AAVSO

The American Association of Variable Star Observers

Annual Report
2009–2010

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Annual Report Website:
http://www.aavso.org/aavso/annualreports.shtml

On the cover...

Early on the morning of January 28, 2010, AAVSO observers Barbara Harris and Shawn Dvorak detected a rare outburst of the recurrent nova U Scorpii, which set in motion satellite observations by the Hubble Space Telescope, Swift gamma-ray satellite, and the Spitzer Space Telescope. One of the remarkable things about this outburst was that it was predicted in advance by Dr. Bradley Schaefer, Louisiana State University, so observers of the AAVSO had been closely monitoring the star since February 2009, waiting to detect the first signs of an eruption.

Recurrent novae are of particular interest to scientists because they may represent a stage in the evolution of close binary systems on their way to becoming Type Ia supernovae. As mass builds up on the white dwarf, the tipping point—the Chandrasekhar limit—may eventually be reached. Once a white dwarf exceeds this mass it will collapse into a Type Ia supernova.

Shown on the cover are Barbara Harris (top left) and Shawn Dvorak (top right); below them is Barbara Harris' discovery image of U Sco (center of image).

Barbara Harris is shown with her Meade 16-inch LX 200 reflector; Astrophysics 1200 mount; FLI Proline Dream Machine, 1024 x 1024 SiTE chip, back illuminated camera; inside a 10 ft. Technical Innovations ProDome observatory.

Shawn Dvorak's equipment comprises an LX200 10-inch reflector with dew shield and counterweights; attached at the focus is an SBIG ST9-XE with a 3-position filter holder; the laptop is the Windows XP-based system that controls the telescope using Cartes du Ciel and ASCOM drivers, and the CCD using MaxIm DL. All of the equipment sits in a 10' x 12' roll-off observatory in his backyard.

Picture credits

In additon to images from the AAVSO and its archives, the editors gratefully acknowledge the following for their image contributions: Glenn Chaple, Shawn Dvorak, Mary Glennon, Bill Goff, Barbara Harris, Mario Motta, NASA, Gary Poyner, Msgr. Ronald Royer, the Mary Lea Shane Archives of the Lick Observatory, Chris Stephan, and Wheatley, et al. *2003,* MNRAS, *345, 49.*

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AAVSO

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1. About the AAVSO

Participants in the AAVSO's 99th Annual Meeting, 2009

AAVSO Vision

The AAVSO seeks to be the world-recognized leader in information and data on variable stars.

The AAVSO's Mission

The AAVSO is an international non-profit organization of variable star observers whose mission is:

- to observe and analyze variable stars
- to collect and archive observations for worldwide access
- to forge strong collaborations between amateur and professional astronomers
- to promote scientific research and education using variable star data.

About the AAVSO

The American Association of Variable Star Observers (AAVSO) is a non-profit worldwide scientific and educational organization of amateur and professional astronomers who are interested in stars that change in brightness—variable stars.

The AAVSO was founded in 1911 to coordinate variable star observations—made largely by amateur astronomers—for Harvard College Observatory. The AAVSO was incorporated in the Commonwealth of Massachusetts in 1918 as a non-profit scientific and educational organization. Today, as an independent, private research organization headquartered in Cambridge, Massachusetts, with members and observers in 52 countries, and an archive of over 19.8 million variable star observations, it is the world's largest association of variable star observers.

Membership in the AAVSO is open to anyone—professionals, amateurs, and educators alike—interested in variable stars and in contributing to the support of valuable research. Professional astronomers have neither the time nor the telescopes needed to gather data

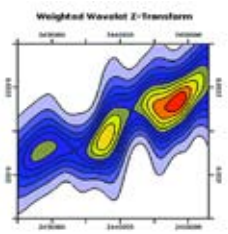
on the brightness changes of thousands of variables, and amateurs make a real and useful contribution to science by observing variable stars and submitting their observations to the AAVSO International Database.

What We Do

The AAVSO coordinates, evaluates, compiles, processes, publishes, and disseminates variable star observations to the astronomical community throughout the world.

Observers send their data to Headquarters, where they are checked, processed, and added to the AAVSO International Database. The AAVSO and its observers frequently provide the professional community with archival data, intensive monitoring of interesting variable stars, and target-of-opportunity event notification for coordinated observing campaigns and satellite observations.

AAVSO publications provide the astronomical community with valuable information. The type of published information is diverse, and includes *The Journal of the AAVSO*, a peer-reviewed collection of scientific papers focused on variable stars, the *Manual for Visual Observing*, now available in eight languages, the *CCD Observing Manual*, the quarterly *AAVSO Newsletter*, the *Eclipsing Binary and RR Lyrae Ephemerides*, and the A*AVSO Annual Report*.



Additionally, the AAVSO is actively involved in education and outreach. We have several programs designed to assist with disseminating information to educators and the public.

The AAVSO has an active Mentor Program that is available to any observer requesting personal instruction in observing techniques and methods.

The Speakers Bureau is a service established for people and groups looking for enthusiastic, knowledgeable speakers.

Our Presentation Library offers free POWERPOINT™ presentations on variable stars, observing techniques, and other astronomical topics.

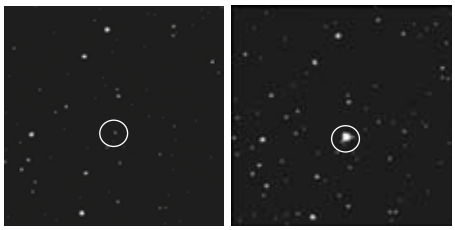
Our Writers Bureau offers variable star and topical astronomy content on a monthly basis to editors of astronomy club and society newsletters.

Variable Star Astronomy (VSA) is a flexible set of hands-on educational materials, activities, and investigations, based on the AAVSO's unique electronic database of variable star measurements.

Members and observers have a unique opportunity to present and exchange ideas at the AAVSO meetings. The AAVSO organizes two meetings a year, one in the fall and one in the spring. The fall meeting is the official AAVSO annual meeting that is always held at or near the AAVSO Headquarters in Cambridge, MA. The spring meeting is held outside of the state of Massachusetts with the intention of attracting more members and observers to attend. Everyone interested in the AAVSO and its activities is invited and encouraged to participate in these exciting events.

What Are Variable Stars?

Variable stars are stars that change brightness. The brightness changes of these stars can range from a thousandth of a magnitude to as much as twenty magnitudes over periods of a fraction of a second to years, depending on the type of variable star. Over 150,000 variable stars are known and catalogued, and many thousands more are suspected to be variable.



The variable star U Geminorum in its faint state (left) and its bright state (right)

There are a number of reasons why variable stars change their brightness. Pulsating variables, for example, swell and shrink due to internal forces. An eclipsing binary will dim when it is eclipsed by a faint companion, and then brighten when the occulting star moves out of the way. Some variable stars are actually extremely close pairs of stars, exchanging mass as one star strips the atmosphere from the other.

The different causes of light variation in variable stars provide the impetus for classifying the stars into different categories. Variable stars are classified as either intrinsic, wherein variability is caused by physical changes such as pulsation or eruption in the star or stellar system, or extrinsic, wherein variability is caused by the eclipse of one star by another, the transit of an extrasolar planet, or by the effects of stellar rotation.

Why Observe Variable Stars?

Variable stars need to be systematically observed over decades in order to determine their long-time behavior. Professional astronomers have neither the available time nor the

unlimited telescope access needed to gather data on the brightness changes of thousands of variable stars. Thus, it is amateur astronomers utilizing visual, photographic, photoelectric, and CCD techniques who are making a real and highly useful contribution to science by observing variable stars and submitting their observations to the AAVSO International Database. These important data are needed to analyze variable star behavior, to schedule satellite observations of certain stars, to correlate data from satellite and ground-based observations, and to make computerized theoretical models of variable stars possible.

Research on variable stars is important because it provides information about stellar properties, such as mass, radius, luminosity, temperature, internal and external structure, composition, and evolution. Some of this information would be difficult or impossible to obtain any other way. In many cases, it is the nature of the variability that provides the clues to the answers. This information can then be used to understand other stars.

Variable stars continue to play a crucial role in our understanding of the universe. Cepheid variables have played a major part in determining distances to far-away galaxies and determining the age of the Universe. Mira variables give us a glimpse into the future evolution of our own star, the Sun. Accretion disks in cataclysmic variables help us to understand larger scale disk behavior, like the activity inside active galaxies with super-massive black holes. Supernovae have led us to the surprising realization that the expansion of the Universe is accelerating. Even the search for extra-terrestrial life is illuminated by variable stars. Transiting extrasolar planets provide clues into the processes of planetary formation, and the very stuff life as we know it is made of comes from the hearts of stars that explode in the final stages of their evolution.

The AAVSO International Database

The AAVSO International Database has over 19.8 million variable star brightness estimates going back over one hundred years. It is the largest and most comprehensive digital variable star database in the world. Over 1,000,000 new variable star brightness measurements are added to the database every year by over 700 observers from all over the world.

Quality

The AAVSO International Database is not only the largest but also the highest quality database available to researchers. The AAVSO and its technical staff spend more time and resources on database maintenance and quality control than any other organization.

Quality control begins before the observation is even made. Extensive training materials are sent to new AAVSO observers and a large section of the AAVSO website is designed specifically for observing techniques. The AAVSO holds two meetings per year where

members come together to discuss their observing strategies, compare results, and much more. Workshops are routinely held at these meetings, bringing the best professionals in the field in contact with the observers. Since 2000, workshops have been held on CCD imaging, Eclipsing Binary star observing, GRB afterglow hunting, data mining, and data analysis. The AAVSO also has an active mentoring program for new observers.

We have data entry error checks at every stage in the process. Whether the observer is using WebObs, PCObs, or sending their data in via e-mail, we have error checking routines running to automatically identify the most common data entry errors. In addition, every month we comb through all the observations using both human scrutiny and automated programs to look for misidentifications, typos, and any other errors. The best check, however, is the observers themselves who check their submitted data by using the Quick Look file, Light Curve Generator, and by comparing their own records with their observations in the AAVSO International Database.

Data validation ensures the quality of our permanent archives

This practice is what really separates AAVSO data from others. Every data point that comes from the AAVSO International Database has been validated—that is, put through a rigorous system of data integrity checks. This system involves running automated programs and also requires a human being to actually look at and validate each data point. Not a point gets through the system without being looked at by a real person. This combination of techniques takes advantage of the benefits that both humans and automation can bring to the process, and it is applied not only to new observations, but also to every observation in the database, even the ones made a century ago.

Observers

The AAVSO International Database would not exist without the dedication, tireless effort, and enthusiasm of thousands of variable star observers. Our observers come from all over the world. Over two-thirds of AAVSO observers contributing data come from outside of the United States.

Mary Glennon, AAVSO member-observer since 1999

Thanks to this broad network of observers we have coverage across most time zones and latitudes regardless of weather or other regional disruptions. To make it easier for the widely-scattered AAVSO members and observers to gather together in person, the AAVSO meetings held every spring or summer take place in different parts of the United States or, as often as possible, in different countries.

The AAVSO receives observations from members of other variable star observing associations around the world for inclusion in the AAVSO International Database and dissemination to the astronomical community worldwide. These observations are sent regularly by the group leader/representative or directly by the group members themselves. The AAVSO values these fruitful, mutually beneficial collaborations, and truly appreciates the ongoing efforts of everyone involved in working together for the benefit of the astronomical community.

Access

Observations from the database are available to anyone at anytime. For raw observations, simply fill out our online request form. For access to light curves, use our Light Curve Generator which works in all browsers (you do not need JAVA or any special plug-ins), and for really quick access to recent data, visit our Quick Look file. Our online systems are updated every ten minutes with the latest data.

Observing Variable Stars

Astronomy is a unique science that cannot be studied in a typical laboratory setting here on earth. Instead, astronomers turn their attention and telescopes to the sky in order to study their subjects. Since professional astronomers often do not have the telescope time needed to follow a particular star or group of stars, the dedication of amateur astronomers is often an invaluable means of collecting information. Nowhere is this more true than in the field of variable star astronomy. Since 1911, thousands of amateur astronomers from all over the world and from all backgrounds have contributed observations, one at a time, to make up the more than 19.8 million data points housed in the AAVSO International Database!

Anyone can be a variable star observer. All you really need to begin observing are:

- your unaided eyes, a pair of binoculars, or a telescope
- some variable star charts to help you navigate your way through the sky
- some basic instructions
- a little patience

For those interested in observing activity on our closest star, the sun, or a particular type of variable, such as the Eclipsing Binary and RR Lyrae type stars, or if hunting for novae, supernovae, or optical counterparts to energetic Gamma-Ray Bursts strikes your fancy, we have observing programs designed to help satisfy your appetite.

The AAVSO Mentor Program is available to all observers to assist newcomers in the methods and techniques of visual variable star observation, as well as CCD and PEP observation.

Msgr. Ron Royer, AAVSO member observer since 1953

Services to Astronomy

Mario Motta, M.D., an AAVSO member-observer since 1985, at his 32-inch telescope

The AAVSO provides a wide range of services to the astronomical community. AAVSO International Database data are disseminated extensively to astronomers around the world, upon request, and are freely available from the AAVSO website. AAVSO data and services have been used, referenced, and acknowledged in hundreds of professional astronomical publications.

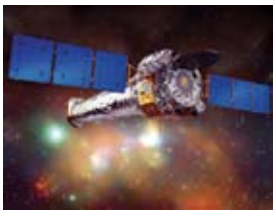
Services to Astronomers

AAVSO services are sought by astronomers for the following purposes:

- real-time, up-to-date information on unusual stellar activity
- scheduling of variable star observing programs coordinating earth-based large telescopes and instruments aboard satellites
- simultaneous optical observations of program stars and immediate notification of their activity during earth-based or satellite observing programs
- correlation of AAVSO optical data with spectroscopic, photometric, and polarimetric multi-wavelength data
- collaborative statistical analysis of stellar behavior using long-term AAVSO data

Collaboration between the AAVSO and professional astronomers for real-time information or simultaneous optical observations has enabled the successful execution of hundreds of observing programs using satellites such as:

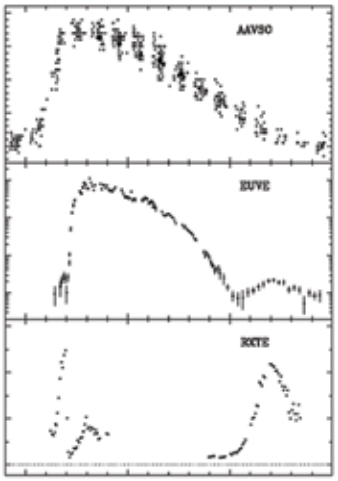
- Hubble Space Telescope
- Chandra X-Ray Observatory
- Spitzer Space Telescope
- XMM-Newton X-Ray Observatory
- Extreme Ultraviolet Explorer
- High Energy Astronomical Observatories 1 and 2
- International Ultraviolet Explorer
- Roentgen Satellite
- European X-Ray Observatory Satellite
- High Precision Parallax Collecting Satellite (HIPPARCOS)



AAVSO services have been used by researchers affiliated with such satellites as Chandra, XXM, RXTE, FUSE, HST, Spitzer, and many more

A significant number of rare events have been observed with these satellites as a result of timely notification by the AAVSO.

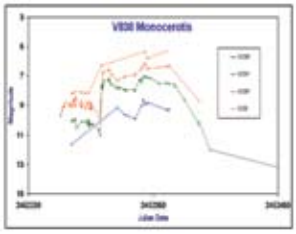
1. About the AAVSO



With the outburst detected by AAVSO Observers, simultaneous AAVSO visual, EUVE, and RXTE observations of SS Cygni were triggered, providing astronomers with important information about the behavior of dwarf novae (from Wheatley et al. *2003, MNRAS, 345, 49)*

In recent years, the SWIFT satellite has been sending real-time notification to ground- based observers in the AAVSO High-Energy Network to alert them of Gamma-Ray Bursts (GRBs). Several GRB optical afterglows have been detected by AAVSO observers. In this way, AAVSO observers are contributing to cutting-edge, high-energy astrophysics.

Services to Observers and Members



The AAVSO enables variable star observers to contribute vitally to variable star astronomy by accepting their observations, incorporating them into the AAVSO International Database, publishing them, and making them available to the professional astronomer. Incorporating an observer's observations into the AAVSO archives means that future researchers will have access to those observations, so the observer is contributing to the science of the future as well as the present.

The AAVSO coordinates observing campaigns between professional and amateur astronomers, in which observations from amateur astronomers play an important role in correlating observations obtained with special instruments at earth-based observatories or aboard satellites.

On request, the AAVSO will help set up an appropriate observing program for an individual, an astronomy club, an elementary school, a high school, college, and so forth. In this way observers, students, and faculty are able to make the best use of their resources to do valuable science. The AAVSO can also assist in teaching observing techniques and in suggesting stars to be included in a program through the AAVSO Mentor Program.

Gary Poyner, AAVSO member-observer since 1991, with his 14-inch telescope

Education and Outreach

The AAVSO believes that Education and Outreach are important to our mission:

- to attract, train, and retain new variable star observers and members of all ages
- to increase awareness, understanding, and appreciation of variable star astronomy and variable star observing among amateur and professional astronomers, educators, students, and the general public
- to improve science education and literacy through the unique power of variable stars and variable star observing to motivate students, young and old.

Projects, Programs, and Activities

The AAVSO Writers Bureau offers variable star and topical astronomy content on a monthly basis to editors of astronomy club and society newsletters. This gives us the chance to inform the public about the fascinating objects we study, as well as the science and research being done, while providing reliable, accurate information to newsletter editors who may lack the time or expertise to write or vet articles for publication.

The AAVSO has much experience in hosting successful educational lectures such as the series of High-Energy Astrophysics Workshops for Amateur Astronomers

The AAVSO Mentor Program connects experienced observers with new observers to assist them in observing, recording, and reporting observations of variable stars to the AAVSO International Database.

The Speakers Bureau is a service established for people and groups looking for enthusiastic, knowledgeable speakers to provide informative presentations for astronomy clubs, star parties, banquets, Scout Troops, Astronomy Day activities, and other public and private astronomy functions.

Our Presentation Library contains POWERPOINT™ presentations on variable stars, observing techniques and other astronomical topics. These are available free to the to use in making your own presentations.

1. About the AAVSO

Variable Star Astronomy (VSA) is an AAVSO educational project, originally developed as *Hands-On Astrophysics* (HOA) with funds from the National Science Foundation. It is a flexible set of hands-on educational materials, activities, and investigations, based on the AAVSO's unique electronic database of variable star measurements. Students will be able to experience the excitement of doing real science with real data! By carrying out all aspects of the research process, they can develop and integrate skills in science, math, computing, and other areas. VSA has been converted to a web-based format and is available via the AAVSO website (http://www.avso.org/educations/vsa).

VStar is the software that accompanies the activities for VSA. The original DOS-based programs have been ported to a Java platform and are being developed as part of the Citizen Sky project, with funding from the National Science Foundation.

Glenn Chaple, AAVSO member-observer since 1980

Chris Stephan, AAVSO member-observer since 1975

Bill Goff, an AAVSO observer since 1981. His telescope is a Planewave 20" CDK with an Apogee U9 camera.

2. The Year in Review

Minutes of the 99th Spring Meeting of the AAVSO, Held April 15–18, 2010, San Rafael, Argentina

Gary Walker, Secretary

The 99th AAVSO Spring Meeting—a South American International AAVSO Meeting and our first on this continent—was held in San Rafael, Argentina, at the Hotel Valle Grande, April 15–18, 2010. So as not to burden Council and the Association with travel expenses to Argentina, the Spring Council meeting was held May 9–11, 2010, in Big Bear, California, instead of preceding the AAVSO Spring Meeting as is customary.

At the AAVSO Spring Meeting were approximately seventy-five attendees from many countries in South America, as well at approximately fifteen members and spouses from North America. The meeting started on Thursday with an invited talk by Sebastian Otero, titled "Introduction to Variable Star Astronomy." This was followed by an Observing Techniques workshop which included several talks covering visual, CCD, and advanced CCD techniques. The workshop was followed by an opening ceremony in the hotel lobby which offered the chance to meet new friends and reacquaint with old ones.

The second day started with Scientific Paper Session 1, which had three papers on variable star observations. Following lunch, a workshop on Data Mining was held. Topics included an introduction to data mining, using the AAVSO International Database, mining for rare variable stars, and tips for using the ASAS-3 database. The workshop was followed by Scientific Paper Session 2, which had three papers: near-infrared observations of Cepheids in the Large Magellanic Cloud, eclipsing binaries, and current hot topics in variable stars. Following dinner, we were invited to join observing and activities for students. There was also guided observing in Amauta Pacha Observatory, adjacent to the grounds of the hotel under the magnificent southern skies of Argentina.

Workshops and paper sessions were held in a tent on the hotel grounds

Meeting attendees visit the Malargüe Planetarium

Saturday morning was free for rest and tourism. Activities included hiking, climbing, touring the local town of San Rafael, and the Hi Wire Rides. After lunch, a workshop on Data Reduction was held covering the subjects of uncertainties, Maxim DL, period search, and Photometrica (now VPHOT). The workshop was followed by Scientific Paper Session 3. Four papers were given covering the topics of variables in the Southern Cross, the Variable Star Section of the Liga Iberamericano de Astronomia (SEV/LIADA), education in astronomy, and new equipment at the Observatorio del Instituto Copernico. The paper session was followed by the Banquet, held in the dining hall of the Hotel Valle Grande and attended by fifty people. Lucas Macri gave the invited talk titled, "Cepheid Variables, the Hubble Constant and Dark Energy." Following this excellent talk, members attended a star party on the grounds, enjoying the southern sky once again.

