

★ NEWS AND ANNOUNCEMENTS

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# 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

STELLA KAFKA



*Meeting professional astronomers*

When I travel to conferences or universities to talk about the AAVSO, I meet many professional astronomers who are working on aspects of variable stars and are interested in collaborating with our observers for their projects. They all recognize the role of the AAVSO in training and engaging observers, are happy to hear about new developments, and are eager to discuss possible campaigns.

During those trips, the most senior colleagues are also keen to share their stories of how they started their work in astronomy, how they decided to become professional astronomers, and the tremendous influence the AAVSO had in this decision. As many of our observers have done, they started with a small telescope as kids, marveling at the night sky from their back yard, wondering how stars behave, what they are made of, and whether there is life on other planets (sound familiar?). Their stories are full of excitement (and nostalgia) and gratitude to the AAVSO that provided a different dimension to their zeal to explore the night sky—an introduction to variable stars, their idiosyncrasies, and the possibility of contributing to science. Most of them had used their own small telescopes and their eyes to detect changes in brightness of stars before they acquired their astronomy degree.

Here's a very interesting testimonial from Dr. Kevin Krisciunas, a distinguished researcher and professor at Texas A&M: "I became interested in astronomy at age 9 1/2 when I was in fourth grade. The Mercury program had been blasting off astronauts. Space was the place. I acquired my first telescope. I eventually got a 6-inch f/6 reflector and in junior high school built a 6-foot cube of a backyard observatory. Like many an amateur I started out looking at the Moon and bright planets, but by age 15 I tried out variable star astronomy," he writes. "Surely, of all the sciences astronomy is the easiest for amateurs to make a contribution to real research. I might notice that a dwarf nova is at outburst. I call it in to the AAVSO. They tell a professional astronomer, and in short order an orbiting telescope is gathering data on this object. How great is that?"

"I decided in junior high that I wanted to be a professional astronomer, so when I went to college I studied calculus, physics, astronomy, statistics, and I learned to write computer programs. My route to a Ph.D. was somewhat different. First, from ages 23 to 28, I did software work for, and flew onboard NASA's Kuiper Airborne Observatory. Then, for 14 years, I did similar work for the United Kingdom Infrared Telescope and the James Clerk Maxwell Telescope in Hawaii. Finally, I went back to graduate school. At the age of 47 I earned a Ph.D. from the University of Washington with a dissertation most significantly dealing with the light curves and reddening towards exploding white dwarf supernovae.

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## PRESIDENT'S MESSAGE

KRISTINE LARSEN



Last night I spent a quiet evening on Breezy Hill, Vermont, (at Stellafane) observing binocular variables for the AAVSO. Although the unusually warm Autumn night was silent, except for the distant sound of coyotes

and the occasional owl, I couldn't help but hear the voices of my AAVSO mentors drifting up from the archive of my memories: Dorrit Hoffleit, Casper Hossfield, and Janet Mattei. Three very different voices, three very distinct personalities. But what they all have in common is their roles as mentors to me. If any of these three people had been absent from my life, I can honestly say I most probably would not have had the honor of serving this organization as its president. Casper introduced me to the AAVSO in the first place. Janet involved me in the creation of the *Hands-on Astrophysics* curriculum and urged me to run for Council the first time. Dorrit made me appreciate the unique history of the organization and was a major influence in my own research into the contributions of various individuals to the organization, such as Martha Stahr Carpenter. It is no accident that my path to the presidency of the AAVSO was truly a Pro-Am collaboration, because that is the very essence of the organization.

CONTINUED ON NEXT PAGE

## THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS

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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 Sara J. Beck, Rodney Howe, Stella Kafka, and Elizabeth O. Waagen.

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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### DIRECTOR'S MESSAGE CONTINUED...

"In the 1980s and 1990s, with a handful of astronomers in South Africa, the USA, Italy, one from England, one from Austria, and one from Canada, I helped discover a new class of non-radially pulsating stars. The prototype is the 4th magnitude southern star gamma Doradus."



Kevin Krisciunas with his AAVSO membership certificate

At the same time, Kevin's story is not unique. It is similar to many AAVSO members, who were inspired by the night sky to explore its mysteries and joined our great Association through their wish to contribute to science. Kevin is now working on nearby and distant supernovae, probing the cosmological properties of the universe. He also teaches university classes to non-astronomy majors, aspiring to introduce complex concepts to students who will become accountants, lawyers, doctors, engineers, and teachers. Citizens whose tax money will support sciences, and who need to appreciate the contribution of astronomy in bettering their lives. Maybe some of them will be prompted to get their first telescope or binoculars and try variable star observing.... Maybe some of them will become AAVSO observers in the future. And maybe some of them will one day become distinguished professional astronomers like Kevin (and many others), probing the secrets of the universe through the AAVSO's data, and educating the next generation of thinkers at a school or university....

Best wishes—clear skies,  
*Stella.*

*Ed. note: the Spanish language versions of the Director's and President's messages can be found on page 7.*

### PRESIDENT'S MESSAGE CONTINUED...

To be honest, I have complicated feelings about the terms "professional" and "amateur." First, in our common American vernacular, the term "amateur" is often used in a less than flattering way. After all, who would trust an "amateur" brain surgeon? But in the field of astronomy (and sister sciences such as geology, botany, and paleontology) there was no such distinction until near the turn of the 20th century. Anyone who had a passion for astronomy and made contributions to the science (no matter how large or modest) was simply an astronomer, no matter their formal education or means of earning a living. William and Caroline Herschel were astronomers. Maria Mitchell was an astronomer. Percival Lowell was an astronomer.

