

ANNUAL REPORT OF THE DIRECTOR FOR FISCAL YEAR 1997–1998

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It is a privilege and a distinct pleasure for me to present to you my 25th Annual Report, for fiscal year 1997–1998.

This has been a very active year in which we have completed AAVSO's major education project—*Hands-On Astrophysics: Variable Stars in Science, Math, and Computer Education*; reached a milestone with the 9 millionth observation in our database; re-designed and expanded our website; placed our standard charts on-line; placed our data on-line from 1961 to date; and participated in exciting satellite and ground-based observing programs.

In my Annual Report I will summarize these and other activities and share with you some highlights of our operations.

1. Internet connection

Our direct Internet connection through NASA Astrophysics and NASA Science Internet is vital in disseminating information, responding to data requests, and distributing publications such as the *AAVSO Circular*, *Alert Notice*, and *News Flash* through our web and FTP sites.

This year we added a full-time systems administrator and webmaster, Aaron Price, to the staff and thus were able to increase the AAVSO Internet presence dramatically. We made our computer servers more efficient and safe; we added a major educational component to our website with the launching of the Hands-On Astrophysics (HOA) site as part of the AAVSO website, and the HOA site alone received over 2000 individual hits in the first week; we re-designed our website to make it more informative, efficient, and attractive; we placed our standard charts, over 1100 of them, on our new website for electronic downloading; and we developed an on-line light curve generator to plot the observations from 1961 to September 1998 of any star in our observing program.

The new website is very popular among our members and observers, and has generated a large amount of feedback sent electronically. Here are some comments from our members and observers —

Thank you for the fabulous new website. It's looking most excellent. Having all this info available is really nice. I just got LVView and am using the table to find the reversed charts. God bless you for making life so easy!! Having reversed charts available like this is wonderful.

— Jack Davis, MD

Your AAVSO charts on the Web are wonderful!... Why don't you make available from Web also the Eclipsing Binary and RR Lyrae AAVSO charts?

— Sergio Foglia, Italy

The new website looks great and the information now available is amazing. Great Work!!

— Tom Williams, TX

I really liked receiving the Meeting Notice by E-Mail this year. It not only apprised me of the meeting dates, but also directed me to your web site.

There, I enjoyed viewing a 'pretty' copy of the notice and other goodies.
— Barbara Welther, MA

Your new website is really slick. I was able to get a few updated charts from it before I lost [electricity]... They really printed nice. Give my congratulations to the webmaster.

— Tim Atkin, Haiti

Here are some website statistics for the month of September 1998 (for which we have complete statistical records):

Average hits per day for the entire site:	3440
Average number of individual visitors per day:	275
Total number of pages (not including images)	
downloaded from entire site:	42,959
Total number of website hits:	103,198
Total number of pages downloaded:	42,959
(in September 1997—14,490)	
Total number of images and other files downloaded:	60,239
Total number of charts downloaded:	18,813

(Note: number of hits includes both the text pages and the graphics on the website. Access by AAVSO staff members has been filtered out from the numbers above).

One of the images from our website, that of Henrietta Leavitt, was the "Astronomy Picture of the Day" on the Internet.

One of the important and exciting benefits of the new website has been the increase in membership applications received. In September alone, we received 20 applications, the most in any single month this past year.

2. Data management and data processing

2.1. Computerization and processing of current data

The computerization of monthly data that we receive by postal mail, fax, and e-mail is up to date, thanks to Barbara Silva, who enters and verifies the data that come by postal mail, and to Kerriann Malatesta and Elizabeth Waagen, and recently also Mike Saladyga, who process and archive the data in the AAVSO International Database.

On average, 50% of the monthly reports came in electronically, via e-mail or on diskette. Of these electronically-submitted reports, about 50% were created using the AAVSO's data entry and report-formatting computer programs.

We moved about 1400 boxes of punched computer cards containing data from the 1960's and 1970's (data that are already on CD-ROM and on the network at Headquarters) to off-site storage! This move opened up significant space at Headquarters.

2.2. Nightly data

In addition to the monthly observations, a significant number of observers worldwide send their observations nightly to the AAVSO in order for the data to be included in our electronic publication, the *AAVSO News Flash*. These observations are entered each weekday in a cumulative running file. At the recommendation of several of our members, particularly Richard Stanton, since November 1997 this cumulative running file has also been included on the website as a "Quick Look" file covering the most recent three months.

2.3. Upgrading computer hardware and software

Computer hardware and software continue to be upgraded to meet the increasing needs for data management, our presence on the Internet, electronic communication, and research.

Over the past year we have made significant changes to our computer system architecture. We have improved and upgraded both our network servers and the individual workstations. We have purchased a 10-Gigabyte backup drive, and have developed a comprehensive backup strategy of backing up all files twice a week using a tape drive and a three-cartridge rotation pattern, and storing one cartridge off-site at all times. We have set up a remote system-monitoring mechanism.

3. Requests for AAVSO data

AAVSO data, your observations, are continuing to play a vital role in variable star astronomy. We have responded to 224 requests for AAVSO data and information that were sent directly to HQ. In addition, a large number of astronomers are obtaining the data they need either from our News Flashes or directly from the AAVSO web and FTP sites. Those requesting data are professional astronomers (51%), amateur astronomers (15%), students (24%), teachers (6%), and newspaper and magazine reporters (4%).

We have provided data for correlating multiwavelength observations and scheduling observing runs with ground-based telescopes and telescopes aboard the following 9 satellites: Hipparcos, IUE, HST, GRO, ROSAT, RXTE, SAX, ISO, and EUVE.

I was happy to be informed by Lee Anne Willson that in the 1996 *Index of Top 20 List of Astronomy Acknowledgements*, I, representing the AAVSO, was among the top 20 individuals acknowledged.

A list of individuals requesting data, as well as each person's affiliation and location, is given in Table 5 at the end of my report.

The types of stars for which AAVSO data and services have been requested this year is given in the list below and in Figure 1:

- a. Cataclysmic variables—30% (Dwarf novae 26%; Novae, nova-like, recurrent novae, supernovae 4%)
- b. Long period variables—26% (Mira 17%; Semiregular 9%)
- c. Cepheids—17%
- d. Miscellaneous—27%

The areas in which AAVSO data or services have been used this year are given in the list below and in Figure 2:

- a. Educational programs—35%
- b. Multiwavelength data correlation from optical to radio wavelength data—19%
- c. Reference material—18%
- d. Scheduling of satellite and ground-based observing runs—10%
- e. Simultaneous observations of targeted objects with satellites, particularly with EUVE, SAX, and RXTE—7%
- f. Science Fair projects—7%
- g. Data analysis—3%
- h. Setting up observing programs—1%

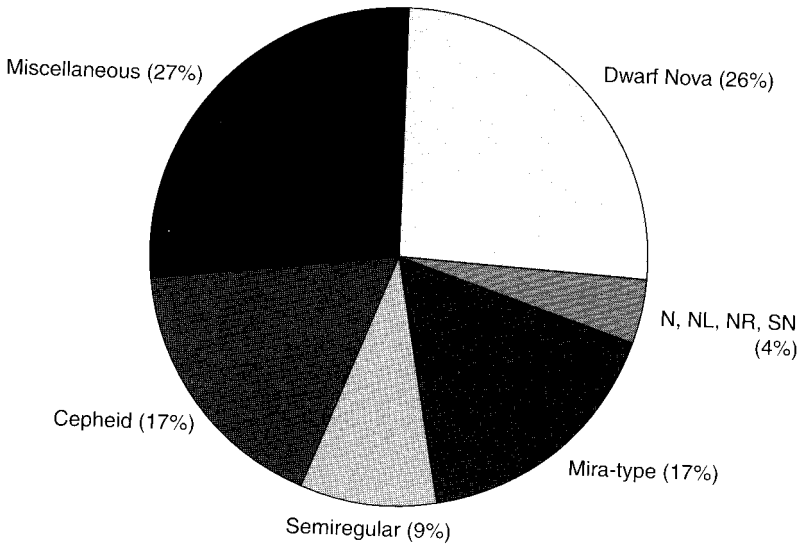


Figure 1. Types of stars for which AAVSO data were requested during fiscal year 1997-1998.

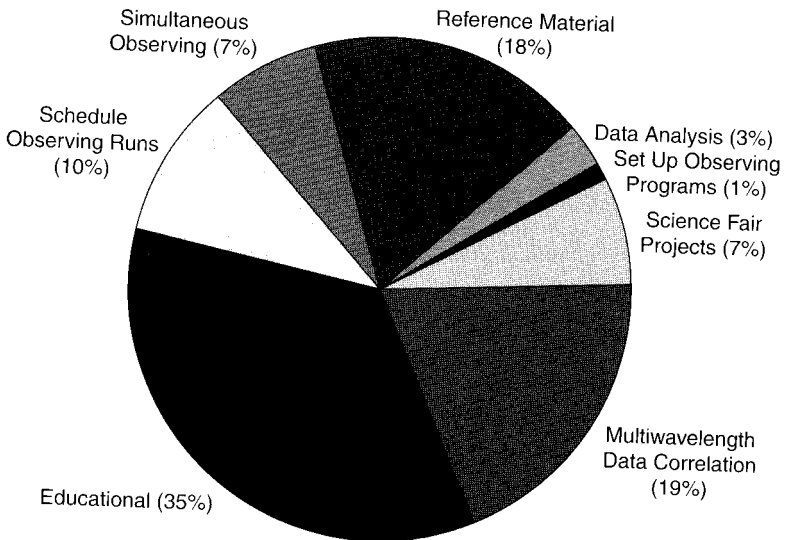


Figure 2. Areas in which AAVSO data or services were used during fiscal year 1997-1998.

I would like to share with you a few examples of the requests that we filled.

Dr. Kailash Sahu of the Space Telescope Science Institute wrote:

We are planning to do some HST observations of the symbiotic star AX Per. For this, we need some rough estimate of the present magnitude of the star, and whether there is any variability of the star at present.

We sent him the data on AX Per, to which he responded:

Thanks a lot for the information. This is the best news I had today! This is certainly very helpful in planning our HST observations. Thanks again.

AAVSO observations are playing an important role in interferometric observations of variable stars, particularly long period variables. Astronomers are depending on our observations for phase determination of their interferometric data. Dr. Guy Perrin, from Observatoire de Paris, Meudon, wrote in response to receiving the AAVSO data he requested on the Mira-type star R Leonis, "Thank you very much for your help. Your data are very precious for my research."

Not all the data requests we get come from astronomers observing variables with satellites. Gregory Beekman, observing the cataclysmic variable IP Peg from La Palma, Canary Islands, wrote:

Thank you very much for your quick response to my request. The AAVSO light curve has proved extremely useful in determining where our data lie in IP Peg's outburst cycle. I shall send you a copy of our paper (when it's eventually completed!) in due course. Again, many thanks.

At IAU Symposium 191 on Asymptotic Giant Branch Stars (AGB) many astronomers acknowledged the AAVSO data in their talks.

