Annual Report of the Director for Fiscal Year 2008-2009

Arne A. Henden, Director

We've had a remarkably busy year, even with the poor economy. AAVSOnet was extended, private funding was found for many projects, and close to another two million observations were submitted to theAAVSO International Database. The big news was the award of a major NSF grant to the AAVSO. I'll open with that story!

The AAVSO and the International Year of Astronomy 2009

The International Astronomical Union (IAU) voted in 2006 to create IYA2009, the International Year of Astronomy. The intent was to publicize astronomy and to bring it home to the masses. The IAU did not provide any funds for this project; instead, each member country was to develop their own national plan and both fund it and provide a means for grass-roots participation.

Throughout 2007, the AAVSO (in the form of Aaron Price) was a key member of the Citizen Science working group for the U.S. national office of IYA2009. In November, the AAS submitted a National Science Foundation (NSF) grant to fund the national program managers, as well as four selected theme projects. One of those projects was Citizen Science, using the rarely eclipsing variable star epsilon Aurigae as the star of the project. NSF granted the proposal, but severely cut the funding, basically supporting the national office but not any of the four theme projects.

Aaron Price then largely wrote an NSF Informal Science Education (ISE) grant proposal, with major partners the AAVSO, Adler Planetarium, the California Academies of Science, and the University of Denver, that was submitted in June 2008. In December 2008, we received word that our proposal was under consideration for award, but that a number of questions had been raised by the review panel. We worked for the next nine months to answer those questions and to demonstrate our ability to handle this large grant. In September 2009, we were finally awarded the three-year grant. Now, some details about the project!

The Citizen Sky Project

Citizen Sky (www.citizensky.org) is the AAVSO's citizen science project for the International Year of Astronomy (IYA 2009). It began on September 1, 2009,

when the National Science Foundation awarded the AAVSO a three-year grant to fund its development and operation. Currently there are over 2,000 project participants from over twenty countries.

Who are citizen scientists? Volunteers, many of whom have no prior scientific training, who work with trained scientific researchers to answer real-world questions.

A photograph of epsilon Aurigae taken by Alson Wong with a Vixen102-ED telescope and a STL-11000M CCD camera.

The "Star" of the Project, epsilon Aurigae (eps Aur). This is a bright variable located in the constellation Auriga, the Charioteer. At third magnitude the star is bright enough to be seen with the unaided eye even in the most light polluted cities. It is well placed for observing in the fall, winter, and spring skies. Every 27.1 years the star goes into an eclipse that lasts approximately one and a half years. Even after over 175 years of scrutiny this variable is not fully understood. The current eclipse of eps Aur began in August of 2009, will continue throughout 2010, and will end in early 2011. Eps Aur is particularly well suited to the Citizen Sky project because:

- It is bright enough to be observed without specialized equipment making it easy for beginners to get involved;
- The beginning of the current eclipse happened to coincide with the International Year of Astronomy 2009;
- Even though this object is bright and has been studied over a long period of time there are still many important questions to be answered.

The AAVSO's Citizen Sky project welcomes anyone who has an interest in participating regardless of previous experience. In fact, no previous experience at all is required. We are guiding new participants through the process of how to observe eps Aur, how to send observations of the star to the AAVSO, how to see their results, analyze them, and even publish them at the end of the project. Many citizen science projects stop at data collection and hand the data off to "real" scientists for analysis and publishing. We hope that this will be the largest citizen science project in modern history that takes its participants through the entire scientific process resulting in real, active research.

Along with press releases and various interviews about the project, we have developed tools to recruit and educate participants about epsilon Aur and Citizen Sky. Here are a few of them:

- Website: A completely new website was created for the project by AAVSO Web Developer, Kate Davis, Citizen Sky Project Manager, Rebecca Turner, and other Citizen Sky staff. This site serves as the "home base" for anyone interested in participating in the project. The Citizen Sky website includes blogs, discussion forums, topical chats, polls, an events calendar, a place to submit and analyze data, training materials, plus much more.

- Workshops: A three-day workshop, focused on observing and education/public outreach, was held in August 2009 at the Adler Planetarium in Chicago. There were over fifty participants in this workshop from over twenty states spread across the U.S. Participants were selected based on their ability and willingness to return home after the workshop and disseminate the information they acquired. Video of talks from the August workshop are available on the Citizen Sky website. A second workshop on data analysis and scientific paper writing will be held at the California Academy of Sciences in September 2010. Workshop updates and application instructions will be posted on the Citizen Sky website in early 2010.

- Visualizations: Several participants have put both their artistic skills and astronomy knowledge to good use and developed artistic renderings of certain models of the epsilon Aurigae system. Two professional visualizations are also near completion. A planetarium show trailer will be available for download by Spring 2010. An interactive visualization is also near completion and will allow users to adjust parameters such as star mass and disk radius.

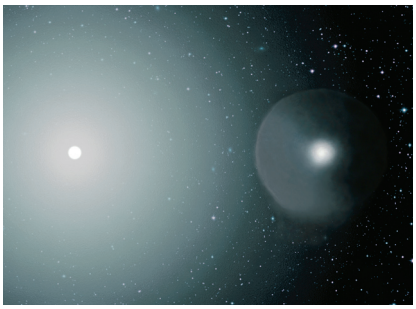


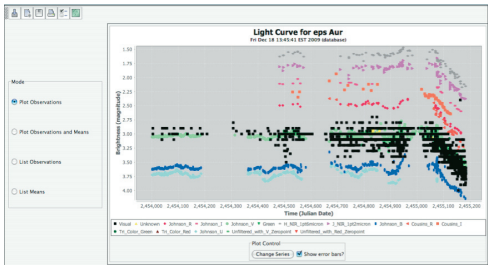
Illustration of the top view of the epsilon Aurigae system based on the most popular model at this time. Artwork by Citizen Sky participant Nico Camargo.

Participation in the Citizen Sky Project can be broken down into five stages. We hope that as many of our participants as possible will proceed through all of the stages, allowing them to participate in the full scientific process.

1. Getting Started: epsilon Aurigae is an ideal target for those interested in learning how to observe variable stars. The Citizen Sky website is home to loads of background information and tutorials—including the Ten Star Tutorial. This tutorial trains new observers in the techniques needed to make and report visual variable star estimates. Training materials are available on topics such as: observing, analysis, publishing, and outreach.

2. Submitting and Viewing Data: Participants are able to use the Citizen Sky website to easily submit the data that they have collected to the AAVSO International Database. Data points can be viewed instantly as a table or light curve.

3. Staying Motivated and Connected: Once participants submit ten observations, they receive a Citizen Sky certificate to thank them for their contribution and to encourage them to keep observing. There are many ways for participants to stay connected including: project blogs, forums on various topics, and a monthly Citizen Sky newsletter. Participants may also form or join Citizen Sky teams if they wish to collaborate with others. Teams are made up of individuals with different yet complimentary skill sets who wish to work together toward a common goal (publishing a paper, developing software, etc.).



Screen shot from VStar.

4. Analyzing Data: Data analysis tutorials will be online in early 2010. There is a Citizen Sky forum focusing exclusively on data analysis. Also, a new data analysis software package called VStar has been developed by Citizen Sky participants and is in the beta testing stage. The Citizen Sky workshop being held in September 2010 will focus on data analysis techniques.

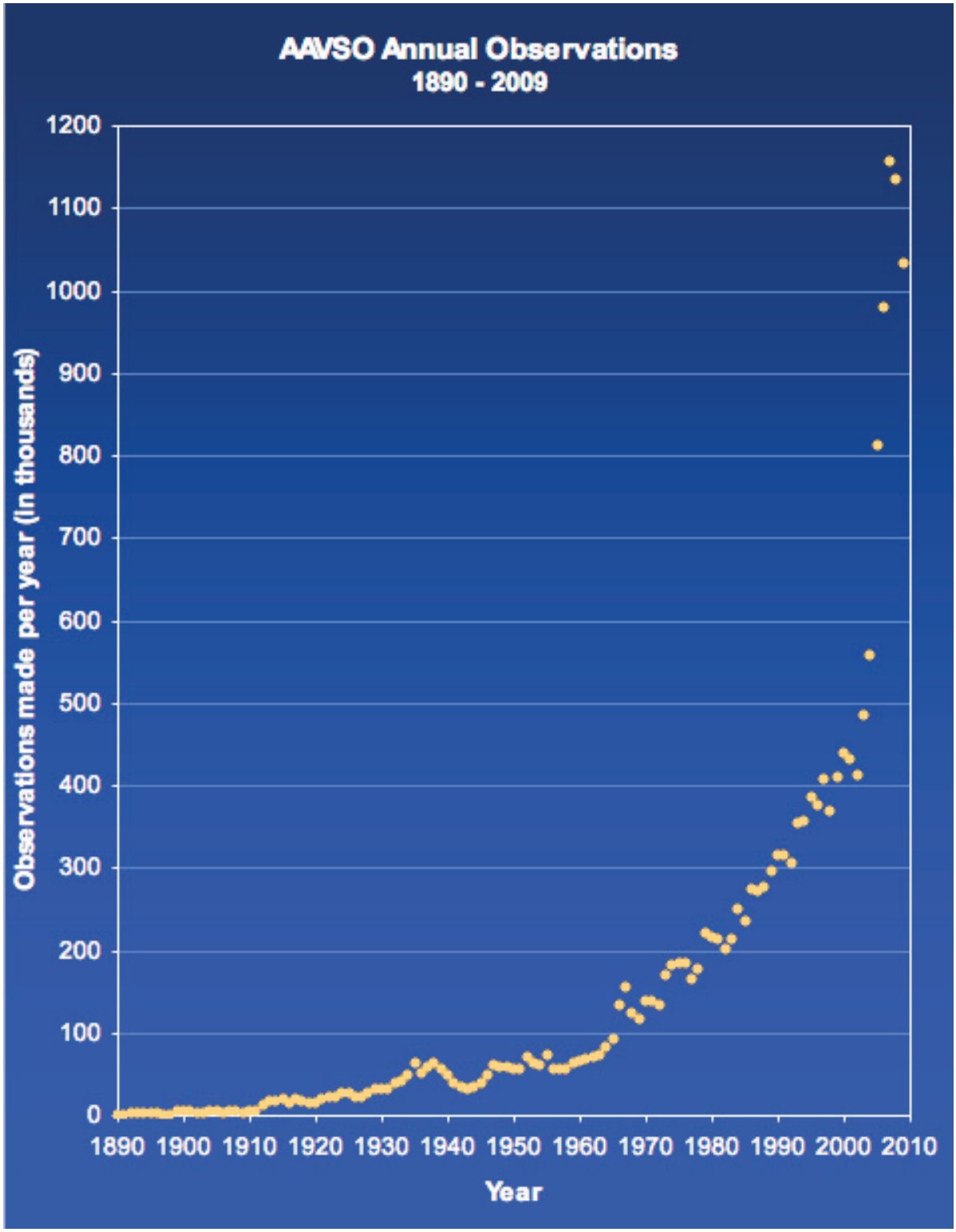
5. Publishing Results: The September 2010 workshop will also include instruction on scientific paper writing. A special edition of the *Journal of the AAVSO* will be dedicated to papers written by Citizen Sky participants.