My second reason for questioning the dichotomy is that I generally dislike having to classify and pigeonhole individuals (unless we're discussing individual light curves, of course!). I especially loathe trying to classify myself. My degrees are in physics, but I teach astronomy. I publish and present research at "professional" conferences and belong to the traditional "professional" organizations, like the AAS. But I am also a proud amateur telescope maker (and member of the Springfield Telescope Makers), have attended more than thirty Stellafane Conventions, and volunteer as an assistant editor for the Astronomical League's *Reflector* magazine. I feel equally at home doing a Messier marathon with a 13-inch Newt-Dob (star hopping, of course!) strictly for fun and making solar observations (and night-time variable star observations) for the AAVSO. What sort of creature am I?

If I have to choose, I will proudly say I am an amateur astronomer. If you are reading this column, you are an amateur as well, regardless of the letters after your name, or how you earn your living. I say this because the word amateur derives from the French amateur, meaning one who loves or is devoted to something. If you do astronomy because you love it, not because it is the means to an end, then you are, by definition, an amateur—one who loves.

It is indeed an honor to consider myself among your ranks. I look forward to seeing many of you at the November meeting in Tennessee, or the July 2018 meeting in Warwick, UK, or at a future meeting. Until then, I wish you clear skies, keen optics, and a fast Internet connection for uploading those valuable observations to the AAVSO database (which is what I am going to do right now...).

## RODNEY HOWE RECEIVES PELTIER AWARD AT ALCON 2017

At the Astronomical League annual meeting (ALCON 2017) held in August in Casper, Wyoming, before the total solar eclipse, AAVSO Solar Section leader Rodney H. Howe (HOWR) was awarded the Astronomical League's prestigious Leslie C. Peltier Award for "his outstanding contributions to solar astronomy."

The award was presented to Rodney by AL President John Goss and Vice President Bill Bogardus at the closing banquet on August 19, 2017 (photo below).

The Leslie C. Peltier Award is given to "...an amateur astronomer who contributed to astronomy observations of lasting significance." The award and its history are described at (<https://www.astroleague.org/al/awards/peltier/peltiers.html>), which also includes information supporting the choice of Rodney as the 2017 recipient (<https://www.astroleague.org/content/rodney-howe-2017-lc-peltier-award-recipient>).



Rodney Howe receives the 2017 Leslie C. Peltier Award from AL Vice President Bill Bogardus (L) and President John Goss (R).

Rodney becomes the 28th AAVSO member to receive the Peltier Award, from a total of 34 recipients since its inception in 1981.

Some AAVSOers not at ALCON had a chance soon after to congratulate Rodney in person (photo below). The next morning Rodney and Alice drove over from Casper to Guernsey State Park, Wyoming, where a group of AAVSOers and their families were camping for the eclipse. Rodney was persuaded to stay overnight—there was plenty of extra camping gear and supplies—and watch the eclipse (his first total one). There was even transport home to Fort Collins for him on the 22nd, as some members of the group lived there, so Alice (and the award) returned home and Rodney stayed for the fun!

Congratulations, Rodney, on this well-deserved recognition!



Rodney and his award along with (L-R) his wife, Alice Howe, and fellow AAVSOers Sara Beck, John O'Neill, and Elizabeth Waagen at Guernsey State Park, Wyoming.

## DID YOU ECLIPSE IN AUGUST?

ELIZABETH O. WAAGEN (WEO)

Did you see the solar eclipse on August 21, 2017? Was it total? partial? Was it your first? your twenty-first? Where did you go? Who went with you?

*We invite you to send us a photo or two (not more than two, please) and a paragraph or two (200 words or less, not including short figure captions) describing your eclipse experience. We will put them all together in the January 2018 issue, so please send them by December 1. Please send contributions to [eowaagen@aavso.org](mailto:eowaagen@aavso.org).*

To start things off, here are some of us AAVSOers in Guernsey State Park, Wyoming, on eclipse day. Perfect weather, perfect location! In addition to the 10 AAVSOers in this photo, we had 8 family members (not AAVSOers) sharing the adventure, for a total of 18 in the Becksonian Eclipse Expedition (there's a good story behind the name)! For several of us, it was our first total eclipse, although some (John O'Neill, Sara Beck, Terry Moseley, Angela O'Connell) were veterans with many eclipses under their belts.

I'd say we had a pretty good turnout! We sure had fun! Where are we going for the next one?



Back row: Rodney Howe (HOWR), John O'Neill (ONJ), Peg Shaffer, Deb Crocker (AAVSO member but not yet observer), Terry Moseley (MSL), Angela O'Connell (OCAF). Front row: Sara Beck (BSJ), Susan Oatney (OSN, better known by her solar obscode OATS), David Shaffer, Sherrill Shaffer (SSHA), Elizabeth Waagen (WEO). Not pictured is Ron Buta (BTA). Photo courtesy Sara Beck

## AAVSO MEETINGS

### Next meeting

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

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

***The deadline for early registration and for Abstracts is October 3, 2017! Late Abstracts will be accepted on a space-available basis until October 15.***

### Upcoming meetings

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

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

### Most recent meeting

106th Spring Meeting: June 15–17, 2017, AAVSO–Society for Astronomical Sciences (SAS), Ontario, California (2017 Spring Meeting)

<https://www.aavso.org/apps/meetings/Spring2016/>

The group photo from the AAVSO-SAS meeting may be viewed on the AAVSO website: <https://www.aavso.org/group-photographs#2010s>

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

<https://www.aavso.org/aavso-membership-meeting-spring-2017>

## 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.

## 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 [eowaagen@aavso.org](mailto:eowaagen@aavso.org).

## IN MEMORIAM

MEMBERS, OBSERVERS, COLLEAGUES,  
AND FRIENDS OF THE AAVSO



Robert F. Garrison

**ROBERT F. GARRISON,**  
Ph.D. (1936–2017)

My colleague Bob Garrison passed away peacefully on August 13, 2017. For 21 years, he had lived with Parkinson's Disease.