In addition, we have started to analyze the longterm AAVSO data. At the AGB and the NATO Advanced Study Institute meetings on variable stars I presented papers that Grant Foster and I prepared. These papers generated much interest from the attendees. Dr. H. Habing, the Deputy Editor of *Astronomy and Astrophysics*, invited me to submit the data on the 385 stars that we studied to *Astronomy and Astrophysics Supplements*. In addition, at one of the sessions at the AGB meeting that Dr. Habing was chairing, an astronomer from Princeton University was giving a talk on stars that show longterm Mira to non-Mira behavior. When the talk was opened to questions and comments Dr. Habing himself advised the speaker that he better talk to me about the AAVSO data for the AAVSO would have just what he was looking for. He did, and we are now collaborating in this interesting research.

In our trend analysis of long period variables (LPVs) we are finding that a significant number of stars are fading over their 70–80 year AAVSO history. At first we were alarmed by this result and checked both the data and our analysis to make sure this trend was real, and it did appear to be real. At the AGB meeting, a group of astronomers from Berlin specializing in the infrared theoretical models of LPVs reported that their models show that some of the LPVs are getting brighter in the infrared due to dust formation. Our observational results complement and confirm the infrared results in that the dust formation would dim the optical brightness and increase the infrared emission, for the dust would absorb the energy and re-emit it in the infrared.

In addition, the AAVSO data are also used by several astronomers in the analysis of the longterm behavior of variables. Laszlo Kiss, the Director of the Variable Star

Section of the Hungarian Astronomical Association, upon my suggestion at the AGB meeting decided to add AAVSO data to the other data sets he has been using in his analysis. We recently sent him longterm data on nine stars, after we had carried out careful quality-control procedures on the data (as is our policy on all the data we send to researchers). Upon receipt of the data he wrote:

I am fully delighted with the first set of data for 9 stars! I completely understand your suspect [sic] in respect to other data sources with inhomogeneous data handling. Although I met many AAVSO light curves in different publications, I am again very surprised with the {high} quality. Now I look forward to receiving the following data sets. This is wonderful! ...Many thanks again.

One of the highlights of our services this year has been the close collaboration we have formed in education and public outreach with the team of astronomers specializing in Gamma Ray Bursts at NASA/Marshall Space Flight Center (MSFC) in Huntsville, Alabama. It started with an invitation I had to visit MSFC and give a talk on the AAVSO and its activities. In the discussions during this trip we decided to hold the first-ever amateur astronomers' workshop on the High-Energy Universe at MSFC in 2000. Other collaborative activities were also decided on, such as making me, representing the AAVSO, part of a grant proposal for a gamma ray burst mission proposed by MSFC to NASA. If the mission is funded, the AAVSO will provide part of the education and public outreach programs.

Finally, let me share with you some of the drama we occasionally are party to when working on satellite observing projects.

Our colleagues Drs. Christopher Mauche at Lawrence Livermore National Laboratory and Peter Wheatley in the Netherlands were granted Target-of-Opportunity (TOO) observing time on the Extreme Ultraviolet Explorer (IUE) and the Rossi X-Ray Timing Explorer (RXTE) to observe U Gem while it was in outburst. We alerted our observers to keep a close eye on U Gem. Here the drama begins —

Janet Mattei wrote to Chris Mauche on Nov. 7, 1997, at 5:10 am PST:

The following observation indicates that U Gem is in outburst: U Gem Nov. 7.269 UT 9.7 HSG (G. Hanson) This is the only observation reported from last night, but Gene is a very good observer and he ... reported U Gem at magnitude 13.4 the night before. I just gave the observation above to Peter Wheatley over the phone. He said that he requested the RXTE team to start the observations yesterday after he saw our News Flash on U Gem.

Chris to Bryce (of EUVE) at 5:27 am PST, Nov. 7:

Wake up, man! U Gem is in outburst! Start the EUVE TOO as soon as humanly possible! Pete Wheatley just called to say that XTE is going to be on source by 17:00 hrs UT. Are you going to let them beat you to the source?

Chris to Pete and Janet:

FYI, Bryce is working on it, and will try to beat XTE to the source, but he can't promise anything yet. I'm going back to bed for another 3 hours.

Janet wondered how Chris could act so fast so early in the morning, and asked what kind of an alarm system he had to wake him up at the alert of an outburst. Chris replied:

My alarm system is Pete Wheatley: I left him to follow up with you in the AM and told him not to call me unless it was a go. Pete called me, I called Bryce after sending him e-mail-hence sleep was lost by everyone, at least on this coast. Bryce tells me he will be on source at 18:19 UT. I hope that is soon enough to catch the rise to outburst. Thanks for your most excellent assistance.

As a result of this successful collaboration between our observers and professional colleagues, excellent sets of data on U Gem have been obtained in the x-ray, extreme ultraviolet, and optical wavelengths which will help to answer some of the questions about the accretion disc, the boundary layer near the white dwarf, and the white dwarf itself in this compact binary system.

4. Awards, recognition, and outreach

4.1 Awards given

a. AAVSO Nova Award: Brett White of Australia was awarded the AAVSO Nova Award for his visual discovery of Supernova 1998dq in NGC 6754. The award was announced during the AAVSO 87th Annual meeting in Cambridge.

b. AAVSO Observer Awards: We have continued recognition of our observers through the Observer Award program. This year, at the AAVSO 87th Spring Meeting in Boulder, Colorado, we presented certificates to Michael Moeller of Germany for making over 50,000 visual observations; to two observers for making over 25,000 visual observations; seven observers for making over 10,000 visual observations; two observers for making over 10,000 PEP/CCD observations; and three observers for making over 2,500 PEP/CCD observations.

A complete list of the above award recipients will be published in the *Journal of the AAVSO*, Volume 28, Number 1.

c. AAVSO Director's Award: At the AAVSO 87th Spring Meeting in Boulder, Colorado, Gene A. Hanson, II, of Arizona received the AAVSO Director's Award for 1997-98 for his valuable observations for almost 20 years and for often contributing to the AAVSO crucial observations which have initiated satellite observations.

4.2 Awards received

Mary Dombrowski received the Young Astronomers Award, together with a 10-inch Meade LX-200 telescope, from the Astronomical League. Mary also won awards, including an educational scholarship, in four other science fair competitions this year.

Walter Hawley received the 1998 Brennan Award from the Astronomical Society of the Pacific.

Dorrit Hoffleit was inducted into the Connecticut Women's Hall of Fame in May. In October 1998 she was awarded an Honorary Doctorate Degree by Central Connecticut State University at New Britain.

Albert Jones received the 1998 Amateur Achievement Award from the Astronomical Society of the Pacific.

John Percy received the "Distinguished Educators Award" from the Ontario Institute for Studies in Education of the University of Toronto.

4.3. Outreach programs

a. The AAVSO-discussion forum on the Internet, administered by our Council member Douglas Welch, is going strong, addressing many observing issues. Interested members and observers may participate by sending a "subscribe" message via e-mail to aauso-discussion-request@physics.mcmaster.ca.

b. Our mentoring program, designed to pair a new observer with a more experienced one, is excellently coordinated by our Council member Daniel Kaiser and is proving to be very helpful. Those interested may contact Daniel via e-mail at dhkaiser@sprynet.com.

5. AAVSO educational project

This year we completed the AAVSO's five-years-in-the-making educational project, *Hands-On Astrophysics: Variable Stars in Math, Science, and Computer Education* (HOA). The different elements of this NSF-funded project required extensive work, particularly the 560-page Teachers' and Students' Manual, the database of 600,000 AAVSO observations, testing the three computer programs, copying the data and the software onto diskettes, copying the slides and printing some of them, and designing the presentation and packaging of the project. Along the way we had some setbacks, such as the damaging of the 14 cartons of slide prints while they were being transported to AAVSO Headquarters, resulting in their having to be reprinted and then hand-delivered several hundred miles.

Despite all the difficulties, we are very happy with the end product. HOA is being marketed by the Astronomical Society of the Pacific in their catalogue. We are also looking into possibilities of marketing it with other vendors.

Below is some information on *Hands-On Astrophysics*:

- HOA is a curriculum suitable for high school and college science, math, and computer classes; science and astronomy clubs; science projects; and amateur astronomy activities.
- The elements of discovery and real science, using real astronomical data from AAVSO's unique variable star database, are what make this program stand out from all others.
- With HOA one can contribute to science through analyzing tens of stars, and by making new observations of these stars.
- HOA will help individuals to acquire fundamental science skills and develop an understanding of basic astronomy concepts. It provides interdisciplinary connections, and takes one through the whole scientific process while working with real data.

Hands-On Astrophysics includes the following materials:

- Teacher/Student Manual - 560 pages, 13 chapters, and extensive appendices
- Database of over 600,000 variable star observations from the AAVSO International Database
- 3 Computer programs: VSTAR—data plotting and analysis program; HOAENTER—data entry program; HOAFUN—introductory program to variable stars, including a variable star brightness estimate observing game
- 45 variable star charts
- 31 Slides of five northern circumpolar constellations (Auriga, Cassiopeia, Cepheus, Cygnus, and Ursa Major)
- 14 Prints of Cygnus star field and W Cyg star field
- 1 Videocassette in three parts: "Backyard Astronomy"; "Variable Stars"; "How to Observe Variable Stars"

We held the first teachers' workshop on HOA since its completion, in collaboration with the Wright Center for Innovative Science Education of Tufts University. This workshop, titled "Space Science XII Workshop," was organized by Donna Young, teacher and curriculum specialist, and was held at Governor Dummer Academy in Byfield, MA. It was very well received by the 38 teachers who came from all parts of the US. Here are some of their comments on HOA:

"[HOA is] probably the most exciting educational initiative I have seen undertaken."

"Hands-on Astrophysics has the potential to make a real difference in science education for all students."

"[HOA] will be the core component of my astronomy and space science content. This will remove the student from the world of 'text only,' and thrust him/her into uncharted, hands-on territory..."

"I can see several of the activities fitting nicely into 'holes' in my curriculum where I was looking for some hands-on scientific activities."

Recently one of the workshop teachers wrote:

"I enjoyed the workshop, and have developed a student-centered project based on the AAVSO curriculum. My administrator has purchased six 8 X 56 Celestron binoculars in support of this project."

In addition, Donna Young has introduced HOA to the Science Olympiad National Science Competition program, and has written it into the "Reach the Stars" event. She has already given an HOA workshop to the national competition coaches of this program; thus, HOA is spreading widely.

6. Summary of observations

This year we achieved an observational milestone of reaching the 9.0 millionth observation in the AAVSO International Database (Figure 3). This observation was made by Ronald Zissell, South Hadley, Massachusetts, with his observation of 0829+53J NSV 4147 made on JD 2450853.713 (February 9.213 UT, 1998), at CCD V magnitude 12.2.

6.1. Annual observations

This year we received 323,061 visual, photoelectric, and CCD observations from 570 observers worldwide (Figure 4). These totals include 111,419 observations, of which 24,473 are inner sanctum observations, from 206 observers in 36 states and territories of the United States, and 211,642 observations, of which 29,019 are inner sanctum observations, from 364 observers in 38 countries.

The total number of observations since 1911 in the AAVSO International Database is 9,176,383.

Our top three observers for this fiscal year were Gene Hanson (Arizona) with 11,285 observations, Gary Poyner (England) with 13,810, and Danie Overbeek (South Africa) with 14,858 observations. Together these three observers contributed over 12% of all observations this year!

