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ISSUE NO.62

OCTOBER 2014

WWW.AAVSO.ORG

AAVSO Newsletter

SINCE 1911...

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; and to forge strong collaborations and mentoring between amateurs and professionals that promote both scientific research and education on variable sources.

FROM THE DIRECTOR'S DESK

ARNE A. HENDEN (HQA)



In the northeastern U.S., we've had a particularly cool and dry summer and early Fall. I'm looking out my window right now at a sky that is nearly southwestern blue. That has been very beneficial in getting BSM HQ up and running. Richard Berry has

funded the purchase of a Celestron AVX mount and filters; we've cobbled together the rest of the system from spare cameras and the purchase of another AstroTech AT-65EDQ astrograph. Unfortunately, AstroTech is no longer selling these lovely little telescopes, so it will be hard for you to exactly duplicate BSM HQ! Helmar Adler has graciously volunteered to be the telescope advocate for BSM HQ, starting it up at the beginning of each clear night and closing it down at dawn. We're making some tweaks to get the BSM HQ software running the way we want all BSM systems to run, and then updating the remaining remote systems.

Having BSM HQ around has been nice, since the southwestern U.S. has had a particularly cloudy monsoon. As you might have heard, there were tropical storms with lots of moisture that moved through the southern part of Arizona and New Mexico where our telescopes reside. John Gross

took the opportunity to send Sonoita's Paramount back to the factory for refurbishment; we hope that the mount will perform better in the coming season. Bill Stein is preparing a pier for the original BSM that should be ready this Fall.

The really big summer event this year was the awarding of the NSF APASS grant. This pot of money will carry the project through to completion in about two years.

The other important summer event was the CCD School. Held for the second time at AAVSO headquarters, we utilized the space better than before after purchasing some new conference tables. The participants were excellent, asking lots of interesting questions. This School was also videotaped, as we don't know if the School will be continued after my retirement. Dick Post donated sufficient funds to hire a professional photographer, who is doing an excellent job of editing the 40 hours of material. We hope the end product will be a set of DVDs that we can sell through the online store.

At Headquarters, much of the emphasis this quarter has been on documentation. The *AAVSO DSLR Observing Manual* was released at the summer AAS meeting with good reviews. Congratulations to Rebecca Turner as the taskmaster in getting the manual completed, and all

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PRESIDENT'S MESSAGE

JENO SOKOLOSKI



*Preserving and Growing
the Endowment*

by Jen Sokoloski,
Gary Walker, and Bill Goff

Upon spotting a large diamond in a classic Looney Tunes cartoon, Daffy Duck erupts, "I'm rich! I'm affluent! My liquidity is assured!" With our healthy endowment, should we also be dancing? Why does the organization keep asking its loyal supporters for donations of time, equipment, and money?

The AAVSO is very fortunate to be in the financial condition that it currently enjoys. We derive approximately 50% of our operating expenses from income from the endowment, which currently stands at 13 million dollars, and exists due to the generosity of many people. Major benefactors include Clint Ford, Margaret and Newton Mayall, James Molnar, Martha Hazen, Linda and Arne Henden, Ted Wales, Dorrit Hoffleit, William Albrecht, Marv Baldwin, Charles Curry, Thomas Williams, and many others.

CONTINUED ON NEXT PAGE

**DIRECTOR'S MESSAGE
CONTINUED...**

of the workshop participants who wrote most of the original words! Brian Kloppenborg did a yeoman's job of editing to make the text flow smoothly. Also released this summer was the *AAVSO Guide to CCD Photometry*, an excellent beginner's manual written by Sara Beck and Matt Templeton. If you haven't read this one, you should download a copy!

There have been a couple of new CHOICE course offerings, now that the DSLR and VPhot manuals have been released. The courses fill up pretty quickly, so if you see another one announced, you should make up your mind about taking it within a few days. The forums associated with each course tend to be very active, with lots of interesting discussions.

We just finished a yard cleanup day. There are a bunch of weeds that grow in the back of HQ, along with tree branches that renew their growth and again hang over the roof. Every Fall, we cut things down and fill a couple of dozen yard waste bags. Everyone gets involved, and a lot of fun conversations take place. Luckily we picked a really nice day for this event; such days do happen on occasion in the northeast!

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We're headed towards the Annual meeting in November, where I hope to meet many of you in person and express my gratitude for allowing me to be your Director. I wish you clear skies and exciting objects to observe! ★

Ed. note: the Spanish language version of Arne's message can be found on page 14.

**PRESIDENT'S MESSAGE
CONTINUED...**

But before discussing the management of the endowment, let's consider the cost of running the organization and the budgeting process. For the past several years, the annual budget has been just above one million dollars. Like most organizations, staff salaries and benefits are our biggest cost (85%) and other operations take up the balance. To craft a budget each year, the Council's Budget Committee works with the Director, paying careful attention to operating details and maintaining a view to the future. The committee consists of the Treasurer, Bill Goff, Director, Arne Henden, and Council Member Donn Starkey. The committee reviews current expenditures and tries to anticipate how operations will change during the coming year or years. There are many moving parts in this process. Although our principal source of funds is the endowment withdrawal (50%), each year grants typically bring a considerable amount as well (30%), along with contributions and dues from the membership (10%) and other miscellaneous sources (10%). Grants tend to be short lived—a few years at best—and maintaining this resource requires a lot of work for the organization. Some costs, such as health care costs and inflation, are difficult to anticipate as they are influenced by factors outside the organization. The full Council reviews the budget proposed by the Budget Committee and suggests changes before final adoption.

So, how do we determine how much we can safely use from the endowment earnings? Our withdrawals are guided by the goal of having the endowment last forever. We want future generations of the AAVSO to enjoy the same financial benefits that we have. To this end, our former Treasurer, Lou Cohen, performed a Monte Carlo analysis to determine how much we could take from the earnings and have the principal never become zero. His analysis suggested that if we take an amount equal to 5% of the total

DIRECTOR	Arne A. Henden
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NEWSLETTER

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The *AAVSO Newsletter* is published in January, April, July, and October. Items of general interest to be considered for the *Newsletter* should be sent to eowaagen@aavso.org. Photos in this issue courtesy of M. Marengo, M. Templeton, N. Young.

Membership in the AAVSO is open to anyone who is interested in variable stars and in contributing to the support of valuable research. Members include professional astronomers, amateur astronomers, researchers, educators, students, and those who love variable star astronomy.

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value of the endowment from the earnings each year, we would have a 95% chance of retaining the endowment indefinitely. Why, you ask, if the endowment is earning 15% in a given year, don't we take more? The answer is that some years, the earnings may be much lower, and in some years, even negative (remember 2008). We must also continue to build the endowment just to keep up with inflation.

To help the endowment grow, we recently moved to two funds that are more actively managed than our previous one. Actively managed funds look at results, methodologies, and management teams, and try to choose the very best. To keep costs down, passive funds do less of this. When we benchmarked our former money manager against five alternatives, we found that the alternatives had done better. For this reason, we moved the

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PRESIDENT'S MESSAGE CONTINUED...

endowment to two actively managed funds—Morgan Stanley's Graystone Consulting, and The Investment Fund for Foundations (TIFF). One of these funds is a nonprofit and only accepts funds from nonprofits, including many universities. We split the endowment between two managers to avoid putting all of our eggs in one basket, to make it immediately obvious if one manager begins to perform poorly, and to keep each manager from getting complacent. Council is advised about management of the endowment, and kept abreast of returns, by the Investment Committee, which consists of Committee Chair Donn Starkey, Treasurer Bill Goff, and Gary Walker.

103RD ANNUAL MEETING OF THE AAVSO

The AAVSO 103rd Annual Meeting will be held November 6–8, 2014, at the Hilton Hotel in Woburn, Massachusetts. We are happy to have the Society for Astronomical Sciences (SAS) join us in metro-Boston for this joint meeting.

Thursday, November 6, will feature a first-time AAVSO meeting attendee gathering, as well as a spectroscopy workshop titled "Spectroscopy With Just a Turn of the Filter Wheel" and presented by AAVSO Council member Dr. John Martin. Friday, November 7, will be filled with variable star related talks and posters. Saturday, November 8, will begin with the AAVSO membership meeting, which will include various reports and Council election results. We also plan to introduce the AAVSO's next Director during this session, so be sure to join us in person or via online broadcast. Saturday afternoon will feature a special session in honor of AAVSO Director, Arne Henden, as he prepares to retire in early 2015. The session will feature papers related to Arne's interests, career, and time at the AAVSO. The meeting will close with an awards banquet Saturday evening.

PRELIMINARY SCHEDULE

Thursday, November 6

Morning: AAVSO Council Meeting (council members only)

Morning: First-time Attendee Gathering

Afternoon: Spectroscopy Workshop

Understanding that we must protect the AAVSO's assets in perpetuity, and that the endowment only covers half of our operating expenses, Council maintains a close watch over this valuable resource. With continued scrutiny of our money managers and careful budgeting, we aim to protect our 'diamond' of an endowment, and to ensure that it continues to grow and support a vibrant and ever-changing AAVSO. ★

Ed. note: the Spanish language version of Jenó's message can be found on page 14.

Friday, November 7

Morning: General Paper Session & Posters

Afternoon: General Paper Session & Posters

Saturday, November 8

Morning: AAVSO Membership Meeting

Afternoon: Paper Session Honoring Arne Henden

Evening: AAVSO Closing Banquet

We hope you will be able to join us and help make Arne's last meeting as Director of the AAVSO a very special one. For more information or to register for the meeting please visit:

<http://www.aavso.org/103rd-annual-meeting-aavso>

DEADLINES TO REMEMBER

- October 15 Early Registration Deadline and Early Abstract Submission Deadline
- October 30 Hotel Reservation Deadline

SPRING 2015 MEETING NOTE

The Spring 2015 meeting location has not yet been determined. Details will be posted on the AAVSO website as soon as they become known. Watch the website's front page slider for meeting announcements.

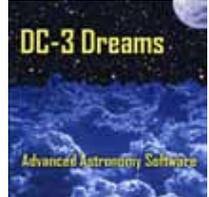
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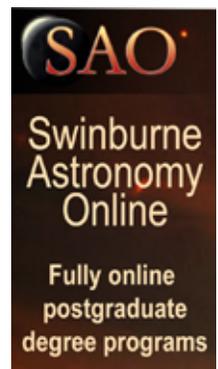
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www.sbig.com



www.skyandtelescope.com

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<http://unihedron.com>

“KINDRED SPIRITS” CELEBRATE LEE ANNE WILLSON’S CAREER AND RETIREMENT!