Bob was born in Aurora Illinois, and educated at Earlham College (B.A. 1960), University of Wisconsin (M.A. 1961), and University of Chicago (Ph.D. 1966), where his supervisor was the legendary William W. Morgan. He then spent two years as a Research Associate at Mount Wilson and Palomar Observatories, carrying out spectroscopic studies of Mira stars around their cycles. Mira stars were the core of the AAVSO observing program in those days and, in a paper in *JAAVSO* 1, 39 (1972), Bob acknowledged the essential role that those observations played in his work. He contributed a second review to *JAAVSO* 25, 70 (1997) as part of a special session on Mira stars.

Bob joined the University of Toronto faculty in 1968, and served for 40+ years. There, he continued his spectroscopic studies of a variety of stars and star types, normal and peculiar, variable and otherwise. With his former students Christopher Corbally (Vatican Observatory) and Richard Gray (Appalachian State University), he standardized, advanced, extended, applied, and promoted the MK (Morgan-Keenan) process and system, the standard way that astronomers classify stars spectroscopically according to temperature, luminosity, and composition. It functions much as the Johnson UBV system does in photometry. Bob oversaw the building of six standard "Garrison classification spectrographs" for various observatories. He edited *The MK Process and Stellar Classification* (University of Toronto, 1984), in honor of Morgan and Philip Keenan. With Corbally and Gray, he edited *The MK Process at 50 Years: A Powerful Tool for Astrophysical Insight* (ASP, 1994). Upon Bob's retirement, Corbally and Gray organized a conference in his honor, and they and Davis Philip edited *The Garrison Festschrift* (L. Davis Press, 2003). Corbally's introduction to this book fully outlines Bob's many contributions to astronomy. I contributed to the conference and *Festschrift*, with an overview of small-amplitude red variables, based in part on AAVSO PEP observations.

Bob was an outstanding teacher, the only instructor to win a Lifetime Teaching Excellence Award from our Faculty of Arts and Science. He developed and co-taught a course in Astrobiology, many years before it became a standard offering at other universities. It remains one of our most popular courses today. He was a caring and effective graduate supervisor, nurturing and mentoring students from a variety of backgrounds. His service to our department included Associate Director of the David Dunlap Observatory (our department chair always carried the title of Director), and Director of the U. of T. Southern Observatory in Chile. He was delighted when Supernova 1987A—the brightest in 400 years—was discovered there by Ian Shelton, who subsequently became his graduate student. Bob was President of the International Astronomical Union Commission on Stellar Classification (1985–1988), and a Director of the Canadian Astronomical Society (1978–1981). He was a recipient of the Queen's Golden Jubilee Medal in 2003.

Bob was a strong supporter of amateur astronomy through the Royal Astronomical Society of Canada, serving as President (2000–2002) and Honorary President (2005–2009)—a rare honor—and as long-time contributor of "The Brightest Stars" section of the RASC's renowned annual *Observers Handbook*. He also served as President (1993–1994) of the Royal Canadian Institute, Canada's oldest scientific society. He was a strong and active supporter of astronomy outreach and communication, and of international astronomy development. In 1990, he proudly served as an instructor at the month-long Vatican Observatory Summer School, which included students from both the developed and the developing world. In addition, he supported the work of the AAVSO for many years through his membership.

Bob had many hobbies and interests, including photography, opera, and singing. With his life partner Susanna Jacob, he sang in the Annex Singers, a vibrant Toronto community choir, even after his illness required him to sing sitting down. With Susanna, he lived his final years at Christie Gardens, a unique not-for-profit retirement community in Toronto, which provided both care and stimulating activities which enriched the body, mind, and spirit. He leaves Susanna, and his children Forest Lee, Alexandra, and David Charles. His warmth and kindness will be missed by family and friends around the world.

*Prepared by John Percy, University of Toronto, and Editor, JAAVSO. Based in part on an obituary in The Globe and Mail (Toronto), prepared by Bob's family.*



E. Peter Bus

**E. PETER BUS** (BEP, Groningen, the Netherlands) died June 25, 2016, at the age of 65 after several years of poor health. Peter contributed 493 visual variable star observations made July 1968 through August 2013 to the AAVSO International Database. Although he was a variable star observer, Peter was best known for his work

with meteors and bright comets, having observed and studied them for many years, and having been an editor for *eRadiant*. He had begun making systematic radio observations of meteors in the 1990s and had written extensively about this work. In his editorial work, Peter was much appreciated for his constructive and thoughtful comments and recommendations. In his observing, he was admired as being careful, persistent, and dedicated. Minor planet (10467) *Peterbus* is named in his honor. We extend our deepest sympathies to Peter's family, friends, and colleagues.

