

★ NEWS AND ANNOUNCEMENTS

AAVSO MEETINGS . . . . . 3  
 HAPPY 150TH BIRTHDAY, RASC! . . . . . 4  
 2017 ECLIPSE EXPERIENCES . . . . . 6

★ OBSERVING

HOW THE AAVSO SOLAR OBSERVERS  
 OBSERVE THE SUN . . . . . 12  
 OBSERVER'S CORNER . . . . . 18  
 OBSERVING CAMPAIGNS UPDATE . . . . . 19

# AAVSO

## Newsletter

Complete table of contents on page 2

## FROM THE DIRECTOR'S DESK

STELLA KAFKA



*Starting a new year...*

The year 2018 marks three years since the beginning of my tenure at the AAVSO and, looking back, I appreciate how much progress we made together during this short time period. The AAVSO is an exceptional organization, the only organization that from its infancy aimed at building a Citizen Astronomy community, a community of individuals who acquire data for scientific research. As such, the AAVSO is an evolving organization, and during those three years it evolved even more.

Since 2015, I have had the chance to closely meet with many of you, members of the AAVSO's international community, and discuss science projects and aspirations, talk about the place of the AAVSO in the current science landscape, get excited over light curve peculiarities and stars that misbehave. But most importantly—I listened. At the AAVSO HQ, we all listened. It became our mission to listen. Listen to what you cherish from the AAVSO, what you need to improve your observations, what tools you use to spy on stars, what projects interest you. We listened to our community.

And based on what you said, we improved old tools and we built new ones. We gave you a new light curve generator, we updated VSP and VSD, we provided means for you to build your observing program through a new target tool, we created new training material that would make it possible for you to observe exoplanets and the Sun, we translated our manuals in more languages, disseminating their content to more individuals around the world. We built tight relationships with sister associations, we joined international collaborations, and we ensured that the professional scientific community is continuously aware of your great work and contributions and continues to engage our observers in scientific projects. We highlighted accomplishments and we insisted on acknowledgements. We continued celebrating our observers' great work and milestones, and encouraged those who are hesitant, to get started.

The new year finds us planning the AAVSO's future, ensuring that its infrastructure is sustainable. At HQ, we are working behind the scenes updating our development and live servers, improving our web page infrastructure, documenting our software, and ensuring that programs you use for your work run smoothly and are bug-free. With the help of our volunteers, we are attacking

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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.*

## PRESIDENT'S MESSAGE

KRISTINE LARSEN



*A First Magnitude Meeting of the Minds*

With the start of the new year, I want to begin my President's Column by thanking each and every one of you for your hard work for Variable Star Astronomy over the past year. Whether you are a visual or CCD observer, prefer short period or long period objects, or count the Sun, Mira, or SS Cyg as your favorite variable star, we could not have added so many high quality data points to our databases in 2017 without you, our loyal observers. But many of you made just as significant contributions to the organization without looking through an eyepiece or reducing photometric data. Whether through contributing monetary donations or time toward the development of software, mentoring a new observer or giving a talk on the AAVSO to your local astronomy club, every bit of the time, effort, and resources you have given to the organization over the past 12 months is greatly appreciated.

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# THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS

**DIRECTOR** Stella Kafka  
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## NEWSLETTER

**EDITOR** Elizabeth O. Waagen  
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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 [ewaagen@aavso.org](mailto:ewaagen@aavso.org). Photos in this issue courtesy of Michel Deconinck, Mike Linnolt, William M. Wilson, Molly Bathrick, and Mario Rana.

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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## CONTENTS

From the Director's Desk	1
President's Message	1
AAVSO Meetings	3
Talking About the AAVSO	3
AAVSO in Print	3
Happy 150th Birthday, RASC!	4
US Team Shines at International Olympiad	5
2017 Eclipse Experiences	6
In Memoriam	9
Mensaje del Director	10
Mensaje del Presidente	10
How the AAVSO Solar Observers Observe the Sun	12
LPV Section Update	15
Exoplanet Observing Section Update	17
Photoelectric Photometry Program Update	17
Looking at Legacy Stars	17
Observer's Corner	18
Observing Campaigns Update	19

## DIRECTOR'S MESSAGE CONTINUED...

the challenge of curating and maintaining both old and new software code, while anticipating disruptive technology of the near future. Our aim is to ensure that our observers' work remains uninterrupted. As part of this, we are asking for your feedback, and are very pleased to see your participation. Improvements, ideas, and steps forward stem from dialogue and our common wish to improve the AAVSO and better serve our community.

Most importantly, we learned from you, our volunteers, our mentors, our instructors, our observers, our council and committee members. We incorporated your suggestions, we followed your lead, we brainstormed for future directions, and we overcame hurdles. We became a stronger organization because you constantly reminded us that you are in our corner, that you value our services and you appreciate our collective work, you support us, and you are eager to see the AAVSO prospering.

I am looking forward to this year. I am looking forward to continuing to serve you and learn from you, while ensuring that the AAVSO is a healthy and strong organization which serves an enthusiastic community of Citizen Astronomers. I am looking forward to the new discoveries and exciting phenomena we will all unveil together, and all new knowledge that will stem from our observers' data. With your help, we will keep "enabling anyone, anywhere to participate in scientific discovery through variable star astronomy."

I would like to end by wishing you all a healthy, prosperous, and productive new year, and I am looking forward to seeing you in person this year.

Best wishes—clear skies,

*Stella.*

*Ed. note: the Spanish language versions of the Director's and President's messages can be found on page 10.*

## PRESIDENT'S MESSAGE CONTINUED...

The AAVSO is not merely a collection of data points, although each data point is certainly important. The AAVSO is an association of individuals who have a passion for those peculiar stars that stubbornly refuse to conform. Just as no two variable stars are identical, so are no two AAVSO members. Each and every one of you has a different reason for being a member, just as each individual member contributes to the organization in a constellation in different and very personal ways.

As I reflect on my experiences at the recent Nashville meeting, I keep coming back to several discussions I had with members, both individually and in larger settings, including an informal brown bag lunch meeting open to all attendees. We discussed the past and future of the organization, observing sections and techniques, and especially meetings. As the attendee of about ten conferences per year of all different sizes and formats, I certainly have my own opinions and preferences. But this wasn't about my opinions, it was about our members'. It was refreshing to listen to members openly and honestly describe what they prefer in meetings, what influences their decision to attend particular meetings, and even offer their constructive criticism about what they felt worked (and didn't work) for them in recent AAVSO meetings. The take away message is that no one size fits all members, and two members could have diametrically opposed preferences for and opinions of the exact same event. But what we all agreed upon was that meetings are vitally important for our community in order to keep it exactly that—a community. Meetings are about people, about that personal experience. They are about shaking hands with a friend you only get to see in person once a year, sharing sandwiches and conversation in a coffee shop between talks, getting observing tips from another member you've never met before, or having dinner with college students attending their very first AAVSO meeting. Face to face meetings make all this possible.

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## PRESIDENT'S MESSAGE CONTINUED...

The AAVSO has two very exciting meetings planned in 2018, a joint Spring meeting with the BAA in England in July, and an annual meeting at the Lowell Observatory in Flagstaff, Arizona, in November. I hope to see many of you at one or the other meeting, if you can possibly make it. Perhaps we can share sandwiches (my treat!), or you can give me an observing tip. I will certainly shake your hand with enthusiasm and listen to what you have to say. If you are a college professor, please consider bringing your students if at all possible.

It is an honor being your president, and I look forward to speaking with many of you over the next year.

And by the way, I did finally earn my AL Binocular Variable Star Observing pin!

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## AAVSO MEETINGS

### Next meeting

107th Spring Meeting: July 6–8, 2018, AAVSO-British Astronomical Association (BAA), University of Warwick, Coventry, England (2018 Spring Meeting)

<https://www.britastro.org/node/10727>

A provisional schedule and information about accommodations and location is linked to on the AAVSO meetings page

<https://www.aavso.org/aavso-meetings>

### Upcoming meeting

107th Annual Meeting: November 15–17, 2018, Lowell Observatory, Flagstaff, Arizona (2018 Annual Meeting)

<https://www.aavso.org/aavso-meetings>

### Most recent meeting

106th Annual Meeting: November 2–4, 2017, Vanderbilt University, Nashville, Tennessee (2017 Annual Meeting)

<https://www.aavso.org/vanderbilt-meeting-page>

The group photo from the AAVSO meeting may be viewed on the AAVSO website:

<https://www.aavso.org/group-photographs#2010s>

Missed the 2017 Annual Membership meeting? Now you can watch it here:

<https://www.aavso.org/aavso-membership-meeting-november-4th-2017>

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## TALKING ABOUT THE AAVSO

The announcements in the “Talking about the AAVSO” column are included on the AAVSO website in the General AAVSO Discussion forum, in the thread Talking about the AAVSO (<https://www.aavso.org/talking-about-the-aavso>). Members and observers are encouraged to post to this thread information about presentations they have given or will be giving on the AAVSO, variable stars, and astronomy. Remember that it is necessary to be logged in to the AAVSO website to post to the forums.

