

ANNUAL REPORT OF THE DIRECTOR FOR FISCAL YEAR 1993–1994

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

It is my privilege and personal pleasure to present to you my Annual Report for fiscal year 1993–1994. It has been an exciting, busy, and fulfilling year. In my report I will share with you the highlights of our activities and operations.

1. Data management and data processing

1.1. Computerization and processing of current data

I am very happy to report once again that we are up-to-date in the computerization and processing of incoming observations.

After processing the data each month, observations on each star are checked on the computer screen to identify possible data entry errors and/or discordant observations.

1.2. Processing of archival data

We started to process the archival data (1911–1960) in February, using the same procedures that we use to process the current monthly observations. There are 20 essential steps in processing a batch (20,000 observations) of archival data. In the first part of the fiscal year, with one technical staff person working part time on the project, 75,000 out of about 2 million observations were processed. In the second half of the fiscal year, to speed up the processing, we had another technical staff person work part time on the project. To date, 247,652 observations from 290 of the 4,000 observers have been processed. The processing of the observations varies in speed from 20 observations a minute to one observation a minute, with an average of six observations a minute, depending on the observations and the observer. Early records suffer greatly from lack of standardization of charts used, nomenclature and designation, and reporting of the variable. Checking and standardizing these early records is what slows the processing of the data. At the present rate of processing the archival data it will take five years to complete the project.

1.3. Upgrading computer software

Computer programs at Headquarters continue to be improved and developed for the following tasks:

- 1) provide quick evaluation of data;
- 2) provide information for quick and efficient access to discordant observations so that they can be checked against original records for data entry errors;
- 3) identify the staff person who evaluated the data and the month and year the evaluation was done;
- 4) perform sophisticated statistical analysis programs to analyze long term AAVSO data;
- 5) perform sophisticated curve fitting programs for AAVSO light curves.

1.4. Upgrading computer hardware

Thanks to our NASA grant for providing data support for the Hipparcos satellite, we recently added a fast Pentium computer and a CD-ROM reader to our computer system. This new computer helps us immensely in providing the data support for the *Hipparcos Atlas of Light Curves*, now in preparation. The CD-ROM reader will be used to access many CD-ROMs of data and other information.

1.5. Maintenance of the AAVSO International Database

The AAVSO International Database, now holding data on over 5.8 million observations, is a dynamic one: we have access to each observation easily, we can identify the discordant observations, change the status of each record, and correct any errors. As we interact with the data more and more, we are identifying ways to make the use of the database even more efficient.

The database is backed-up weekly on cassette tapes, and periodically cassette copies are made and stored in another location.

2. Requests for AAVSO data and other special projects

2.1. Requests for AAVSO data

We have responded to 216 requests for AAVSO data and information. Increasingly, requesters wish to have the data transmitted to them electronically. This year, data for 103 of the 216 requests (48%) were sent electronically, and some of these were very large files of data covering 30 years. 85 of the 216 requests (40%) from 31 astronomers worldwide were related to space research with the following NASA and ESA satellites: IUE, HST, EUVE, Hipparcos, ROSAT, ORFEUS, Ulysses, and the Compton Gamma Ray Observatory.

A list of each individual requesting data or information, as well as his or her location and affiliation, is given in Table 4 at the end of my report. Figure 1 is a histogram of the annual number of data requests the AAVSO has filled since 1974. Figure 2 is a histogram of the number of requests we have filled in support of each of the space satellites mentioned above.

The types of stars for which AAVSO data were requested are given in the list below and in Figure 3.

- a) Cataclysmic variables (38%): dwarf novae (29%); novae, nova-like, recurrent novae, and supernovae (9%);
- b) Long period variables (25%): Mira (16%); semiregular (9%);
- c) Eclipsing binaries (6%);
- d) R Coronae Borealis stars (5%);
- e) Cepheids (4%);
- f) The Sun (4%);
- g) Symbiotic stars (3%);
- h) Miscellaneous (15%): RV Tauri, T Tauri, flare stars, Gamma Cas, quasars, suspected variables, irregular variables.

The areas in which AAVSO data or services have been used this year are given in the list below and in Figure 4.

- a) Multi-wavelength data correlation (35%);
- b) Scheduling observing runs for space satellites and ground-based observing runs (21%);
- c) Data analysis (11%);
- d) Reference material (11%);
- e) Science projects (8%);
- f) Setting up observing programs (3%);
- g) Information for the IAU Circulars (4%);
- h) Information on AAVSO educational programs and projects (4%);
- i) Simultaneous observing for observing programs with space satellites and ground-based telescopes (3%).

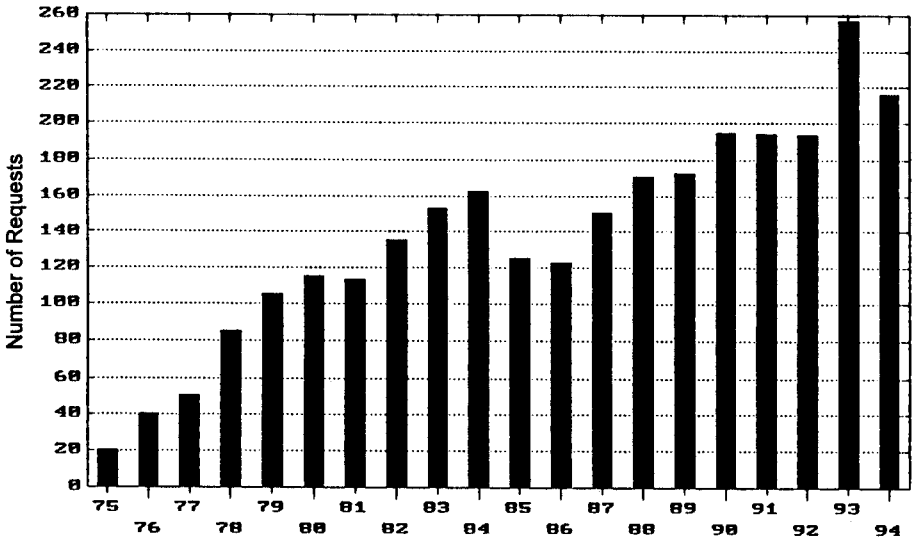


Figure 1. Histogram of the annual number of data requests the AAVSO has filled since 1974.

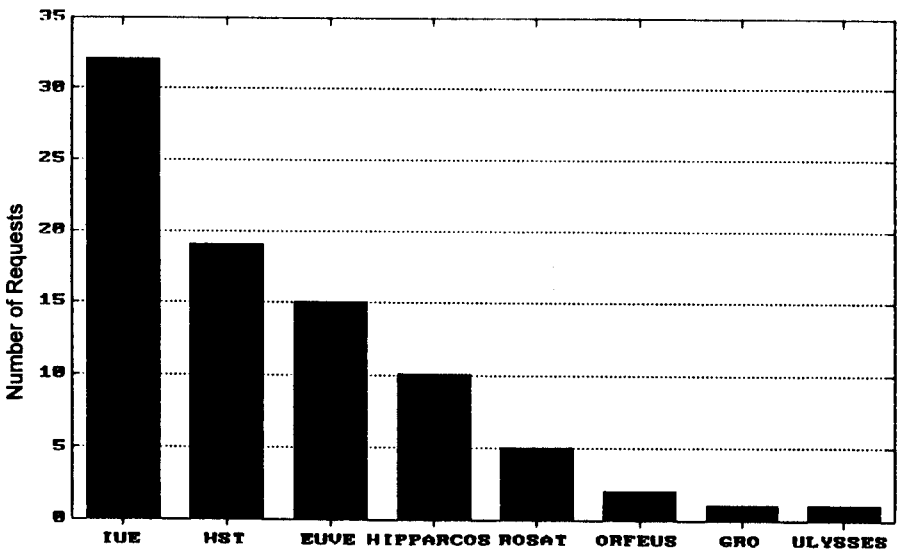


Figure 2. Histogram of the number of requests filled during fiscal year 1993-1994 in support of specific space satellite programs.

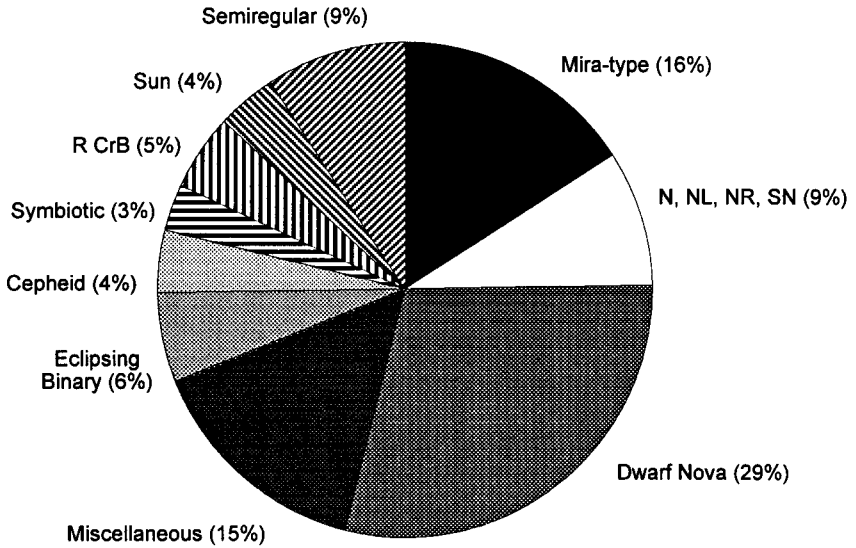


Figure 3. Types of stars for which AAVSO data were requested during fiscal year 1993-1994.