*Thanks go to Erwin van Ballegoij and Koen Miskotte for information used here.*



Joachim Hübscher

**JOACHIM HÜBSCHER**

(Germany) died August 16, 2017, at the age of 70. Although not an AAVSO member or observer, Joachim was a true colleague in his devotion to variable stars, variable star observing and their observers, and the preservation and sharing of their data. He was for many

years the business leader and honorary Chair of the Board of the Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e.V. (BAV). Through his longtime dedicated leadership, particularly in the preparation and publication of data, he worked to help the BAV achieve what he believed was most important for the organization—to see that the observations of the observers were made available via its publications. He also worked very hard to bring more observers into variable star observing. Joachim lived and breathed the BAV all the years he was associated with it. The future of the BAV, and especially the future of variable star observing, were extremely important to him, and he was beloved and respected by the BAV members and observers for his devotion to the organization and to its ideals, its people, and its future. We extend our deepest sympathies to Joachim's family, his friends and colleagues, and to the countless BAV members and observers to whom he was so very special.

## IN MEMORIAM CONTINUED



*David Mittelman*

**DAVID MITTELMAN** (MDAC, Dover, Massachusetts) died May 23, 2017, from brain cancer at the age of 62. An AAVSO member since 2012, David did not submit any variable star observations but he was a strong supporter of the AAVSO and its work. Having discovered the fascination of astronomy as an undergraduate,

Dave, his family writes of him, "...was passionate about astronomy and astrophotography, and in recent years initiated and led the MDW Hydrogen-Alpha Survey to create the first-ever high-resolution hydrogen map of the entire sky [with fellow astrophotographer friends Dennis di Cicco and Sean Walker, hence MDW]. This ongoing project will provide a freely accessible map that will be invaluable to future astronomers. Dave founded observatories in New Mexico, Colorado, and Massachusetts, which he opened to non-profit educational entities including colleges and high schools." The three observatories are the two MDW survey telescopes sited at the New Mexico Skies Observatory (near Mayhill, New Mexico), HUT Observatory (Eagle, Colorado; HUT stands for House Up Top), and the Yellow House Observatory (Dover, Massachusetts).

By profession, Dave was a very effective and successful bond and fixed-income money manager, and had an illustrious career. A firm believer in philanthropy, he established numerous science scholarships and supported many organizations, educational institutions, programs, charities, and individuals. As a lover of nature and the outdoors (particularly Colorado), his interests included skiing, hiking, and long-distance bicycling—and the Boston Red Sox. A man of keen intelligence and perception and great determination, Dave was enthusiastic, gracious, humble, and kind. We extend our deepest condolences to his wife Michelle, their three children, his family, and his many friends and colleagues.



*Melvyn Taylor*

**MELVYN DOUGLAS TAYLOR** (TLA, Wakefield, W. Yorkshire, England; 1947–2017) died suddenly at home on August 12, 2017, after a period of poor health. Mostly through the sharing of the British Astronomical Association Variable Star Section's (BAAVSS) database with the AAVSO, there are 36,929

visual variable star observations in the AAVSO International Database made by him from June 1969 through May 1994, of the more than 90,000 visual observations he made. As a visual observer of variable stars who star-hopped for decades, Melvyn was extremely connected to and knowledgeable about the night sky. He was also a nova hunter, and observed meteors (on film as well as visually), comets, lunar occultations, planetary transits, sunspots (on film), solar eclipses, aurorae, and noctilucent clouds. He always preferred smaller telescopes or binoculars for his work.

Melvyn was actively involved in many ways in the work of the BAAVSS for decades, and in 2005 received the BAA Merlin Medal and Gift in recognition of his "notable contributions to the advancement of astronomy". He was also a member of many other astronomical societies (including the AAVSO) and contributed to them in a variety of ways. His background as a structural engineer and designer stood him in good stead in this regard. Cheerful, friendly, supportive, and very knowledgeable, Melvyn was an excellent mentor, particularly to beginner observers. In addition to astronomy and the history of astronomy, Melvyn had a lifelong passion for cricket; his other interests included fishing, hill walking (hiking), and prehistoric sites. Although his death was unexpected and a shock, that he died during the maximum of the Perseid meteor shower was fitting for a man who so loved the night sky. We extend our deepest condolences to Melvyn's family and many friends and colleagues.

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

## MENSAJE DEL DIRECTOR STELLA KAFKA

### *Encuentros con astrónomos profesionales*

Cuando viajo a conferencias o universidades para hablar acerca de la AAVSO, me encuentro con muchos astrónomos profesionales que trabajan en diferentes aspectos de las estrellas variables y están interesados en que nuestros observadores colaboren con sus proyectos. Todos ellos reconocen el rol de la AAVSO en entrenar y atraer nuevos observadores, se alegran de enterarse de nuestros avances y están ansiosos de hablar de posibles campañas.

Durante esos viajes, a los colegas más experimentados también les gusta compartir sus anécdotas de cómo fueron sus primeros pasos en astronomía, cómo se decidieron a convertirse en astrónomos profesionales y la tremenda influencia que la AAVSO tuvo en esa decisión. Tal como muchos de nuestros observadores, la mayoría comenzó con un pequeño telescopio cuando eran niños, maravillándose con el cielo nocturno desde sus patios, preguntándose cómo se comportan las estrellas, de qué están compuestas y si hay vida en otros planetas (¿les suena conocido?). Sus historias están llenas de emoción (y nostalgia) y agradecimiento a la AAVSO que le dio una dimensión diferente a su entusiasmo por explorar el cielo—una introducción a las estrellas variables, su idiosincrasia y la posibilidad de contribuir a la ciencia—. La mayoría de ellos habían usado sus propios pequeños telescopios y sus ojos para detectar cambios de brillo antes de obtener su título en astronomía.

