



# The American Association of Variable Star Observers

## Annual Report

2019-2020



January 2021



# AAVSO Board, Headquarters Staff, and Contact Information

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President	Gordon Myers
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Brad Vietje	(Final term)

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Lindsay Ward	Communications Manager, <i>Annual Report</i> Production Editor

### Science Team

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Sebastián Otero	External Consultant, VSX Team, Spanish Translations
Bert Pablo, Ph. D.	Staff Astronomer
Michael Saladyga, Ph.D.	Technical Assistant, <i>JAAVSO</i> Production Editor
Elizabeth O. Waagen	Senior Technical Assistant, <i>JAAVSO</i> Associate Editor

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## AAVSO in a Nutshell

The American Association of Variable Star Observers (AAVSO) is an international scientific and educational 501(c)(3) nonprofit organization, with a mission to enable anyone, anywhere, to participate in scientific discovery through variable star astronomy. The mission is pursued through providing citizen astronomers the tools, education, and other resources they need to observe and analyze variable stars—stars that change in brightness. Their accurate observations are stored in AAVSO’s open-source databases that professional astronomers use in their significant research.



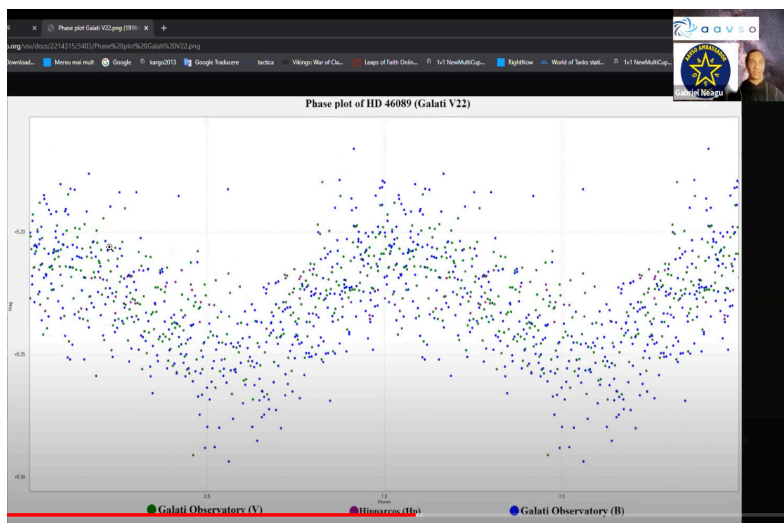
This past year, upon developing AAVSO’s strategic plan with Harvard Business Association’s Community Action Partners (CAP), three key objectives stood out: increase the organization’s impact, fulfill high membership satisfaction, and achieve long-term financial stability. The AAVSO began implementing the strategic plan that it will carry out over the next few years.

2020 was a challenging year for many. Accompanying the most pressing and devastating of the virus-caused issues the world has been facing, has been isolation and activity restriction. Throughout this time, the AAVSO worked hard to provide accessible astronomy and observing education. We offered our 2020 CHOICE courses free of charge, and our volunteer CHOICE educators increased the time and energy they put into the courses to accommodate additional participants.



[www.aavso.org/choice-astronomy](http://www.aavso.org/choice-astronomy)

We also held our Observing Sections' Webinar Series free of charge and our volunteer AAVSO ambassadors created online educational materials and contributed to virtual events.



Ambassador Gabriel Neagu hosting a webinar with Sebastián Otero, “How to Report your astronomical discoveries with AAVSO”



We now distribute the *Journal of the AAVSO (JAAVSO)* more widely: newly published editions become immediately available to anyone on AAVSO's website. In 2020, we all connected with other astronomers, AAVSO membership grew, and data was more frequently submitted to our databases.

The AAVSO continues to make education as accessible to anyone, anywhere as possible; our staff members enthusiastically and diligently work to connect our community with others, and help people advance in their astronomy journeys.

Our community spans generations, and each can learn from one another—astronomy and education bridge gaps, grow knowledge, and create unity. The togetherness the astronomy community invites is something we can all use a bit more of, so let's continue to grow it!

# Message from the AAVSO President



2020. The year no one could have envisioned—or wanted. My granddaughter says it will be a swear word people use in the future.

As I write, the pandemic surges again. And yet, we are lucky. Through the “magic” of science, vaccines are on the way. This pandemic, too, shall pass. But the lives of many of our fellow citizens are changed forever.

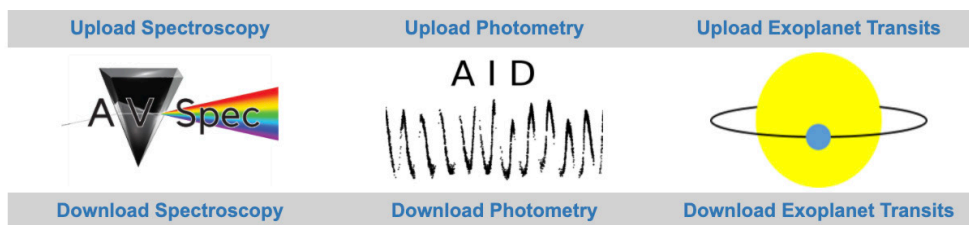
So, as we look at the past year, we must keep the AAVSO in perspective. Each of us must do what we can to defeat this virus and help those whose lives have been severely impacted.

## AAVSO's 2020

www.aavso.org

2020 concluded AAVSO's strategic planning work. Our focus on high member satisfaction, increased organizational impact, and developing a plan for long-term financial stability, led to changes and new initiatives. These included revitalizing our observing sections and improving our IT systems by enhancing our website and software tools. We also increased our training and provided a phenomenally successful summer webinar series attended by hundreds of individuals worldwide. We increased our ties with professionals, enhancing our alerts. We began expanding our focus on spectroscopy, exoplanets, and data mining through our CHOICE courses and workshops. Our annual meeting with the spectroscopy sections and TESS data mining workshops had great participation and showcased our successful migration to an entirely online meeting format.