Table 1 lists the number of observers and the total observational contribution from each country during this fiscal year. Table 2 gives the same information for each state or territory in the United States. Table 3 is an alphabetical list of observers, giving each person's AAVSO observer initials, location, and annual totals of observations and inner sanctum observations (magnitude 13.8 or fainter, or "fainter than" 14.0 and fainter).

Table 4 lists the numbers of observers, each of whom made 1 to 999 observations; 1,000 to 9,999 observations (in increments of 1,000); and 10,000 or more observations this year. Table 4 also lists for each category the total number of observations and the percentage of all observations the category represents. Figures 5, 6, and 7 show schematic representations of the information in Table 4.

We received 2,610 observations from 17 photoelectric observers. Howard Landis, chair the of AAVSO Photoelectric Photometry Committee, digitizes these observations, reduces them to standard format, archives them, and sends them to Headquarters to be

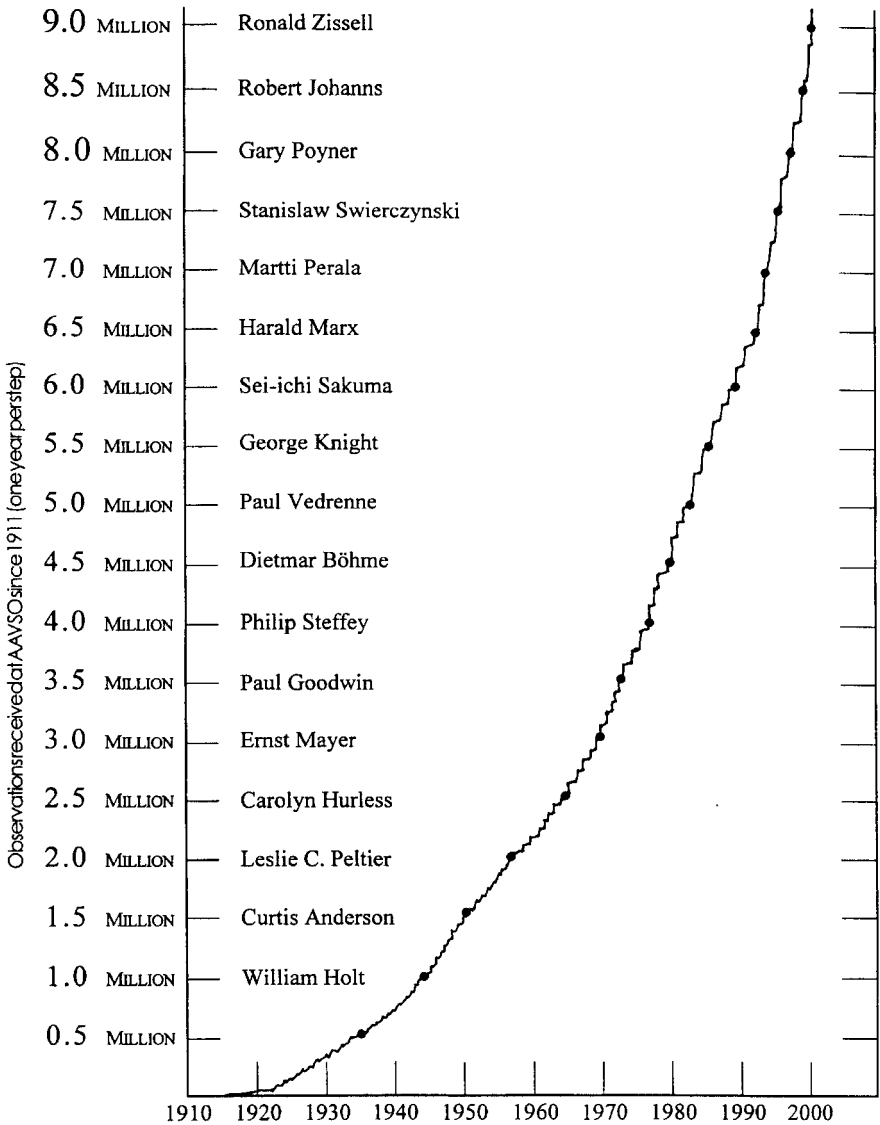


Figure 3. Megasteps of the AAVSO—the year in which each half-millionth observation was contributed to the AAVSO International Database, and the name of the observer credited with making the observation.

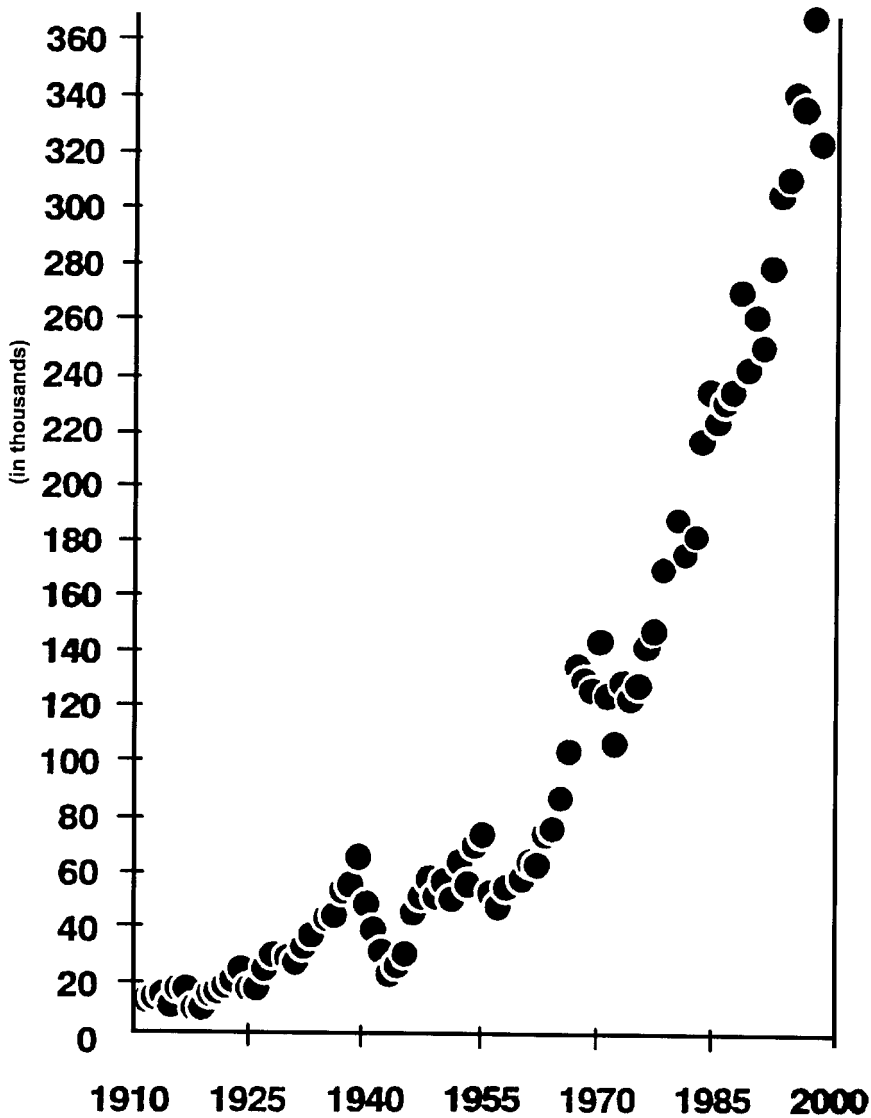
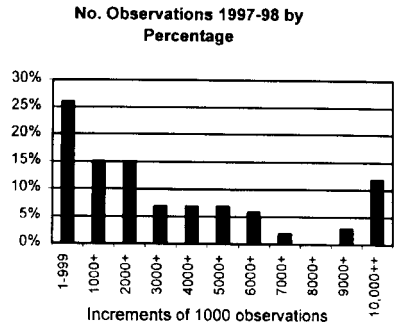
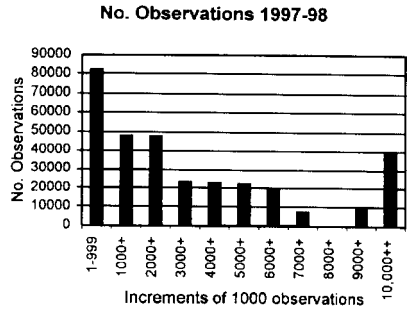
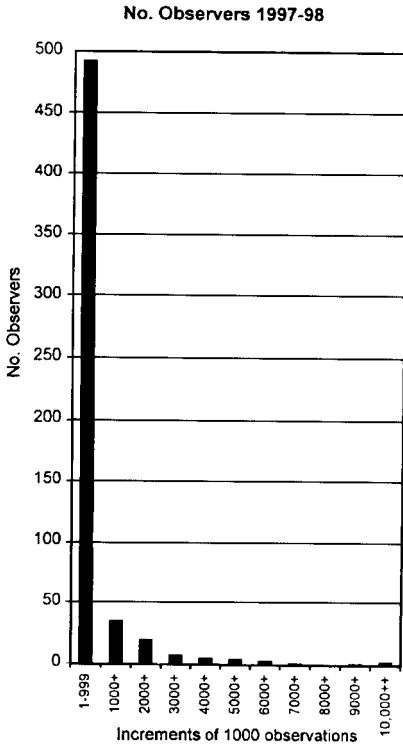


Figure 4. Number of observations submitted each year to the AAVSO International Database since its founding in 1911.



Figures 5, 6, and 7. These figures represent the information given in Table 4. Figure 5 (left) shows the number of observers, each of whom contributed 1-999; 1,000-9,999 (in increments of 1,000), and 10,000 or more observations in fiscal 1997-1998. Figure 6 (top right) shows, for each increment of 1,000 observations, the total number of observations contributed by the corresponding number of observers shown in Figure 5. Figure 7 (bottom right) shows, for each increment of 1,000 observations, the number of observations given in Figure 6, represented as a percentage of the total number of observations contributed to the AAVSO in fiscal 1997-1998.

included in the AAVSO Photoelectric Photometry Database.

We received 14,438 CCD observations from 30 observers. These include B,V,R,I observations of CCD program stars and the CCD observations of other types of stars, particularly faint cataclysmic and long period variables. Gary Walker, the chair of the AAVSO CCD Committee, makes sure that the CCD-program star observations are reduced in the standard format, archived, and submitted to Headquarters for inclusion in the AAVSO CCD Database.

We received 18,240 eclipsing binary and RR Lyrae star observations from 61 observers. Marvin Baldwin, chair of the AAVSO Eclipsing Binary and RR Lyrae Committees, together with committee member Gerry Samolyk, reduces and archives the observations for the determination of times of minima and maxima, respectively.

We received 2,880 supernova search observations from 4 observers. These observations, which are not included in the annual totals, are archived at AAVSO Headquarters. Rev. Robert Evans, chair of the AAVSO Supernova Search Committee, continues to provide vital guidance to the observers.

We received 2,741 nova search observations from 4 observers covering 108 different nova search areas (some areas were observed by all observers). These observations are not included in the annual totals. Rev. Kenneth Beckmann, chair of the AAVSO Nova Search Committee, compiles these observations and provides valuable guidance to observers.

