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.

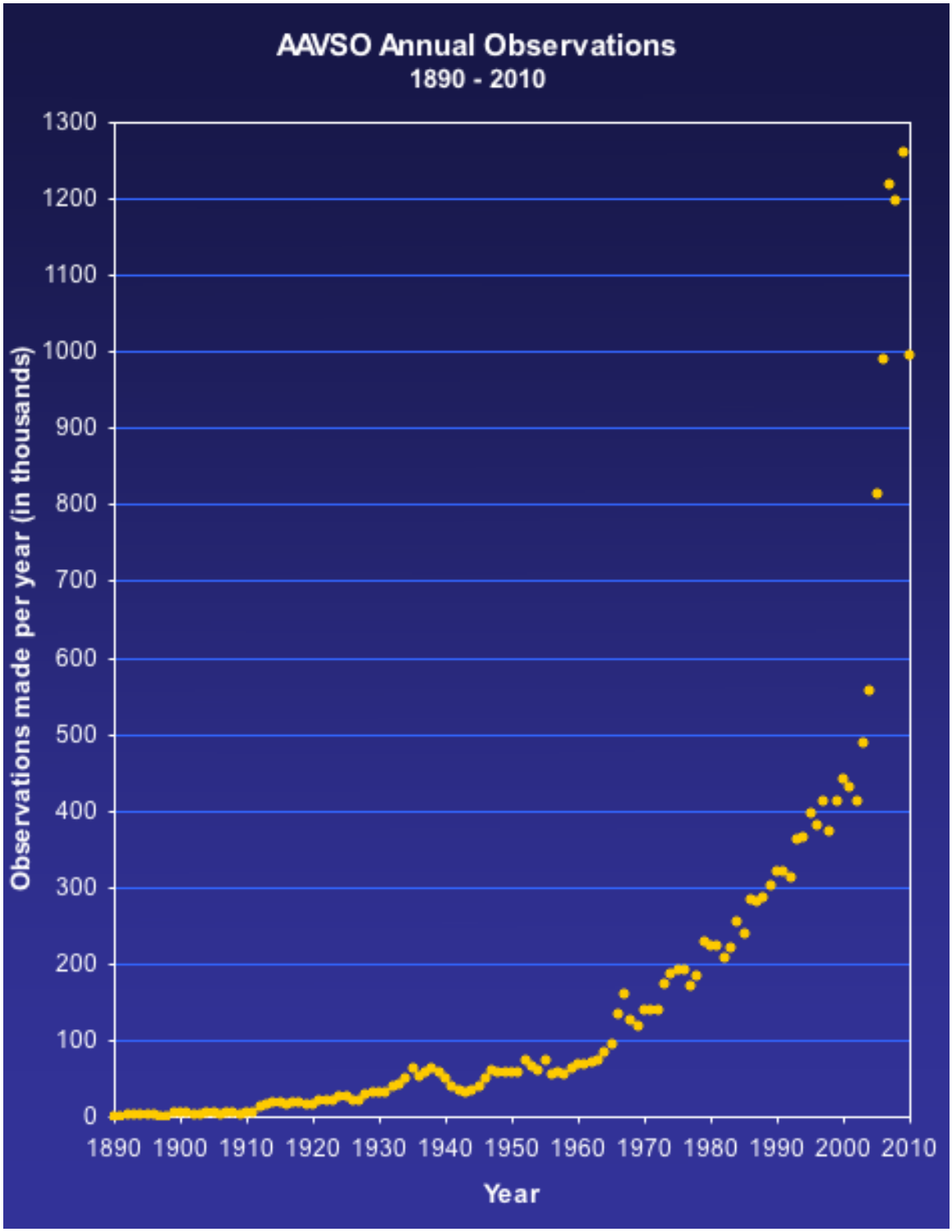
Speaking of the RASNZ, Mike Saladyga continues to process the digitized data that we received from the RASNZ after Frank Bateson's passing. The observers with many observations have been entered, but it has been slow work plowing through the estimates from hundreds of other observers with only a handful 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.