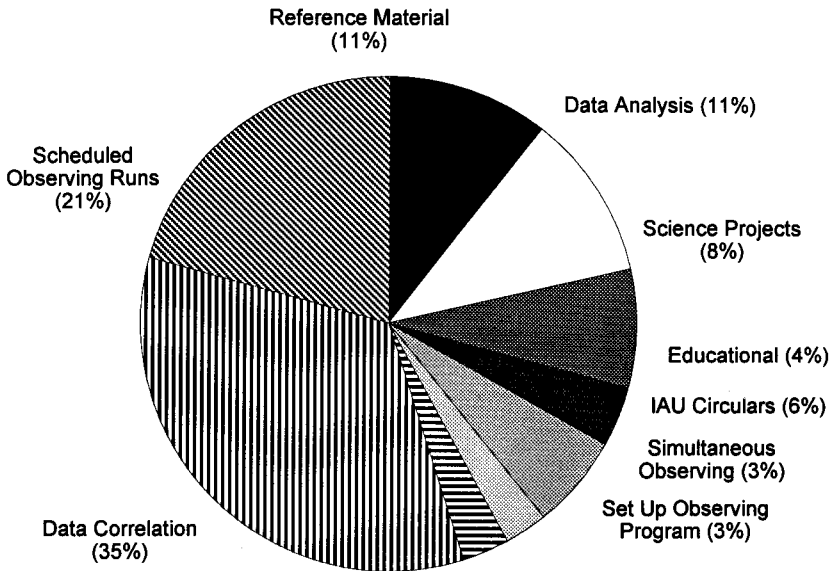


Figure 4. Areas in which AAVSO data or services were used during fiscal year 1993-1994.

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

We participated in the observation of cataclysmic variables during the ORFEUS mission last September. During this mission, VW Hyi went into an outburst, and thanks to reports from Danie Overbeek, Jan Hers, Tim Cooper, and Jan Smit in South Africa, we were able to inform the astronomers right away so that they could observe this cataclysmic variable during outburst with ORFEUS. Recently, we received a data request from Dr. Christoph Haas at Tuebingen University in Germany for VW Hyi observations during the mission. We compiled the data and transmitted them to him. He wrote:

Thank you for providing us promptly with the data set of VW Hyi I asked for. It is a great pleasure for me working with such a professional support. Since the FES [Fine Error Sensor] on the IUE satellite is not working correctly your optical data of the outburst during the ORFEUS-SPAS mission was the only possibility for us to get the important knowledge about the way this event developed.

Later, in a message sent to the NASA Project Scientist of the ORFEUS Mission, Dr. Haas wrote:

...Analyzing our data of the ORFEUS-SPAS mission of last September we asked the AAVSO or better Dr. Janet Mattei for optical light curves of this object. Within few days the AAVSO provided us with the desired data and we were grateful for such an unbureaucratic and quick support. It is very helpful to have such a competent organization by your side to complete your data which would be very difficult otherwise.

The NASA ORFEUS Project Scientist, Dr. Robert Stachnik, responded:

Thanks for taking the trouble to relay your thoughts on the work of the AAVSO. We prize their efforts very highly and I am delighted to hear that they are continuing their support with the ORFEUS mission.

The observing run of SS Cyg with the EUVE satellite in the summer of 1993, together with the vital role the AAVSO observers played in these observations, has now been made into a planetarium show by Norman Sperling at Chabot Observatory and Science Center in Oakland, California. The show, titled "The Newest Window in the Sky," showing three times a week, includes the observing account of how the notification from the AAVSO, with observations reported by Bill Dillon, Bill Albrecht, Alfredo Pereira, and Jack Nordby, started the EUVE monitoring SS Cyg. The AAVSO light curve of the outburst and the EUVE data are projected together on the planetarium dome and are very impressive.

The US Naval Observatory is preparing a catalogue of all stars down to visual magnitude 7.5, known as the Washington Comprehensive Catalog (WCC). Data on variable stars are particularly important, for it is necessary to include all stars that reach magnitude 7.5 and to give predicted fluxes at any given epoch. Variable star information is also important for other observing programs, one in particular being the Pole-to-Pole absolute magnitude program, for which information is needed as to when the variables will be brighter than the instruments' limiting magnitudes of 9.5–10.5. Thus, for these projects we have provided electronically both published and as-yet unpublished AAVSO data on a large number of long period variables.

We received a data request from Dr. Boris Gaensicke, an astronomer working with cataclysmic variables at Goettingen University in Germany, who wrote:

During your talk [at the] Padova Conference on Cataclysmic Variables, I had the chance to admire the incredible amount of data collected by the AAVSO; actually your [transparency of] AM Her shown during the quiz inspired my following request....

Dr. Gaensicke requested AAVSO data on AM Her, TT Ari, and VW Hyi to correlate with the IUE observations on these stars to model these systems during quiescence. Upon the receipt of large volumes of data, he wrote: "...I would like also to give my compliments to all the amateur observers giving us a big hand in our work."

Some of our data requesters lead dangerous lives, as is the case with Ray Sterner, a computer specialist and one of the amateur astronomers who observed with HST. Ray requested the long term data on Mira to analyze it with IDL software for a book he is writing. After acknowledging the receipt of the data, he wrote:

... I had an interesting day. While collecting data in a helicopter a warning alarm came on and also a red light on the instrument panel that said ENGINE OUT. We thought we might have to ditch in the cold North Atlantic but it turned out to be a blown out gauge instead of a blown engine....

These are only a few of the many interesting requests that we have filled this year.

2.2. Special satellite projects

In addition to the many requests for AAVSO data received this year, we continued to be involved in a number of special projects.

2.2.1. HIPPARCOS Satellite (project funded by NASA)

We are collaborating on a project to prepare the *Hipparcos Atlas of Light Curves* in which we are providing data to complement Hipparcos photometry. On about 800 variables common to Hipparcos and the AAVSO, we are trying to fit curves to AAVSO observations on each star using various statistical methods, i.e., Fourier transforms, piecewise polynomial, or quintic spline methods. The data on these curves are then sent to Geneva Observatory, Switzerland, where the AAVSO magnitudes are transformed to Hipparcos magnitudes and the light curves are plotted, upon which Hipparcos photometry is then superimposed by Hipparcos Photometry Team. The transformed AAVSO light curves and Hipparcos photometric data will be part of the *Hipparcos Atlas of Light Curves*.

Here is what Dr. Michel Grenon, the photometry team leader, wrote about the AAVSO's contribution to this project:

They [the AAVSO light curves with the fitted curves] are really impressive and very complementary to the Hipparcos data, especially when the minima are below the satellite detection threshold, as for W And. The quality of the fit is excellent and matches the tiny details of the light-curves without adding spurious harmonics.

The density of observations is higher than expected ... for small amplitude variables your information is extremely valuable. R CrB is a typical example where we would be lost having only data from ... space.

AAVSO observations have also been used to check Hipparcos photometry. Through this checking it was found that due to aging of the optics, large secular drifts were produced in the satellite photometry. Due to errors in the extrapolation of the photometric reduction to standard, Hipparcos magnitudes appeared brighter, particularly in the very red long period variables. The AAVSO light curves alerted the photometry team to this problem, which is now being corrected. On this item Dr. Grenon wrote:

... The comparison of AAVSO and satellite data turned out to be very useful not only to complement the light-curves but also to check the Hipparcos photometry for the very red stars. Errors in the extrapolations of photometric reduction to standard were found, inducing large secular drifts in the Hipparcos photometry. In the mean the Hipparcos LPV's were brighter with time showing magnitude change as large as 4 magnitudes in the worst case.

Once the secular drifts are removed, the coherence between your mean light-curve and the Hipparcos data is very good... Carbon stars, Symbiotic, R CrB stars are typical cases where we are lost without AAVSO data. So you may go ahead for the mass production of mean light-curves with everything irregular.

I would like to thank Grant Foster, our computer specialist, for doing a superb job in fitting curves to AAVSO data. Ben Oppenheimer, our part-time high school intern, is also becoming an expert in curve fitting and is helping Grant.

2.2.2. EUVE Satellite (co-investigator on a project funded by NASA)

We continue to collaborate with astronomers during the target-of-opportunity observations of cataclysmic variables with EUVE (Extreme Ultraviolet Explorer). The timely information on the start of the outburst and simultaneous observations of U Gem by our observers have enabled Dr. Knox Long of the Space telescope Science Institute to obtain excellent data of U Gem during outburst.

Dr. Chris Mauche, of Lawrence Livermore National Laboratory, with whom we are also collaborating, was interested in observing VW Hyi during superoutburst. When our South African observers reported that VW Hyi was in superoutburst in May, which was before his scheduled observing window, he was able, after much discussion, to reschedule his target-of-opportunity observing, and monitored this SU UMa type dwarf nova with the EUVE during this very opportune time. He wrote:

EUVE can not observe VW Hyi during the night time portion of its orbit at this time because of earth blockage... They [the satellite operation team] are willing to look at VW Hyi during the day portion of the orbit... the background is higher but we were able to see SS Cyg [during its anomalous outburst in 1993] during the day portion of the orbit, so why not VW Hyi.

...AAVSO observations of this source are imperative at this time. ...if VW Hyi starts to fall out of outburst, I need to know [as soon as possible]....

Later he wrote:

... EUVE is currently observing VW Hyi. CEA [Center for Extreme Ultraviolet Astrophysics] originally had the Deep Survey instrument on but have decided to turn it off because the count rate was too high.... They [CEA] were running all three spectrometers (during the day portion of the

orbit—no small deal there), and the spectrum was clearly observable in ALL THREE channels (down to 350 or 400 Angstroms!)

Then in June, SS Cygni went into outburst, as reported by our observers. I was away attending the colloquium on cataclysmic variables in Padova, Italy, and had informed Elizabeth Waagen, our Senior Technical Assistant, what to do in case this happened. She immediately informed Dr. Mauche. As it appeared to be, this was a fast-rising outburst, just what he wanted. He got wonderful data both at maximum and during the decline. Then during the decline, Dr. Ronald Polidan, at Goddard Space Flight Center, obtained time on the IUE satellite to monitor this outburst of SS Cyg. For the first time in astronomical history, a cataclysmic variable was being observed simultaneously both in the UV and EUV throughout an outburst.

2.2.3. HST (co-investigator on a project funded by NASA)

Dr. Edward Sion, with whom we are collaborating, had two observing runs granted to him with the Hubble Space Telescope (HST) to observe VW Hyi. He is studying the white dwarf component of this close binary system and needed to observe VW Hyi during minimum. He asked me to predict when VW Hyi would be at minimum so that he could request those times. Regrettably, he could not obtain observing time for when I predicted that the star would be at minimum. The scheduled observing time was during the time it was predicted that the star might be in outburst. Two days before his first run, VW Hyi went into superoutburst—the situation he most feared. As we received observations from our South African observers through Jan Hers, we immediately alerted Dr. Sion and he wrote:

... I called ___ at HST who essentially said nothing could be done. Thus we will have some nice observations of VW Hyi in superoutburst but not for our program....

