Annual Report 2025

The Board of Directors and members of the Astronomy Section of the Rochester Academy of Science gratefully acknowledge the continuing support of the Marian and Max Farash Foundation which enables us to achieve our goals,

"the education of members and the general public in the knowledge and enjoyment of the wonders of the universe, and to furthering the understanding of astronomy in the Greater Rochester area".

CONTENTS

*Who and what we are

Our Observatory

The Marian and Max Farash Center for Observational Astronomy

Ionia, NY

The Farash Center, comprising 17 groomed acres, 12 observatory, meeting and storage buildings, provides the central meeting place for our members and guests.

Image courtesy of ASRAS member Nick Lamendola

Our Membership

We experienced net membership shrinkage during 2025. We feel that this was because we experienced significant membership growth in 2024 because of the April eclipse. The disappointing clouds on that day may have precipitated the loss of many newly joined members when it came time for renewal in 2025. Since the loss of nonrenewed members in March 2025, our membership has resumed its steady growth, from a nadir of 266 to 287 at the end of the year. Starting in October 2025, we implemented online membership renewal through our website. Members can renew by PayPal or credit card, making it much easier to join or renew. For those who prefer, members can still renew with check or cash.

*Marian and Max Farash Center for Astronomical Observation

Improvements

2025 saw additional maintenance and improvements at the Farash Center, supported in part by funds received from the Farash Foundation:

- The pivots on the clamshell of our largest observatory ("The Big Dome") were reinforced, improving performance and safety.
- The older telescope in the Brewhouse was replaced with a donated Meade 12" Melior refractor. This telescope is supported by a new pier, purchased with Farash Foundation funds. This telescope will provide spectacular views of deep sky objects.
- The deck surrounding our classroom building was reinforced. It is anticipated that the entire structure will soon require replacement due to deterioration of the supporting joists.
- We have begun protective coating application to the Tinsley dome, which will protect the equipment inside.
- Tree removal continues to improve views of the sky to the northeast and northwest. Some tree removal was also necessary to protect observatories. An experienced member and his crew removed one black walnut tree. The remainder are being removed by a tree service for safety.

(above) Adding Flexseal to protect the Tinsley dome from weathering (in process). *Credit: Roger McDonough*

Use by the Community and our Members

The Center grounds are open at all times to our membership. Those who have been members for at least 2 years and have demonstrated proficiency and responsible use of the buildings and telescopes are eligible to receive keys to the buildings.

In addition, we regularly hold public and membership events at the Center, described elsewhere in this report:

- Monthly meetings and lectures (page 6)
- Observing nights (page 6)
- Open Houses (page 6)
- Public Star Parties (page 5)
- The Astronomy Forum – Astro 101 (page 4)
- Scouting and other youth activities (page 4)

RocheStar Fest

This is an annual event held at the Center on a weekend in July or August, timed to coincide with a new moon. The event is open to all members as well as the public. Friday evening activities include Name that Tune and Astronomy Trivia. Saturday activities include a silent auction, door prize drawing, a series of talks in the afternoon, and an evening meal. During the evening meal, there is a keynote address given by an outside speaker.

Weather permitting, many of the observatories are opened for the viewing pleasure of the participants.

RocheStar Fest is one of the two most anticipated events of our year!

*Outreach and Education I

Youth Participation

We had eight youth groups and five public observing nights with youth in attendance at the Farish observatory this year. Youth participants included boy scouts, cub scouts, girl scouts, and school groups. Families with youth also attend our open houses as well as our nights at the Strasenburgh Planetarium.

Our camping fire area is designed to be as far from the telescopes as possible and still be on our property. Saturn and the moon were our primary targets last fall.

We had one little boy who was left out of the scout activities. One of our members put him on the telescope and zoomed in on a lunar crater just as the sun was starting to light it up. We will never forget the expression on his face.

Connecting with a diverse audience within the community has been a rewarding endeavor, and we continue to work with the local scout chapters to bring the joy and excitement of Science to all. Teaching science to children lays the foundation for appreciating the world around them and fosters a sense of curiosity and inquiry.

The programs we run at ASRAS encourage children to explore concepts of the natural world to help make sense of everyday phenomena. They are encouraged to think critically about the information they encounter which in turn helps them build those solid foundations of knowledge. Our programs also offer opportunities to become a lifelong learner. How children engage in learning activities, the interactions between them when solving problems, and how they build relationships with the community around them can energize them into becoming stewards of learning. Science education opens the doors to diverse perspectives and cultures, helping children to understand that knowledge is not static but evolves over time through collaboration and discovery.

Our overarching goal has always been to educate, inform, and excite the community about the significance of space exploration, the impact of technological advancements, and the rich historical context surrounding these topics. We strive to ignite a sense of wonder and appreciation for the universe, which we believe can inspire the next generation of scientists, engineers, and informed citizens. Moreover, our reputation as a reliable resource for astronomical knowledge and assistance is reflected in the consistent inquiries we receive for help with observing sessions, school visits, and project collaborations. This regular engagement from the community demonstrates the effectiveness of our outreach efforts and underscores the demand for astronomy-related education.