My most sincere thanks to all our observers for their tireless efforts, dedication, and vital astronomical contributions to the AAVSO International Database.

My sincere thanks also to our data processing and archiving staff—Elizabeth Waagen, Kerriann Malatesta, Mike Saladyga, Barbara Silva, and Gamze Menali, who very carefully digitize, process, and archive our hundreds of thousands of observations received each year.

6.2. 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 worldwide:

- a. Agrupacia Astronomica Albireo of Seville (Spain);
- b. Asociacion Argentina Amigos de la Astronomia;
- c. Asociacion de Variabilistas de Espagne (Spain);
- d. Association Française des Observateurs d'Étoiles Variables (France);
- e. Astronomical Society of South Australia;
- f. Astronomical Society of Southern Africa, Variable Star Section;
- g. Astronomischer Jugendclub (Austria);
- h. Astronomisk Selskab (Scandinavia);
- i. British Astronomical Association, Variable Star Section;
- j. Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany);
- k. Grupo Astronomico Silos (Zaragoza, Spain);
- l. Liga Ibero-Americana de Astronomia (South America);
- m. Madrid Astronomical Association M1 (Spain);
- n. Magyar Csillagászati Egyesület, Valtózcsoillag Szakcsoport (Hungary);
- o. Nederlandse Vereniging Voor Weeren Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands);
- p. Norsk Astronomisk Selskab, Variable Stjernegruppen (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. Sociedad Astronomica 'Syrma' (Valladolid, Spain);
- v. Svensk Amator Astronomisk Forening, variabelsektionen (Sweden);
- w. Ukraine Astronomical Group, Variable Star Section;
- x. Uniao Brasileira de Astronomia, Variable Star Commission (Brazil);
- y. Unione Astrofili Italiani (Italy);
- z. Variable Star Observers League in Japan;
- aa. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium).

7. Membership

At the AAVSO 87th Spring Meeting held in Boulder, Colorado, this year, we elected 87 new members, 1 of whom joined as a Sustaining member. A list of these new members appears on page 87 of Volume 27, No. 1, of the *Journal of the AAVSO*. At the 87th Annual Meeting held in Cambridge, Massachusetts, we elected 55 new members. A list of these new members appears on page 182 in this issue of the Journal.

This year 8 members changed their membership from Annual to Sustaining, thus supporting the operations of the Association doubly with their dues.

8. AAVSO publications

This year the following were published by the AAVSO:

- a. *Journal of the AAVSO*, Vol. 26, Nos. 1 and 2, edited by Charles A. Whitney, with assistance from Elizabeth O. Waagen and Lynn M. Anderson
- b. *AAVSO Bulletin 61: 1998 Predicted Dates of Maxima and Minima of 561 Long Period Variables*, prepared by Janet A. Mattei, with assistance from Elizabeth O. Waagen
- c. *AAVSO Alert Notice*, Nos. 242–251, prepared by Janet A. Mattei, with assistance from Elizabeth O. Waagen
- d. *AAVSO News Flash*, Nos. 212–353, prepared by Janet A. Mattei, with assistance from Rebecca T. Pellock
- e. *AAVSO Newsletter*, Nos. 20 and 21, edited by Lynn M. Anderson
- f. *AAVSO Circular*, Nos. 323–335, edited by John E. Bortle, with assistance from Charles E. Scovil and Robert Leitner
- g. *AAVSO 1998 Ephemeris for Eclipsing Binaries*, prepared by Gerard Samolyk and Marvin E. Baldwin
- h. *AAVSO 1998 Ephemeris for RR Lyrae Stars*, prepared by Gerard Samolyk and Marvin E. Baldwin
- i. *AAVSO Solar Bulletin*, Vol. 53, Nos. 9–12; Vol. 54, Nos. 1–8, edited by Elizabeth Stephenson; prepared by Sara J. Beck and Karuna Kramer
- j. *SID Technical Bulletin*, Vol. 9, No. 1, prepared by Joseph Lawrence and Casper Hossfield
- k. *AAVSO Photoelectric Photometry Newsletter*, Vol. 18, Nos. 1–2, edited by John R. Percy
- l. *AAVSO Monograph 13: GK Persei Light Curves 1901–1902 and 1963–1995*, prepared by Janet A. Mattei, Elizabeth O. Waagen, and Grant Foster

9. Other publications with AAVSO participation:

a. "Classification of Red Variables" by J. A. Mattei, G. Foster, L. Hurwitz, K. H. Malatesta, L. A. Willson, and M.-O. Mennessier was published in the *Proceedings of the ESA Symposium "Hipparcos—Venice '97,"* ESA SP 402, 269; 1997.

b. "Studies on Long Period Variables" by J. A. Mattei and G. Foster was published in the *Bulletin of the American Astronomical Society*, **29**, 5, 1284; 1997.

c. "An Analysis of AAVSO Observations of Z Camelopardalis" by B. D. Oppenheimer, S. J. Kenyon, and J. A. Mattei was published in the *Astronomical Journal*, **115**, 1175; 1998.

d. "Detection of Rapid Photometric Variations in Mira-type Variables" by P. Laverny, M.-O. Mennessier, F. Mignard, and J. A. Mattei was published in the *Proceedings of the ESA Symposium "Hipparcos—Venice '97,"* ESA SP-402, 387; 1997.

e. "New Aspects of Long-Period Variable Stars from Hipparcos: First Results" by M.-O. Mennessier, J. A. Mattei, and X. Luri was published in the *Proceedings of the ESA Symposium "Hipparcos—Venice '97,"* ESA SP-402, 275; 1997.

f. "Oxygen-rich Mira Variables: Near-Infrared Luminosity Calibrations, Populations, and Period-Luminosity Relations" by R. Alvarez, M.-O. Mennessier, D. Barthes, X. Luri, and J. A. Mattei was published in the *Proceedings of the ESA Symposium "Hipparcos—Venice '97,"* ESA SP-402, 383; 1998.

g. "Detection of Short-term variations in Mira-type Variables from Hipparcos Photometry" by P. de Laverny, M.-O. Mennessier, F. Mignard, and J. A. Mattei was published in *Astronomy & Astrophysics*, **330**, 169; 1998.

h. "Two Galactic Supersoft X-Ray Binaries: V Sagittae and T Pyxidis" by J. Patterson *et al.* was published in the *Publications of the Astronomical Society of the Pacific*, **110**, 380; 1998.

i. "A Deep X-Ray Low State of AM Herculis" by D. De Martino, B. T. Gaensicke, G. Matt, M. Mouchet, T. Belloni, K. Beuermann, J.-M. Bonnet-Bidaud, J. A. Mattei, L. Chiappetti, and C. Done was published in *Astronomy & Astrophysics*, **333**, L31; 1998.

j. "Are Low-Order Resonances Observed in Mira Pulsation?" by D. Barthes, M.-O. Mennessier, J. L. Vidal, and J. A. Mattei was published in *Astronomy & Astrophysics*, **334**, L1; 1998.

k. "Are Z Camelopardalis-Type Dwarf Novae Brighter at Standstill?" by R. K. Honeycutt, J. W. Robertson, G. W. Turner, and J. A. Mattei was published in *Publications of the Astronomical Society of the Pacific*, **110**, 676; 1998.

l. "Non-Spherical Structures and Temporal Variations in the Dust Shell of α Ceti Observed with a Long Baseline Interferometer at 11 microns" by B. Lopez *et al.* (including the Nobel Laureate Charles Townes) was published in the *Astrophysical Journal*, **488**, 807; 1998.

m. "Star of the Year—W Cygni" by J. R. Percy and J. A. Mattei was published in the *Observers Handbook 1999* of the Royal Astronomical Society of Canada, 245.

In addition, the monthly publication of maxima of bright variable stars by Janet A. Mattei in *Sky & Telescope* resumed after a few months' hiatus, in response to popular demand after the column was discontinued by the magazine.

10. Meetings attended and talks given

10.1 I attended the following scientific meetings during fiscal 1997–1998:

a. 191st meeting of the American Astronomical Society (AAS), January 6–10, 1998, Washington, DC.

b. Atlanta Astronomical Club's (AAC) Vth Annual Peach State Star Gaze, March 26–29, 1998, Jackson, Georgia.

- c. Education Symposium of the Astronomical Society of the Pacific, June 29–30, 1998, Albuquerque, New Mexico.
- d. International Astronomical Union Symposium 191—Asymptotic Giant Branch Stars, August 27 – September 1, 1998, Montpellier, France.
- e. NATO Advanced Study Institute—Variable Stars as Important Astrophysical Tools, August 31– September 11, 1998, Çeşme, Turkey.

10.2 Talks and presentations given

I have given the following talks this year:

- a. “Studies on Long Period Variables,” poster paper presented at the AAS meeting, Washington, DC.
- b. “Wonders of the Universe,” in Lowell, Massachusetts.
- c. “Variable Star Observing,” at the AAC’s Peach State Star Gaze, Jackson, Georgia.
- d. “The AAVSO and Hands-On Astrophysics,” at the Amateur Telescope Makers of Boston meeting, Cambridge, Massachusetts.
- e. “The AAVSO and Its Contributions to Variable Star Space Research,” BATSE Colloquium Series, NASA/Marshall Space Flight Center, Huntsville, Alabama.
- f. “AAVSO and Hands-On Astrophysics” and “Variable Stars” at the Space Science XII Workshop of the Wright Center for Innovative Science Education, Byfield, Massachusetts.
- g. “Trend Analysis of Oxygen-Rich Long Period Variables,” poster paper presented at the AGB Stars meeting, Montpellier, France.
- h. Invited talks on “Trend Analysis of Long Period Variables” and “Classification of Long Period Variables,” at the NATO ASI meeting, Çeşme, Turkey.

In addition, Grant Foster, Wayne Lowder, and Glenn Chaple gave talks on “How to Win Friends and Influence People with Statistics,” “Observing with Binoculars,” and “Observing with a Small Telescopes,” respectively, at the Space Science XII Workshop in Byfield, Massachusetts.

Ray Berg, Dan Kaiser, Roger Kolman, Gary Simpson, and Gary Fugman gave presentations about the AAVSO at astronomical meetings held in their localities.

11. Personnel at Headquarters

Our Association is extremely fortunate to have a very special group of people as technical and administrative staff members at the Headquarters of the Association. They are dedicated, hardworking, conscientious, team-spirited, and in addition, very nice. I would like to express my most sincere appreciation and thanks to our Headquarters staff who assist me in running the Association: Elizabeth Waagen, my senior technical assistant; Grant Foster, our computer specialist and statistician; Rebecca Pellock, our technical assistant; Kerriann Malatesta, our technical assistant; Mike Saladyga, our technical assistant; Gamze Menali, our technical assistant; Aaron Price, our systems administrator and webmaster; Barbara Silva, our data entry technician; Karuna Kramer, our office manager and administrative assistant; Diane McDonough, our office assistant; Sara Beck, our part-time technical and administrative assistant; Lynn Anderson, our Journal production editor and Newsletter editor; and Frank McCorrison, our loyal volunteer.

12. Acknowledgements

I want to thank with deep feelings of appreciation and gratitude all those who have contributed so much to the Association this year.