Membership has grown from 1,100 in 2015 to 1,400 today. Our *AAVSO International Database (AID)* now contains over 43 million observations! Solar observers submitted twenty thousand observations in the past year, and our new exoplanet and spectroscopy databases continue to grow.



<https://www.aavso.org/databases>

Roughly 400 research papers were published referencing our work, and our most recent *JAAVSO* volume had twenty-one articles, an increase from previous years. And, *Sky and Telescope* magazine highlighted our contributions to science in their January 2021 edition!

Most importantly, members are commenting on the new ways we are connecting with them and supporting their work. There is genuine enthusiasm for the organization. People are enjoying being members of AAVSO.

More changes are coming. We continue to focus on making AAVSO a dynamic, vibrant organization.

One brief comment regarding our finances—please consider a donation to AAVSO. Our long-range financial stability requires that we reduce the annual withdrawals from our endowment to a sustainable level. We need support from members to allow us to grow and ensure AAVSO's future viability. Please contribute—every dollar makes a difference!

I hope you had a good year and were able to participate in our webinar series and meetings. AAVSO enables us to enjoy and participate in our shared passion for astronomy.

Clear skies!

Gordon Myers, AAVSO Board President



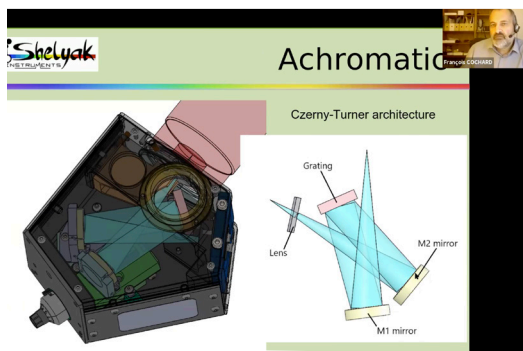
## Letter from the Director

Friends,

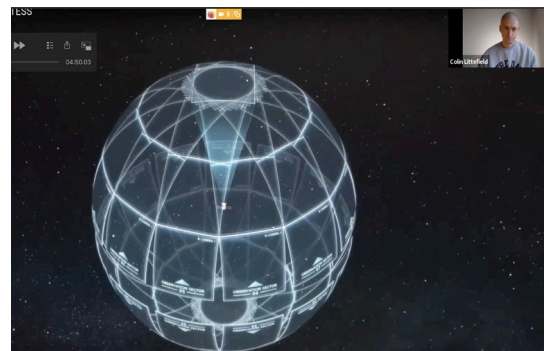
I am sure all of us welcomed the end of 2020, a year when the pandemic disrupted our lives, threatened our health, and weakened our economies and the wellbeing of many of us. Even under those circumstances, at the AAVSO, we recognize that there is an urgent need for all of us to focus on the big picture. We know that we have a duty to serve you and provide the infrastructure, knowledge, information, and strong community that enables you to observe and study variable stars. Your work helps us all feel less isolated and a bigger part of an extraordinary group of people who learn about the universe.



As Churchill said, “never waste a good crisis.” During 2020, the AAVSO team adjusted to the new reality of working from home and stayed focused on our tasks at hand. We completed our two-year strategic plan, we wrapped up a significant technology and web page migration, and we launched new initiatives (such as our webinar series). We empowered our volunteer teams, we increased diversity through enhancing our ambassador program, and we engaged in new collaborations. We also provided a three-weekend virtual Annual Meeting and two workshops, and we connected with our international community in a way that is stimulating and rewarding.



François Cochard instructing the AAVSO Spectroscopy Workshop, 2020



Colin Littlefield instructing AAVSO's online Data Mining Workshop, November 1, 2020

So, with a new year begun, what do we have to look forward to? With promising news on vaccines, perhaps there is hope for returning to a more enjoyable world where we can all meet in person. As we celebrate 110 years of the AAVSO's founding, we will start executing the strategic plan programmatic priorities and provide you a better, refreshed AAVSO. We will focus on training and helping our observers, securing and enhancing our databases and software tools, and providing engagement opportunities in more key projects, while continuing our legacy work. We will reach out to "anyone, anywhere" virtually through our free webinars and How-to Hours, and we will foster key partnerships to widely disseminate the AAVSO's value and engage more interested individuals in the excitement of scientific discovery.



[www.aavso.org/2021-webinars](http://www.aavso.org/2021-webinars)

Read more about our strategic plan at <https://www.aavso.org/StrategicPlan2020>. We hope you'll be inspired to continue to embrace and support the AAVSO's work toward these goals.

YOU are the AAVSO!

Best wishes—clear skies,

A handwritten signature in blue ink that reads "Stella". Below the signature is a long, horizontal, wavy blue line.

Stella Kafka, PhD  
AAVSO Executive Director



Strategic Plan Highlights, 2021 cover  
([https://www.aavso.org/sites/default/files/AAVSO%20pdfs/AAVSO\\_StrategicPlan\\_1.12.21.pdf](https://www.aavso.org/sites/default/files/AAVSO%20pdfs/AAVSO_StrategicPlan_1.12.21.pdf))

## Astronomers' Corner



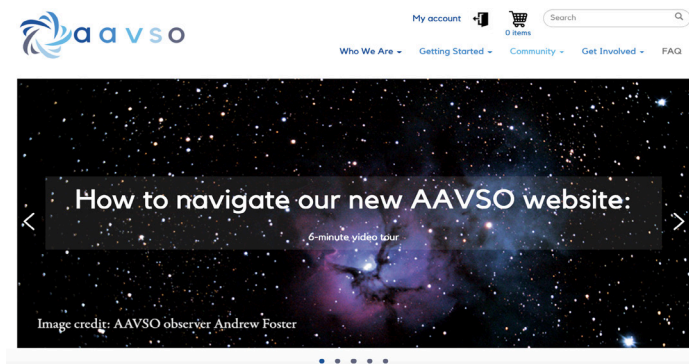
As an organization that has been around for over 100 years, the AAVSO knows a thing or two about stability. However, the part about stability that many people overlook is that it requires adaptation to an ever-changing world landscape.