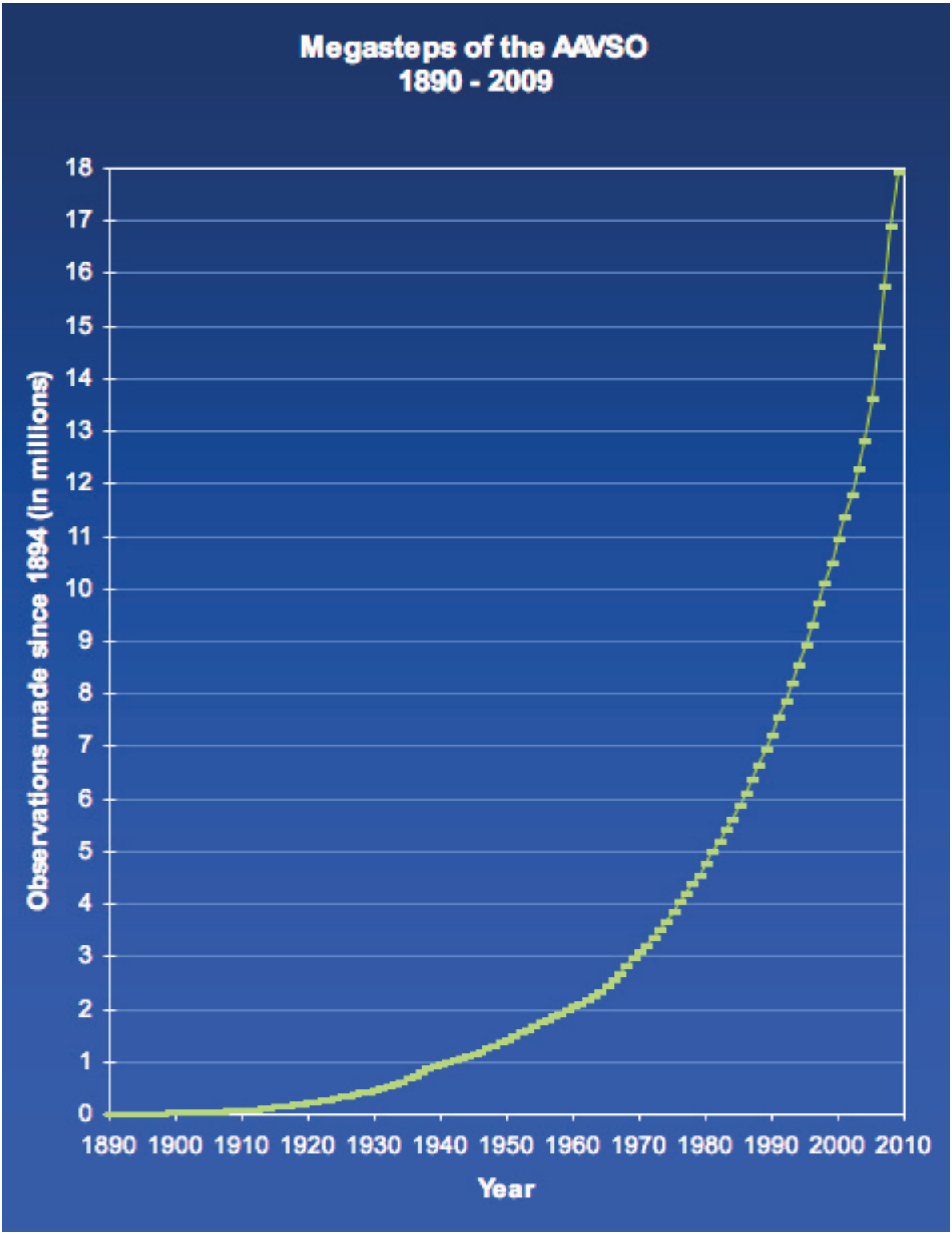
The next couple of years will be quite informative as we continue to watch this mysterious eclipse unfold. We are excited about the new information that will come both from the multiple professional campaigns and our own Citizen Sky results. After 175 years perhaps the mystery of epsilon Aurigae will finally be solved.

Observation Database

In FY2009, we collected approximately 1.84 (1.7) million observations. 788,825 (873,411) of these were visual observations; 13,329 (1,450) were PEP or photographic observations. The remainder 1,034,870 (837,310) were CCD observations. The CCD totals remain high, as we get many thousands of observations for any time-series campaign (SS Cyg is an example). The two charts on the following pages show the annual submission totals since 1911, and the total submitted observations ("Megasteps") since 1911. You can see that the trend is exponential, so that by 2011, we will be collecting 15 million observations per year!

Work continues on importing the RASNZ database. A large fraction of the observational data in it comes from just a few observers, such as Albert Jones and Danie Overbeek, and so was straightforward to import. The remaining observations require assigning


AAVSO Annual Observations
1890 - 2009
Observations made per year (in thousands)
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
Year


Megasteps of the AAVSO
1890 - 2009
Observations made since 1894 (in millions)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
Year

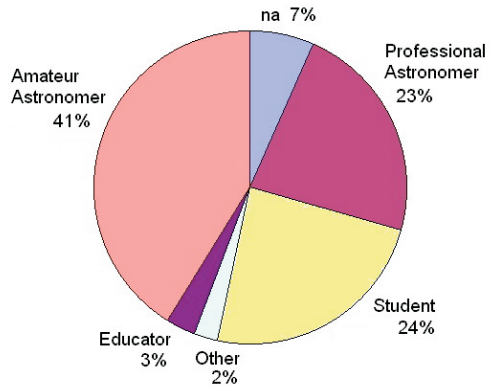
observer codes to those many observers who were not AAVSO contributors, as well as determining what charts and comparison stars were used. We hope to finish this project in the near future.

We had 5,242 data requests from a multitude of researchers during the year (see charts on the following pages). The data request rate is pretty constant throughout the year, but has definitely continued its upward trend.

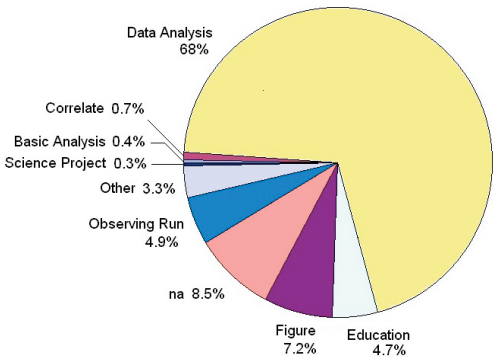
A long-standing problem with the existing MySQL International Database was the creation of duplicate records due to the twin-table schema of the original implementation. Aaron merged these two tables during the summer; all internal programs then had to be updated to use the single-table format.

We've finally added into the International Database all of the eclipsing binary observations that were originally archived by the eclipsing binary chair, rather than HQ. To the best of our knowledge, all observations that have been contributed to the AAVSO now reside in the International Database. You should check your observing totals, and compare them with your local logbooks to make sure that we have everything that you have submitted!

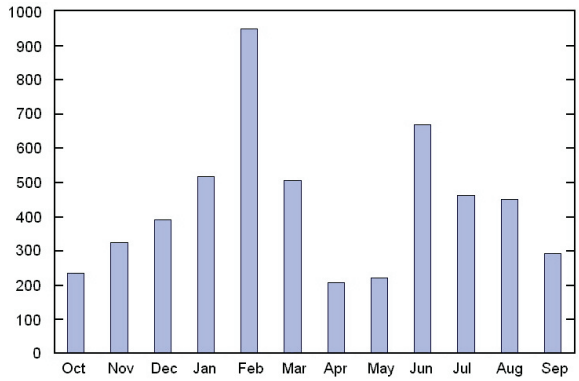
Back in the flat-ascii-text database days, we used a "validation file" that listed all of the stars for which observations existed in the International Database. As observers submitted observations of new stars, a staff member would edit the validation file to add the new star. As we moved into the relational database age, the primary key in the database was the AAVSO Unique ID, or AUID. This increased the complexity of the validation file, as it now had to include the AUID, all possible aliases of the star name, some notes such as the star's R.A. and Dec. so that it could be uniquely identified in other



Researchers who used AAVSO data or services during FY 2008–2009



Areas in which AAVSO data or services were used during FY 2008–2009



Number of data requests by monh during FY 2008–2009

catalogs, etc. We also wanted to move to a method where observers could submit data on any known variable, as listed in the International Variable Star Index (VSX). This year we converted all of our main tasks to use VSX as the name resolver, rather than the validation file. This is working superbly, and so we have now removed the validation file table from all AAVSO software.