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## AAVSO IN PRINT

A partial listing of publications using data from the AAVSO International Database, the AAVSO Photometric All-Sky Survey (APASS), the International Variable Star Index (VSX), or other AAVSO resources is available at: <https://www.aavso.org/aavso-print>

Readers knowing of relevant publications not on the above lists are encouraged to email the details to the AAVSO at [ewaagen@aavso.org](mailto:ewaagen@aavso.org).



## HAPPY 150TH BIRTHDAY, ROYAL ASTRONOMICAL SOCIETY OF CANADA!

**JOHN R. PERCY**  
DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS,  
UNIVERSITY OF TORONTO

In 1868, one year after Canada's birth, eight men, led by Andrew Elvins, gathered to form the Toronto Astronomical Club. It had its ups and downs, and changes of name, as many organizations do, but it evolved into the Royal Astronomical Society of Canada. By 1890, there was a critical mass of amateurs and professionals. By 1906, there was a branch or "Centre" in Ottawa. There are now 29 Centres, from St. John's in the east, to Victoria in the west, to Yukon in the north, and "unattached members" around the world. The RASC rotates its annual General Assembly around the country. I first met AAVSO Director Janet Mattei at a joint RASC-AAVSO GA in Winnipeg in 1974. She became a dear friend and colleague. As National President 1978–1980, I was the first to visit every centre (including one that was not expecting me). In 1999, we had a wonderful (except for the heat wave) joint AAVSO-ASP-RASC meeting in Toronto, which led to the conference proceedings *Amateur-Professional Partnerships in Astronomy* (ASP 2000).

The RASC's guiding light, for over half a century, was Professor Clarence Chant (1865–1956), who also founded my Department at the University of Toronto, wrote a best-selling book *Our Wonderful Universe*, and wrote articles and gave public lectures which, among other things, led to the establishment of the David Dunlap Observatory, just outside Toronto, with the second-largest telescope in the world. He served many roles in the RASC, including editing the Society's publications for 50 years—1907–1957. These include the world-famous annual *Observers Handbook* (which now has a US edition), and the *Journal of the RASC*. The *Journal*, and the RASC were the "voice" of Canadian astronomy until the formation of the professional Canadian Astronomical Society in 1971. Its founding president was Helen Sawyer Hogg, a noted variable star astronomer, and a former president of the AAVSO. The RASC now has other publications, both national and local, and recently became publisher of *SkyNews*—the Canadian popular magazine of astronomy and stargazing; see [www.skynews.ca](http://www.skynews.ca).

RASC members are active in monitoring aurorae, meteors, and sunspots; chasing eclipses; discovering comets, novae, and supernovae; measuring variable stars and lunar occultations; astrophotography; developing new techniques for observing and imaging; and combatting light pollution.



We do not have a Variable Star Section; we encourage our members to join the AAVSO! Our observers are prolific—Canadian observers contributed 111,292 observations in 2015–2016. Several RASC members (including me) have served as AAVSO President, Councilor, or other role.

The RASC, its Centres and members make exceptional contributions to education and outreach. In 2003, the RASC won the prestigious national Michael Smith Award for excellence in science promotion. In International Year of Astronomy 2009, the RASC partnered with other amateurs, professionals, and educators in Canada to organize over 3,600 events, reaching almost two million people face-to-face. I am constantly amazed by the quality, quantity, variety, and creativity of RASC outreach! And RASC members are all volunteers! Almost all of our 5,000 members are engaged in astronomy in some way, which is good for their mind, body, and spirit.

I've been a member of RASC since 1961, and have served many roles at the national level (including President and, for ten years, Editor of the *Observers Handbook*) and in the Toronto Centre. That's where I first encountered the enthusiasm and diversity of amateur astronomers, and how important their work was to astronomy. I've just finished a four-year term as RASC Honorary President, and I write a bimonthly potpourri column for the *Journal*, which you can access on-line. I still marvel at how well the RASC balances national and local activities and priorities, and serves amateurs and professionals, across our vast bilingual country. May it last another 150 years—or more!

You can find out more about the RASC and its history at [www.rasc.ca/rasc-history](http://www.rasc.ca/rasc-history). In particular, check out *Looking Up*, Peter Broughton's wonderful Centennial (measured from 1890) history of the RASC.

## US TEAM SHINES AT INTERNATIONAL OLYMPIAD IN ASTRONOMY AND ASTROPHYSICS COMPETITION 2017

The 11th edition of the International Olympiad in Astronomy and Astrophysics (IOAA) took place in Phuket, Thailand, November 12–20, 2017. More than 200 students from 44 countries participated, marking the largest event since the inauguration of the Olympiad in 2007. Student participants competed in four different exams, testing their skills in different aspects of astronomy both individually and as a team.

The AAVSO has been a partner and supporter of the IOAA USA team since 2015. This year's team—five high-school students who were accompanied by two team leaders and one observer—achieved the best result in the history of the USA's participation in IOAA, bringing back two gold medals and three honorable mentions, and so taking second place in the medal tally out of the 44 participating countries.

Meet the team members and learn more about the competitions here:

<https://www.aavso.org/international-olympiad-astronomy-and-astrophysics-competition-2017>



## 2017 ECLIPSE EXPERIENCES

In the October 2017 *AAVSO Newsletter* we invited readers to share their experience of the August 2017 solar eclipse (total or partial) in a brief article with up to two photos that would be published in the January 2018 issue. Elizabeth Waagen (WEO) and Sara Beck (BSJ) started things off in the [October issue](#) with a description of the “Becksonian Expedition” to Wyoming, which culminated with ten AAVSOers and 8 family members witnessing the total eclipse under a perfect sky.

Here we share other experiences of the event sent by other AAVSO members/observers/friends.

Enjoy!



*What I like to do with children is to use the pinhole effect, very safe, this is the diffraction of the sun light through some holes in tree leaves.*

### MICHEL DECONINCK (DMIB), ARTIGNOSC SUR VERDON, FRANCE

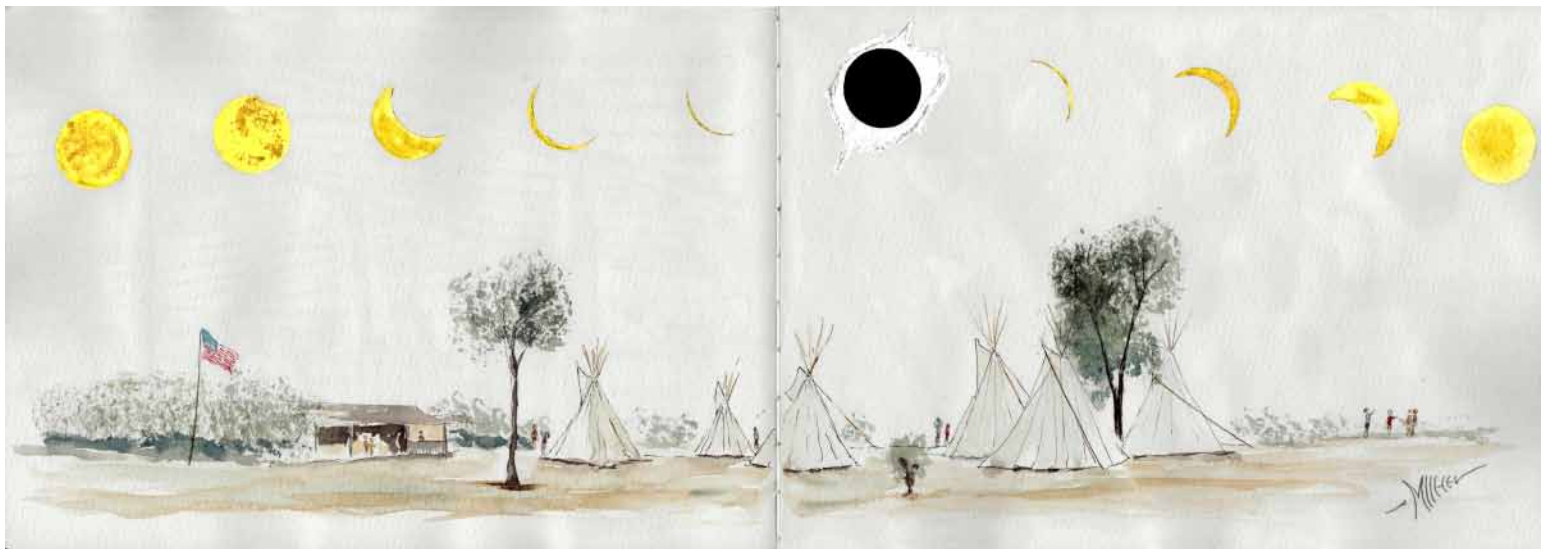
With Jannik my wife and two of our grandchildren we had a long journey to get there from Provence, look at the trip: 8 airplanes, one bus, 2 rented cars, plus of course, a lot of walks.