(left) A scout enjoys a look at the sun (with proper filtering, of course) during a a weekend overnight at the Farash Center for Observational Astronomy.. *Credit: Joe Altieri*

(right) A happy Scoutging unit during a weekend overnight at the Farash Center for Observational Astronomy. *Credit: Joe Altieri*

The Astronomy Forum

The ASRAS Forum, or “Astronomy 101”, is a monthly educational opportunity for all members. Its main target audience is members who are new to astronomy. Depending on the nature of the presentation, some sessions are blended (Zoom + in-person) and some are Zoom only. Most Forums are also recorded and posted on the ASRAS website and on YouTube for later viewing by members unable to attend on the date of the presentation. Many of these sessions combine didactic presentations with practice skills-based activities. We invite less experienced members to present topics with help and mentoring by more experienced members – “beginners teaching beginners” in many cases. Attendance continues to grow steadily, currently varying from 15-30 per session.

The 2025 Forum schedule included the following:

- January *Earth Stuff, Star Stuff, Element, and Isotope Basics* by Tony Golumbeck
- March *How to Talk to People About Science* by Jim Bader
- April *Cool Stuff to Know About a Hot Object: Our Sun* by Craig Kaplan
- May *How to Buy a Telescope* by Anthony Krishock
- June *The Voyager Mission: First Real Pictures of Jupiter, Saturn, Uranus, and Neptune* by Jim Porter
- September *Optics 101 for Beginning Astronomers* by Craig Kaplan
- October *DIY Astrophotography with a Smart Phone* by Kevin Lyons & Brian Oyer

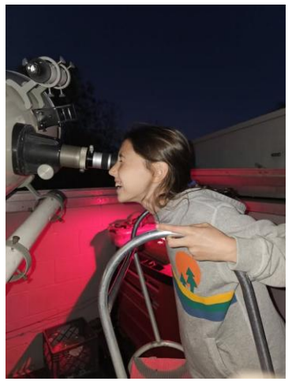
*Outreach and Education II

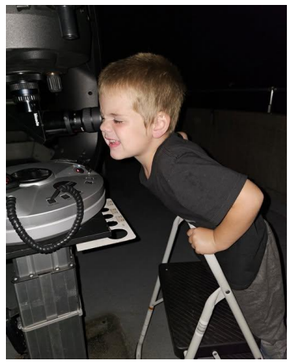
Public Star Parties

ASRAS was able to open up our observing site to the public offering six months of Dark Sky viewing from the Marian & Max Farash Center for Observational Astronomy.
From May through October 2025, monthly on a Friday evening, the Astronomy Section advertised on Facebook, our own Website, the Night Sky Network, and the AstroSpheric Weather App that our site was open to the public for observing popular, and even some rare, celestial objects. Over 200 people attended these six events to find many celestial beauties each of these nights through our club telescopes and members' telescopes.

Strasenburgh Planetarium Observing

ASRAS continues to collaborate with RMSC Strasenburgh Planetarium Director Jim Bader. We use two large telescopes that are mounted on a platform on top of the planetarium dome. Senior members Jim Seidewand and Don Chamberlain continue to offer views of the sky on Saturday nights (weather permitting), supported by members Al Russell, Frank Plavec, and Craig Kaplan. For 2025, we provided 18 Saturday nights of public observing. During these months, we had approximately 1400 visitors. Volunteerism was up, with a total of 65 nights worth of volunteer time.





(above) Young visitors to the Strasenburgh observation deck enjoy planetary and lunar views on Saturday nights. *Credit: Facebook.*

Mees Observatory Tours

ASRAS Past President Mark Minarich led a Tour Guide team of 23 ASRAS and University of Rochester volunteers facilitating our outreach efforts with Mees Observatory. Summer on – site tours were quite successful in 2025, with 15 ASRAS members and nine students/ faculty joining the combined ASRAS/UR team. In that format, 17 tours were supported, and 59% of those included telescope observing, thanks to many nights with clear skies.

All tours were fully reserved, and long waitlists built up, as witness to the high degree of interest in the tour offering. In all, 337 guests visited this summer and were delighted with their time at the observatory.

(far left) ASRAS at an RMSC event in Rochester.

(left) VP David Bishop leads an observing session in Ionia.
(right) Past President Mark Minarich continues to schedule and lead Outreach for ASRAS in 2023. He also took over as Mees Summer Tour Director.

Image credits: Quinn Freidenburg, documentarian, RIT Photojournalism student.

Member Activities

ASRAS Monthly Meetings & Lectures
In-Person, online

Throughout 2025, ASRAS hosted monthly membership meetings primarily In-person, but also simulcast over the internet. Because some members attend virtually only (due to health complications, travel, or where they reside), we continue to offer virtual as an option. This is also helpful when the weather is poor for travel. After each meeting we send out the meeting slides to the members, and we post a video of most Presenters' talks online, for viewing at the convenience of members: https://www.youtube.com/playlist?list=PLUKWxnvjYq6ir1s1dpz86HiwAfx0yp2MX

2025's meeting talks included:
Dan Schneiderman (RMSC), *"Continuing Space SciCom in Rochester Post-Eclipse"*
Anna Ho (Cornell), *"The Landscape of Stellar Death"*
Jim Porter (NASA, retired; ASRAS), *"NASA Migration to Laser Comm"*
Jitrapon Lertprasertpong (RIT PhD cand.), *"Galaxy Formation, Evolution, & Death"*
David Bishop (ASRAS) *Astronomy Year in Review*
Kevin Wrighter (NASA, UofR) *"OSIRUS REx sample from Bennu"*
Martin Pepe (ASRAS, RIT)i, *"Radio Astronomy in Western NY"*
Matt East (L3Harris), *"The Search for Earth-like Planets"*
Sadie Coffin (RIT PhD cand.), *"How Volunteers in Citizen Science Help Unlock Galaxy Evolution with Spectroscopy: The Redshift Wrangler Project"*
Nicholas Warner (SUNY Geneseo), *"Crater Morphology on Mars"*