For his second run on November 13, observers in South Africa and Australia kept a very close eye on VW Hyi. During his run the star was at minimum, but only two days later it had another outburst. So Ed obtained the spectrum closest to an outburst for this dwarf nova.

2.2.4. IUE Satellite

IUE (International Ultraviolet Explorer) is the satellite for which AAVSO data are requested the most for data correlation. This year we received 32 such requests for data.

Timely alerts and simultaneous monitoring of SS Cyg during outburst enabled astronomers from NASA Goddard Space Flight Center to obtain excellent IUE data throughout its long outburst in June and July 1994. Throughout the outburst we informed Dr. Polidan of the brightness of SS Cygni, thanks to the close monitoring of our observers, and he scheduled the IUE runs based on the observations he received from the AAVSO. He wrote: "Our IUE SS Cyg observations have gone very well, mostly thanks to strong AAVSO support...."

We also continue to provide outburst information to astronomers at Vilspa IUE Station in Spain during the different types of outbursts of SS Cyg, in order to schedule IUE observations during an anomalous outburst.

3. Outreach programs

The following outreach programs were either initiated or continued this year:

3.1. "Ask the Director"

In January we started a program called "Ask the Director." One evening a month open phone lines to the Director were made available. The response was slow at the beginning but later increased much more. The members really appreciated the opportunity to call and ask questions, make suggestions, and share ideas. I have very much enjoyed getting to know our members through these phone calls.

3.2. Observer Awards and the Director's Award

This year the AAVSO Council created two distinct awards: the AAVSO Observing Achievement Award and the Director's Award. The Observing Achievement Award is a certificate presented to those observers who have sent in to the AAVSO their 10,000th, 25,000th, 50,000th, or 100,000th observation. The AAVSO Director's Award is given yearly at the Director's discretion to an outstanding observer for his/her astronomical contribution to the AAVSO.

Both kinds of awards were presented at our Spring Meeting in Houston, Texas. Ten observers had achieved 100,000 or more observations; 16 had 50,000 or more; 32 had 25,000 or more; and 75 had 10,000 or more. We congratulate these observers on their achievement and thank them for their efforts. We received excellent responses from observers worldwide both when they were alerted to their observing award and, in particular, when they received their certificate of recognition. (Note: *Sky & Telescope* had a short article on this award under International News in its November 1994 issue.)

The first Director's Award was presented to Danie Overbeek of South Africa. Over the years, in addition to being a prolific observer, Danie has provided crucial time-dependent observations to help schedule and execute observations of variable stars with such telescopes as the HST, IUE, EUVE, ORFEUS, Hipparcos, and ROSAT.

3.3. Light curve requests

There has been continued good response from members and observers to our offer of two light curves of their choice. We have filled 165 requests to date.

4. AAVSO educational projects

4.1. Hands-On Astrophysics (project funded by NSF)

The "Hands-On Astrophysics" (HOA) project will contain AAVSO observations on 70 variable stars in five northern circumpolar constellations. We have extracted from the AAVSO International Database the 850,000 observations from 1960 to 1990 on these 70 stars. During the first part of the fiscal year one full-time and one-part time staff person evaluated these observations using our evaluation programs. Discordant observations were flagged and checked against original records, and necessary corrections were made if there were data entry errors.

Of the 850,000 observations spanning 30 years, approximately 16,000 (2%) appeared discordant and had to be checked against the original records. Of these, 20% (0.4% of the 850,000) required some type of change to the record, such as correcting a Julian Date, magnitude, star name, or designation.

In addition, if an error in Julian Date (JD) was found in the observation of a specific star, and upon checking the observer's original report form it was noticed that the JD error was carried through the entire report, all the observations with the incorrect value were corrected.

During the evaluation of HOA data, we also discovered that when we converted

our data magnetic tapes from seven-track to nine-track (necessary when the CfA computers were changed in 1978), the columns between magnitude and observer initials, where uncertainty colons or comment fields exist, were not recorded. Through procedures that we have developed, using the monthly data still on magnetic tapes, we have recovered the colons and comments on all the data except between 1978 and 1981. For these years we are using monthly printouts in order to add the colons and comments.

Thus, the evaluation of HOA stars has helped in correcting other errors in the database.

In addition to the above, the following aspects of the HOA project have been undertaken this year:

- a) We have completed the computer programs to plot, identify data points, and analyze data that will be part of this project;
- b) The astrophotographer we selected last summer, after experimenting with various film and optical set-ups, has started the color photography for the 125 slides of the five constellations;
- c) We have prepared the first draft of the Student and Teacher Manuals;
- d) We selected 15 highly qualified and experienced teachers and educators from around the US and held a very successful first Teachers' Workshop to evaluate the project. The teachers were very excited about the project and provided excellent feedback. All felt that the concept of "discovery" and the fact that this project involves "real science" with "real data" is what makes it special.

4.2. Partnership in Astronomy (project funded by NASA)

This program, connecting four local AAVSO members with the Lynnfield Middle School in Massachusetts, continues. Mario Motta is in charge of activities. We organized two star parties, a teachers' workshop, a trip to the Boston Museum of Science and Planetarium, and developed a lending library of astronomy books for the participating schools. Mario also set up a telescope-making workshop in Lynnfield Middle School which meets every week, during which 15 students are grinding 9 mirrors for 6-inch telescopes.

5. Summary of observations

Each month we receive tens of thousands of observations from around the world. These observations come from individual observers and from variable star associations in France, Belgium, Germany, Hungary, the Netherlands, Norway, Israel, South Africa, and South America.

Increasing numbers of variable star groups around the world are submitting their observations to the AAVSO as well as keeping a database of their own. This assures that their observations are part of the AAVSO International Database and are disseminated to the astronomical community upon request.

During fiscal year 1993-94, we received a record high number of observations: 330,699 visual and photoelectric observations from 572 observers around the world. These totals include 124,504 observations from 221 observers in 45 states of the United States and 206,195 observations from 351 observers in 37 countries. New Mexico (20,574 observations), New York (11,364), and Hawaii (8,563) lead the United States, while Germany (25,170), South Africa (23,949), and Hungary (21,197) lead the countries abroad.

The total number of observations since 1911 in the AAVSO International Database is 7,811,149.

The 7.5 millionth AAVSO observation was made by Stanislaw Swierczynski of Dobczyce, Poland, on September 13, 1993 (JD 2449244.611), when he observed

0727+08 S CMi at magnitude 7.8. We received this observation in October 1993.

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 37 observers reported between 1000 and 2000 observations, 11 between 2000 and 3000, 7 between 3000 and 4000, and 3 between 4000 and 5000. Hendrik Feijth (Netherlands) reported 5099 observations, Warren Morrison (Canada) 5446, Alfons Diepvens (Belgium) 5530, Marvin Baldwin (Indiana) 5610, Michael Moeller (Germany) 5626, Robert Modic (Ohio) 5651, Gerald Dyck (Massachusetts) 6030, Gary Poyner (England) 6330, Paul Vedrenne (France) 6448, John Bortle (New York) 6462, John Isles (Michigan) 6725, Tonny Vanmunster (Belgium) 7607, Laszlo Szentasko (Hungary) 8456, and William Albrecht (Hawaii) 8550. Our top three observers this year are Ofer Gabzo (Israel) with 11,405 observations, Danie Overbeek (South Africa) with 16,924, and David York (New Mexico) with 19,876.

David York sent in the highest number of inner sanctum observations (11,633), followed by Laszlo Szentasko (4690) and Tonny Vanmunster (4062).

We have received 2292 photoelectric observations from 19 of our photometrists. Howard Landis generously gives his time and efforts to see that all of our photoelectric data are computerized, reduced to a standard format, and archived by star.

My very special thanks to each and every observer for their contribution, whether it is one or thousands. Our observers make the AAVSO what it has been and what it is— and we salute them.

5.1. International cooperation

We acknowledge with appreciation 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. Agrupación Astronómica Albireo of Seville (Spain);
- b. Asociación Argentina Amigos de la Astronomía;
- c. Association Française des Observateurs d'Étoiles Variables (France);
- d. Astronomical Society of Southern Africa, Variable Star Section;
- e. Astronomischer Jugendclub (Austria);
- f. Astronomisk Selskab (Scandinavia);
- g. British Astronomical Association, Variable Star Section (England);
- h. British Astronomical Association of New South Wales (Australia);
- i. Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany);
- j. Grupo Canario de Estrellas Variables (Canary Islands, Spain);
- k. Israeli Astronomical Association, Variable Star Section;
- l. Liga Ibero-Americana de Astronomía (South America);
- m. Madrid Astronomical Association M1 (Spain);
- n. Magyar Csillagászati Egyesület, Változócsillag Szakcsoport (Hungary);
- o. Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands);
- p. Norsk Astronomisk Selskab, Variable Stjernegrupper (Norway);
- q. Planetario e Observatorio Astronomico do Colegio Estadual do Parana (Brazil);
- r. Red de Observadores de Estrellas Variables—MIRA (Spain)
- s. Royal Astronomical Society of Canada;
- t. Royal Astronomical Society of New Zealand, Variable Star Section;
- u. Uniao Brasileira de Astronomia, Variable Star Commission (Brazil);

- v. Unione Astrofili Italiani (Italy);
- w. Variable Star Observers League in Japan;
- x. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium).

6. Membership

This year, at the 83rd Spring Meeting held in Houston, Texas, we elected 51 new members, 3 of whom joined as Junior Members. A list of these new members appears on page 85 of Vol. 23, No. 1 of the *Journal*. At the 83rd Annual Meeting, held in Cambridge, Massachusetts, we elected 45 new members, 2 of whom joined as Sustaining and 4 of whom joined as Junior Members. A list of these new members appears on page 146 of this issue.