Sunday was an excursion to Malargue Planetarium and Pierre Auger Cosmic Ray Observatory. This trip gave us a chance to see the countryside, which was very remote—much like a desert and reminded me of my years growing up in Arizona. What would a trip like this be without the traditional flat tire on the bus? This delayed our arrival by nearly an hour (I was just glad that we had a spare tire). After the tour, we all went back to the hotel to pack and reflect on a great meeting.

2010 Spring Council Meeting

The AAVSO Spring Council meeting was held May 9–10, 2010, at the Big Bear Resort, Big Bear, California, in conjunction with the Society for Astronomical Sciences (SAS) Symposium, instead of preceding the AAVSO Spring Meeting as is customary, in order to spare Council and the Association the cost of travel to Argentina.

Along with the ordinary business items, the agenda included important staff issues to resolve, several substantial committee reports, and a hands-on demonstration of the wonderful new AAVSO website that was in development.

Director Arne Henden provided an up-to-the minute summary of pending and rejected grants, which totaled $872,000. It was reported that the International Year of Astronomy (IYA) grant for $794,000 was formally awarded, and that the AAVSO share of that is to be $400,000.

Also reported was that the August 2009 Citizen Sky Workshop at the Adler Planetarium in Chicago was very well received, and that the next workshop is planned for September 2010 at the California Academy of Sciences in San Francisco. The semiannual Director's Report to Council was punctuated by details regarding observation totals for the International Database, the Photometrica (now named VPHOT) data reduction tool and its availability, updates on AAVSOnet assets and their deployment, Bright Star Monitor (BSM) projects, AAVSO Photometric All-Sky Survey (APASS) progress, outcomes from recent travel abroad, future travel plans, observing campaigns, changes at headquarters with respect to computer hardware, the next Janet Mattei Fellow, and the many other projects and initiatives that are on the horizon.

Treasurer Gary Billings presented his report, which included the current totals for the endowment ($12.3 million), operational expenses ($1.14 million), and income ($1.04 million), as well as the current paid membership count of 929. The Treasurer also laid out the projected annual expenses and income for the organization through 2012, showing the expected decline in spending and slow but steady rise on the income side over that time.

After the lunch break, Kate Davis and Rebecca Turner teleconferenced in from headquarters to give Council a demonstration of the work accomplished so far on the new AAVSO website. The new site is being developed using a state-of-the-art content management system, easy for all of the staff to be involved in the creation and integration of content, without having to rely exclusively on the Webmaster to make it happen. The new site sports a completely new and contemporary look and feel, as well as a plethora of new features and content areas, and user-based login to premium and member-only sections. Council was extremely impressed, not only with the work progress, but also with the modern and professional appearance of the site, and the fact that it was orders of magnitude easier to navigate and locate information than on the old site.

Development Director Mike Simonsen gave his report, which was chock full of details regarding membership demographics, corporate sponsorships, charitable bequests, grants, donations, publicity, social media programs, the Mentor Program, Speaker and Writer Bureaus, and more on the new website. Of particular interest was that the AAVSO Facebook page now had well over 1,200 "friends" from all over the world, and that the AAVSO Twitter feed was being followed by nearly 300 people.

Council then spent a large portion of the remainder of the afternoon reviewing some personnel issues and headquarters staff changes. Among the points of discussion making the most impact was the proposal from the Director that (now Dr.) Aaron Price be promoted to Assistant Director and Dr. Matthew Templeton to Science Director, and

that the organizational chart for headquarters staff be reorganized to align specific staff members and their responsibilities under each of these new positions. Council agreed unanimously with that proposal, and that Aaron and Matt were to assume their new roles immediately.

The Decadal Survey of Amateur Astronomy was then discussed by Mike Simonsen. As detailed, the goal of the project is to create a report that will make an assessment of amateur-professional collaborations in astronomy and astrophysics, and to prepare a concise report recommending specific projects and areas of scientifically fruitful pro-am collaborations and studies. It is to be addressed to professional and amateur astronomical organizations, agencies supporting the field, the governmental committees with jurisdiction over the agencies, the general scientific community, and the public at-large. Some brainstorming was done on potential funding sources.

Details of future AAVSO meetings followed, including the organization's Centennial Celebration next year.

Arne and Linda Henden and Gary Walker enjoyed meeting some of the local attendees in Argentina

Papers and posters presented at the Scientific Paper Sessions, April 16–17, 2010

Sebastián Otero	"Introduction to Variable Star Astronomy"
Arne A. Henden	"Current Hot Variable Star Topics"
Rafael Girola Nestor Vinet	"History of Variable Stars"
Raúl Roberto Podestá Maria Dolores Suárez de Podestá	"Activities of the SEV/LIADA"
Alexandre Amorim	"Mira Observations by José Brazilício"
Martin Lunn Lila Rakoczy	"King Charles' Star: A Multidisciplinary Approach to Dating Cassiopeiae A"
Tom Krajci	"Optimizing Opto-mechanical Performance Using Simple Tools and Techniques"
Lucas Macri	"Near-infrared Observations of Cepheid Variables in the Large Magellanic Cloud"
Alexandre Amorim	"Minima of Some Eclipsing Binaries"
Victor Angel Buso	"New Variable Stars in the Southern Cross"
Sebastián Musso	"Didactics on Education in Astronomy"
Eric González	"Starting Research Projects at Buenaventura Suárez Observatory in San Luis Province" (poster)
Jaime García Federico García	"New Equipment for Variable Star Research at the Instituto Copernico Observatory"
Observational Techniques Workshop	
Sebastián Otero	"Visual Observing Techniques"
Jaime García	"An Introduction to CCD Photometry of Variable Stars"
Arne A. Henden	"Advanced CCD Observing Techniques"

continued on next page

papers and posters, cont.

Data Mining in Astronomy Workshop

Michael Koppelman	"An Introduction to Data Mining"
Sebastián Otero	"Tips to Succeed in Using the ASAS-3 Database"
Doug Welch	"Mining for Rare Variable Stars in Photometric Databases"

Data Reduction Workshop

Michael Koppelman	"Uncertainty Analysis in Photometric Observations"
Arne A. Henden	"Using the AAVSO International Database"
Federico García	"How to Use MAXIM DL for CCD Image Reduction"
Jaime García	"Period Search Techniques in Variable Stars"
Michael Koppelman	"An Introduction to PHOTOMETRICA" [now VPHOT]

New Members Accepted at the Spring Meeting, April 15, 2010

Andersen, Steve, WY
S Apostolidis, Kostas, Greece
Aslaksen, Bjorn, Norway
Bahl, Leif, MO
Baldanza, Fulvio, Italy
Bennett, Philip, Canada
Bergert, Byron, FL
Bogatin, Eric, KS
Bruzzone, Raul, France
Burns, Anthony, New Zealand
Clardy, Shannon, AR
Clevenson, Aaron, TX
Creigh, Charles, NV
Cummins, Patrick, MS
Cunningham, Ken, Canada
Daniels, Craig, OR
Davis, Clint, VA
Ellis, Jay, TX
S Fahey, Walter, NE
Fitzgerald, Maurice, TX
Garrett, Ron, Australia
Halderman, Mike, CA
Handler, Gerald, Austria
Hessom, Michael, CA
Holenstein, Bruce, PA
Hutchison, David, TX
Johnson, Richard, MN
Kavanagh, Claudine, MA
Kelly, Mark, CO
Kozyreva, Valentina, Russia
Legg, Roy, OH
S Levine, Stephen, AZ
Liepins, Nick, OR
Lin, Kah Wai, Sweden
Majaess, Daniel, Canada
Martin, Christian, CO

continued on next page

New Members Accepted at the Spring Meeting, cont.

McCoy, Ronald, Australia
McDonald, Richard, Canada
S McDonald, Michael Patrick, VA
Merrill, Dennis, CA
Miller, Bryce, CA
Mills, Byron, Canada
Moon, Darrel, CA
Moore, Caroline, NY
Morel, Mati, Australia
S Morrison, Nancy, OH
Myers, Gary, WA
Novak, Rudolf, Czech Republic
Otero, Sebastian, Argentina
Pastory, Ronald, IA
Penny, Mark, TX
Persha, Gerald, MI
Pleijsier, Hans, Netherlands
Quintale, Jr., Clovis, Brazil
Rich, Douglas, ME
Roadfeldt, Richard, AZ
Sabby, Jeffrey, IL
Sadun, Alberto, CO
S Schuneman, Daniel, Guam
Scott, Michael, UT
S Shaw, Neil, Australia
Smirnov, Evgenii, Russia
Southgate, Eric, Australia
Stefanopoulos, George, Greece
Sykes, James, WA
Taylor, Dan, Canada
Tegon, Antonio, Italy
Thorgren, Hans, Sweden
Wallace, William, CA
Watts, David, MS
Whallon, Nikola, MI

S = *sustaining membership*

Deceased Members, Observers, and Colleagues

Garstang, Roy H., CO
Hirasawa, Yasuo, Japan
Lenz, George F., LA

AAVSO Observer Awards

AAVSO 99th Spring Meeting, Mendoza, Argentina, April 15–28, 2010; awards presented or announced at the 99th Annual Meeting, Woburn, Massachusetts, October 30, 2010

Award/recipient	*Affiliation**	*Country/State*	*Interval*	*Total*
*Over 300,000 Visual Observations**				
none				
*Over 250,000 Visual Observations**				
none				
*Over 200,000 Visual Observations**				
none				
*Over 150,000 Visual Observations**				
Rod Stubbings	14	Australia	1997–2009	173,519
Warren Morrison		Canada	1975–2009	151,028
*Over 100,000 Visual Observations**				
Georg Comello	04	Netherlands	1966–2009	149,612
Steven Sharpe		USA	1973–2009	101,856
*Over 50,000 Visual Observations**				
Stanislaw Swierczynski		Poland	1991–2009	50,578
Hiroshi Matsuyama		Australia	1978–2009	50,010
*Over 25,000 Visual Observations**				
Marino Fonovich		Croatia	1991–2009	40,365
David Levy		USA	1966–2009	37,935
Michael Poxon		England	1976–2009	25,185
*Over 10,000 Visual Observations**				
Tibor Asztalos	03	Hungary	2003–2009	12,528
Brian Cudnik		USA	1993–2009	12,477
Gauke Kuipers	04	Netherlands	1981–2009	11,561
Serge Kuchto	01	France	1985–2009	10,331
Patrick McDonald	27	Canada	1981–2009	10,250

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Observer Awards, cont.

Award/recipient	*Affiliation**	*Country/State*	*Interval*	*Total*
*Over 1,000 Visual Observations**				
Douglas Barrett		France	2007–2009	2,453
Jose Maria Lobo–Rodriguez	06	Spain	1990–2009	1,713
Luigi Palazzi		Italy	2007–2009	1,651
Alexandru Burda		Romania	2003–2009	1,295
Louis Pinatelle		France	2004–2009	1,249
Jon Moehlmann		USA	2006–2009	1,249
Janos Bakos	03	Hungary	2007–2009	1,218
Hans–Georg Purucker		Germany	2006–2009	1,195
Peter Vizi	03	Hungary	2005–2009	1,184
Zoltan Jankovics	03	Hungary	2006–2009	1,090
Christopher Hesseltine		USA	1975–2009	1,048
Michel Jacquesson		France	2002–2009	1,028
Terrill Bartlett		USA	2001–2009	1,018
*Over 100 Visual Observations**				
Salvador Aguirre		Mexico	2006–2009	925
Carlos Arlindo Adib	13	Brazil	2008–2009	854
Larry Wade		USA	1999–2009	748
Eric Blown		New Zealand	2007–2009	455
Gyorgy Soponyai	03	Hungary	2007–2009	367
John Appleyard	27	Canada	2005–2009	235
Erik Hoeg	11	Denmark	1992–2009	170
Yitping Kok	29	Australia	2008–2009	136
Vladut Mihai		Romania	2008–2009	131
Glen Ward		USA	2008–2009	131
Jean–Marc Breard	01	France	2006–2009	127
Jan Konasek		Czech Republic	2008–2009	127
Bogdan Kubiak		Poland	2008–2009	127
Tunc Tezel		Turkey	2000–2009	125
Albert Dandrea		USA	2007–2009	123
Stephen Kinsella	27	Canada	2004–2009	117
Eric Briggs		Canada	2002–2009	116
Sherrill Shaffer		USA	2008–2009	107
Dee Sharples		USA	2000–2009	107
Tor Aslesen		Norway	2006–2009	106

continued on next page

Observer Awards, cont.

Award/recipient	*Affiliation**	*Country/State*	*Interval*	*Total*
Marta Sragner	03	Hungary	1997–2009	105
Mika Maenpaa	17	Finland	2003–2008	101
John Cheng		USA	2003–2009	101
Simiao Cheng		China	2007–2009	100
*Over 300,000 CCD Observations**				
none				
*Over 250,000 CCD Observations**				
none				
*Over 200,000 CCD Observations**				
Ray Tomlin		USA	2006–2009	255,915
Gerard Samolyk		USA	1975–2009	217,316
Shawn Dvorak		USA	1981–2009	209,806
*Over 150,000 CCD Observations**				
none				
*Over 100,000 CCD Observations**				
Richard Huziak	27	Canada	1980–2008	116,082
*Over 50,000 CCD Observations**				
Jerry Bialozynski		USA	2004–2009	65,485
Ian Miller	20	Wales	2007–2009	58,783
Pierre De Ponthiere		Belgium	2003–2009	55,972
Over 25,000 CCD Observations (last year this level to be recognized)*				
James M. Roe		USA	1972–2009	34,790
Walter MacDonald		Canada		27,644
Ken Menzies		USA	1968–2009	25,634
*Over 10,000 CCD Observations**				
William Stein		USA	2008–2009	20,386
Yenal Ogmen		Cyprus	2004–2009	15,577
Richard Sabo		USA	2006–2009	15,066

continued on next page

Observer Awards, cont.

Award/recipient	*Affiliation**	*Country/State*	*Interval*	*Total*
Roger Pickard	20	England	2003–2009	11,733
Brian Warner		USA	1978–2009	10,742
Don Wells		USA	2002–2009	10,366
Alain Bruno	01	France	1981–2009	10,055
*Over 1,000 CCD Observations**				
George Sjoberg		USA	2007–2009	6,244
Peter Starr		Australia	2006–2009	6.080
Peter Armstrong		USA	1984–2009	4,656
Peter Kalajian		USA	2008–2009	3,931
Miguel Rodriguez Marco	06	Spain	1993–2009	3,499
Thomas Grzybowski		USA	2006–2009	3,444
Robert Buchheim		USA	2005–2009	2,918
Terrence Bohlsen	29	Australia	2007–2009	2,491
Richard Schwartz		USA	2007–2009	2,317
Ken Mogul		USA	2007–2009	2,306
Gordon Myers		USA	2007–2009	1,652
Guy Hurst	20	England	1974–2009	1,264
Hazel McGee	20	England	1998–2009	1,222
Eric Morillon	01	France	1988–2009	1,221
Laurent Corp	01	France	1997–2009	1,219
Frank Schorr		USA	2007–2009	1,185
Danny Scharnhorst	02	Germany	1995–2009	1,185
Edward Wiley		USA	2006–2009	1,119
Anthony Shoup		USA	2002–2009	1,000
Over 5,000 PEP Observations*				
none				
Over 2,500 PEP Observations*				
none				
Over 1,000 PEP Observations*				
Jeffrey Hopkins		USA	2006–2009	2,399
Brian McCandless		USA	1981–2009	1,186

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Observer Awards, cont.

Award/recipient	*Affiliation**	*Country/State*	*Interval*	*Total*
Over 100 PEP Observations*				
Thomas Rutherford		USA	2003–2009	137
Gianni Galli		Italy	2000–2009	132

* Years include total AAVSO observing interval (not only PEP/CCD observing).
Total includes only visual or PEP/CCD observations, depending on award.

These symbols 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)
06 Madrid Astronomical Association M1 (Spain)
11 Astronomisk Selskab (Scandinavia)
13 Brazilian Observational Network REA
14 Royal Astronomical Society of New Zealand, Variable Star Section
17 URSA Astronomical Association, Variable Star Section (Finland)
20 British Astronomical Association, Variable Star Section
27 Royal Astronomical Society of Canada
29 Asociacion Amigos de la Astronomia (Argentina)

Minutes of the 99th Annual Meeting of the AAVSO, Held October 28–30, 2010, Woburn, Massachusetts

Gary Walker, Secretary

The 99th Annual Meeting of the AAVSO was held at the Woburn Hilton Hotel in Woburn, Massachusetts, October 28–30, 2010.

AAVSO Council members arrived at AAVSO Headquarters on Wednesday, October 27, 2010, one day ahead of their Annual 2010 meeting (two days ahead of the AAVSO meeting itself) in order to enjoy an informal lunch with the entire headquarters staff and a series of informative presentations from key staff members. These presentations were designed to familiarize Council with staff roles and responsibilities, learn what effect the recent organizational changes are having, and hear details of where the work is being done to reduce costs, streamline processes, secure new grants, support the current grants, and further the mission of the organization. At the conclusion of these presentations, the Council members felt much more connected to the fine people running the show at headquarters, and had a much greater understanding of their challenges and successes. All in all, it was a half-day well spent.

Held the following day, the regular Council meeting was, aside from the traditional agenda items, largely dominated by energetic discussions on the budget for the following year, staffing issues, Centennial Celebration plans, and various reports given to Council by AAVSO staff and volunteers.

Treasurer Gary Billings gave the Treasurer's Report, in which he noted that the endowment now totals $12.4 million, and expenses for the operation of the organization during fiscal year 2009–2010 came in at $1.32 million, against an income of $1.48 million.

Director Arne Henden reported that a total of 151 new members had joined the AAVSO in the previous year, and that there are now 1,147 members on the roles. That was followed by a summary of the status of current and pending grants, as well as proposals that have been submitted, or are in the works. The total dollar amount of all of these grants was reported at $914,000. Assistant Director Aaron Price gave a report to Council on the Observer Certification and Training initiatives underway, and provided a draft outline of how those programs might work. He asked for Council input, and received some very good feedback.

The agenda then turned to the subject of future AAVSO membership meetings. Rebecca Turner, Project Manager and Sponsored Research Officer, gave a report on the progress

of plans for the upcoming Spring 2011 meeting, a large event to be held as a joint meeting with the American Astronomical Society (AAS) at the Westin Copley Place in Boston, May 21–26. Other future meetings reported on included the hotly anticipated AAVSO 100th Annual Meeting and Centennial Celebration in October of 2011, to be held partly at Headquarters in Cambridge and partly at the Hilton in Woburn (the same hotel as the 2010 Annual meeting). Council also debated the locations for the Spring and Annual 2012 meetings.

Aaron Price then returned for an extensive report on the Centennial Celebrations, including plans and goals for the entire time running up to the events of October 2011. Arne Henden presented his abbreviated Director's Report, which included updates on: observation totals for the International Database (now at 19.5 million observations), the completion and launch of the new AAVSO website, progress on headquarters renovations, AAVSOnet, APASS, Citizen Sky, upcoming research fellowships, the Solar Program, and the meeting of the Werkgroep Veranderlijke Sterren (WVS) attended by Arne in the Netherlands earlier that month. Arne also spelled out how AAVSO staff were taking on specific tasks related to AAVSOnet, in order to learn more about the components and procedures of that system and about CCD image capture and image pipeline processing.

The Council then altered the categorization of the Development Director position to Membership Director and Development Officer. AAVSO Past-President Tom Williams, our esteemed volunteer AAVSO historian extraordinaire, then presented Council with an overview of the progress on the centennial history book that he and staff archivist Mike Saladyga are working to complete in the coming year. The book promises to be a comprehensive "tell all" of the origin, progression, growth, and continual transformation of the AAVSO over the past 100 years. The book's release (from Cambridge University Press) will coincide with the organization's 100th anniversary celebrations in 2011.

The Council's final agenda item for the meeting was to take up the task of electing officers for the upcoming term, and chose as President Jaime Garcia, 1st Vice President Mario Motta, 2nd Vice President Jennifer Sokoloski, Treasurer Gary Billings, and as Secretary Gary Walker.

Friday morning started the AAVSO Annual meeting with registration and a hot breakfast buffet, which was a real hit. This gave a chance to meet new friends and reacquaint with old ones. The morning session started with a VStar Workshop by Sara Beck and programmer David Benn (he via Skype from Australia) to show members many of the features of this AAVSO data graphing and analysis program that they might not have known about. The morning session concluded with an invited talk by Doug Welch,

titled, "Picking Topics for Scientific Investigation." Doug gave lots of tips for choosing future endeavors. This talk was followed by a lunch break, and many attendees ventured out in groups to sample the local cuisine.