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. Agrupacion Astronomica de Sabadell (Spain)
b. Asociacion Amigos de la Astronomia (Argentina)
c. Asociacion de Variabilistas de Espagne (Spain)
d. Association of Variable Star Observers "Pleione" (Russia)
e. Association Française des Observateurs d'Étoiles Variables (AFOEV) (France)
f. Astronomical Society of Southern Africa, Variable Star Section
g. Astronomisk Selskab (Scandinavia)
h. Astronomischer Jugendclub (Austria)
i. Brazilian Observational Network REA
j. British Astronomical Association (BAA), Variable Star Section
k. Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany)
l. Grupo Astronomico Silos (Spain)
m. Israeli Astronomical Association, Variable Star Section
n. Koninklijke Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands)
o. Liga Ibero-Americana de Astronomia (South America)
p. Madrid Astronomical Association M1 (Spain)
q. Magyar Csillagàszati Egyesület, Valtózcsillag Szakcsoport (Hungary)
r. Norwegian Astronomical Society, Variable Star Section
s. Red de Observadores (Montevideo, Uruguay)
t. Royal Astronomical Society of Canada
u. Royal Astronomical Society of New Zealand, Variable Star Section
v. Ukraine Astronomical Group, Variable Star Section
w. Unione Astrofili Italiani (Italy)
x. URSA Astronomical Association, Variable Star Section (Finland)
y. Variable Star Observers League in Japan
z. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)

Nikolai Samus (Sternberg Observatory) visited AAVSO Headquarters from April 12 through April 19, staying in the Feibelman Guest Suite. Kolya was here to discuss mutual projects related to the General Catalogue of Variable Stars.

Elizabeth Griffen (U. Victoria) visited the AAVSO in the spring to help define a spectroscopic project.

Software

As an aid to the Chart Team, I had Sara Beck port my sequence-plotting program to Java. Called Seqplot, this program accesses a MySQL database of all of the photometric mean magnitudes and colors that I have determined at Sonoita and USNO. It plots the stars with dot size based on magnitude and color based on the star's (B–V) color. With a cursor you can point to any given star, click, and see its magnitude and colors; with another click, you can move the information into a file in a pre-defined format that can be easily uploaded into the Variable Star Database (VSD), the database used to generate comparison star sequences for charts. Seqplot is now being used by many volunteers world-wide to improve sequences and create new ones, especially those for transient objects in a timely manner.

Kate modified an administrative tool written by Chris Watson for the VSD that enables staff editing and updating of this important database. The program will edit single records as well as accept batch uploads of new sequences, especially those coming from Seqplot.

I had used a really neat photometry software package called Photometrica while helping the Global Rent-a-Scope network improve their scientific imaging capability. The author of Photometrica, Geir Klingenberg, is well known to AAVSO observers, as he wrote WinWWZ. Geir and Michael Kran are working on making Photometrica even better, and they contacted me to see if I would be interested in helping out (testing the photometric algorithms). They have also offered to give full control of the program to the AAVSO for use by our observers. I'll have more to say about this project in next year's report.

Observing News

Ed Halbach reached two important milestones this year. In March, Ed turned 100. While I was not able to attend the party, I understand a good time was had by everyone.

Second, Elizabeth checked the database records and confirmed that Ed had submitted over 100,000 lifetime observations. Gerry Samolyk presented Ed with his Observer's Award at the birthday party.

We had nearly two dozen active campaigns during FY2009. Some of these were just for fun, such as the one to monitor QX Pup (an obscured Mira variable in which the optical variation is a reflection of the star from the bipolar nebula that surrounds it), or the one-in-a-million chance to detect an eclipse of the white dwarf V1412 Aql. This latter star was studied extensively by Arlo Landolt (now on the AAVSO council), after he could not locate the star one night a few decades ago. The assumption is that the star was in eclipse, and since the companion could not be detected, it must be nearly planetary in size and mass. A monitoring campaign was initiated to see if we could detect another eclipse. Michel Bonnardeau created a simulation that uses the available non-eclipse-detection photometry to narrow the possible period choices, and to predict optimal windows in which to search for another eclipse.

Other campaigns were in support of HST cataclysmic variable projects, looking for outbursts of blazars to alert observers using VERITAS, monitoring P Cygni in collaboration with a group of German spectroscopic observers to see if there are correlations between continuum variations and spectroscopic line changes, checking for a possible exoplanet transit for HD 80606, and obtaining precision photometry of beta Cephei in support of interferometric observations. Of course, we're running a campaign on epsilon Aurigae as well!

Members volunteer their time and effort in promoting the AAVSO. Kate Hutton used the AAVSO traveling display at the Riverside Telescope makers Conference in May 2009, with many visitors passing by the booth and picking up our brochure. She and I did the same thing at the new Pacific Astronomy and Telescope Show, held at the Pasadena Convention Center in September 2009. About 1,000 people attended and passed by our booth. Mike Simonsen took the traveling display to ALCON 2009, where he represented the AAVSO along with Gordon Meyers. These meetings are attended by many of the high-end amateurs who may not have considered doing photometry with their equipment, so we are really happy when someone offers to stand at a booth or poster for hours and answer questions.

Several stars decided to do something spectacular in honor of FY2009. R CrB, the prototypical dust-fading star, entered its most recent fade at the beginning of the fiscal year. It has stayed faint the entire year (unusual) and at a *V* magnitude of 15 (also unusual). Since the last fade was over five years ago (and it was a puny fade), this exciting event has made R CrB a favorite target for many observers. When will R CrB regain its normal

brightness? GK Per had a small outburst; VY Scl went into a deep fade (and we ran a campaign in support of a VLT program); U Sco stayed in quiescence, even though Brad Shaefer was hoping otherwise; and lots of novae went into outburst. A deep eclipsing cataclysmic variable (CV) was discovered (CSS 081231:071126+440405) and was studied by several observers. Eclipsing CVs are a lot of fun, as the eclipses are extremely short and usually quite deep. You can be taking a time series in which one exposure shows the CV and in the next exposure the star is completely gone! V630 Cas had an unusual outburst, nearly Gaussian in shape, about 2.5magnitudes in amplitude, and lasting 100 days. V630 Cas is well-monitored by a number of CCD observers, with a very nice light curve even though it is a 16th magnitude object. Several groups are now starting to monitor M31, reporting novae in that galaxy. Since these can also be 16th magnitude, it is becoming commonplace to obtain light curves of such extragalactic objects with amateur equipment.

The RASNZ variable star section has taken new life. Headed by Tom Richards, it is now known as Variable Stars South, and has its own discussion group (AVSON) and web site. They are creating several interesting campaigns. If you are a southern observer, I highly recommend participating in some of their projects. We've been passing interesting southern objects to them to make sure that they are involved in any southern campaign.

Robotic Telescope News

The AAVSOnet robotic telescope network is being slowly expanded at low cost to provide access to scientific-grade systems around the world for our membership and our professional collaborators.

Between the SAS meeting and the Stellar Pulsation meeting, I stayed in the southwestern U.S. and visited Tom Smith and Tom Krajci, along with looking at the 24-inch telescope at New Mexico State University. The Smith/Dark Ridge Observatory visit was to see the progress on the Morgan 24-inch telescope. While the telescope itself is still waiting for refurbishment, Tom Smith has been busy building the roll-off roof building that encloses it. I helped put together the drive system to open and close the roof, and had many fruitful talks with Tom Smith and Tom Krajci on their hosting of AAVSO telescopes. I was also able to visit New Mexico Skies and other telescope farms in the immediate area.

We received CCD cameras through a grant from the Santa Barbara Instrument Group (SBIG). An STL-6303 is designated for the SRO50, a 50-cm replacement for the Sonoita Research Observatory (SRO); an ST-8XME is to be used on the Bright Star Monitor,

described below; several ST-402's were obtained to be given to observers on long-term basis. We received three ST-6 cameras from a private donor, and distributed them as well as the ST-402 SBIG cameras to new observers. Stephen Levine wrote a Python script to create a pulsed-LED linearity tester in the HQ optics lab, and tested the linearity of all cameras before shipping them to their respective sites.

SRO was used on 244 nights during FY2009 for AAVSO projects, with about half of those being photometric. Many long period variable, Cepheid, and RR Lyr fields were calibrated during this year. A total of 813,361 objects have been calibrated on at least one night at Sonoita using the C14 telescope since 2005. Monitoring of many campaign objects and personal research targets was performed. We slowly released the telescope to the public and initiated observing programs for AAVSO members, with about forty projects currently underway.

James Bryan, an amateur astronomer in Texas, donated an Optomechanics Model 10-C spectrograph to the AAVSO. This is similar to the SBIG DSS-7, though with more features and with replaceable gratings and a gas discharge tube calibration source. We will be modifying this spectrograph for automated use.