RocheStar Fest 2025 group photo. Image: Peter Blackwood

Open Houses

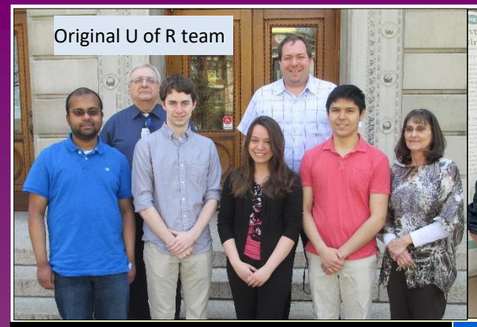
Led by Site Manager Roger McDonough, in 2025 ASRAS held 12 open houses, one each month, hosting hundreds of people total, and giving members an opportunity to learn the buildings and equipment in the daylight. Generally, they occurred on a Sunday from noon until 3p.m. or later if the skies are clear.
New in 2025, ASRAS held two Member Equipment Training nights in July and August 2025, providing hands-on observatory and telescope instruction and training. Thanks to Frank Bov, Mark Minarich, Dave Bradley, Tony Golumbeck and James Bossert for instructing.

Observing Nights at Farash Center

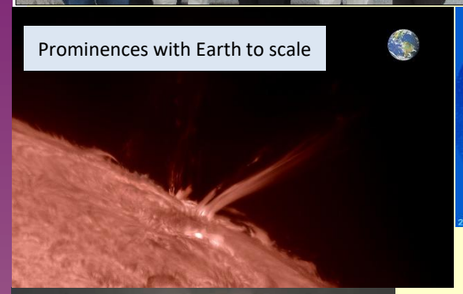
Picking the optimal Moon phase for deep sky observing and imaging, we schedule a series of observing nights at the Farash Center for members. On these evenings, the many observatories are put to use, plus members' personal equipment. Besides these scheduled events, on numerous other occasions members came to observe under the Farash Center's clear, dark skies.

(above and right) Members enjoy observing nights using their own equipment on concrete pads at the Farash observatory. The pads are conveniently supplied with power.

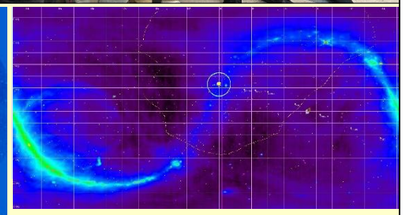
*Science I: *ART* – Autonomous Solar Radio Telescope

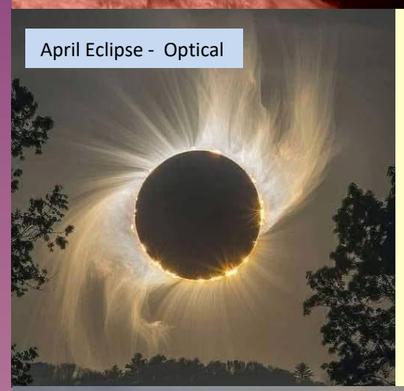

Original U of R team


Present MSD team


Prominences with Earth to scale

CME Launched From Sun




April Eclipse - Optical

! This year's engineering team has worked very hard to achieve a significant milestone, that of ***installing*** the hardware for the Solar Radio Telescope @ ASRAS's site in Ionia, before year's end. ☺

Recognition goes out to the Farash Foundation, for their continued STEM support, and a very special thanks has to go to Al Ureles specifically, for having faith in our multi-year effort. Additional recognition has to be given to the MSD program at RIT, whose Lab & Facilities at the Kate Gleason College of Engineering has made all this a reality. It has been a very long journey, from the first U of R team characterizing the Ionia Site's horizon {far left} , to ***NOW***. A total of **54** undergrad students have had a piece of this project. Something this size, would have taken a large NASA team a long time, and a much bigger budget $$$.

ART is the very first Solar Radio Telescope to record, in stereo, the Sun's RF signal, with a Dish and the local related 'ambient noise' with a DiPole, mounted on the back of the dish as it tracks the Sun, every 15 minutes. Why go through all this trouble? Even remote areas are electrically quite noisy with RF interference, crowded Europe is especially bad at these operating frequencies. Our RF data spans from 45 MHz to 890 MHz, in 1/16th (0.0625) MHz 'slices', or 13,202 data points for VERY fine detail, for EACH channel. You've seen the Solar System in the visible (Stellarium, etc.) now we can model it in the RADIO Spectrum (~ 408 MHz) of the Solar Eclipse (Apr/8/24) {*center right*}. This system tracks the Sun from the morning Sunrise to Sunset, **Autonomously**, with **NO** human intervention or supervision.