JOHN PERCY, PAULA SZKODY, MATTHEW TEMPLETON, AND THOMAS R. WILLIAMS

On May 18–21, 2014, several dozen of us gathered on the beautiful campus of Iowa State University in Ames to celebrate the career and retirement of ISU Professor Lee Anne Willson, a world expert on the observation and theory of Mira stars, and a key figure in the AAVSO for the last several decades. An AAVSO member since 1978, she has served the AAVSO as Councilor, President, member of key committees, scientific and organizational advisor, mentor, and friend. At ISU, she was an award-winning teacher and researcher for 41 years, and rose to the distinguished rank of University Professor. She has also made important contributions to other professional organizations such as the American Astronomical Society (AAS: Vice-President) and American Association for the Advancement of Science (AAAS: Astronomy Section Chair).

The formal conference sessions were eclectic and fascinating. Some of Lee Anne’s former students described how their education prepared them for interesting careers, both in and far removed from astronomy. Other talks dealt with history, people, professional organizations, education, and outreach, as well as with the science of variable stars of all kinds. There was even a talk by Kendra Willson about what it’s like to be the daughter of an astronomer. We and others made sure that the work of the AAVSO, and Lee Anne’s contributions to it, was well recognized. Remarkably, Lee Anne’s Ph.D. supervisor Charles Cowley was there, as were several of her Ph.D. students including Joyce Guzik, who was Matt Templeton’s Ph.D. supervisor—four generations of astronomical family, in the same location at the same time and captured on one image!



An artwork by Lee Anne Willson titled “Farewell to old media” composed of folded paper drawn from Lee Anne’s archive of presentations and overheads.

Paper presenters (from left to right): John Percy; John Percy and Paula Szkody; Tom Williams



Four generations of Ph.D.s, left to right: Dr. Matthew Templeton; Dr. Joyce Guzik (Los Alamos National Laboratory), Matthew’s Ph.D. advisor, and one of Lee Anne Willson’s Ph.D. students; four more of Lee Anne’s students (Dr. Terry Girard, Dr. Dale Ostlie, Dr. Dan Peterson, and Dr. James Pierce); Dr. Lee Anne Willson (Iowa State University); and Dr. Charles Cowley, University of Michigan (Emeritus), Lee Anne Willson’s Ph.D. advisor. (Photo courtesy of Massimo Marengo, ISU)

There was lots of time for discussion and socializing and, given the “kindred spirits” nature of the attendees, the social side of the conference was as interesting and enjoyable as the scientific side. Lee Anne’s colleagues did an exceptional job of organizing the conference, and making sure that as many as possible of the kindred spirits were there. The setting was idyllic; Ames was recently ranked (by livability.com) as the best college town in America.

But Lee Anne is not one-dimensional. As well as being a first-rate scientist and educator, she is an accomplished artist, and a member of the Ames arts community. She was the founding president (2000–2003) of the Creative Artists’ Studio of Ames. Fittingly, the opening reception of the conference was also the opening of Lee Anne’s one-woman CASA exhibition, titled “Art<->Science,” which featured her works in folded paper, fabric, and photography. There were pre-conference excursions, including one led by Steve Willson to the High Trestle Bridge. It combines a unique artistic design with a beautiful river-valley vista. Very impressive!

The conference closed with a celebratory banquet, attended by Lee Anne’s astronomy “family,” her arts “family,” and her real family including husband Steve, daughter Kendra, and son Jeff. Speeches were kept to a minimum, but there was music—Skyped all the way from Bengt Gustafsson in Sweden—and magic (literally!). In fact, the whole evening, and the whole conference, were magic! Happy retirement, Lee Anne! ★



AAVSO EDUCATION AND PUBLIC OUTREACH

**DONNA L. YOUNG, LEAD EDUCATOR,
CHANDRA E/PO OFFICE, AAVSO HQ**

This is a summary of the AAVSO-related education and public outreach for 2013 through September 2014. All of the following was supported by the Chandra X-Ray Center, which provided the opportunity for both direct and indirect outreach for the AAVSO.

During this time frame in excess of 4,000 formal and informal educators and Science Olympiad coaches were provided with information and materials that involve the AAVSO. The outreach is listed by category.

National Science Teachers Association (NSTA) Conferences (644 participants)

Chandra proposals were accepted at the NSTA conferences listed below. At every presentation and/or workshop, the AAVSO website and purpose was presented. Several events included resource materials available on the AAVSO education website. At the NSTA Charlotte, North Carolina, conference, one of the one-hour workshops presented was on “Plotting Pulsating Variable Stars on the H-R Diagram.”

- *NSTA 2013 National, San Antonio, Texas (83 participants)*
- *NSTA 2013 Regional, Portland, Oregon (263 participants)*
- *NSTA 2013 Regional, Charlotte, North Carolina (160 participants)*
- *NSTA 2013 Regional, Denver, Colorado (138 participants)*
- *NSTA 2014 National, Boston, Massachusetts (228 participants)*

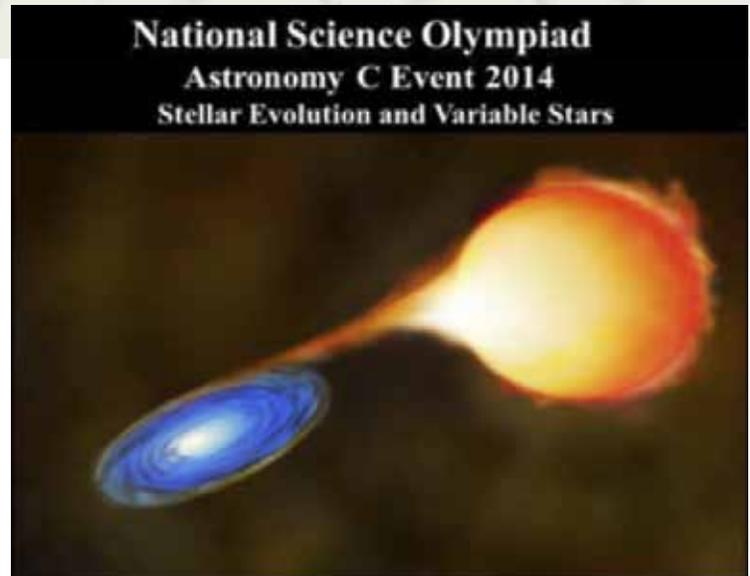
Upcoming NSTA workshops and presentations:

- *NSTA 2014 Richmond, Virginia, October*
- *NSTA 2014 Orlando, Florida, November—“Plotting Pulsating Variable Stars on the H-R Diagram” is one of the workshops that will be presented.*
- *NSTA 2014 Long Beach, California, December*
- *NSTA 2015 STEM (Science, Technology, Engineering, and Mathematics) National, Minneapolis, Minnesota, May*
- *NSTA 2015 National, Chicago, Illinois, March*

National Science Olympiad (NSO) competitions and coaches clinics: (975 participants)

NSO 2013–2014 National Competitions, Dayton, Ohio, and Orlando, Florida (480 team members)

The focus of the 2013 high school competition was Stellar Evolution and Type Ia Supernovas. 60 teams of two from 48 states participated in the



event, however, ~50,000 high school students began preparation for the 2014 competition at the regional and state level. Only 60 teams won state competitions (large states have two state winners) to compete at the national level. The content focus for 2014 was Stellar Evolution and Variable Stars.

NSO 2013–2014 Science Olympiad Summer Institute (SOSI) coaches' clinics in Phoenix, Arizona (267 participants)

The events for the following year's NSO national competition are presented at this clinic to NSO state directors, event supervisors, and coaches. The presentations consist of an overview of the content, and most importantly, the most important resources for teams to use to prepare for competition. AAVSO is a valuable resource for the Science Olympiad for several reasons. On the AAVSO website, under Variable Stars, then Education Materials, then Science Olympiad (<http://www.aavso.org/science-olympiad>), the following materials are posted by year:

- the prior year's event with answer key for teams to download for study purposes,
- a link to the webinars posted on the Chandra website, with the accompanying PowerPoint presentations that are only posted on this AAVSO site,
- flash card sets to download to help prepare for competition, and
- sample tests which were developed to give teams additional practice.

The *Variable Star Astronomy* curriculum is also a resource.

Upcoming National Science Olympiad competition, Lincoln, Nebraska, May 2015

The content focus for the 2015 and 2016 competition will be Stellar Evolution and Star and Planet Formation. As the author is also the National Science Olympiad Event Supervisor for the Astronomy Event, there are always deep sky objects (DSOs) and variable stars that are in the VSOTS database—providing a reason for teams to access the AAVSO website.

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EDUCATION AND OUTREACH CONTINUED...

Webinars (~1,300 U Tube hits by team members in 2013)

The Chandra E/PO Office records the presentations for both the high school and middle school astronomy events (high school C Division Astronomy and middle school B Division Reach for the Stars/Solar System) and posts them on the Chandra website. This enables coaches, event supervisors, and state directors to have the opportunity of the SOSI coaches' clinic without the cost of travel. AAVSO is part of the presentations as a significant resource for NSO competition. The webinars are linked from the AAVSO, and the accompanying PowerPoint is also posted on the AAVSO website. The PowerPoint is not posted on the Chandra website—only the webinars.

Public Talks (1,138 participants)

Local presentations in this time period include talks at the Bullhead City, Lake Havasu City, and Kingman, Arizona, public libraries, the Bullhead City and Kingman, Arizona, and Needles, California, community colleges, and the Bullhead City and Mohave Valley, Arizona, and Needles, California, public high schools.

The Chandra X-Ray Center (CXC) and the AAVSO both provide a wealth of resources for educators both formal and informal as well as for NSO coaches and teams.

The author also wrote the NSO Coaches' *Manual for the Astronomy Event*, which includes many references to AAVSO. This manual is due for revision in the upcoming year, and a section will be dedicated solely to the AAVSO resources. ★

SILICON AND GLASS

**MIKE SIMONSEN (SXN), AAVSO HQ,
MEMBERSHIP DIRECTOR/DEVELOPMENT OFFICER**

Everyone's familiar with the term "bricks and mortar." Many donors prefer to give to specific projects or programs that result in well-defined, tangible goods, such as the new wing of a building, a playground, or furniture and athletic equipment for a recreation center.

In the case of AAVSONet, that could be a telescope, camera, filters, computers, or software. Since there are seldom bricks or mortar involved in these kinds of gifts, I prefer to call them "silicon and glass" donations. AAVSONet has been funded almost exclusively by the generosity of our member donors, and we have a new set of needs that can be addressed by making "silicon and glass" donations.

The workhorse component of AAVSONet, Sonoita Research Observatory (SRO), requires some maintenance and repairs. The observatory's Paramount has been running reliably for ten years straight. That is an impressive track record, but nothing lasts forever. The mount is now in Software Bisque's repair facility, being restored to its former glory. There is a price for that repair, and the AAVSO's portion of the bill is \$1,500.00.