We remember Clint Ford with fond memories and are grateful to him for providing

us with our own Headquarters and with a legacy—the Clinton B. Ford Fund—that assures a sound future for the AAVSO.

We remember Margaret Mayall for her dedicated service to the AAVSO, for making it survive during very hard times, and for the bequest that she and Newton made to assure the sound future of the AAVSO.

Our appreciation and thanks go to our dedicated, devoted, and untiring observers—570 of them around the world this year—the unsung heroes of the AAVSO who make this Association vital to variable star research. Special thanks to all those who have contributed to News Flashes, and to special observing programs.

Our thanks go to members who support the AAVSO with their dues, and special thanks to those who are sponsoring the membership of an active observer, and to those who have generously contributed above their dues so that we can serve you, our members, and the astronomical community well.

My sincere thanks and appreciation go to our Committee Chairpersons, who give so generously of their time and wisdom to the Committee(s) for which they are responsible. Thanks to Marv Baldwin, Ken Beckmann, Bob Evans, Howard Landis, Charles Scovil, Elizabeth Stephenson, and Gary Walker. Thanks also to Chuck Whitney, who serves as editor of the Journal.

I very much appreciate the support of and thank our Vice Presidents Lee Anne Willson and Dan Kaiser, and our Council members: Bill Dillon, Peter Garnavich, Margarita Karovska, Roger Kolman, Kristine Larsen, Mario Motta, Msgr. Ron Royer, and Doug Welch.

I especially thank Gary Walker, our President, Martha Hazen, our Secretary, and our past presidents Al Holm and Wayne Lowder for their support and wisdom and for always being there to help with matters of the Association.

A very special thanks to our treasurer Ted Wales for his wisdom, financial expertise, for his caring so deeply about the good of the Association, and for giving so generously of his time. We are grateful to him for the superb job he has done in managing the finances of the AAVSO over 19 years, and wish him well in his retirement.

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

National Science Foundation (NSF), for the grant for our Hands-On Astrophysics: Variable Stars in Science, Math, and Computer Education educational project, in its final year.

National Aeronautics and Space Administration (NASA), for four grants as co-investigator with Dr. Chris Mauche in the observations of dwarf novae.

National Oceanic and Atmospheric Administration (NOAA), for the grant to support the operation of the AAVSO Solar Division.

Thanks go to Stamford Observatory for allowing Charles Scovil and John Griesé to use the 22" telescope for making variable star observations, and for allowing Charles Scovil and Bob Leitner to use the facilities of the Observatory to prepare charts and the *AAVSO Circular*.

Our thanks to John Percy and the University of Toronto for the time John contributes to Hands-On-Astrophysics and for John's excellent editorship of the *AAVSO Photoelectric Photometry Newsletter*.

How fortunate we are to be grateful and thankful to so many individuals, institutions, and government agencies!

Last but not least, my personal thanks to my husband Mike, for his support, understanding, and patience with me when I keep saying that after this meeting or after this project I will change my schedule, I will work less, and I will come home early.

13. 25th anniversary retrospective

Twenty-five years ago the Council elected as its next Director a young astronomer who was Margaret Mayall's assistant, and Margaret passed on the AAVSO torch to me in November 1973. I had recently married an AAVSOer whom I had met at an AAVSO meeting in Nantucket while I was Dorrit's summer assistant. I was and continue to be very enthusiastic, and dedicated to the goals of the Association.

Let us look at the highlights of these 25 years in three areas.

13.1. AAVSO Headquarters

In 1973 we were in a small rented office on the ground floor of an apartment building at 187 Concord Avenue. Today, thanks to the generosity of Clint Ford, we have our own Headquarters and we have become the world's largest variable star observer association.

13.2. Observations

In 1973, 373 observers reported 121,089 observations from 19 countries and 43 states. In 1998, 570 observers have reported 323,061 observations from 38 countries and 38 states.

The grand total of our observations in 1973 was 3,246,739. In 1998 it is 9,176,383.

In 1973 we had boxes and boxes of computer cards, keypunch machines, and mechanical sorters to prepare our data for processing. We had no computer of our own and we were processing the data from the late 1960's at Harvard College Observatory using the computers there, thanks to a small grant through Owen Gingerich. Today we have our own computers with a terminal at each staff person's desk, all networked to a server that houses our 9+ million observations.

In 1973 we were handplotting the incoming data directly from the monthly reports onto graph paper, obtaining light curves on each star. Today, the incoming observations are digitized as they arrive, and they are processed and archived by the middle of the month following their receipt. Light curves are completely computerized and the light curve of any star in our observing program can be obtained within a minute with a couple of keystrokes.

In 1973 our handplotted light curves were on graph paper and only copies of them were distributed. As of October 1998 our light curves are on-line and accessible through our website.

13.3. Services to Astronomy

In 1973 we had 12 requests from astronomers for our data. This year we had 224 direct requests, with many other downloads of data directly from our website. In the past 25 years we have provided data and information for 4,057 requests.

In 1973 there were no satellites to which we contributed our service. In the past 25 years we have provided vital services dozens of times for 18 space satellites that have observed variable stars.

In 1973 we were helping students and teachers with their science projects but we had no formal educational program. In 1998 we have an exciting and innovative educational program, Hands-On Astrophysics.

In 1973 there was no such thing as email or the Internet. Today we are connected to the world through the Internet. We have an informative, interesting, and extensive website.

In 1973 our observers were using blueprint standard charts; today the charts are downloaded from our website.

It has been an exciting 25 years. I thank you for your support through all these years. The young, rather inexperienced woman is older and much wiser now. Together we have brought the AAVSO to what it is today. There is a lot to do still and I look forward to achieving it together.

Table 1. AAVSO Observer Totals 1997 – 1998 by Country.

<i>Country</i>	<i>No. Observers</i>	<i>No. Obs.</i>	<i>Country</i>	<i>No. Observers</i>	<i>No. Obs.</i>
ARGENTINA	5	1185	JAPAN	4	2110
ARUBA	1	224	MALTA	1	237
AUSTRALIA	10	6871	MEXICO	1	201
AUSTRIA	3	804	NETHERLANDS	9	15224
BELGIUM	19	14529	NEW ZEALAND	1	81
BRAZIL	7	3136	NORWAY	13	5515
CANADA	22	12394	PARAGUAY	1	9
CHILE	1	10	POLAND	9	8179
REP. OF CROATIA	1	3047	PORTUGAL	1	4
CZECH REPUBLIC	2	365	ROMANIA	3	1565
DENMARK	5	5961	RUSSIA	4	392
ENGLAND	13	19282	SOUTH AFRICA	10	24019
FINLAND	1	3641	SPAIN	25	3395
FRANCE	36	18183	SWEDEN	1	278
GERMANY	37	30564	SWITZERLAND	5	3613
GREECE	4	1182	UKRAINE	17	5896
HUNGARY	70	16102	URUGUAY	3	166
INDIA	1	51	USA	206	111419
IRELAND	1	111	ZIMBABWE	1	16
ITALY	16	3100	TOTAL	570	323,061

Table 2. AAVSO Observer Totals 1997 – 1998 USA by State or Territory.

<i>State</i>	<i>No. Observers</i>	<i>No. Obs.</i>	<i>State</i>	<i>No. Observers</i>	<i>No. Obs.</i>
ARIZONA (AZ)	10	15614	MINNESOTA (MN)	3	1340
ARKANSAS (AR)	3	1378	MISSOURI (MO)	4	178
ARMED FORCES (AE)	1	39	NEW HAMPSHIRE (NH)	2	21
CALIFORNIA (CA)	21	6455	NEW JERSEY (NJ)	4	3235
COLORADO (CO)	5	3875	NEW MEXICO (NM)	4	3066
CONNECTICUT (CT)	9	2682	NEW YORK (NY)	14	10235
FLORIDA (FL)	6	5462	NORTH CAROLINA (NC)	3	108
GEORGIA (GA)	3	6036	OHIO (OH)	5	1442
HAWAII (HI)	4	441	PENNSYLVANIA (PA)	7	2494
IDAHO (ID)	1	5	PUERTO RICO (PR)	2	52
ILLINOIS (IL)	19	6892	RHODE ISLAND (RI)	4	2149
INDIANA (IN)	8	8708	TEXAS (TX)	6	1002
IOWA (IA)	9	499	UTAH (UT)	1	993
KANSAS (KS)	2	364	VIRGINIA (VA)	6	2060
LOUISIANA (LA)	2	104	WASHINGTON (WA)	3	162
MAINE (ME)	4	2257	WEST VIRGINIA (WV)	1	391
MARYLAND (MD)	7	1485	WISCONSIN (WI)	8	4002
MASSACHUSETTS (MA)	11	15915			
MICHIGAN (MI)	4	278	TOTAL	206	111,419

Table 3. AAVSO Observers, 1997-1998.