Paul Wright, a long-time member of the AAVSO, passed away in November 2008. He donated his two telescopes to the AAVSO. One was already sited at Tom Krajci's Astrokolkhoz Observatory near Cloudcroft, NM. Tom offered to continue supporting that telescope, and to also build an enclosure and support Paul's second telescope. These two telescopes—the W28 and W30—form an essential part of AAVSOnet, providing time-series monitoring of many objects. Gary Walker contributed many filters and a filter wheel for W28; Josch Hambsch contributed an ST-9, filter wheel, and filters for W30. Tom Krajci also heavily modified W30 (an older Meade LX200 12-inch SCT), replacing the metal tube with a carbon fiber one. The AAVSO provided a Meade focal reducer for W30. Patrick Wiggins donated an SSP-3 photometer, which we loaned to Erwin van Ballegoij for work on epsilon Aurigae.

We've started work on an interesting micro observatory. Called the Bright Star Monitor (BSM), it was designed to complement the All-Sky Automated Survey (ASAS), run by Gzregorz Pojmański. BSM will monitor variables in the range V=2 to V=8 at *BVRcIc*, especially concentrating on epsilon Aurigae. We were able to get private funding for the initial BSM hardware, and Tom Krajci has offered to host the system at his observatory.

A key project for the AAVSO's future is the AAVSO Photometric All-Sky Survey (APASS). A grant from the Robert Martin Ayers Sciences Fund was awarded in 2009, and we've purchased nearly all of the necessary hardware for this system. It will calibrate the entire

sky from 10th to 17th magnitude in five band-passes. We will install it in Fall 2009 at Tom Smith's Dark Ridge Observatory near Weed, NM. After surveying the northern sky, the system will be moved to the southern hemisphere to complete the sky. We expect APASS to make single-field photometric calibration a thing of the past. It will take about three years to complete the survey, though incremental releases will start just a few months after first light.

Other Projects

As mentioned in the last Director's Report, Donna Young has been bringing Hands-On Astrophysics into the modern media world. That project was completed this year, and we've created a web page for Variable Star Astronomy (VSA). You can download all chapters and teacher exercises for VSA from that page.

The Astronomical League has developed a Variable Star Club. Headed by Rocky Togni, this club will provide finding charts and mentoring for league members so that they can contribute observations to the AAVSO.

The AAVSO speakers bureau and the writers bureau continue to be expanded and improved. The speakers bureau is a list of those people who are willing to give talks on astronomical topics, especially related to variable stars. The writers bureau is a compendium of those bloggers who have given permission for use of their material in club newsletters and other publications. Mike Simonsen is the primary contact for these new initiatives.

The Olin Eggen observation card archive has been completely scanned. Most of the scanning was completed in summer 2007 by David Coit. Linda Henden has worked on scanning the remainder of the cards, along with our 2008 summer student, Sungmun Choi, and our 2009 Margaret Mayall Assistant, Hannah diCicco. Once the scanning was completed, Stuart Goldman, another volunteer, created a web page to publish these cards to the community.

Staffing

Arthur Ritchie continues volunteering at HQ. He comes in whenever we call for assistance, usually to help in stuffing envelopes, mailing solar bulletins, and general sorting. We really appreciate his efforts, and they save considerable staff time. This year marked his tenth anniversary as an AAVSO Headquarters volunteer, a milestone we recognized at the Annual Meeting in November.

Hannah diCicco was our 2009 Margaret Mayall summer assistant, finishing up the Eggen card scanning and beginning the web page for serving these scans to the public. Hanna is *Sky & Telescope* editor Dennis diCicco's daughter and was a joy to have in the office. Since Dennis works across the park at the *Sky & Telescope* offices, father and daughter got together often!

As part of the Citizen Sky project, Rebecca Turner was hired full-time as the Program Manager. Rebecca is well-known to everyone, as she has been our meetings coordinator for a decade, lately performing this important role as a part-time contractor while pursuing a second career in acting.

Virginia Renehan has replaced Travis Searle as our Adminstrative Assistant. Ginny is a past-president of the Amateur Telescope Makers of Boston, and has extensive background in office management.

Dr. Stephen Levine from USNO-Flagstaff is working at the AAVSO this year. While he is primarily telecommuting to Flagstaff, he is lending his computer and hardware expertise where needed on AAVSO projects in his spare time.

Aaron continues his doctoral work in Science Education at Tufts University. He has completed all course work and just has to finish his dissertation.

Other than these changes, headquarters staffing has remained constant. With the new additions, we have twelve full-time employees, along with two part-time employees and a contracted accountant. All permanent employees are described on our website at http://www.aavso.org/aavso/about/staff.shtml. I encourage you to read about these folk that support the members and observers; it is a really nice and efficient staff at HQ!

Publications

Thomas R. Williams and Michael Saladyga continue work on the AAVSO centenary book. They hope to publish by 2011.

As mentioned in the last Annual Report, Charles Whitney retired as Editor in Chief of the *Journal of the AAVSO*. We were able to twist John Percy's arm to "come out of retirement" and take over the position. We published our last hardcopy journal (v35n2); all recent issues are available in pdf format on the web site, or in hardcopy through our Print On Demand (POD) partner. The POD quality is nearly as good as the volume printing, and eliminates a major headache to the staff of envelope stuffing, mailing, and keeping

old volumes in stock, and the very significant expense of printing and mailing over a thousand copies of each issue.

As in past years, Tom Williams has funded a "month" in the annual calendar of the American Astronomical Society. We have picked October as our month, and create a new theme every year. The theme for the 2009 calendar was epsilon Aurigae and how the AAVSO was involved in its study. Kerri Malatesta has done an excellent job over the years of designing these calendar pages.

We experimented with creating an AAVSO annual calendar. It contained pictures provided by members and observers, and incorporated the JD calendar. As it was our first one, we were a bit late in production, and that led to disappointing sales. We will skip 2010, but intend to have a special version for 2011.

As part of our policy of continued improvement, we've upgraded the *AAVSO Newsletter*. Edited by Gamze Menali, Elizabeth Waagen, and Michael Saladyga, it now incorporates Eyepiece Views, CCD Views, the Photoelectric Photometry Newsletter, and observing information, as well as the normal articles. It is published quarterly, but only in electronic format. We went that route to save costs, as well as to provide new features such as color and hyperlinks. We also produced the *AAVSO Annual Report* for FY2008.

JAAVSO volume 35, number 2, through volume 37, number 1, were published. Many *eJAAVSO* articles were posted. We posted 19 Alert Notices and 44 Special Notices. Three "Variable Star of the Season" articles were published. We contributed sections for the *RASC Observer's Handbook*. Elizabeth completed long period variable maxima/minima *AAVSO Bulletin 72*. The AAVSO released the annual eclipsing binary/RR Lyrae stars ephemerides as well as the monthly *Solar Bulletin*.

There were fifty-six staff publications (Henden, Price, Templeton, Waagen; *PASP, AJ, JAAVSO*, etc.). We noted that forty-five papers in journals such as *Astronomy and Astrophysics*, *MNRAS, ApJ, AJ, PASP*, etc. were published using AAVSO data and assistance. The actual number is larger than this, as many posters and papers at AAS meetings use our light curves in their presentations.

Travel and meetings

We held a joint AAVSO and Society for Astronomical Sciences (SAS) meeting in May. SAS is always held just before the annual RTMC meeting, in Big Bear, California. About half of their membership also belong to the AAVSO, so there is good synergy between

the groups. The joint meeting was the largest SAS meeting in history, and the paper sessions and workshops were enthusiastically received.

FY2009 was another year of travel by staff to domestic meetings to spread the word about the AAVSO and variable star observing. I would also like to mention that much of my travel is subsidized by the hosts of the meetings I attended. Sometimes they can contribute towards the plane fares, and often provide housing, meals, and logistical support. This is gratefully appreciated!

I went to three specialist's meetings this year. Normally I attend one, but things conspired to bring them all into one year. In October, I went to Huntsville for the Sixth Huntsville Gamma-Ray Burst Symposium 2008, the first GRB meeting since Fermi was launched. I hadn't been to a GRB meeting in about five years, and wanted to see what the latest news was regarding the follow-up activities and where AAVSO observers can contribute. In March, Mike Simonsen and I went to Wild Stars in the Old West II, the 14th North American Workshop on Cataclysmic Variables, in Tucson, hosted by Steve Howell. All of the big names in CV research were there; it was good to talk to some of these folks. Finally, in May, Matt Templeton and I went to Santa Fe to attend the Stellar Pulsation: Challenges for Theory and Observation workshop. This is given every other year, and with CoRoT in orbit and Kepler soon to be launched, there were some very interesting papers. We made some important contacts, and now have representation on the Kepler Asteroseismic Cosmology Consortium.

I went to the June American Astronomical Society meeting in Pasadena, Galileo's Legacy conference in Hawaii over New Year's, and the Pacific Astronomy and Telescope Show (PATS) in September, all where I gave talks regarding the AAVSO. There were two invited trips (Eastern Tennessee State University and the University of Cincinnati) to give advice on near-IR observing and small-telescope projects. Several of us attended the Citizen Sky workshop in Chicago in August to give papers and workshops. Finally, I was invited to sit on a couple of NSF/NASA review panels.

Looking Towards the Future

Coming up over the next fiscal year will be a number of improvements in support of our observers. We will be adding more precision photometry to the comparison star database. APASS will complete its northern hemisphere survey. More campaigns will be announced. The robotic telescope network will be expanded, with both 24-inch telescopes coming on-line. Hopefully some of our submitted grants will be awarded. All-in-all, I think it will be another great year for the AAVSO!