Les dejo un testimonio muy interesante del Dr. Kevin Krisciunas, un distinguido investigador y profesor en Texas A&M: “Me interesé en la astronomía a los 9 años y medio cuando estaba en cuarto grado. El programa Mercurio había lanzado astronautas al espacio. El espacio era el lugar. Me compré mi primer telescopio. Con el tiempo conseguí un reflector f/6 de 15 cm. y en la secundaria construí un observatorio de casi dos metros cúbicos en mi patio. Como muchos aficionados, empecé mirando a la Luna y los planetas brillantes, pero a los 15 años probé con la astronomía de estrellas variables”, escribe. “Seguramente, entre todas las ciencias, la astronomía es la que permite a los aficionados realizar con mayor facilidad una contribución a la investigación real. Podría detectar que una nova enana entre en erupción. Entonces la reporto a la AAVSO. Ellos le informan a un astrónomo profesional y en poco

tiempo un telescopio en órbita está recolectando datos del objeto. ¿No es genial?”

“Decidí en la secundaria que quería ser un astrónomo profesional, así que cuando fui a la universidad estudié cálculo, física, astronomía, estadística y aprendí a programar. Mi camino hacia el doctorado fue algo diferente. Primero, entre los 23 y los 28, trabajé en software y estuve a bordo del Kuiper Airborne Observatory de la NASA. Luego, por 14 años, hice un trabajo similar para el United Kingdom Infrared Telescope y el James Clerk Maxwell Telescope en Hawaii. Finalmente, volví a la universidad. A los 47 años obtuve un doctorado de la Universidad de Washington con una disertación que en su mayor parte tenía que ver con las curvas de luz y el enrojecimiento en las supernovas de enanas blancas.”

“En los 80 y 90, junto a un puñado de astrónomos en Sudáfrica, los Estados Unidos, Italia, uno de Inglaterra, uno de Austria y uno de Canadá, ayudé a descubrir una nueva clase de estrellas pulsantes no radiales. El prototipo es la estrella sureña de cuarta magnitud gamma Doradus.”



*Kevin Krisciunas con su certificado de membresía AAVSO*

A su vez, la historia de Kevin no es la única. Es similar a la de varios miembros de la AAVSO, quienes se inspiraron en el cielo nocturno para explorar sus misterios y se unieron a nuestra gran Asociación gracias a su deseo de contribuir con la ciencia. Ahora Kevin se encuentra trabajando con supernovas cercanas y lejanas, testeando las propiedades cosmológicas del universo. También da clases en la universidad a gente no relacionada

con la astronomía, aspirando a introducir conceptos complejos en estudiantes que se convertirán en contadores, abogados, doctores, ingenieros y maestros. Ciudadanos cuyo dinero de impuestos se invertirá en ciencia y que necesitan apreciar la contribución que hace la astronomía para mejorar sus vidas. Quizás algunos de ellos terminen tentados en comprar su primer telescopio o binoculares e intentar observar estrellas variables.... Tal vez algunos de ellos se conviertan en miembros de la AAVSO en el futuro. Y puede que algunos de ellos algún día sean distinguidos astrónomos profesionales como Kevin (y muchos otros), investigando los secretos del universo a través de los datos de la AAVSO y educando a la próxima generación de pensadores en la escuela o en la universidad....

Los mejores deseos—cielos claros,

*Stella.*

## MENSAJE DEL PRESIDENTE KRISTINE LARSEN

Anoche pasé una noche tranquila en Breezy Hill, Vermont, (en Stellafane) observando variables para binoculares de AAVSO. Aunque la noche de otoño, inusualmente cálida, permanecía en silencio, a excepción del lejano sonido de los coyotes y un ocasional búho, no pude evitar oír las voces de mis mentores de AAVSO que salían del archivo de mis recuerdos: Dorrit Hoffleit, Casper Hossfeld y Janet Mattei. Tres voces muy diferentes, tres personalidades muy distintas. Pero lo que los tres tienen en común es su papel como mis mentores. Si alguna de estas tres personas hubiese estado ausente de mi vida, honestamente puedo decir que probablemente no habría tenido el honor de servir a esta organización como su presidente. Casper me presentó a la AAVSO por primera vez. Janet me involucró en la creación de la práctica curricular Astrofísica práctica Hands on Astrophysics y me instó a postularme para el Consejo, por primera vez. Dorrit me hizo apreciar la historia única de la organización y fue una gran influencia en mi propia investigación sobre las contribuciones de varias personas a la organización, como Martha Stahr Carpenter. No es por accidente que mi camino a la presidencia de la AAVSO fue realmente una colaboración Pro-Am (profesional-aficionado), porque esa es la esencia misma de la organización.

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## MENSAJE DEL PRESIDENTE CONTINUED

Para ser honesto, tengo sentimientos encontrados acerca de los términos “profesional” y “aficionado”. En primer lugar, en nuestro idioma vernáculo común en América, el término “aficionado” se utiliza a menudo de una manera no muy halagadora. Después de todo, ¿quién confiaría en un neurocirujano “aficionado”? Pero en el campo de la astronomía (y las ciencias hermanas como la geología, la botánica y la paleontología) no había tal distinción hasta cerca del final del siglo XX. Cualquiera persona que tenía una pasión por la astronomía y contribuciones a la ciencia (no importa cuán grande o modesto) era simplemente un astrónomo, no importa su educación formal o medios de ganarse la vida. William y Caroline Herschel eran astrónomos. María Mitchell era una astrónoma. Percival Lowell era un astrónomo.

Mi segunda razón para cuestionar la dicotomía es que, en general, no me gusta tener que clasificar y categorizar individuos (a menos que estemos hablando de curvas de luz individuales, ¡por supuesto!). Especialmente odio tratar de clasificarme a mí misma. Mis títulos son en física, pero enseño astronomía.