This year 3 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. *Journal of the AAVSO*, Volume 21, No. 2, edited by Charles A. Whitney, Elizabeth O. Waagen, Tanja E. Foulds;
- b. *AAVSO Bulletin 57: 1994 Predicted Dates of Maxima and Minima of 561 Long Period Variable Stars*, prepared by Janet A. Mattei;
- c. *AAVSO Circular*, Nos. 276–287, edited by John E. Bortle with assistance from Charles E. Scovil and Robert Leitner;
- d. *AAVSO Alert Notices*, Nos. 179–194, prepared by Janet A. Mattei;
- e. *AAVSO 1994 Ephemeris for Eclipsing Binaries*, prepared by Gerard Samolyk, Marvin E. Baldwin;
- f. *AAVSO 1994 Ephemeris for RR Lyrae Stars*, prepared by Gerard Samolyk, Marvin E. Baldwin;
- g. *AAVSO Photoelectric Photometry Newsletter*, Vol. 13, No. 2; Vol. 14, Nos. 1 and 2, edited by Michael S. Smith;
- h. *AAVSO Solar Bulletin*, Vol. 49, Nos. 10–12; Vol. 50, Nos. 1–9, edited and published by Peter O. Taylor;
- i. *SID Technical Bulletin*, Vol. 4, No. 4; Vol. 5, Nos 1–3, prepared by Arthur J. Stokes and Peter O. Taylor;
- j. *AAVSO Newsletter*, Nos. 11–13, prepared by Tanja E. Foulds;
- k. *AAVSO Monograph 5, RY Sagittarii Light Curves, 1892–1990*, prepared by Janet A. Mattei, Elizabeth O. Waagen, E. Grant Foster;
- l. *Observed Minima Timings of Eclipsing Binaries, No. 1*, prepared by Marvin Baldwin, Gerard Samolyk;
- m. *AAVSO Chart News*, Vol. 1, No. 1, prepared by Charles E. Scovil and Martha L. Hazen (a new publication);
- n. *CCD Views*, Vol. 1, No. 1, edited by Gary Walker (a new publication).

My very sincere thanks and appreciation go to Marvin E. Baldwin, John E. Bortle, E. Grant Foster, Tanja E. Foulds, Martha L. Hazen, Robert Leitner, Gerard Samolyk, Charles E. Scovil, Michael S. Smith, Arthur J. Stokes, Peter O. Taylor, Elizabeth O. Waagen, Gary Walker, 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 in the 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 J. A. Mattei, together with an article on "Delta Cephei—Star of the Year" with J. R. Percy, in the 1994 *Observer's Handbook* of the Royal Astronomical Society of Canada.

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

c. "The AAVSO database of variable star observations" was published by J.R. Percy and J.A. Mattei in *Astrophysics and Space Science*, **210**, 1–2, p. 137, 1993.

d. "Theoretical modes fitting on Miras light curves" was published by D. Barthes, Y. Tuchman, M.O. Mennessier, and J.A. Mattei in *Astrophysics and Space Science*, **210**, Nos. 1–2, p. 139, 1993.

e. "An analysis of longterm AAVSO observations of the recurrent nova RS Ophiuchi" was published by B.D. Oppenheimer and J.A. Mattei in *Bulletin of the American Astronomical Association*, **25**, 4, p. 1378, 1993.

f. "EUVE observations of SS Cygni" was published by C.W. Mauche, J.C. Raymond, and J.A. Mattei in *Bulletin of the American Astronomical Association*, **26**, 2, p. 934, 1994.

9. Meetings attended and talks given

It has been a busy year during which I have attended several inspiring astronomical meetings, thanks to grants from the American Astronomical Society (AAS), the International Astronomical Union (IAU), the National Aeronautics and Space Administration (NASA), and thanks to support from the AAVSO.

In January, Ben D. Oppenheimer, our high school summer intern, and I attended the meeting of the AAS and presented a poster paper on RS Ophiuchi (see below).

In May, Dr. Elizabeth Griffin invited me to present a talk on the AAVSO archives at the meeting of the Royal Astronomical Society in London. Later, she organized a get-together in Cambridge, where I met with Guy Hurst, editor of *The Astronomer*; Richard Kim, president of the British Astronomical Association (BAA); David McAdam, in charge of processing the BAA variable star data; John Toone, in charge of BAA variable star charts; Melvyn Taylor, in charge of BAA Charged Coupled Device (CCD) activities; Roger Pickard, in charge of BAA Photoelectric Photometry activities; Gary Poyner, an avid variable star observer; and George Alcock, the world-renowned nova and comet discoverer.

In June, I attended a meeting on Cataclysmic Variables in Padova, Italy, and presented an invited talk on the contributions of amateur astronomers to this field (see below). While in Europe, I also had special meetings with the Hipparcos Variable Star Coordinator, Dr. Marie Odile Mennessier, and worked with her and her assistants on several collaborative papers, one of which utilizes 75-year AAVSO maxima and minima data. (These provided the basis for one her students to obtain his doctorate degree.) I also had meetings with the Hipparcos Input Catalogue Task Leader for Photometric Ground Based Measurements, Dr. Michel Grenon. He and his assistant and I discussed the AAVSO's contribution to the *Hipparcos Atlas of Light Curves*.

In August, I attended the XXII General Assembly of the International Astronomical Union (IAU) in The Hague, Netherlands, where I presented an invited talk entitled "Archives for Information and Education," and a contributed talk on Ben Oppenheimer's work on RS Ophiuchi. (Later, an article was published in the IAU daily newspaper, *The Messenger*, about Ben being the youngest astronomer presenting a paper.) In addition, I presented two poster papers, one with Grant Foster, and one with John Percy and Michael Saladyga (see below). Following the IAU General Assembly, I was invited to

attend the meeting of *The Astronomer* at Basingstoke and present a paper on AAVSO activities. I was delighted to meet with many of my English colleagues and friends again and discuss further collaborations between our two associations. I also had the opportunity to visit with Guy Hurst, and see the quarters where he produces *The Astronomer*.

In addition to the above meetings, I attended several teachers' workshops and presented talks on the AAVSO and variable stars (see below).

9.1. Below is a list of the 13 talks and selected poster papers that I have given during the year:

- a. Variable Stars and the AAVSO (Rotary Club, Lexington, MA);
- b. AAVSO's Hands-On-Astrophysics Educational Project (Harvard-Smithsonian Center for Astrophysics, Cambridge, MA);
- c. Data Analysis of the AAVSO Longterm Observations of the Recurrent Nova RS Ophiuchi (poster paper with Ben D. Oppenheimer; American Astronomical Society Meeting, Washington, DC);
- d. AAVSO and Space Research on Variable Stars (Teachers Workshop at the Center for Extreme Ultraviolet Astrophysics, Berkeley, CA);
- e. AAVSO and Its Data Archives (invited talk at the Royal Astronomical Society, London, England);
- f. Contributions of Amateur Astronomers to Cataclysmic Variables (invited talk at the Colloquium on Cataclysmic Variables in Padova, Italy);
- g. AAVSO and Variable Stars (Colorado Teachers' Workshop in Astronomy, Boulder, CO);
- h. Archives For Information and Education (invited talk at the International Astronomical Union [IAU] XXII General Assembly, The Hague, Netherlands);
- i. Data Analysis of AAVSO Longterm Observations of the Recurrent Nova RS Ophiuchi (IAU XXII General Assembly);
- j. Time Series Analysis of Longterm AAVSO Observations on X Camelopardalis and o Ceti (poster paper with Grant Foster and Margarita Karovska; IAU XXII General Assembly);
- k. AAVSO's Hands-On Astrophysics Project (poster paper with John R. Percy and Michael Saladyga; IAU XXII General Assembly);
- l. AAVSO and Space Research on Variable Stars (invited talk at the meeting of *The Astronomer*, Basingstoke, England);
- m. Variable Stars and the AAVSO (with John Percy at AAVSO's first Teachers' Workshop on Hands-On Astrophysics, Cambridge, MA).

John Percy, John Griesé, Bob Stewart, and others have also given talks on the AAVSO, for which we thank them.

10. Personnel at Headquarters

Our Association is extremely fortunate to have a very special group of people as staff members at the Headquarters of the Association. They are dedicated, hardworking, conscientious, team-spirited, and in addition, very caring and nice.

I would like to express my very sincere appreciation and thanks to our Headquarters staff who assist me in running the Association: Elizabeth Waagen, my Senior Technical Assistant since 1979; Grant Foster, our Computer Specialist since 1989; Tanja Foulds, our Meeting Organizer and Project Coordinator since 1991; Michael Saladyga, our Technical Assistant since 1985; William Mackiewicz, our Technical Assistant since 1992; Barbara Silva, our Data Entry Technician since 1979; Elena Khan, our Technical Assistant since 1993; Shawna Helleur and Dennis Milon, Technical Assistants who

recently joined the staff; Frank McCarrison, our loyal Volunteer; Sara Beck, Donna Eldridge, Lynn Huang, and John Beck, our part time Technical Assistants; and Ben Oppenheimer, our high school Summer Intern, and Debbie Berrebichez, our Summer Research Assistant.

11. Acknowledgements

It is with gratitude and much appreciation that I extend thanks to those who have contributed so much to the association during the year.

We remember Clint Ford with fond memories, love, and gratitude, for the very special feeling he had for the AAVSO, for his generosity throughout his membership, providing us with a home which after 8 years still feels like a miracle, and with a legacy—the Clinton B. Ford Fund—that assures a sound future for the AAVSO.

We express our sincere thanks to Margaret Mayall, the Second Recorder and the First Director of the AAVSO, and Dorrit Hoffleit, who has made the AAVSO her very special Association and has contributed so much to it.

Our appreciation and thanks go to our dedicated, devoted, and untiring observers around the world, the unsung heroes of the AAVSO who make this Association vital to variable star research. Special thanks to all those observers who have contributed to special observing programs this past year for which our assistance has been requested again and again by astronomers.

Our thanks to members who support the AAVSO with their dues and special thanks to those who have generously contributed above their dues so that we can serve you our members and the astronomical community well.

11.1. Grants

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

a. National Aeronautics and Space Administration (NASA), for the grants to provide data support for the Hipparcos satellite in the astrometric and photometric observations of large amplitude variable stars; for the education extension grant from NASA's Astrophysics Division to provide astronomical partnerships between our local members and middle schools; as a co-investigator with Dr. Christopher Mauche to provide data support for observations of SS Cygni and VW Hydri with the Extreme Ultraviolet Explorer (EUVE); and as a co-investigator with Dr. Edward Sion in the observations of AM Her with HST.

b. National Science Foundation (NSF), for the grant from the Education Division for the preparation of the project Hands-On Astrophysics: Variable Stars in the Physics/Math Lab.