Bright Star Monitor (BSM) Berry has been removed from on top of headquarters and shipped to Western Australia to be commissioned there. We would like to upgrade the camera on the new BSM HQ telescope to match the other BSM systems. The SBIG ST series of CCDs is no longer being manufactured, but Arne was able to find a ST-10XME with a ten-position filter wheel and filters for sale by a local amateur. The cost of this upgrade has been negotiated down to \$1,950.00.

BSM South's camera recently required factory service to fix the frozen shutter. The cost of the repairs and shipping came to \$400.00. Four "silicon and glass" donations of \$100 each would pay the bill.

If you would like to contribute to the AAVSO robotic telescope network's continued success, please mail a check, call headquarters with your credit card information, or use our online donation form at <http://www.aavso.org/apps/donate/>. Simply enter the amount of your "silicon and glass" donation, and select AAVSONet Fund from the drop down menu.

Another worthwhile and important "silicon and glass" project is the purchase of ten one-terabyte USB hard drives, to act as Time Machine back-up drives for AAVSO staff workstations. We can purchase them from Costco at \$70.00 each, so we need \$700.00 total to move forward on this plan. Ten donors making a \$70 donation would pay for all the USB back-up drives. You can donate by check, credit card, or our online donation form. Simply let us know you wish to pay for back-up drives, specifically, by putting a note in your letter, on your check, or filling out the comments section of the web form.

To find out more about AAVSONet, the AAVSO's robotic telescope network, see: <http://www.aavso.org/aavsonet>

To learn about all the important AAVSO funds you can support, see: <http://www.aavso.org/funds>

To make a donation online, see: <http://www.aavso.org/apps/donate/>

Mail donations to: AAVSO, 49 Bay State Rd., Cambridge, MA 02138 USA
or call 617-354-0484.

Thank you all for your continued support of the AAVSO, its programs, and its operations. ★

TALKING ABOUT THE AAVSO

ELIZABETH O. WAAGEN (WEO), AAVSO HQ

Events—AAVSO members, observers, and friends have given or will be giving presentations about the AAVSO and variable stars at the following venues:

July 16, 2014—**Roger Kolman** (KRS, Glen Ellyn, Illinois) gave a talk entitled “What Variable Stars Tell Us” for the Lake County Astronomers at Volo Bog State Natural Area, Grant, Illinois.

July 19, 2014—**John R. Percy** (Toronto, Ontario, Canada) delivered his annual public lecture at the David Dunlap Observatory (Richmond Hill, Ontario) on “The Private Lives of the Stars,” as he puts it, “an attempt to convince people that the stars aren’t all the same—even though they may look that way.”

July 25, 2014—**Kristine Larsen** (LKR, New Britain, Connecticut) presented “How to Use a Medieval Astrolabe” at Stellafane, Breezy Hill, Vermont. The observatory room was overflowing with an interested and enthusiastic crowd, including several AAVSOers.

July 26, 2014—**John O’Neill** (ONJ, Topsfield, Massachusetts, and Rush, Ireland) spoke on “The Visual Observer’s Guide to CCD Photometry” to a good-sized, interested audience (which also included several AAVSOers) at Stellafane, Breezy Hill, Vermont.

September 2, 2014—**Roger Kolman** repeated his “What Variable Stars Tell Us” talk at the Naperville (Illinois) Astronomical Association meeting.

September 18, 2014—**Gary Poyner** (PYG, Birmingham, England) spoke on “Introduction to Variable Star Observing” at the Mexborough (UK) Astronomical Society meeting.

October 7, 2014—**Gustav Holmberg** (HGUA, Lund, Sweden) spoke about visual variable star observing at the Tycho Brahe Astronomical Society, Malmö, Sweden. Gustav writes: “The talk is the third meeting in a course on this subject led by **Johan Warell** (WJOB, Skurup, Sweden) and me. Course material is a newly published manual of visual variable star observation (in Swedish), published by SAAF, the Swedish Amateur Astronomical Association.

Thank you, speakers!

Other variable star outreach—John Percy writes a bi-monthly column for the *Journal of the Royal Astronomical Society of Canada*. His latest column (August 2014) was on “Polaris: More Than Just the North/Pole Star.” John writes, “Polaris is probably not on any AAVSO program, considering its small amplitude, but it’s the best-known star in the northern sky, and its variability helps to demonstrate that it’s an astrophysical mystery in many ways.”

We know many of you are involved in outreach related to the AAVSO and variable stars—let us help you spread the word! Send us information about your event (upcoming or past) for inclusion in the January 2015 *AAVSO Newsletter* (submission deadline December 15, 2014). Many thanks for your education and outreach efforts on behalf of the AAVSO and variable star observing! ★

FINDING YOUR (AAVSO) ROOTS

Two new features have been added to the AAVSO website that will help you in your search for AAVSO members, friends, and colleagues of the past. The first is an *index to names of persons identified in the group photographs* from AAVSO meetings (<http://www.aavso.org/index-group-photos-aavso-meetings>), and the second is an *index to obituaries and death notices* that have been published in the *AAVSO Newsletter* (<http://www.aavso.org/index-obituaries-and-death-notices-published-aavso-newsletter>).

Other interesting items pertaining to AAVSO history can be found at <http://www.aavso.org/history-aavso>; and there is the valuable historical resource of the *Thomas R. and Anna Fay Williams AAVSO Archives*, for which the basic *archive finding aids*, history, and description of the archives can be found at: <http://www.aavso.org/aavso-archives>; and of course, there is *Advancing Variable Star Astronomy: The Centennial History of the AAVSO* by Williams and Saladyga. Exploring these resources, you might just be delighted and surprised with who and what you can find! ★



1954 Spring Meeting at Columbia University, New York, New York

SCIENCE SUMMARY: AAVSO IN PRINT

ELIZABETH O. WAAGEN (WEO), AAVSO SENIOR TECHNICAL ASSISTANT

AAVSO data are constantly being used by researchers around the world in presentations and publications. Below is a listing of some of the publications that appeared 2014 June 27 through October 7 on the arXiv.org preprint server and used AAVSO data or resources and/or acknowledged the AAVSO. To access these articles, type the preprint number into the “Search or Article-id” box at <http://www.arXiv.org>

- David Boyd, “Spectroscopic observations of the bright RV Tauri variable R Scuti”, (arXiv:1409.8598) [Sep 30, 2014]
- K. Bakowska and A. Olech, “Hot spot manifestation in eclipsing dwarf nova HT Cassiopeiae”, (arXiv:1409.8107) [Sep 29, 2014]
- Taichi Kato, Franz-Josef Hamsch, Arto Oksanen et al., “CC Sculptoris: Eclipsing SU UMa-Type Intermediate Polar”, (arXiv:1409.8004) [Sep 29, 2014]
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We thank the above researchers for including the AAVSO and its resources in their work, and for acknowledging the AAVSO in their publication. We urge all those writing for publication to include the word “AAVSO” in their list of keywords. ★

IN MEMORIAM

MEMBERS, OBSERVERS, COLLEAGUES,
AND FRIENDS OF THE AAVSO



Jan Smit
(courtesy Neville Young
(via Brian Fraser))

JAN A. SMIT

(SJX, Waverly, Pretoria, South Africa) died September 7, 2014, at the age of 89 (two weeks before his 90th birthday). Jannie, as everyone called him, contributed 19,024 variable star observations made between October 1986 and November 2009 to the AAVSO International Database.

In 1999 he received an AAVSO Observer Award for his contribution of over 10,000 visual observations. Dedicated to education, Jannie's career was in teaching mathematics, first as a schoolteacher and then as a professor at the University of Pretoria. He excelled in the sport of target shooting and was seven times a member of the South African national team. In his later years he developed an interest in astronomy and teamed up with Danie Overbeek (OB) to observe the many Southern variables. Jannie also observed lunar and minor planet occultations. In the mid-1990s, long before minor planets were suspected of having moons, he became the first person in the world to detect a double blink of a minor planet occultation.

He was a longtime member of the Pretoria Centre of the Astronomical Society of Southern Africa (ASSA). He served on its directing committee and was actively involved in outreach there, mentoring many younger observers in variable star observing and sharing his astronomical knowledge at public observing events. He received the ASSA-VSS President's Award in 2006 for making exceptional contributions to furthering the aims of the Society, the Director's Award in 2007, and its Observing Certificate in 2008. Jannie's warmth and integrity endeared him to all who came to know him, and we offer our condolences to his family, many friends, and colleagues. Sincere thanks to Brian Fraser for his substantial contributions to this obituary and for forwarding Neville Young's photo of Jannie.



Zemřel Vaclík

ZEMŘEL FRANTIŠEK VACLÍK

(also spelled Vaclík, VFR, Czech Republic) died August 11, 2010, at the age of 67. An AAVSO observer since 1984, František contributed 1,992 mostly binocular variable star observations made between May 1984

and May 2009. Extremely interested in nature and astronomy from childhood, his career was in the postal service. He was a member of the Czech Astronomical Society (ČAS) since 1961, and served as the South Bohemia regional Chair for 17 years, coordinating activities of that branch. For many years he edited *JihoČAS*, the society newsletter. He was a mentor to the next generation of Czech variable star observers. His visual observations were recognized as being extremely accurate, particularly his observations of HR Del (Nova Del 1968), which were considered comparable to photoelectric photometric measurements. He was also an active solar observer and speaker on solar effects on electronic communication. His research work in variable stars was recognized by the Czech Ministry of Culture in 1976 with the Copernicus Medal. He was made an Honorary member of ČAS in 2010 in recognition of his contributions to ČAS and amateur astronomy in the Czech Republic. He was also an active participant for 16 years in Ebicyklu, a sort of summertime "Tour de Czech Republic" featuring astronomers bicycling frantically from observatory to observatory and making night-time observations at each stop! František was described as an avid observer of nature, and as a man who met life with grace and humor. We extend sincere sympathy to his family, friends, and colleagues.

Ed. note: following is the Spanish language text of Arne's Director's message.

MENSAJE DEL DIRECTOR

ARNE A. HENDEN (HQA)

Contribución al Newsletter
24 de septiembre de 2014
Arne Henden

En el Noreste de los Estados Unidos hemos tenido un verano y comienzo de otoño particularmente fresco y seco. Ahora mismo estoy mirando por la ventana un cielo que es casi tan azul como el del Suroeste. Eso ha sido de gran ayuda para tener en funcionamiento a BSM HQ. Richard Berry ha contribuido con la compra de la montura y los filtros de un Celestron AVX; rápidamente hemos completado el resto del sistema con cámaras de sobra y con la adquisición de otro astrógrafo AstroTech AT-65EDQ. Lamentablemente, AstroTech ya no nos va a vender más estos adorables telescopios, por lo que va a ser difícil replicar exactamente BSM HQ. Helmar Adler se ha ofrecido gentilmente a encargarse de BSM HQ, comenzando al inicio de cada noche despejada y cerrándolo al amanecer. Estamos realizando algunos retoques para que el software de BSM HQ funcione de la forma que queremos que funcionen todos los sistemas de BSM y luego actualizaremos los sistemas remotos que quedan.