For the eclipse the place chosen was marvelous, a special camping was set-up close to Riverton in Wyoming. The place is in an Indian reservation along the nice Wind River. What a warm welcome we had there!

For comparison with the other eclipse we saw—1999 in France—this one was visible with a less dark sky, so less stars were visible, but [there was] a more brilliant corona and much better weather. Looking at the horizon it was like the sun was rising all around on 360°.

Full story here:

<https://www.cloudynights.com/topic/589822-2017-eclipse-impressions/?hl=%2Bsolar#entry8075514>



*This watercolor was done during and just after the eclipse.*

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## ECLIPSE REPORTS CONTINUED

### MIKE LINNOLT (LMK), VOLCANO, HAWAII

My brother and I flew from the west coast to Kansas City airport to watch the eclipse. The plan was to fly in and out on a day trip, and watch right from the airport, avoiding any potential traffic issues. Though Oregon was closer, and had better weather prospects (turned out the main issue!), the low-cost carriers like Spirit and Allegiant made KC a very opportune location, being at least within the path long enough to get a minute and half of totality. However, the weather probabilities didn't "disappoint," when we arrived early Monday in MCI, it was completely cloudy with thunderstorms forecast all day! We had to change our plans and rent a car and drive around like crazy watching the satellite images and traffic on our cellphones, to try find a hole in the clouds! At the last minute, literally, we got a clear hole at a small shopping center just north of the city limits, and were able to see the total phase. However, just minutes after it ended, a torrential rainstorm dumped on us. This was as close to a disaster as ever, but we just managed to pull it out with a stroke of luck!



### WILLIAM M. (BILL) WILSON (WILW)

A friend from the Memphis Astronomical Society and I ended up in Cape Girardeau, Missouri, after looking at cloud forecast models for Perryville, Missouri, our original destination. We traded about a minute of totality for a better chance to see it at all. We had flawless skies and a perfect view. We were grateful for the sharp drop in temperature during totality—the heat index an hour before first contact was 103° F.

I showed some new friends how to use their fingers in a grid pattern to show the crescent Sun and pointed out Venus and Jupiter to them during totality. In my excitement I forgot to look for Mars, but did see Regulus with binoculars during totality. If I'm still around at age 81 on April 8, 2024, I'll try for that day's eclipse in central Arkansas.



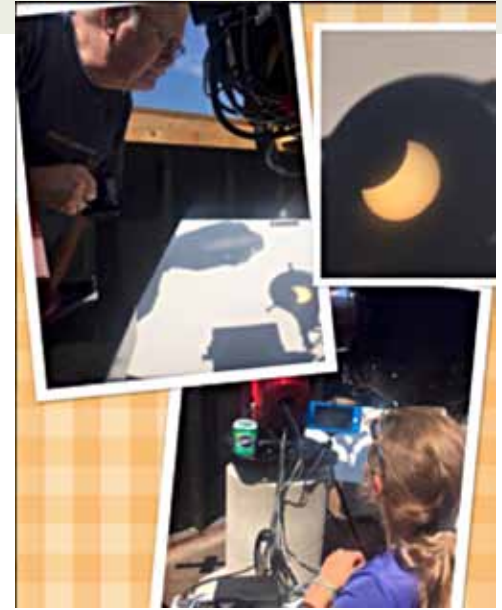
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## ECLIPSE REPORTS CONTINUED

### MOLLY'S ECLIPSE BY MOLLY BATHRICK (AGE 12), NEW YORK

After studying eclipses in school and seeing pictures of them, I have finally been able to experience my first solar eclipse. My grandpa has a huge homemade telescope and he enjoys tracking stars as amateur astronomer. Of course, we could not look through the telescope to see the sun because of its powerful UV rays that would certainly ruin our eyes. So, my clever grandpa constructed a projector board on a tripod so that we could see the shadow of the eclipse on the board. We also had eclipse glasses. Even though we had a telescope, we were still

looking at the eclipse in such an uncomplicated way. It was cool to know that the whole region was looking towards the sky at the eclipse. Although it was a partial eclipse, the odd sensation of it felt like it was four o'clock when it was one thirty because of the lack of light was present even still. This eclipse had an impact on me because of how the nation takes a break from their everyday lives and enjoys the universe's wonders. That alone is a wonder itself. When we come together to enjoy curiosities we create wondrous things.



*Top left; my grandpa looking at the eclipse with his Star Trek mug! Top right; eclipse up close on projection. Bottom; me taking a time-lapse while eating 'eclipse gum'!*



*Half of our group enjoying the eclipse. The other half was inside enjoying refreshments.*

### MARIO RANA (RMAF), HAMPTON, VIRGINIA

Twenty-three friends and family members joined me to view a partial eclipse (86%) from my home in Hampton, Virginia. There was a lot of excitement leading up to the day of the eclipse. For most this was their first eclipse. Our group consisted of 17 adults (I was the only AAVSOer), one teenager, and six children between the ages of five and nine. The turnout was much better than I expected and we all had a wonderful time! To cap off a great day everyone was invited to come back that evening to see Saturn.



## IN MEMORIAM

MEMBERS, OBSERVERS, COLLEAGUES,  
AND FRIENDS OF THE AAVSO



Brenda Branchett

### BRENDA F. BRANCHETT

(BRAB, Deltona, Florida) died October 26, 2017, after a long illness. Brenda was a solar observer for many years, and received AAVSO Solar Observer Awards for Sunspot observations at the 3500, 4000, 4500, 5000, and 5500 levels. Her husband,

David Branchett (BDT), an active AAVSO variable star observer, promised Brenda that he would continue her sunspot observation work. Brenda's interests in astronomy led her to be a longtime member of the Astronomical League (AL), the Association of Lunar and Planetary Observers (ALPO), and the Ancient City Astronomy Club (St. Augustine, Florida). Brenda was one of the creators of the AL's Herschel 400 Observing Program and was a co-author of its manual, *Observe: The Herschel Objects*. She was also a meteor observer. Brenda was also an active member of the Daughters of the American Revolution. We extend our deepest sympathy to Dave, their family, and Brenda's many friends.



Alison Doane

### ALISON DOANE

(Waltham, Massachusetts) died October 29, 2017, from amyotrophic lateral sclerosis (ALS, or Lou Gehrig's Disease) at the age of 59. Alison was not an AAVSO member or observer, but was a longtime colleague and friend. After serving

at Harvard College Observatory (HCO) since 1983 as the assistant to Dr. Martha L. Hazen, Curator of the Harvard Astronomical Plate Collection, she became Curator of the collection upon Hazen's death in 2001. She continued in this position until forced by the onset of ALS to retire in 2017.

As Curator, Alison was a key figure in the DASCH project (ongoing since 2004) to digitize the hundreds of thousands of glass astronomical photographic plates in the collection. She also worked closely with visitors to the archives, whether they were researching a star, gathering information for a book (such as Dava Sobel's work on the women computers of HCO), or wanting to see the famous "plate stacks." Harvard recognized her many contributions with a Dean's Distinction Award in 2014.

A Masters graduate of the New England Conservatory of Music, Alison was an extremely gifted oboist, and performed with numerous musical ensembles and as a guest artist; she was the principal oboist for the Boston Philharmonic Orchestra for nearly 19 years. She also loved the outdoors, particularly hiking. In a connection to AAVSO Headquarters, Alison was a contemporary at Smith College of AAVSO staff members Sara Beck and Elizabeth Waagen. Minor planet (7517) *Alisondoane* is named in her honor. We extend our deepest sympathies to Alison's husband Richard and their sons, her family, and her many friends and colleagues.



Art Pearlmutter

### ARTHUR E. PEARLMUTTER

(PN, Worcester, Massachusetts) died October 23, 2017, at the age of 81. An AAVSO member for over 55 years, Art contributed 10,364 variable star observations made between September 1955 and August 2008 to the AAVSO International

Database. In 1995 he received an AAVSO Observer Award at the 10,000 visual observations level. In 2012 he received his 50-year membership pin from the AAVSO. In his career, Art was a computer programmer for Thom McAn for many years and for Raytheon for several years. His astronomical interests extended beyond variable

stars to include meteors, among other types of objects. Art was a very longtime member of the Amateur Astronomers Association (AAA) of New York City, and served in various leadership roles there. We extend our deepest condolences to Art's wife Joan and their son and daughter, his family, and his many friends.



Nobuko Sakuma

### NOBUKO SAKUMA

(Kawasaki, Japan) died in August 2017 of pancreatic cancer. Nobuko was the wife of longtime AAVSO member and observer, Dr. Sei-ichi Sakuma. She attended several AAVSO meetings with him, and while the difference in

languages prevented easy direct conversation, her gracious smile and gentle manner spoke volumes, and Sakuma-san would translate. Attendees always looked forward to seeing her. Nobuko was a gifted artist in many media. Each year at AAVSO Headquarters we received a very beautiful holiday card crafted by her, decorated with beautiful painting, calligraphy, and origami. She and late AAVSO Director Janet Mattei shared a love of flowers and exchanged their photographs of beautiful blossoms. We extend our deepest condolences to Sakuma-san and to their family and friends.