Lunch was followed by Scientific Paper Session 1. Four papers were given covering the topics of the AAVSO Centennial Calendar, a water tank Observatory, Leon Campbell, and Scientific Literacy. The Paper Session was followed by a Special Session: Road-mapping the Future of the AAVSO. Updates were presented on emerging technologies that are expected to impact variable star observing and the AAVSO. Attendees broke up into teams to brainstorm what the goals and achievements of the AAVSO should be in the coming years, and reported their thoughts to the group. The special session was followed by an open house and dinner buffet at AAVSO Headquarters at 49 Bay State Road in Cambridge. This gave many members a chance to visit and view the new Headquarters, which are a big improvement on—and are located across the street from—the 25 Birch Street facility which we had outgrown. After dinner and conversation, we all boarded busses and cars back to the hotel.

A scene from the scientific paper sessions

Saturday morning started with registration and another hot breakfast buffet. An abbreviated Membership Meeting followed, consisting of the Secretary's minutes, the Treasurer's Report, the Section Reports, and the Director's Annual Report. Many of the details are included in the Council Section and will not be repeated here.

The membership meeting was followed by Scientific Paper Session 2. Three papers were given covering the topics of solar astronomy, Delta Cephei, and RS Sge. The session was followed by an invited talk by Dr. Timothy Slater titled, "What's a Light Curve? Unexpected Reasoning Difficulties When Interpreting Graphs." Tim had some very good examples of

misinterpretations of data. The talk was followed by lunch, and, again, many groups ventured out to sample the local cuisine.

Scientific Paper Session 3 was held after lunch. Four papers were given covering the recurrent nova U Scorpii, Red Giants, late AGB Stars, and the web interface for DASCH. Following this session, two poster papers were presented on A PWM LED Source and Fleming Variables. After a coffee break, Scientific Paper Session 4 followed. This session also presented four papers, covering VSX for the iPhone, Artificial Intelligence for Eclipsing Binaries, Pulsating White Dwarfs, and peculiar W Virginis Stars.

The closing Banquet was held Saturday evening in the Hilton Hotel atrium. Director Arne Henden presented or announced the following awards: special awards of thanks to retiring Solar Committee/Section Chair Paul Mortfield and to retiring Sudden Ionospheric Disturbance (SID) program leader and analyst Michael Hill; a 20-year staff service award to Sara Beck and a fifteen-year staff service award to Rebecca Turner; Variable Star Observer Awards to those observers present from among the eighty-nine observers who earned them; and a Solar Observer Award for SIDs to François Steyn. Director Henden also received a five-year service award from President Jaime Garcia. Included in the Variable Star Observer Awards presented were four new levels designed to encourage new observers: awards for 100 visual observations, 1,000 visual observations, 100 photoelectric photometry (PEP) observations, and 1,000 CCD observations. Following the awards presentations, Dr. Stephanie Slater gave the after-banquet talk titled, "Amateurs Matter: Women's Pathways to Professional Astronomy." After questions and discussion generated by this very lively talk, the meeting was adjourned by President Garcia, and attendees gradually drifted off to their rooms to pack or to gather informally for more conversation.

Secretary's note: Christopher Watson's and Mike Simonsen's substantial contributions to the summaries of the Council meetings included in this report are acknowledged with thanks.

Papers and posters presented at the Scientific Paper Session on Friday, October 29th, 2010

Elizabeth O. Waagen	"The AAVSO Centennial Calendar"
John Pazmino	"The Water Tank Observatory"
Thomas R. Williams	"Leon Campbell and his fifty years at Harvard College Observatory"

Special Session: Roadmapping the Future of the AAVSO

Arne Henden	"AAVSO Futures: 1996–2005"

Papers and posters presented at the Scientific Paper Session on Saturday, October 30th, 2010

Rodney Howe	"Solar Astronomy: Plasma Motion Detection at Radio Frequencies"
David Turner	"Visual Observations of Delta Cephei: Time to Update the Finder Chart"
Jerry Horne	"RS Sge Observations & Preliminary Analyses"
Ashley Pagnotta	"The 2010 Eruption of U Scorpii"
John Percy Emil Terziev	"Irregularly Pulsating Red Giants: Which to Observe, How, and Why"
Qian Wang Lee Anne Willson	"Multiple spiral branches on late AGB stars"
Edward J. Los	"A Web Interface for the DASCH Photometry Database"
Helmar G. Adler	"Simple Pulse-Width-Modulation (PWM) LED Source for Linearity Testing of DSLR Camera Sensor" (poster)

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papers and posters, cont.

Kristine Larsen	"Revisiting the Un-named Fleming Variables" (poster)
John N. Rachlin Mark G. McGettrick	"A variable star database for the iPhone / iPod Touch"
Edward F. Guinan	"Artificial Intelligence (AI) Approaches for Analyzing automatically Zillions of Eclipsing Binary Light Curves"
Paula Szkody	"The Latest Results on Accreting Pulsating White Dwarfs"
Doug Welch Grant Foster	"Analyses of 'Peculiar' W Virginis Stars in the Milky Way"

Kristine Larsen discusses her poster on "Revisiting the Un-named Fleming Variables"

New Members Accepted at the Annual Meeting, October 28, 2010

Adib, Daniel Barrufi, Brazil
Adler, Helmar, MA
S Alzogaray, Amaru, NJ
Amburgey, Leonard, MA
S Anderson, Mary, MI
S Aspin, Colin, HI
Baker, Brandon, CA
S Barker, Philip, MA
Bechdolt, Stephen, MT
Bigi, Michele, Italy
Blane, David, South Africa
Brooks, Craig, MA
Bueltmann, Stephen, VA
Buscemi, Joshua, CA
Carstens, Rolf, New Zealand
Colvin, Harry, WA
Crist, Eugene, AZ
Croom, Mark, VA
S Crosland, James, FL
Davis, Mark, SC
Dawson, Dennis, AZ
DeLong, John, NY
Degenhardt, Scott, TN
Derbyshire, Ella, NY
Dulle, Uwe, Germany
Dunkel, Peter, CA
Eggenstein, Heinz-Bernd, Germany
Fahle, Jarad, CA
Ferreiros, Gaston Martin, Argentina
Grant, Michael, NJ
Gray, David, Canada
Halbrook, Curtis, GA
Harpe, Eric, WA
Hillier, Robert, Canada
Himburg, Eric, NC
Holland, Stephen, Australia
Howell, Steve, AZ
Jensen, Eric, PA
King, Ronald, VA
Labbe, Jean, Canada
Legutko, Marian, Poland
Lindsey, Kevin, CA
Lopez, Lawrence, NH
Loupy, Kelsey, CA
Lucas, Macri, TX
Lundwuist, Michael, WY
McDonald, Kevin, KY
McLin, Kevin, CA
Miller, Michael, TN
Morrison, Kathleen, CA
Nelson, Steven, CA
Orr, Joe, TX
Osborn, Wayne, WI
Pack, Hughes, MA
Palmeira, Warren, NH
Parrinello, Christopher, IL
Peoples, Michael, PA
Piso, Charles, MA
Pitchford, David, Luxembourg
S Post, Richard, MA
Regalado-Querol, Miguel, Spain
Reynolds, Kaeleigh, CA
Richmond, Joseph, MI
Rogers, Carl John, CA
Slauson, David, IA
Sloan, John, NJ
Smith, Randy, NY
Spano, Ellyne, MD
Spano, Mark, MD
Spell, Chester, CA
Sperber, Andreas, Germany
Stager, Daryel, CA
Stebner, Carl, WA
Terrell, Bryce, CA

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New Members Accepted at the Annual Meeting, cont.

Tsang, Ming, Canada
Ukwatta, Tilan, MD
Vella, Kenneth, TX
Wasiuta, Myron, VA
Weissburg, Robert, CA
White, Robert, Canada
Wintz, Joseph, SC

S = *sustaining membership*

Deceased Members, Observers, and Colleagues

Bardwell, Conrad M., MA
Gorski, Larry M., IL
Huchra, John P., MA
Lovell, Larry P., OH

Special Recognition Award Recipients (presented at the 99th Annual Meeting in Woburn, MA, October 30, 2010)

A Special Award of Recognition was presented to ***Paul Mortfield***, "for his contributions to the AAVSO and solar astronomy through serving as Chair of the AAVSO Solar Committee/Section for four years, providing the leadership for its smooth operation, ensuring the continuity of the American Relative Sunspot Number program, publishing the AAVSO *Solar Bulletin*, mentoring new solar observers, and contributing over 40 monthly SID reports to the program."

A Special Award of Recognition was presented to ***William Michael Hill***, " for his ten years of dedicated leadership of the Sudden Ionospheric Disturbance program of the AAVSO Solar Committee/Section, bringing the SID program to maturity and ensuring that observations are regularly analyzed and results published in the AAVSO *Solar Bulletin*, creating software for data reporting and analysis, mentoring SID observers and fostering team spirit, and contributing over 160 monthly SID reports to the program."

AAVSO Solar Observer Awards (announced at the 99th Annual Meeting in woburn, MA, October 30, 2010

Sunspot Observers (1,500 or more observations)

none

Sudden Ionospheric Disturbance Observers (40 or more months of reports)

François Steyn, South Africa

AAVSO Staff Recognition Award Recipients (presented at the 99th Annual Meeting in Woburn, MA, October 30, 2010)

Sara J. Beck—twenty years
Rebecca Turner—fifteen years
Arne A. Henden—five years

Annual Report of the Director for Fiscal Year 2009-2010

Arne A. Henden, Director

This was a year of consolidation and rebirth. We lost a couple of staff members and changed web developers, but at the same time developed and released an entirely new web site. AAVSOnet continues to grow, and APASS is underway. We've made plans for our centennial year. All in all, it was a busy and productive year, as evidenced below!

The AAVSO Citizen Sky Project

As part of the International Year of Astronomy (IYA) 2009 celebration, the AAVSO was awarded a major NSF grant to involve a large number of Citizen Scientists in a real research project: following the eclipse of epsilon Aurigae that occurs every 27 years, developing scientific projects related to the event, and writing scientific papers. The first workshop occurred just before FY 2009/2010 at the Adler Planetarium in Chicago, and covered the basics of the eps Aurigae system and how to observe. Guustaaf Damave videotaped many of the participants, and created an hour-long DVD entitled "Mystery in the Sky" that is currently available through Amazon. The second workshop was held in early September 2010 at the California Academy of Sciences, and was devoted to data analysis and paper writing. Several scientists gave updates regarding the eclipse progress, basic statistics, variable star basics, time series analysis, picking topics for scientific investigation, and how to write scientific papers. The workshop was well attended and received many positive comments.

In the meantime, eps Aur started its eclipse, went through the mid-eclipse period without brightening (as seen in previous eclipses), and was headed towards a predicted beginning of egress in March/April 2011. There were a number of exciting eps Aur events during this fiscal year. Brian Kloppenborg, Robert Stencel, and Don Hoard gave a press conference at the winter AAS meeting both on infrared observations of the system and on the unique interferometric images that Brian acquired using the Georgia State University's Center for High Angular Resolution Astronomy (CHARA) array on Mt. Wilson. Robin Leadbeater led a group of spectroscopists monitoring individual atomic lines, showing the variation during ingress. The F-star component of the system continued its pulsations, easily resolved by the multi-filter photometry from many observers. The visual observations from beginners and experienced observers alike closely followed

the digital measurements from PEP, CCD, and DSLR observers. In fact, we found DSLR technology up to the task, with several participants using their digital single-lens reflex home cameras to obtain precise photometry. Brian led a team in studying the use of this new technology, creating Excel spreadsheets to process the data.

One of the newsworthy items regarding Citizen Sky is that Aaron Price—now Dr. Aaron Price—changed his thesis topic to "Scientific Literacy of Adult Participants in an Online Citizen Science Project," using the evaluation material he prepared for Citizen Sky as the basis for the research. He expects to write one or more education research papers based on the thesis. The California Academies of Science finished the planetarium trailer for eps Aur; a youtube video of it is available. The formal "opening" for the trailer occurred during the second workshop—it looks great on a big planetarium dome!

We submitted a proposal and time schedule for the International Space Station astronauts to observe eps Aur during solar conjunction. Unfortunately, while the proposal was accepted and we uploaded finding charts and specific observing information for the astronauts, some emergency events superseded the scheduled eps Aur observations and they were not able to contribute.

A Citizen Sky team, the Southern Gems, worked on a southern-hemisphere equivalent to the 10-star tutorial. Careful selection of good beginner's variable stars was made and charts drawn. It is hoped to release this tutorial early in the next fiscal year.

We are hoping that everyone continue to monitor eps Aur even during this "dull" central eclipse time, so that we can catch the beginning of egress and have good coverage of the rest of the eclipse.

Observation Database

In FY2010, we collected 1,081,135 observations: 173,819 of these were visual observations; 1,652 were PEP or photographic observations. The remainder (905,277) were CCD observations. The CCD totals remain high, as we receive many thousands of observations for any time-series campaign (the campaigns on SS Cyg this year in support of VLA observations are examples). The two charts on the following pages show the annual submission totals since 1911, and the total submitted observations ("Megasteps") since 1911, respectively. You can see that the trend is exponential, so that by 2012, we will be collecting 15 million observations per year!

When I was in New Zealand a few years ago, I stayed at Grant Christie's house. He mentioned to me that many boxes of archival Royal Astronomical Society of New Zealand

(RASNZ) observations were in his basement. These had been retrieved from Frank Bateson when he retired as Director of the Variable Star Section, and primarily contained observations of variable stars not on the RASNZ program. This year, Frank Schorr offered to pay for half of the shipping costs (the other half was paid by the RASNZ), and the boxes were shipped to the AAVSO for safekeeping. Mike Saladyga is preparing a pilot study of the material so that we can understand how many of the paper observations are new and what objects were studied. After this initial inspection, we hope to digitize all of the observations that are not present in the AAVSO International Database.

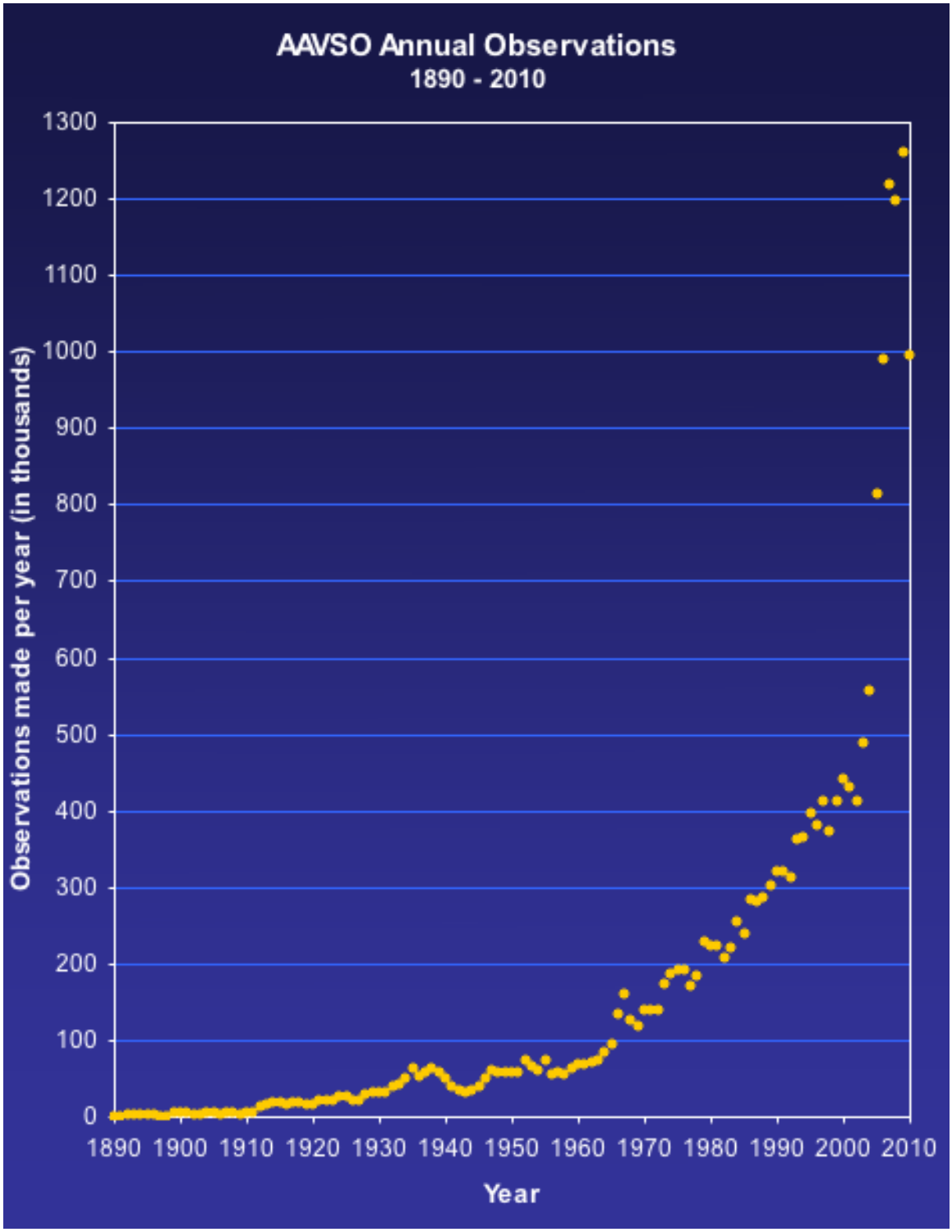
Speaking of the RASNZ, Mike Saladyga continues to process the digitized data that we received from the RASNZ after Frank Bateson's passing. The observers with many observations have been entered, but it has been slow work plowing through the estimates from hundreds of other observers with only a handful of observations apiece. Mike also has the visual observations from the British Astronomical Association, and is preparing to begin entry of those observations into the AAVSO International Database.

We had 4,248 data requests from a multitude of researchers during the year. The data request rate is pretty constant throughout the year, but has definitely continued its upward trend.

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 Argentina Amigos de la Astronomia
c. Asociacion de Variabilistas de Espagne (Spain)
d. Association Française des Observateurs d'Étoiles Variables (AFOEV) (France)
e. Association of Variable Star Observers "Pleione" (Russia)
f. Astronomical Society of South Australia
g. Astronomical Society of Southern Africa, Variable Star Section
h. Astronomischer Jugendclub (Austria)
i. Astronomisk Selskab (Scandinavia)
j. British Astronomical Association (BAA), Variable Star Section
k. Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e. V. (BAV) (Germany)
l. Center for Backyard Astronomy
m. Grupo Astronomico Silos (Spain)


AAVSO Annual Observations
1890 - 2010
Observations made per year (in thousands)
1300
1200
1100
1000
900
800
700
600
500
400
300
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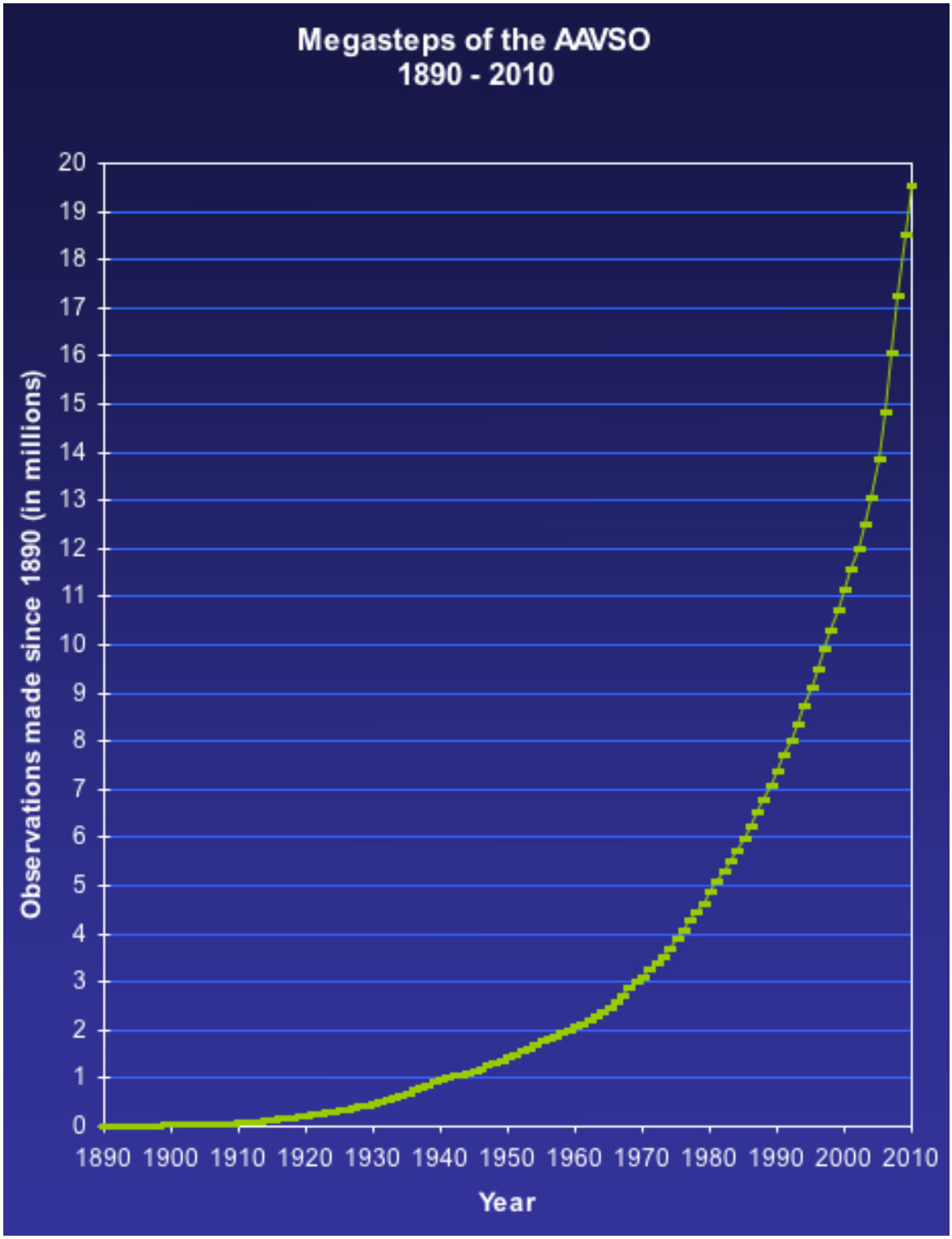
1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
Year


Megasteps of the AAVSO
1890 - 2010
Observations made since 1890 (in millions)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
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1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
Year

n. Koninklijke Nederlandse Vereniging Voor Weer-en Sterrenkunde, Werkgroep Veranderlijke Sterren (Netherlands)
o. Liga Iberoamericana 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. Red de Observatores de Estrellas Variables - MIRA (Spain)
u. Rede de Astronomia Observacional (Brazil)
v. Royal Astronomical Society of Canada
w. Royal Astronomical Society of New Zealand, Variable Star Section
x. Svensk Amator Astronomisk Farening, Variabelsektionen (Sweden)
y. Ukraine Astronomical Group, Variable Star Section
z. Unione Astrofili Italiani (Italy)
aa. URSA Astronomical Association, Variable Star Section (Finland)
bb. Variable Star Observers League in Japan
cc. Variable Stars South (New Zealand)
dd. Vereniging Voor Sterrenkunde, Werkgroep Veranderlijke Sterren (Belgium)

Software

VStar, the Java version of the original DOS program developed for *Hands-On Astrophysics*, was created in support of the Citizen Sky project. I met David Benn at the National Australian Convention of Amateur Astronomers meeting in Sydney during my visit a couple of years ago, and he asked if there was anything that he could do for the AAVSO. He is a professional programmer by trade, and had expert knowledge of Java. I asked him if we would be willing to do the VStar port. David worked in collaboration with Sara Beck at headquarters, and wrote VStar according to a design specification written by Aaron Price. Along the way, a VStar software development team was formed on the Citizen Sky website and many participants helped test the software and design the user interface. VStar is now one of the major tools in the AAVSO software suite. It was included in Donna Young's update of *Hands-On Astrophysics* (now called *Variable Star Astronomy*).