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
AAP	P. ABBOTT, CANADA	1163	140	BOS ‡	E. BROENS, BELGIUM	875	619
ACH *	C. ACCARY, FRANCE	70		BKD	R. BROOKS, IN	42	
AAK #	A. ACKERMANN, HUNGARY	8		BBT	R. BROWNING, NJ	13	
ABB	B. ADAMS, CA	450	40	BHC †	C. BRUHN, DENMARK	5	
ADJ	J. ADAMS, NY	147		BOA *	A. BRUNO, FRANCE	155	14
AB	W. ALBRECHT, HI	413	3	BCY	C. BRYJA, MO	4	2
ARL	R. ALENCAR CALDAS, BRAZIL	392		BTH	T. BURROWS, CA	2149	835
ALN	R. ALLISON, IA	154	20	CTT	T. CAMPBELL, AR	14	5
AAA	A. ALVES, BRAZIL	749		CQR	R. CARD JR., NC	15	
ALR	L. AMBURGEY, MA	14		CVJ £	J. CARVAJAL MARTINEZ, SPAIN	21	1
AEJ	E. ANDERSON, NY	895		CVR	R. CARVER, AUSTRALIA	178	3
AJR	J. ANDRESS, AZ	72		CLQ	L. CASON, VA	70	
AAY †	A. ANDROSUK, UKRAINE	39		CGN	G. CERRUTTI, URUGUAY	73	
AQA	A. ARQUIOLA, ARGENTINA	1		CNB	N. CERRUTTI, URUGUAY	72	
AKT	T. ATKIN, FL	2375	6	CNT	D. CHANTILES, CA	375	1
AJM *	J. AZEMA, FRANCE	74		CMH*	M. CHAPELET, FRANCE	8	2
BM	M. BALDWIN, IN	4555		CGF	G. CHAPLE JR., MA	6639	2907
BIV #	I. BALOGH, HUNGARY	336		CJL	J. CHARLES, MI	46	
BFZ #	F. BAMMER, HUNGARY	3		OCR ‡	O. CHRETIEN, BELGIUM	122	
BGZ	G. BANIALIS, IL	8		CYA	A. CICHY, POLAND	32	
BDI †	D. BANNUSCHER, GERMANY	169		CLK	W. CLARK, MO	95	
BXA †	A. BARANSKY, UKRAINE	2276		CRX	R. CNOTA, POLAND	1140	
BEQ #	E. BARAT, HUNGARY	8	1	CNL	O. COLE ARNAL, CANADA	145	
BSR @	S. BARONI, ITALY	928		COL	P. COLLINS, AZ	1234	
BCT *	C. BARRET, FRANCE	40		CME @	E. COLOMBO, ITALY	586	
BQ #	L. BARTHA, HUNGARY	520		CBY ‡	B. COLYN, BELGIUM	206	
BSU †	U. BASTIAN, GERMANY	244		CMG ‡	G. COMELLO, NETHERLANDS	9438	1260
BBA	B. BEAMAN, IL	24		COX *	O. CONSTANS, FRANCE	13	
BVD	D. BEARD, PA	25		COO	L. COOK, CA	31	
BJS	J. BEDIENT, HI	11		CK	S. COOK, AR	1353	
BOX Ö	O. BENITEZ SANCHEZ, SPAIN	105		CTM	T. COOK, NY	32	
BTY	T. BENNER, PA	322	77	CLZ *	L. CORP, FRANCE	18	
BCQ #	C. BERECZKY, HUNGARY	89		COV	V. COULEHAN, NY	10	
BEB	R. BERG, IN	2720	29	CGD*	G. COUTE, FRANCE	19	
BEN #	E. BERKO, HUNGARY	12	1	CWD	D. COWALL, MD	7	
BMM ‡	M. BIESMANS, BELGIUM	828	255	CLX	L. COX, CANADA	1	
BQM	M. BIGNOTTI, ITALY	8	1	CR	T. CRAGG, AUSTRALIA	2380	763
BBI ‡	B. BILLIAERT, BELGIUM	25		CJH	J. CRAST, NY	8	
BLV	L. BINDER, TX	3		CRR	R. CRUMRINE, NY	79	
BKN	A. BIRKNER, IL	10		CTD	T. CRUTE, GA	5	
BKL	J. BLACKWELL, NH	3		CAQ #	A. CSABA, HUNGARY	2	
BLD +	D. BLANE, SOUTH AFRICA	30		CBZ #	B. CSAK, HUNGARY	64	5
BNQ #	N. BOJA, HUNGARY	3		CGB #	G. CSERI, HUNGARY	8	
BEC †	E. BORN, GERMANY	650		CTI #	T. CSORGEI, HUNGARY	84	
BRJ	J. BORTLE, NY	5403	2553	CSM #	M. CSUKAS, ROMANIA	349	
BJO £	J. BOSCH, SPAIN	11	11	CWX #	W. CSUKAS, HUNGARY	127	4
BSX	S. BOUCHER, CA	4		CKB	H. CUDNIK, TX	311	4
BMU &	R. BOUMA, NETHERLANDS	1126	37	DAH	H. DAHM, HI	15	4
BPI *	P. BOURRET, FRANCE	93		DMI †	M. DAHM, GERMANY	445	
BMK	M. BRADBURY, IN	309	64	DSG @	S. DALLAPORTA, ITALY	455	
BNW †	W. BRAUNE, GERMANY	34		DAME £	A. DARRIBA MARTINEZ, SPAIN	16	6
BTB	T. BRETLE, MN	231	36	DAJ	J. DAVIS, MD	37	14
BHA †	H. BRETSCHNEIDER, GERMANY	724		DJS	J. DAY, ENGLAND	517	42
BSM	S. BRINCAT, MALTA	237	27	DVA	D. DEL VALLE, PR	47	

Table 3. AAVSO Observers, 1997-1998, cont.

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
DFR	F. DEMPSEY, CANADA	122	1	GOP	P. GOODWIN, LA	98	5
DAY †	A. DEPUTATOV, UKRAINE	37		GKA	K. GRAHAM, IL	97	2
DEK ‡	K. DEQUICK, BELGIUM	2		GRL \$	B. GRANSLO, NORWAY	4594	132
DNO	O. DEREN, POLAND	2020		GRI	J. GRIESE III, CT	102	71
DVC +	C. DEVILLIERS, SO. AFRICA	44		GCE	C. GRIGOROPOULOS, GREECE	2	
DVI +	F. DE VILLIERS, SO. AFRICA	232		GDU	D. GRUBB, IL	97	
DPA ‡	A. DIEPVENS, BELGIUM	4607	351	GCT †	C. GRUNNET, DENMARK	40	
DRG	R. DIETHELM, SWITZERLAND	2239	1755	GPR	P. GUILBAULT, RI	805	78
DLA	A. DILL, KS	324	5	GUN*	J. GUNTHER, FRANCE	3018	558
DIL	W. DILLON, TX	74	2	GUS	S. GURYANOV, RUSSIA	1	
MDS@	M. DIONISI, ITALY	5	2	GGX*	G. GUZMAN, FRANCE	249	1
DMY	M. DOMBROWSKI, CT	167	3	HCS #	C. HADHAZI, HUNGARY	1797	1
DPL	P. DOMBROWSKI, CT	887	204	HTY	T. HAGER, CT	133	38
DZS	S. DOMINGUEZ, ARGENTINA	909		HKB	B. HAKES, IL	5	
DMBx	M. DUENAS BECERRIL, SPAIN	1		HK	E. HALBACH, CO	3381	103
DGX#	G. DULICHAR, HUNGARY	10		HMG#	G. HALMI, HUNGARY	51	
DMO*	M. DUMONT, FRANCE	317		HP	W. HAMPTON, CT	60	
DKS	S. DVORAK, FL	1005	164	HDX	D. HANDS, NC	76	
DGP	G. DYCK, MA	5391	3605	HSG	G. HANSON III, AZ	11285	7721
EPE †	P. ENSKONATUS, GERMANY	427	2	HIS †	S. HARCHUK, UKRAINE	75	
EJO #	J. ERDEI, HUNGARY	602		HAV	R. HARVAN, MD	764	187
FEZ #	E. FARKAS, HUNGARY	4		HBL †	B. HASSFOTHER, GERMANY	880	
FMX	F. FARRELL, AUSTRALIA	106		HDO#	D. HAVASSY, HUNGARY	27	
FCA	C. FAUSEL, IN	260	1	HAB	R. HAYS JR., IL	1407	
FKJ #	J. FEKETE, HUNGARY	471	1	HZL	L. HAZEL, NY	293	84
FNI †	N. FELBABA, UKRAINE	40		HLS \$	L. HEEN, NORWAY	5	
FMM	D. FELISBERTO, BRAZIL	18		HEF	M. HEIFNER, CO	391	115
FJM ^	J. FERNANDEZ ANDUJAR, SPAIN	266		FYE	E. HEIRONIMUS, MO	72	
FRF #	R. FIDRICH, HUNGARY	749	75	HEN	C. HENSHAW, ENGLAND	57	
FAL †	A. FILATOV, UKRAINE	10		HGZ #	Z. HERCEG, HUNGARY	7	
F13	R. FINK, NJ	67		HJN +	J. HERS, SOUTH AFRICA	673	107
FSJ *	J.-L. FIS, FRANCE	91	30	HES	C. HESSELTINE, WI	56	
FSE @	S. FOGLIA, ITALY	745		HE	L. HIETT, VA	31	
FFC #	F. FOLDESI, HUNGARY	44	1	HRI	R. HILL, AZ	2473	2
FMR	M. FONOVICH, REP. CROATIA	3047	703	HIR	Y. HIRASAWA, JAPAN	1621	117
FT	G. FORTIER, CANADA	138		HSY \$	S. HOEYDALSVIK, NORWAY	128	
FWD	W. FORTUNE, IA	1		HTF	T. HOFF, WI	13	
FRL	R. FOURNIER, OH	15		HFO*	G. HOFFER, GERMANY	171	
FML &	M. FRIDLUND, NETHERLANDS	21		HGX	G. HOFFLER, FL	7	1
FAA @	A. FROSINA, ITALY	67		HMJ	M. HOGGARTH, ENGLAND	1	
FMG	G. FUGMAN, IA	96	1	HBA †	A. HOLBE, GERMANY	2024	
GMB	M. GABLE, OH	121		HHO\$	H. HOLEN, NORWAY	9	
GEC	E. GALE, IA	100		HJO &	J. HOLTROP, NETHERLANDS	45	2
GDX*	D. GAMERO, FRANCE	37		HZJ	J. HOLTZ, PA	388	
GPA £	F. GARCIA, SPAIN	58	6	HTB #	T. HORVATH, HUNGARY	1	
GAA	P. GAREY, IL	7	2	HVA ‡	A. HOUVENAEGHEZ, BELGIUM	23	
GTR	R. GENT, VA	75		HUR	G. HURST, ENGLAND	1009	157
GCP †	C. GERBER, GERMANY	2277		HDR †	D. HUSAR, GERMANY	3	
GGU &	G. GILEIN, NETHERLANDS	20		HUZ	R. HUZIAK, CANADA	1583	43
GVN	V. GIOVANNONE, NY	42		IPA	P. INGRASSIA, ARGENTINA	161	
GJX	J. GOLDBERG, CO	1		IVM	% V. IVANOV, RUSSIA	104	
GHA †	H. GOLDHAHN, GERMANY	2423		IFJ %	F. IVES, NEW ZEALAND	81	
GIN O	I. GOMEZ, SPAIN	73		JTP *	P. JACQUET, FRANCE	541	39
GZN *	A. GONZALES, SPAIN	49		JM	R. JAMES, NM	1102	

Table 3. AAVSO Observers, 1997-1998, cont.