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

d. American Astronomical Society (AAS), for an International Travel Grant for me to attend the International Astronomical Union XXII General Assembly.

11.2. Institutional support

Our very special thanks go to the following institutions:

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

b. Smithsonian Astrophysical Observatory, for the computer time granted to us through the efforts of Professor Owen Gingerich and Barbara Welther that allows us archive our data on magnetic tapes and also have access to electronic mail.

c. The government of Canada's "Challenge '94" program, which provided partial support for Matt Szczesny and Lawrence Yu to work on our Hands-On Astrophysics project with John Percy, and to John Percy, for the time and wisdom that he gives to this project as well as to the AAVSO Photoelectric Photometry Program.

My sincere thanks and appreciation go to our committee chairs who give so generously of their time and wisdom to the committee(s) for which they are responsible. Thanks to Marvin Baldwin, Kenneth Beckmann, Priscilla Benson and Gary Walker, Thomas Cragg, Robert Evans, Howard Landis, Charles Scovil, and Peter Taylor. I very much appreciate the support of our vice-presidents Al Holm and Paul Sventek, and of our Council members: Mark Adams, Priscilla Benson, John Isles, Dan Kaiser, Gary Walker, George Wallerstein, David Williams, and Lee Anne Willson.

I especially thank Wayne Lowder, our president, and Martha Hazen, our secretary, for their support and wisdom and for always being there to help with matters of the Association.

A very special thanks to our treasurer Theodore Wales for his wisdom, financial expertise, for caring so deeply about the good of the Association, and for giving so generously of his time.

Special thanks also to our past president, Thomas Williams, for the exemplary job he did in his leading of the Futures Study Group, and to the members of the Futures Study Group: Mark Adams, John Bortle, Martha Hazen, Al Holm, John Isles, John Percy, David Williams, and Lee Anne Wilson, for their very conscientious efforts and work and for preparing a very thorough report that will give direction to the future of the AAVSO.

Last but not least, my personal thanks to my husband Mike, for supporting me in so many ways.

I thank each of you again very sincerely for your observations and many contributions to the AAVSO, for you are the foundation of our progress and success.

Table 1. AAVSO Observer Totals 1993-1994, by Country

Country	No. Observers	No. Obs.	Country	No. Observers	No. Obs.
ARGENTINA	3	4539	ITALY	10	1900
AUSTRALIA	5	2889	JAPAN	4	1931
AUSTRIA	3	396	MALAYSIA	1	24
BELGIUM	19	18862	MALTA	1	67
BOTSWANA	1	518	NETHERLANDS	13	8652
BRAZIL	4	790	NEW ZEALAND	1	184
CANADA	22	12739	NORWAY	5	1237
CROATIA	1	46	PARAGUAY	1	21
CZECH REPUBLIC	8	1616	POLAND	7	4784
DENMARK	7	4323	PORTUGAL	3	97
ENGLAND	7	11607	ROMANIA	4	3099
FINLAND	1	1461	RUSSIA	1	25
FRANCE	33	20859	SLOVAKIA	1	3
GERMANY	39	26257	SOUTH AFRICA	24	24091
GREECE	4	3792	SPAIN	31	7380
HAITI	1	800	SWITZERLAND	3	449
HUNGARY	72	21153	USA	221	124504
INDIA	1	386	ZIMBABWE	2	89
IRELAND	1	153			
ISRAEL	7	18976	TOTAL	572	330,699

Table 2. AAVSO Observer Totals 1993-1994, USA by State

State	No. Observers	No. Obs.	State	No. Observers	No. Obs.
ALABAMA (AL)	1	25	NEVADA (NV)	2	31
ARIZONA (AZ)	11	4043	NEW HAMPSHIRE	3	1507
ARKANSAS (AR)	2	630	NEW JERSEY (NJ)	3	5312
CALIFORNIA (CA)	17	3073	NEW MEXICO (NM)	5	20574
COLORADO (CO)	6	5926	NEW YORK (NY)	10	11352
CONNECTICUT (CT)	12	2103	NO. CAROLINA (NC)	1	145
DELAWARE (DE)	2	45	OHIO (OH)	9	6505
FLORIDA (FL)	8	3133	OREGON (OR)	1	8
HAWAII (HI)	2	8563	PENNSYLVANIA (PA)	11	2944
IDAHO (ID)	2	516	PUERTO RICO (PR)	1	42
ILLINOIS (IL)	15	4526	RHODE ISLAND (RI)	1	5
INDIANA (IN)	7	6978	SO. CAROLINA (SC)	1	4
IOWA (IA)	4	278	SO. DAKOTA (SD)	1	331
KANSAS (KS)	4	1508	TENNESSEE (TN)	2	25
KENTUCKY (KY)	1	15	TEXAS (TX)	11	3389
LOUISIANA (LA)	2	335	UTAH (UT)	2	572
MAINE (ME)	4	3677	VERMONT (VT)	2	143
MARYLAND (MD)	7	396	VIRGINIA (VA)	7	3349
MASSACHUSETTS (MA)	13	7209	WASHINGTON (WA)	4	366
MICHIGAN (MI)	3	6791	WEST VIRGINIA (WV)	3	176
MINNESOTA (MN)	3	1466	WISCONSIN (WI)	9	5821
MISSISSIPPI (MS)	1	21			
MISSOURI (MO)	4	644	TOTAL	221	124,504

TABLE 3. AAVSO Observers, 1993 - 1994

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
AAP	A. Abbott, Canada	1063	103	CWD	D. Cowall, MD	62	
AMT	M. Adams, TX	1264	519	COW	H. Coward, Jr., TX	30	
AB	W. Albrecht, HI	8550	109	CR	T. Cragg, Australia	2516	718
AAA	A. Alves, Brazil	395		CJH	J. Crast, PA	59	
AMS	* A. Amosse, France	18	2	CCS	C. Creigh, NV	14	
AEJ	E. Anderson, NY	532		CRR	R. Cuzmarine, NY	20	
AJR	J. Andress, AZ	253		CSK	# A. Csernik, Hungary	31	
AJU	J. Antaw, Australia	6	1	CSM	# M. Csukas, Romania	375	
AKT	T. Atkin, Haiti	800	4	CKB	λ C. Cubillo, Spain	71	
BGF	# G. Bakos, Hungary	4		CKB	B. Cudnik, AZ	234	2
BM	M. Baldwin, IN	5610		CUO	D. Currott, AL	25	
BIV	# I. Balogh, Hungary	119		CDT	D. Currier, CA	36	3
BGZ	G. Banialis, IL	1		DAH	H. Dahle, Norway	101	36
BMO	* M. Baranda-Gomez, Spain	24		DMI	β M. Dahm, Germany	899	
BXA	* A. Baranski, France	104		DAM	λ A. Darriba Martinez, Spain	80	1
BSF	S. Barnhart, OH	102		DAJ	J. Davis, MD	19	1
BSR	@ S. Baroni, Italy	548		DTF	T. Davis, CT	3	
BXR	! R. Barry, Israel	177		DED	✓ E. De La Guardia, Spain	4	
BTQ	A. Basti, Slovakia	3		DVI	+ F. De Villiers, South Africa	118	
BSU	β U. Bastian, Germany	32		DBR	* B. Decottignies, France	50	
BBA	B. Beaman, IL	246	11	DFR	F. Dempsey, Canada	99	
BJS	J. Bedient, Virginia	4	1	DEK	∇ K. Dequick, Belgium	55	
BNY	R. Benge, Jr., TX	200	3	DNO	O. Deren, Poland	249	
BTY	T. Benner, PA	539	137	DJN	J. Dickinson, PA	20	2
BNP	P. Benson, MA	49		DPA	∇ A. Diepvens, Belgium	5530	190
BEB	R. Berg, IN	100		DRG	R. Diethelm, Switzerland	19	
BVA	! A. Bervald, Israel	1621	16	DRD	R. Dietz, CO	1	
BIC	* L. Bichon, France	767	2	DLA	A. Dill, KS	454	
BMM	∇ M. Biesmans, Belgium	205	13	DIL	W. Dillon, TX	666	11
BKN	A. Birkner, IL	21		DPL	P. Dombrowski, CT	537	120
BGB	B. Blagg, TX	40		GDB	# G. Domeny, Hungary	64	
BLD	+ D. Blane, South Africa	132	4	DZS	S. Dominguez, Argentina	4348	
BAX	@ A. Boattini, Italy	104	14	DRN	+ N. Dreyer, South Africa	3	
BOH	β D. Boehme, Germany	235	4	DKI	# I. Drusko, Hungary	22	
BNQ	# N. Boja, Hungary	1		DTH	+ H. Du Toit, South Africa	19	
BWO	β W. Bojack, Germany	136		DUS	* R. Dubois, France	7	
BOK	β A. Boos, Germany	1		DAB	A. Dukes, Jr., SC	4	
BNU	* N. Bordet, France	1		DMO	* M. Dumont, France	506	
BEC	β E. Born, Germany	367		DGP	G. Dyck, MA	6030	3388
BRJ	J. Bortle, NY	6462	2096	EKG	G. Eklund, OR	8	
BMF	M. Boschat, Canada	4		ELD	D. Elias, Greece	87	14
BHY	H. Bouchelle, DE	19		ELP	P. Elias, Greece	12	
BMU	& R. Bouma, Netherlands	1115	29	EM	G. Emerson, CO	1	
BPI	* P. Bourret, France	106		EPE	β P. Enskonatus, Germany	245	
BMK	M. Bradbury, IN	210	20	ELD	K. Ewing, FL	13	
BZK	β R. Branzk, Germany	955		FCA	C. Fausel, IN	151	
BHA	β H. Bretschneider, Germany	236		FJH	& H. Feijth, Netherlands	5527	1426
BSM	S. Brincat, Malta	67	3	FKJ	# J. Fekete, Hungary	278	
BOS	∇ E. Broens, Belgium	1643	184	FBD	D. Fernandez Barba, Spain	43	
BBT	R. Browning, NJ	86		FJM	^ J. Fernandez, Spain	66	
BHC	C. Bruhn, Denmark	35		FBB	B. Fernando, Virginia	7	
BOA	* A. Bruno, France	108	4	FRF	# R. Fridrich, Hungary	555	13
BJY	J. Brydges, AZ	245		FSJ	* J. Fis, France	566	67
BMH	M. Burchfield, MS	21		FAT	# A. Fodor, Hungary	30	
BTH	T. Burrows, CA	1192	3	FTR	# T. Fodor, Hungary	4	
BEP	& P. Buz, Netherlands	5		FSE	@ S. Foglia, Italy	790	
BFS	J. Butler, Jr., CT	6		FFC	# F. Foldesi, Hungary	202	6
CMP	R. Campbell, FL	85	8	FMR	M. Fonovich, Croatia	46	
CJA	J. Campos, Portugal	12		FT	G. Fortier, Canada	12	
CFN	* F. Campos Cucarella, Spain	464	4	FTJ	T. Foulds, MA	1	
CVJ	λ J. Carvajal, Spain	18		FBM	B. Fox, OH	48	
CAT	J. Castano, Spain	95		FDE	D. Francetic, OH	12	
CNT	D. Chantiles, CA	316	5	FMC	* M. Frangeul, France	182	
CGF	G. Chaple, Jr., MA	67	28	FBN	+ B. Fraser, South Africa	45	
OCR	∇ O. Chretien, Belgium	37		FML	& M. Fridlund, Netherlands	141	
CYA	A. Cichy, Poland	989		FAA	A. Frosina, Italy	5	
CLK	W. Clark, MO	102	5	FMG	G. Fugman, IA	84	5
CWP	W. Clarke, CA	76		GMB	M. Gable, OH	503	
CKA	K. Cochrane, IL	15		GBZ	! O. Gabzo, Israel	11405	40
CKH	∇ H. Coeckelberghs, Belgium	20		GEC	E. Gale, IA	126	
CNL	O. Cole Arnal, Canada	471	7	GDO	λ D. Garcia, Spain	6	1
COL	P. Collins, AZ	1650		GPA	λ F. Garcia, Spain	23	1
CME	@ E. Colombo, Italy	308		GJO	^ J. Garcia, Spain	72	
CMG	& G. Comello, Netherlands	437	52	GAA	P. Garey, IL	9	
CK	S. Cook, AR	589		GHU	β H. Gegenfurtner, Germany	8	
COM	+ T. Cooper, South Africa	754	3	GJN	β J. Gensler, Germany	389	1