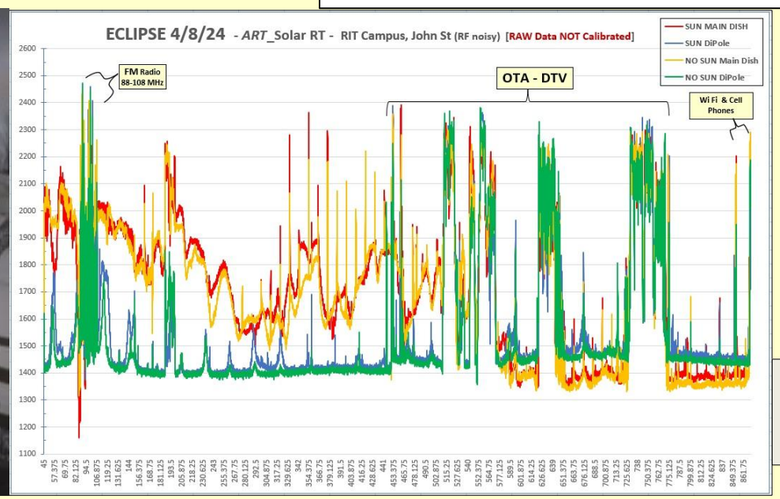
While we can't prevent Solar disturbances from happening, the scale is way too grand,{Mid Left} this solar radio telescope can act as an 'early warning indicator' that a storm is incoming with a 2 – 3 day notice {Mid Center} . In our increasingly sophisticated electronic world this can help us minimize disturbances and outages to our electrical grid, satellite operations, and transportation (both air & rail). Its not a matter of ***if*** it will happen, but a matter of ***when***! *None* of the present solar satellites look at the Sun in the **RF** spectrum. A direct hit, can be especially damaging, the one that happened in Canada in 1989, burned out a large transformer {*Lower Center*} and blacked out all of Quebec in the middle of winter. In the past, these solar storms have wreaked serious havoc on this little blue marble we call home.

We plotted the data from the April WNY Solar Eclipse done on the RIT Campus. It clearly shows a pronounced difference between the Main Dish Signal and the DiPole. The MID frequencies being the RF Signal from the Sun. Also notice that the higher dish frequencies are LOWER than that of the DiPole which verifies the Front to Back Ratio of the Dish, for rejection of the DTV signals coming out of the City of Rochester (Ch 8, etc.) Our efforts have not been without peril, a wind storm came up a week before the Eclipse, crashing our Dish. ☹

Our Callisto station in Ionia, NY, is called '**KROC-USA**'. Temporary summers of testing at the site (lower, right) have paid off. Our hope is that we will be sending actual Sun data daily to Zurich, SZ for the professional HelioScientists to use, **soon**.

Will this be the dawn of a new age for Solar Science ? ***We certainly hope so.***


Main Building (West)

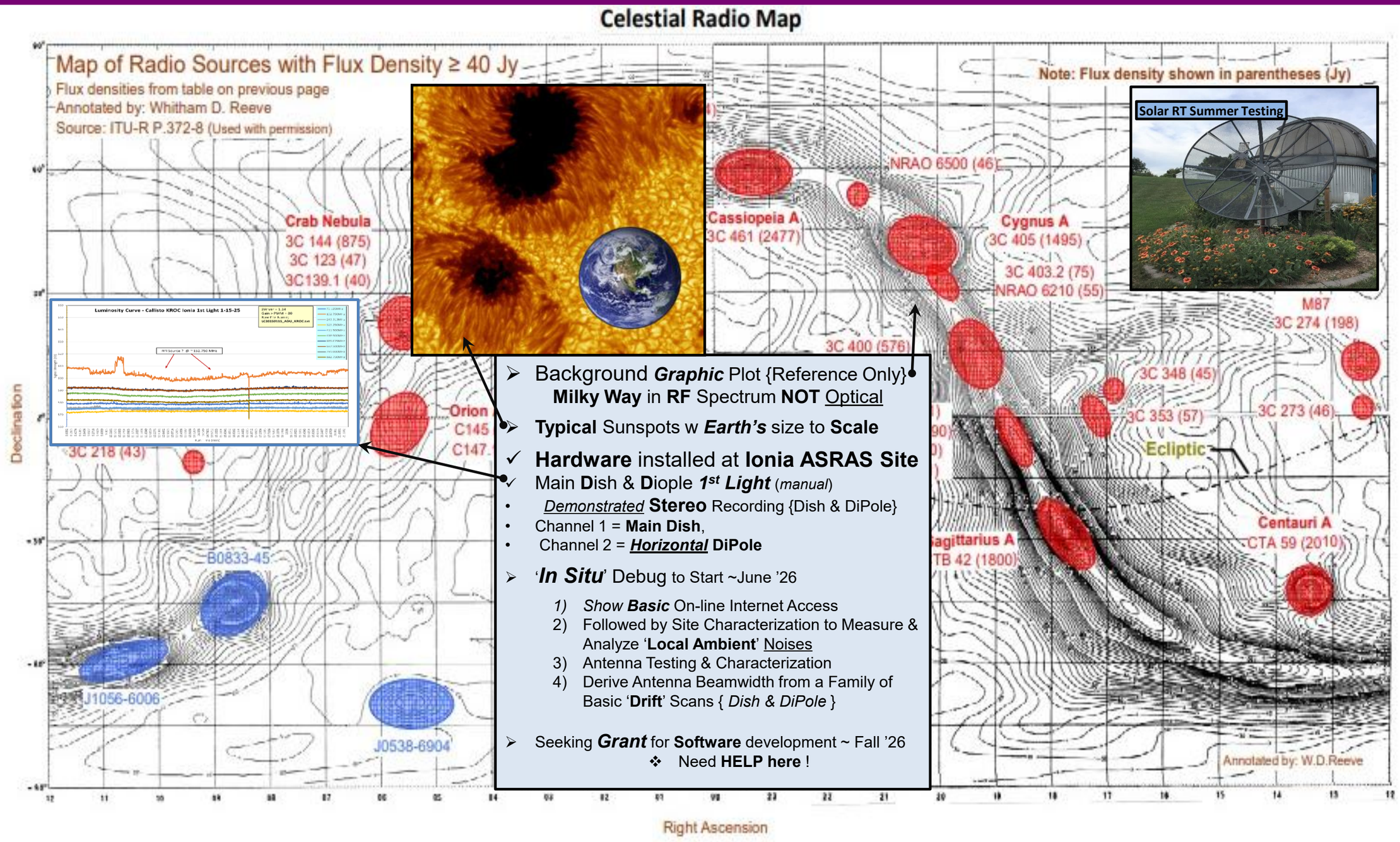


Do you know what your Sun is doing today? **ART does!**

Sincerely,
Martin Pepe

Cut & Paste This Link to the team's Video !
https://www.rochesterastronomy.org/wp-content/uploads/2025/02/ART_Solar_RT_20965_L_Talk_2025Feb22.mp4