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
MHI	H. MENALI, MA	80		PEY	E. PIGGOTT, AZ	47	
MSC+	C. MESU, ZIMBABWE	16		PGU	G. PINAZZI, ITALY	11	
MYJ ¶	A. MEYI, GERMANY	73		PIJ #	J. PIRITI, HUNGARY	399	
MTK	T. MICHALIK, VA	259		PPL	P. PLANTE, OH	82	
MOK\$	O. MIDTSKOGEN, NORWAY	561	82	PAQ*	A. PLIEGO-CARMONA, FRANCE	6	
MIU	M. MIKUTIS, IA	60		AST	R. PODESTA, PARAGUAY	9	
MKD	K. MILLIYARD, CANADA	41	8	PGG#	G. POSZTPISL, HUNGARY	52	
MZS #	A. MIZSER, HUNGARY	1136	22	PWR	R. POWASKI, OH	20	
MCE	E. MOCHIZUKI, JAPAN	33		POX	M. POXON, ENGLAND	1324	197
MRV	R. MODIC, OH	1204	438	PYG	G. POYNER, ENGLAND	13810	9240
MMI ¶	M. MOELLER, GERMANY	899		PFS	F. POZZI, ITALY	8	
MOL	J. MOLNAR, VA	1498		PGX	G. POZZI, ITALY	164	
MLF +	B. MONARD, SOUTH AFRICA	6119	363	PDO	D. PRAY, RI	47	
MXA ¢	A. MORMIL, UKRAINE	83		PEF	E. PROSPERI, ITALY	26	13
MVR ¢	V. MORMIL, UKRAINE	1950		PDQ*	D. PROUST, FRANCE	38	
MOW	W. MORRISON, CANADA	4921	331	PUJ £	F. PUJOL, SPAIN	262	68
MYL ¢	Y. MOSKALENKO, UKRAINE	12		PFR #	F. PUSKAS, HUNGARY	662	
MKH	S. MUKHERJEE, INDIA	51		RKE ¶	K. RAETZ, GERMANY	97	
MMU	M. MUNKACSY, RI	678		RCH*	C. RAMILLON, FRANCE	530	
MJV	J. MURRAY, AE	39	4	RRB	R. RAPHAEL, ME	735	182
MUY ‡	E. MUYLLAERT, BELGIUM	2323	363	RPE	P. RE, PORTUGAL	4	2
NZO #	Z. NAGY, HUNGARY	19		RMXÖ	M. REGALADO QUEROL, SPAIN	7	1
NAX ¢	A. NAUMOV, UKRAINE	3		REP	P. REINHARD, AUSTRIA	563	
NKH	K. NELSON, HI	2		RFP	P. REIS FERNANDES, BRAZIL	114	
NRH	R. NELSON, CANADA	46	3	RQ	C. RICKER, MI	148	
NLB #	L. NEMETH, HUNGARY	56		RRZ #	R. RICZA, HUNGARY	662	
NJO ¶	J. NEUMANN, GERMANY	1124		OJR £	J. RIPERO OSORIO, SPAIN	1506	454
NPM	P. NORRIS, MA	19		RBA	B. RISMAN, CANADA	2	
OCN	S. O'CONNOR, CANADA	949	181	RJX*	J. ROCA, FRANCE	15	
OMA	M. OEFELIN, IL	1186		RMUu	M. RODRIGUEZ MARCO, SPAIN	337	17
OES	D. OESPER, IA	1		ROE	J. ROE, MEXICO	201	
OJO î	J. OLESEN, DENMARK	3		RGI	G. ROSELLI, ITALY	8	
OCV*	C. OLIVI, FRANCE	16		ROG	G. ROSS, MI	72	38
OLV*	M. OLIVI, FRANCE	3		RJQ	J. ROWE, CANADA	77	1
ONJ	J. O'NEILL, IRELAND	111		RR	R. ROYER, CA	454	129
OV	E. ORAVEC, NY	2719		RJV*	J. RUIZ, SPAIN	202	
OPR	P. OSSOWSKI, POLAND	39		RRP £	R. RUIZ, SPAIN	2	
OSV #	L. OSVALD, HUNGARY	70	2	RPH	H. RUMBALL-PETRE, CA	21	
OPV #	P. OSVATH, HUNGARY	39		SXW	W. SABO, IL	24	
OSE	S. OTERO, ARGENTINA	64		SGT #	I. SAGODI, HUNGARY	390	
OJJ	J. OTT, CO	8		SQV £	J. SAINZ BENITO, SPAIN	60	1
OB +	D. OVERBEEK, SO. AFRICA	14858	18	SJQ	A. SAJTZ, ROMANIA	554	
PLA	A. PADILLA FILHO, BRAZIL	722		SSU	S. SAKUMA, JAPAN	450	53
PJY*	J. PAILLET, FRANCE	4		SQL	R. SALVO, URUGUAY	21	
PCC @	R. PAPINI, ITALY	8		SAH	G. SAMOLYK, WI	3235	
PPS #	S. PAPP, HUNGARY	2735	237	SSD Ö	S. SANCHEZ JIMINEZ, SPAIN	15	
PEX	A. PEARCE, AUSTRALIA	8		SQM£	J. SANJUAN, SPAIN	1	
PN	A. PEARLMUTTER, MA	56		SGX #	G. SANTA, HUNGARY	530	
PTI	N. PEATTIE, CA	139		STC	G. SANTACANA, PR	5	
PPB	P. PECORELLI, ARGENTINA	50		SYN*	Y. SANTENS, FRANCE	49	
PEG*	C. PEGUET, FRANCE	116		SKI #	K. SARNECZKY, HUNGARY	101	11
PWD	W. PELLERIN, TX	37		SGE	G. SARTY, CANADA	69	
PKT	J. PICKETT, AZ	43	11	SDY ¶	D. SCHARNHORST, GERMANY	21	3
PYS ‡	Y. PIERSMAN, BELGIUM	182		SVK ¢	V. SCHERBAN, UKRAINE	50	

Table 3. AAVSO Observers, 1997-1998, cont.

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
SXT	T. SCHIEDING, MA	250		SXM	M. SURFACE, IN	2	
SPK †	P. SCHMEER, GERMANY	150	7	SQC	C. SUSLAVAGE, CA	62	
SQR	R. SCHMUDE JR., GA	5851		SUS †	D. SUSSMANN, GERMANY	1650	
SAQ & A	A. SCHOLTEN, NETHERLANDS	4		SWV	D. SWANN, TX	493	
SLZ †	G.-L. SCHOTT, GERMANY	30		SSW	S. SWIERCZYNSKI, POLAND	2618	
SHX †	H. SCHUBERT, GERMANY	37		SDX	D. SWORIN, CA	450	177
SCZ *	E. SCHWEITZER, FRANCE	1080	12	SGO#	G. SZABO, HUNGARY	28	1
SBC †	B. SCORITCHENKO, UKRAINE	46		SSI #	S. SZABO, HUNGARY	9	3
SBQ	B. SCOTT, CT	203	1	DSZ #	D. SZABOLCS, HUNGARY	12	
SCE	C. SCOVIL, CT	284	128	SAO #	A. SZAUER, HUNGARY	100	
SPB #	P. SEBOK, HUNGARY	26		SLY #	L. SZEGEDI, HUNGARY	333	
SFL	F. SEVILLA LOBATO, SPAIN	7		SXG#	P. SZEKVOLGYI, HUNGARY	6	
SDF	D. SHACKLEFORD, CA	19		TDB	D. TAYLOR, CANADA	305	72
SHS	S. SHARPE, ME	1389	2	TPV	P. TEMPLE, AZ	3	
SSA	A. SHARPLESS, WA	110		TPH	P. TENGG, AUSTRIA	32	
SQN	L. SHAW, CA	1033	439	TPS #	I. TEPLICZKY, HUNGARY	13	
SBN	B. SILVA, BRAZIL	565		THR	R. THOMPSON, CANADA	664	
SNE	N. SIMMONS, WI	50	3	THU *	B. THOUET, FRANCE	308	
SWZ	W. SIZENSKY, NY	72		TJN	J. TILBROOK, AUSTRALIA	11	
SOV \$	O. SKILBREI, NORWAY	7		TIA #	A. TIMAR, HUNGARY	104	
SKU #	J. SKOBRAK, HUNGARY	16		TRL	R. TOGNI, AR	11	
SDN	D. SLAUSON, IA	46		TOO	J. TOONE, ENGLAND	1	
SLQ	L. SMELCER, CZECH REPUBLIC	303		TST	S. TOOTHMAN, IL	42	
SJX +	J. SMIT, SOUTH AFRICA	1523		TTK #	K. TOTH, HUNGARY	30	
SMI	A. SMITH, ENGLAND	5	1	TPT #	P. TOTH, HUNGARY	2	
SDZ	D. SMITH, AZ	282		TOZ #	Z. TOTH, HUNGARY	31	2
SHA	H. SMITH, MI	12		TSC	S. TRACY, CT	511	206
SJE	J. SMITH, CA	276		TRF	C. TREFZGER, SWITZERLAND	101	49
SMQ	M. SMITH, AZ	173	4	TDM	D. TROIANI, IL	43	1
SXL	M. SOLARINO, ITALY	24		TRO \$	O. TRONDAL, NORWAY	89	13
SBV #	B. SOMOSVARI, HUNGARY	4		TSJ	S. TSUJI, JAPAN	6	
SSZ #	Z. SOOS, HUNGARY	314		TUB #	V. TUBOLY, HUNGARY	420	
SOH †	H. SORENSEN, DENMARK	64		TUC +	C. TURK, SOUTH AFRICA	161	
SXC	C. SOUSA, MA	50		TYS	R. TYSON, NY	197	
SJZ	J. SPEIL, POLAND	1903		UND	E. UNDERHAY, CA	68	
SPO \$	J. SPONGSVEEN, NORWAY	43		UIA	UNIV. OF IOWA AUTOMATED TELESCOPE FACILITY, IA	32	11
SC	C. SPRATT, CANADA	19	1	VFR *	F. VACLIC, CZECH REPUBLIC	62	
SXR #	M. SRAGNER, HUNGARY	2		VLN *	L. VADROT, FRANCE	472	
STR	R. STANTON, CA	316	273	VAV †	S. VANAVERBEKE, BELGIUM	5	
SVD	V. STEBLINA, WA	22	1	BE & E	E. VAN BALLEGOY, ARUBA	224	
SKS	T. STECKNER, CANADA	4		VDL †	J. VAN DER LOOY, BELGIUM	2578	
STF	G. STEFANOPOULOS, GREECE	754		VDE & E	E. VAN DIJK, NETHERLANDS	324	10
STI	P. STEFFEY, FL	131	9	VHD †	D. VAN HESSCHE, BELGIUM	249	12
SVR	R. STENCIL, CO	94		VNL †	F. VAN LOO, BELGIUM	2197	81
SAA	A. STEPHAN, FL	22		VMT †	T. VANMUNSTER, BELGIUM	190	124
SET	C. STEPHAN, FL	1922	74	VSJ †	J. VANSTEELENDT, BELGIUM	4	
SWT	R. STEWART, NJ	1791	415	VSJ †	J. VANSTEELENDT, BELGIUM	4	
SHZ †	H. STRUEVER, GERMANY	125		VSJ *	S. VASSELLE, FRANCE	443	
SRX %	R. STUBBINGS, AUSTRALIA	3616	1584	VBE *	B. VATANT, FRANCE	113	
SQO	R. STUBER, IL	557		VED *	P. VEDRENNE, FRANCE	6710	
SUK	M. STUKA, CA	10		VPE †	P. VELESHCHUK, UKRAINE	555	
SAC †	A. STURM, GERMANY	329		VET *	M. VERDENET, FRANCE	2489	1492
SUX O	M. SUAREZ TEJERA, SPAIN	334		VAN †	A. VIERTEL, GERMANY	210	
SPP	P. SULLIVAN, CA	11		VMI	M. VINCENZI, ITALY	54	

Table 3. AAVSO Observers, 1997–1998, cont.