Tener a BSM HQ aquí ha sido muy bueno, ya que el suroeste de los Estados Unidos ha tenido una temporada de lluvias particularmente nublada. Como probablemente hayan escuchado, hubo

tormentas tropicales con muchísima humedad que se movieron por la parte sur de Arizona y New Mexico, donde se encuentran nuestros telescopios. John Gross aprovechó para enviar la montura de Sonoita de vuelta a la fábrica para que la restauren; esperemos que la montura funcione mejor la próxima temporada. Bill Stein está preparando un pier (pilar) para el BSM original que debería estar terminado para este otoño (del hemisferio norte).

El evento realmente importante del verano de este año fue el de la beca de la NSF para APASS. Este pozo de dinero ayudará a terminar el proyecto en alrededor de dos años.

El otro evento importante del verano fue la Escuela de CCD. Llevada a cabo por segunda vez en la sede central de AAVSO, utilizamos mejor que antes el espacio, ya que compramos nuevas mesas de conferencias. Los participantes estuvieron excelentes, hicieron muchas preguntas interesantes. Esta Escuela también se grabó en video, ya que no sabemos si la misma continuará luego de mi retiro. Dick Post donó los fondos suficientes para contratar a un fotógrafo profesional, quien está haciendo un excelente trabajo de edición de las 40 horas de material. Esperamos que el producto final sea un conjunto de DVDs que podamos vender a través de la tienda online.

En la sede central, se ha hecho mucho énfasis este trimestre en la documentación. El manual de DSLR vio la luz en el encuentro de verano de la AAS, con buenas críticas. ¡Felicitaciones a

Rebecca Turner como directora del proyecto por lograr que se complete el manual y a todos los participantes del taller que escribieron la mayoría de los capítulos originales! Brian Kloppenborg hizo un trabajo de edición de soldado para que el texto fuese fluido. Este verano también se editó la Guía de Fotometría CCD de AAVSO, un excelente manual para principiantes escrito por Sara Beck y Matt Templeton. Si no lo has leído, deberías bajarte una copia.

Se ha lanzado un par de nuevos cursos CHOICE, ahora que los manuales de DSLR y VPhot se han editado. Los cursos se llenan bastante rápido así que si ven que se anuncia algún otro, deberían decidir si se anotan en pocos días. Los foros asociados con cada curso suelen ser muy activos, con muchas discusiones interesantes.

Acabamos de terminar un día de limpieza del patio. Había una maraña de yuyos que crecieron en el parte de atrás de HQ, junto con tres ramas que volvieron a crecer y de nuevo se apoyaron en el techo. Cada otoño, podamos todo y llenamos un par de docenas de bolsas de basura con los desperdicios del jardín. Todos colaboran en la tarea y nos divertimos mucho conversando. Por suerte, elegimos un día muy lindo para este evento; ¡esos días ocurren muy de vez en cuando en el Noreste!

Se acerca el encuentro anual de noviembre, donde espero encontrarme en persona con muchos de ustedes y expresarles mi gratitud por permitirme ser su Director. ¡Les deseo cielos claros e interesantes objetos que observar! ★

Ed. note: following is the Spanish language text of Jenó's President's message.

MENSAJE DEL PRESIDENTE

JENO SOKOLOSKI

Preservando y aumentando nuestros fondos

Jeno Sokoloski, Gary Walker y Bill Goff

Al detectar un gran diamante en uno de los dibujos animados clásicos de Looney Tunes, se regocijaba el Pato Lucas: “¡Soy rico! ¡Soy próspero! ¡Mi liquidez está asegurada!” Con nuestra dotación de reservas de 13 millones de dólares, ¿deberíamos también estar bailando? ¿Por qué la organización continúa pidiendo, a quienes fielmente la apoyan, nuevas donaciones de tiempo, equipamiento y dinero?

La AAVSO es muy afortunada por gozar de la condición financiera en la que actualmente está. Destinamos aproximadamente el 50% de los ingresos generados por esa reserva a nuestros gastos operativos, la cual existe gracias a la generosidad de muchas personas. Los principales benefactores incluyen a Clint Ford, Margaret y Newton Mayall, James Molnar, Martha Hazen, Linda y Arne Henden, Ted Wales, Dorrit Hoffleit, William Albrecht, Marv Baldwin, Charles Curry, Thomas Williams y muchos otros.

Pero antes de hablar de la gestión de los fondos, vamos a considerar el costo de funcionamiento de la organización y el proceso de presupuestarlo. Durante los últimos años, el presupuesto anual ha estado un poco por encima del millón de dólares. Como la mayoría de las organizaciones, los sueldos y prestaciones del personal son nuestro

mayor costo (85%) y otras operaciones completan el balance.

Cada año, para elaborar el presupuesto, el Comité Presupuestario del Consejo trabaja con el Director, prestando especial atención a los detalles de funcionamiento y manteniendo una visión hacia el futuro. El Comité está integrado por el Tesorero, Bill Goff; el Director, Arne Henden y el consejero Donn Starkey. El comité revisa los gastos corrientes y trata de anticipar cómo cambiarán las operaciones, durante el o los años venideros. Hay muchas partes cambiantes en este proceso. Aunque nuestra principal fuente de fondos es el retiro del rendimiento de los fondos invertidos (50%), cada año existen subvenciones que, normalmente, aportan, también una cantidad considerable (30%), junto con las contribuciones y las cuotas de los miembros (10%) y otras

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MENSAJE DEL PRESIDENTE CONTINUED...

fuentes diversas (10%). Las subvenciones tienden a ser de corta duración—unos pocos años, en el mejor de los casos—y el mantenimiento de este recurso requiere muchísimo trabajo por parte de la organización. Algunos costos, como los de la atención de la salud y la inflación, son difíciles de prever ya que están influenciados por factores externos a la organización. El Consejo, en pleno, examina el presupuesto propuesto por el Comité de Presupuesto y sugiere cambios antes de su aprobación definitiva.

Así que, ¿cómo determinamos cuánto podemos utilizar, de forma segura, del rendimiento del patrimonio invertido? Nuestros retiros están guiados por el objetivo de contar un patrimonio que dure para siempre. Queremos que las futuras generaciones de la AAVSO puedan disfrutar de los mismos beneficios financieros que tenemos hoy. Con este fin, nuestro ex-Tesorero, Lou Cohen, realizó un análisis de Monte Carlo para determinar la cantidad que podríamos tomar de las ganancias para que el capital nunca se convierta en cero. Su análisis sugiere que si tomamos una cantidad equivalente al 5% del valor total de los fondos invertidos, cada año, tendríamos una probabilidad del 95% de retener esos fondos por siempre. Y Usted se preguntará ¿por qué si los fondos rinden un 15%, en un año dado, no

tomamos más? La respuesta es que, en algunos años, las ganancias pueden ser mucho más bajas y, en algunos años, incluso negativas (recordemos 2008). También debemos continuar construyendo un fondo que permanezca al día con la inflación.

Para ayudar al crecimiento de esos fondos, recientemente hemos pasado a dos fondos gestiendo en forma activa. Los fondos de gestión activa miran los resultados, las metodologías, y los equipos de gestión, y tratan de elegir lo mejor. Para mantener bajos los costos, los fondos pasivos hacen menos de esta. Cuando comparamos nuestro ex-administrador de fondos contra cinco alternativas, encontramos que las alternativas habían obtenido mejores resultados. Por esta razón, trasladamos nuestra dotación de reserva a dos fondos de gestión activa: al Morgan Stanley Graystone Consulting y al Fondo de Inversión para Fundaciones (TIFF). Uno de estos fondos es una entidad sin fines de lucro y sólo acepta fondos de organizaciones no lucrativas, incluyendo muchas universidades. Dividimos nuestros fondos entre dos gestores para no poner todos los huevos en una sola canasta, para que resulte inmediatamente obvio si a un administrador le comienza a ir mal y para mantener a cada administrador libre de caer en la autocomplacencia. El Comité de Inversiones, el

cual consiste en el presidente del Comité Donn Starkey, el Tesorero Bill Goff y el Secretario Gary Walker, asesora al Consejo sobre la gestión de los fondos y se mantiene al tanto de los rendimientos.

Entendiendo que debemos proteger los activos de AAVSO a perpetuidad y que los fondos invertidos sólo cubren la mitad de nuestros gastos operativos, el Consejo mantiene una estrecha vigilancia sobre este valioso recurso. Con el continuo análisis de nuestros administradores de dinero y un presupuesto cuidadoso, sin embargo, nuestro objetivo es proteger el diamante que es nuestro fondo patrimonial y asegurarnos que siga creciendo y dar apoyo a una vibrante y siempre cambiante AAVSO. ★

A NOTE ON THE TRANSLATIONS

We are grateful to Sebastian Otero and Jaime García for providing, respectively, the Spanish language versions of the Director's and President's messages. We hope that readers of the *Newsletter* will enjoy this feature.

AAVSO CENTENNIAL HISTORY !

Advancing Variable Star Astronomy: The Centennial History of The American Association of Variable Star Observers by Thomas R. Williams and Michael Saladyga, published by Cambridge University Press, is available through the AAVSO at a special reduced price.

Thanks to the generosity of a donor, the purchase price of each book sold through the AAVSO online store will go to benefit the AAVSO!

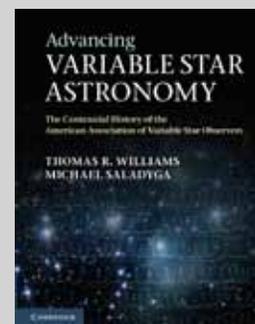
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ATTENTION CCD OBSERVERS

SARA BECK (BSJ), AAVSO HEADQUARTERS

There is no longer an excuse for not transforming your data! Thanks to a tremendous volunteer effort by Gordon Myers (MGW), George Silvis (SGEO), and Richard Sabo (SRIC), who have created some easy-to-use software tools to help with the process, it is now easier than ever to transform your data to the Standard System.

Why it important to transform my data? Even if you are an excellent photometrist and are doing everything right in terms of processing and calibrating your images, measuring them, and reporting your results, your observations will likely be offset a little bit from the data of the other excellent photometrists out there who are who are also doing everything correctly. This is due to the fact that no two camera/filter/telescope systems will have exactly the same color response. You can and should correct for these differences by transforming your data to the standard system.

How do I transform my data? Basically, you need to measure the magnitudes of some special non-variable stars for which the magnitudes have been determined very, very accurately (by our own Arlo Landolt and Arne Henden!). Then you use the difference between your measurements and the published values to come up with some numbers called “transformation coefficients” which can be applied to your data to correct them. It sounds simple, but it is actually quite involved and messy to do using the old spreadsheet method. That is, until now....