This is especially true on the internet where application updates are made weekly—if not daily—largely due to security issues. Vulnerabilities are found all the time and applications must be updated to mitigate them. Since this is an area where the AAVSO has been lacking, we came into this year with the goal of making our

infrastructure more sustainable and more secure.

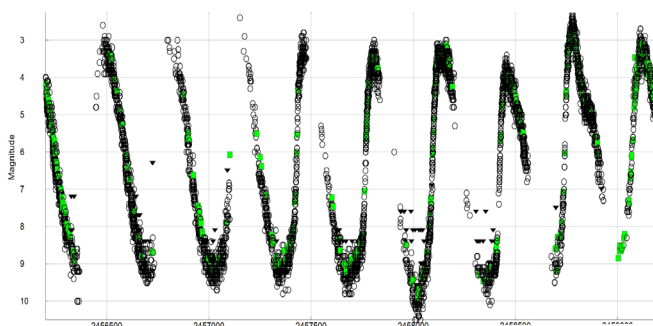
After many hours of staff, volunteer, and contractor time, we were finally able to deploy our new website infrastructure at the end of the year. From the outside, you will have noticed a slightly updated and more modern theme on the website, as well as some small changes in content location. However, behind the scenes are where the real changes have been made. We have changed the way our applications and databases communicate, fixed several issues that have been an annoyance to users, and most importantly made future updates easier.

We recognize that change is difficult, and we really appreciate your patience. New always takes some getting used to, but we will be there every step of the way to answer your questions and help however we can. Most importantly, though, we are now better positioned to serve you, our community—both now and for many years to come.



## International Variable Star Index (VSX) Update

The *International Variable Star Index (VSX)* is an evolving database that includes most variable star catalogues and stars published in variable star listings and journals, plus discoveries submitted by individual researchers. The number of users and submissions remains stable; people all over the world contribute discoveries and revisions to VSX. This past year, we added 1,056 exoplanets to VSX to enable our observers to submit data on those objects.



Mira light curve

The VSX Team, led by Sebastián Otero, works with the aim of keeping VSX as up to date and free from errors as possible. Otero and Patrick Wils provide feedback to observers. Otero, Wils, Klaus Bernhard, and Patrick Schmeer maintain VSX and add data, including stars from alert pages (largely *ASAS-SN*, *ATel*, *Gaia*, *TNS*, *vsnet-alert*, and *CBAT*), and new objects or data published in papers or journals (updates from the now inactive *Information Bulletin on Variable Stars* are complete). Wils upgrades VSX to provide a friendly experience.

From October 1, 2019 to September 30, 2020, 130 identifications were corrected for stars in the *General Catalogue of Variable Stars (GCVS)*, duplicate entries were deleted, and inconsistencies between data in VSX and our other databases were rectified. Comparison stars in our comparison star database (*VSD*) that turned out to be variable, were eliminated from sequences and replaced with help from the Sequence Team.

On September 27, 2020 (one year after we reached 1,000,000 objects), we achieved a huge milestone of 2 million objects entered into VSX! About 665,000 of them came from the *ZTF DR2 Catalogue of Periodic Variable Stars*, and surveys like *ASAS-SN* contributed as well. We also imported several hundreds of new variables reported by Gabriel Murawski.

We updated information on all known R Coronae Borealis stars, added new ones, and incorporated the most recent updates on more than 10,000 stars published in the *GCVS*.

We doubled our efforts to provide more options to participate in variable star astronomy, including launching VSX data mining projects (also useful to those who are not able to observe). These projects are at <https://www.aavso.org/vsx-data-mining>.

We thank all the people who contribute to VSX, the VSX Team, and the AAVSO staff, for the excellent work they have been performing.





# JAAVSO

Journal of the  
American  
Association of  
Variable Star  
Observers

The *JAAVSO* advances the mission of the AAVSO by enabling variable star researchers to publish their results after peer review, showcasing amateur-professional collaborations, enabling authors to deposit their data in an open repository, and providing beginning astronomers with an accessible introduction to variable star research. Authors include student, professional, and amateur astronomers.

Nancy Morrison continued as Editor; Associate Editor Elizabeth O. Waagen, and Production Editor Michael Saladyga continued in their roles. This report summarizes indicators of progress toward strategic goals.

One goal of the *JAAVSO* is to increase the size and usage of our openly available data archive—we encourage authors to archive the data supporting their research results. Being in a machine-readable format, the archived tables are more accessible to researchers than they are on the formatted journal page. To find these tables, readers perform a text search on the character string ‘ftp’ in the PDF version of a published journal.

A major goal of the *JAAVSO* is to raise its profile in the professional and amateur astronomical communities. One measure of its impact is the quantity of published content as indicated by article counts and page counts. It is too soon to tell whether the larger article count in Volume 48, number 2 is the beginning of a trend, although we can say that the article queue for Volume 49, number 1 is well populated.

Another measure of the *JAAVSO*’s presence in the community is the number of citations our articles have received in other journals. It is too soon for citation data on Volume 48 to be significant, but we observe that, for Volume 47, there were ten such citations. This count includes authors’ citations of their own papers; what is significant is the appearance of the citations in other journals. Citation counts are from the *NASA Astrophysics Data System* (<https://ui.adsabs.harvard.edu>). We will extend these citation searches forward and backward in time.