Code	Name	No. Obs.	No. I.S.	Code	Name	No. Obs.	No. I.S.
VII #	I. VINCZE, HUNGARY	28		WLP ‡	P. WILS, BELGIUM	73	
VFK ¶	F. VOHLA, GERMANY	7501	32	WSN	T. WILSON, WV	391	134
VOL	W. VOLLMANN, AUSTRIA	209	12	WKM	M. WISKIRKEN, ID	5	
WME	M. WASIUTA, VA	127		WUL ¶	U. WITT, GERMANY	189	
WRS	R. WATT, PA	85	1	WTW *	J.-M. WITTEW, SWITZERLAND	19	
WER	R. WEBER, KS	40		WJM	J. WOOD, CA	333	
WEI	D. WEIER, WI	490	157	WBK	B. WORRAKER, ENGLAND	6	2
WC	R. WEND, IL	815		YRK	D. YORK, NM	1364	843
WEF	F. WEST, PA	1152		YSD	S. YOUNG, MA	101	
WTJ	J. WEST, TX	84	16	ZAG #	G. ZAJACZ, HUNGARY	51	
WDM §	M. WESTLUND, SWEDEN	278	7	ZLT #	T. ZALEZSAK, AUSTRALIA	147	1
WSK *	S. WESTRICH, FRANCE	15		ZHG ¶	H. ZAUNICK, GERMANY	293	
WPE #	P. WILLAND, HUNGARY	215		ZWD	W. ZEILSTRA, IA	9	
WI	D. WILLIAMS, IN	819	3	ZRE	R. ZISSELL, MA	3302	1125
WPX	P. WILLIAMS, AUSTRALIA	253	146	ZPR	P. ZOLADEK, POLAND	6	

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

- ^ Agrupacia Astronomica Albireo of Seville (Spain)
- Ö Asociacion de Variabilistas de Espagne (Spain)
- * Association Française des Observateurs d'Étoiles Variables (France)
- + Astronomical Society of Southern Africa, Variable Star Section
- ĭ Astronomisk Selskab (Scandinavia)
- ¶ Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany)
- x Grupo Astronomico Silos (Zaragoza, Spain)
- £ Madrid Astronomical Association M1 (Spain)
- # Magyar Csillagászati Egyesület, Valtozócsillag Szakcsoport (Hungary)
- & Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep VeranderlijkeSterren (Netherlands)
- \$ Norwegian Astronomical Society, Variable Star Section
- % Royal Astronomical Society of New Zealand, Variable Star Section
- u Sociedad Astronomica 'Syrma' (Valladolid, Spain)
- § Svensk AmatorAstronomisk Förening, variabelsektionen (Sweden)
- € Ukraine Astronomical Group, Variable Star Section
- @ Unione Astrofili Italiani (Italy)
- ‡ Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)

Table 4. Observation statistics for fiscal year 1997–1998 (see Figures 4, 5, and 6).

Observations (increments of 1000)	No. Observations per increment	% of All Observations	No. Observers per increment
1-999	82490	26%	491
1000–1999	47908	15%	35
2000–2999	47667	15%	20
3000–3999	23240	7%	7
4000–4999	22902	7%	5
5000–5999	22494	7%	4
6000–6999	19468	6%	3
7000–7999	7501	2%	1
8000–8999	0	0%	0
9000–9999	9438	3%	1
10,000+	39953	12%	3

Table 5. Individuals provided with AAVSO data during fiscal year 1997–1998.*

<i>Name</i>	<i>Affiliation/Location</i>
E. Aguirre	<i>Sky & Telescope Magazine, MA</i>
G. Ambika	<i>Maharas College, India</i>
R. Armstrong	<i>Mesquite, TX</i>
T. Armstrong	<i>U.S. Naval Observatory, Washington, DC</i>
S. Axenov	<i>Zvezdotchet Magazine, Russia</i>
U. Bastian	<i>Heidelberg University, Germany</i>
T. Bates	<i>Kentwood, LA</i>
N. Bayhan	<i>Izmir, Turkey</i>
T. Bedding (3)	<i>University of Sydney, Australia</i>
G. Beekman	<i>Astrophysics Group, Keele University, England</i>
R. Berg (2)	<i>Crown Point, IN</i>
J. Bevelock	<i>Kearfott Guidance & Navigation, Wayne, NJ</i>
J. Blackwell	<i>Concord, NH</i>
W. Blake	<i>Plymouth Community Intermediate School, MA</i>
S. Bloom (2)	<i>NASA Goddard Space Flight Center, MD</i>
J. Bonnet-Bidaud	<i>Service d'Astrophysique, France</i>
R. Boyle (2)	<i>Steward Observatory, AZ</i>
T. Brennan	<i>Seaford, DE</i>
B. Brondel	<i>?</i>
J. Bryant	<i>Ball State University</i>
J. Bush (2)	<i>Lima, Peru</i>
J. Cannizzo	<i>NASA Goddard Space Flight Center, MD</i>
A. Carter	<i>Natick, MA</i>
M. Casso	<i>Hewlett, NY</i>
K. Chau	<i>Chongju International University, Korea</i>
S. Chau	<i>Toronto, Ontario, Canada</i>
D. Clark	<i>Waterville, ME</i>
G. Clayton	<i>Louisiana State University, LA</i>
A. Cleaveland	<i>Chehalis, WA</i>
M. Cooney	<i>Melbourne, Australia</i>
D. Cunningham	<i>Lion's Head, Ontario, Canada</i>
N. D'Antuono	<i>Warwick, RI</i>
J. Darfus	<i>Wooster, OH</i>
B. Davis	<i>Garland, TX</i>
E. Dey	<i>New Milford, CT</i>
P. Diamond (2)	<i>National Radio Astronomy Observatory, NM</i>
S. Doleman	<i>Haystack Observatory, MA</i>
P. Dombrowski	<i>Glastonbury, CT</i>
K. Dondrea	<i>Ashtabula, OH</i>
G. Dupree	<i>Jackson, WI</i>
D. Fairchild	<i>Somerset, MA</i>
C. Ferretti	<i>Italy</i>
D. Fiuza	<i>Paredes, Portugal</i>
S. Foglia	<i>Milano, Italy</i>
A. Frey (2)	<i>San Luis Obispo, CA</i>
G. Fugman	<i>Dubuque, IA</i>
B. Gaensicke (2)	<i>Universitätssternwarte Göttingen, Germany</i>
G. Gibson	<i>Starkville, MS</i>
G. Gonzalez	<i>University of Washington, WA</i>
J. Greaves	<i>Northampton, England</i>
D. Green (2)	<i>Harvard-Smithsonian Center for Astrophysics, MA</i>
J. Greiner (2)	<i>Potsdam Astrophysical Institute, Germany</i>
M. Hall	<i>Valley, AL</i>

*List does not include individuals obtaining data or information directly from the AAVSO website. A number in parentheses after the name indicates multiple requests.

Table 5. Individuals provided with AAVSO data during fiscal year 1997–1998, cont.

<i>Name</i>	<i>Affiliation/Location</i>
T. Hall	Dowelltown, TN
F. Hessman	Universitätssternwarte Göttingen, Germany
E. Hintz	Brigham Young University, UT
M. Hollis (2)	NASA Goddard Space Flight Center, MD
L. Hollister	Middlebury, CT
A. Holm	Space Telescope Science Institute, MD
K. Honeycutt	Indiana University, IN
S. Hornak	Ithaca, MI
M. Hosokawa (2)	Niles, IL
H. Ingemi	Natick, MA
J. Irwin	Queens College, Canada
J. Isles	Plymouth, MI
Z. Ivezić	Princeton University, NJ
C. Ivie	Apple Valley Science and Technology Center, CA
D. Jamison	Duncan, OK
Z. Joana	OH
R. Johanns	Balkbrug, Netherlands
A. Jorissen	Institut d'Astronomie et d'Astrophysique, Université Libre de Bruxelles, Belgium
D. Kaiser	Columbus, IN
M. Karovska (2)	Harvard-Smithsonian Center for Astrophysics, MA
S. Kim (3)	Seoul National University, Korea
L. Kiss	Szeged, Hungary
T. Knauer	University of Kentucky, KY
R. Kolman (2)	Glen Ellyn, IL
M. Kularathe	Piliyandala, Sri Lanka
E. Kuulkers (3)	Oxford University, England
A. Lancon	Observatoire Astronomique, France
M. Lattanzi	Space Telescope Science Institute, MD
J. Licthman	Brooklyn, NY
C. Lloyd	Rutherford Appleton Laboratory, England
A. MacRobert (5)	<i>Sky & Telescope</i> Magazine, MA
P. Mahajani	Mumbai, India
Malawi	Switzerland
S. Malland	Sumner, WA
M. Marco	Valladolid, Spain
F. Marques	Lincoln, RI
H. Mason	Lafayette, CA
M. Matsuura	Institute of Space and Astronomical Science, Japan
G. Matt (4)	Rome University, Italy
K. Matthews	Villanova University, PA
C. Mauche (13)	Lawrence Livermore National Laboratory, CA
J. Maynard	Jennings, LA
T. McCarthy	Vero Beach, FL
J. McKenna	Annandale, NJ
R. Miles	British Astronomical Association, England
K. Millyard	Toronto, Ontario, Canada
S. Morris	Los Angeles Harbor College, CA
R. Nery	Uberaba, Brazil
E. Ofek (2)	Wise Observatory, Tel Aviv, Israel
J. Offen	Indianapolis, IN
L. Olivores Milones	Santiago, Cuba
T. Onaka	University of Tokyo, Japan
D. Oracki	Glenbrook, NSW, Australia

Table 5. Individuals provided with AAVSO data during fiscal year 1997–1998, cont.

<i>Name</i>	<i>Affiliation/Location</i>
J. Osborne	University of Leicester, England
Z. Ottore	Berkeley, CA
D. Papineau	Montreal, Quebec, Canada
S. Patel	Hewlett, NY
A. Pena	San Antonio, TX
G. Penfield	Perkasie, PA
J. Percy	University of Toronto, Canada
G. Perrin	Observatoire de Meudon, France
R. Prince (2)	Hot Springs, AR
G. Raineault	Winnipeg, Manitoba, Canada
J. Ramos	Pompero Beach, FL
N. Rao	Indian Institute of Astrophysics, India
S. Rapaport	Massachusetts Institute of Technology, MA
Y. Revaz	Sion, Switzerland
D. Rich	Hampden, ME
A. Richards	University of Manchester, England
W. Richter (2)	Arkansas School for Mathematics and Sciences, AR
M. Robeson	New Milford, CT
M. Rodriguez	Spain
R. Royer	Lakewood, CA
S. Saar (3)	Harvard-Smithsonian Center for Astrophysics, MA
K. Sahu	Space Telescope Science Institute, MD
N. Samus	Russian Academy of Science, Russia
T. Santangelo (2)	North Hills, PA
M. Sidebotham	State University of New York, Brockport, NY
J. Sigouros	Komotini, Greece
W. Skidmore	Keele University, England
K. Sleeter	Swansea, IL
J. Sokoloski (2)	University of California, Berkeley, CA
S. Stewart	U.S. Naval Observatory, Washington, DC
J. Sudol (2)	Lowell Observatory, Flagstaff, AZ
J. Tackel (2)	Philadelphia, PA
Tassr	?
Ted	?
A. Tej	India
G. Torres	Harvard-Smithsonian Center for Astrophysics, MA
C. Townes	University of California, Berkeley, CA
A. Tvirbutas	Draper Labs, Cambridge, MA
C. Uga	Midland Park, NJ
A. Ukey	Maharashtra, India
R. Van Giesen	San Rafael, CA
L. Versagli	Temple, PA
R. Victor	Michigan State University, MI
X. Wang	Medford, MA
M. Wasiuta	Spotsylvania, VA
S. Wathen	Jackson Heights, NY
P. Wheatley (17)	University of Leicester, England
C. Wheeler	University of Texas, TX
S. Wilkins	Elyria, OH
C. Willaum	New Milford, CT
R. Williams	Northeastern State University, OK
I. Yamamura	University of Amsterdam, Netherlands
A. Young	San Diego State University, CA
L. Zangrilli	Astronomical Observatory of Padua, Italy
S. Zelechoski	Waldorf, MD