*Ed. note: following are the Spanish language texts of the Director's and President's messages.*

## MENSAJE DEL DIRECTOR STELLA KAFKA

*Comenzando un nuevo año...*

En 2018 se cumplen tres años desde el comienzo de mi mandato en la AAVSO y, en retrospectiva, reconozco cuánto progreso hemos hecho juntos durante este corto período de tiempo. La AAVSO es una organización excepcional, la única que desde sus inicios tuvo la intención de construir una comunidad de astronomía ciudadana, una comunidad de individuos que recolecten datos para la investigación científica. Como tal, la AAVSO es una organización que evoluciona y durante estos tres años ha evolucionado aún más.

Desde 2015, he tenido la oportunidad de encontrarme con muchos de ustedes, miembros de la comunidad internacional de la AAVSO, y debatir sobre proyectos científicos y aspiraciones, hablar del lugar que ocupa la AAVSO en el actual panorama de la ciencia, entusiasmarnos con rarezas en alguna curva de luz y con estrellas que se portan mal. Pero lo más importante—escuché. En la sede de la AAVSO todos escuchamos. Escuchar se convirtió en nuestra misión. Escuchar qué es lo que les gusta de la AAVSO, lo que necesitan para mejorar sus observaciones, qué herramientas usan para espiar las estrellas, qué proyectos les interesan. Escuchamos a nuestra comunidad. Y en base a lo que ustedes dijeron, mejoramos nuestras herramientas antiguas y construimos nuevas. Les dimos un nuevo generador de curvas de luz, actualizamos VSP y VSD, les ofrecimos un medio para que armen su programa de observación con una nueva herramienta de objetivos, creamos nuevo material de entrenamiento que hará posible que observen exoplanetas y el Sol, tradujimos nuestros manuales a más idiomas disseminando su contenido a más individuos alrededor del mundo. Construimos relaciones fuertes con asociaciones hermanas, nos unimos a colaboraciones internacionales y nos aseguramos de que la comunidad científica profesional esté permanentemente al tanto del gran trabajo y contribuciones que nuestros observadores hacen para que así los sigan convocando a proyectos

científicos. Destacamos los logros e insistimos en los reconocimientos. Continuamos festejando el gran trabajo de nuestros observadores y sus metas cumplidas e incentivamos a aquellos que dudan a que comiencen a observar.

El nuevo año nos encuentra planeando el futuro de la AAVSO, asegurándonos de que su infraestructura sea sostenible. En nuestra sede, estamos trabajando tras bambalinas actualizando nuestro servidor en vivo y el de desarrollo, mejorando la infraestructura de nuestra página web, documentando nuestro software y asegurándonos de que los programas que usan para su trabajo funcionen bien y no tengan errores. Con la ayuda de nuestros voluntarios, estamos enfrentando el desafío de conservar y mantener tanto el nuevo código de software como el antiguo, mientras anticipamos la llegada de tecnologías disruptivas en un futuro cercano. Nuestro objetivo es asegurar que el trabajo de nuestros observadores nunca se interrumpa. Es por eso que les pedimos sus opiniones y estamos muy complacidos al ver su participación. Mejoras, ideas y pasos hacia adelante surgen del diálogo y de nuestro deseo en común de mejorar la AAVSO y de servir mejor a nuestra comunidad.

Lo más importante es que aprendimos de ustedes, nuestros voluntarios, nuestros mentores, nuestros instructores, nuestros observadores, nuestros miembros del concejo y del comité. Incorporamos sus sugerencias, les hicimos caso, pensamos en futuros cursos de acción y superamos obstáculos. Nos convertimos en una organización más fuerte porque ustedes todo el tiempo nos recordaron que están de nuestro lado, que valoran nuestros servicios y que aprecian nuestro trabajo colectivo, nos apoyan y están ansiosos por ver a la AAVSO prosperar.

Espero con impaciencia este año. Espero continuar sirviéndoles y aprendiendo de ustedes y que nos aseguremos de que la AAVSO sea una organización fuerte y saludable que sirva a una comunidad entusiasta de astrónomos ciudadanos. Espero ansiosa los nuevos descubrimientos y

fenómenos excitantes que develaremos juntos y todo el nuevo conocimiento que se desprenderá de los datos de nuestros observadores. Con su ayuda, seguiremos “posibilitando que todos, en todas partes, participen en el descubrimiento científico a través de la astronomía de estrellas variables.”

Me gustaría terminar deseándoles a todos un próspero y productivo año nuevo, lleno de salud. Espero poder verlos en persona este año.

Con los mejores deseos—cielos despejados,  
*Stella.*

## MENSAJE DEL PRESIDENTE KRISTINE LARSEN

*Una reunión de mentes de primera magnitud*

Con el comienzo del nuevo año, quiero iniciar mi Columna del Presidente agradeciéndoles a todos y cada uno de ustedes por su arduo trabajo para la Astronomía de Estrellas Variables durante el año pasado. Tanto si usted es un observador visual o con CCD, prefiere objetos de período corto o de período largo, o tiene al Sol, Mira o SS Cyg como su estrella variable favorita, no podríamos haber agregado tantos puntos-dato de alta calidad a nuestras bases de datos en 2017 sin ustedes, nuestros leales observadores. Pero muchos de ustedes hicieron contribuciones muy significativas a la organización sin necesidad de mirar a través de un ocular o de reducir datos fotométricos. Ya sea contribuyendo con donaciones monetarias o tiempo para el desarrollo de software, asesorando a un nuevo observador o dando una charla sobre AAVSO en su club de astronomía local, cada pequeño espacio de tiempo, esfuerzo y recursos que le ha dado a la organización en los últimos 12 meses es muy apreciado.

La AAVSO no es simplemente una colección de puntos-dato, aunque cada punto-dato es ciertamente importante. La AAVSO es una asociación de personas que sienten pasión por

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## MENSAJE DEL PRESIDENTE CONTINUED

esas estrellas peculiares que obstinadamente se niegan a ser como las demás. Así como no hay dos estrellas variables idénticas, tampoco hay dos miembros de AAVSO idénticos. Todos y cada uno de ustedes tienen una razón diferente para ser miembros, así como cada miembro individual contribuye a la organización en una constelación de formas diferentes y muy personales.

Al reflexionar sobre mis experiencias en la reciente reunión de Nashville, vuelvo a varias discusiones que tuve con los miembros, tanto individualmente como en grupos más amplios, incluida una reunión en un almuerzo informal abierto a todos los asistentes. Discutimos el pasado y el futuro de la organización, secciones de observación y técnicas y, especialmente, reuniones. Como asistente de aproximadamente diez conferencias al año de diferentes tamaños y formatos, ciertamente, tengo mis propias opiniones y preferencias. Pero no se trataba de mis opiniones, se trataba de las de nuestros miembros. Fue revigorizante escuchar a los miembros de manera abierta y honesta describir lo que prefieren en las reuniones, lo que influye en su decisión de asistir a una reunión en particular e incluso ofrecer sus críticas constructivas sobre lo que les pareció que funcionó (y no funcionó) en reuniones recientes de AAVSO. El mensaje para llevar es que ningún tamaño se ajusta a todos los miembros y dos miembros podrían tener preferencias y opiniones diametralmente

opuestas sobre el mismo evento. Pero lo que todos acordamos fue que las reuniones son de vital importancia para nuestra comunidad, con el fin de mantener exactamente eso: una comunidad. Las reuniones son entre personas, acerca de su experiencia personal. Se trata de darle la mano a un amigo que solo vemos en persona una vez al año, compartir sandwiches y conversar en una cafetería entre charlas, obtener consejos de observación de otro miembro que nunca hemos visto antes o cenar con estudiantes universitarios que asisten a su primera reunión de AAVSO. Las reuniones cara a cara hacen que todo esto sea posible.

La AAVSO tiene dos reuniones muy emocionantes planificadas para 2018, una reunión conjunta de primavera con la BAA (Asociación Astronómica Británica) en Inglaterra en julio y la reunión anual en el Observatorio Lowell, en Flagstaff, Arizona, en noviembre. Espero ver a muchos de ustedes en una u otra reunión, si es posible. Quizás podamos compartir sándwiches (¡yo invito!), O puede darme un consejo de observación. Sin duda, le daré la mano con entusiasmo y escucharé lo que tiene que decir. Si es un profesor universitario, considere llevar a sus alumnos, si es posible.

Es un honor ser su presidente y espero poder hablar con muchos de ustedes durante el próximo año. Y, por cierto, ¡finalmente gané mi pin de la Liga Astronómica (Astronomical League, AL) de Observación Estrellas Variables para Binoculares!