Acknowledgements

This is not a one-person show, or even a dozen-person show. Everyone who has contributed data, made a monetary donation, volunteered their time and energy, has made this organization the success that it is. We "stand on the shoulders of giants" who came before us and built the foundation of the organization. Clint Ford contributed enormously to the organization, which is why his name bears such prominence everywhere. Previous Directors organized the association and had the vision for its future. The Council guides the AAVSO, volunteering their efforts to make the organization financially solvent and relevant. Our committee chairs and section leaders handle specific areas of interest, working with enthusiastic observers and making reports to the membership and Council. Others work quietly behind the scene, acting as scientific advisors to programs, writing important software, or participating in important projects such as the Sequence Team. Finally, many institutions and government agencies see our research important enough to provide financial support. Without all of these people, the AAVSO would not exist.

Observer Totals

Our special appreciation and thanks go to our enthusiastic and dedicated observers, who are the heart of the AAVSO and whose ongoing efforts make this association vital to variable star research. Listed on the following pages are the totals of observations that we received at Headquarters this year and that were made during the year. These totals do not include historical database observations (such as from the RASNZ) or individual historical datasets digitized from the literature.

Table 1. AAVSO Observer Totals 2008–2009 by Country.*

Country	No. Observers	No. Obs.	Country	No. Observers	No. Obs.	Country	No. Observers	No. Obs.
Argentina	3	47	Germany	38	13744	Portugal	3	4470
Australia	25	81146	Greece	7	5146	Republic of Korea	1	1
Austria	3	649	Hungary	44	20010	Romania	15	6346
Belarus	1	18	India	1	11	Russia	8	1101
Belgium	16	73312	Iran	1	1	Serbia	1	12
Bermuda	1	115	Ireland	4	132	Slovakia	1	1024
Bolivia	3	357	Isle of Man	1	1	Slovenia	1	15
Brazil	14	2092	Israel	1	2	South Africa	6	5250
Bulgaria	4	32	Italy	23	7018	Spain	29	15380
Canada	32	31933	Japan	4	1199	Sweden	1	1774
Chile	4	9380	Lebanon	1	3	Switzerland	5	472
China	3	137	Mexico	1	824	Turkey	2	85
Croatia	4	6868	Netherlands	10	6174	Ukraine	3	129
Czech Republic	2	132	New Zealand	12	5809	Uruguay	2	245
Denmark	6	347	North Cyprus	1	14178	U.S.A.	296	590921
England	25	48707	Norway	7	512	Wales	2	18618
Finland	13	17312	Philippines	2	134			
France	30	95641	Poland	20	8389	TOTAL	743	1097355

Table 2. AAVSO Observer Totals 2008–2009 USA by State or Territory.*

State		No. Observers	No. Obs.	State		No. Observers	No. Obs.	State		No. Observers	No. Obs.
Alabama	(AL)	1	1	Maine	(ME)	3	7629	Pennsylvania	(PA)	14	2468
Arizona	(AZ)	17	23738	Maryland	(MD)	9	831	Puerto Rico	(PR)	1	17
Arkansas	(AR)	1	42	Massachusetts	(MA)	18	23553	Rhode Island	(RI)	3	3128
Army Post Office	(AE)	1	13	Michigan	(MI)	6	3848	South Carolina	(SC)	2	32
California	(CA)	38	13724	Minnesota	(MN)	7	3429	Tennesee	(TN)	2	121
Colorado	(CO)	5	5784	Mississippi	(MS)	1	691	Texas	(TX)	24	13503
Connecticut	(CT)	4	1093	Missouri	(MO)	2	12683	Utah	(UT)	1	844
Fleet Post Office	(AP)	1	7	Montana	(MT)	1	12404	Vermont	(VT)	2	17
Florida	(FL)	11	110732	Nebraska	(NE)	2	58	Virginia	(VA)	9	149
Georgia	(GA)	6	3398	New Hampshire	(NH)	3	538	Washington	(WA)	9	5281
Hawaii	(HI)	2	589	New Jersey	(NJ)	2	9	West Virginia	(WV)	2	985
Illinois	(IL)	13	155419	New Mexico	(NM)	8	95314	Wisconsin	(WI)	7	54444
Indiana	(IN)	9	2553	New York	(NY)	10	5527	Wyoming	(WY)	2	114
Iowa	(IA)	3	38	North Carolina	(NC)	6	474				
Kansas	(KS)	5	1506	Ohio	(OH)	14	1818	TOTAL		296	590921
Kentucky	(KY)	1	29	Oklahoma	(OK)	3	67				
Louisiana	(LA)	4	196	Oregon	(OR)	3	22083				

** Totals do not include historical data (data preceding fiscal 2008–2009) submitted during 2008–2009.*

Table 3. AAVSO Observers, 2008–2009.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
AFO		A. Abascal, Spain	5	BXN	01	M. Bisson, France	248
AAP	27	P. Abbott, Canada	3892	BXT	08	T. Bjerkgaard, Norway	225
ACSA		C. Acosta, AZ	5	BKL		J. Blackwell, NH	188
ARV		R. Adamson, CA	19	BPB		P. Blanchard, CA	128
ACN	13	C. Adib, Brazil	671	BVZ		J. Blanco Gonzalez, Spain	36
SBX		S. Adrian, Romania	6	BLD	10	D. Blane, South Africa	278
ASA		S. Aguirre, Mexico	824	BWZ		E. Blown, New Zealand	379
AWL		W. Alexander, VA	12	BREI	02	R. Boettcher, Germany	29
ASAS3		All Sky Automated Survey 3, Chile	9351	BHQ	29	T. Bohlsen, Australia	1792
ACO	20	C. Allen, Sweden	1774	BPF		P. Bohnholdt, Denmark	27
ADL		D. Allen, IA	2	BBF		B. Boller, VA	3
AWH	14	W. Allen, New Zealand	1	BVS		S. Bolzoni, Italy	15
ARP		R. Allnut, TX	22	BZU		M. Bonnardeau, France	1484
AJC	13	J. Almeida, Brazil	108	BRJ		J. Bortle, NY	4224
AJV	15	J. Alonso, Spain	199	BMU	04	R. Bouma, Netherlands	7
AAA	13	A. Alves, Brazil	18	BDG	20	D. Boyd, England	16766
AAQ	03	A. Ambrus, Hungary	1	BMK		M. Bradbury, IN	96
AAX	13	A. Amorim, Brazil	957	BXS		S. Brady, NH	340
AJE		J. Andrei, Romania	1	BNW	02	W. Braune, Germany	50
CIQ		C. Andronie, Romania	3	BQC	01	J. Breard, France	216
AJN		J. Appleyard, Canada	142	BTB		T. Bretl, MN	264
AMIB		M. Armstrong, England	1	BHA	02	H. Bretschneider, Germany	873
ACP		P. Armstrong, TX	4656	BMI		M. Brewster, TX	8
ARJ		J. Arnold, TX	64	BQE		E. Briggs, Canada	42
ATE		T. Arranz, Spain	3821	BHP		K. Brinson, FL	4
ATO	08	T. Aslesen, Norway	13	BJQ	27	J. Brooks, CA	26
ATI	03	T. Asztalos, Hungary	2360	BXV	15	X. Bros Caton, Spain	42
ADI	02	D. Augart, Germany	457	BMB		M. Brown, PA	13
BOZ	03	B. Bago, Hungary	647	BPR	01	P. Brunet, France	14
BIY		D. Bailey, IL	3	BOA	01	A. Bruno, France	7537
BIE	05	A. Baillien, Belgium	411	BHU		R. Buchheim, CA	103
BANT		A. Baker, MI	5	BXD		A. Burda, Romania	1209
BFX		R. Baker, OH	33	BIW		N. Butterworth, Australia	7105
BWW		W. Bakewell, CA	1	CCB		C. Calia, CT	248
BFO	03	J. Bakos, Hungary	969	CMN		R. Cameron, Australia	15
BAH		A. Balcerek, Poland	2	CPN	27	P. Campbell, Canada	21
BALJ	14	A. Baldwin, New Zealand	18	CMP		R. Campbell, FL	979
BIV	03	I. Balogh, Hungary	16	CEM	15	E. Capella, Spain	12
BGZ		G. Banialis, IL	175	CVJ	06	J. Carvajal Martinez, Spain	13
BZV	03	Z. Baracki, Hungary	4	CLQ		L. Cason, SC	30
BHAA		H. Barghamadi, Iran	1	CWO		W. Castro, OH	61
BSR	18	S. Baroni, Italy	227	CQJ		J. Centala, IA	28
BPO		D. Barrett, France	1745	CNT		D. Chantiles, CA	453
BQ	03	L. Bartha, Hungary	4295	CGF		G. Chaple, MA	1794
BVT		T. Bartlett, TX	510	CFX		F. Char, Chile	5
BBA		B. Beaman, IL	2056	CKJ		J. Cheng, PA	10
BWX	27	A. Beaton, Canada	505	CQS		S. Cheng, China	120
BSZ		S. Beckwith, MA	9	CCY		C. Chiselbrook, GA	361
BDQ		A. Bedard, WA	184	CCX		C. Chrestani, Brazil	4
BJS		J. Bedient, HI	201	CCV		C. Clarasso, Spain	39
BCP	20	C. Beech, England	1027	CLK		W. Clark, MO	1
BZX		G. Beltran, Bolivia	339	CPE	06	P. Closas, Spain	57
BTY		T. Benner, PA	166	CDK		D. Collins, NC	432
BEB		R. Berg, IN	130	COL		P. Collins, AZ	4
BQX	15	M. Betlej, Poland	34	CME	18	E. Colombo, Italy	260
BIZ		J. Bialozynski, AZ	17165	CTIA		T. Colombo, Italy	47
BVO		V. Bibe, Argentina	11	CMG	04	G. Comello, Netherlands	2835
BQM		M. Bignotti, Italy	1	CDSA		D. Conner, England	9
BCO		C. Birza, Romania	3	CKL		A. Cook, OH	56