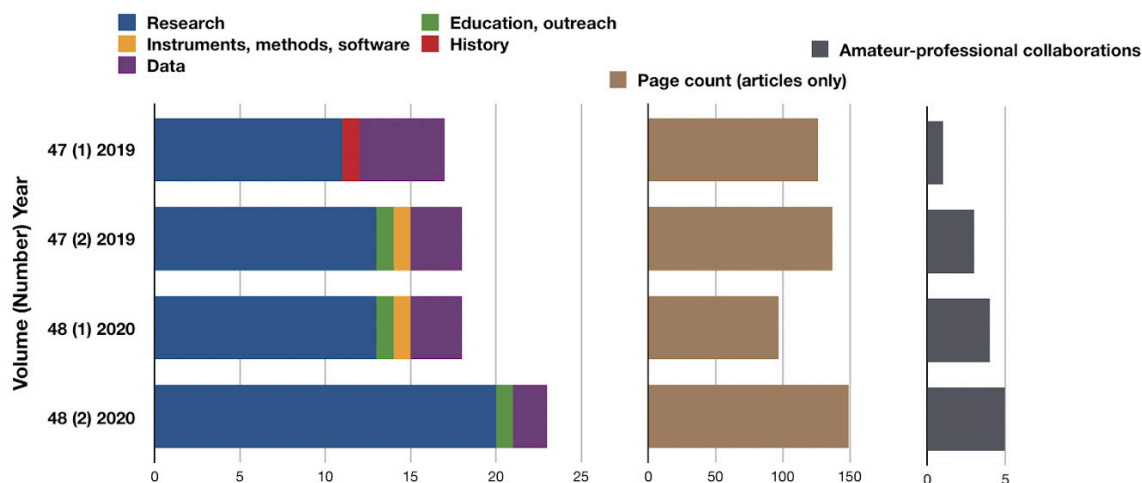


Figure 1. Statistical information on published articles for the years 2019 and 2020 (Volumes 47 and 48). The leftmost panel counts articles in all the categories of each issue (not including meeting abstracts). The middle panel displays the total page count of those articles. The rightmost panel displays the number of articles that have a combination of non-professional (amateur, citizen scientist) and professional authorship.

JAAVSO has a number of articles authored jointly by amateur and professional astronomers (Figure 1, right-hand panel). Professionals are defined here to be researchers who are affiliated with a college, university, or research institute, whether they be professional scientific staff or students. The appearance of strong growth should be viewed with caution, since the numbers are small. Continued monitoring of these numbers will tell the story.

To support additional content and to increase the number of professional astronomers who are familiar with the *JAAVSO*, we have enlarged the pool of scientific referees. During production of the current volume, 28 new referees were involved, to make a total of 93 active referees. Of the new referees, 15 are located at institutions outside the U.S.

Finally, we were pleased to see that a new column in *Sky and Telescope*, “Pro-Am Conjunction,” devoted its first number (Hannikainen 2021)<sup>1</sup> to the AAVSO. We hope to share news of *JAAVSO* in future publications about the AAVSO!

[1] Hannikainen, D. 2021, *Sky and Telescope*, 141(1), 59

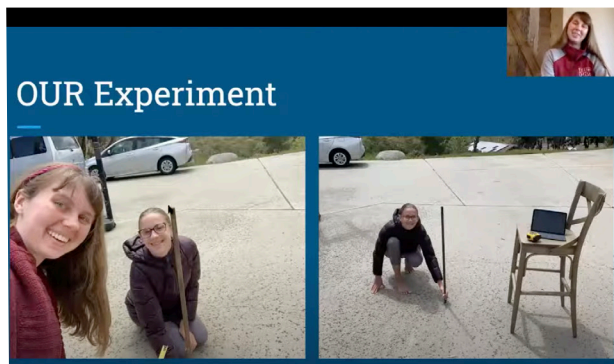
## Ambassadors' Corner

What an incredible Ambassador team we have! I've been involved in the program leadership-wise since January 2020, and I've seen the program grow and evolve in a really fun way. It's only going to continue to do just that. Lindsay Ward has done a great job guiding our team and keeping us all involved and engaged. This year, the Ambassadors created educational videos, outreached via webinars, and participated in AAVSO core initiatives. All of our content is at [www.aavso.org/ambassador-program](http://www.aavso.org/ambassador-program).



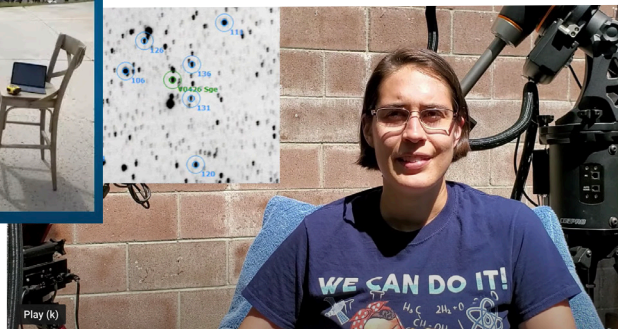
Heather Laird, in an Ambassador-created video on their niches, their contributions, and their why (<https://www.youtube.com/watch?v=NcpsKLxAYXE&t=531s>)

One of these core goals is dear to my heart—Diversity & Inclusion—which is what I've largely been focusing on with the AAVSO's new Diversity Committee, and includes future partnerships with organizations to benefit the community and the AAVSO. The other Ambassadors have been out in the world showing just how cool and fun variable star research and data collection can be, whether you're a professional, student, or amateur. We're having a lot of fun and it's continuing! The stars are for everyone! I'm looking forward to what we will all get up to in 2021!



Volunteer Ambassador Skylar Larsen in her educational video, "Eratosthenes and the Circumference of the Earth"

--Heather Laird,  
Volunteer Ambassador Leader



Volunteer Ambassador Leader Molly Wakleing, in an Ambassador-created video on their niches, their contributions, and their why



Prior to becoming an AAVSO Ambassador, I wanted to learn more about exoplanets and share what I learn with others; however, I wasn't sure how to turn my ideas into actions. I wanted to be an active member within an astronomy community, but I didn't know where I fit.