### A NOTE ON THE TRANSLATIONS

*We are grateful to Sebastián 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.*



## HOW THE AAVSO SOLAR OBSERVERS OBSERVE THE SUN

COMPILED BY RODNEY H. HOWE (HRHA, AAVSO SOLAR SECTION LEADER)

Here are all our solar observers who submitted observations from May 2010 through December 2017. This list shows how many observations they made during this Solar Cycle 24 and the method they used (direct or projection), as well as the instrument, aperture, filter, eye piece, focal length and magnification (units in mill-meters) they used.

<i>Obs. Code</i>	<i>Obs. Total</i>	<i>Name</i>	<i>Method</i>	<i>Instrument</i>	<i>Aperture</i>	<i>Filter</i>	<i>Eyepiece</i>	<i>Focal Length</i>	<i>Magnification</i>
AAP	331	Patrick Abbott	projection	refractor	80		12.5	1200	96.83
AAX	1327	Alexandre Amorim	projection	refractor	70	no	25	700	30
AJV	1680	Javier Alonso Santiago	direct	SCT/Maksutov	102	Mylar	25	1300	63.16
AMG	33	Margarete Jacques Amorim	projection	refractor	70		25	700	30
ANGR	8	Raymund Ang	projection	reflector	60	none	25		0
ARAG	2677	Gema Araujo	direct	refractor	102	AS Photo	20-10	910	4572.32
ASA	1832	Salvador Aguirre	direct	refractor	80	Baader	25	900	33.44
BARH	815	Howard Ivan Barnes	projection	refractor	76		9	910	101
BATR	271	Roberto Battaiola	direct	SCT/Maksutov	90	Baader Astrosolar	26	1250	48
BDDA	560	Diego de Bastiani	projection	refractor	70		20	700	33.14
BEB	332	Ray Berg	direct	SCT	100	1000 Oaks	15	1000	67
BERJ	1424	Jose Alberto Berdejo	projection	refractor	80	no	20-10	900	49.55
BLAJ	63	John A. Blackwell	direct	refractor	80	full aperture glass	17	400	29.98
BMF	1218	Michael Boschat	direct	SCT	200	Full glass	25	2000	78.67
BOSB	65	Biswajit Bose	direct	reflector	125	100mm Thousand Oaks	25		0
BRAB	2555	Brenda Branchett	direct	SCT	203	Thousand Oaks	26	2000	75.65
BRAF	1312	Raffaello Braga	direct	SCT/Maksutov	127			1500	63.99
BRAM	1	Mark Bradbury	projection	refractor	80			1000	0
BROB	2192	Robert Brown	direct	refractor	76	pre objective glass	18	1200	66
BSAB	1238	Santanu Basu	direct	reflector	100	Mylar	25	1100	40.77
BURS	7	Scott Burgess	direct	refractor	60	Baader AstroSolar	10	700	59.71
BVC	212	Alan Buck	direct	SCT	150	Meade	26		0
BXD	640	Alexandru Burda	projection	refractor	70				76.31
CADA	18	Adair Cardoso	projection	refractor	70		25	700	30
CAJA	10	Ashley Cooper	direct	refractor	80	JMB Identiview white light	13	555	36
CFO	78	Jean-François Coliac	direct	refractor	66	astrosolar	10	388	49.81
CHAG	2489	German Morales	projection	SCT	200			1200	7.6
CIOA	749	Ioannis Chouinavas	projection	refractor	150		40	2300	57.5
CKB	1954	Brian Cudnik	direct	reflector	114	White Light	18	914	53.91
CLZ	184	Laurent Corp	direct	refractor	60	1000 oaks	720	20	36.1
CNT	899	Dean Chantiles	direct	SCT	75	Celestron Mylar	24	1260	52
CPAB	9	Paul Coliac	projection	refractor	66	no	10	388	40
CR	15	Thomas A. Cragg							0
CVJ	888	Jose Carvajal	direct	refractor	102	Continuum	12	820	57.78
DANB	10	Anderson Dantas	projection	refractor	60		40		0
DELS	180	Susan Delaney	direct	refractor	102	White Light	17	10	60
DEMF	325	Frank Dempsey	direct	SCT	120	Baader	8	1250	109.76
DGP	1213	Gerald Dyck	direct	refractor	13	Polymer B filter	15	600	40.51
DJOB	893	Jorge Luis del Rosario Garcia	projection	refractor	77		20	1000	36
DOGA	75	Ozkan Dogan							0
DROB	12	Robert Dudley	direct	refractor	102	null	10	459	46
DUBF	2026	Franky Dubois	direct	refractor	125	Herschel wedge		2500	72.05
FAM	450	Fabio Mariuzza	direct	reflector	130	Astrosolar	15	900	60

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**SOLAR OBSERVERS**  
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<i>Obs. Code</i>	<i>Obs. Total</i>	<i>Name</i>	<i>Method</i>	<i>Instrument</i>	<i>Aperture</i>	<i>Filter</i>	<i>Eyepiece</i>	<i>Focal Length</i>	<i>Magnification</i>
FERJ	1605	Javier Ruiz	direct	refractor	120	Astrosolar	12.5	900	72
FIST	17	Seda Fistikci							0
FJAE	60	Dr. John Alan Freeman							0
FLET	2042	Tom Fleming	direct	SCT	104	Baader	15	1203	80.98
FLF	1173	Frederico Luiz Funari	projection	refractor	80	no	25	900	36
FTAA	496	Tadeusz Figiel	projection	reflector	200		15	1000	79.84
FUJK	1903	Kenichi Fujimori	projection	refractor	80		18	1200	67
HALB	368	Brian Halls	projection	refractor	150		20	1200	56.38
HAYK	1304	Kim Hay	direct	SCT	100	1000 Oaks	26	1200	46
HIVB	50	Ivan Hajdinjak	direct	refractor	80			400	44
HMQ	330	Mark Harris	direct	refractor	80	Orion Full Aperture	10	910	91
HOWR	2019	Rodney Howe	direct	refractor	60	H Alpha	16	500	41.32
HRUT	422	Timothy Hrutkay	direct	refractor	92	Herschel Wedge	8	506	64.74
JASK	1067	Krystyna Wirkus	projection	refractor	50				0
JDAC	525	David J. Jackson	direct	SCT/Maksutov	125	1000 Oaks R-G solar film	30	1900	60.39
JEFT	17	Thomas Jeffrey	direct	SCT	279	Mylar	22		0
JENJ	37	Jamey Jenkins							0
JENS	41	Simon Jenner	direct	refractor	71	orion visual glass filter	10	5.9	42
JGE	478	Gerardo Jimenez Lopez	direct	reflector	250	Polimero negro	10	1200	120
JJK	85	Jerry Klotz	direct	refractor	80	Lunt Solar Wedge	16	480	30
JJMA	367	Jessica Johnson	direct	SCT	6	solar	32	1525	47.72
JPG	26	Penko Jordanov	CCD	reflector	150	Baader Astro Solar	26	750	71.46
KAND	1626	Kandilli Observatory	projection	refractor	200	null		3070	49.77
KAPJ	1737	John Kaplan	direct	SCT/Maksutov	89	Questar 89mm	16	1296	77.05
KNJS	2174	Jim and Shirley Knight	direct	refractor	80	Herschel wedge	10	910	90.32
KQR	1	Doc Kinne	direct	reflector	150	Baader	9	1200	133
KROL	1519	Larry Krozel							58.29
KUZM	3	Mikhail Kuzmin	direct	reflector	110	Baader Solar Filter	32		0
LEVM	1609	Monty Leventhal	direct	SCT	25	Full aperture filter 6A Halpha	40	2500	47.72
LKR	805	Kristine Larsen	direct	SCT	152	glass	35	1524	46.72
LRLA	10	Richard Lovison	CCD	refractor		Kendrick Baader			46.8
LRRR	770	Robert R. Little	direct	refractor	60	Baader	17.5	800	46.73
MARE	760	Mariani Enrico	direct	SCT/Maksutov	152	full	26	1800	73.42
MCE	1045	E. Mochizuki	projection	refractor	90				0
MENM	27	Miguel Menegotto	direct	refractor	80	Baader	10	800	40
MGAA	154	Gael Mariani	direct	refractor	60	null	25	400	16
MILJ	1069	Jay Miller	direct	refractor	102	W58	8	710	81.64
MJAF	2280	Juan Antonio Moreno Quesada	direct	refractor	102	Baader DN5.0	13	1000	86.29
MJHA	1763	John H. McCammon	direct	refractor	78	Thousand Oaks 2+#21	9	630	72.2
MJOC	1	Joe Michail	direct	reflector	130		25	650	26
MMAE	29	Michael McNeely	direct	refractor	50	Lunt Herschel Wedge	7	330	38.31
MMAV	115	Marcelino	CCD	SDO-HMI					0
MMI	1275	Michael Moeller	direct	refractor	80		17.5	1000	57
MUDG	608	George Mudry	direct	refractor	76	Full Aperture	20	1200	60
MWU	414	Walter Jose Maluf	projection	refractor	102		25		60
OATS	900	Susan Oatney	direct	refractor	150	Baader	20	1200	60
OBSO	1077	IPS Observatory	projection	reflector	51	Full aperture		2286	100
OJMA	69	Juha Ojanpera	direct	refractor	102	Baader Astrosolar	15		0
ONJ	438	John O'Neill	direct	refractor	70	Thousand Oaks Type 2+	13	480	44.29
PMAJ	1	Mantheos Papapoulias	direct	SCT/Maksutov	102	Baader Astrosolar	32	1300	40.6
RICE	464	Ernest Richardson	direct	SCT	203			20	25