Where do I find these great programs? Today, it is easier than ever before to transform your data. Just visit the webpage appropriately named

“Transforms: Everything you need to transform your CCD observations” (<http://www.aavso.org/transform>).

On this page you will see links to three programs which can be used to help you compute your transformation coefficients, aggregate records in your report, and apply the transformation coefficients to your data.

Volunteers to the rescue—what if I need more help? There are several things you can do if you have questions about transforming your data in particular and CCD Photometry in general:

- *Attend the Annual meeting* (November 6–8, 2014). Gordon Myers and Ken Menzies (MZK) are scheduled to give talks about using Gordon’s Photometry Transformation Generation Program (PTGP), while George Silvis will be presenting a poster on TransformationApplier (TA). Richard Sabo (SRIC) is not giving a talk but will be attending the meeting. There may not be a better chance than this to ask questions of the authors of the programs themselves!

- *Read the newly published AAVSO Guide to CCD Photometry* (<http://www.aavso.org/ccd-photometry-guide>). Chapter 6 is dedicated to a discussion of transformation, but you will find a lot of other useful information there as well.

- *Post your questions or participate in a discussion* on the Photometry Forum (<http://www.aavso.org/forums/variable-star-observing/photometry>). If you are more interested in the details of the software itself and how it works, you might find the Software Development Forum (<http://www.aavso.org/forums/about-aavso/software-development>) to be useful. ★

PHOTOELECTRIC PHOTOMETRY PROGRAM UPDATE

MATTHEW TEMPLETON (TMT), AAVSO SCIENCE DIRECTOR

The third quarter of 2014, starting July 1, brought the richest fields of the Milky Way into prime view. The AAVSO Photoelectric Photometry program recorded 529 observations of 53 different stars by seven observers during the quarter.

Gerald Persha (PGD) contributed 332 observations of eleven stars, including two nights of time-series B and V observations of the contact binary star KP Peg. Georgio DiScala (DSI) contributed 70 infrared observations (35 in each of the J and H filters) of 18 different southern stars using an SSP-4 IR photometer. Among the 18 stars was eta Carinae, which recently underwent its X-ray eclipse that happens every 5.5 years. PEP section chair Jim Fox (FXJ) contributed 39 observations of twelve stars in V (33) and B (6) filters. Tom Calderwood (CTOA) made 36 observations (18 in each of V and B filters) of seven stars; Charles Calia (CCB), 25 V-band observations of six stars; AAVSO Councilor John Martin (UIS01) 23 observations (12 V-band, 11 B-band) of five stars; and Jim Kay (KJMB), four observations (two V, two B) of two stars. Very happily, I was recently contacted by long-time observer Henri Van Bommel (VBR), who reported several months worth of observations, including thirty V-band observations during this quarter. We’ll be processing those and entering them shortly—welcome back to PEP observing, Henri!

Jerry Persha’s time-series target KP Peg led the quarter with 104 observations, followed by R Lyrae (50), P Cygni (38), XY Lyrae (34), g Herculis (28), X Herculis (24), CH Cygni (20), U Delphini (20), EU Delphini (20), HK Lyrae (16), V398 Lyrae (16), V2014 Ophiuchi (11), miu Cephei (11), and eta Car (10) all having at least ten observations. Once again the targets observed are an interesting mix of pulsators, active stars, and the campaign targets CH Cygni and P Cygni, both of which remain good targets. CH Cygni especially is a good target for all observers doing transformed photometry including the B and V filters, and observations are being actively monitored by the PI Margarita Karovska of the Harvard-Smithsonian Center for Astrophysics.

Tom Calderwood and Jim Kay are currently investigating the optical and IR properties of their B filters and photometry after noticing systematic offsets in B photometry of the IR-bright star R Lyrae. They’re currently exploring different possible sources for the systematics with several tests involving their SSP-3 and SSP-4 units, and will be reporting results soon.

A note about AAVSO PEP Program stars: the original list of targets was established so that observers could make single-filter (V-band) measures of a short, focused list of stars, enabling both easy reduction by the PEP chair and easier analysis by researchers trying to combine data from multiple users. This list still exists, and observers can still use the AAVSO’s PEPObs web tool to submit single filter data. If you’re a novice with PEP and are looking to start contributing, this is the place to look for targets:

CONTINUED ON NEXT PAGE

PEP UPDATE
CONTINUED...

<http://www.aavso.org/suggested-stars-pep-observers>

That said, we very strongly encourage observers with multiple filters to give them a try, and to explore new targets of interest to them. Our only request that if you make PEP observations, you should (a) transform them to a standard system of your filter set, and (b) use reliable comparison star magnitudes where available. For the latter, we have used data from the General Catalogue of Photometric Data (Mermilliod and Mermilliod) in the past, and some bright star comparison data may be available from the AAVSO's own Bright Star Monitor as well. If you have multiple filters available but need pointers on doing data reductions or finding good comparison star magnitudes, you're welcome to contact PEP chair Jim Fox (makalii45@gmail.com) or AAVSO headquarters.

To learn more about PEP observing and the AAVSO PEP program visit:

<http://www.aavso.org/aavso-photoelectric-photometry-pep-program>

Finally, I'll close this quarter's report to note that our PEP Section Chairman, James Fox, was recently awarded the 2014 Leslie Peltier Award by the Astronomical League at the San Antonio, Texas, ALCON. Jim has been a long-time PEP observer with the AAVSO, contributing well over two thousand PEP observations since 1999. Before that, he contributed to a number of campaigns of the IAPPP and ALPO. All of us at AAVSO Headquarters would like to extend our congratulations to Jim Fox on his well-deserved award! ★

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AAVSO OBSERVING CAMPAIGNS UPDATE

ELIZABETH O. WAAGEN (WEO),
AAVSO SENIOR TECHNICAL ASSISTANT

Each campaign is summarized on the AAVSO Observing Campaigns page (<http://www.aavso.org/observing-campaigns>), which also includes complete lists of all AAVSO Alert and Special Notices issued for each campaign.

Campaigns concluded since July 1, 2014—None

Campaigns initiated or re-activated since July 1, 2014

In early July, a campaign was announced for the long-period eclipsing variable **EE Cep**. Multiple professional and amateur observations were planned, including a collaboration headed by Cezary Galan (Nicolaus Copernicus Astronomical Center). The campaign was announced and visual and multicolor AAVSO observations requested in *AAVSO Alert Notice 502*. The mid-point of the eclipse of this Be star—the star to be eclipsed by an orbiting dusty disk belonging to an unseen companion—was predicted to occur 23 August 2014, with the eclipse beginning up to a month earlier. Since each eclipse of EE Cep can be very different from its predecessors, extensive coverage for several weeks on either side of the mid-point is important.

AAVSO observers have been actively participating, submitting 18,743 visual and multicolor observations of EE Cep to the AAVSO International Database from July 9 through October 14. As may be seen in Figure 1, the mid-point of the asymmetrical eclipse occurred on approximately 24 August 2014, reaching ~11.52V. EE Cep has since nearly returned to its maximum magnitude, at 10.877 V on October 14.6673 UT (AUMA, U. Asim, Lahore, Pakistan).

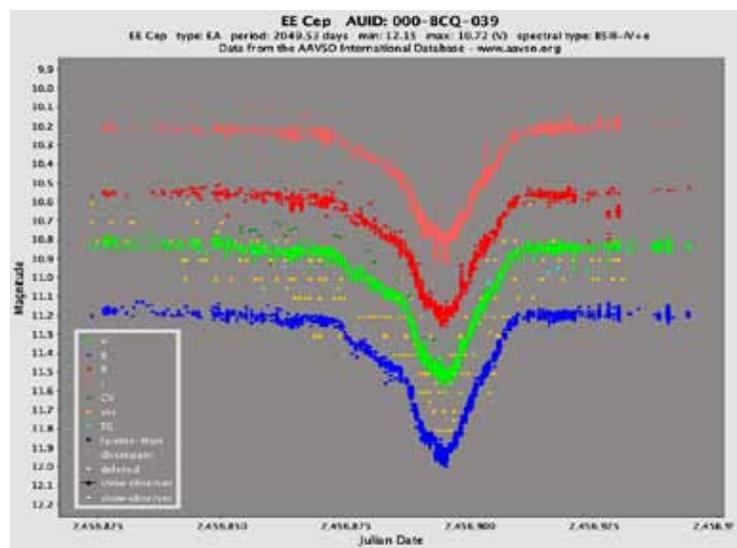


Figure 1. AAVSO light curve of the Be eclipsing variable EE Cep JD 2456823–2456945 (14 June–14 October 2014). A longer interval than that of the campaign is shown to provide context. (Zap light curve)

In August, Dr. Margarita Karovska (Harvard-Smithsonian Center for Astrophysics) and colleagues requested AAVSO observer assistance in their campaign on the symbiotic variable **RT Cru**, which varies between 11.2 and 12.6 visual. Weekly or more frequent monitoring beginning now (B and V photometry and visual observations) was requested in support of upcoming Chandra observations still to be scheduled.

CONTINUED ON NEXT PAGE

CAMPAIGNS UPDATE CONTINUED...

Dr. Karovska wrote: “RT Cru is a fascinating member of a new class of hard X-ray emitting symbiotic binaries. The RT Cru system contains a high-mass white dwarf accreting from a mass-losing M giant. The white dwarf is surrounded by an accretion disk fed by the wind of the red giant. We plan Chandra observations of RT Cru in the near future that will help us understand the characteristics of the accretion onto the white dwarf in this sub-class of symbiotics. This is an important step for determining the precursor conditions for formation of a fraction of asymmetric Planetary Nebulae, and the potential of symbiotic systems as progenitors of at least a fraction of Type Ia supernovae.” (*AAVSO Alert Notice 503*) 14 observers have contributed 853 multicolor observations through October 14.

In September, Dr. Robert Stencel (University of Denver Astronomy Program) requested that AAVSO observers monitor **epsilon Aur** through the end of the observing season, carrying out nightly CCD, DSLR, or PEP photometry (V, B, R, U; no time series) rather than visual observations because of the very small amplitude of the expected variations (0.1 magnitude in U, 0.05 in V, timescale 60–100 days).