VPHOT (originally Photometrica) is a software program from Geir Klingenberg. He has given full rights to the program to the AAVSO. Two members donated funds to port VPHOT to the Amazon Cloud and make it available to AAVSO members. Richard (Doc) Kinne revised the AAVSOnet processing scripts so that images could be automatically transferred to VPHOT after processing. VPHOT in turn creates AAVSO Extended Format files, extremely simple to submit via WebObs. This gives us a complete turnkey solution to CCD photometric processing.

Much software rewriting and development was done for AAVSOnet and for the AAVSO Photometric All-Sky Survey (APASS), and will be discussed later. Likewise, a major piece of software, the AAVSO website, will be covered in the next section.

New AAVSO Website

Kate Davis designed a new website for the AAVSO this year, moving us from the typical html development era to a Website Content Management System—Drupal. The website was last updated around 2003, and we found that it was difficult to navigate, many of the pages were out of date, and it was becoming very difficult to maintain. As new items were added, they were placed in the directory tree without much thought as to design. Kate researched the available CMS and talked to many outside programmers before selecting Drupal. She went to a Drupal school in Toronto and joined maillists devoted to Drupal programmers. Kate spent several months in late 2009 designing the system (along with completing her first Drupal site under contract with the Large Synoptic Survey Telescope (LSST) team), and then started actual implementation in early 2010.

In addition to the design and framework programming that Kate was doing, there was the actual textual content of our website, which is huge. Rebecca Turner assumed the Project Management hat and assigned sections of the website to each staff member, who was then responsible for porting the content into the new Drupal site and making sure that all links were fresh and text was up to date.

Unfortunately, Kate left the AAVSO in the late Spring, before the website was released. Aaron advertised and selected a contractor with Drupal experience to help us finish the basic website, and with his help (and a LOT of time from Aaron), we were able to announce the new website in July 2010. The new website was dramatically reorganized, making it easier for beginners, observers, and researchers to find the content related to them. Many of the new features on the home page were designed to be dynamic: an update of the most recent observation to the International Database, a revolving panel of new developments, "who is on line," etc.

After the initial website release, Aaron advertised and with help from Dr. Matthew Templeton and myself, selected a permanent replacement for Kate: Will McMain (I'll

discuss his background later). Will has been coming up to speed over the past month and should be able to clean up the remaining website bugs in short order.

HQ Computers

Doc, Aaron, Matt, Stephen Levine, and I looked at the existing network of computers and revised the scheme. We have a firewall computer, and inside of that are a high-end web server (mira), a computational/file server (occam), and two backup computers for these functions. We upgraded mira to a far more powerful system, replaced the CPUs in occam so that it became a 12-cpu computer, and upgraded the hard drives in occam to 2TB units, providing 14TB in RAID5 configuration. Ethernet switches were upgraded to 1Gbps, and external backup drives were increased in capacity. The old RAID5 disks were distributed between staff workstations and backup duty.

Doc negotiated a better price on the next QUEST contract for our T-1 line after investigating other alternatives to high-speed access for the AAVSO. At the same time, we installed an inexpensive COMCAST business cable modem with the idea of either using this Internet connection for exclusive AAVSOnet access, or else to find hardware that permitted broadband resource allocation using both connections. Doc is looking into such hardware options.

New desktop Mac systems were purchased for Aaron, Matt, and me for our computational needs. These were funded through various grants.

HQ Renovation

With the centennial coming up, one remaining renovation task was left for the outside of headquarters—getting rid of the old metal siding and repainting the exterior. On the inside, we really wanted to continue remodeling the Sky Publishing "Annex" room into a worthy meeting/conference space. We had used that room for the 2008 Annual meeting and it worked great, but had considerable "warehouse" character. We have recently received a generous donation from the Dorrit Hoffleit estate, and we decided to use some of that bequest along with additional contributions from the Hendens to fund both projects. Working with S&H contractors, we raised the ceiling in the Annex by 18 inches, added Icynene insulation for improved efficiency, moved the heating/cooling system to the side of the space instead of taking up valuable central real-estate, hid the gas lines, and moved the gas meter to the outside. The staff chipped in and repainted the interior of the room in time for the Annual meeting Open House activity in October 2010.

For just the cost of the fixtures, we also remodeled the upstairs bathrooms. We replaced the ceiling tiles, repainted the walls, replaced the sinks and cabinets, and installed new toilets. We had just enough leftover ceramic tiles from the residence to tile the bathroom floors, and Ginny Renehan spent several days laying out the pattern and setting the tiles. Finally, we improved the location of the network patch panel and repainted the hallway leading to the bathrooms.

We think the building now looks great—inside and outside! We hope to finish the project in FY2011 by adding some new landscaping in the front. By the time of the centennial, AAVSO headquarters will be the nicest building in the area!

Centenary Celebration Plans

Development Director Mike Simonsen is in charge of the Centennial Annual meeting celebration plans, and Matt Templeton is working on the Spring meeting (to be held jointly with the American Astronomical Society in Boston). Several telecons with the AAS staff were held to finalize details. Aaron and Mike developed a concept for other activities and will present it to the Council at the 2010 Annual meeting. Full details will be included in the next Annual Report.

Dr. Michael Saladyga and Dr. Thomas R. Williams have spent much of this year working on the text for the Centenary book, to be published by Cambridge University Press. Tom comes every few months, usually with his wife, Anna Fay, and stays in the Headquarters Feibelman Guest Suite. That makes his commute to the AAVSO archives one that could be done in robe and slippers! The final manuscript was submitted in early September 2010, on schedule for publication during 2011.

Dr. Ulisse Munari becomes second Janet A. Mattei Research Fellow

I've known Ulisse Munari for a long time, and he is a real friend to the Italian amateur community. Professionally, he has been on the staff of the Istituto Nazionale de Astrofisica—Astronomical Observatory of Padova, Italy, for many years. He did a lot of work on the GAIA photometric system, held a conference on the peculiar nova V838 Mon, is an acknowledged expert on symbiotic variables (a white dwarf plus long period variable with wind accretion), and has published dozens of papers about novae. He and I did a paper series on calibrating the fields of symbiotic novae, and we have written several papers together on other stars.

Dr. Ulisse Munari

When I was in Padova to give a colloquium this past spring, I asked Ulisse if he would like to come to Cambridge for a few weeks to work with me on some projects. He accepted and spent two weeks in the Feibelman Guest Suite during September 2010 as the second Mattei Fellow.

Ulisse and I worked on a pilot project to calibrate the Radial Velocity Experiment (RAVE) spectra of bright stars through the use of the APASS wide-band Sloan photometry. I used APASS to cover a 100-square degree region south of the celestial equator; Ulisse then used this photometry as standard flux values and convolved his RAVE spectra with classical Sloan filter responses to see if he could match the APASS photometry. After a couple of false starts, we were able to confirm that the method would work, and expect to write a paper on the process during the next fiscal year.

Ulisse is also a mentor to the Italian CCD amateur community. He has created the Asiago Novae and Symbiotic Stars (ANS) collaboration with several dozen amateurs, holding annual workshops on photometric techniques as well as writing specialized software for data reduction. I wanted to talk to him in detail about how he kept his group interested in the research projects, how they were rewarded, and what future steps he intended to take. I consider his collaboration a model for future AAVSO projects.

AAVSOnet News

As reported in the last Annual Report, two telescopes were donated to the AAVSO from the Paul Wright estate. Tom Krajci was kind enough to volunteer to support those telescopes, and so we installed them using the same software configuration as at Sonoita Research Observatory (our first experience with robotic telescopes). These two telescopes were named "W28" and "W30" (Wright, plus the telescope aperture in cm). The CCD camera for W28 came from an SBIG donation, and the filters and filterwheel for W28 were contributed by Gary Walker. The camera and filters for W30 were purchased by Josch Hambsch. Since we now had three telescopes running AAVSO projects, we declared this a "network" and named it AAVSOnet.

At the Council meeting in October, Jim Bedient and Doug Welch offered to fund the purchase of a small telescope system to study the eclipse of epsilon Aurigae. Named the Bright Star Monitor (BSM), this system was purchased and installed at Tom Krajci's Astrokolkhoz Observatory in Cloudcroft, NM, in October 2009. It acquired over 87,000 science images in its first year of operation. The two bright targets for the year were Polaris (the bright limit for the system) and eps Aur, currently undergoing its 27-year eclipse. Observations for eps Aur have been submitted to the AAVSO International Database (AID). In addition to these two main targets, BSM also had projects to cover

the brighter Cepheids (my project), a set of SRc and SRd stars for Matt, several bright young-stellar objects for Michael Sitko (University of Cincinnati), and a long-term survey of every variable brighter than 8th magnitude. Results from those projects are being submitted to the AID as time permits. Numerous BVRI calibrations across the northern sky have also been made and are available to the Chart Team.

During the year, we continued testing of the 50cm replacement telescope for Sonoita, added a Celestron 11-inch telescope at Astrokolkhoz, signed an memorandum of understanding to refurbish the New Mexico State University 24-inch telescope, delivered a second BSM system to Peter Nelson in Australia and a third BSM to Jaime García in Argentina, and opened up the network for proposals from AAVSO members. New electronic focusers for the Astrokolkhoz telescopes were installed during the July/August monsoon shutdown. Dennis diCicco has machined several adapters for our telescope/camera systems.

We received a grant from the Mt. Cuba Astronomical Foundation to help in the refurbishment effort for the Mt. John and Morgan 24-inch telescopes. Bob Ayers also donated his FLI-09000 CCD camera for the Mt. John telescope, so we hope to get that system running soon.

Recently, the majority of the effort has been in software. Doc, Matt, and I have been automating the processing scripts as much as possible, and we've assigned "telescope advocates" to each telescope to watch over the processing and let the site managers know when things fail.

APASS News

As mentioned in the last Annual Report, we received a grant from the Robert Martin Ayers Sciences Fund to purchase the hardware necessary to carry out a photometric survey of the sky. Officially called the AAVSO Photometric All-Sky Survey (APASS), you could also use the acronym as Ayers' Photometric All-Sky Survey or Arne's Photometric All-Sky Survey. I like multiple-use acronyms!

APASS is designed to cover the entire sky in five passbands: Johnson B and V, and Sloan g′, r′, and i′. This gives transitional photometry between the Johnson/Cousins system that has been used for decades, and the Sloan system that is now being used by major observatories. The magnitudes saturate around 10th and have a plate limit around 17th, so the photometry covers the range most observers need. We are observing each star four times on separate nights to beat down the systematic errors, and observing the stars at different places on the CCD chips to even out effects like vignetting/flatfielding and scattered light.

APASS started in the northern hemisphere at Tom Smith's Dark Ridge Observatory in Weed, NM. The system consists of twin Astro Systeme Austria (ASA) astrographs with 4k x 4k CCD cameras, comounted on a Paramount ME. Software Bisque has loaned us one of their mounts for the duration of the survey; we have received major support from Apogee, Santa Barbara Instrument Group, Astrodon, Diffraction Limited, and DC3 Dreams in setting things up. A first data release of 4 million northern-hemisphere stars was made in September 2010.

Doug Welch has created the master field center list for APASS; Stephen Levine tested the cameras and wrote software to correct the astrometry; Dirk Terrell purchased the computer and installed the software; Tom Smith installed the hardware and is operating the northern hemisphere system; Matt Templeton is helping on database issues. Additional support along the way has come from John Gross and Tom Krajci, who answered operational questions as they arose.

We have a firm commitment for the southern hemisphere site: a clamshell at the PROMPT facility at Cerro Tololo Inter-American Observatory (CTIO) in Chile that will be made available to us by Dan Reichart (University of North Carolina). Dan is also supplying a spare Paramount. A second grant from Ayers is paying for a complete second APASS system so that observations can be made from the north and the south simultaneously, shortening the length of time to complete the survey. We hope to go down to CTIO in November 2010 to install the southern system.

You can keep up-to-date on the progress of APASS on our web site at http://www.aavso.org/apass. The initial data release has already been used by our Sequence Team to create new sequences around program stars, and there have been many inquiries from professional researchers wanting access to the catalog.

Headquarters 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.

Dr. Stephen Levine continued work at the AAVSO this year. He has accepted a job as the Discovery Channel Telescope Commissioning Scientist at Lowell Observatory. He continues to lend his computer and hardware expertise on AAVSO projects in his spare time, processing APASS data remotely in Flagstaff and coming into HQ when he returns on a monthly basis.

Aaron Price continued his doctoral work at Tufts University in Science Education. He has completed all course work and has finished his dissertation. (He successfully defended his dissertation in November 2010.)

We were sorry to lose Kerriann Malatesta and Gamze Menali this year. Both had been performing excellent work as validators and publications wizards. As mentioned earlier, Kate Davis also left for another job, and has been replaced with Will McMain. Will obtained a computer science degree from the University of New Mexico, and had been living in the Boston area for the past year. He is an expert on PHP, Phython, C, Java and MySQL, and has a working knowledge of Japanese to boot.

Aaron Price and Matthew Templeton were promoted to Assistant Director and Science Director, respectively. They each have about half of the staff under them. This new management structure will give more attention to the projects underway at the AAVSO, as this is a very busy time for headquarters. Aaron, Matt, and I have been taking management courses, primarily day-long seminars, as these best fit into our schedules.

Sara Beck got married in August 2010 to John O'Neill, one of our premier observers in Ireland. They met at one of the AAVSO functions and hit it off well enough to continue a long-distance relationship. They are working out the logistics of their marriage now; it is a good thing that Ireland is closer than San Francisco to AAVSO HQ, and that they have better Internet service than we do!

Other than these changes, headquarters staffing has remained constant. With the new additions, we have ten full-time employees, along with two part-time employees and a contracted accountant. They are: Sara Beck, Technical Assistant, Special Projects; Jane Caton, Accountant; Gloria Ortiz Cruz, Data Entry Technician; Arne Henden, Ph.D., Director; Richard Kinne, Astronomical Technologist, IT; Will McMain, Web Developer; Aaron Price, Ph.D., Assistant Director; Virginia Renehan, Administrative Assistant, Publications; Michael Saladyga, Ph.D.,Technical Assistant, *JAAVSO, AAVSO Newsletter,* and *Annual Report* Production Editor, Archives, and Library; Mike Simonsen, Membership Director and Development Officer; Matthew Templeton, Ph.D., Science Director; Rebecca Turner, Project Manager and Sponsored Research Officer; Elizabeth O. Waagen, Senior Technical Assistant, *JAAVSO* Associate Editor, *AAVSO Newsletter* Editor. All permanent employees are described on our website at http://www.aavso.org/aavso-staff. I encourage you to read about these folk that support the members and observers; it is a really nice and efficient staff at HQ!

Grant News

I have mentioned the private grants above; there were also numerous donations in the $1,000–10,000 range by members and observers, some earmarked for specific projects (like the shipment of the RASNZ observing sheets), and some with no stipulations. This year, we also have three national foundation grants. Citizen Sky was mentioned above, and will continue until 2012. Matt and I submitted a NASA proposal to use the MOST satellite to monitor the young stellar objects in the Orion cluster, centered on the Trapezium. That grant was accepted, with observations scheduled for December 2010. Matt is preparing an *Alert Notice* and campaign for monitoring the field before, during, and after the MOST observations.

The other really good news is that Matt's National Science Foundation science proposal, "Low-Frequency Photometric Variability in Mira-type Stars," was awarded. This is his first NSF grant and was conceived and written entirely by himself. While it is a small one-year grant, it sets our indirect cost rate and is a good starting point for future proposals by Matt.

Among Aaron, Matt, and myself, several NSF proposals will be submitted this coming fall. We were also co-Investigators on a few other proposals in non-traditional astronomy divisions.

Travel and meetings

The Spring meeting this year was held in April at Valle Grande, Argentina, in conjunction with the annual Star Party hosted by Jaime García. A contingent of members from North America went down and gave papers and workshops in English, with simultaneous translation into Spanish. We also got to meet with many of our southern observers who rarely make it up to the States, and had a fabulous time looking at the southern sky—the resort even turned out lights in the evening for our enjoyment! Field trips to the Pierre Auger Gamma-Ray Observatory and the nearby Planetarium rounded out the meeting. I highly recommend visiting Argentina, as it is a very large country with much diversity, from glaciers in the south to tropical waterfalls in the north.

The 99th Annual meeting is scheduled to be at the Woburn Hilton Hotel, because they have given us a great room rate for the Boston area, and because this will be the meeting venue for the 2011 Celebration, and going there a year early helps us check things out.

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 attended meetings. Sometimes they can contribute towards the plane fares, and often provide housing, meals, and logistical support. This is gratefully appreciated!

I went to the AAS meeting in Washington, DC, in January 2010. This was the largest astronomical meeting in the world, with well over 3,000 registrants. I gave a poster on APASS, as well as an E/PO poster on Citizen Sky. Aaron, Rebecca, and Kate accompanied me there. I also gave an invited talk at the Rockland Amateur Astronomy Club (NY) in February.

David Turner (St. Mary's University) asked me to Halifax in March to give a talk. Normally I don't travel farther north during the winter for a meeting, but the weather held out and the hotel was great. I was able to visit Dave Lane and see his observatory, as well as visit a church in Lunenburg, where Turner was a consultant in restoring the ceiling star pattern to match the sky exactly as it had been in 1754 when the church was built. It had been heavily damaged during a fire in 2001, but looks great now.

About a week later, I went to Italy to attend the dedication of a 32-inch (80cm) telescope to the memory of Janet Mattei. Giancarlo Favero worked with the local government of Castello Tesino to fund the Celado Observatory, a very nice facility that will be used for public outreach. Pictures of the dedication and the plaque to Janet are shown here. It was during this trip that I gave a colloquium at Padova Observatory and met with Ulisse Munari. I also was invited to speak at a workshop for the Unione Astrofili Italiani (UAI) photometric observers later in the week.

The Celado Observatory, its 32-inch telescope, and the plaque mounted on it in memory of Janet Mattei

Since the Spring meeting was held out of the country, we held a special Council meeting just before the Society for Astronomical Sciences meeting in Big Bear, CA, in the middle of May. We did this because California is a convenient location for most of the council members to reach, and it increased the interaction among the AAVSO, its Council, and another group of enthusiastic scientific amateur observers.

I went to several panel reviews and advisory board meetings, and, along with Aaron and Rebecca, presented papers at the Citizen Sky workshop in San Francisco.