TABLE 3. AAVSO Observers, 1993 - 1994 (continued)

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
GCP	♂ C. Gerber, Germany	759		JOG	G. Johnson, MD	120	1
GST	♂ S. Gillesen, Germany	3		JR	R. Johnson, MD	33	8
GVN	V. Giovannone, NY	117		JON	▽ K. Jonckheere, Belgium	35	
GGT	G. Glenn, KS	26		JRW	+ R. Jones, South Africa	2277	
GLG	G. Gliha, MD	36		JJL	+ J. Jooste, South Africa	24	
GRQ	R. Gluckman, PA	10		JSZ	# S. Jozsa, Hungary	13	
GHA	♂ H. Goldbahn, Germany	1220		JPE	# P. Juharos, Hungary	54	1
GEA	E. Gomez, CA	5		KDA	D. Kaiser, IN	5	
GIN	✓ I. Gomez, Spain	31		KB	W. Kaminski, SD	331	19
GJZ	^ J. Gomez, Spain	8		KID	# I. Kapus, Hungary	1	
GOP	P. Goodwin, LA	243	31	KEI	E. Kato, Australia	71	1
GLM	L. Gorski, IL	3	1	KCA	C. Katsu, PA	16	
GRL	B. Granslo, Norway	12		KTL	L. Keith, WI	275	
GJM	+ J. Greaves, South Africa	1		KJM	J. Kernohan, MA	9	
GRI	J. Griesse, III, CT	388	278	KZB	# B. Keszthelyi, Hungary	18	
GOC	R. Grochowski, Poland	247		KZD	# D. Keszthelyi, Hungary	169	
GML	M. Grunanger, Austria	11		KSZ	# S. Keszthelyi, Hungary	21	
GCT	C. Grunnet, Denmark	166		KBY	+ B. Kilian, South Africa	1	
GUB	▽ G. Gubbels, Belgium	424	7	KRB	R. King, MN	439	133
GHD	H. Guidry, NC	145		KBR	B. Kirschner, CA	15	2
GUN	* J. Gunther, France	2174	122	KIL	# L. Kiss, Hungary	875	4
GMF	M. Gutridge, IL	4		KPD	+ P. Kleinsmith, South Africa	2	
GYP	# P. Gyentize, Hungary	8		KON	O. Klinting, Denmark	9	
HWO	♂ W. Haase, Germany	1		KGT	G. Knight, ME	95	
HCS	# C. Hadhazi, Hungary	1120		KSP	S. Knight, ME	82	8
HTY	T. Hager, CT	489	185	KS	J. Knowles, NH	217	
HJT	# A. Hajdu, Hungary	14		KOC	# A. Kocsis, Hungary	405	8
HKB	B. Hakes, IL	250		KLK	G. Kohl, AZ	30	
HK	E. Halbach, CO	3180	133	KHL	M. Kohl, Switzerland	392	
HTT	P. Hallett, Canada	54		KRS	R. Kolman, IL	1186	99
HMG	# G. Halmi, Hungary	16		KMA	M. Komorous, Canada	2257	
HMR	R. Ham, CO	1812	11	KOS	# A. Kosa-Kiss, Romania	504	
HAN	J. Hannon, CT	38		KKO	K. Koss, Czech Republic	65	1
HSG	G. Hanson, II, AZ	1036	29	KAV	S. Koushiappas, NM	31	
HAV	R. Harvan, MD	48	17	KVI	# I. Kovacs, Hungary	62	
HBL	♂ B. Hassforth, Germany	709	3	KHA	♂ H. Krauss, Germany	1	
HAI	A. Hastings, MA	20		KWO	♂ W. Kriebel, Germany	453	4
HSB	♂ W. Hasubick, Germany	165		KRN	+ N. Kriek, South Africa	100	
HAQ	# A. Haurvai, Hungary	236	7	KIS	♂ G. Krish, Germany	1662	
HDO	# D. Havassy, Hungary	7		KRK	K. Kriszunas, HI	13	
HAB	R. Hays, Jr., IL	1096		KJI	J. Kricka, Czech Republic	1214	
HZL	L. Hazel, NY	665	128	KRU	J. Kruta, Czech Republic	28	
HY	A. Heasley, FL	1		KBP	P. Kubicek, Czech Republic	10	
HEF	M. Heifner, CO	929	211	KCJ	J. Kucera, Czech Republic	1	
HYN	! N. Henry, Israel	11		KUC	* S. Kuchto, France	1022	
HEN	+ C. Henshaw, Botswana	518		KPG	* G. Kuipers, Netherlands	61	1
HVE	▽ V. Herrygers, Belgium	2		KBO	R. Kuplin, AZ	14	
HUN	+ J. Hers, South Africa	877	213	KHE	H. Kuun, OH	84	
HVM	# M. Hevesi, Hungary	7		LZL	# Z. Lantos, Hungary	7	
HEV	# Z. Hevesi, Hungary	43		LMF	M. Lara, Brazil	125	
HJR	# Z. Hevesi, Jr., Hungary	6		LSK	S. Laskowski, WI	43	
HE	L. Hiett, Virginia	2185		LVA	A. Lauvstad, Norway	351	8
HRI	R. Hill, AZ	247		LZT	T. Lazuka, IL	237	
HED	D. Himes, OH	49		LEB	* R. Lebert, France	319	39
HZR	♂ R. Hinzpeter, Germany	1286		LPA	P. Lee, TN	24	
HIR	Y. Hirasawa, Japan	1255	41	LNZ	G. Lenz, CT	114	
HWD	W. Hodgson, England	31		LGE	* G. Letellier, France	46	
HFO	* G. Hoffer, Germany	167	2	LEV	A. Leveque, CA	94	
HGX	G. Hoffer, FL	2		LOB	* J. Lobo-Rodriguez, Spain	7	
HJO	& J. Holtrop, Netherlands	896	14	LWT	T. Lohvimenko, Canada	64	
HZJ	J. Holtz, PA	497	4	LCS	S. Lomonaco Carvalho, Brazil	157	
HOO	& G. Hoogeveen, Netherlands	2		LGN	G. Lopriore, MA	13	
HFE	# F. Horvath, Hungary	5		LRZ	# M. Lorincz, Hungary	19	
HPE	# P. Horvath, Hungary	5		LRD	D. Loring, UT	410	1
HVA	▽ A. Houvenagheb, Belgium	10		LEJ	E. Los, NH	28	
IPA	P. Ingrassia, Argentina	184		LVT	J. Lovett, NH	1262	
ISK	# J. Iskum, Hungary	6		LTB	T. Lubbers, MN	437	
ILS	J. Isles, MI	6725		LBG	G. Lubcke, WI	1676	27
IFJ	% F. Ives, New Zealand	184		LFZ	F. Lucidi, Italy	56	
JTP	* P. Jacquet, France	202	12	LKA	K. Luedcke, NM	188	
JM	R. James, NM	327		LDY	# D. Lukacsy, Hungary	4	
JRY	& R. Jansen, Netherlands	8		MDW	W. MacDonald, II, Canada	81	3
JMC	M. Jefferson, Canada	5		MAU	A. Maciolek, MI	18	
JKK	K. Jensen, Norway	13		MDH	H. Maddocks, Virginia	36	
JLT	♂ L. Jensen, Denmark	3845	1245	MLI	L. Maitner, NY	702	5
JRJ	& R. Johanna, Netherlands	42	1	MJZ	* J. Manzorro, Spain	355	

TABLE 3. AAVSO Observers, 1993 - 1994 (continued)