Dr. Stencel wrote, “Studies of the long-term, out-of-eclipse photometry of... eps Aur suggest that intervals of coherent pulsation occur at roughly 1/3 of the 27.1-year orbital period”, with the next interval possibly being ~JD 2457000 (December 2014; Kloppenborg et al., 2012 *JAAVSO* 40, 647). “...The AAVSO light curve data to the present [Figure 2] may indicate that this coherent phenomenon has begun, but we encourage renewed efforts by observers during this coming autumn and winter timeframe. Additional data can help deduce whether these events are internal to the F star, or externally-driven by tidal interaction with the companion star.” (*AAVSO Alert Notice 504*)

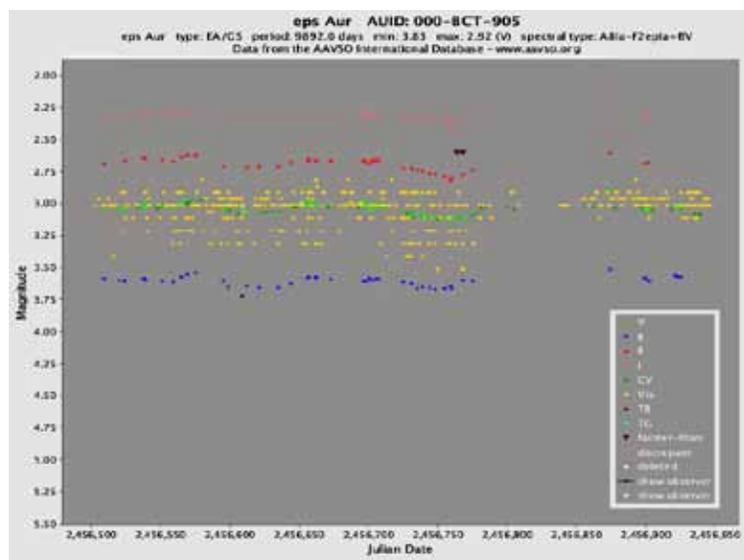


Figure 2. AAVSO light curve of the eclipsing binary *eps Aur* JD 2456500–2456945 (27 July 2013–14 October 2014). 48 observers worldwide contributed 711 multicolor observations to this light curve. (Zap light curve)

Several campaigns which have been on hold are now becoming active again as their targets become observable. Please see the appropriate *AAVSO Alert Notices* and *Special Notices* for details. These campaign targets are:

- **BD+20 307**, **HD 15407A**, and **HD 23514** (*AAVSO Alert Notice 482*, *AAVSO Special Notice #373*);
- **S Dor** (*AAVSO Alert Notice 453*, *AAVSO Special Notices #280*, #293);
- **AA Tau** (*AAVSO Alert Notice 488*);
- **BP Tau** (*AAVSO Alert Notice 493*);
- **BP Tau**, **DN Tau**, **FK2**, **V1068 Tau (LkCa4)**, and **V1264 Tau** (*AAVSO Alert Notices 473* and *494*); and
- **T Ori** (*AAVSO Alert Notice 490*).

Campaigns in progress

Dr. Eric Mamajek’s campaign on **J1407 (1SWASP J140747.93-394542.6)** (*AAVSO Alert Notice 462*) has been extended through 2014. He writes: “...Thus far [since 2012] there is no sign of eclipse.... This introduces the interesting possibility that the 2001 dip was from another body in the J1407 system.” Since that was written a year ago, AAVSO observers have continued to provide excellent coverage and no eclipse has been observed, so please continue your observations—they are extremely important in helping to solve the puzzle of this interesting and possibly complex system (*AAVSO Alert Notice 462*). Three observers have contributed 1,568 multicolor observations to date.

Dr. Margarita Karovska’s HST and Chandra campaign on **CH Cyg** (*AAVSO Alert Notice 454* and *AAVSO Special Notices #267*, *294*, and *320*) continues through the 2014 observing season at least. As before, Dr. Karovska expresses her gratitude for your ongoing observations, and asks observers please to continue, especially in V and B. The V and B data are crucial for detecting certain significant system changes key to her research. Since this campaign began in March 2012, 190 observers have contributed 21,382 visual and multicolor observations. Thank you and please keep on keeping on!

Ernst Pollmann’s campaign on **P Cyg**, an S Dor (= Luminous Blue Variable) variable (*AAVSO Alert Notice 440*), continues at least through the 2014 season and likely “for several more years.” Since May 2011, 92 observers have contributed 3,784 observations to this campaign ideally suited to PEP and DSLR observers (see Figure 3). See *Alert Notice 440* for comparison and check star information. Many thanks for your observations, and please keep on observing P Cyg!

HMXBs and SFXTs—High-Mass X-ray Binaries and Super Fast X-ray Transients, Dr. Gordon Sarty’s list (*AAVSO Alert Notices 348*, *354*, and *377*, *AAVSO Special Notices #118*, *#129*, *#143*, *#213*, and *#220*, and description of research program in *JAAVSO*, Vol. 35, p. 327; article viewable at <http://adsabs.harvard.edu/abs/2007JAVSO..35..327S>)

Blazars—Dr. Markus Boettcher’s list (*AAVSO Alert Notice 353* at <http://www.aavso.org/aavso-alert-notice-353>)

QX Pup—Mira variable (<http://www.aavso.org/qx-pup>)

CAMPAIGNS UPDATE CONTINUED...

Novae

As of October 14, no new galactic novae have been discovered since Nova Sco 2014 at unfiltered magnitude 10.1 on March 26 and Nova Cyg 2014 at unfiltered 10.9 on March 31.

V5666 Sgr = Nova Sagittarii 2014 (PNV J18250860-2236024)—This very interesting nova continues to fade slowly. As of October 12.9928 UT, V5666 Sgr was 13.366V (HMB, J. Hamsch, Mol, Belgium).

V962 Cep = Nova Cephei 2014 (TCP J20542386+6017077)—This classical nova is also continuing to fade. As of October 5.2116 UT V962 Cep was 17.188V (BJAA, J. Boardman, De Soto, Wisconsin, USA).

Nova Scorpii 2014 (TCP J17154683-3128303)—This very interesting symbiotic nova declined quite fast, and since April 2014 has been about 16.3V. The latest observations in the AAVSO International Database show it at 16.35V on July 21.5604 UT (HKEB, K. Hills, Hartford, England) and <15.537V on August 3.9167 (GCO, Carlo Gualdoni, Como, Italy).

V2659 Cyg = Nova Cygni 2014 (PNV J20214234+3103296)—This highly reddened classical Fe II-type nova continues to be very active (Figure 3) as it fades. As of October 14 UT, it was about visual magnitude 12.6 (Oct. 12.0813, 12.8, KMA, M. Komorous, London, ON, Canada; Oct. 14.4243, 12.4, MTH, H. Matsuyama, Kanimbla, QLD, Australia). 77 observers worldwide have contributed 3,175 observations through October 14.

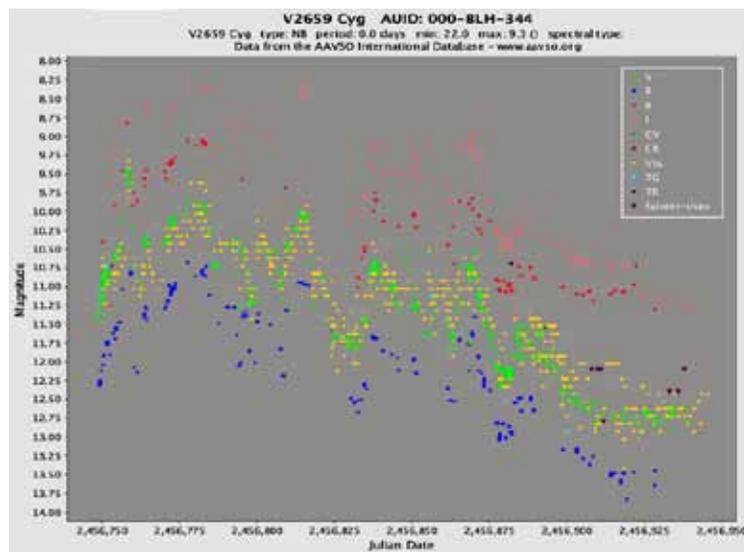


Figure 3. AAVSO light curve V2659 Cyg (Nova Cygni 2014) JD 2456748–2456944 (31 March–14 October 2014). 77 observers worldwide have contributed 3,175 observations to this light curve. (Zap light curve)

V1369 Cen = Nova Centauri 2013 = PNV J13544700-5909080 continues to decline slowly. As of October 13.7188 UT it was visual magnitude 8.5 (BLD, D. Blane, Henley-on-Klip, South Africa). The interesting evolution of the star may be seen in the accompanying multicolor light curve (Figure 4). 70 observers worldwide have contributed 11,395 observations through October 13.

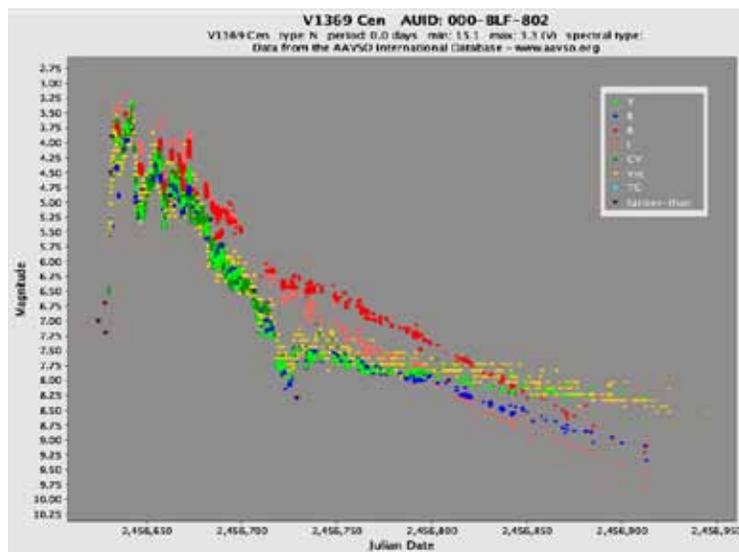


Figure 4. AAVSO light curve V1369 Cen (Nova Centauri 2013) JD 2456624–2456944 (27 November 2013–13 October 2014). 70 observers worldwide have contributed 11,395 observations to this light curve. (Zap light curve)

V339 Del = Nova Delphini 2013 = PNV J20233073+2046041—This very fast classical nova (class NA) continues to fade, most recently at visual magnitude 12.4 on October 13.047 UT (MHH, J. Moehlmann, Sayre, Pennsylvania, USA). 530 observers worldwide have contributed 73,663 multicolor observations through October 13. Compare the evolution of this nova (Figure 5) to that of V1369 Cen (Figure 4).