In September, I went to Dark Ridge Observatory to coordinate with Tom Smith on APASS. We wanted to thoroughly test out the northern hemisphere installation, then dismantle it and ship it to CTIO in Chile. That way we had the best chance of the system working out of the box down South. Tom and I spent a solid week working on improved flat-fielding and collimation for the telescopes, and also tested some 6-inch refractors as possible surrogates for APASS in the north if the new ASA astrographs did not arrive on schedule.

Brian Kloppenborg (University of Denver) was at Headquarters for a week in January to work on Citizen Sky projects with Aaron. Bradley Schaefer (Louisiana State University) came out for a week to work on novae at the Harvard Plate Stacks. Leonid Berdnikov (Moscow State University, Russia) also came in March 2010 to work on Cepheid long-term light curves at the Harvard Plate Stacks. All of these researchers stayed in the Feibelman Guest Suite, as did Ulisse Munari when he was at Headquarters as the second Janet Mattei Research Fellow.

Mike Simonsen gave an invited workshop at the Northeast Astronomy Forum and Telescope Show (NEAF) in April; Ginny Renehan set up our traveling display for both NEAF and the Northeast Astro-Imaging Conference (NEAIC).

Observing News

We had nearly two dozen active campaigns during FY2010. Many were new novae, such as V1311 Sco. Others were in support of HST observations, such as the request by Paula Szkody (University of Washington) to observe V455 And.

Two campaigns deserve special attention. About a year ago, Brad Schaefer contacted us to organize a campaign to monitor U Sco. His predictions were that this recurrent nova (RN) would go into outburst in 2009.1 ± one year. It finally went into outburst on January 28, 2010, within his prediction window! Two Floridian amateurs were the first to discover the outburst, with Barbara Harris and Shawn Dvorak independently measuring the brightness on that morning to be about 8th magnitude. Brad Schafer confirmed their

discovery using his backyard visual telescope. This outburst was extensively covered, all the way back to near-quiescence. Because Brad had mustered professional observatories and space-based missions in advance of the outburst, the rapid notification by amateurs allowed detailed study of the behavior of the RN light curve near maximum light.

The second campaign was brought to us by Chuck Shaw (NASA-Johnson Space Center), based on a request from John Grunsfeld (Deputy Director, Space Telescope Science Institute, and former astronaut). HST was going to image the first Cepheid variable discovered in M31 by Edwin Hubble, and they wanted to know the current light curve for the star. We put out an *AAVSO Alert Notice* and obtained a really nice R-band light curve for this faint, 19th magnitude variable. Considering that telescopes in the 14–20 inch range were used, we were obtaining better photometry in less time than Hubble was able to do with hour-long photographic exposures on the Mt. Wilson 100-inch telescope! Based on this light curve, HST planned and obtained images at specific phases of the variable and will issue a press release in the future.

Other campaigns were in support of HST cataclysmic variable projects, acquiring simultaneous ground-based observations of V405 Peg when XMM-Newton was observing, continuing the monitoring of P Cygni in collaboration with a group of German spectroscopic observers to see if there are correlations between continuum variations and spectroscopic line changes, and following the very interesting 2009 nova in Eridanus (KT Eri). Mike Simonsen started his Z CamPaign to follow as many Z Cam candidates as possible to get a solid handle on how big the sub-class really is. Of course, we're continuing the campaign on epsilon Aurigae as well!

Citizen Sky participants continued to submit data on eps Aur, as well as the other stars in the 10-star training tutorial. I think that we will have some new observers for the AAVSO from this project.

Several stars decided to do something spectacular in honor of FY2010. R CrB, the prototypical dust-fading star, entered its most recent fade in 2008. It has stayed faint ever since (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? KT Eri (Nova Eri 2009 mentioned above) went into outburst around 8th magnitude last year, and has slowly faded back to 14th magnitude by the end of the current fiscal year, but the decline has been anything but smooth, with wiggles continuing to present. TT Ari went into a dramatic fade to 15th magnitude, exhibiting tons of flickering during the fade.

Using the Sonoita Research Observatory 35cm telescope, we acquired a nice time series

of observations for the optical component of gamma-ray burst GRB091024 during the first hour of its decline. Thanks to Bob Denny's VOEvent interface for ACP (his observatory control software package), we were on the target 9 minutes after the burst occurred.

The Royal Astronomical Society of New Zealand, Variable Star Section, has a new website, with several interesting southern campaigns underway. If you have access to the southern sky, you should definitely visit their site and get involved. Most of the acquired observations will find their way into the AAVSO International Database.

The Chandra VGUIDE catalog was released. This set of magnitude 8–10 variables highlights how little we know about the bright stars, as many candidates in this catalog have quite large amplitude variation. It is drawn from photometry acquired by the guide camera on the Chandra x-ray observatory spacecraft. Over 600 stars are contained in the on-line VGUIDE catalog, and deserve your attention, especially if you have a CCD or DSLR camera.

Kepler was launched! This great NASA Discovery mission will study 150,000 stars in the Cygnus-Lyra region, primarily for the discovery of exoplanet transits, but with the expected precision, some wonderful light curves of other stars will be acquired. Ground-based support, with multi-wavelength photometry and spectroscopy, will be needed to fully characterize the stars that are being monitored.

Other Projects

The AAVSO Speaker's Bureau and the AAVSO Writer's Bureau continue to be expanded and improved. The Speaker's Bureau is a list of those people who are willing to give talks on astronomical topics, especially related to variable stars. The Writer's 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 initiatives.

Publications

Thomas R. Williams and Michael Saladyga continued work on the AAVSO centenary book throughout the year, and completed their manuscript by September 2010. We hope that Cambridge University Press will publish the book in time for the Summer AAS meeting in May 2011, and well in advance of our 100th anniversary in October 2011.

Tom Williams funded the last of the AAS Calendar pages for October 2011. Kerri created a nice image with a historical motif to honor our 100th anniversary. It has been a great series of calendar pages, and I hope that it has drawn attention to our organization by the professional members of the American Astronomical Society.

The Journal of the AAVSO, volume 37, number 2, and volume 38, number 1 were published, as were *AAVSO Newsletter* Nos. 43–46, and the *Annual Report* for FY2008/2009. Many *eJAAVSO* articles were posted. We issued 20 *AAVSO Alert Notices* and 49 *AAVSO Special Notices*. Three "Variable Star of the Season" articles were published on the AAVSO website. Elizabeth completed long period variable maxima/minima *AAVSO Bulletin Number 73*. The AAVSO released the annual eclipsing binary/RR Lyrae stars ephemerides as well as the monthly *Solar Bulletin*. We contributed sections for the Royal Astronomical Society of Canada *Observer's Handbook*.

There were 56 staff publications (Henden, Price, Templeton, Waagen; *Publications of the Astronomical Society of the Pacific* (*PASP*), *Astronomical Journal* (*AJ*), *JAAVSO*, etc.). We noted that 45 papers in journals such as *Astronomy & Astrophysics*, *Monthly Notices of the Royal Astronomical Society*, *Astrophysical Journal*, *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.

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. Clinton B. 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 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 observation totals that we have received at Headquarters.

Table 1. AAVSO Observer Totals 2009–2010 by Country.*

Country	No. Observers	No. Obs.	Country	No. Observers	No. Obs.	Country	No. Observers	No. Obs.
Argentina	4	47	Germany	39	15372	Romania	11	5266
Australia	27	92512	Greece	8	2218	Russia	10	2153
Austria	3	584	Hungary	42	17400	Serbia and Montenegro	1	162
Belarus	2	87	India	6	66	Slovakia	1	1542
Belgium	16	93423	Iran	1	3	Slovenia	1	15
Bermuda	1	379	Ireland	4	144	South Africa	7	854
Bolivia	1	326	Isle of Man	1	7	Spain	34	33241
Brazil	14	2597	Italy	30	11896	Sweden	3	2801
Bulgaria	4	61	Japan	4	1398	Switzerland	4	85
Canada	42	24031	Korea	1	8	Turkey	5	58
Chile	2	490	Lebanon	1	15	U.S.A.	322	572766
China	3	141	Mexico	1	937	Ukraine	1	25
Croatia	2	11	Netherlands	12	5547	Uruguay	1	10
Cyprus	1	5223	New Zealand	8	4139	Wales	1	37
Czech Republic	1	4	Norway	3	888			
Denmark	6	219	Pakistan	1	27	TOTAL	802	1081135
England	42	101511	Philippines	2	208			
Finland	13	23401	Poland	19	10536			
France	31	45964	Portugal	2	300			

Table 2. AAVSO Observer Totals 2009–2010 USA by State or Territory.*

State		No. Observers	No. Obs.	State		No. Observers	No. Obs.	State		No. Observers	No. Obs.
Alaska	(AK)	1	6	Maryland	(MD)	10	3861	Pennsylvania	(PA)	30	4110
Arizona	(AZ)	15	6390	Massachusetts	(MA)	18	49134	Puerto Rico	(PR)	2	22
Arkansas	(AR)	1	18	Michigan	(MI)	7	7077	Rhode Island	(RI)	2	1841
California	(CA)	44	32248	Minnesota	(MN)	7	1282	South Carolina	(SC)	1	45
Colorado	(CO)	8	11850	Mississippi	(MS)	2	255	Tennessee	(TN)	5	226
Connecticut	(CT)	6	310	Missouri	(MO)	2	1077	Texas	(TX)	21	7941
District of Columbia	(DC)	1	2532	Montana	(MT)	1	16643	Utah	(UT)	3	1122
Florida	(FL)	8	55290	Nebraska	(NE)	2	83	Vermont	(VT)	2	35
Georgia	(GA)	6	3449	Nevada	(NV)	1	46167	Virginia	(VA)	6	170
Hawaii	(HI)	1	843	New Hampshire	(NH)	2	1610	Washington	(WA)	11	4089
Illinois	(IL)	15	99859	New Jersey	(NJ)	1	2	West Virginia	(WV)	2	1163
Indiana	(IN)	7	3421	New Mexico	(NM)	11	123533	Wisconsin	(WI)	5	51057
Iowa	(IA)	2	227	New York	(NY)	13	6141	Wyoming	(WY)	1	677
Kansas	(KS)	5	522	North Carolina	(NC)	5	1434				
Kentucky	(KY)	1	8	Ohio	(OH)	11	1327	TOTAL		322	572766
Louisiana	(LA)	5	63	Oklahoma	(OK)	3	346				
Maine	(ME)	4	3284	Oregon	(OR)	5	19976				

** Totals reflect data received during fiscal 2009–2010 and may include historical data (data preceding fiscal 2009–2010) submitted during fiscal 2009–2010.*

Table 3. AAVSO Observers, 2009–2010.*

Code	Org.	Name	No. Obs.
AFO		A. Abascal, Spain	1
AAP		P. Abbott, Canada	4040
AAC		A. Accattatis, Italy	2
ADBA		D. Acker, PA	3
ACN	13	C. Adib, Brazil	638
ASA		S. Aguirre, Mexico	937
AWL		W. Alexander, VA	2
ASAS3		All Sky Automated Survey 3, Chile	476
ACO	20	C. Allen, Sweden	1814
AJC	13	J. Almeida, Brazil	87
AJV	15	J. Alonso, Spain	235
AAX	13	A. Amorim, Brazil	1414
ALLA		L. Anderson Doering, Spain	40
ARLA		R. Andersson, Sweden	137
AJY		R. Ang, Philippines	1
AKO		K. Apostolidis, Greece	23
AJN	27	J. Appleyard, Canada	184
ARJ		J. Arnold, TX	62
AVKA		V. Arora, Canada	18
ATE		T. Arranz, Spain	13921
ATI	03	T. Asztalos, Hungary	1277
AAF		A. Atanas, TX	48
ADI	02	D. Augart, Germany	428
PBC		P. Bacci, Italy	76
BOZ	03	B. Bago, Hungary	691
BBAA		B. Bahar, Turkey	1
BIY		D. Bailey, IL	8
BIE	05	A. Baillien, Belgium	140
BBRA		B. Baker, CA	6
BFX		R. Baker, OH	33
BWW		W. Bakewell, CA	1
BFO	03	J. Bakos, Hungary	1321
BALJ	14	A. Baldwin, New Zealand	46
BGZ		G. Banialis, IL	183
BZV	03	Z. Baracki, Hungary	12
BSR	18	S. Baroni, Italy	216
EED		E. Barreto, Brazil	9
BPO		D. Barrett, France	1794
BQ	03	L. Bartha, Hungary	2199
BVT		T. Bartlett, TX	470
BWAA		W. Basso, Canada	288
BBA		B. Beaman, IL	1273
BGTA		G. Bean, AZ	5
BWX	27	A. Beaton, Canada	196
BSJ		S. Beck, MA	5
BDQ		A. Bedard, WA	634
BCP	20	C. Beech, England	692
BGU		G. Belcheva, Bulgaria	21
BRAA		R. Bell, CA	4
BZX		G. Beltran, Bolivia	326
BDJB		D. Benn, Australia	7
BTY		T. Benner, PA	325
BRIC		R. Berg, DC	2532
BEB		R. Berg, IN	2228
BYY		R. Berry, OR	2
BQX	15	M. Betlej, Poland	2
BVO		V. Bibe, Argentina	2
BIC	01	L. Bichon, France	207
BREN		R. Bidart, Argentina	12
BPK		K. Birkle, LA	1
BXN	01	M. Bisson, France	114
BXT	08	T. Bjerkgaard, Norway	300
BKL		J. Blackwell, NH	203
BVZ		J. Blanco Gonzalez, Spain	126
BLD	10	D. Blane, South Africa	377
BWVA		W. Bloechl, CA	4
BWZ		E. Blown, New Zealand	404
BREI	02	R. Boettcher, Germany	52
BHQ	29	T. Bohlsen, Australia	3194
BPF		P. Bohnholdt, Denmark	12
BQG		G. Bokowy, IL	45
BGP	03	G. Boleska, Hungary	13
BVS		S. Bolzoni, Italy	52
BZU		M. Bonnardeau, France	1285
BCJA		C. Boocks, PA	1
BRJ		J. Bortle, NY	5007
BDAA		D. Botha, South Africa	2
BPAA		P. Botton, Italy	4
BMU	04	R. Bouma, Netherlands	2
BDG	20	D. Boyd, England	21484
BBTA		B. Boyle, Canada	6
BMK		M. Bradbury, IN	172
BXS		S. Brady, NH	1407
BRAF		R. Braga, Italy	26
BNW	02	W. Braune, Germany	8
BQC	01	J. Breard, France	93
BTB		T. Bretl, MN	302
BMAR		M. Brewer, MO	70
BJQ	27	J. Brooks, CA	3
BBM		B. Brown, WA	26
BMB		M. Brown, PA	37
BOA	01	A. Bruno, France	3493
BHU		R. Buchheim, CA	13
BRAH		R. Buchwald, WI	15
BPRA		P. Budka, NY	2
BXD		A. Burda, Romania	356
BIW		N. Butterworth, Australia	5806
CDC		S. Cacicedo, Spain	9
CCB		C. Calia, CT	197
CCZ		C. Calis, Turkey	3
CMN		R. Cameron, Australia	16
CMQ		P. Camilleri, Australia	5
CMP		R. Campbell, FL	3188
CEM	15	E. Capella, Spain	2
CPG		P. Caponnetto, Italy	51
CVJ		J. Carvajal Martinez, Spain	8
CNY		A. Cason, GA	3
CLQ		L. Cason, SC	45
CJE	01	J. Castellani, France	141
CKN		K. Castle, AZ	1
CWO		W. Castro, OH	46
CQJ		J. Centala, IA	150
CNT		D. Chantiles, CA	358
CGF		G. Chaple Jr., MA	927
CKJ		J. Cheng, PA	3
CQS		S. Cheng, China	116
CMDA		M. Chrobak, PA	2
CHY		C. Chun Lam, China	2

Table 3. AAVSO Observers, 2009–2010, cont.*

Code	Org.	Name	No. Obs.
CPE	06	P. Closas, Spain	40
CBRA		B. Cole, OH	6
CDK		D. Collins, NC	860
COL		P. Collins, AZ	14
CME	18	E. Colombo, Italy	284
CTIA		T. Colombo, Italy	80
CMG	04	G. Comello, Netherlands	2285
CDSA		D. Conner, England	39
CAU		A. Conu, Romania	4
CMJA		M. Cook, Canada	6
COY		R. Cooper, PA	802
CGI		G. Corfini, Italy	213
CLZ		L. Corp, France	2229
CAI		A. Correia, Portugal	150
CIO		I. Costache, Romania	2
CWD		D. Cowall, MD	1
CXO		J. Cox, England	8
CFY		J. Craig, MA	15
CTX		T. Crawford, OR	10188
CEJA		E. Crist, AZ	100
CMY	20	M. Crook, England	56
CMD	20	M. Crow, England	1772
CRR		R. Crumrine, NY	1
CTI	03	T. Csorgei, Hungary	73
CSM	03	M. Csukas, Romania	4
CKB		B. Cudnik, TX	2083
CEMA		E. Culbertson, PA	1
CUU		J. Curto Amigo, Spain	801
DQA		A. Dandrea, FL	193
DCF		C. Daniels, OR	5
DJE		J. Darby Jr., CA	65
DLS		L. Darling, CA	7
DDRA		D. Darnell, Canada	11
DJEA		J. Darnet, France	8
DAM	06	A. Darriba Martinez, Spain	115
DMP		M. Dasgupta, India	1
DCM		C. Davis, NM	1
DJX	27	M. De Jong, Canada	136
DPP		P. De Ponthiere, Belgium	7439
SWQ	13	W. De Souza, Brazil	18
DKEA		K. Deakes, Isle of Man	7
DROA		R. Defalco, CA	2
DSM		S. Degenhardt, TN	1
DSWA		S. Delchamps, IL	11
DDFA		D. Dempf, Germany	2
DFR	27	F. Dempsey, Canada	15
DDE		D. Denisenko, Russia	3
DEZ	14	E. Derbyshire, NY	3
DAT		A. Derdzikowski, Poland	2566
DASA		A. Desai, India	10
DSI		G. Di Scala, Australia	13243
DLA		A. Dill, KS	117
DJWA		J. Dillion, PA	1
DIL		W. Dillon, TX	33
GDB	03	G. Domeny, Hungary	3
DSN		S. Donnell, CO	21
DRDB		R. Dos Santos, (Roberta), Brazil	2
DRDA		R. Dos Santos, (Rose), Brazil	3
DDJ		D. Dowhos, Canada	43
DPV	09	P. Dubovsky, Slovakia	1542
DMO	01	M. Dumont, France	346
DMPA		M. Durkin, NY	60
DKS		S. Dvorak, FL	49269
DGP		G. Dyck, MA	961
EMAA		M. Eaves, England	25
EHEA		H. Eggenstein, Germany	33
EMA		M. Eichenberger, Switzerland	5
EAMA		A. Enal, Canada	2
EPE	01	P. Enskonatus, Germany	38
ERB		R. Eramia, WA	40
EJO	03	J. Erdei, Hungary	1160
EEY		E. Erdelyi, CA	1613
EJC		J. Escudero, Spain	18
EDFA		D. Eustace, NY	2
ERW	14	R. Evans, New Zealand	86
FROA		R. Fafet, France	1
FWJA		W. Fahey, NE	27
FJY		J. Fahle, CA	21
FAZ		A. Falzolgher, Italy	14
FSU		S. Fanutti, Canada	21
FEO	03	E. Farkas, Hungary	162
RCFA		C. Fernandez Rivero, Spain	939
FAF		A. Few, WA	3
FRF	03	R. Fidrich, Hungary	272
FDH		D. Finch, MA	515
FEV		E. Fischler, WA	10
FSUA		S. Fisek, Turkey	7
FMZ		M. Fitzgerald, TX	235
FGU	02	G. Flechsig, Germany	11
FLE		L. Florin, Romania	5
FDA	03	A. Fodor, Hungary	7
FJRC		J. Forgey, PA	1
FJQ		J. Foster, CA	3698
FNAA		N. Foster, England	4
FEX		E. Fox, PA	4
FXJ		J. Fox, NM	189
FCHA		C. Froeschlin, Germany	31
FGIA		G. Frustaci, Italy	4
FMG		G. Fugman, NE	56
FRTA		R. Fuller, TX	145
FSC		S. Fuqua, CA	17
GHT	27	G. Gaherty, Canada	74
GMO		M. Gainer, PA	1
GCM		C. Gandy, NC	510
GAA		P. Garey, IL	104
GKI		K. Geary, Ireland	12
GCP	02	C. Gerber, Germany	4
GQR		R. Gherase, Romania	1
GAO		A. Giambersio, Italy	1
JMG		M. Gibaja, Spain	3
GGU	04	G. Gilein, Netherlands	77
GMY		M. Glennon, Ireland	27
GZN		A. Glez-Herrera, Spain	217
GFB	31	B. Goff, CA	23080
GPU		P. Goldfinger, CA	6
GOT	06	T. Gomez, Spain	7297
GCJ	07	J. Gonzalez Carballo, Spain	8
GVG		V. Gonzalez Garcia, Spain	11