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**SOLAR OBSERVERS**  
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<i>Obs. Code</i>	<i>Obs. Total</i>	<i>Name</i>	<i>Method</i>	<i>Instrument</i>	<i>Aperture</i>	<i>Filter</i>	<i>Eyepiece</i>	<i>Focal Length</i>	<i>Magnification</i>
RLM	684	Mat Raymonde	direct	refractor	80			900	36
RO	4	John Rousom	direct	reflector	250	Baader film 4 inch off axis	50		0
RRO	52	Ralph Rogge	direct	refractor	70			900	100.85
SCGL	1387	Gerd Lutz Schott	direct	refractor	80	Herschel Wedge	25	910	6
SDOH	2160	Solar Dynamics Obs-HMI	CCD	SDO-HMI					0
SDP	16	Dee Sharples	direct	SCT	203		22	2000	91
SIAM	47	Iakovos Marios Strikis	direct	refractor	150	Mylar and 540nm	10	1200	120
SIMC	735	Clyde Simpson	projection	refractor	76		33		14.43
SMNA	141	Michael Nicholas Stephanou	direct	refractor	70	SC, UV/IR Cut	7	420	60
SNE	135	Neil Simmons	direct	refractor	60	Thousand Oaks Solarlite	25	900	69.6
SONA	917	Andries Theodorus Son	direct	SCT	150	Baader	50	4300	86
SPIA	166	Piotr Skorupski	projection	refractor	70	null	10	500	67.71
SSSA	1	Sueli Sousa Sepetiba	projection	refractor	60		20	900	45
STAB	1762	Briann Gordon-States	projection	refractor	90		20	910	45.5
STEM	13	Gerhard Stemmler	direct	refractor	63	filter	16	670	0
STQ	312	Nick Stoikidis	projection	refractor	150		40	2300	0
STVA	1	Togo Vaz Sepetiba	projection	refractor	60		20	900	45
SUZM	1859	Miyoshi Suzuki	projection	refractor	100			150	0
TESD	2085	David Teske	direct	SCT/Maksutov	89	Glass full aperture	24	1350	51.65
TJV	92	Javier Temprano	direct	refractor	120		18		0
TPJB	23	Patrick Thibault	projection		60		25		0
URBP	1716	Piotr Urbanski	direct	refractor	64	Mylar		800	40
VARG	1996	Gonzalo Vargas Beltran	projection	SCT/Maksutov	200	none	25	1600	64
VIDD	950	Dan Vidican							37.07
VRUA	73	Ruben Verboven	direct	reflector	150	Baader Solar Screen		750	47.12
WAU	84	Artur Wargin	direct	SCT/Maksutov	100			1000	40
WCHD	17	Charles White	direct	refractor	70	Baader	15	900	60
WGI	58	Guido Wollenhaupt	direct	refractor	80	glas		600	66.57
WILW	1908	William M. Wilson	direct	SCT	89	89 mm	16	1300	80
WIRP	64	Piotr Wirkus	projection	refractor			65		0
WKM	47	Michael Wiskirken							21.45
WRP	195	Russell Wheeler	direct	reflector	150	Orion full aperture glass	26	750	61.54
YESH	214	Hulya Yesilyaprak							0



## LPV SECTION UPDATE

ANDREW PEARCE, ADMINISTRATOR

Over the years there has been a fair bit of discussion on the status of observations of LPVs in terms of observer continued interest and activity based on perceptions on the “usefulness” of LPV observations to the professionals.

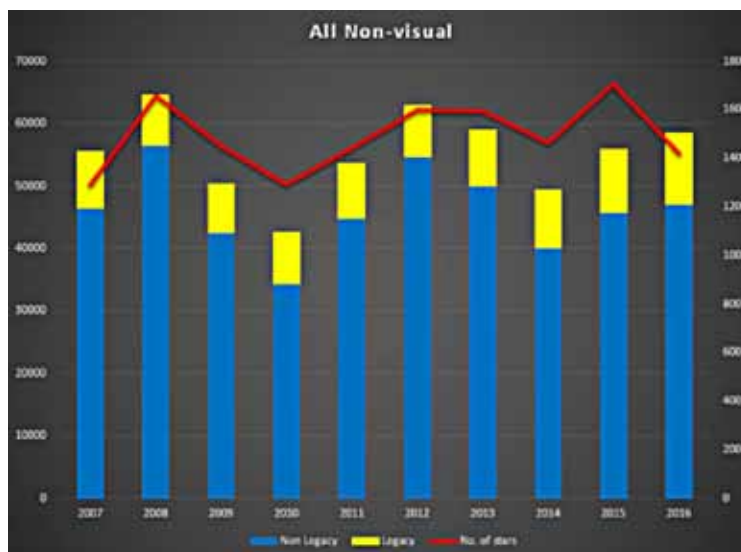
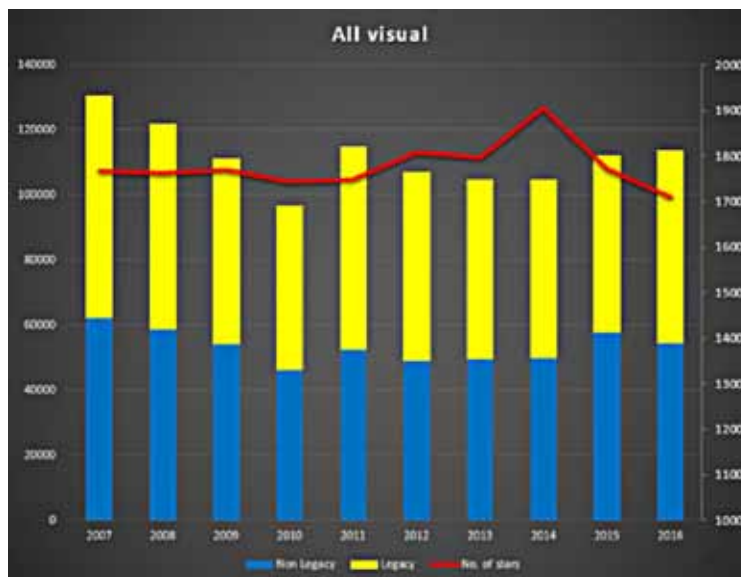
We thought it would be worthwhile to look at the recent observational history of all long period variables (LPVs) and semi-regulars (SRs) in the AID to see if we can draw some conclusions as to longer term trends in activity levels. This may help us to focus on specific campaigns and/or observer education to address any concerning long term trends such as significant declines in the number of observations submitted and the coverage of various stars.

Elizabeth Waagen at AAVSO HQ extracted from the AID all visual and CCD observations of LPVs and SRs in the period 2007 to 2016. This was not an easy task as the AID records do not include the variable star type in the field and it was necessary for Elizabeth to modify some specific routines to extract the data in a meaningful way. The data covers all stars that are classified as Miras and all the various sub types of semi-regulars as listed in VSX.

The data was split between visual and CCD observations. The overall results are presented in the two graphs below. There are some interesting observations and conclusions that can be made from this data analysis.

Firstly considering the visual data, it can be seen that activity levels have remained remarkably consistent since a slight decrease in 2007 and 2008. Since 2009, the total number of observations has averaged around 108,000 observations per year with minimal variation. The total number of stars followed visually has also remained relatively constant and averages around 1,780 per year.

The graphs also clearly delineate observations of Legacy Program stars and those outside the Program. The Legacy Program stars (of which there are 155) make up around 52% of the total number of visual observations made. Furthermore, the observations per Legacy Program star average at around 375 per star compared to an average of only 33 observations per non-Legacy Program star. There is a tenfold increase in the average number of observations per Legacy Program star over the others. This indicates a very healthy focus on the Legacy Program stars by the visual observers which is certainly encouraging.