Puedo publicar y presentar investigaciones en conferencias “profesionales” y pertenecer a las organizaciones tradicionales “profesionales”, como el AAS (Sociedad Astronómica de los Estados Unidos). Pero también soy una orgullosa constructora de telescopios aficionada (y miembro del grupo de Constructores de Telescopios de Springfield), he asistido a más de treinta convenciones de Stellafane y he trabajado como editor asistente para la revista Reflector de la Liga Astronómica de Estados Unidos. Me siento igualmente cómoda haciendo una maratón de Messier con un Newt-Dob de 13 pulgadas (¡por supuesto!) estrictamente para divertirse y haciendo observaciones solares (y observaciones nocturnas de estrellas variables) para AAVSO. ¿Qué clase de criatura soy?

Si tengo que elegir, diré orgullosamente que soy una astrónoma aficionada o amateur. Si está leyendo esta columna, también es un aficionado o amateur, independientemente de los títulos que posea o cómo gana su vida. Digo esto porque la palabra amateur proviene del original en francés, es decir,

alguien que ama o se dedica a algo. Si usted hace astronomía porque la ama, no porque es el medio para un fin, entonces usted es, por definición, un amateur, alguien que ama.

Es un honor considerarme entre sus filas. Espero ver a muchos de ustedes en la reunión de noviembre en Tennessee, o en la reunión de julio de 2018 en Warwick, Reino Unido, o en una reunión futura. Hasta entonces, les deseo cielos despejados, ópticas interesantes y una conexión rápida a Internet para subir esas valiosas observaciones a la base de datos de AAVSO (que es lo que voy a hacer justo ahora ...).

### 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.*



## VLF RECORDINGS DURING THE AUGUST 21, 2017, SOLAR ECLIPSE

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

**Abstract** In this paper we describe how five Very Low Frequency (VLF) receivers located within US Central and MST time zones show similar signal responses when recording data from one Naval transmitter (NML; LaMoure, North Dakota, 25.2 kHz) during the August 21, 2017, solar eclipse. There was no standard calibration for the signal responses in amplitude, so we can only use descriptive statistics to show what the August 21 eclipse signal does to the ionosphere during the solar eclipse.

**Introduction** Data sets were used from five AAVSO observers who record VLF data and contribute their monthly VLF reports to the AAVSO Solar Bulletin and were asked to participate in this study. This was an opportunity for observers to record data from Naval transmitter NML (25.2 kHz, LaMoure, North Dakota) during the August 21, 2017, solar eclipse.

Observer	Code	Station	Location
Al McWilliams	A94	NML	(St. Cloud, MN)
Rodney Howe	A121	NML	(Fort Collins, CO)
Susan Oatney	A125	NML	(Partridge, KS)
Salvadore Aguirre	A138	NML	(Hermosillo, Mexico)
Richard Russel	A147	NML	(Colorado Springs, CO)



Figure 1. The path of the solar eclipse and location of the observers with regard to NML. <https://apod.nasa.gov/apod/ap170131.html>

Each observer recorded the eclipse signal in a similar fashion using either the Gyrator receiver (A94, A125) or the SuperSID receiver (A121, A138, A147), and in this analysis only data from NML will be used. In general, Figure 2 shows what the eclipse signal looks like from NML, where the signal has a sharp peak around 1800 UTC (Susan Oatney, A125, Partridge, Kansas).

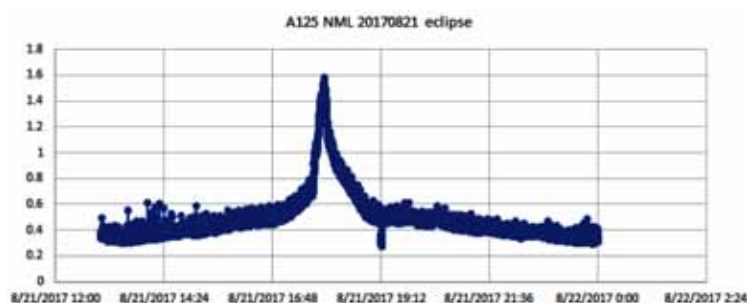


Figure 2. A typical peak during this August 21, 2017, solar eclipse (A125) at 1800 UTC.

The choice to use only data recorded from NML was made because, of the three northern North American transmitters, only NML was operating, technically. NAA (Cutler, Maine, 24 kHz) was down during the day of the eclipse; NLK (Jim Creek, Washington, 24.8 kHz) was down for the month of August. NPM (Hawaii, 21.4 kHz) was not used due to distance. However, it is interesting to note that from Fort Collins, Colorado, there was still a signal recorded from the NAA and NLK frequencies, as Figure 3 shows.



Figure 3. All Naval transmitters and their response to the eclipse from Ft. Collins, Colorado.

**Methods** Adjusting all data sets to a similar time, scale, and offset required choosing one observer; Al McWilliams (A94) was chosen as his data were recorded using an onset HOBO ux100-003 recorder, recording voltages from a Gyrator II receiver (see references). A121 records data in Decibels; A138 and A147 record data from the SuperSID sound card software where signals are non-dimensional. All data used in this study are at a 5 second sample rate beginning at 14:12 UTC and ending at 24:00 UTC.

