston University, MA
M. Kafatos	George Mason University, GA
M. Karovska	Harvard-Smithsonian Center for Astrophysics, MA
T. Kipper	Estonian Academy of Sciences, Estonia
C. Koen	South African Astronomical Observatory, South Africa
A. Krahnert	Henrietta Leavitt Observatory, NJ
C. La Dous	IUE Observatory, Spain

Table 4 cont. Individuals Requesting AAVSO Data During Fiscal Year 1991 - 1992.

<i>Name</i>	<i>Affiliation</i>
P. LeVan	Hanscom Air Force Base, MA
D. Lubowich	American Institute of Physics, NY
A. MacRobert (3)	<i>Sky &amp; Telescope</i> , MA
R. Maddison	Brevard Community College, FL
M. Magalhaes (2)	University of Wisconsin, WI
S. Maran	NASA/Goddard Space Flight Center, MD
B. Marsden (20)	Harvard-Smithsonian Center for Astrophysics, MA
C. Mauche (2)	Lawrence Livermore National Laboratory, CA
C. McGruder	Fisk University, TN
M. Mennessier (4)	University of Montpellier, France
A. Michalitsianos (2)	NASA/Goddard Space Flight Center, MD
N. Moreno	Santiago, Chile
L. Niell	Harvard, MA
H. Nussbaumer	Institute of Astronomy, Switzerland
S. O'Meara	<i>Sky &amp; Telescope</i> , MA
B. Oppenheimer	Framingham, MA
C. Pamplona	Observatorio Astronomico Herschel-Einstein, Brazil
J. Pasachoff (2)	Williams College, MA
R. Patterer (10)	Center for Extreme Ultraviolet Astrophysics, CA
J. Patterson (3)	Columbia University, NY
J. Percy (4)	University of Toronto, Canada
E. Phillips	Perkins Observatory, OH
A. Pogosyants	Moscow State University, Russia
R. Polidan (2)	NASA/Goddard Space Flight Center, MD
H. Pope	Wytheville, PA
A. Quirrenbach	US Naval Observatory, DC
F. Ringwald (2)	Dartmouth College, NH
B. Sargent	Savannah, GA
W. Scharlach	University of Arizona, AZ
E. Schlegel	NASA/Goddard Space Flight Center, MD
P. Schmeer	Bischmisheim, Germany
S. Schufelt	Florida Institute of Technology, FL
A. Silber	Massachusetts Institute of Technology, MA
E. Sion (6)	Villanova University, PA
P. Smith	Teledyne Brown Engineering, AL
P. Stephanik	Oak Ridge Observatory, MA
S. Sullivan	Cape Canaveral, FL
P. Szkody (3)	University of Washington, WA
M. Szymczak	Torun Radio Astronomy Observatory, Poland
A. Tadmor	High school student
S. Tapia	MIT-Lincoln Laboratories, MA
J. Tatum	University of Virginia, VA
R. Vanderspek	Massachusetts Institute of Technology, MA
C. Van Wart	Medical Center Clinics, ND
F. Verbunt	Astronomical Institute, Netherlands
G. Wallerstein (3)	University of Washington, WA
B. Warner (3)	Max Planck Institut fur Astrophysik, Germany
J. Warren	University of California at Berkeley, CA
R. Webbink	University of Illinois, IL

Table 4 cont. Individuals Requesting AAVSO Data During Fiscal Year 1991 - 1992.

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<i>Name</i>	<i>Affiliation</i>
J. Welch	University of California at Berkeley, CA
C. Wheeler	University of Texas, TX
B. Whitney (2)	Harvard-Smithsonian Center for Astrophysics, MA
K. Williams	Thomas Jefferson H.S. for Science and Technology, VA
J. Wood	University of Texas, TX
S. Yorka	Denison University, OH

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Note: A number in parentheses after the name indicates multiple requests.