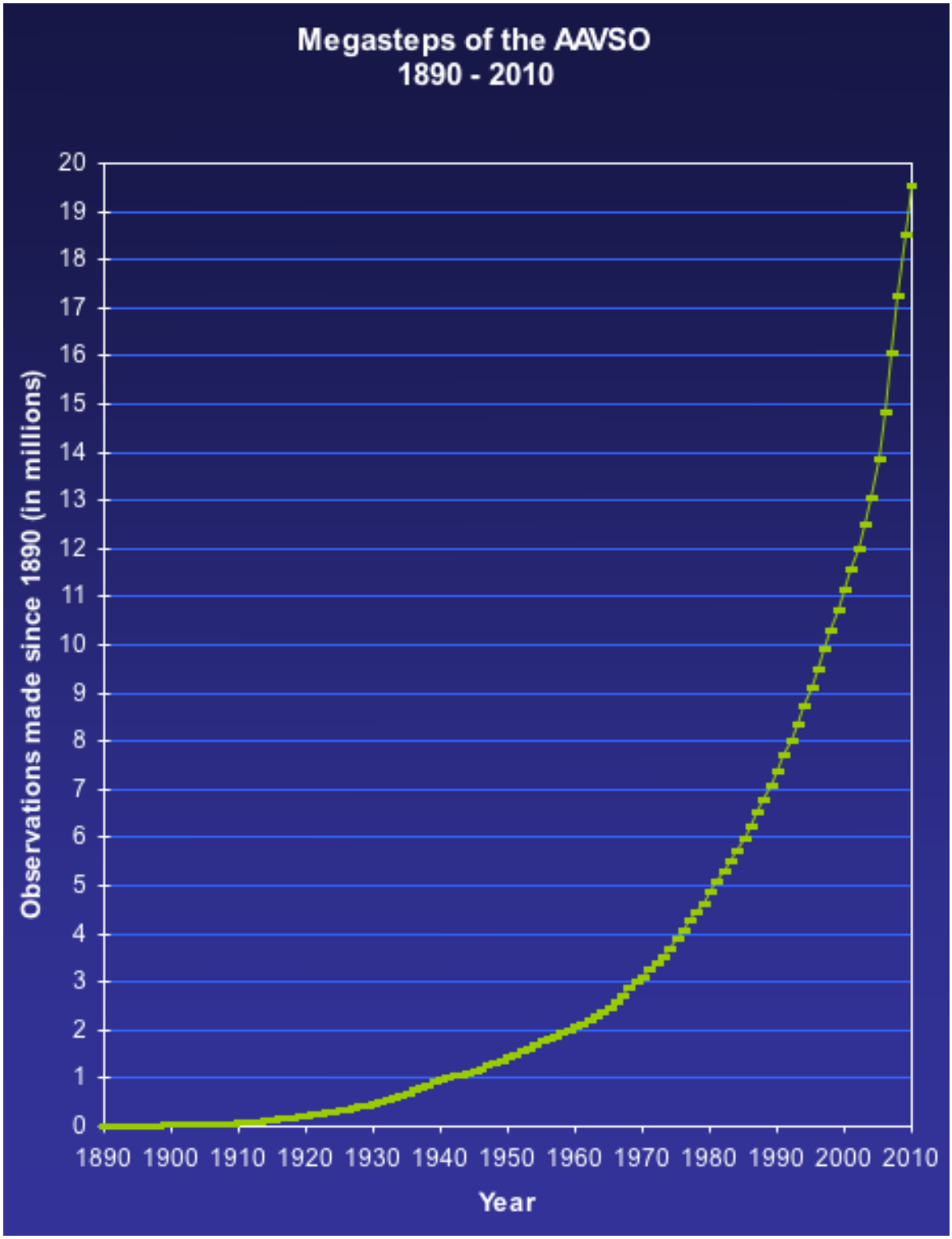
We had 4,248 data requests from a multitude of researchers during the year. The data request rate is pretty constant throughout the year, but has definitely continued its upward trend.

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
200
100
0
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
20
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)

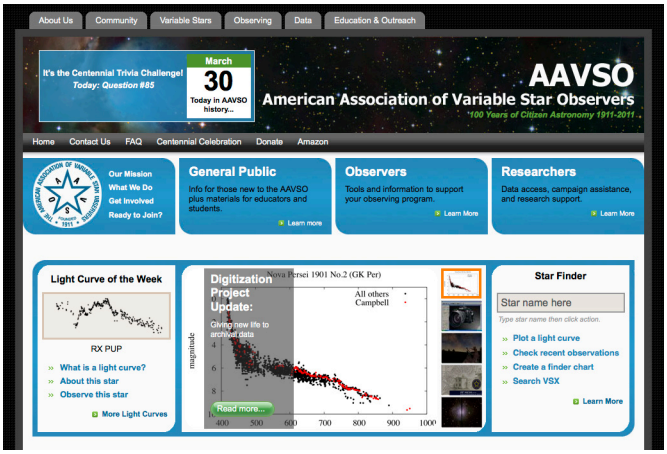
Software

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.

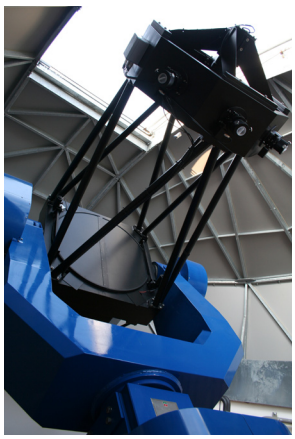
FY2009 was another year of travel by staff to domestic meetings to spread the word about the AAVSO and variable star observing. I would also like to mention that much