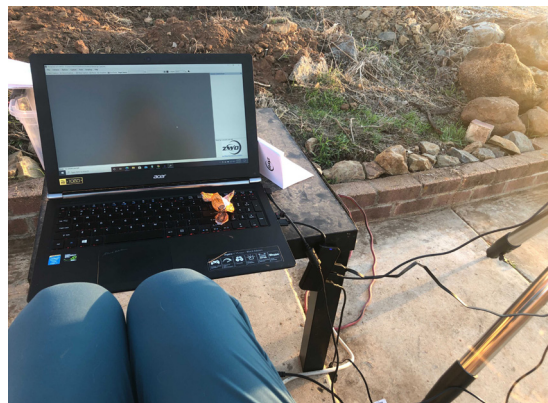
Fortunately, I met Stella Kafka a few years ago, and Stella gave me an opportunity to grow in my astronomy passion as an AAVSO Ambassador. With Stella's energetic mentorship, I created an exoplanet presentation, "Exoplanets: Earth 2.0," which I proudly presented at my biotech company and at my community college. Soon afterwards, I met other talented AAVSO ambassadors from around the world who inspired me to push myself out of my comfort zone. Another AAVSO ambassador and observer, Molly Wakeling, personally (via zoom) gave me step-by-step directions on setting up a telescope for the first time, and I was ecstatic when I finally had the moon in view. Lauren Herrington eagerly provided support on telescopes and spectroscopy, and after viewing Lauren's presentation during AAVSO's Spectroscopy Workshop, I felt confident I could successfully do spectroscopy once I had the right equipment. Lindsay Ward's great leadership skills provided us opportunities to engage with our community, such as the AAVSO Annual Meeting and AAVSO social media takeovers, and supported our individual astronomy passions through one-on-ones and team meetings.



Ana's newly achieved telescope setup, part 1

I appreciate my fellow AAVSO ambassadors, and look forward to 2020's ambassador projects! Maybe I'll even get a chance to teach someone how to set up *their* telescope for the first time!

--Ana Parra, Volunteer Ambassador Leader



Ana's newly achieved telescope setup, part 2



## AAVSO Awards Presented in 2020

### 2020 AAVSO Directors Award

The AAVSO proudly recognizes the members of Harvard Business School's Community Action Partners (CAP) for their outstanding contribution of time, expertise, and commitment to the organization. The involvement of and input from each of the seven members listed below helped to guide the future direction of the AAVSO. The impact of each individuals' work will increase the AAVSO's outreach to citizen scientists worldwide, strengthen our ties with the international astronomical community, and showcase our achievements.

From all of us at the AAVSO, thank you to the following CAP members for challenging us to reach higher and providing us with the tools to succeed:

- ★ Marilyn Averill
- ★ Alan Eisenberg
- ★ Jeanne Friedman
- ★ John Giudice
- ★ Brian Kopperl
- ★ Arthur Pfaelzer
- ★ Diogo Teixeira



The CAP team, along with some AAVSO staff at our first meeting, 2019

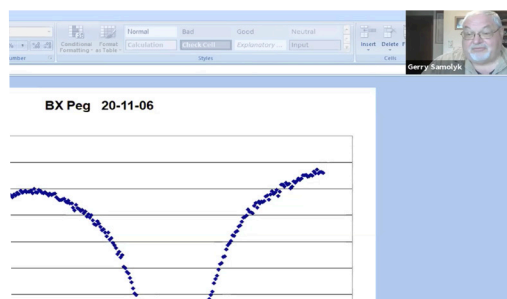
## 109<sup>th</sup> AAVSO Annual Meeting in Review

The 109<sup>th</sup> AAVSO Annual Meeting was originally to be held in Somerville, Massachusetts, along with in-person workshops on Data Mining and Spectroscopy. The pandemic forced us to convert to a virtual format, and we spread the events over three weekends between October and November.

The virtual format enabled people to participate who would otherwise not have been able to. Over 150 individuals from 26 countries attended some combination of the three events, making 2020's workshops and Annual Meeting the most international in the AAVSO's history!

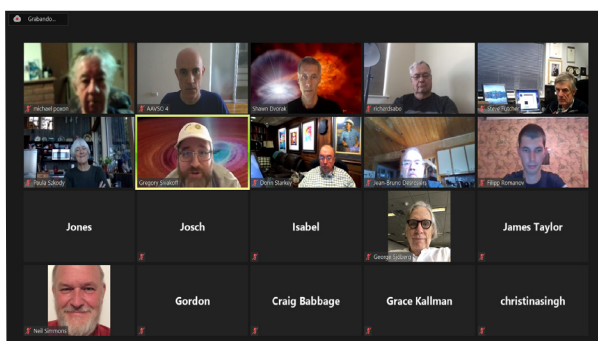
Data Mining Workshop attendees installed software on their devices prior to the workshop to follow the workshop leader, Colin Littlefield, in real time as he worked through the software. Spectroscopy Workshop participants received a wealth of information from leaders Ken Hudson and François Cochar, as well as from other knowledgeable presenters.

The online events were a great success—training, practice, and teamwork helped the events go smoothly, and attendee feedback showed a very high level of satisfaction. Although attendees could not enjoy conversations over a cup of coffee, the virtual format enabled them to meet colleagues from around the world, many of whom were



Gerry Samolyk at the 2020 Eclipsing Binaries break-out session, Annual Meeting Day 3

attending their first AAVSO event, and some of whom were connecting with fellow astronomy enthusiasts for the first time. Attendees new to the AAVSO learned how to contribute to variable star research with us.

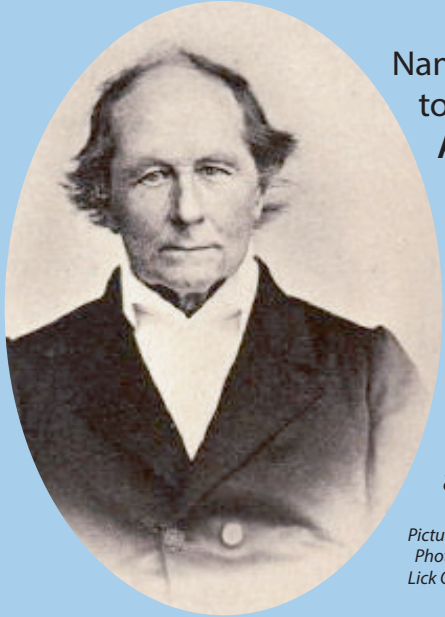


Attendees of the 2020 Cataclysmic Variables Observing Section breakout session, Annual Meeting Day 3

The workshops and the Annual Meeting were sponsored by QHYCCD, Obstech, Optical Structures, First Light Observatory Systems, and iTelescope.