Table 3. AAVSO Observers, 2008–2009, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
COO		L. Cook, CA	210	FMZ		M. Fitzgerald, TX	5
CLZ	01	L. Corp, France	203	FLE		L. Florin, Romania	23
CAI		A. Correia, Portugal	2234	FDA	03	A. Fodor, Hungary	71
COV		V. Coulehan, NY	45	FBZ	03	B. Fodor, Hungary	18
CFY		J. Craig, MA	27	FMR		M. Fonovich, Croatia	6836
CTX		T. Crawford, OR	20888	FJQ		J. Foster, CA	1612
CMD	20	M. Crow, England	172	FEX		E. Fox, PA	1
CRR		R. Crumrine, NY	39	FXJ		J. Fox, NM	68
CTI	03	T. Csorgei, Hungary	209	FML	04	M. Fridlund, Netherlands	3
CSM	03	M. Csukas, Romania	373	FCHA		C. Froeschlin, Germany	10
CKB		B. Cudnik, TX	1981	FMG		G. Fugman, NE	51
CUU		J. Curto Amigo, Spain	229	FDX		D. Fuller, IL	2
DAH	08	H. Dahle, Norway	7	FRTA		R. Fuller, TX	16
DHO		H. Dale, GA	1	FSC		S. Fuqua, CA	73
DQA		A. Dandrea, FL	161	GBZ	21	O. Gabzo, Israel	2
DAM	06	A. Darriba Martinez, Spain	114	GHT	27	G. Gaherty, Canada	142
DMP		M. Dasgupta, India	11	GMO		M. Gainer, PA	8
DJX	27	M. De Jong, Canada	198	GJSA		J. Galang, WI	2
DPP	05	P. De Ponthiere, Belgium	20907	GGL	18	G. Galli, Italy	132
SWQ	13	W. De Souza, Brazil	61	GME		J. Gardner, CA	11
DSJ	13	J. De Souza Aguiar, Brazil	8	GAA		P. Garey, IL	67
DKEA		K. Deakes, Isle of Man	1	GBL		B. Gary, AZ	1
DDFA		D. Dempf, Germany	5	GKI		K. Geary, Ireland	27
DDE		D. Denisenko, Russia	1	GCP	02	C. Gerber, Germany	201
DLAA		L. Depka, Germany	23	GHS		H. Gerner, WI	273
DNO		O. Deren, Poland	31	GQR		R. Gherase, Romania	4
DSI		G. Di Scala, Australia	24464	GAO		A. Giambersio, Italy	2
DPA	05	A. Diepvens, Belgium	24	GGU	04	G. Gilein, Netherlands	246
DRG		R. Diethelm, Switzerland	400	GMY		M. Glennon, Ireland	14
DLA		A. Dill, KS	77	GZN		A. Glez-Herrera, Spain	222
DIL		W. Dillon, TX	475	GFT	01	F. Gobet, France	883
GDB	03	G. Domeny, Hungary	21	GFB		B. Goff, CA	6495
DPV		P. Dubovsky, Slovakia	1024	GPU		P. Goldfinger, CA	7
DAB		A. Dukes, SC	2	GOT	06	T. Gomez, Spain	2489
DMO	01	M. Dumont, France	702	GED		E. Goncalves, Brazil	4
DMPA		M. Durkin, NY	19	GVG		V. Gonzalez Garcia, Spain	8
DKS		S. Dvorak, FL	107804	GGZ	03	Z. Gorgei, Hungary	154
DGP		G. Dyck, MA	749	GHN		J. Graham, OH	246
EED		E. Edinho, Brazil	11	GKA		K. Graham, IL	27428
EJF		J. Edmonds, MA	1	GPE		J. Grainger Observatory, NH	10
EHEA		H. Eggenstein, Germany	5	GRL	08	B. Granslo, Norway	49
EMA		M. Eichenberger, Switzerland	12	GDQ		D. Gray, FL	6
ELE		L. Elenin, Russia	13	GNJ		J. Green, Canada	3
EM		G. Emerson, NM	2	GBD		B. Griffiths, New Zealand	16
EPE	01	P. Enskonatus, Germany	36	GTZ		T. Grzybowski, NM	2341
ERB		R. Eramia, WA	48	GCO		C. Gualdoni, Italy	3962
EJO	03	J. Erdei, Hungary	929	GUN	01	J. Gunther, France	287
EEY		E. Erdelyi, CA	126	GSHA		S. Gupta, TX	1
EMJ		M. Erickson, CA	17	GGX	01	G. Guzman, France	171
EFE		F. Etchart, Argentina	3	HCS	03	C. Hadhazi, Hungary	1781
EDTA		D. Etscorn, WY	6	HDH	03	S. Hadhazi, Hungary	258
ERW	14	R. Evans, New Zealand	51	HTY		T. Hager, CT	735
FAZ		A. Falzolgher, Italy	23	HKB		B. Hakes, IL	178
FSU		S. Fanutti, Canada	17	HJW		J. Hall, CO	6
FAM		A. Farkas, AP	7	HYD	14	D. Hambly, New Zealand	8
FEO	03	E. Farkas, Hungary	194	HMB	05	F. Hambsch, Belgium	11613
FAJ	03	A. Fejes, Hungary	4	HJCA		J. Hancock, TX	6
FAF		A. Few, WA	6	HDX		D. Hands, NC	2
FEV		E. Fischler, WA	30	HPL		P. Hansen, Denmark	81

Table 3. AAVSO Observers, 2008–2009, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
HIC	03	I. Hanyecz, Hungary	6	KAD	03	A. Karpati, Hungary	238
HBB		B. Harris, FL	52	KEI		E. Kato, Australia	8
HMQ		M. Harris, GA	116	KBJ		R. Kaufman, Australia	18
HKM		K. Hartmann, MA	9	KPI	17	P. Kehusmaa, Finland	120
HHU	05	H. Hautecler, Belgium	2196	KSH	29	S. Kerr, Australia	232
HKY	27	K. Hay, Canada	5	KJJ		J. Keski-Jylha, Finland	450
HAB		R. Hays, IL	817	KSZ	03	S. Keszthelyi, Hungary	240
HMH		M. Heald, AE	13	KEA	03	R. Kilmaj, Hungary	12
HPC		P. Hecht, Germany	6	KRB		R. King, MN	564
HRZ	30	R. Hegenbarth, Germany	1	KQR		R. Kinne, MA	5
HRH		R. Hensler, Australia	9	KSJ	27	S. Kinsella, Canada	61
HES		C. Hesseltine, WI	1270	KIR		P. Kirby, AZ	373
HMV		M. Hessom, CA	13	KIL	03	L. Kiss, Australia	190
HJJ		J. Hewlett, CA	12	KMM	09	M. Kititsa, Ukraine	82
HDEA		D. Higgins, NY	4	KPC		P. Klages, England	12
HJX	13	J. Hodar Munoz, Brazil	2	KPL		P. Kneipp, LA	55
HEK	11	E. Hoeg, Denmark	82	KCD	20	C. Knight, New Zealand	2
HFO	01	G. Hoffer, Germany	35	KGT		G. Knight, ME	36
HDF		D. Hohman, NY	51	KSP		S. Knight, ME	70
HSQ		S. Holland, NC	2	KLO		L. Kocsmaros, Serbia	12
HYA	14	A. Homes, New Zealand	58	KRV		R. Koff, CO	2604
HJL		J. Homes, New Zealand	42	KHL		M. Kohl, Switzerland	18
HOO	04	G. Hoogeveen, Netherlands	49	KYI		Y. Kok, Australia	136
HPO		J. Hopkins, AZ	317	KZN	03	Z. Kolarovszki-Sipiczki, Hungary	19
HJG		J. Horne, CA	10	KRS		R. Kolman, IL	1636
HJZ		J. Horne, CA	17	KMA		M. Komorous, Canada	3315
HSR	05	S. Hoste, Belgium	108	KJK		J. Konasek, Czech Republic	125
HSP	14	S. Hovell, New Zealand	611	KMP		M. Koppelman, MN	350
HSW		S. Howerton, KS	178	KOS	03	A. Kosa-Kiss, Romania	4131
HJA		J. Hudson, CA	53	KLX		L. Koscianski, MD	13
HDU		D. Hurdis, RI	3126	KAF	03	A. Kovacs, Hungary	262
HUR	20	G. Hurst, England	2864	KVI	03	I. Kovacs, Hungary	219
HTN		K. Hutton, CA	1443	KWO	02	W. Kriebel, Germany	1719
HUZ		R. Huziak, Canada	5906	KIS	02	G. Krisch, Germany	398
IAT		A. Ielo, Italy	9	KTV	16	T. Kryachko, Russia	78
ILE	03	E. Illes, Hungary	449	KTZ		T. Krzyt, Poland	232
JPM	10	P. Jacobs, South Africa	36	KBA		B. Kubiak, Poland	190
JJB	11	J. Jacobsen, Denmark	38	KUC	01	S. Kuchto, France	2411
JMA		M. Jacquesson, France	186	KPB		P. Kuebler, OH	31
JTP	01	P. Jacquet, France	116	KBO		R. Kuplin, AZ	6
JM		R. James, NM	75401	KAPB		A. Kurtz, MA	1
JZO	03	Z. Jankovics, Hungary	515	KMI	16	M. Kuzmin, Russia	10
JKK	08	K. Jensen, Norway	64	KSQ		S. Kuznetsov, Russia	971
JLR		R. Jepeal, CT	48	LCR	15	C. Labordena, Spain	565
JGE	06	G. Jimenez, Spain	6	LHS		H. Lacombe, Canada	34
JDKA		D. Johnson, TX	4	LMU		M. Lahteenmaki, Finland	8
JOG		G. Johnson, MD	92	LSA	17	S. Lahtinen, Finland	1
JA	14	A. Jones, New Zealand	4546	LPB		P. Lake, Australia	88
JJI		J. Jones, OR	1182	LDJ	27	D. Lane, Canada	1662
JPGA		P. Jordanov, Bulgaria	14	LTO	02	T. Lange, Germany	2
JTDA		T. Judah, CA	17	LMF	13	M. Lara, Brazil	229
JAZ	03	A. Juhasz, Hungary	12	LTM		T. Laskowski, IN	20
JWM		W. Julian, NM	2015	LZT		T. Lazuka, IL	782
KMY		M. Kaczmarech, Brazil	1	LEB	01	R. Lebert, France	143
KJGA		J. Kade, MI	2	LJF	27	J. Lebold, Canada	5
KPK		P. Kalajian, ME	7523	LMT		M. Legutko, Poland	286
KB		W. Kaminski, NM	9	LDA		D. Lehman, MD	2
KMO		M. Kardasis, Greece	253	LDI		D. Lehmann, Germany	3
KSF		S. Karge, Germany	166	LPD	01	P. Lemarchand, France	49