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.
GHN		J. Graham, OH	115
GKA		K. Graham, IL	28793
GRL	08	B. Granslo, Norway	52
GDT		D. Gray, Canada	4
GSEA		S. Graziani, France	10
GNJ		J. Green, Canada	15
GDY	27	D. Grey, Canada	3
GTZ		T. Grzybowski, NM	864
GCO		C. Gualdoni, Italy	3055
GGX	01	G. Guzman, France	43
HCS	03	C. Hadhazi, Hungary	2120
HDH	03	S. Hadhazi, Hungary	462
HTY		T. Hager, CT	82
HKB		B. Hakes, IL	116
HCU		C. Halbrook, GA	21
HXM		M. Halderman, CA	41
HJW		J. Hall, CO	104
HMB	05	F. Hambsch, Belgium	41301
HP		W. Hampton, CT	1
HJCA		J. Hancock, TX	11
HKV		K. Hannon, MD	15
HPL		P. Hansen, Denmark	55
HQO	03	O. Hanyecz, Hungary	33
HCI		C. Harlingten, England	2837
HDC		D. Harper, NC	12
HTQ		T. Harriman, CA	1
HBB		B. Harris, FL	503
HMQ		M. Harris, GA	86
HZA		A. Hasanzadeh, Iran	3
HHU	05	H. Hautecler, Belgium	121
HAB		R. Hays Jr., IL	817
HRZ		R. Hegenbarth, Germany	3
HBAA		B. Heinemans, Netherlands	17
HQA		A. Henden, MA	5239
HND		R. Henderson, England	8070
HGO		G. Henson, TN	46
HCW		C. Hergenrother, AZ	36
HMV		M. Hessom, CA	115
HEY	05	B. Heyndrickx, Belgium	120
HJS		J. Hissong, OH	1
HJX	13	J. Hodar Munoz, Brazil	8
HEK	11	E. Hoeg, Denmark	33
HFO	01	G. Hoffer, Germany	75
HDF		D. Hohman, NY	19
HGP		G. Holahan, MD	3
HYA	14	A. Homes, New Zealand	22
HOO	04	G. Hoogeveen, Netherlands	35
HOT		J. Hoot, CA	86
HPO		J. Hopkins, AZ	8
HJZ		J.D. Horne, CA	35
HJG		J.G. Horne, CA	221
HSP	14	S. Hovell, New Zealand	47
HSW		S. Howerton, KS	303
HDU		D. Hurdis, RI	1839
HUR	20	G. Hurst, England	2373
HTN		K. Hutton, CA	81
HUZ		R. Huziak, Canada	80
ILE	03	E. Illes, Hungary	271
JMIA		M. J, Poland	9
JTAA		T. Jaarsma, MA	51
JPM	10	P. Jacobs, South Africa	26
JJB	11	J. Jacobsen, Denmark	7
JMA		M. Jacquesson, France	4
JTP	01	P. Jacquet, France	53
JM		R. James, NM	89026
JZO	03	Z. Jankovics, Hungary	459
JSI		S. Jenner, England	1
JGE	06	G. Jimenez, Spain	73
JDKA		D. Johnson, TX	11
JOG		G. Johnson, MD	76
JRA		R. Johnson, MN	62
JTEA		T. Johnson, Canada	9
JON	05	K. Jonckheere, Belgium	1
JA	14	A. Jones, New Zealand	3521
JCN	20	C. Jones, England	185
JJI		J. Jones, OR	9775
JPGA		P. Jordanov, Bulgaria	35
JTDA		T. Judah, CA	22
JAZ	03	A. Juhasz, Hungary	260
JWM		W. Julian, NM	2304
KPK		P. Kalajian, ME	3150
KB		W. Kaminski, NM	1
KTU		T. Kantola, Finland	2727
KMO		M. Kardasis, Greece	194
KSF		S. Karge, Germany	207
KTHA	19	T. Karlsson, Sweden	850
KAD	03	A. Karpati, Hungary	375
KEI		E. Kato, Australia	6
KBJ		R. Kaufman, Australia	176
KSH	29	S. Kerr, Australia	74
KJJ		J. Keski-Jylha, Finland	534
KSZ	03	S. Keszthelyi, Hungary	284
KIY		A. Kilin, Russia	368
KRB		R. King, MN	665
KQR		R. Kinne, MA	4
KSJ	27	S. Kinsella, Canada	50
KIA	03	A. Kiraly, Hungary	1
KIR		P. Kirby, AZ	154
KGE	08	G. Klingenberg, Norway	536
KPL		P. Kneipp, LA	29
KGT		G. Knight, ME	20
KSP		S. Knight, ME	93
KLO		L. Kocsmaros, Serbia and Montenegro	162
KRV		R. Koff, CO	10275
KLG		G. Kohl, AZ	2
KHL		M. Kohl, Switzerland	3
KYI	29	Y. Kok, Australia	4
KRS		R. Kolman, IL	1673
KMA		M. Komorous, Canada	2793
KJK		J. Konasek, Czech Republic	4
KMP		M. Koppelman, MN	4
KCS	03	C. Koros, Hungary	21
KOS	03	A. Kosa-Kiss, Romania	4139
KLX		L. Koscianski, MD	3
KAF	03	A. Kovacs, Hungary	382
KVI	03	I. Kovacs, Hungary	247
KTC		T. Krajci, NM	1802
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.*