We are also grateful for all the support of individuals!

## The Argelander Society



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

*Picture : Friedrich Wilhelm August Argelander (1799–1875)  
Photograph courtesy of the Mary Lea Shane Archives of the  
Lick Observatory, University of California-Santa Cruz*

The AAVSO gratefully acknowledges the benefactor members of

## The Argelander Society

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## AAVSO Benefactors, January 1<sup>st</sup>–December 31<sup>st</sup>, 2020

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Dr. David Eric Cowall  
Louis B. Cox  
Dr. Matthew Craig  
Charles T. Creigh  
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Mr. Patric Den Hartog  
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M Jean-Bruno Desrosiers  
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Albert D. Dukes  
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John David Ewan  
Jeffery Faulkinbury  
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Ronald L. Fournier  
Brent M. Fox  
Michael D. Freeberg  
Dr. Edward Friday  
Jeanne Friedman  
Joseph Fuller  
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Girolamo Gallo  
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Dr. Barbara Gail Harris  
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Liz Hays  
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Brian Russell Hill  
John A. Hodge  
Glenn Hoffman  
R. Russell Kent Honeycutt  
Dennis L. Hoofnagle  
Phillip Edward Countryman  
Hoppes  
Jeffery G. Horne  
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David Jackson  
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Yves Jongen  
Styliani Kafka  
Dr. Lancelot L. Kao  
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James Michael Kay  
Susan M. Kent  
Stephen Kerr  
Seiichiro Kiyota  
Michael Kohl  
Kevin L. Krisciunas  
Dr. John Philip Kuebler  
Yu-Hang Kuo  
Kristine M. Larsen  
Damien Lemay  
Jeff L. Lewis  
Bryce Lord  
Richard A. Loslo  
Dr. Thomas Herbert Maca  
Dr. Dipankar Maitra  
Patrick J. Manley  
Pedro Martorell  
Christopher W. Mauche  
Michael McClain  
Thomas McDonagh  
Patrick A. McDonald  
Dr. Jonathan McDowell  
Charlie McLeod  
James Bruce McMath  
Dennis L. Means  
Dr. Angela Osterman Meyer  
Edward J. Michaels  
Michael Moeller  
Shannon Morgan  
Dr. Siobahn Morgan  
Nancy D. Morrison  
Dr. Mario E. Motta  
Eileen Myers

continued on next page

Ken J. Myers  
Dr. Jeffrey Neil Myers  
Bob L. Napier  
Michael Nuss  
Wayne Osborn  
John Joseph Ott  
Dr. Frank Parks  
Dr. Peter M Perry  
R. Brad Perry  
Kenneth Wayne Pinney  
Velimir Popov  
Gerald Potter  
Dr. Read Predmore  
Alexander Purves  
Randal A. Putnam  
Allan Clarence Ranger  
Dr. Terry Wayne Reeves  
Richard Roberts  
George Robinson  
John Carl Roemmelt  
Richard R. Roland  
Victor Ruiz Ruiz  
Gerard Samolyk  
Johnny Scarborough  
Keith Shank  
Lawrence John Shotter  
John Simpson  
Henry Raymond Sipes  
Brian A. Skiff  
Horace Alden Smith  
Tovi Farber Sonnenberg  
Michael Soukup  
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David J. Sworin  
James Donald Sykes  
David Syndergaard  
Manuel Talero  
James C. Taylor  
Wayne Thomas  
Dr. John Gethyn Timothy  
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Jean-Louis Tressol  
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Gary Vander Haagen  
Elizabeth Otto Waagen  
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Robert Weissburg  
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Matthew Will  
Roger G. Williams  
Ralph Winrich  
Michael Witten  
Gary Lynn Wood  
Byron Wyman  
Dr. Tae Seog Yoon  
Paul A. Zeller  
Jose Ignacio Zuniga  
Leyendecker



## AAVSO Volunteers, October 1<sup>st</sup>, 2019–September 31<sup>st</sup>, 2020

### AAVSO Ambassadors

Krishna Acharya  
Alexander Beltzer-Sweeney  
Christopher Colvin  
Melanie Crawson  
Devanshu Jha  
Heather Laird  
Skylar Larsen  
Aakaash Narayan  
Ana Veronica Parra  
Christian Singleton  
Molly Wakeling

### AAVSO Headquarters

John O'Neill  
George Silvis  
Eric Dose

### AAVSONet

#### Science Advisor:

Arne Henden

#### Technical Support:

George Silvis  
Gary Walker  
Cliff Kotnik

#### Scheduler:

Ken Menzies

#### Site and

#### Operations Managers:

Helmar Adler  
Greg Bolt  
David Cowall  
John Gross  
Arne Henden  
Jon Holtzman  
Michael Linnolt  
Peter Nelson  
Bart Staels  
Preston Starr  
Bill Stein

#### Image Inspectors:

Louis B. Cox  
Duane Dedrickson  
Jean-Bruno Desrosiers  
Robert Dudley  
Damien Lemay

### AAVSONet, continued

#### Image

#### Inspectors, continued:

Kenneth Menzies  
**General Support:**  
Nigel Frost  
Dick Post

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Tom Bisque  
Bob Denny  
Doug George  
Arne Henden  
Jonathan Irwin  
Stephen Levine  
Ulisse Munari  
Aaron Sliski  
Tom Smith  
Bill Stein  
Dirk Terrell  
Doug Welch

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Marilyn Averill  
Alan Eisenberg  
Jeanne Friedman  
John Giudice  
Brian Kopperl  
Arthur Pfaelzer  
Diogo Teixeira

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Paul Benni  
Tom Bretl  
Tim Crawford  
Robert Fidrich  
Arne Henden  
Michael Poxon  
Erik Schwendeman  
Brad Walter  
Patrick Wils