Science I: *ART* – Autonomous Solar Radio Telescope



- ➢ Background ***Graphic*** Plot {Reference Only}
  Milky Way in **RF** Spectrum **NOT** Optical
- ➢ **Typical** Sunspots w ***Earth's*** size to **Scale**
- ✓ **Hardware** installed at **Ionia ASRAS Site**
- ✓ Main **D**ish & **D**iople ***1st Light*** (*manual*)
  - *Demonstrated* **Stereo** Recording {Dish & DiPole}
  - Channel 1 = **Main Dish**,
  - Channel 2 = ***Horizontal*** **DiPole**
- ➢ '***In Situ***' Debug to Start ~June '26
  1) *Show **Basic*** On-line Internet Access
  2) Followed by Site Characterization to Measure & Analyze '**Local Ambient**' Noises
  3) Antenna Testing & Characterization
  4) Derive Antenna Beamwidth from a Family of Basic '**Drift**' Scans { *Dish & DiPole* }
- ➢ Seeking ***Grant*** for **Software** development ~ Fall '26
  - ❖ Need **HELP here** !

Sincerely,
Martin Pepe

*Science II: Supernova Web Page

ASRAS member David Bishop has made the cataloging of supernova a study of his. A quarter of a century ago Dave made a list of the currently observable supernovae (plural of supernova). The list was designed so that people could easily see what objects were visible. His webpage is the only source of supernova reference images on the web http://www.RochesterAstronomy.org/snimages. It has been cited in many technical papers.

The supernova web page sponsored by ASRAS is the only place on the web where you can find what supernovae are currently observable. Visit it at www.rochesterastronomy.org/supernova.html

From David:

"In the year 2025 our brightest supernova was 2025rbs in NGC 7331 (near Stephan's Quintet in the constellation Pegasus). This object got up to magnitude 11.9, making it visible in amateur telescopes. The club was actually able to look at this object during our annual picnic.

We cataloged more than 25,000 supernova in 2025 on our web page. The supernova web site gets over 150,000 hits per year and is used by both amateur and professional astronomers. We started a new service for cell phone users this year which has substantially increased our web hits."

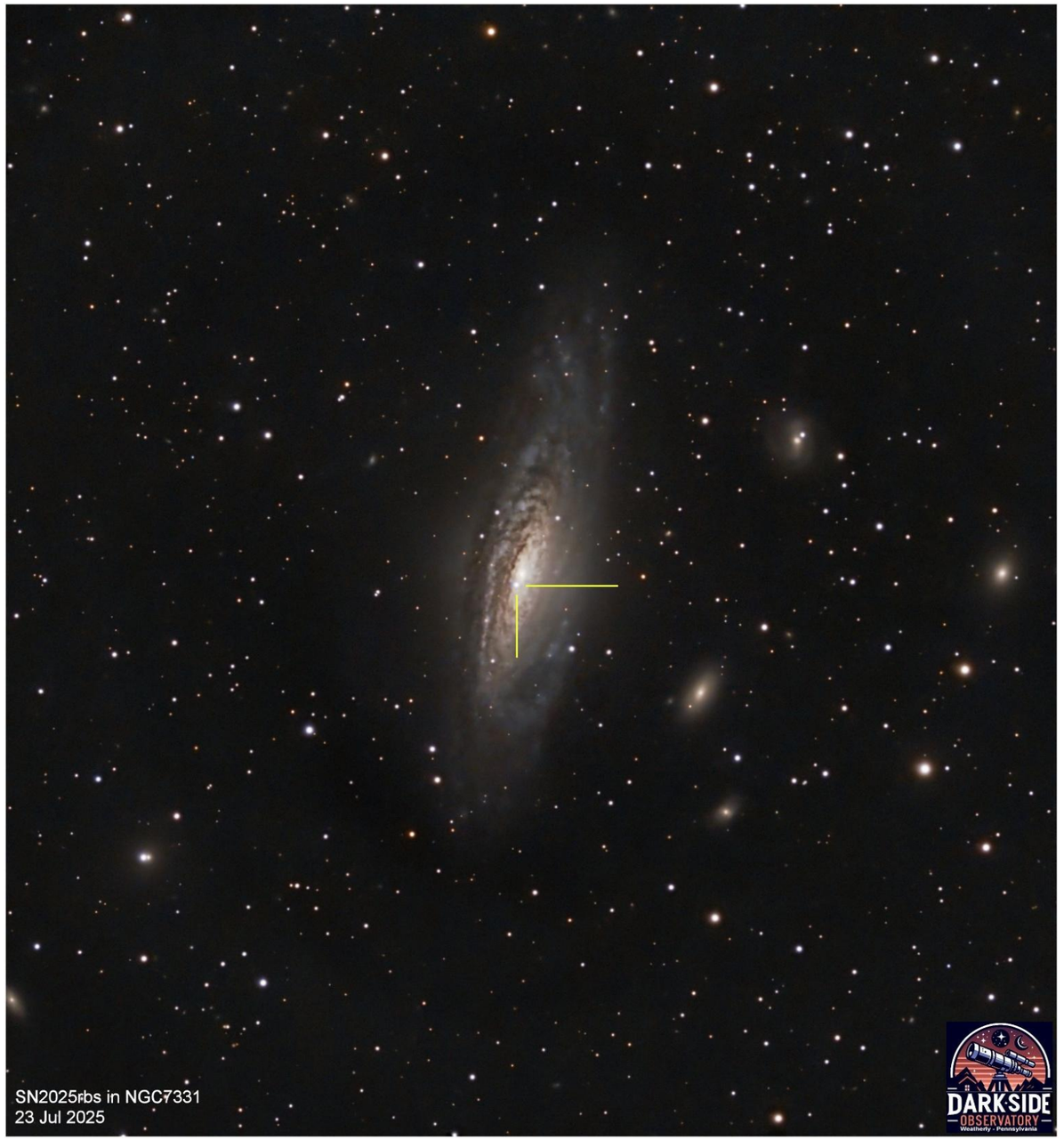
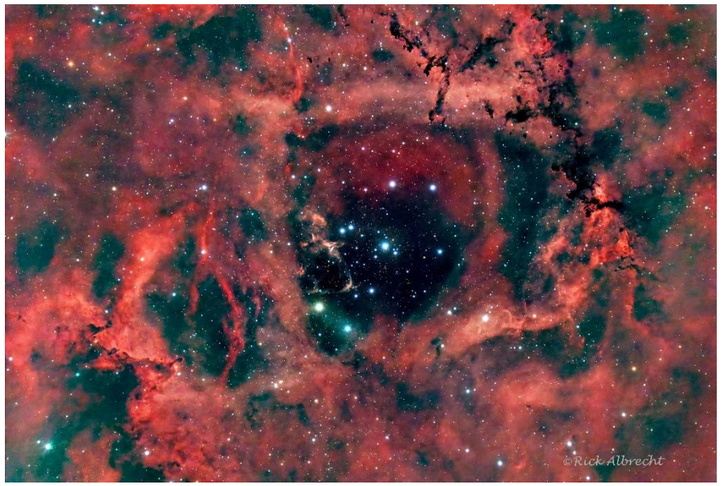