**SOLAR ECLIPSE  
CONTINUED**

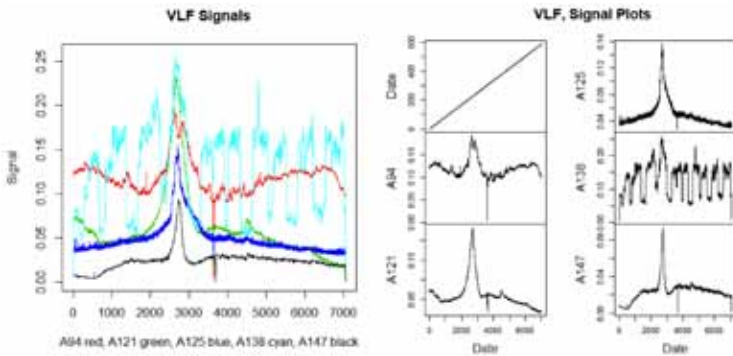


Figure 4. The 5 data streams offset from one another with eclipse signals at 1800 UTC.

A94 data are interesting as from St. Cloud, MN, the path of the eclipse does NOT cross between the receiver and the transmitter. And there was a C3.0 class flare just around the peak of the eclipse signal (daily GOES data: [ftp://ftp.swpc.noaa.gov/pub/warehouse/2017/2017\\_events/](ftp://ftp.swpc.noaa.gov/pub/warehouse/2017/2017_events/)).

	Start	Max	End	X-ray	Class
3370 +	1739	1757	1801	G13 5	XRA 1-8A C3.0 1.8E-03

This (SID) shows up as an inverted solar flare at the peak of the eclipse signal (red line in Figure 4 above for A94). A138 is far from the NML transmitter (Hermosillo, Mexico, at ~ 2500 km) and seems to show drops and bounces, however, the eclipse peak is still visible. A121 and A147 show results where the eclipse path was about equidistant from NML and the receivers (both observers live in Colorado).

**Results** None of the receivers were calibrated to some standard, so it is not possible to compare their amplitude responses. All statistical descriptions are relative comparisons one to the other; at best it is possible to look at the dispersion of each data stream. From that we might show how distance and geometry locations from NML show more ionosphere dispersion.

**References**

- Onset HOB0 ux100-003: <https://www.microdaq.com/manufacturers/onset-computer/HOB0-data-loggers/ux100-series.php?gclid=Cj0KEQjw24nNBRChyd7W88OM96UBEiQAUv0sPQOOs2LaCsFoaKiUVSUAVRtEqSgIJhiDTV6ULaGem4caAkDL8P8HAQ>
- AAVSO Solar Section SID Equipment: <https://www.aavso.org/sid-equipment>
- SARA and Stanford SuperSID receivers: <http://radio-astronomy.org/node/210>

**Pairwise Scatterplots with Loess Smoothing**

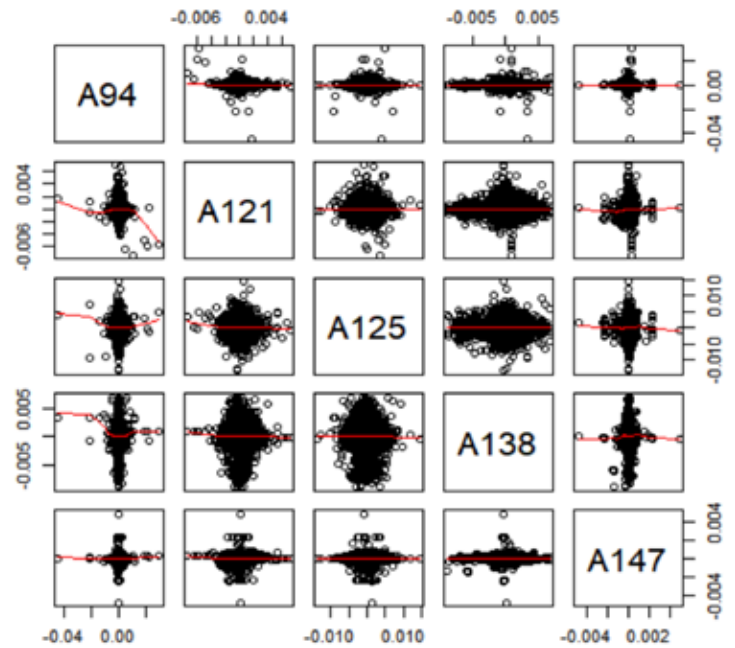


Figure 5. A pair-wise comparison (Loess smoothing) from one observer to another.

What might be said is that geographic location has an effect on the signal response, and that regardless of the receiver-transmitter location within two time zones the peak of the eclipse happened around 1800 UTC.

**Discussion** Even though these data came from different detectors (Gyrator, SuperSID receivers, etc.) and with different sampling rates, it was possible to adjust all data to the same timestamp. It was not possible to calibrate amplitudes (data were in Voltages, Decibels, or dimensionless values), yet it was still possible to do simple descriptive statistics to show a correlation of how the ionosphere reacts to the shadow of the solar eclipse as it crosses near or between the NML Naval transmitter and VLF receivers at different locations in North America.

## PHOTOELECTRIC PHOTOMETRY PROGRAM UPDATE

JIM KAY (KJMB), AAVSO PEP SECTION LEADER

**Observations** For our third quarter of the year we had mixed but generally improving weather for our observers, with 8 PEP observers providing 1,251 observations, in 5 bands (B, V, R, J, H).