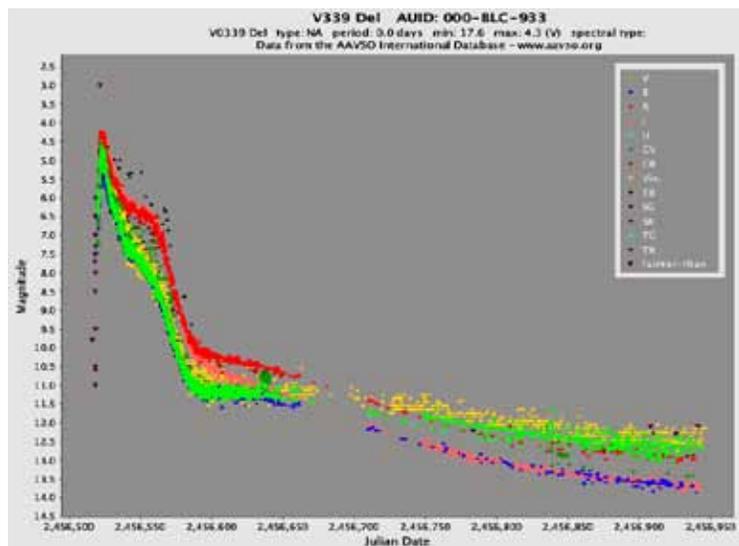


Figure 5. AAVSO light curve V339 Del (Nova Delphini 2013) JD 2456518–2456943 (13 August 2013–13 October 2014). 530 observers worldwide have contributed 73,663 observations to this light curve. (Zap light curve)

Please keep observing and participating in as many campaigns as your schedule and equipment permit. The astronomers and we at AAVSO Headquarters are grateful to all of you who are participating in AAVSO Observing Campaigns, and we thank you for your contributions. You have been and continue to be a vital part of variable star research! ★

LOOKING AT LEGACY STARS

STARS OBSERVED RECENTLY AND RECOMMENDATIONS FOR THE NEXT FEW MONTHS

ELIZABETH O. WAAGEN (WEO), AAVSO SENIOR TECHNICAL ASSISTANT

SARA J. BECK (BSJ), AAVSO TECHNICAL ASSISTANT

This column, introduced in *AAVSO Newsletter 54* (October 2012), is a quarterly summary of popular and important targets of the previous quarter as observed by the AAVSO community. This will help keep observers up to date on the observations being submitted to the AAVSO archives, and more importantly on what stars may need improved coverage by the community.

We encourage observers to keep a smaller subset of variables at the top of their observing planning via the Legacy and Program lists for LPVs and CVs (see <https://sites.google.com/site/aavsolpvsection/Home/lpv-files> for the LPV lists, and <https://sites.google.com/site/aavsocvsection/aavso-legacy-cvs> for the CV list). These lists were established to provide guidance on which stars had the best-observed light curves and thus had greatest potential for science

if those stars continued being observed. There are thousands of other stars that are still regularly observed, and many objects not on the lists above remain worthy targets for variable star observers, visual and CCD alike.

Target lists for observers vary throughout the year, and the number of observations received changes depending upon a star's observability in a given season as well as whether there is special interest—for example, an observing campaign or recent notable activity. Quarterly totals also help to highlight what new and interesting data sets the AAVSO now holds.

Below are the most- and least-observed stars of the LPV and CV Legacy lists, showing the number of visual and CCD observers ($N(vo)$ and $N(co)$) along with the total number of nights observed ($N(von)$ and $N(con)$).

Top eighteen best-covered stars of the LPV Legacy program, as measured (mainly) by number of nights observed, 2014 June 16 through September 15:

Name	Con	R.A.(J2000)	Dec.(J2000)	$N(vo)$	$N(von)$	$N(co)$	$N(con)$
CH Cyg	Cyg	19:24:33.06	+50:14:29	64	91	8	32
khi Cyg	Cyg	19:50:33.91	+32:54:50.6	84	90	2	18
miu Cep	Cep	21:43:30.49	+58:46:48	51	86	2	8
AF Cyg	Cyg	19:30:12.84	+46:08:52	53	86	0	0
W Cyg	Cyg	21:36:02.49	+45:22:28.4	50	86	0	0
Z UMa	UMa	11:56:30.22	+57:52:17.6	64	85	0	0
S UMa	UMa	12:43:56.67	+61:05:35.4	55	81	0	0
S CrB	CrB	15:21:23.95	+31:22:02.6	58	80	6	15
g Her	Her	16:28:38.54	+41:52:53.9	47	80	1	13
X Oph	Oph	18:38:21.12	+08:50:02.7	46	80	2	2
U Del	Del	20:45:28.23	+18:05:24	44	75	1	8
X Her	Her	16:02:39.16	+47:14:25.2	40	75	2	14
T Her	Her	18:09:06.2	+31:01:16.2	48	74	5	19
R Boo	Boo	14:37:11.57	+26:44:11.6	61	67	4	13
R Lyr	Lyr	18:55:20.1	+43:56:45.8	34	64	6	25
V CrB	CrB	15:49:31.31	+39:34:17.9	30	58	7	10
R Aql	Aql	19:06:22.24	+08:13:48	37	57	5	18
W Her	Her	16:35:12.31	+37:20:43	38	55	5	10

$N(vo)$ = number of observers making visual observations

$N(von)$ = number of nights with visual observations

$N(co)$ = number of observers making CCD observations

$N(con)$ = number of nights with CCD observations

Thirteen least-observed stars of the LPV Legacy program during the quarter 2014 June 16 through September 15:

Name	Con	R.A.(J2000)	Dec.(J2000)	$N(vo)$	$N(von)$	$N(co)$	$N(con)$
R Lep	Lep	04:59:36.34	-14:48:22.5	4	13	0	0
RX Lep	Lep	05:11:22.84	-11:50:57.1	4	12	0	0
W Per	Per	02:50:37.89	+56:59:00.3	5	11	0	0
R Ari	Ari	02:16:07.1	+25:03:23.6	8	10	3	3
W Ori	Ori	05:05:23.71	+01:10:39.3	5	7	0	0
R LMi	LMi	09:45:34.27	+34:30:42.8	3	4	0	0
U Ori	Ori	05:55:49.16	+20:10:30.6	3	4	1	3
W And	And	02:17:32.95	+44:18:17.7	3	3	1	1
X Aur	Aur	06:12:13.38	+50:13:40.4	2	3	1	1
W Tau	Tau	04:27:57.18	+16:02:36.1	1	3	1	2
S CMi	CMi	07:32:43.07	+08:19:05.1	1	2	0	0
X Cnc	Cnc	08:55:22.87	+17:13:52.5	1	2	0	0
R Cnc	Cnc	08:16:33.82	+11:43:34.5	1	1	0	0
R Gem	Gem	07:07:21.27	+22:42:12.7	1	1	0	0
Z Pup	Pup	07:32:38.05	-20:39:29.2	1	1	1	7

Observations are strongly encouraged as these stars become observable. Observers should consider adding any of these stars to their observing programs to improve coverage of the legacy stars.

CONTINUED ON NEXT PAGE

LEGACY STARS
CONTINUED...

Top eighteen best-covered stars of the CV Legacy program, as measured (mainly) by number of observers and nights observed, 2014 June 16 through September 15:

Name	Con	R.A.(J2000)	Dec.(J2000)	N(vo)	N(von)	N(co)	N(con)
T CrB	CrB	15:59:30.16	+25:55:12.6	69	91	4	42
CH Cyg	Cyg	19:24:33.06	+50:14:29.1	64	91	8	32
SS Cyg	Cyg	21:42:42.78	+43:35:09.8	94	91	22	69
RS Oph	Oph	17:50:13.16	-06:42:28.5	31	83	5	18
Z Cam	Cam	08:25:13.18	+73:06:39	28	79	5	49
AH Her	Her	16:44:10.01	+25:15:02	26	79	12	50
BF Cyg	Cyg	19:23:53.51	+29:40:29.2	23	75	7	24
EG And	And	00:44:37.19	+40:40:45.6	17	74	0	0
AG Dra	Dra	16:01:41.01	+66:48:10.1	31	74	1	1
CY Lyr	Lyr	18:52:41.33	+26:45:31.4	18	73	6	24
LL Lyr	Lyr	18:35:12.71	+38:20:04.7	17	72	2	5
WZ Sge	Sge	20:07:36.46	+17:42:14.6	11	72	0	0
UZ Boo	Boo	14:44:01.21	+22:00:54.7	17	71	3	17
AB Dra	Dra	19:49:06.37	+77:44:22.9	20	71	2	9
AY Lyr	Lyr	18:44:26.75	+37:59:51.9	22	70	4	19
V1413 Aql	Aql	19:03:46.85	+16:26:17	8	70	3	13
EM Cyg	Cyg	19:38:40.11	+30:30:28.4	23	70	9	46
Z And	And	23:33:39.95	+48:49:05.9	37	70	4	5

Stars in CV Legacy list with no visual or CCD observations during the quarter 2014 June 16 through September 15:

Name	Con	R.A.(J2000)	Dec.(J2000)	N(vo)	N(von)	N(co)	N(con)
AH Eri	Eri	04:22:38.04	-13:21:30.3	0	0	0	0
CN Ori	Ori	05:52:07.79	-05:25:00.5	0	0	0	0
V0344 Ori	Ori	06:15:18.95	+15:31:00	0	0	0	0
KR Aur	Aur	06:15:43.91	+28:35:09	0	0	0	0
CZ Ori	Ori	06:16:43.23	+15:24:11.5	0	0	0	0
RR Pic	Pic	06:35:36.05	-62:38:24.2	0	0	0	0
CW Mon	Mon	06:36:54.54	+00:02:17.6	0	0	0	0
IR Gem	Gem	06:47:34.51	+28:06:23.5	0	0	0	0
AW Gem	Gem	07:22:40.74	+28:30:16.9	0	0	0	0
UY Pup	Pup	07:46:31.25	-12:57:09.1	0	0	0	0
BV Pup	Pup	07:49:05.25	-23:34:00	0	0	0	0
YZ Cnc	Cnc	08:10:56.63	+28:08:33.2	0	0	0	0
CP Pup	Pup	08:11:46.06	-35:21:05	0	0	0	0
CC Cnc	Cnc	08:36:19.17	+21:21:05.5	0	0	0	0
BB Vel	Vel	08:36:49.26	-47:22:37	0	0	0	0
EG Cnc	Cnc	08:43:04.02	+27:51:49.7	0	0	0	0
AK Cnc	Cnc	08:55:21.23	+11:18:15.1	0	0	0	0
AG Hya	Hya	09:50:29.75	-23:45:17.2	0	0	0	0
V0436 Cen	Cen	11:14:00.18	-37:40:47.4	0	0	0	0
SY Mus	Mus	11:32:10.01	-65:25:11.6	0	0	0	0
V0485 Cen	Cen	12:57:23.28	-33:12:06.5	0	0	0	0
NN Cen	Cen	13:14:15.6	-60:52:46.5	0	0	0	0
V0803 Cen	Cen	13:23:44.53	-41:44:29.6	0	0	0	0
FV Ara	Ara	17:35:10.05	-63:02:50.3	0	0	0	0
MU Ser	Ser	17:55:52.77	-14:01:17.1	0	0	0	0
FM Sgr	Sgr	18:17:18.25	-23:38:27.8	0	0	0	0
V0441 Sgr	Sgr	18:22:08.09	-25:28:47.3	0	0	0	0
V4021 Sgr	Sgr	18:38:14.88	-23:22:47.1	0	0	0	0
NQ Vul	Vul	19:29:14.75	+20:27:59.7	0	0	0	0
QU Vul	Vul	20:26:46.02	+27:50:43.2	0	0	0	0

As above, observations are strongly encouraged as these stars become observable and observers should consider adding any of these stars to their observing programs to improve coverage of the legacy stars. ★

JULIAN DATE / MOON PHASE CALENDARS

2,450,000 plus the value given for each date

OCTOBER 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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5 	6 	7 	8 	9 	10 	11 
12 	13 	14 	15 	16 	17 	18 
19 	20 	21 	22 	23 	24 	25 
26 	27 	28 	29 	30 	31 	

NOVEMBER 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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2 	3 	4 	5 	6 	7 	8 
9 	10 	11 	12 	13 	14 	15 
16 	17 	18 	19 	20 	21 	22 
23 	24 	25 	26 	27 	28 	29 
30 						

DECEMBER 2014

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 	2 	3 	4 	5 	6 
7 	8 	9 	10 	11 	12 	13 
14 	15 	16 	17 	18 	19 	20 
21 	22 	23 	24 	25 	26 	27 
28 	29 	30 	31 			

Moon calendars courtesy StarDate online

<http://stardate.org/nightsky/moon/>

THE AAVSO MENTOR PROGRAM

Since the earliest days of the AAVSO, experienced observers have helped new observers by corresponding, answering questions, and even providing personal guidance at the telescope.