### CHOICE Instructors

JoDee Baker-Maloney  
Raffaello Braga

Blake Crosby  
Jean-Bruno Desrosiers  
Brian Hill  
James Kay  
Kenneth Menzies  
Jeff Robertson  
Philip Sullivan  
Bradley Walter  
Ed Wiley

### Data Validation

David Jay Jackson  
Won Kim  
Bruce McMath  
Sherrill Shaffer  
Phil Sullivan  
Ed Wiley

### Mentor Program

Patrick Abbott  
Kevin B. Alton  
Alexandre Amorim  
Umair Asim  
David Benn  
John A. Blackwell  
Dave Blane  
Steve Boerner  
Robert K. Buchheim  
John Centala  
Gregory Conrad  
Michael Cook  
Chuck Cynamon  
Michel Deconinck  
Eric Dose  
James Foster  
Ron Fournier  
Jim Fox  
Girolamo Gallo  
Keith Graham  
Barbara Harris  
Richard Huziak  
Stella Kafka  
Stelios Kleidis  
Roger Kolman  
Yassir Lairgi  
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Kevin B. Alton  
Kristine Larsen  
Damien Lemay  
Mike Linnolt  
Patrick McDonald  
Kenneth Menzies  
Carlos Morales Socorro  
Peter Nelson  
Sebastián Otero  
Chuck Pullen  
Rich Roberts  
Tugca Sener  
George Silvis  
Chris Stephan  
Søren Toft  
Brad Vietje  
Ed Wiley  
William Wilson  
Joshi Yogeshkumar  
Dileepkumar

## **Software Development and Support**

David Benn: VStar  
Dan Burger: AAVSO Target Tool  
Dennis Conti: Exoplanet Database Tools  
Matthew Craig: VSP  
Stephen D'Souza: Auto-validation tool, VPhot  
William Goltz: LCGv2  
Francis Hemsher: LCGv2  
Dave Hinzl: VStar  
Cliff Kotnik: VStar, Remark-omatic, AAVSONet  
Kenneth Menzies: VPhot, AAVSONet  
Diane Menzies: VPhot  
Maksym Pyatnytskyy: VStar  
George Silvis: Exoplanet Database Tools, VPhot, AAVSONet  
William Toomey: AAVSONet  
John Weaver: AVSpec  
Patrick Wils: VSX

## **Translators**

Martin Aus  
Fatemeh Bahrani  
Amina Dugalic

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Klaus Bernhard  
Patrick Schmeer  
Patrick Wils

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#### **Workshop chair**

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Gordon Myers  
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### **AAVSO Data Mining Workshop**

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Kosmas Gazeas  
Laszlo L. Kiss  
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Ulisse Munari



## **JAAVSO, continued**

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Nikolaus Vogt

## **Section Leaders**

### **BSM**

David Cowall  
Arne Henden (Science Advisor)  
George Silvis (System Software  
Advisor)  
Kenneth Menzies (System  
Technical Advisor)

### **Cataclysmic Variables**

Shawn Dvorak  
Patrick Schmeer

### **Eclipsing Binaries**

Gerard Samolyk

### **Exoplanets**

Dr. Dennis Conti

### **High Energy Network**

Dave Hinzel

### **Instrumentation and Equipment**

Richard Berry (Leader)  
Arne Henden (Resource)  
Bob Massey (Resource)  
George Silvis (Resource)  
Gary Walker (Resource)

### **Long Period Variables**

Richard Roberts  
Dr. John Percy (Science Advisor)  
Dr. Lee Anne Willson (Science  
Advisor)

### **Photoelectric Photometry**

Tom Calderwood

### **Short Period Pulsating Variables**

Eric Hintz  
Melanie Crowson (Assistant)  
Gerard Samolyk (Assistant)  
Dr. Horace Smith (Science  
Advisor)  
Dr. Doug Welch (Science  
Advisor)

## **Section Leaders, continued**

### **Solar**

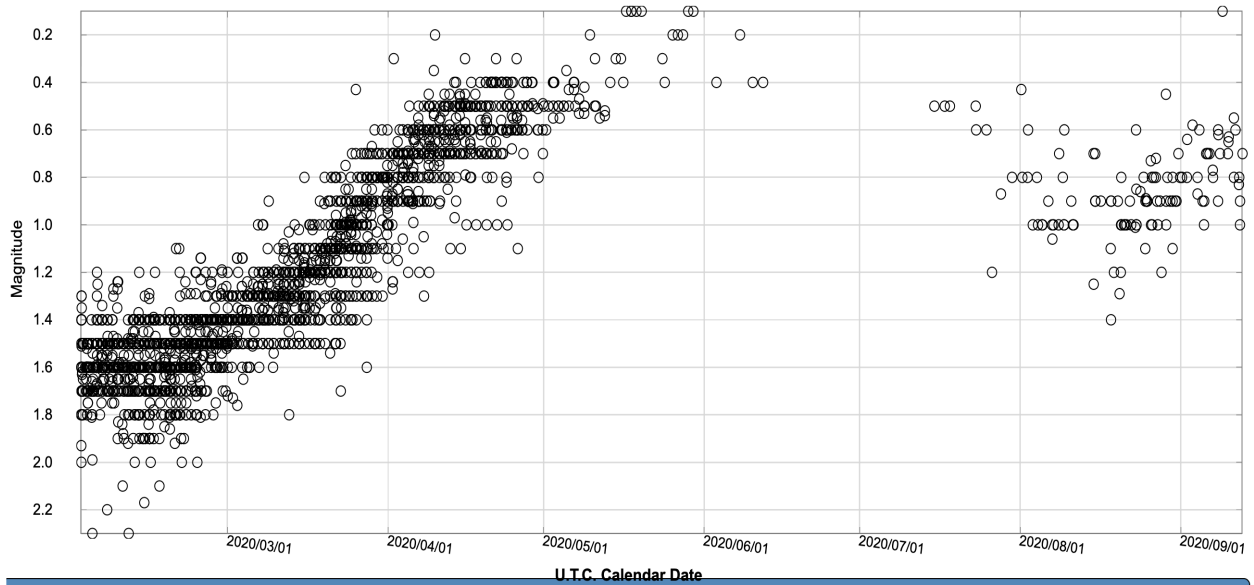
Rodney H. Howe  
Kristine Larsen  
Kim Hay