Table 3. AAVSO Observers, 2008–2009, cont.*

Code	Org.	Name	No. Obs.
LNZ		G. Lenz, LA	101
LJL		J. Leonard, IL	12
LEV		A. Leveque, CA	147
LVY		D. Levy, AZ	23
LIW		W. Liller, Chile	9
LMK		M. Linnolt, HI	388
LCO		C. Littlefield, IN	19
LSZ		S. Liu, China	16
LLZ	03	L. Liziczai, Hungary	236
LTE		T. Lloyd Evans, England	1585
LOB	06	J. Lobo-Rodriguez, Spain	635
LRY		R. Lorenz, AZ	9
LRD		D. Loring, UT	844
LDS	20	D. Loughney, England	2
LMJ	17	M. Luostarinen, Finland	375
MAMB		A. Maasho, TN	2
MDW	27	W. MacDonald, Canada	4901
MDD		P. Madden, LA	24
MMT	17	M. Maenpaa, Finland	9
MLI		L. Maisler, NY	51
MDAV		D. Majors, CA	37
MVO	17	V. Makela, Finland	85
MUQ		D. Manousos, Greece	1
MKE		B. Manske, WI	2
MGK		G. Maravelias, Greece	216
MRMA		R. Maravillas, NJ	2
MBOA		B. Marinov, Bulgaria	11
MFB	01	F. Mariuzza, Italy	101
MKW		A. Markiewicz, Poland	749
MMN	18	M. Martignoni, Italy	86
MYC		C. Martin, NE	7
MDBA		D. Martin, AZ	2
MMG		M. Martinengo, Italy	12
MRX	02	H. Marx, Germany	819
MQI		M. Matesic, Croatia	29
MTH		H. Matsuyama, Australia	11432
MFE	13	C. Mattos, Brazil	5
MPR	30	P. Maurer, Germany	376
MGE		G. Mavrofridis, Greece	2530
MAZ		M. Mazurek, AZ	9
MBE		B. McCandless, MD	676
MUE		R. McDaniel, TX	440
MDP	27	P. McDonald, Canada	1523
MGH	20	H. McGee, England	1099
MKSA		K. Meagher, MD	4
MEP		D. Medicis, NY	272
MED	20	K. Medway, England	1683
MHI		H. Menali, MA	71
MJLE		J. Menke, MD	23
MQB		N. Mennekens, Belgium	3
MZK		K. Menzies, MA	14148
MBO	28	I. Merhebi, Lebanon	3
MXH		J. Meriaux, CA	1
MEZ	03	C. Mezosi, Hungary	16
MTK		T. Michalik, VA	39
MOK	08	O. Midtskogen, Norway	118
MVH		V. Mihai, Romania	135
MDWA		D. Miles, MD	1
MXL	20	R. Miles, England	84
MIW	20	I. Miller, Wales	18612
MLL		J. Miller, MD	2
MSCO		S. Miller, AZ	1
MZS	03	A. Mizser, Hungary	278
MCE		E. Mochizuki, Japan	21
MRV		R. Modic, OH	18
MHH		J. Moehlmann, PA	628
MQE		K. Mogul, GA	2412
MOD		D. Mohrbacher, OH	67
MPV	03	P. Molnar, Hungary	113
MOZ		Z. Molnar, Romania	9
MLF	10	L. Monard, South Africa	4638
MMOI		M. Montero Reyes Ortiz, Bolivia	17
MXO		C. Montes, Philippines	4
MJOH	20	J. Moore, England	892
MEV	01	E. Morelle, France	66655
MOI	01	E. Morillon, France	628
MOW		W. Morrison, Canada	4980
MPS	27	P. Mozel, Canada	88
MMH		M. Muciek, Poland	23
MBQ		B. Mullin, MN	11
MJV		J. Murray, OH	11
MUY	05	E. Muyllaert, Belgium	3108
MGW		G. Myers, CA	1031
NDQ	01	D. Naillon, France	286
NDA		D. Nance, AL	1
NLX	14	P. Nelson, Australia	8318
NAL	03	A. Nemes, Hungary	145
NBB		B. Neuman, VT	3
NAR		A. Neumann, NC	1
NJO	02	J. Neumann, Germany	1851
NMI		M. Nicholas, AZ	70
NMR	20	M. Nicholson, England	307
NHS	11	H. Nielsen, Denmark	33
NFD	04	F. Nieuwenhout, Netherlands	214
NMT		M. Nissinen, Finland	120
NCH		C. Norris, TX	31
NAO		A. Novichonok, Russia	11
NKL		K. Nuber, Germany	191
NAN		A. Nygaard, England	65
OCX		L. O'Connor, MA	39
OCN	27	S. O'Connor, Bermuda	115
ONJ		J. O'Neill, Ireland	90
OSN		S. Oatney, KS	101
OWJ		W. Obuchowicz, Poland	14
OES		D. Oesper, WI	3
OSL		S. Ogalde, Chile	15
OYE		Y. Ogmen, North Cyprus	14178
OAR	17	A. Oksanen, Finland	9702
OPF		P. Olver, Australia	34
OAD		A. Ormsby, MI	87
OJJ		J. Ott, CO	1722
OCR	05	C. Otten, Belgium	290
OMIA		M. Overacker, VA	4
ORAA		R. Owen, NC	11
OEH		E. Ozturk, Turkey	58
PSD		S. Padovan, Spain	964
PLN		L. Pagel, Germany	154
PLP		L. Palazzi, Italy	1202