If you would like to talk with an experienced variable star observer, contact the AAVSO and we will put you in contact with the mentor program coordinator, Mike Simonsen. Just send us an email (mentor@aaavso.org), or call 617-354-0484 to let us know you are interested in this program.

Ideally, Mike will be able to provide you with names, addresses, and phone numbers of active AAVSO observers near you. If there are none located in your area, he can at least provide you with more distant contacts. A simple phone chat with an experienced observer may provide all the feedback you need to continue progressing as an AAVSO observer.

Visit the AAVSO mentor program webpage:

<http://www.aavso.org/mentor-program>



BY POPULAR DEMAND!

A set of twenty pdf centennial posters exhibited at AAVSO Headquarters is available for downloading from our ftp site.

The posters show portraits of the AAVSO's Directors, Presidents, Secretaries, Treasurers, Council members, and Staff from 1911 to 2011, and the top Visual, CCD, PEP, and Photographic/Photovisual observers. For more information go to: <http://www.aavso.org/aavso-100th-anniversary-commemorative-posters>

or use this link:

<http://tinyurl.com/cge9t9s>

THE AAVSO WALTER A. FEIBELMAN SUITE

The Feibelman Suite at AAVSO Headquarters is available to guests who are in the Boston/Cambridge area to perform an AAVSO-related task, that is, the purpose of their visit is to do something for or related to the AAVSO. For details about the suite or making a reservation, please visit

<http://www.aavso.org/walter-feibelman-guest-suite>.



See the following pages for important information about membership renewals and contributions.

JOIN THE AAVSO!

AAVSO 2014 New Member Form

Please send application, first year's dues, and application fee to:

AAVSO, 49 Bay State Road
Cambridge, MA 02138, USA

Date: _____
 Full Name: _____
 Full Address: _____

 Telephone 1: _____ Telephone 2: _____
 E-Mail: _____
 Birth Date: _____ Vocation: _____
 Telescopic Equipment: _____

 Astronomical Experience (if any): _____

 How did you learn about the AAVSO? _____

Types of Membership Offered and Dues

Annual:	Adult	US \$75.00 per year
	Associate (Under 21)/Pension/Limited Income	US \$37.50 per year
Sustaining:		US \$150.00 per year
Developing country [†]	(for members residing in low income countries):	US \$25.00 per year

Membership is prorated through the end of the year, starting with the current month.

All applicants also add a one-time, \$10.00 application fee.

Please consult the following table to find out how much to pay, including application fee.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept*	Oct*	Nov*	Dec*
Annual	\$75.00	\$68.75	\$62.50	\$56.25	\$50.00	\$43.75	\$37.50	\$31.25	\$100.00	\$93.75	\$87.50	\$81.25
A/P/LI	\$37.50	\$34.38	\$31.25	\$28.13	\$25.00	\$21.88	\$18.75	\$15.63	\$50.00	\$46.88	\$43.75	\$40.63
Sustaining	\$150.00	\$137.50	\$125.00	\$112.50	\$100.00	\$87.50	\$75.00	\$62.50	\$200.00	\$187.50	\$175.00	\$162.50
Developing Country [†]	\$25.00	\$22.92	\$20.83	\$18.75	\$16.67	\$14.58	\$12.50	\$10.42	\$33.33	\$31.25	\$29.17	\$27.08

*Please note that if joining in September-December, the following year's dues are already being collected, so we request that you pay for the end of this year and for the following year.

[†]Developing countries EXCLUDE Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, the Korean Republic, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, the United States.

Dues (see chart): US \$ _____ **Application fee:** US \$ 10 _____

Donation (optional): US \$ _____ to _____ fund (see box on right)

Total payment (dues + fee + donation): US \$ _____

Contributions (see last page for descriptions):	
AAVSO General Fund	\$ _____
The Endowment Fund	\$ _____
Annual Campaign Fund	\$ _____
Building Fund	\$ _____
Janet A. Mattei Research Fellowship	\$ _____
Margaret Mayall Assistantship Fund	\$ _____
Solar Fund	\$ _____
AAVSONet Fund	\$ _____
Member Sponsorship Fund	\$ _____
Student Meeting Scholarship Fund	\$ _____
Contributor-Specified Restricted Funds	\$ _____

_____ I have enclosed a check / money order _____ Please charge my credit card (Visa or Mastercard)

Credit card #: _____ Exp. Date: _____ Security Code (on back of card): _____

Cardholder's Name (as on card): _____

Billing address (if different from above): _____

Signature: _____

2014 MEMBERSHIP RENEWAL

On this page is a copy of the AAVSO membership renewal form for 2014. You may also renew your membership online. Safe and secure online payments are possible by visiting <http://www.aavso.org/membership-renew>. If your postal or email address has changed, please also take a minute to update your personal profile online. Simply click "User login" at the upper right of the home page, then go to "My account." In addition to your dues, your contributions to the AAVSO further support the organization's activities and are very much appreciated. Also, on the next page you will find descriptions of the various funds to which you may contribute. *Developing countries EXCLUDE Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, the Korean Republic, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the United Kingdom, the United States.*



AAVSO
Membership and Subscriptions
 49 Bay State Rd
 Cambridge, MA 02138-1203

Name _____
 Address _____
 City _____
 State/Province _____
 Zip/Postal Code _____
 Country _____

Payment and Contact Information

My **check** for \$ _____ is enclosed. *Checks must be in US funds and made payable to AAVSO.*

For payment by **credit card** please complete the section below. *All fields are required.*

__ Visa __ Mastercard Card Number _____ Exp Date: ____ / ____

Card Security Code (3-digit number on the back of your card): ____ Total to be charged: \$ _____

Name on card: _____ Signature: _____

If the billing address for this credit card is different from your address above, please provide it here:

Billing Address _____ City _____

State/Province _____ Zip/Postal Code _____ Country _____

Please make any changes necessary to correct and complete your membership contact information below:

Name: _____

Address: _____

City: _____ State/Province: _____

Zip/Postal code: _____ Country: _____

Phone: _____ Email: _____

2014 Membership Dues Renewal Form

Membership Type *(please check one)*

- Annual \$75 Sustaining \$150
 Associate (under 21) \$37.50
 Pension/Limited Income \$37.50
 Developing Country \$25

Contributions *(see next page for descriptions)*

- | | |
|--|----------|
| AAVSO Building Fund | \$ _____ |
| Janet A. Mattei Research Fellowship | \$ _____ |
| Margaret Mayall Assistantship | \$ _____ |
| Solar Fund | \$ _____ |
| AAVSONet Fund | \$ _____ |
| Member Sponsorship Fund | \$ _____ |
| AAVSO General Fund | \$ _____ |
| The Endowment Fund | \$ _____ |
| Contributor-Specified Restricted Funds | \$ _____ |
| TOTAL ENCLOSED | \$ _____ |

SUPPORT THE AAVSO

In order to sustain the AAVSO and its operations, we rely on the generous support provided by members, sponsors, donors, and staff. Together we are the AAVSO. Your gift is a way for you to say that you believe in what we are doing and that you want it to continue moving forward. Every dollar given and membership purchased benefits the AAVSO in a necessary and unique way.

AAVSO Funds

The following is a list of the specific funds to which you may contribute. If you do not wish to specify how you would like your donation to be used, the AAVSO will determine the fund where it is needed most and place it there.

The General Fund This fund is an unrestricted one and supports the general operations of the Association.

The Endowment Fund This is a professionally managed fund, invested for the perpetuity of the AAVSO. From time to time, transfers from this fund into the General Fund are made as necessary to meet operating deficits of the Association.

The Building Fund This fund is dedicated to replenishing the Endowment Fund for the cost of purchasing the new headquarters building (49 Bay State Road, Cambridge, MA 02138), to provide funds to refurbish the building, and to cover other costs incurred with the purchase.

Janet A. Mattei Research Fellowship Program This fund enables a visiting scientist, postdoctoral researcher, or student to perform research at AAVSO Headquarters with the goal of disseminating the results throughout the astronomical community.

Margaret Mayall Assistantship Fund This fund helps finance a summer student at AAVSO Headquarters who works on variable star-related projects and research while learning about the AAVSO and variable stars in general. Only the accumulated interest and not the principal may be used.

Solar Fund This fund helps to pay the staff costs of running the section, publishing the *Solar Bulletin*, and travel expenses for visiting solar researchers.

AAVSONet Fund This fund pays for refurbishment and maintenance of telescopes, cameras, mounts, computers, software, and hardware required to operate the AAVSO's robotic telescope network.

Member Sponsorship Fund Funds donated to this program pay the membership dues for those active variable star observers who want to become members of the Association but cannot afford the dues.

Student Meeting Scholarship Fund Donations to this fund pay for up to 10 student registrations per annual meeting of the AAVSO.

Contributor-Specified Restricted Funds These are gifts and contributions made to the Association for restricted purposes as specified by the donor thereof. All such restricted funds of the Association shall be administered in strict accordance with the instructions of the donor. The Association is not obliged to accept any assets so offered.

If you wish to contribute to one or more of these funds please fill in the amount on the appropriate line on your renewal form and include it in the total. *All contributions are tax-deductible in the USA.*

You may also donate online at: <http://www.aavso.org/support-aavso>

Thank you for your support of the AAVSO!