Table 3. AAVSO Observers, 2009–2010, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
GHN		J. Graham, OH	115	JTAA		T. Jaarsma, MA	51
GKA		K. Graham, IL	28793	JPM	10	P. Jacobs, South Africa	26
GRL	08	B. Granslo, Norway	52	JJB	11	J. Jacobsen, Denmark	7
GDT		D. Gray, Canada	4	JMA		M. Jacquesson, France	4
GSEA		S. Graziani, France	10	JTP	01	P. Jacquet, France	53
GNJ		J. Green, Canada	15	JM		R. James, NM	89026
GDY	27	D. Grey, Canada	3	JZO	03	Z. Jankovics, Hungary	459
GTZ		T. Grzybowski, NM	864	JSI		S. Jenner, England	1
GCO		C. Gualdoni, Italy	3055	JGE	06	G. Jimenez, Spain	73
GGX	01	G. Guzman, France	43	JDKA		D. Johnson, TX	11
HCS	03	C. Hadhazi, Hungary	2120	JOG		G. Johnson, MD	76
HDH	03	S. Hadhazi, Hungary	462	JRA		R. Johnson, MN	62
HTY		T. Hager, CT	82	JTEA		T. Johnson, Canada	9
HKB		B. Hakes, IL	116	JON	05	K. Jonckheere, Belgium	1
HCU		C. Halbrook, GA	21	JA	14	A. Jones, New Zealand	3521
HXM		M. Halderman, CA	41	JCN	20	C. Jones, England	185
HJW		J. Hall, CO	104	JJI		J. Jones, OR	9775
HMB	05	F. Hambsch, Belgium	41301	JPGA		P. Jordanov, Bulgaria	35
HP		W. Hampton, CT	1	JTDA		T. Judah, CA	22
HJCA		J. Hancock, TX	11	JAZ	03	A. Juhasz, Hungary	260
HKV		K. Hannon, MD	15	JWM		W. Julian, NM	2304
HPL		P. Hansen, Denmark	55	KPK		P. Kalajian, ME	3150
HQO	03	O. Hanyecz, Hungary	33	KB		W. Kaminski, NM	1
HCI		C. Harlingten, England	2837	KTU		T. Kantola, Finland	2727
HDC		D. Harper, NC	12	KMO		M. Kardasis, Greece	194
HTQ		T. Harriman, CA	1	KSF		S. Karge, Germany	207
HBB		B. Harris, FL	503	KTHA	19	T. Karlsson, Sweden	850
HMQ		M. Harris, GA	86	KAD	03	A. Karpati, Hungary	375
HZA		A. Hasanzadeh, Iran	3	KEI		E. Kato, Australia	6
HHU	05	H. Hautecler, Belgium	121	KBJ		R. Kaufman, Australia	176
HAB		R. Hays Jr., IL	817	KSH	29	S. Kerr, Australia	74
HRZ		R. Hegenbarth, Germany	3	KJJ		J. Keski-Jylha, Finland	534
HBAA		B. Heinemans, Netherlands	17	KSZ	03	S. Keszthelyi, Hungary	284
HQA		A. Henden, MA	5239	KIY		A. Kilin, Russia	368
HND		R. Henderson, England	8070	KRB		R. King, MN	665
HGO		G. Henson, TN	46	KQR		R. Kinne, MA	4
HCW		C. Hergenrother, AZ	36	KSJ	27	S. Kinsella, Canada	50
HMV		M. Hessom, CA	115	KIA	03	A. Kiraly, Hungary	1
HEY	05	B. Heyndrickx, Belgium	120	KIR		P. Kirby, AZ	154
HJS		J. Hissong, OH	1	KGE	08	G. Klingenberg, Norway	536
HJX	13	J. Hodar Munoz, Brazil	8	KPL		P. Kneipp, LA	29
HEK	11	E. Hoeg, Denmark	33	KGT		G. Knight, ME	20
HFO	01	G. Hoffer, Germany	75	KSP		S. Knight, ME	93
HDF		D. Hohman, NY	19	KLO		L. Kocsmaros, Serbia and Montenegro	162
HGP		G. Holahan, MD	3	KRV		R. Koff, CO	10275
HYA	14	A. Homes, New Zealand	22	KLG		G. Kohl, AZ	2
HOO	04	G. Hoogeveen, Netherlands	35	KHL		M. Kohl, Switzerland	3
HOT		J. Hoot, CA	86	KYI	29	Y. Kok, Australia	4
HPO		J. Hopkins, AZ	8	KRS		R. Kolman, IL	1673
HJZ		J.D. Horne, CA	35	KMA		M. Komorous, Canada	2793
HJG		J.G. Horne, CA	221	KJK		J. Konasek, Czech Republic	4
HSP	14	S. Hovell, New Zealand	47	KMP		M. Koppelman, MN	4
HSW		S. Howerton, KS	303	KCS	03	C. Koros, Hungary	21
HDU		D. Hurdis, RI	1839	KOS	03	A. Kosa-Kiss, Romania	4139
HUR	20	G. Hurst, England	2373	KLX		L. Koscianski, MD	3
HTN		K. Hutton, CA	81	KAF	03	A. Kovacs, Hungary	382
HUZ		R. Huziak, Canada	80	KVI	03	I. Kovacs, Hungary	247
ILE	03	E. Illes, Hungary	271	KTC		T. Krajci, NM	1802
JMIA		M. J, Poland	9	KWO	02	W. Kriebel, Germany	684

Table 3. AAVSO Observers, 2009–2010, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
KIS	02	G. Krisch, Germany	1225	MCHR		C. Martin, CO	271
KTZ		T. Krzyt, Poland	103	UIS01		J. Martin, IL	40
KBA		B. Kubiak, Poland	368	MMG		M. Martinengo, Italy	1062
KUC	01	S. Kuchto, France	465	MRX	02	H. Marx, Germany	413
KAPB		A. Kurtz, MA	1	MQI		M. Matesic, Croatia	9
KSQ		S. Kuznetsov, Russia	1659	MMIK		M. Matessa, CA	6
LCR	15	C. Labordena, Spain	720	MTH		H. Matsuyama, Australia	7683
LHS		H. Lacombe, Canada	33	MPR		P. Maurer, Germany	372
LMU		M. Lahteenmaki, Finland	23	MAZ		M. Mazurek, AZ	1
LSA	17	S. Lahtinen, Finland	7	MBE		B. McCandless, MD	535
LPB		P. Lake, Australia	106	MQS		S. McCann, England	22
LDJ	27	D. Lane, Canada	1172	MJAB		J. McCullough, Australia	25
LTO	02	T. Lange, Germany	11	MUE		R. McDaniel, TX	2525
LMF	13	M. Lara, Brazil	368	MDP	27	P. McDonald, Canada	585
LTM		T. Laskowski, IN	16	MGH	20	H. McGee, England	352
LZT		T. Lazuka, IL	550	MVX		V. Mechinsky, Belarus	4
LEB	01	R. Lebert, France	15	MEP		D. Medicis, NY	34
LMT		M. Legutko, Poland	164	MED	20	K. Medway, England	1460
LDA		D. Lehman, MD	7	ME		J. Meek, NM	9
LDI		D. Lehmann, Germany	11	MZU		J. Menendez, Spain	2
LPD	01	P. Lemarchand, France	4	MJLE		J. Menke, MD	3180
LNZ		G. Lenz, LA	31	MZK		K. Menzies, MA	20707
LEV		A. Leveque, CA	146	MBO		I. Merhebi, Lebanon	15
LVY		D. Levy, AZ	71	MDEN		D. Merrill, CA	51
LKV		K. Lindsey, CA	7	MVH		V. Mihai, Romania	371
LMK		M. Linnolt, HI	843	MXL	20	R. Miles, England	16
LCO		C. Littlefield, IN	405	MBAA		B. Miller, CA	17
LYZ		Y. Liu, CA	9	MEJA		E. Miller, PA	1
LLZ	03	L. Liziczai, Hungary	108	MIW	20	I. Miller, England	28705
LTE	20	T. Lloyd Evans, England	1943	MMGA		M. Miller, TN	14
LACA		A. Lloyd, PA	15	MSCO		S. Miller, AZ	1
LOB	06	J. Lobo Rodriguez, Spain	408	MADA		A. Mills, Canada	28
LBW		B. Longan, PA	1	MBY	27	B. Mills, Canada	12
LRD		D. Loring, UT	1115	MZS	03	A. Mizser, Hungary	194
LAH		A. Losch, PA	1	MCE		E. Mochizuki, Japan	6
LDS	20	D. Loughney, England	137	MRV		R. Modic, OH	50
LKY		K. Loupy, CA	9	MJKA		J. Modra, WI	10
LFZ		F. Lucidi, Italy	1229	MHH		J. Moehlmann, PA	840
LMJ	17	M. Luostarinen, Finland	4313	MQE		K. Mogul, GA	3001
MAMB		A. Maasho, TN	9	MOD		D. Mohrbacher, OH	24
MDW	27	W. MacDonald, Canada	5527	MLF	10	L. Monard, South Africa	256
MTHA		T. MacLeod, AK	6	MJOH	20	J. Moore, England	95
MYB	03	M. Magyari, Hungary	34	MEV	01	E. Morelle, France	33095
MSIA		S. Mahesh, India	4	MALN		A. Morrin, England	9
MLI		L. Maisler, NY	26	MOW		W. Morrison, Canada	5036
MDAV		D. Majors, CA	62	MPS	27	P. Mozel, Canada	43
MVO	17	V. Makela, Finland	260	MMH		M. Muciek, Poland	65
MJHN	20	J. Mallett, England	4	MDAN	03	D. Mueller, Hungary	11
MESB	17	E. Mangeloja, Finland	15	MBQ		B. Mullin, MN	1
MCHP	20	C. Mann, England	2	MUY	05	E. Muyllaert, Belgium	1455
MUQ		D. Manousos, Greece	10	MGW		G. Myers, CA	1018
MKE		R. Manske, WI	17	NKM		M. Nabi Khan, Pakistan	27
MOF		O. Maraev, Russia	2	NDQ	01	D. Naillon, France	106
MGK		G. Maravelias, Greece	187	NVI		V. Narang, India	2
MXI	18	A. Marchini, Italy	2606	NCLA		C. Nell, Canada	9
MBOA		B. Marinov, Bulgaria	2	NLX		P. Nelson, Australia	2903
MTON	20	T. Markham, England	707	NAL	03	A. Nemes, Hungary	57
MKW		A. Markiewicz, Poland	56	NJO	02	J. Neumann, Germany	775
MMN	18	M. Martignoni, Italy	142	NMR		M. Nicholson, England	264

Table 3. AAVSO Observers, 2009–2010, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
NHS	11	H. Nielsen, Denmark	31	PMV		M. Popescu, Romania	89
NFD	04	F. Nieuwenhout, Netherlands	440	PRV		R. Potter, MI	48
NCH		C. Norris, TX	61	PWR		R. Powaski, OH	9
NAO		A. Novichonok, Russia	102	PSEA		S. Powers, CA	11
NJJA		J. Nugent, WA	19	POX		M. Poxon, England	347
NAN		A. Nygaard, England	14	PYG		G. Poyner, England	7991
OCN		S. O'Connor, Bermuda	379	PAH		A. Price, MA	18
OCX		L. O'Connor, MA	65	POB		R. Price, England	19
ONJ		J. O'Neill, Ireland	89	PMB		M. Prokosch, TX	32
OSN		S. Oatney, KS	30	PUJ	06	F. Pujol-Clapes, Spain	636
OANA		A. Oberley, ME	21	PKU		K. Pukero, Finland	605
OAS		A. Odasso, Italy	132	PHG		H. Purucker, Germany	143
OALA	02	A. Oertlin, Germany	186	QW	02	W. Quester, Germany	6
OSL		S. Ogalde, Chile	14	QFI	05	F. Questier, Belgium	6
OYE		Y. Ogmen, Cyprus	5223	QCL		C. Quintale, Brazil	2
OAR	17	A. Oksanen, Finland	11741	RKE	02	K. Raetz, Germany	356
OMIB		M. Orbe, PR	14	RPS	27	P. Raine, Canada	17
OAD		A. Ormsby, MI	200	RBK		B. Ramotowski, NM	1
OPR		P. Ossowski, Poland	14	RMN		M. Ratcliffe, KS	71
OSE		S. Otero, Argentina	1	RWA		W. Rauscher, PA	14
OSJ		J. Otero Saiz, Spain	16	RRD	14	R. Rea, New Zealand	6
OJJ		J. Ott, CO	971	RMJB		M. Reilly, Ireland	16
OCR	05	C. Otten, Belgium	328	REP	24	P. Reinhard, Austria	243
ORAA		R. Owen, NC	10	RNIA		N. Reinsel, PA	22
OEH		E. Ozturk, Turkey	23	RFP	13	P. Reis-Fernandes, Brazil	23
PLA	13	A. Padilla Filho, Brazil	4	RGO	20	G. Relf, England	12
PSD		S. Padovan, Spain	3117	RVMA		V. Renehan, MA	1
PLN	02	L. Pagel, Germany	4863	RKZ	13	K. Resende, Brazil	8
PLP		L. Palazzi, Italy	817	RMQ		M. Reszelski, Poland	1570
PBPA		B. Palmer, NY	8	RKI		K. Reynolds, CA	14
PKO		K. Panourakis, Greece	154	RJG		J. Ribeiro, Portugal	150
PBC		B. Paolo, Italy	76	RBJ		J. Richards, Wales	37
PCC	18	R. Papini, Italy	802	RIX	29	T. Richards, Australia	2820
PPS	03	S. Papp, Hungary	2628	RHJ		J. Richmond, MI	263
PREA		R. Paret, France	14	RIJ		S. Riley, CT	6
PCN		C. Parrinello, IL	3	OJR		J. Ripero Osorio, Spain	1464
PTQ		T. Parson, MN	2	RIV		M. Rivera, Italy	336
PCG		J. Pascual Gutierrez, Spain	26	RLJA		L. Robert, France	82
PKV		K. Paxson, TX	679	REE		E. Robinson, England	31
PTX		T. Peairs, VT	17	RKO		K. Robinson, England	1
PKL		K. Pearson, VA	10	RZD	06	D. Rodriguez, Spain	4
PBT		R. Pearson, VA	59	RFC		F. Rodriguez Bergali, Spain	76
PEI	11	E. Pedersen, Denmark	81	RMU	06	M. Rodriguez Marco, Spain	506
PEG	01	C. Peguet, France	580	ROE		J. Roe, MO	1007
PWD		W. Pellerin, TX	85	RRO		R. Rogge, Germany	2
PGDA		G. Phipps, PA	36	ROG		G. Ross, MI	130
PRP		R. Pickard, Australia	1	RGN		G. Rossi, Italy	7
PXR	20	R. Pickard, England	9239	RAFA		A. Roussell, Canada	6
PKI		O. Piechowski, KY	8	RCJA		C. Roussell, Canada	34
PROC		R. Pieri, France	125	RR		R. Royer, CA	6
PUWA		U. Pilz, Germany	6	RGY		G. Rubright, PA	10
PGU	18	G. Pinazzi, Italy	9	RJV		J. Ruiz Fernandez, Spain	1679
PIJ	03	J. Piriti, Hungary	137	RTH		T. Rutherford, TN	156
PPL		P. Plante, OH	281	RZM		M. Rzepka, Poland	1270
PHN	04	H. Pleijsier, Netherlands	13	SINA		I. Saathoff, PA	26
PAW		A. Plummer, Australia	3247	SJD		J. Sabia, PA	30
AST	12	R. Podesta, Argentina	32	SRIC		R. Sabo, MT	16643
PRX		R. Poklar, AZ	5701	SMFA		M. Saegaert, CT	6
PMO	10	M. Poll, South Africa	19	SJQ		A. Sajtz, Romania	290

Table 3. AAVSO Observers, 2009–2010, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
SSU		S. Sakuma, Japan	1290	STAK		T. Soejima, Japan	46
SMRK		M. Salisbury, England	1087	SKA	16	K. Sokolovsky, Germany	118
SVI		M. Sallman, MN	246	SBX		A. Sonka, Romania	5
SQL	26	R. Salvo, Uruguay	10	SSRA		S. Sood, India	3
SAH		G. Samolyk, WI	49204	SGYO	03	G. Soponyai, Hungary	521
SDLA		D. Sampsell, PA	21	SYP		P. Soron, Canada	6
DSS	06	A. San Segundo Delgado, Spain	60	SOW	17	J. Sorvari, Finland	91
SAMB		A. Sandberg, CO	1	SEIC		E. Southgate, Australia	1935
SXY		A. Sankowski, Poland	6	SJZ		J. Speil, Poland	1995
SGX	03	G. Santa, Hungary	44	SC	27	C. Spratt, Canada	303
STC		G. Santacana, PR	8	STSA		T. Spuck, PA	1
SKI	03	K. Sarneczky, Hungary	19	SXR	03	M. Sragner, Hungary	1
SVA		A. Saw, Australia	290	SBL	05	B. Staels, Belgium	41043
SDAV		D. Scanlan, England	113	SDAY		D. Stager, CA	233
SXK	02	M. Schabacher, Germany	58	SVAE		V. Stanimirov, Bulgaria	3
SCK		B. Schaefer, LA	1	STR		R. Stanton, CA	44
SRBR		R. Schippers, Netherlands	274	SDB		D. Starkey, IN	293
SPK	01	P. Schmeer, Germany	15	SALE	09	A. Staroverov, Ukraine	25
SFRA		F. Schorr, GA	313	SPET		P. Starr, Australia	21693
SGLE		G. Schrader, Australia	49	SJAT		J. Starzomski, Poland	760
SYU	02	M. Schubert, Germany	710	STAS		T. Stebler, Switzerland	36
SAND	02	A. Schumann, Germany	792	STI		P. Steffey, FL	653
SMJA		M. Schwab, NY	13	SWIL		W. Stein, NM	29332
SRIH		R. Schwartz, WA	3027	SVR		R. Stencel, CO	16
SJEA	01	J. Sciolla, France	145	SET		C. Stephan, FL	1477
SMIK		M. Scott, UT	6	SJNO	03	J. Stickel, Hungary	104
SRYA	27	R. Scott, Canada	3	SRB		R. Stine, CA	942
SCIA		C. Scriuba, Canada	1	SOX		C. Stockdale, Australia	16290
SANI		A. Semien, LA	1	STQ		N. Stoikidis, Greece	15
SIV		I. Sergey, Belarus	83	SPSA		P. Stoj, Poland	2
SMRC	01	M. Serreau, France	10	SDI	20	D. Storey, England	146
SDF		D. Shackleford, CA	26	SFU	29	M. Streamer, Australia	382
SSHA		S. Shaffer, WY	677	SNJ		N. Stritof, Slovenia	15
SHS		S. Sharpe, Canada	3143	SRX	14	R. Stubbings, Australia	8488
SDP		D. Sharples, NY	10	SUK		M. Stuka, CA	8
SFY	20	J. Shears, England	10196	SUQ		P. Sucker, Germany	81
SHW		W. Sherman, TX	9	SUS	02	D. Suessmann, Germany	368
SLH		L. Shotter, PA	1367	TSUA		T. Sukumaran, India	46
SUY		A. Shoup, OH	759	SJAR		J. Suomela, Finland	1389
SRAF		R. Sikora, Poland	12	SWV		D. Swann, TX	457
SPAO	18	P. Siliprandi, Italy	373	SSW		S. Swierczynski, Poland	1331
SBN	13	A. Silva Barros, Brazil	13	SJME		J. Sykes, WA	11
SGEO		G. Silvis, MA	112	SFX	03	T. Szalai, Hungary	3
SNE		N. Simmons, WI	1811	SAO	03	A. Szauer, Hungary	64
SXN		M. Simonsen, MI	2246	SPAU		P. Szkody, WA	2
SANG		A. Sing, Philippines	207	TUO		U. Tagliaferri, Italy	94
SGOR		G. Sjoberg, MA	20489	TSH		S. Taheran, TX	89
SJMA		J. Skillicorn, AZ	2	TTG		T. Tan, Australia	337
SDN		D. Slauson, IA	77	TDB	27	D. Taylor, Canada	57
SALX		A. Smirnov, Russia	8	TJOA		J. Taylor, OR	6
SEVG		E. Smirnov, Russia	4	TNB		N. Taylor, UT	1
SJX	10	J. Smit, South Africa	26	TPV		P. Temple, NM	4
SMI		A. Smith, England	16	TEMA		E. Temple-Wood, IL	79
SDEW		D. Smith, OK	12	TJV		J. Temprano, Spain	472
SHA		H. Smith, MI	37	TPS	03	I. Tepliczky, Hungary	993
SJE		J. Smith, CA	113	TDN		D. Terpstra, AZ	230
SUI		R. Smith, England	15	TBY		B. Terrell, CA	13
SSTB		S. Smith, CA	13	TPWA		P. Tervit, New Zealand	7
SX		L. Snyder, NV	46167	TFM		F. Teyssier, France	2