Observation counts by observer are given below:

*AAVSO International Database PEP data contributors Q3 2017*

BVE	Erwin van Ballegoij	Netherlands	18
CTOA	Tom Calderwood	Oregon	35
FXJ	James Fox	New Mexico	51
KCD	Carl Knight	New Zealand	2
KPL	Paul Kneip	Louisiana	32
LPD	Patrice LeMarchand	France	1
PGD	Gerald Persha	Michigan	1098
UIS01	John Martin	Illinois	14

Reported error continues to be low, with additional work being done to drive our errors down. Thanks to all the observers for contributing high quality observations.

**Infrared Photometry** Carl Knight provided a total of 2 observations in the J and H bands of Betelgeuse. Our observing window is now open for Betelgeuse for the next several months.

**Very Bright Star Observing** Tom Calderwood has begun observing Vega, which is assumed to be non-variable, but may in fact have some small amplitude variations. Even for PEP systems this star causes saturation for many of our observing setups (not surprising at 0 magnitude). KJMB has also competed a number of observations of this star although they are not yet part of the database. Currently eps1 and mu Lyr are being used for the comps, but we are seeing some variation in eps1 so stay tuned for any changes to the recommended comparison stars. Techniques to achieve high accuracy with this large dynamic range between the comparison star and Vega continue. You may need to stop down your system, but I have been able to do photometry using 14-inch aperture and an SSP3 photometer. Gain switching appears problematic so we recommend sticking to one aperture and gain even if you need to stop down your systems. Very bright stars are one area where PEP is a perfect fit, and we expect to add more very bright stars to our list. These stars will not be covered by the existing and proposed automated professional surveys so I encourage you to get involved to fill this gap.

As always an open invitation goes out to anyone wanting to try PEP. We have a range of long term and new observers, but could always use more. More information is available at the AAVSO PEP webpages at:

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

## EXOPLANET OBSERVING SECTION UPDATE

DENNIS M. CONTI (CDEC), EXOPLANET SECTION LEADER

As a follow-on to the very successful Kepler space telescope, TESS (Transiting Exoplanet Survey Satellite) is currently scheduled for launch in March 2018. Unlike Kepler, that focused on a small patch of sky, TESS will be conducting an all-sky survey of brighter stars. Ground-based observers will be an important part of the TESS pipeline to help identify false positives, namely transits that may be due to such things as an eclipsing binary star vs. an exoplanet. The AAVSO is committed to providing the appropriate documentation, tools, training, and improved techniques to increase the number and quality of TESS followup observers. Such observers are expected to range from amateur astronomers to educational institutions.

Documentation to help potential TESS observers includes a recently updated "A Practical Guide to Exoplanet Observing." This Guide documents the best practices of exoplanet observing, as well as a step-by-step guide to the use of AstrolmageJ (AIJ) for exoplanet image reduction and analysis. AIJ is freeware that is rapidly becoming the de facto standard for exoplanet transit analysis by both the amateur and professional astronomy communities. This Guide, plus accompanying sample data sets, can be found at <http://astrodennis.com>.

The second round of the AAVSO CHOICE course on Exoplanet Observing is being held during the month of October 2017 (<https://www.aavso.org/choice-astronomy>). This course is intended to provide exoplanet observers with the fundamentals they will need to conduct their own exoplanet observations. The course is especially timely to help increase the number of qualified TESS followup observers.

New techniques are also being developed and tested to help exoplanet observers achieve higher precision autoguiding, as well as the ability to conduct multi-bandwidth photometric measurements. Both of these new techniques will help improve the ability of future TESS exoplanet observers to distinguish false positives from true exoplanet transits.

## OBSERVER'S CORNER

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

### Screwing up an Instrument

#### MICHAEL POXON (POX)

It was one of the Herschels (I can't remember which one; probably William) who took great pains over "screwing up an instrument to its highest pitch," although I presume that "screwing up" in the eighteenth century had a different meaning from its current one. In fact, it means in this context the very opposite. How can we make sure that we make the most of the equipment we have?

**White Tubes** Many commercial telescope makers clearly design their tubes for non-variable star use by painting the outsides a lovely blinding white, which of course reflects every trace of background or light-polluted skies. Of course, one can simply strip the paint away and repaint with flat black, but another possibility is to employ a skeleton tube, at least for newtonians. My own scope is of this design, with all parts matt black. In fact, the scope is so dark that I often blunder into it—though it is never the scope that comes off worse!

**Light Baffles** One drawback of a skeleton tube is that it lets moonlight through, and this is a real nuisance, especially when it reflects off the metal of the eyepiece drawtube and thence to the flat. It is easy to rig up a simple light baffle (I use "light" in both senses of the word) from a sheet of cardboard painted matt black. Mine is attached to a couple of "Meccano" strips which simply slide over the head-end of the tube in whatever position is suitable.

**At the eye-end** Here there are numerous possibilities. If one does not want to wear an eye-patch for fear of hobbling on one leg and saying "Aaaarh, Jim lad" it is simple to construct a box large enough to keep out stray light but with the underside removed so that your head can pop in and out. Again, one can use cardboard coated with varnish to account for dampness. The inside should be painted matt black.

Many observers use a dim red light as illumination for black-on-white standard star charts. I use a dedicated app (written by myself—I don't get out much) that produces red stars on black with the whole thing running from a laptop. It is possible to turn down the illumination levels here but even on the lowest setting the screen is still not faint enough, and in that case one can cover the screen with a sheet of red plastic that reduces the light level still further.

This is a selection of refinements that work for me—doubtless you folks out there have others!

## 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>).

## 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
20171001	<a href="#">Alert Notice 600</a>	Dates for R Aqr Chandra and HST observations
20171001	<a href="#">Alert Notice 599</a>	CI Aql monitoring needed in support of HST observations
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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