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
MIC	* C. Mariller, France	59	2	PFU	* F. Pineau, France	77	37
MRX	♠ H. Marx, Germany	1325	86	PBL	B. Binson, FL	9	
MAQ	# A. Matis, Hungary	44		PIJ	# J. Piriú, Hungary	15	
MAV	D. Matsnev, Russia	25		AST	R. Podesta, Paraguay	21	
MPR	♠ P. Maurer, Germany	179		PLR	R. Poole, PA	24	
MGE	G. Mavrofridis, Greece	3505		PWR	R. Powaski, OH	15	
MJW	J. Mayer, PA	129		POX	M. Poxon, England	1664	86
MAZ	M. Mazurek, CA	70		PYG	G. Poyner, England	6337	3460
MGU	T. McCague, IL	11		PCJ	C. Preadom, CT	11	
MDV	D. McCollum, Virginia	17		PJS	λ J. Prieto, Spain	2	
MCV	P. McCrohan, Australia	290		PDQ	* D. Proust, France	18	
MDF	P. McDonald, Canada	36		PJI	J. Pryal, WA	3	
MJP	P. McJunkins, Jr., FL	1		PUJ	λ F. Pujol, Spain	509	17
MKJ	J. McKenna, NJ	1873	72	QW	♠ W. Quester, Germany	13	
MED	K. Medway, England	2126		QPF	P. Quinn, WI	36	2
MDG	D. Megginson, MO	2		RKE	♠ K. Raetz, Germany	568	
MJL	* J. Mendez-Alvarez, Spain	70		RKM	♠ M. Raetz, Germany	588	
MNZ	E. Meneguzzo, Italy	12		RRB	R. Raphael, ME	712	180
MSC	+ C. Mesu, Zimbabwe	2		RCQ	* R. Recsek, Hungary	5	
MTK	T. Michalik, Virginia	27	7	REC	C. Reese, TN	1	
MDI	I. Middlemist, England	1250		RFB	* F. Reigner, France	3	
MOK	O. Midtskogen, Norway	760	304	REP	P. Reinhard, Austria	131	
MIU	M. Mikutis, IA	15		RBN	* B. Renard, France	9	
MDQ	D. Miller, DE	26		RMC	M. Richard, MA	7	
MRU	R. Miller, TX	18	1	RSN	* S. Rigault, France	1	
MZS	# A. Mizzer, Hungary	1005	44	RPR	P. Robbins, KS	964	146
MCE	E. Mochizuki, Japan	104		RNB	+ N. Robinson, South Africa	145	1
MRV	R. Modic, OH	5651	820	RJN	* J. Rochefort, France	48	
MOX	G. Moeller, LA	92	8	RZD	λ D. Rodriguez, Spain	31	7
MMI	♠ M. Moeller, Germany	5626	1	RMU	λ M. Rodriguez Marco, Spain	418	
MOD	D. Mohrbacher, OH	41		RSO	λ S. Rodriguez Santana, Spain	20	
MOL	J. Molnar, Virginia	1079		RJA	* J. Rohart, France	782	
MOZ	# Z. Molnar, Hungary	37		RGB	G. Rosenberg, AZ	33	
MLF	+ L. Monard, South Africa	964		RGL	! G. Rotem, Israel	264	33
MF	F. Montague, MA	57		RSF	S. Rowe, MO	24	
MOW	W. Morrison, Canada	5446	273	RSR	S. Roy, WV	10	
MKH	S. Mukherjee, India	386		RR	R. Royer, CA	714	46
MNS	* S. Munier, France	4		RGY	G. Rubright, PA	10	
NZO	# Z. Nagy, Hungary	45		RJV	* J. Ruiz, Spain	89	
NMS	M. Nail, MO	516		RVR	✓ V. Ruiz Ruiz, Spain	49	
NRH	R. Nelson, Canada	80		RPH	H. Rumball-Petre, CA	21	
NEZ	# Z. Nemeth, Hungary	4		RSZ	E. Ruszczyk, CT	10	
NJO	♠ J. Neumann, Germany	213		RIS	# I. Ruzsinka, Hungary	3	
NFC	F. Nicolau, Argentina	7		RZM	M. Rzepka, Poland	46	
NBY	J. Nordby, MN	590	95	SJO	A. Sajiz, Romania	2200	
NTS	T. Norton, WV	11		SSU	S. Sakuma, Japan	552	102
NVK	M. Novak, TX	301	46	SEU	✓ L. Salas, Spain	2	
NOG	G. Nowak, VT	12		SLE	* E. Salazar-Garces, France	58	
OBT	T. O'Brien, NY	2		SAH	G. Samolyk, WI	3446	16
OCN	S. O'Connor, Canada	513		SGC	G. Sampson, WI	28	
ONU	J. O'Neill, Ireland	153	3	SAY	* A. Sanabria, France	4	
OCH	L. Ochs, CT	17		SEF	* F. Sanchez, Spain	9	
OES	D. Oesper, IA	53	5	STC	G. Santacana, PR	42	
OER	! E. Ofek, Israel	4830	1	SCU	✓ C. Santana, Spain	3	
OJO	J. Olesen, Denmark	71		SGL	N. Santos, Portugal	11	
OY	E. Oravec, NY	2812		SGI	* C. Sapi, Hungary	451	9
ORW	R. Ortel, RI	5		SKI	* K. Sarneczky, Hungary	412	12
OJR	λ J. Ripero Osorio, Spain	3788	393	SGE	G. Sarty, Canada	347	1
OSV	# L. Osvald, Hungary	63		SFC	C. Schaffer, WA	3	
OPX	X. Otazu Porter, Spain	90		SPK	P. Schmeer, Germany	335	4
ONY	# N. Otto, Hungary	4		SMF	F. Schmidt, NY	2	
OB	+ D. Overbeek, South Africa	16917	58	SWG	♠ W. Schmidt, Germany	1	
PLA	A. Padilla Filho, Brazil	113		SAQ	& A. Scholten, Netherlands	54	
PCC	R. Papini, Italy	34		SILZ	G. Schott, Germany	20	
PPS	# S. Papp, Hungary	2754	265	SHX	♠ H. Schubert, Germany	20	
PMA	M. Parker, CA	80	1	SWX	* T. Schwartz, MI	48	
PAK	# A. Patak, Hungary	10		SCZ	* E. Schweitzer, France	1176	43
PN	A. Pearmutter, MA	53		SCE	C. Scovil, CT	449	167
PEI	E. Pedersen, Denmark	99	5	SVW	V. Scurtu, Romania	20	
PMR	M. Perala, Finland	1461	62	SHS	S. Sharpe, ME	2788	45
PAE	A. Pereira, Portugal	74		SSA	A. Sharpless, WA	251	
PGY	# G. Peter, Hungary	1		SHQ	! O. Sphermer, Israel	668	1
PKI	O. Piechowski, KY	15		SHW	W. Sherman, IN	64	
PHC	+ H. Pieters, South Africa	14		SIH	* M. Silhol, Czech Republic	185	
PTZ	♠ J. Pietz, Germany	5778	192	SNE	N. Simmons, UT	162	23
PEY	E. Piggott, AZ	18		SPY	# P. Simonkay, Hungary	2	

TABLE 3. AAVSO Observers, 1993 - 1994 (continued)

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
SKU	# J. Skobrak, Hungary	2		UCA	C. Unrein, ID	503	
SIX	+ J. Smit, South Africa	1584	1	VFR	* F. Vaecl, Czech Republic	65	
SJE	J. Smith, CA	58		VMN	# M. Vamosi, Hungary	3	
SMQ	M. Smith, AZ	283	3	VAW	+ D. Van Aswegen, South Africa	6	
SKK	+ K. Smythe, South Africa	1		VBR	H. Van Bommel, Canada	4	
SX	L. Snyder, NV	17		VBP	+ P. Van Blommestein, South Africa	1	
SSZ	# Z. Soos, Hungary	126		VCP	∇ P. Van Caueren, Belgium	1264	611
SOH	H. Sorensen, Denmark	98		VDH	& H. Van Den Hill, Netherlands	28	
SJZ	J. Speil, Poland	1530		VDL	∇ J. Van Der Looy, Belgium	597	
SC	C. Spratt, Canada	60		VDJ	& J. Van Dijk, Netherlands	336	3
SBL	∇ B. Staels, Belgium	15	2	VHD	∇ D. Van Hessche, Belgium	277	
SKF	+ J. Stakesby-Lewis, South Africa	1		VNL	∇ F. Van Loo, Belgium	1054	208
SSP	P. Stamus, CO	3		VWS	∇ J. Van Wassenhove, Belgium	9	
STR	R. Stanton, CA	99	73	VZP	+ P. Van Zyl, South Africa	3	
SVD	V. Steblina, WA	109		VMT	∇ T. Vammunster, Belgium	7661	4097
SKS	T. Steckner, Canada	12		VED	* P. Vedrenne, France	6448	
STI	P. Steffy, FL	1635	156	VET	* M. Verdenet, France	3489	1674
SPU	P. Stepan, Czech Republic	48	7	VIA	* J. Vialle, France	151	
SET	C. Stephan, FL	1387	35	VNZ	# Z. Vician, Hungary	172	39
SWT	R. Stewart, NJ	3353	955	VJF	J. Viens, Canada	399	11
STQ	N. Stoikidis, Greece	188		VAN	♁ A. Viertel, Germany	5	
SJH	J. Stoltz, PA	10		VJV	* J. Villareal, France	4	
SHZ	♁ H. Struever, Germany	30		VIN	+ J. Vincent, Zimbabwe	87	1
SUK	M. Shuka, CA	2		VII	# I. Vincze, Hungary	10	1
SUX	✓ M. Suarez, Spain	922	28	VFK	♁ F. Vohla, Germany	1336	
SUS	♁ D. Sussmann, Germany	200		VOL	W. Vollmann, Austria	254	
SWV	D. Swann, TX	472		VVI	# V. Voroshazi, Hungary	2	
SSW	S. Swierczynski, Poland	1660		WEO	E. Waagen, MA	2	
SIZ	# Rita Szabo, Hungary	160		WLC	L. Wadle, TX	1	
SBT	# Robert Szabo, Hungary	625	198	WGR	G. Walker, MA	12	2
SAO	# A. Szauder, Hungary	57		WKP	F. Walker, VT	131	10
SNO	# L. Szentasko, Hungary	8455	4706	WSM	+ S. Walsh, South Africa	152	11
SZK	# G. Szitkay, Hungary	32	1	WSX	S. Warner, GA	2	
SUZ	# P. Szutor, Hungary	148	5	WSI	R. Wasatonic, MD	78	
TDB	D. Taylor, Canada	543	109	WNF	N. Wasson, CA	54	
TLA	M. Taylor, England	51		WER	R. Weber, KS	64	
TEA	S. Teames, TX	42		WEI	D. Weier, WI	137	43
TJM	✓ M. Tejera, Spain	11		WC	R. Wend, IL	959	2
TBA	B. Tekatch, Canada	127		WET	T. Weselak, Poland	63	
TPS	# I. Tepliczky, Hungary	179		WEJ	J. West, England	148	4
THR	R. Thompson, Canada	1062		WEF	F. West, PA	1630	
THU	* B. Thouet, France	2350	217	WYT	T. Weyenberg, WI	127	
TIA	# A. Timar, Hungary	112		WI	D. Williams, IN	838	13
TRL	R. Togni, AR	41		WJY	∇ J. Wilms, Belgium	7	
TMB	♁ M. Tombelli, Italy	39		WLP	∇ P. Wils, Belgium	17	1
TST	S. Toothman, IL	49		WDN	D. Wilson, TX	355	10
TRT	# T. Tordai, Hungary	21		WSN	T. Wilson, WV	155	48
TGO	# G. Toth, Hungary	86		WKM	M. Wiskirken, ID	13	
TTJ	# J. Toth, Hungary	9		WUL	♁ U. Witt, Germany	91	
TTK	# K. Toth, Hungary	736	1	WNG	L. Wong, Malaysia	24	
TTH	# T. Toth, Hungary	41		WJM	J. Wood, CA	221	
TSC	S. Tracy, CT	41	2	WRO	R. Wright, NM	152	
TFN	F. Traynor, Australia	6		YRK	D. York, NM	19876	11632
TRF	C. Trefzger, Switzerland	38	12	ZAG	# G. Zajacz, Hungary	315	
TDM	D. Troiani, IL	433	4	ZLT	# T. Zalezsak, Hungary	576	5
TSJ	S. Tsuji, Japan	20		ZAM	♁ M. Zanotta, Italy	4	
TYS	R. Tyson, NY	38		ZRE	R. Zissell, MA	889	341
UND	E. Underhay, CA	20		ZT	R. Zit, WI	53	4