### **Spectroscopy**

David Whelan  
Ryan Maderak  
Ulisse Munari

### **Young Stellar Objects**

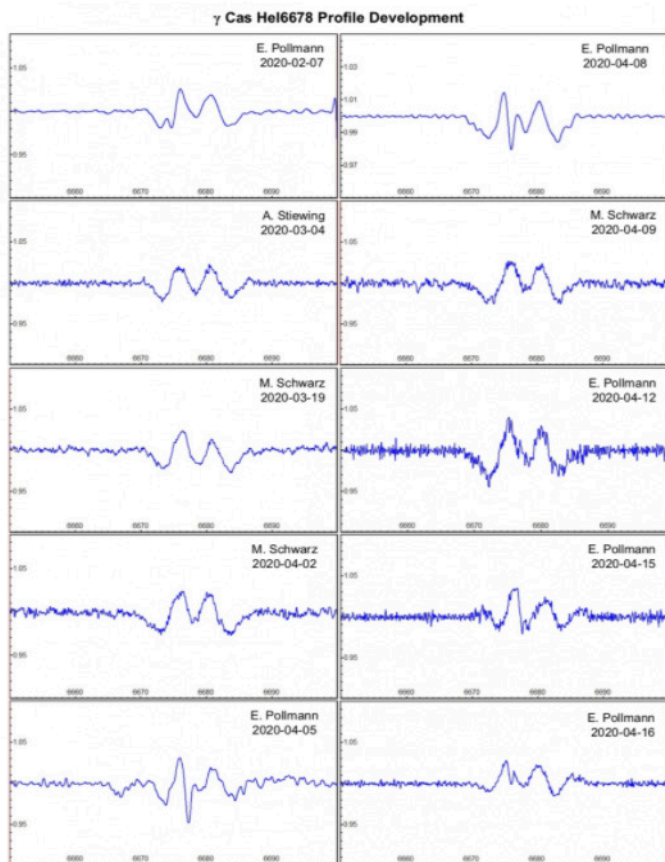
Michael Poxon  
William Herbst (Science Advisor)



Contributors to this Plot  
2,455 observations of the 2,455 total observations for this star.

Alphabetical ▾

Betelgeuse light curve of visual observations from AAVSO observers, February 1, 2020 to September 12, 2020



This spectra sequence shows a short overview of spectra from February to April 2020, taken with the spectrograph LHIRES III (R ~ 17000) and different telescopes. Coordinates: R.A. 00 56 42.53 Dec. +60 43 00.3 (2000.0) (source: VSX page for gam Cas)

gam Cas is an observing campaign star: <https://www.aavso.org/aavso-alert-notice-707>

# Treasurer's Report

October 1, 2019 to September 30, 2020

Robert Stephens, Treasurer, AAVSO, 49 Bay State Road, Cambridge, MA 02138

## American Association of Variable Star Observers Statement of Financial Position, September 30, 2020

### Assets

#### Current Assets

Cash and cash equivalents	\$548,290
Prepaid expenses	23,606
Investments	<u>11,962,011</u>
<b>Total Current Assets</b>	<u>12,533,907</u>

<b>Property and Equipment, Net of Accumulated Depreciation</b>	<u>1,174,455</u>
<b>Total Assets</b>	<b>\$13,708,362</b>

### Liabilities and Net Assets

#### Current Liabilities

Accounts payable and accrued expenses	\$56,362
Prepaid membership dues and meetings	<u>54,356</u>
<b>Total Current Liabilities</b>	<u>110,718</u>

#### Long Term Liabilities

Security deposit and last month's rent	<u>9,161</u>
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#### Net Assets

Without donor restrictions	10,043,213
With donor restrictions	<u>3,545,270</u>
<b>Total Net Assets</b>	<u>13,588,483</u>
<b>Total Liabilities and Net Assets</b>	<b>\$13,708,362</b>

**American Association of Variable Star Observers  
Statement of Activities and Changes in Net Assets  
For the Year Ended September 30, 2020**

**Changes in Net Assets Without Donor Restrictions  
Unrestricted Revenues, Gains and Other Support**

Contributions and grants	\$82,451
Membership dues and fees	88,374
Sales of publications and related material	5,648
Meeting fees	34,005
Annex rent	36,643
Investment income	370,133
Unrealized gain (loss) on investments	(169,198)
Gain (loss) on sale of investments	<u>(428,045)</u>
20,011	
Net assets released from purpose restrictions	<u>15,513</u>
<b>Total Unrestricted Revenues, Gains and Other Support</b>	<b>35,524</b>

**Expenses**

Program Services:	
research, data collection, publication, and meetings	708,747
General and administrative	249,450
Fundraising	<u>39,420</u>
<b>Total Expenses</b>	<u>997,617</u>

**Increase in Unrestricted Net Assets** (962,093)

**Changes in Net Assets With Donor Restrictions**

Contributions and grants	24,023
Investment income	6,876
Unrealized gain (loss) on investments	(3,143)
Gain (loss) on sale of investments	(7,951)
Assets released from program restrictions	<u>(15,513)</u>
<b>Decrease in Temporarily Restricted Net Assets</b>	<u>4,292</u>
<b>Increase (Decrease) in Net Assets</b>	<u>(957,801)</u>
<b>Net Assets – Beginning of Year</b>	<u>14,546,284</u>
<b>Net Assets – End of Year</b>	<b>\$13,588,483</b>

“Thank you!” to all of our incredible donors, observers, members, and program participants for your valuable support and contributions throughout the year! You each make the AAVSO’s work and astronomical discoveries possible, and you have a lasting positive impact on the scientific community!