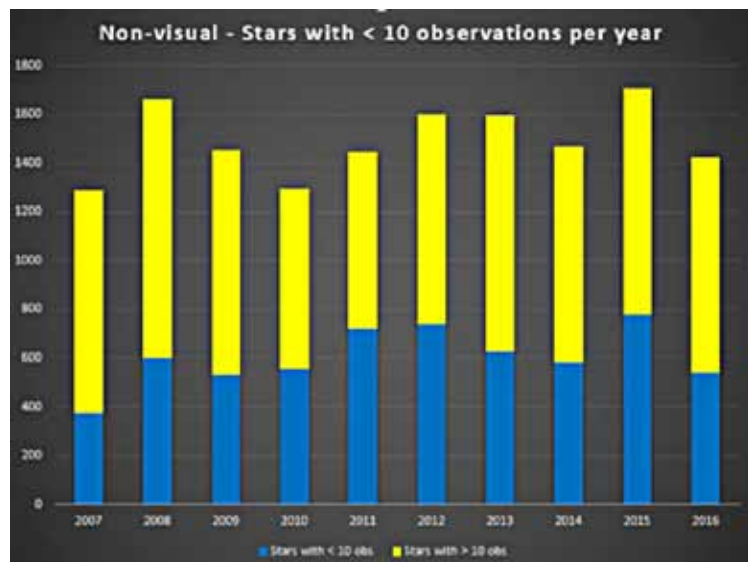
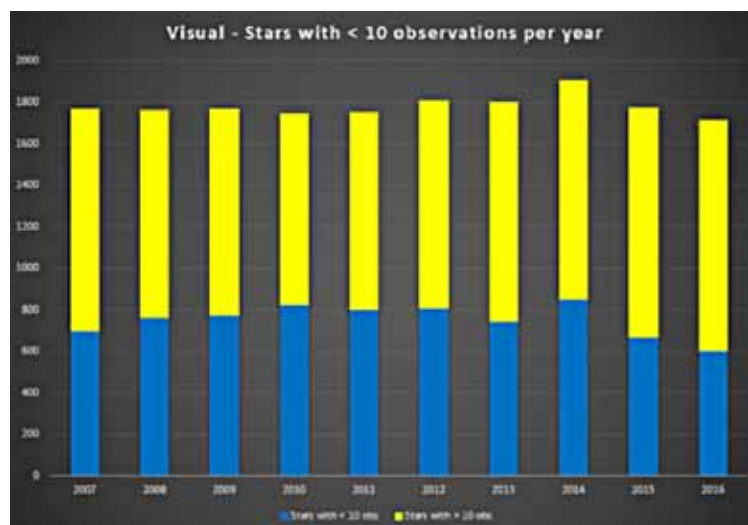
In contrast, the total number of non-visual (CCD, DSLR, PEP, etc.) observations per calendar year has varied quite a bit more than for visual observations, as can be seen from the above graph. The average annual total over that 10-year period was approximately 55,000, with a high of 64,500 and a low of 42,500. The total number of stars followed by non-visual means has also varied more so than the stars followed by visual observers, with an average of 1,490 stars per year.

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## LPV SECTION UPDATE CONTINUED

Another point of difference between non-visual and visual observations is that non-visual observations for stars not in the Legacy Program far outweigh those within the Program. On average, LPV Program star observations make up only 16% of the total number of observations

compared to 52% for visual observations. Furthermore, the observations per Legacy Program star average at around 58 per star compared to an average of 35 observations per non-Legacy Program star. The large difference noted in the visual observations is not reflected for non-visual observations.



The graphs below plot the total number of stars followed with observations averaging less than 10 per year. This is an arbitrary number, however, it's not clear whether this is enough data points to be able to construct meaningful light curves with this sort of quantity.

The results show that on average, 42% of the total number of LPVs and SRs followed by visual observers have recorded 10 or less observations per year. It is also noted that on average, 40% of the total number of LPVs and SRs followed by non-visual observers have recorded 10 or less observations per year, which is almost identical to the situation with visual observers.

The analysis has thrown up some interesting insights which are summarized below:

- The number of visual observations and the coverage of the LPV Legacy Program stars has remained essentially constant over the last 10 years.
- Visual observers, on average, have provided a significant focus on the LPV Legacy Program stars compared to non-Program stars which is very encouraging.
- The number of non-visual observations has varied more than for visual observations on an annual basis and the coverage of LPV Program Legacy stars is significantly less than for visual observations.
- For both types of observations a significant fraction (40%) of the stars observed have less than 10 observations per year. There may be an argument to encourage observers to stop following these poorly observed stars and focus more on others which have more well defined light curves or where gaps can be plugged in these light curves.

We hope that this analysis can generate some discussion amongst LPV observers as to the most effective way of appropriate coverage of LPVs. We would invite any comments.

If anyone has any ideas as to the types of activities the LPV Section should consider adopting or interesting stars that should be more widely publicized, we'd be especially glad to hear from you!

## EXOPLANET OBSERVING SECTION UPDATE

**DENNIS M. CONTI (CDEC), EXOPLANET SECTION LEADER**

As of this writing, TESS (Transiting Exoplanet Survey Satellite) is still on track to launch in March 2018. As a follow-up to the very successful Kepler space telescope, TESS will conduct an all-sky survey of bright, nearby stars, whereas Kepler focused on a small patch of sky in the constellation Cygnus. The primary science objective of TESS is to measure the masses for 50 transiting planets smaller than four Earth radii.

Ground-based followup observations are critically important to the success of TESS. In particular, observations by both professional observatories and amateur astronomers will help distinguish true exoplanet transits from false positives. An example of such a false positive is an eclipsing binary, whose light curve might mimic that of a transiting exoplanet. One method employed to make this distinction includes comparing observations in different wavelengths to detect any resulting differences

in light curve depths. If such differences are observed, this would point toward an eclipsing binary vs. an exoplanet transit.

To help its members who might be interested in contributing to TESS, the AAVSO conducted in two CHOICE courses on exoplanet observing in 2017. The course covered not only the best practices of exoplanet observing, but also the use of AstroImageJ for conducting all phases of the exoplanet observation—from image calibration to transit modeling. In 2017, the course was offered to 80 members and non-members. The course will again be offered in early 2018.

Finally, techniques have been tested and documented for conducting high-precision autoguiding and simultaneous wavelength observations. Both of these techniques will be helpful in meeting the challenging observational needs of TESS.

## PEP SECTION UPDATE

**TOM CALDERWOOD (FOR JIM KAY), AAVSO PEP SECTION**

Welcome to 2018! The watchword for the PEP group is “bright.” Most of our targets are bright stars that are neglected by photometrists using imagers. Even with all of the survey projects coming online, we still own a piece of the sky. A particular star worthy of attention right now is Betelgeuse. Over the summer, we scrutinized Vega, and it looks like we found modest variation in this important calibration star.

In the coming year we have two priority projects: continuing to follow Vega, and getting the near-IR SSP4 photometers back into use. Roughly twenty SSP4s were manufactured, and we can only account for about half of them. If you have one, or know of one, and have not been in touch with AAVSO recently, please drop us a line. Some experiments are under way to see if we can improve SSP4 data quality. The JH bands are not being otherwise observed by amateurs, so this is an opportunity for us to contribute to astronomical research in a special way.

Further on the horizon, we would like to investigate other neglected passbands: U and Wing A/B/C. U band is feasible with the SSP5, and it is little explored by CCD observers. We'd like to find resources that give practical advice for UB photometry. The Wing filters were developed for studying properties of red variables, and Optec once sold Wing filter sets for the SSP3. If you have these filters, or experience using them, please let us know.

In other news, Frank Dempsey and Pat Garey loaned us their copies of the International Amateur-Professional Photometry journal (IAPPP) from 1980–2000, and these have now been scanned. They will eventually go up on the AAVSO website, but for now, contact us directly for copies (a few volumes remain missing).

A revision of the PEP manual is expected this year. If you have suggestions or found errors, please let us know.

—Tom Calderwood (tee jay see at cantordust dot net)

## LOOKING AT LEGACY STARS

These quarterly lists of most- and least-observed long period variables and cataclysmic variables on the AAVSO legacy lists have been discontinued. Information on the current observational status of legacy stars may now be obtained from the AAVSO Target Tool (<https://www.aavso.org/aavso-target-tool>).



## OBSERVER'S CORNER

*Note: This column will include advice on observing practices and tips for observing for visual, DSLR, PEP, and CCD observers.*

**FRANK SCHORR (SFRA), AAVSO LPV SECTION CO-LEADER**

My Mother bought me my first telescope when I was 13, which started my interest in astronomy over the years over 50 years ago. I observed when I could while raising a family and having a “career.”

About 11 years ago I was lucky enough to have the money to build a decent observatory in a relatively dark sky astronomy village 125 miles east of Atlanta. I also picked up a modest CCD camera. At the same time my best friend suggested I join the AAVSO because he knew of my interest in science and my background (and he was already a member).

I started off reading ALL of the manuals on the AAVSO website and every article I found there. Since I had bought a CCD camera I tried to read all I could on CCD photometry. I was rather overwhelmed at first but slowly started to try to take some images of variable stars and learn how to use star charts and comp stars.

Originally I was only able to observe on weekends when I could drive to my observatory as I was working full time. As I looked at the many types of variable stars, Long Period Variables (LPV) stood out because there were many to pick from with most having long observing histories. They also varied slowly over time by many magnitudes, so I thought the scope and camera I had at the time might allow me to get decent data/results. If I was only able to observe an LPV 3 or 4 times a month the data was still worth something and the cadence worked well (every 10 days is the right cadence for LPVs)!