These symbols indicate observers are also affiliated with the groups below:

- ^ Agrupacia Astronomica Albireo de Seville (Spain)
- * Association Francaise des Observateurs d'Etoiles Variables (AFOEV)
- + Astronomical Society of Southern Africa, Variable Star Section
- ♁ Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany)
- ♁ Grupo Canario de Estrellas Variables (Canary Islands)
- ! Israeli Astronomical Association, Variable Star Section
- ♁ Madrid Astronomical Association M1 (Spain)
- λ Magyar Csillagaszati Egyesület, Valtozocsillag Szakcsoport (Hungary)
- & Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands).
- % Royal Astronomical Society of New Zealand (RASNZ)
- ∇ Unione Astrofili Italiani (UAI)
- ∇ Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)

Table 4. Individuals Requesting AAVSO Data During Fiscal Year 1993–1994.

<i>Name</i>	<i>Affiliation</i>
M. Adams	McDonald Observatory, TX
B. Barentine	Senita School, AZ
C. Barnbaum	National Radio Astronomy Observatory, VA
D. Barthes (3)	University of Montpellier, France
B. Benjamin	University of Texas, TX
A. Benz	ETH Centrum, Switzerland
J. Bevelock	Kearfott Guidance and Navigation Systems, NJ
D. Biesecker	University of New Hampshire, NH
C. Blurton	Wheeling Jesuit College, WV
D. Boehme	Germany
H. Bond	Space Telescope Science Institute, MD
J. Bortle	Stormville, NY
K. Bove	W. Collingswood Heights, NJ
W. Brasure (2)	United States Air Force, CO
E. Broens	Mol, Belgium
J. Brydges	Tucson, AZ
R. Buchler (4)	University of Florida, FL
J. Cannizzo (2)	NASA/Goddard Space Flight Center, MD
J. Carlson	Harwich, MA
S. Catalan	University of Sussex, England
G. Chaple	Townsend, MA
S. Cho (2)	Nobayama Radio Observatory, Japan
S. Cini	Savio College, Malta
G. Clayton (5)	University of Colorado, CO
B. Connolly	Milwaukee, WI
M. Curran	Laramie County Community College, WY
W. Danchi	University of California, CA
D. DiCicco (2)	<i>Sky & Telescope</i> , MA
D. Dobrzycka	Center for Astrophysics, MA
J. Drilling	Louisiana State University, LA
S. Duck	Oxford University, United Kingdom
G. Eesley	student
N. Elias (2)	U.S. Naval Observatory, DC
M. Fonovich	Republic of Croatia
W. Forrest	University of Rochester, NY
A. Fraknoi	Astronomical Soc. of Pacific, CA
B. Gaensicke	Universitätssternwarte Göttingen, Germany
L. Gertstman	Long Beach, NY
R. Gerhz	University of Minnesota, MN
A. Granados	NASA Ames Research Center, CA
M. Grenon (7)	Geneva Observatory, Switzerland
E. Guinan	Villanova University, PA
C. Haas (2)	University of Tuebingen, Germany
W. Hack	Space Telescope Science Institute, MD
B. Hakes	Peoria, IL
E. Harlaftis	La Palma, Canary Islands
M. Hazen (3)	Harvard-Smithsonian Center for Astrophysics, MA
C. Heinrich	Technische Universität Berlin, Germany
N. Hendrickson	Clear Skies, CA

Table 4, cont. Individuals Requesting AAVSO Data During Fiscal Year 1993-1994.

<i>Name</i>	<i>Affiliation</i>
G. Hensley	The Fay School, MA
R. Herr	Plainfield High School, IL
R.B. Herr	University of Delaware, DE
K. Honeycutt (2)	Indiana University, IN
S. Howell (5)	Planetary Science Institute, AZ
M. Hurwitz	University of California at Berkeley, CA
T. Inge	Panama City, FL
D. Johnson	Markham Junior High School, CA
J. Johnson	University of Wisconsin, WI
M. Kassis	Willamette University, OR
S. Kenyon	Harvard-Smithsonian Center for Astrophysics, MA
M. Kidger	La Palma, Canary Islands
S. Kipp (2)	Mankato State University, MN
N. Kobayashi	Kyoto University, Japan
G. LaConsciencere	Western Colorado Astronomy Club, CO
C. La Dous (3)	IUE - VILSPA Station, Spain
P. Lambertson	Manteca, CA
S. Lee	Seoul National University, Korea
P. Li	University of California, CA
P.P. Lindblad	University of Stockholm, Sweden
I. Little (2)	University of Colorado, CO
J. Lockwood (2)	Sahuaro High School, AZ
K. Long (4)	Space Telescope Science Institute, MD
A. MacRobert (5)	<i>Sky & Telescope</i> , MA
L. Maisler	Syracuse, NY
B. Marsden (8)	Harvard-Smithsonian Center for Astrophysics, MA
E. Martin	El Camino College, CA
C. Mauche (9)	Lawrence Livermore National Laboratory, CA
D. McAdam	Shropshire, UK
G. McCorry	Edwards, CA
T. Mazeh	Tel Aviv University, Israel
S. Meier	Los Angeles, CA
P. Messina	Lafayette High School, NY
L. Mosher	Newfoundland, Canada
R. Neidigh	Knoxville, TN
D. Nogami (2)	Kyoto University, Japan
D. Nulsin	Pacific, CA
H. Nussbaumer	Institute of Astronomy, Switzerland
M. Orio	University of Wisconsin, WI
F. Pai	Daniel Webster School, CA
M. Perala	Lapua, Finland
J. Percy (3)	University of Toronto, Canada
K. Plummer	Markham Middle School, CA
R. Polidan (2)	NASA Goddard Space Flight Center, MD
M. Richards	University of Virginia, VA
F. Ringwald (2)	Keele University, England
V. Risk	Portland, OR
S. Roberts	Meade Instruments Corp., CA
C. Robinson	Pennsylvania State University, PA

Table 4 cont. Individuals Requesting AAVSO Data During Fiscal Year 1993-1994.

<i>Name</i>	<i>Affiliation</i>
D. Rosenberg	New York, NY
H. Satoh	University of Tokyo, Japan
T. Saygac (3)	Istanbul University, Turkey
R. Scagell	Middlesex, England
A. Schmiedekamp	Pennsylvania State Ogontz Campus, PA
D. Schwarz	Mason, OH
A. Shafter	San Diego State University, CA
L. Siegel	Bedford, MA
A. Silber	Harvard-Smithsonian Center for Astrophysics, MA
E. Sion (9)	Villanova University, PA
A. Smillin	Markham Middle School, CA
N. Sperling	Chabot Observatory and Science Center, CA
P. Stepan	Czech Republic
P. Sterner	Johns Hopkins University, MD
L. Sweezy	MIT Lincoln Laboratory, MA
P. Szkody (2)	University of Washington, WA
T. Tamer	New Baltimore, MI
G. Torres	Harvard-Smithsonian Center for Astrophysics, MA
C. Townes	University of California at Berkeley, CA
P. Tuthill	Cavendish Laboratory, England
D. Velasco	Markham Middle School, CA
F. Verbunt (2)	Errekundig Instituut, The Netherlands
R. Victor	Abrahms Planetarium, MI
R. Viotti (5)	Istituto di Astrofisica Spaziale, Italy
I. Voloshina	Sternberg Astronomical Institute, Crimea
R. Wade	Pennsylvania State University, PA
G. Walker	Dover, MA
G. Wallerstein (4)	University of Washington, WA
B. Warner	South African Astronomical Observatory, South Africa
C. Wheeler (2)	University of Texas, TX
B. Whitney	Harvard-Smithsonian Center for Astrophysics, MA
S. Wiley	Marymount Academy, CA
D. Wills	University of Texas, TX
K. Woodman	Park Street Collegiate, Ontario, Canada
T. Wurster	Scotch Plains Fanwood High School, NJ
M. Zic	Bakersfield, CA

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