Table 3. AAVSO Observers, 2008–2009, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
PPS	03	S. Papp, Hungary	3062	RFC		F. Rodriguez Bergali, Spain	390
PREA		R. Paret, France	1	RMU	06	M. Rodriguez Marco, Spain	852
PTQ		T. Parson, MN	1619	ROE		J. Roe, MO	12682
PCG		J. Pascual Gutierrez, Spain	4	RES		E. Romas, Russia	3
PJJ	15	J. Pastor, Spain	2	ROG		G. Ross, MI	210
PKV		K. Paxson, TX	538	RGN		G. Rossi, Italy	40
PTX		T. Peairs, VT	14	RAFA		A. Roussell, Canada	14
PKL		K. Pearson, VA	7	RCJA		C. Roussell, Canada	28
PBT		R. Pearson, VA	12	RR		R. Royer, CA	1
PEI	11	E. Pedersen, Denmark	86	RGY		G. Rubright, PA	7
PEG	01	C. Peguet, France	623	RJV	30	J. Ruiz Fernandez, Spain	194
PWD		W. Pellerin, TX	21	RPH		H. Rumball-Petre, CA	1
PGWA		G. Peterson, Canada	41	RTH		T. Rutherford, TN	119
PHB		H. Peterson, RI	1	RUJ		J. Ruthroff, IN	93
PVA	27	V. Petriew, Canada	1	RZM		M. Rzepka, Poland	2097
PXR	20	R. Pickard, England	3508	SJD		J. Sabia, PA	72
PKI		O. Piechowski, KY	29	SRIC		R. Sabo, MT	12404
PROC		R. Pieri, France	11	SJQ		A. Sajtz, Romania	370
PUWA		U. Pilz, Germany	1	SSU		S. Sakuma, Japan	1143
PLQ	01	L. Pinatelle, France	372	SJAV		J. Salas, Spain	3
PGU	18	G. Pinazzi, Italy	18	SVI		M. Sallman, MN	611
PPL		P. Plante, OH	218	SQL	26	R. Salvo, Uruguay	1
PAW		A. Plummer, Australia	4518	SAH		G. Samolyk, WI	52496
AST	12	R. Podesta, Argentina	33	SXY		A. Sankowski, Poland	3
PRX		R. Poklar, AZ	5618	SGX	03	G. Santa, Hungary	245
PMO	10	M. Poll, South Africa	33	STC		G. Santacana, PR	17
PMV		M. Popescu, Romania	72	ASN		A. Santerne, France	1
PWR		R. Powaski, OH	11	SSIM		S. Santini, Italy	1
PSEA		S. Powers, CA	2	SGE	27	G. Sarty, Canada	10
POX		M. Poxon, England	469	STMA		T. Sauer, Germany	693
PYG		G. Poyner, England	12044	SVA		A. Saw, Australia	174
PAH		A. Price, MA	9	SDAV		D. Scanlan, England	156
POB		R. Price, England	83	SDY	02	D. Scharnhorst, Germany	75
PMB		M. Prokosch, TX	18	SFS		S. Schiff, VA	50
PUJ	06	F. Pujol-Clapes, Spain	683	SPK	01	P. Schmeer, Germany	9
PKU		K. Pukero, Finland	90	SUF		C. Schneider, CA	34
PHG		H. Purucker, Germany	341	SKEA		K. Schneyer, RI	1
QJK	03	J. Qvam, Norway	36	SQE		R. Schoenstene, IL	12
RJB		J. Rachlin, MA	25	SFRA		F. Schorr, GA	504
RKE	02	K. Raetz, Germany	502	SGLE		G. Schrader, Australia	86
RWA		W. Rauscher, PA	25	SYU	02	M. Schubert, Germany	524
RRD	14	R. Rea, New Zealand	77	SAND	02	A. Schumann, Germany	63
RFA		F. Reichenbacher, AZ	54	SRIH		R. Schwartz, WA	4793
RZS	03	Z. Reiczigel, Hungary	4	SJEA	01	J. Sciolla, France	22
REP	24	P. Reinhard, Austria	583	SRYA	27	R. Scott, Canada	46
RFP	13	P. Reis-Fernandes, Brazil	13	SANI		A. Semien, LA	16
RMQ		M. Reszelski, Poland	28	SSHA		S. Shaffer, WY	108
RNA	03	N. Rezsabek, Hungary	4	SHS		S. Sharpe, Canada	3234
RJG		J. Ribeiro, Portugal	2234	SDP		D. Sharples, NY	11
RBJ		J. Richards, Wales	6	SSA		A. Sharpless, WA	18
RNO		N. Richardson, GA	4	SFY	20	J. Shears, England	4753
RIJ		S. Riley, CT	62	SHW		W. Sherman, TX	159
RRJ		R. Rios, CA	2	SLH		L. Shotter, PA	1177
OJR	30	J. Ripero Osorio, Spain	1894	SUY		A. Shoup, OH	1000
RIV		M. Rivera, Italy	164	SSER		S. Shurpakov, Belarus	18
RLJA		L. Robert, France	9	SJAK		J. Sibielak, Ireland	1
RCW		C. Robertson, KS	399	SRWA		R. Sikes, MA	2
RZD	06	D. Rodriguez, Spain	31	SPAO	18	P. Siliprandi, Italy	401
RHE	26	H. Rodriguez, Uruguay	244	SGEO		G. Silvis, MA	58

Table 3. AAVSO Observers, 2008–2009, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
SNE		N. Simmons, WI	398	SWV		D. Swann, TX	410
SXN		M. Simonsen, MI	3538	SSW		S. Swierczynski, Poland	2428
SANG		A. Sing, Philippines	130	SAO	03	A. Szauer, Hungary	108
SGOR		G. Sjoberg, MA	6117	SXB		M. Szczerba, Poland	1
SDN		D. Slauson, IA	8	SILD	03	I. Szeitz, Hungary	1
SALX		A. Smirnov, Russia	14	TUO		U. Tagliaferri, Italy	67
SJX	10	J. Smit, South Africa	176	TSH		S. Taheran, TX	18
SMI		A. Smith, England	9	TDB	27	D. Taylor, Canada	919
SDEW		D. Smith, OK	15	TJOA		J. Taylor, OR	13
SJE		J. Smith, CA	52	TNX	14	N. Taylor, Australia	33
SUI		R. Smith, England	75	TPV		P. Temple, NM	4
STAK		T. Soejima, Japan	9	TJV		J. Temprano, Spain	1179
SKA	16	K. Sokolovsky, Germany	32	TPS	03	I. Tepliczky, Hungary	990
SGYO	03	G. Soponyai, Hungary	365	TFM		F. Teyssier, France	4558
SYP		P. Soron, Canada	50	TTU		T. Tezel, Turkey	27
SOW	17	J. Sorvari, Finland	7	TBRA		B. Tobias, TX	2
SJOS		J. Spampinato, PA	1	TRL		R. Togni, AR	42
SJZ		J. Speil, Poland	2062	TRE		R. Tomlin, IL	122251
SMUS	27	M. Spicer, Canada	2	TST		S. Toothman, OH	2
SC	27	C. Spratt, Canada	54	TVM		V. Torres, Spain	692
SXR	03	M. Sragner, Hungary	10	TAV	03	A. Tozser, Hungary	8
SBL	05	B. Staels, Belgium	33146	TFR		F. Travaglino, Italy	195
SDAR		D. Stanford, CA	240	TWA		W. Travis, MA	23
SVAE		V. Stanimirov, Bulgaria	5	TRF		C. Trefzger, Switzerland	25
STR		R. Stanton, CA	160	TDW		D. Trowbridge, WA	30
SDB		D. Starkey, IN	1392	TJC		J. Truax, MI	6
SALE	09	A. Staroverov, Ukraine	25	TRX		R. Truta, Romania	5
SPET		P. Starr, Australia	5041	TSJ		S. Tsuji, Japan	26
SJAT		J. Starzomski, Poland	3	TXA		A. Tudorica, Romania	2
STAS		T. Stebler, Switzerland	17	TYS		R. Tyson, NY	811
STF		G. Stefanopoulos, Greece	116	UVR		V. Uher, PA	3
STI		P. Steffey, FL	685	UOS		O. Urquidi, Bolivia	1
SWIL		W. Stein, NM	15474	URS		R. Uyematsu, FL	5
SVR		R. Stencel, CO	1	VFR	01	F. Vaclic, Czech Republic	7
SET		C. Stephan, FL	1022	VLN	01	L. Vadrot, France	104
SBAR		B. Stepinski, Poland	11	BVE	04	E. Van Ballegoij, Netherlands	2324
SJNO	03	J. Stickel, Hungary	251	VBR		H. Van Bemmel, Canada	92
SRB		R. Stine, CA	1105	VDE	04	E. Van Dijk, Netherlands	8
SOX		C. Stockdale, Australia	4433	VNL	05	F. Van Loo, Belgium	1161
STQ		N. Stoikidis, Greece	208	VSH	05	H. Van Sebroeckx, Belgium	28
SDI	20	D. Storey, England	253	VUG	04	G. Van Uden, Netherlands	194
SFU	14	M. Streamer, Australia	75	VWS	05	J. Van Wassenhove, Belgium	281
SNJ		N. Stritof, Slovenia	15	VWA		A. Van Werven, FL	2
SHZ	02	H. Struever, Germany	9	VBH	05	H. Vandenbruaene, Belgium	9
SRX	14	R. Stubbings, Australia	9120	VAEA		A. Vandusen, IN	2
SUK		M. Stuka, CA	6	VSD	05	D. Vansteelant, Belgium	24
SUS	02	D. Suessmann, Germany	695	VKN		K. Vardijan, Croatia	2
SJAR	17	J. Suomela, Finland	505	VMG		M. Vargas, Portugal	2

** Totals do not include historical data (data preceding fiscal 2008–2009) submitted during 2008–2009.*

Table 3. AAVSO Observers, 2008–2009, cont.

These codes, which appear in the Table (AAVSO Observers 2007–2008), indicate observers are also affiliated with the groups below:

01 Association Française des Observateurs d'Étoiles Variables (AFOEV)
02 Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV) (Germany)
03 Magyar Csillagàszati Egyesület, Valtózocsillag Szakcsoport (Hungary)
04 Koninklijke Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands)
05 Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)
06 Madrid Astronomical Association M1 (Spain)
08 Norwegian Astronomical Society, Variable Star Section
09 Ukraine Astronomical Group, Variable Star Section
10 Astronomical Society of Southern Africa, Variable Star Section
11 Astronomisk Selskab (Scandinavia)
12 Liga Ibero-Americana de Astronomia (South America)
13 Brazilian Observational Network REA
14 Royal Astronomical Society of New Zealand, Variable Star Section
15 Agrupacion Astronomica de Sabadell (Spain)
16 Association of Variable Star Observers "Pleione" (Russia)
17 URSA Astronomical Association, Variable Star Section (Finland)
18 Unione Astrofili Italiani (Italy)
20 British Astronomical Association, Variable Star Section
21 Israeli Astronomical Association, Variable Star Section
23 Grupo Astronomico Silos (Spain)
24 Astronomischer Jugendclub (Austria)
26 Red de Observadores (Montevideo, Uruguay)
27 Royal Astronomical Society of Canada
29 Asociacion Amigos de la Astronomia (Argentina)

Table 4. Observation statistics for fiscal year 2008–2009.*

Observations (increments of 1000)	*No. Observations per increment*	*% of All Observations*	*No. Observers per increment*
1-999	82256	7	628
1000-1999	53796	5	37
2000-2999	45369	4	19
3000-3999	38282	3	11
4000-4999	63492	6	14
5000-5999	28098	3	5
6000-6999	19448	2	3
7000-7999	22165	2	3
8000-8999	8318	1	1
9000-9999	28173	3	3
10000+	707958	65	21

** Totals do not include historical data (data preceding fiscal 2008–2009) submitted during 2008–2009.*