Table 3. AAVSO Observers, 2009–2010, cont.*

Code	Org.	Name	No. Obs.	Code	Org.	Name	No. Obs.
TTU		T. Tezel, Turkey	24	WEQ		E. Waller, VA	50
TSCA		S. Tilley, England	10	WBY		B. Walter, TX	25
TIA	03	A. Timar, Hungary	165	WGE		G. Ward, WV	8
TBRA		B. Tobias, TX	1	WAU		A. Wargin, Poland	63
TRL		R. Togni, AR	18	WAB		B. Warner, CO	191
TRE		R. Tomlin, IL	66164	WME		M. Wasiuta, VA	12
TVM		V. Torres, Spain	191	WDC		D. Watts, MS	51
TAV	03	A. Tozser, Hungary	12	WCB		C. Webster, PA	501
TSC		S. Tracy, CT	18	WGAA		G. Webster, Canada	10
TFR		F. Travaglino, Italy	117	WPT	10	P. Wedepohl, South Africa	148
TWA		W. Travis, MA	10	WDZ		D. Wells, TX	849
TRF		C. Trefzger, Switzerland	41	WKL	15	K. Wenzel, Germany	449
TDW		D. Trowbridge, WA	287	WEF		F. West, MD	21
TMHA		M. Tsang, Canada	1	WJD		J. West, KS	1
TMN		M. Tsikalas, Greece	9	WDT		D. Wetherington, FL	6
TSJ		S. Tsuji, Japan	56	WADA		A. Wheeler, PA	1
TOAA		O. Tutchin, Russia	1	WRP		R. Wheeler, OK	4
TYS		R. Tyson, NY	956	WAH		A. Whiting, WA	30
UML		M. Umbricht, RI	2	WBN		B. Widla, Poland	180
URS		R. Uyematsu, FL	1	WBO		B. Williams, GA	25
VLN	01	L. Vadrot, France	51	WI		D. Williams, IN	133
BVE	04	E. Van Ballegoij, Netherlands	2071	WIG		G. Williams, OH	3
VBR		H. Van Bemmel, Canada	11	WPX	29	P. Williams, Australia	3699
VDE	04	E. Van Dijk, Netherlands	25	WLP	05	P. Wils, Belgium	96
VNL	05	F. Van Loo, Belgium	1126	WWJ		B. Wilson, England	1012
VSH	05	H. Van Sebroeckx, Belgium	7	WBH		R. Wilson, AZ	64
VUG	04	G. Van Uden, Netherlands	104	WSN		T. Wilson, WV	1155
VWS	05	J. Van Wassenhove, Belgium	93	WAS	02	A. Winkler, Germany	144
VBH	05	H. Vandenbruaene, Belgium	124	WBS		R. Wobus, MD	20
VHG		G. Vander Haagen, MI	4153	WGI	02	G. Wollenhaupt, Germany	4
VSD	05	D. Vansteelant, Belgium	23	WGO		G. Wood, NC	42
VKN		K. Vardijan, Croatia	2	WVR		R. Wood, TX	31
VED	01	P. Vedrenne, France	1344	WMQ		M. Wright, NJ	2
VCLA		C. Veliz, VT	18	WUB	04	E. Wubbena, Netherlands	204
VFA	18	F. Verza, Italy	10	WCG		C. Wyatt, Australia	33
VIA	01	J. Vialle, France	89	XWE		W. Xu, China	23
VJA	17	J. Virtanen, Finland	1686	YNRA		N. Yashinski, PA	39
VGK		G. Vithoulkas, Greece	1626	YDS		D. Yi, Korea	8
VRM		R. Vivaldi, Italy	6	YL		L. Yont, MA	8
VPZ	03	P. Vizi, Hungary	200	YBA		B. Young, OK	330
VFK	02	F. Vohla, Germany	2541	YON		R. Young, PA	3
VOL		W. Vollmann, Austria	314	ZFRA		F. Zecchin, France	16
VVC		V. Voropaev, Russia	3	ZPA		P. Zeller, IN	174
VSA		S. Vuorinen, Finland	10	ZPV		P. Zhavoronkov, Russia	3
WLY		L. Wade, MS	204	ZTO	02	T. Zimmermann, Germany	57
WGR		G. Walker, MA	6	ZALA		A. Zonta, Germany	90
WAE		A. Waller, VA	37	ZTH		T. Zwach, Austria	27

** Totals reflect data received during fiscal 2009–2010 and may include historical data (data preceding fiscal 2009–2010) submitted during fiscal 2009–2010.*

Table 3. AAVSO Observers, 2009–2010, cont.

These codes, which appear in the Table (AAVSO Observers 2009–2010), 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)
07 Asociacion de Variabilistas de Espagne (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 Iberoamericana de Astronomia (South America)
13 Rede de Astronomia Observacional (Brazil)
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)
19 Svensk Amator Astronomisk Förening, Variabelsektionen (Sweden)
20 British Astronomical Association, Variable Star Section
23 Grupo Astronomico Silos (Spain)
24 Astronomischer Jugendclub (Austria)
25 Variable Star Observers League in Japan
26 Red de Observadores (Montevideo, Uruguay)
27 Royal Astronomical Society of Canada
28 Asociacion Argentina Amigos de la Astronomia
29 Variable Stars South (New Zealand)
31 Center for Backyard Astronomy
34 Astronomical Society of South Australia
35 Red de Observatores de Estrellas Variables—MIRA (Spain)

Table 4. Observation statistics for fiscal year 2009–2010.*

Observations (increments of 1000)	*No. Observations per increment*	*% of All Observations*	*No. Observers per increment*
1–999	81783	7	678
1000–1999	64945	6	45
2000–2999	51616	5	21
3000–3999	45713	4	14
4000–4999	21508	2	5
5000–5999	37539	3	7
6000–6999	0	0	0
7000–7999	30410	3	4
8000–8999	16558	2	2
9000–9999	19014	2	2
10000+	712049	65	24

** Totals reflect data received during fiscal 2009–2010 and may include historical data (data preceding fiscal 2009–2010) submitted during fiscal 2009–2010.*

Section Reports

Cataclysmic Variable (CV)

Section Leaders: ***Mike Simonsen,*** *2615 S. Summers Road, Imlay City, MI 48444*
Gary Poyner*, 67 Ellerton Road, Kingstanding, Birmingham, B44 0QE, England*

The CVnet discussion list has 244 subscribers. The past year's activity is best described as an announcement list. Actual discussion seldom takes place. Notes from *AAVSO Alert Notices*, *IAU Circulars*, and *Astronomers' Telegrams* get forwarded here also.

The CVnet outburst list has 227 subscribers. This list has daily activity and is used by observers to announce outburst detections and unusual behavior of CVs, as well as Z Cam standstills and time series results.

The CVnet Circular has 154 subscribers and is edited and maintained by Chris Watson and Mike Simonsen. Daily average magnitudes of all the CVs in the AAVSO International Database (AID) are calculated and tabulated for a 30-day period and distributed automatically via email each Monday morning at 00:00UT.

Section co-leaders Mike Simonsen and Gary Poyner moderate all the CVnet mail lists. The CV Section website is hosted by Google at: https://sites.google.com/site/aavsocvsection/Home

The main features on the home page are a left-hand news column and navigation box, a center column feature story, and recent pre-prints for arXiv on CVs, and a right-hand column with Activity at a Glance, (outbursts from the past 72 hours), CV outbursts from CRTS, and boxes for the Z CamPaign, Hamburg Survey CVs, and the Long-Term Polar Monitoring Programme.

The home page is maintained and updated daily, often several times per day by section co-leaders Simonsen and Poyner. All the remaining content, including the blog, feature articles, and interviews, is written, edited, and maintained by Simonsen.

The main activity of our observers has been to monitor the CVs in the AAVSO program for activity and report their data to the AID. Little or no analysis of the data is done by AAVSO members or staff. The only exception to this being the Z CamPaign, which has bi-monthly or quarterly updates reported to the section on the campaign targets. Two papers resulting from the Z CamPaign have been accepted for publication in *JAAVSO*.

Charts and Sequences

Section Leader: ***Mike Simonsen,*** *2615 S. Summers Road, Imlay City, MI 48444*

The charts and sequences team is made up of volunteers who work countless hours each month revising old sequences and creating new sequences. Our most active team members account for about 90% of the work, notably Tom Bretl, Tim Crawford, Robert Fidrich, and Keith Graham. Bob Stine deserves to be mentioned as our team visual sequence evaluator and Sebastian Otero provides invaluable insight into bright star catalogs and photometry. Our newest team member, Sherrill Shaffer, is learning the ropes and becoming very active.

Coordination with Headquarters has improved to the point that whenever there is an upcoming campaign we are notified in advance and can check the sequences of the target stars to provide the best possible results from our observers.

The primary tool used, SeqPlot, displays stars with reliable photometry in three colors, green, red, and blue. This makes it easy for team members to select non-red and non-blue stars based on B–V color. Selecting a star for a sequence is done by clicking on that star, which in turn sends it to a text file, formatted for uploading into the variable star/comp star database, VSD.

Files and notes on sequences are shared through the sequence team mail list. Simonsen collects and archives the files and once or twice per week evaluates the submissions, uploads the data to VSD, checks the resulting charts, and notifies the team of implementations via the mail list.

The other important tool in the chain is the VSD Admin tool, which allows the team leader to access, edit, add, and delete information from the comp star database.

Changes are all tracked online in a Google spreadsheet accessible to the public at:

https://spreadsheets.google.com/ccc?key=0Ar0ujdSb5ufQdEhkTE5jREhWRm95dDRialM0R1ZGREE&hl=en&pli=1#gid=0

CHET, the chart error tracking tool, which allows observers to report and track the progress of chart issues, has been offline since implementation of the new website. Re-launching this important component of the chart team is expected sometime in early 2011.

The sequence team has its own website, created, and maintained by Simonsen, where team members and especially new team members can find instructions on how to use SeqPlot, guidelines for sequence creation and revisions, photometric resources outside SeqPlot, a tutorial on how to use ASAS data, and a list of current projects and priorities. The team site can be viewed online at:

https://sites.google.com/site/aavsosequenceteam/Home

Photometry available in SeqPlot includes the Tycho database, Bright Star Monitor data, Henden 1M USNO calibrations, new releases of APASS data as they become available, and several sources from AAVSOnet, including SRO, and the Wright telescopes.

As results come in from APASS it becomes ever more obvious that this will be a fantastic one of a kind catalog, a prestigious AAVSO asset, and a priceless legacy from our Director, Arne Henden. An all-sky photometric catalog from 10th to 17th magnitude has been the Holy Grail of AAVSO chart makers since the dawn of the AAVSO. I feel lucky to be around as it becomes a reality.

The results speak for themselves in the improved quality of the sequences available to observers and the speed and efficiency revisions and new sequences can be implemented with the system in place now. If you need a quantitative measure, the team has implemented 742 new or revised sequences since November of 2008—two years.

We plan to continue to improve existing sequences as new photometry becomes available. We have prioritized the AAVSO EB Program and RR Lyr Program stars and are working on those sequences as photometry becomes available. We have several known special cases that need notes in the footer of the charts or special one of a kind charts plotted to address close companions or embedded nebulae. And when CHET comes back online we will continue to address observers concerns with charts.

Data Mining

Section Leader: Michael Koppelman, *1523 Valders Avenue N, Golden Valley, MN 55427*
Scientific Advisor: Dr. Doug Welch, 100 Melville Street, Dundas, ON L9H 2A3, Canada

Section Goals

Provide education and training in data mining.

Support and direct original data mining research.

Aid existing programs with data mining tasks.

Measuring Progress

Number of participants: about 35 (number of participants in the Google Group).

Number of papers: This is hard to know. AAVSO data are quoted extensively in NASA ADS and notable section members have published some excellent papers, including work by Welch, Wils, and Denisenko. If we want to continue to use this metric we need to define some criteria that constitutes a paper influenced by the data mining section. At this time we do not have real names for all members of the Google Group.

Number of successful relationships: There is no active effort from the section to build relationships as implied in the third goal of the section. AAVSO Headquarters has the most up-to-date information on possible on-going relationships involving data mining by AAVSO members.

I do think the section could benefit from having a Section Organizer who is a data miner! If you are interested in volunteering to organize and report on the activities of the AAVSO Data Mining Section, please email me at michael@slackerastronomy.org.

Eclipsing Binary

Section Leaders: ***Gerard Samolyk,*** *P.O. Box 20677, Greenfield, WI 53220*
Gary Billings*, P.O. Box 263, Rockyford, Alberta T0J 2R0, Canada*

Two papers containing a total of 580 times of minima of 270 stars have been submitted to *JAAVSO* for publication. Fifteen observers have contributed data to these papers. Times of minima published by the AAVSO continue to be added to the Lichtenknecker Database maintained by the BAV. An English language interface to this database can be found at: http://www.bav-astro.de/LkDB/index.php?lang=en.

An ephemeris giving predicted times of minimum for the 200 stars on the AAVSO program is available on the AAVSO website, at http://www.aavso.org/eclipsing-binary-ephemerides. The 2011 ephemeris is now available. This ephemeris is intended for use by observers in North America. The light elements used have been updated based on recent observations made by AAVSO observers.

The rare eclipse of epsilon Aurigae is nearing its final phase. The third contact is expected occur in March of 2011. For more information, refer to the AAVSO Citizen Sky Project at: http://www.citizensky.org/.

Dr. Ed Guinan and Dr. James Applegate generously made themselves available to discuss observing targets and period changes of eclipsing binaries. We anticipate incorporating their guidance into future observing campaigns.

Long Period Variable (LPV)

Interim Section Leader: ***Mike Simonsen****, 2615 S. SUmmers Road, Imlay City, MI 48444*

2010 saw the administration of the section change hands as former section administrator Kate Hutton stepped down after getting the section started and a web site established. The LPV Section website is online at https://sites.google.com/site/aavsolpvsection/Home.

In October 2010, Bob Stine and Frank Schorr both agreed to act as new administrators for the section. Therefore, in our centennial year, 2011, the section administrators will be Jim Bedient, Frank Schorr, Mike Simonsen, and Bob Stine. Our science advisor team is still in place and consists of Dr. Matthew Templeton, Dr. Laszlo Kiss, Dr. John Percy, and Dr. Lee Anne Willson.

The primary goal of the section is to continue the long-term observation, both visually and electronically, of the Legacy LPVs in the program as well as to determine other scientifically significant LPV targets for observers to follow. We are particularly interested in encouraging and guiding visual observers to include LPVs in their target selection and in building their own observing programs.

We also hope to coordinate future campaigns or initiatives involving LPVs. One such program in the nascent stages of development is the LPV Humps and Bumps Program that Frank Schorr has been working on. This is an investigative project to create a list or "catalog" of LPVs that show a particular type of behavior to see if there is reason to start a "scientific project" to discover more about this type of behavior. Several pages of the section website are devoted to this interesting phenomena.

We have also made the establishment of an AAVSO Binocular Program a priority for the coming year. The plan is to assess which stars should be included in the program based on scientific interest and potential, and then have specific paper charts created for observing these targets, since the Variable Star Plotter (VSP) is not optimized for creating useful binocular charts.

This year, *AAVSO Bulletin 74: Predicted Dates of Maxima and Minima of Long Period Variables for 2011* will feature a new design and a shorter and more focused list of LPVs for observers to concentrate on. This redesign of our old, text-based Bulletin will emphasize simplicity, readability, and improved functionality. The shorter (but still comprehensive) list of targets will concentrate on those stars with the best long-term light curves where more visual data will keep these curves growing in span and in value. The Bulletin will be published in February 2011.

While we look back on the first one hundred years of the AAVSO and the important part LPVs have played in amateur's contribution to science, we are even more excited about the next one hundred years of observation and monitoring of these astrophysically interesting stars.

Nova Search

Section Leader: ***Reverend Kenneth C. Beckmann,*** *330 North Washington, Kahoka, MO 63445*

Three observers participated in the AAVSO Nova Search program for the period beginning, September 1, 2009, and ending August 31, 2010. Manfred Durkefälden, a long time AAVSO Nova Search observer from Germany and independent discoverer of Nova Cygni 1975, provided 1,296 minutes of dome searches and searched seventeen search areas. Gary T. Nowak, the independent discoverer of Nova Aquilae 1999 from the United States, provided 909 observations of search areas. Ken Beckmann, the chairman of the AAVSO Nova Search committee and independent discoverer of three novae during the 1970s and 1980s, provided 250 observations of search areas in the summer Milky Way.

We thank these three dedicated observers for their ongoing efforts during the past year. We encourage other observers to contact the Nova Search committee if they have an interest in visual nova hunting. The committee will be pleased to assist new observers.

Discoveries of novae which were made during the period (none were visual) are as follows:

Nova Sgr 2009 No. 4 (V5584 Sgr) was discovered on October 26, 2009, by K. Nishiyama and F. Kabashima of Japan.

Nova Sct 2009 (V496 Sct) was discovered on November 8, 2009, by H. Nishimura of Japan.

Nova Eri 2009 (KT Eri) was discovered on November 25, 2009, by K. Itagaki of Japan.

Nova Aql 2009 (V1722 Aql) was discovered by K. Nishiyama and F. Kabashima of Japan on December 14, 2009.

Nova Oph 2010 (V2673) was discovered by H. Nishimura of Japan on January 16, 2010.

The outburst of the recurrent nova U Scorpii was discovered by Barbara Harris of the USA on January 28, 2010.

Nova Sgr 2010 No. 1 (V5585 Sgr) was discovered by John Seach of Australia on January 20, 2010.

Nova Oph 2010 No. 2 (V2674 Oph) was discovered by H. Nishimura of Japan on February 18, 2010.

Nova Sco 2010 (V1310 Sco) was discovered by K. Nishiyama of Japan on February 20, 2010.

A nova-like outburst of V407 Cyg was independently discovered by K. Nishiyama and F. Kabashima, and T. Kojima on March 10, 2010.

A dwarf-novalike outburst of the recurrent nova GK Per was reported by numerous observers on March 7, 2010.

Nova Sgr 2010 No. 2 (V5586 Sgr) was discovered by K. Nishiyama and F. Kabashima of Japan on April 23, 2010.

Nova Sco 2010 No. 2 (V1311 Sco) was discovered by K. Nishiyama and F. Kabashima, H. Nishimura, T. Kayuna, and Y. Sakurai, all of Japan, on April 25, 2010.

Congratulations to all those who discovered novae during this past year.

Photoelectric Photometry

Section Leader: ***James H. Fox,*** *P.O. Box 135, Mayhill, NM 88339*

The AAVSO Photoelectric Photometry program was very active in 2009–2010. Many observers contributed *B, V, R, I, J,* or *H* data on a variety of stars, some in the official AAVSO PEP program and some not, but all able to benefit from good photoelectric coverage.

Data from 19 individuals or groups were received: 1,607 current observations and 7,598 historical observations, for a total of 9,205 observations (see Table below).

Among the stars intensely observed this year photoelectrically was epsilon Aur, which since 2009 has been undergoing an eclipse, an event that happens only every 27 years. 423 PEP observations were contributed by 11 observers.

Included in this year's data are two historical datasets:

- published photoelectric observations made in 1973-1984 by Leopoldo Celis. These observations were digitized by Brian Skiff.

- observations made in 1971-1999 by members of the Auckland Photometry Observers Group; these data were digitized by Stan Walker.

If you are interested in photoelectric photometry—*BVRI* or *JH*—please contact the chair.

Heartfelt thanks to each observer for their contribution!

AAVSO International Database PEP data contributors 2009–2010

Name	*Location*	*Observer Initials*	*Total*
Auckland Photometry Observers Group	New Zealand	APOG	2035
Charles Calia	CT	CCB	66
Leopoldo Celis	Chile	CSL	5564
Wayne E. Clark	MO	CLK	1
Robert E. Crumrine	NY	CRR	2
James H. Fox	NM	FXJ	157
Jeffrey Hopkins	AZ	HPO	7
Paul Kneipp	LA	KPL	86

table continued on next page

AAVSO International Database PEP data contributors 2009–2010, cont.

John C. Martin	IL	UIS01	130
Brian McCandless	MD	MBE	545
Hans S. Nielsen	Denmark	NHS	31
Adrian Ormsby	MI	OAD	205
Thomas L. Peairs	VT	PTX	17
Thomas Rutherford	TN	RTH	170
Nik Stoikidis	Greece	STQ	24
Erwin van Ballegoij	Netherlands	BVE	21
Henri van Bemmel	Canada	VBR	20
Glen Ward	WV	WGE	4
David B. Williams	IN	WI	120

Prepared with the assistance of Matthew Templeton and Elizabeth Waagen.

Short Period Pulsator

Section Leaders: ***David A. Hurdis,*** *76 Harbour Island Road, Narragansett, RI 02882*
Gerard Samolyk*, P.O. Box 20677, Greenfield, WI 53220*

The AAVSO Short Period Pulsator (SPP) Section incorporates the AAVSO's active RR Lyrae Observing Program, but includes the observation of all pulsating stars found on the Hertzsprung-Russell diagram's "instability strip," namely, the Cepheid variables, their Population-II siblings, the W Virginis stars, RR Lyr stars, and the very short period δ Scuti stars.

In 2010, Gerry Samolyk and Dave Hurdis continued to serve as SPP Section co-chairmen, while Shawn Dvorak continued as its Webmaster. The Section's website can be accessed directly at http://sites.google.com/site/aavsosppsection/, or via a link from the Observers tab of the AAVSO website.

In 2010, Section participants contributed significantly to the AAVSO International Database. A list of contributors and of some of the stars they observed can be found in Gerry's article, "Recent Maxima of 64 Short Period Pulsating Stars," which appeared in Volume 38 of the *JAAVSO*. Regrettably, the discussion group, Aavso-rr_lyr, potentially a powerful tool for observer coordination, continues to be used very lightly.