Image Credit: Darkside Observatory https://sites.google.com/view/thedarksideobservatory/deep-sky-astrophotography/nova-and-supernova

*Astrophotography

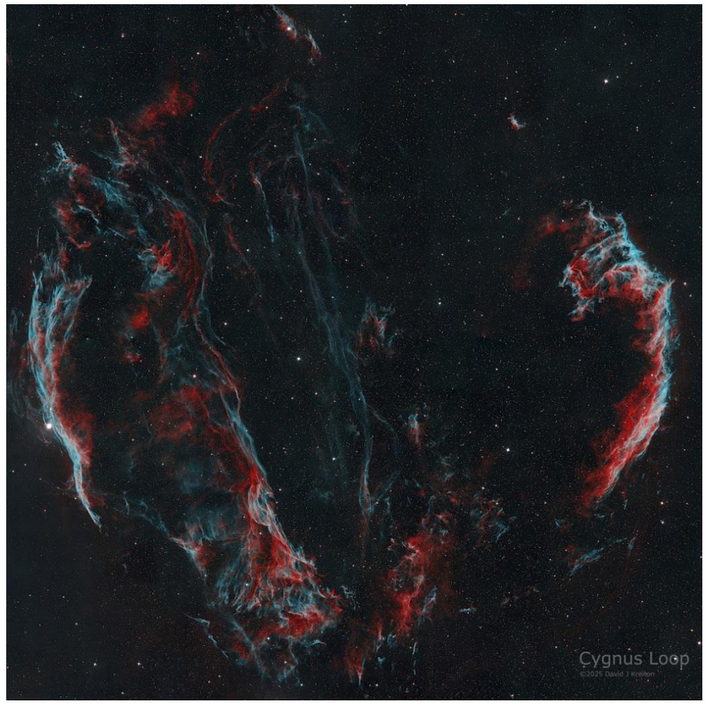
Member Astrophotography

ASRAS members continue to refine and improve their astrophotography skills using their own equipment or equipment available to them at the Farash Center. Techniques learned from experience and fellow members who enthusiastically share their knowledge help create images such as these, which are included on our website and newsletter, shared online with members, and routinely posted to online sharing sites. Our annual Holiday show at the Strasenburgh Planetarium features many member photographs taken throughout the year.

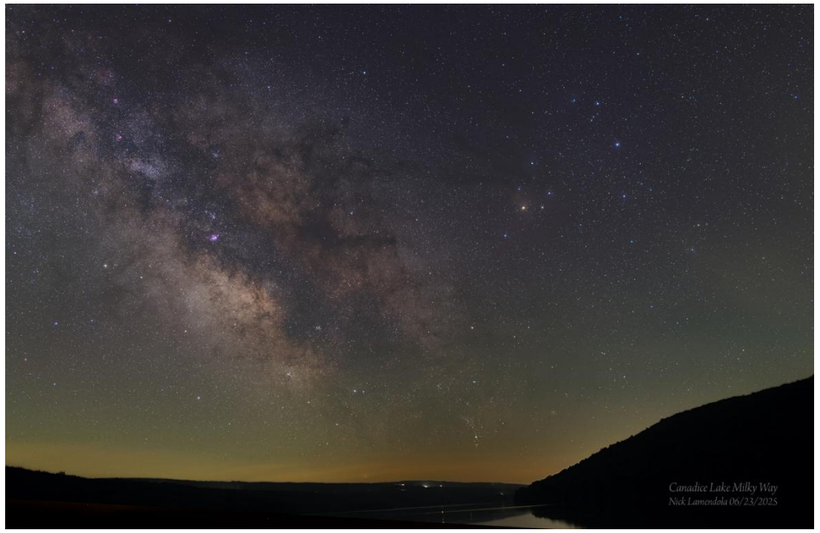


Credit: Rosette Nebula (Rick Albrecht)