When I started observing variable stars I felt very isolated and removed from the AAVSO while sitting in the back woods of Georgia late at night! It was just some website sitting in Massachusetts.

One of the first things I did to try to get closer was to subscribe to the AAVSO “mail lists” which today have been replaced by the AAVSO Forums. Just as importantly, I connected to the AAVSO IRC Chat, an informal online chat group that predated the forums. I found people on the chat every evening very willing to help a new person with any question I asked. Sometimes I would just monitor the other conversations among AAVSO members and learn from their conversations. Today I sit on the chat to try to help other new observers and still learn much. I am not giving the URL for the chat here because HQ is working on redesigning the chat link to be secure. When it is secure, information on how to participate will be given.

At the time the people I talked with on the “chat” recommended that I ask for a “mentor” through the AAVSO Mentor program

(<https://www.aavso.org/mentor-program>). I was assigned a very experienced mentor who was most helpful for years.

One thing I started doing was comparing my observation results every time I'd enter a result in the AAVSO International Database (AID) with other observers' results to make sure what I was doing was “in the ballpark.” It was not to “fix” my observations to agree with other observations but to spot if I might have made a mistake with mine. I do make mistakes(!) and this helped me correct my mistakes so I could try to provide the most accurate data I can to the AID. I still do this for every observation I submit to the AID.

Many times it turned out that perhaps other observers had made mistakes that they might have caught if they had looked at their results against other reported results. I see this problem in many light curves I look at. Looking at light curves can also allow you to flag potential Discrepant (more than a magnitude from the average for that date) results so that AAVSO HQ can look at them closer. The AAVSO software to look at data and mark discrepant points for HQ is called Zapper, and it and its manual can be downloaded from (<https://www.aavso.org/zapper>).

When I first started observing an LPV called S Ori, I found that my measurements during the ascending rise of its light curve suddenly stopped rising for a couple weeks. At the time there happened to be no other observations reported for S Ori in the AID. I must have rechecked my result 20 times to see where I was making my mistake. After a few weeks the light curve for S Ori started brightening again. My mentor looked at my images and data and could find nothing wrong. He suggested that perhaps the light curve for this star “stalled” for a few weeks and to trust my data. I started noticing this same “stalling” happening on some other LPVs I was following. This led me to research the light curves reported over a 10-year period for over 400 LPVs. I found around 30% showed this same “stalling” behavior (<https://www.aavso.org/lpv-humps>). I was hooked on LPVs at that point to this day!! For me there is still much to be learned from LPVs.

I'd like to mention the help that the AAVSONet (<https://www.aavso.org/aavsonet>) provided when I did a “campaign” on some LPV stars. It was a wonderful supplement to observations from my own observatory.

There are several CHOICE courses (<https://www.aavso.org/choice-astronomy>) offered that can help you learn more about variable stars and observing them—take advantage of them so you get the most out of your observing.

One last thing, if you are doing CCD observing I would highly recommend taking Arne Henden's CCD Class (<https://www.aavso.org/aavso-ccd-school-videos>) if you want to take your CCD observing to a new level!

Clear Skies!

## OBSERVING CAMPAIGNS UPDATE

The detailed report on observing campaigns and novae discoveries given in earlier issues of the *AAVSO Newsletter* has been discontinued. Observers may read about the observing campaigns underway and recent novae via the list below of the *AAVSO Alert Notices* issued for these targets. (Also included are two *AAVSO Special Notices* for which no related *Alert Notice* was issued.) Links to *AAVSO Special Notices* associated with an *Alert Notice* may be found by clicking on the *Alert Notice* link.

Also, the stars which are targets of observing campaigns are given in the Alerts/Campaigns list of the AAVSO Target Tool.

Alerts/Campaigns  
target list

## Current and ongoing observing campaigns

Date	Name	Subject
0171201	<a href="#">Alert Notice 608</a>	TT Ari monitoring requested for VLA observations
20171116	<a href="#">Alert Notice 606</a>	Observing campaign on nova in Vela—ASASSN-17mt
20171114	<a href="#">Alert Notice 605</a>	Nova in Ophiuchus—PNV J17184504-2454221
20171017	<a href="#">Alert Notice 602</a>	CE Tau observations requested to supplement BRITE-Constellation
20170906	<a href="#">Alert Notice 598</a>	Intermediate polar FO Aqr fading and photometry needed now
20170816	<a href="#">Alert Notice 593</a>	VV Cep eclipse monitoring requested
20170807	<a href="#">Alert Notice 590</a>	V1117 Her observations requested
20170804	<a href="#">Alert Notice 589</a>	R Aqr coverage needed for Chandra and HST observations
20170721	<a href="#">Alert Notice 588</a>	Long-term CCD monitoring of ER UMa-type variable DDE 48 in Vulpecula
20170630	<a href="#">Alert Notice 585</a>	Monitoring of Evryscope targets requested for follow-up
20170621	<a href="#">Alert Notice 584</a>	Monitoring of PDS 110 requested to cover upcoming eclipse by exoplanet
20170616	<a href="#">Alert Notice 583</a>	Photometry requested for Red Dots campaign
20170615	<a href="#">Alert Notice 582</a>	Nova Oph 2017 photometry requested for Swift TOO observations
20170523	<a href="#">Alert Notice 578</a>	Nova in Centaurus—ASASSN-17gk
20170516	<a href="#">Alert Notice 577</a>	SN 2017eaw in NGC 6946 (PSN J20344424+6011359)
20170511	<a href="#">Alert Notice 576</a>	Nova in Ophiuchus—TCP J17394608-2457555
20170428	<a href="#">Alert Notice 575</a>	Monitoring of Swift J1357.2-0933 (CRTS J135716.8-093238) requested
20170425	<a href="#">Alert Notice 574</a>	Monitoring of EPIC 204278916 requested
20170403	<a href="#">Alert Notice 572</a>	AG Dra monitoring requested
20170316	<a href="#">Alert Notice 571</a>	Observations Requested of Exoplanet Proxima Centauri b
20170213	<a href="#">Alert Notice 568</a>	Nova in Scorpius—PNV J16521887-3754189 [V1657 Sco]
20170131	<a href="#">Alert Notice 566</a>	Beta Pic observations requested for BRITE-Constellation
20161028	<a href="#">Alert Notice 561</a>	Nova in Sagittarius = ASASSN-16ma = PNV J18205200-2822100 [V5856 Sgr]
20161024	<a href="#">Alert Notice 560</a>	TCP J18102829-2729590 = Nova in Sagittarius [V5855 Sgr]
20161004	<a href="#">Alert Notice 556</a>	Monitoring of V2487 Oph requested
20160927	<a href="#">Alert Notice 553</a>	Nova Lup 2016 = PNV J15290182-4449409 = ASASSN-16kt [V407 Lup]
20160803	<a href="#">Alert Notice 546</a>	Campaign on V1687 Cyg (WR 140)
20160408	<a href="#">Alert Notice 542</a>	Continuing observations requested for KIC 08462852
20170502	<a href="#">Special Notice #429</a>	V694 Mon (MWC 560) spectroscopy requested
20160119	<a href="#">Alert Notice 535</a>	R Aqr observing campaign
20160408	<a href="#">Special Notice #415</a>	T CrB brighter and bluer—monitoring requested
20150618	<a href="#">Alert Notice 520</a>	X-ray nova and LMXB V404 Cyg in rare outburst
20150415	<a href="#">Alert Notice 518</a>	Observations of 2MASS J06593158-0405277 needed
20150324	<a href="#">Alert Notice 514</a>	RW Aur monitoring requested
20150313	<a href="#">Alert Notice 511</a>	Monitoring requested for developing planetary systems dust production study
20150305	<a href="#">Alert Notice 510</a>	Observations of the symbiotic nova ASAS J174600-2321.3
20140917	<a href="#">Alert Notice 504</a>	Epsilon Aur monitoring during predicted pulsation phase
20140806	<a href="#">Alert Notice 503</a>	Request for regular monitoring of the symbiotic variable RT Cru
20140709	<a href="#">Alert Notice 502</a>	EE Cep observations requested for upcoming eclipse
20120625	<a href="#">Alert Notice 462</a>	Monitoring of J1407 for next extrasolar ring system transit
20120302	<a href="#">Alert Notice 454</a>	Monitoring of CH Cyg requested for Chandra and HST observations
20110517	<a href="#">Alert Notice 440</a>	PEP Observing Campaign on P Cygni
20070711	<a href="#">Alert Notice 353</a>	Monitoring of Blazars requested for VERITAS/XMM TOO
20070406	<a href="#">Alert Notice 348</a>	Observe HMXBs; monitor AR UMa; update on <a href="#">Alert Notice 345</a>
20080502	<a href="#">Alert Notice 377</a>	Request extended to observe HMXBs in support of radial velocity observations
20070813	<a href="#">Alert Notice 354</a>	Extending Request to Observe HMXBs in Support of Radial Velocity Observations
20070813	<a href="#">Alert Notice 355</a>	Correction to Subject Title of <a href="#">Alert Notice 354</a>

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