2010 Publications by the AAVSO SPP Section:

Hurdis, D. A., and Krajci, T., "Secular Variation of the Mode Amplitude-Ratio of the Double-Mode RR Lyrae Star NSVS 5222076," *JAAVSO*, **38**, 1.
Samolyk, G., "Recent Maxima of 64 Short Period Pulsating Stars," *JAAVSO*, **38**, 12.

Samolyk, G., "The 2010 AAVSO RR Lyrae Ephemeris," available online via link from SPP section web site.

Solar

Section Leader: ***Paul Mortfield,*** *34 Portree Crescent, Thornhill, ON L3T 3G2, Canada*

While the Sun continues to be mostly inactive, much has gone on within the Solar Section. In late 2009 Daniel Williams stepped down as Sunspot Analyst after 3½ years of service to the group. Solar observer Kim Hay from Kingston, Ontario, Canada, has taken over this task beginning May 2010. The sunspot observers contributed 8,062 observations (October 2009–September 2010) in spite of the minimal solar activity. Their efforts should be applauded as they continue to monitor our nearest star.

The report of the Sudden Ionospheric Disturbance (SID) group that monitors solar flares with radio equipment follows below. Mike Hill, who has been the SID analyst since 2000, has transferred those tasks to SID observer Rodney Howe beginning this month. We thank Mike for his 10 years of service to the committee.

We hope to work with AAVSO Headquarters over the next six months in proposing and developing an online sunspot data entry system, and bring this area into the modern online age. This would help tremendously with data submissions, analysis, and real-time information for current and future observers.

Sudden Ionosphere Disturbance Group

For the last 12 months overall SID Activity has been quite low. The year started off somewhat actively with 27 and 24 correlated SIDs in January and February but then the number dropped off significantly with only 9 or 10 events per month. Our observer ranks have remained consistent and we still have a good number of observers remaining vigilant in their watch for the next solar flare events. We also added two new observers this year. There were a total of 24 observers submitting reports and a total of 208 reports sent in. Thanks to all observers for their efforts in monitoring, data analysis and report

generation. This will be my last year as SID Analyst. After ten years of working in this position I have decided to pass the torch, and starting in October of 2010 the new SID Analyst will be Rodney Howe from Fort Collins, Colorado. I have enjoyed my work in this regard immensely and will continue to monitor the sun for solar flare activity with the comfort that the SID group is in good hands with Mr. Howe.

SID Observer awards are given to observers after having submitted 40 reports to the group. One observer is eligible for an award this year:

François Steyn	A102

Supernova Search

Section Leader: AAVSO Headquarters

The AAVSO Supernova Search Section is under development. Section Leaders, programs, and procedures will be announced soon!

Treasurer's Report
October 1, 2009–September 30, 2010

Gary W. Billings, *Treasurer, AAVSO, 49 Bay State Road, Cambridge, MA 02138*

The financial figures provided herein are, as in previous years, unaudited, as available a few weeks after fiscal year-end, and in time for the Annual Meeting. In accordance with legal requirements, the AAVSO has its "books" audited yearly by an external accountant, but the auditor's report is not available at the time of this writing. The following comments are offered to aid in interpreting this report.

The "Income" section does not just list monies that are new to the AAVSO. Most importantly, it includes money transferred from our "endowment" accounts.

The AAVSO was honored once again to receive bequests and donations from many individuals, including many donations specifically to support AAVSOnet. Those donors are listed in another section of this Annual Report. In 2009 we obtained a significant multi-year grant from the National Science Foundation (NSF) to execute the Citizen Sky outreach project. The amount received from that grant in FY 2010 was $321,492. That grant continues through FY 2012, at a lower level of funding.

The "Expenses" section also needs some explanation. Most significantly, it does not include spending towards the purchase or upgrading of capital assets. In this case, it omits approximately $63,000 of renovations that increase the value of our headquarters building, and about $70,000 of equipment, including AAVSOnet hardware, and computers at headquarters.

Diligent readers might be alarmed by the large expenditures under meetings and travel. Those categories, and others such as office expenses are "inflated" by costs associated with the Citizen Sky project. Those Citizen Sky costs were reimbursed by monies included as grant income.

Some further items that must be considered when comparing Income to Expenses, are changes in cash on hand at year end and changes in the amount of receivables and prepaid expenses (mostly insurance). Thus, while one might look at Income, which exceeds Expenses by a large sum, and conclude we generate a large surplus every year, that is not the case! See the section, "Disposition of Income."

Finally, I have added another small section this year, showing the balance of our endowments, and the amounts attributed to three different "restricted funds," that is, monies held for specific purposes. The net is the amount of unrestricted endowment funds; the principal, income, and capital gains on these unrestricted funds are available for funding the general operations of the AAVSO.

Unlike FY 2009, when investment returns were negative, in FY 2010 the money we drew from our endowments was less than the capital appreciation and income on those endowments, so our year-end endowment balance is greater than at the end of FY 2009.

2010 Income

Dues income	$79,698
Sales	11,152
Meetings	10,961
Grants	321,492
Bequests and Donations	214,225
Transfers from endowments	837,976
Bank interest	839
Total Income	$1,476,343

2010 Expenses

Staff salary costs	$712,862
Contract/temp salaries	147,665
Payroll tax, benefits , and other costs	218,113
Building maintenance	4,993
Utilities, cleaning, insurance	18,652
General office expenses	12,807
Postage	12.721
Legal and accounting	24,534
Publications	4,593
Technical operations (including AAVSOnet)	30,006
Internet	7,542
Meetings (including CitizenSky)	78,055
Travel	32,477
Miscellaneous	15,993
Total Expenses	$1,321,013

2010 Disposition of Income

Total Income	$1,476,343
Total Expenses	(1,321,013)
Additions to buildings	(63,182)
Purchases of equipment	(70,478)
Change in prepaid expenses	(1,015)
Change in payables/liabilities	(20,225)
Change in cash (current account)	(432)
Discrepancy	$(-2)

2010 Year End Endowment Balance

Overall balance	$12,413,833
Mayall Fund	(64,075)
Mattei Fund	(60,842)
AAVSOnet funds	(31,483)
Net unrestricted funds in our endowments	$12,257,433

3. Officers, Staff, and Volunteers

AAVSO Officers, Council Members, and Section Leaders for Fiscal Year 2010–2011

You may contact these persons through AAVSO Headquarters.

Officers

Director	Arne Henden, Ph.D.	(term of office: 2005–2011)
President	Jaime Ruben García	(2009–2011)
1st Vice President	Mario Motta, M.D.	(2010–2012)
2nd Vice President	Jennifer Sokoloski, Ph.D.	(2010–2012)
Secretary	Gary Walker	(2009–2011)
Treasurer	Gary Billings	(2009–2011)

Council Members

Pamela L. Gay, Ph.D.	(2009–2011)
Edward F. Guinan, Ph.D.	(2008–2011)
Michael Koppelman	(2008–2011)
Arlo U. Landolt, Ph.D.	(2008–2011)
Bob Stine	(2010–2011)
Donn Starkey	(2010–2011)
David Turner, Ph.D.	(2009–2011)
Christopher Watson	(2009–2011)

Section Leaders

Cataclysmic Variable	Mike Simonsen, Gary Poyner
Data Mining	Michael Koppelman
Eclipsing Binary	Gerard Samolyk, Gary Billings
Long Period Variable	Mike Simonsen, Bob Stine, Frank Schorr
Nova Search	Rev. Kenneth C. Beckmann
Photoelectric Photometry	James H. Fox
Solar	
Section Leader	Paul Mortfield
Sunspot Group Leader	Dan Williams
Solar Flare/SID Observing Group	William Michael Hill
Short Period Pulsator	David Hurdis, Gerard Samolyk
Supernova Search	AAVSO Headquarters
Journal of the AAVSO Editor	John R. Percy, Ph.D.
Charts and Sequences	Mike Simonsen

AAVSO Headquarters Staff

Sara J. Beck	Technical Assistant, Special Projects
Gloria Ortiz Cruz	Data Entry Technician, Part Time
Arne Henden, Ph.D.	Director
Linda Henden	Administrative Assistant, Part Time
Richard Kinne	Astronomical Technical Assistant, Technology
Will McMain	Web Developer
Aaron Price, Ph.D.	Assistant Director
Virginia Renehan	Administrative Assistant, Publications
Arthur Ritchie	Headquarters Volunteer
Michael Saladyga, Ph.D.	Technical Assistant, *JAAVSO* and *Newsletter* Production Editor, Archives, Library
Mike Simonsen	Membership Director and Development Director
Matthew Templeton, Ph.D.	Science Director, *JAAVSO* Assistant Editor
Rebecca Turner	Astronomical Technical Assistant, Project Manager, Sponsored Research Officer, Meeting Coordinator, Part Time
Elizabeth O. Waagen	Senior Technical Assistant, *JAAVSO* Associate Editor

AAVSO Volunteers

AAVSO members are very generous with their time and talents. Many of the programs and services we offer would not be possible without the participation of member volunteers. They are regularly involved in teaching new observers, writing articles for our publications, vetting submissions to the *Variable Star Index*, and the creation of charts and comparison star sequences.

We take this opportunity to recognize these special people, and to say *thank you* for another year of valuable contributions of time and expertise.

Mentor Program Volunteers

Patrick Abbott
John A. Blackwell
Thom Bretl
Glenn Chaple Jr.
Tim Crawford
Bill Dillon
Robert Fidrich
Jim Fox
Geoff Gaherty
Bill Goff
Keith Graham
Kate Hutton
Michael Koppelman
Tom Krajci
Michael Linnolt
Mike Mattei
Peter Nelson
Sebastian Otero
Chuck Pullen
Steve Robinson
Guido E. Santacana
Mike Simonsen
Ray Tomlin

Variable Star Index (VSX) Moderators

Michael Koppelman
Sebastian Otero
Wolfgang Renz
Mike Simonsen
Christopher Watson
Patrick Wils

Charts and Sequences

Thom Bretl
Tim Crawford
Robert Fidrich
Keith Graham
Michael Koppelman
Jim Jones
Mati Morel
Sebastian Otero
Wolfgang Renz
Mike Simonsen

Speakers Bureau

Raymond Benge
Tom Bretl
Tim Crawford
Pamela Gay
Keith Graham
Albert Holm
Kate Hutton
Roger S. Kolman, Ph. D.
Tom Krajci
Doug Lombardi
Alex McConahay
Mario Motta
Gordon Myers
Chuck Pullen
Michael Richmond
Michael Rupen
Mike Simonsen
Arif Solmaz
Chris Stephan
Bob Stine
Paul Temple

Solar Section

William Michael Hill
Paul Mortfield
Arthur Ritchie
Dan Williams

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Grant Foster
Barbara Harris
Steve B. Howell
Patrick McDonald
Ibrahim Merhebi
John O'Neill
Sebastian A. Otero
Phil Plait
Fred Ringwald
Chris Stephan
Rod Stubbings

4. Word From the Astronomical Community

Nirav Shah, an active member of the Amateur Astronomers Inc (AAI) astronomy club located in Cranford, NJ, has asked the AAVSO Mentoring Program for assistance in variable star CCD Photometry. The AAI has a membership of 215. The club had asked Nirav to lead a project on variable stars, so Nirav and three other club members have taken responsibility for moving the club into the realm of variable star observing using CCD photometry.

Nirav and his colleagues first wrote us having absolutely no experience in photometry, although they did have CCD imaging experience. The first step was to provide them with a paper I wrote especially for those just starting out in CCD photometry. After perusing this paper, Nirav started asking the right questions to get the group on its way. Those questions pertained to equipment, charts, comp stars, imaging, calibration, & software. With two observatories, four telescopes ranging from 8" to 24", and an SBIG ST8MXe camera, the club already had excellent equipment for making CCD variable star observations. To round out the equipment list, the club recently purchased a V filter, MaximDL, and AIP4WIN.

With the necessary equipment at hand, Nirav asked for some guidance with making flat and dark frames. He also asked for assistance in creating charts and selecting appropriate comp stars. Next came image acquisition with the V filter and image calibration. Nirav plans to use AIP4Win for magnitude determination. Should he need assistance in the use of this program and with submitting observations to AAVSO, we remain ready and eager to help.

Nirav tells me that he hopes to inspire others in their club to take an interest in variable star observing. He has also asked me to convey his deep gratitude to the mentoring program for the guidance and assistance in their endeavor. With the enthusiasm, quest for knowledge, ability for quick understanding, and desire for accurate observations displayed by Nirav, AAVSO can look forward to some quality data from Nirav and the AAI.

—Keith Graham
Manhattan, Illinois

This is a short note to tell you that I have been working with Bill Goff in Sutter Creek California, since meeting him last week at the Amador Amateur Radio Club meeting. My name is James G Cottle and I am a long-time VS enthusiast and astronomer since I was 14 years old. I am

interested in gearing up for some serious work in addition to astro imagery at my new Fiddletown, California observatory. I am presently mid-way thru construction on this 9' x 14' roll off roof structure with an isolated telescope/warm room at 2,500 feet on one of the foothill ridges of Gold Country in the Sierras. Bill has been very helpful in suggesting more expenditures (such as a V-filter to contribute data, several books on cataclysmic and variable stars in general, and so forth). I appreciate the comradeship of Bill and his long expertise in the observational CV area as well as VS's in general. I have been a member of the Florida group at Hickory Hill, Chiefland and am reminded of the encouragement and warmth that I received from several members down there before I moved (1994) to the San Francisco Bay area. Now, constructing this new permanent observing site in Fiddletown is a long term dream of mine but, as you probably know, the work is difficult and a good friend can help drive things forward. Now, with my permanent site, I am looking toward organizations such as the AAVSO and CBAstro for some more structure to my work. Bill has been very tolerant of my novice inquiries. I hope to join AAVSO in the next few days. In the meantime, please consider my renewed interest due to Bill's encouragement and help. Thank you for your time and THANKS BILL!

—James G Cottle, Ph. D.
San Francisco

If you make a report to the Variable Star Index (VSX) all this information is vital, as to have your discovery reported and confirmed it needs to be verifiable by others, and available for peer review. Thus the onus is on the discoverer to present the data that needs to be reviewed.

As this was the first time I had been through the process, and being very much in the AMATEUR Astronomy camp, I was very nervous about the process. Its always important to follow the process and accept the feedback that comes from those with much more experience than one's self.

I received back a very helpful email that rejected my submission (for now) due to the fact that I didn't have enough data to produce a full phase diagram and I had suggested that it may be a Cepheid Variable due to the short period and hadn't considered that it was a bit too blue to be a Cepheid and that it was more likely a RRab. The VSX person made some very helpful suggestions about what I should do next—get some more data and produce a full phase diagram and re-submit.

—Peter Lake
AAVSO member
Australia

My master thesis was about to fail because our telescope broke down. I had only three months to finish it and the telescope was not going to be ready by that date. So I REALLY needed data for doing my eclipse mapping.

Thanks to your help and the excellent AAVSO data, I won a scholarship to do my PhD in England. I'm so happy!! Thanks again for all your help with my thesis.

—Penelope Longa
Graduate student
Chile

The AAVSO provides invaluable services to astronomy, first in collecting and maintaining very long-term light curves for a huge number of stars, and second in motivating a global network of amateurs to track and report observations of individual objects in support of multi-wavelength observations. Further, the AAVSO has set the standard for the immediate public availability of data which is essential to time-variable astronomy. In my own case, the AAVSO has been critical to several X-ray/radio/infrared campaigns, including the first clear demonstration that cataclysmic variable (CV) outbursts lead to strong radio emission. More generally, the professional community is finally beginning to realize the importance of the time domain, with major instruments like Swift, LSST, and SKA making the exploration of this last astronomical frontier one of their major objectives. The AAVSO will play an ever more critical role, providing consistent, reliable, and global optical coverage for the sources these instruments discover and study.

—Michael Rupen
Scientist, National Radio Astronomy Observatory, Socorro, NM

I have downloaded AAVSO data for a few [Cataclysmic Variable Stars], most of the times for use in public talks, or in teaching.... I would like to express my sincere acknowledgement of the resources that the AAVSO provides. The online database is extremely good, there is not much that could be improved.

—Boris Gaensicke
Dept. Physics, Univ. Warwick, Coventry, England

I am pleased to say that my experience with the AAVSO [International Database] was a

good one. The web-based system was straightforward to use and the download was fast. I used the AAVSO observations of Betelgeuse in my research concerning the nature of the star's variability. Although these data were a relatively small part of my investigation, being combined with my own spectroscopic data from the Elginfield Observatory here at the University of Western Ontario, it was still very valuable and helped fill out the scientific picture. The long time base was particularly useful.

—David F. Gray

I am a young astronomer from Sri Lanka.... Although [our institute] has the facility to do photometry, our site is very bad for such observation. In such a case, it is very important to have a data archive for variable star observations. As a less-privileged astronomer, I very much appreciate your service in the development of astronomy in my country.

—Janaka Adassuriya

During this past year we have published two papers in which we used AAVSO data: Gromadzki, M.; Mikolajewska, J.; Whitelock, P. A.; Marang, F., 2007, "On the nature of the cool component of MWC 560", Astronomy and Astrophysics*, 463, 703; and Gromadzki, M., Mikolajewska, J., Lachowicz, P., 2008, "Post-outburst variations in the optical light curve of RS Oph", in "RS Oph 2006 and the Recurrent Nova Phenomenon", eds. N. Evans, M. Bode, T. O'Brien, Astron. Soc. of the Pacific Conf. Ser., in press. This data helped us very much. Thank you very much for your efforts.*

—Mariusz Gromadzki
N. Copernicus Astronomical Center, Warsaw, Poland

...I was aiming to look at some data from SS Cyg to see if it would be appropriate for a laboratory exercise. I didn't have any trouble getting the data. I apreciate the service.

—Tom Maccarone

[AAVSO support] was especially critical, as many of the Southwestern U.S. observatories were clouded-out, and it was the AAVSO measurements that saved the day. For cataclysmic variable work on the Hubble Space Telescope, the AAVSO observations are fundamental to the project as HST needs confirmation that the objects are not in an outburst state within twenty-four hours of the start, and if this is not received, the observation is cancelled and it cannot be done later. With the vagaries of weather, multiple sites are a must, and this is where the AAVSO shines. I have been awed by the continued response of AAVSO observers

to my requests.... [on AAVSO support for her Hubble Space telescope observing campaign on the cataclysmic variable SDSS133948 (http://www.aavso.org/news/sdss133948.shtml)]

—Dr. Paula Szkody
University of Washington, Seattle

For my dissertation research I studied water masers around evolved stars, like Miras. Masers are the microwave equivalent of lasers, and amplify ambient background microwave emission through stimulated emission of radiation and very long path lengths (~1AU) through velocity coherent water vapor that is in an inverted energy state. By studying the motions of these point-like bright spots of microwave light, I measured the distance to the stars more accurately than was possible before. In order to gain insight into the physical environment around the stars at the time of my observation I used AAVSO observations. The light curves of these stars are important for understanding how much of the gas might be in an excited state and picking the best time to observe the stars (the more light from the star, the more molecules are typically in an inverted state and the brighter the masers are). The work of the AAVSO community in providing these observations added significantly to my ability to understand my target objects and ensure that my observations with the VLBA would be successful.

—Kevin Marvel
Executive Officer, American Astronomical Society

4. Word From the Astronomical Community

5. Support for the AAVSO

The Argelander Society

Named for Friedrich Argelander, who is considered to be "the father of variable star astronomy," **The Argelander Society** offers membership benefits to those individuals who have given substantial financial support to the AAVSO over many years. Once a benefactor has donated a cumulative total of $35,000.00 to the AAVSO, they are eligible for a lifetime membership in the organization, free registration to annual meetings, invitations to special events, special awards, and tokens of the association's appreciation.

Friedrich Wilhelm August Argelander
(1799–1875)

Photograph courtesy of the Mary Lea Shane Archives of the Lick Observatory, University of California-Santa Cruz

The AAVSO gratefully acknowledges the benefactor members of

The Argelander Society

William B. Albrecht
Marvin E. Baldwin
Charles E. Curry
Margaret Doleman
Clinton B. Ford
Martha L. Hazen
Arne and Linda Henden
E. Dorrit Hoffleit
James Molnar
Theodore H. N. Wales
Thomas R. Williams

2010 Benefactors *(January 1, 2010–December 31, 2010)*

Supernovae Society ($20,000 or more)

Margaret Doleman *(in honor of Dorrit Hoffleit)*
Elizabeth Dusa (*Estate of James Molnar)*
Roy H. Garstang
Arne and Linda Henden
Gary Walker

AAVSO Annual Meeting at Harvard College Observatory, 1917

Novae Society ($10,000–19,999)

Bart Staels

Directors' Circle ($5,000–9,999)

William Brown Albrecht Trust
Richard Berry
(in memory of Martin Bruce Berry)
Robert J. Stine
Thomas R. Williams

Patrons ($2,500–4,999)

none

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A sampling from the AAVSO Archives. Counterclockwise from upper right: souvenir of the 4th Spring Meeting, May 1917; The Practical Observing of Variable Stars, *1918;* General Instructions to Observers *pamphlet; catalogue of the AAVSO C. Y. McAteer Library; blueprint and photographic charts; letters and postcard (1919–1921) from Charter Member, Prof. Anne S. Young of Mount Holyoke College.*

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The AAVSO's 75th Anniversary Meeting at Harvard University, 1986

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