Credit: Lunar Eclipse (Kevin Lyons)



Credit: Veil Complex (David Kreiter)



Credit: Milky Way (Nick Lamendola)

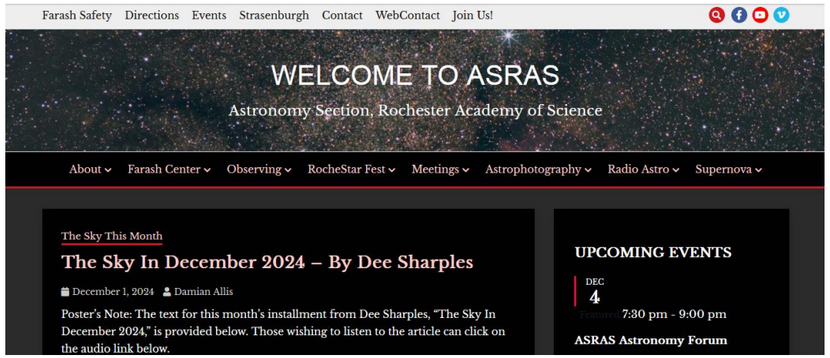
Credit: Venus near Inferior Conjunction (Douglas Kostyk)

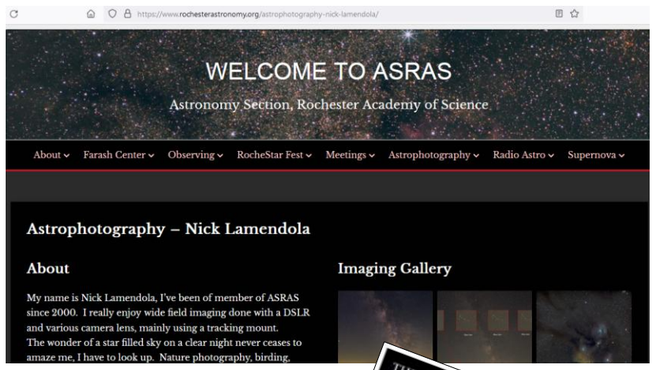
*Communications

ASRAS Website moves to a new host!

www.rochesterastronomy.org

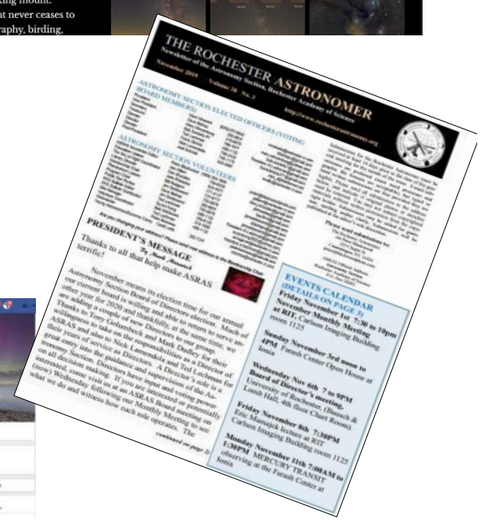
In 2024, the ASRAS Board approved changing our website host to one that included many services, such as secure socket layer (SSL), by default, rather than continuing to pay extra for those. Thanks to Damian Allis, Ph.D., this transition continues to go smoothly. The new web host made it possible to institute online membership joining and renewal, adding credit and debit cards to previous methods of payment. .





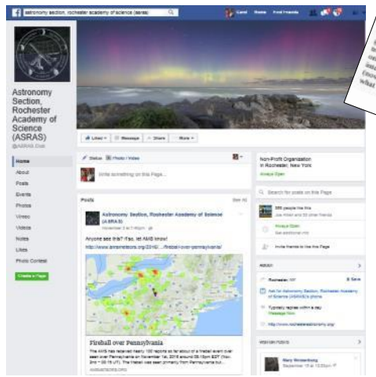
Monthly Newsletter

Put together monthly by member Steve Fentress, *The Rochester Astronomer* is our monthly newsletter, keeping members connected with ASRAS. It features reminders about upcoming events, activity recaps, fascinating astronomy articles, and essential member updates. With a 44.8 open rate among an average of 256 recipients, the Newsletter is a valuable resource for staying informed about what's happening in ASRAS.



Facebook

The ASRAS Facebook page continues to function as a public outreach and serves as an avenue to draw local interest to our public star parties, Farash Center open houses, monthly lectures, and more. Many of those who attend our public events become members! Currently, our page has over 1800 Likes and 2100 followers, up 13% from 2024.

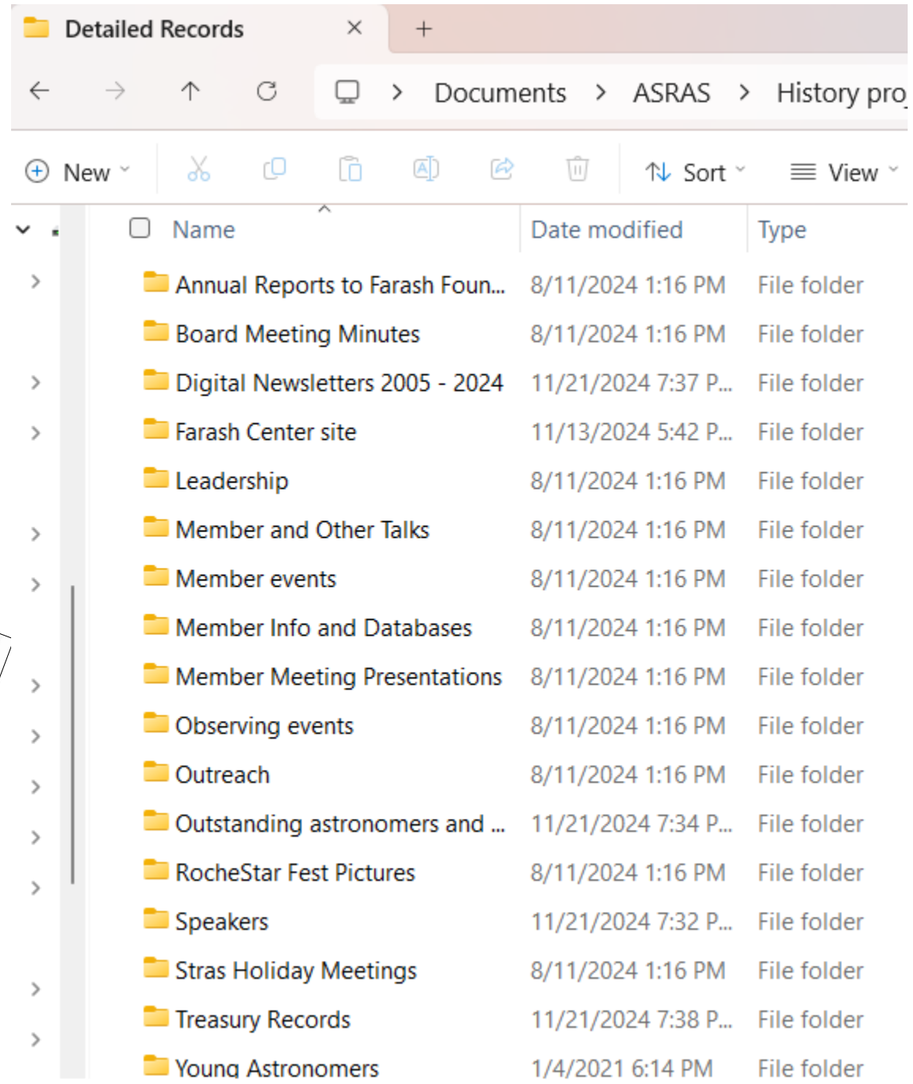


ASRAS internet provided by:

frontier Communications

ASRAS Historical Information Project (AHIP)

ASRAS Historical Information Project (AHIP) is refreshed annually with formal and informal records of our Section. All vital 2025 documents and records will be added to the previously- stored files when those items are finalized, and not later than January 31 each year. Each is converted to PDF format as it is added, to avoid software version level from becoming a barrier to retrieval of the information in future. All AHIP records are backed up in the cloud and on a hard drive for safekeeping.



*Achievements, Financial Position, and Plans for 2026

2025 Achievements

Member Events

- 23 member events with talks
- 14 member observing events (incl monthly meetings at Farash)
- 12 member social events and open houses
- XX work parties
- 12 board meetings

Outreach Events

- Eight Public observing nights at Farash
- Eight Scouting events
- 18 Observing Saturday Nights at the Planetarium
- XX School and community events
- XX Community festivals

Thousands of individuals were touched by astronomy-related experiences provided by ASRAS

Scientific Achievement Areas

- Supernova website
- Radio Telescope Project
- RAS Fall Paper Session at SUNY Brockport

Farash Center Improvements

- "Big Dome" pivot reinforcement and maintenance
- Continued tree removal to improve amount of clear sky
- Phase I of installing donated Melior 6" refractor
- Educational Building deck reinforcement
- Protective coat application to Tinsley dome

ASRAS Financial Position

In 2025 ASRAS continued to be financially sound, thanks primarily to a robust membership base and its investments. ASRAS funds were stable in 2025; income exceeded expenses by $23,200. At year's end the total of our assets was $147,902. Site repairs and maintenance continue to be major expenditures, including tree removal and other building and infrastructure maintenance. ASRAS continues to provide a wonderful astronomical resource to the community while keeping dues affordable and without increase from 2024 levels.

Plans for 2026

- **Continue to upgrade the computers at the Farash Center**
- **Continue to refine online membership renewal**
- **Expand Board committee structure to increase volunteering opportunities for membership**
- **Expand our partnership with Rochester City School District to provide more classroom and hands-on experiences for students, including incorporating new portable solar outreach capabilities**
- **Continue to address new member & public telescope inquiries**
- **Install a new mount (purchased during 2025) to put 6" Melior Refractor donation into service for member use**
- **Continue implementation of radio telescope projects and data collection**
- **Continue to support our full spectrum of educational & outreach programs**
- **Continue site modifications to increase amount of clear sky (e.g., tree removal)**
- **Explore recent technical advances for add-ons to our existing large aperture "push" telescopes at the FC that make finding objects easier for new astronomers. (Examples: PiFinder, Celestron StarSense Explorer app and smartphone dock)**