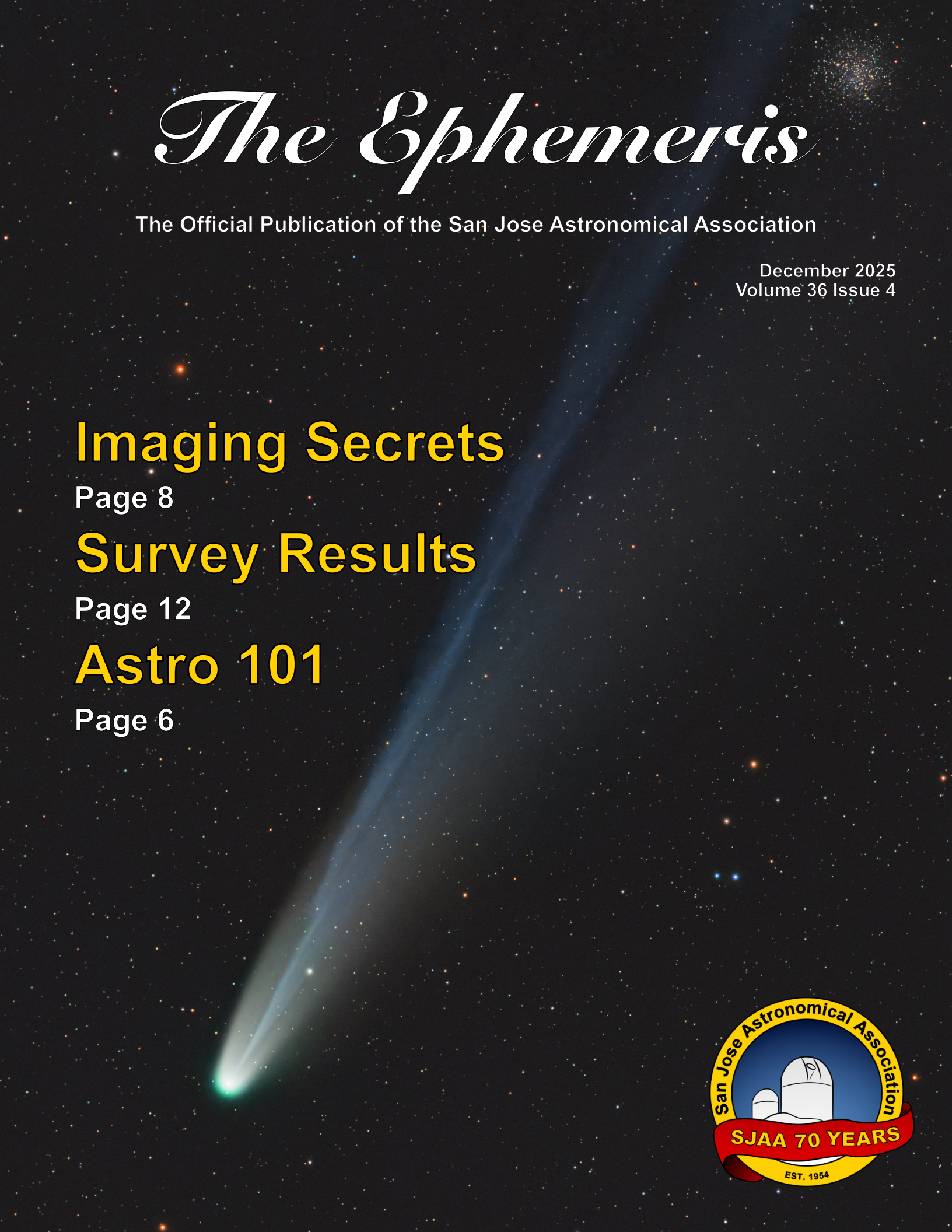
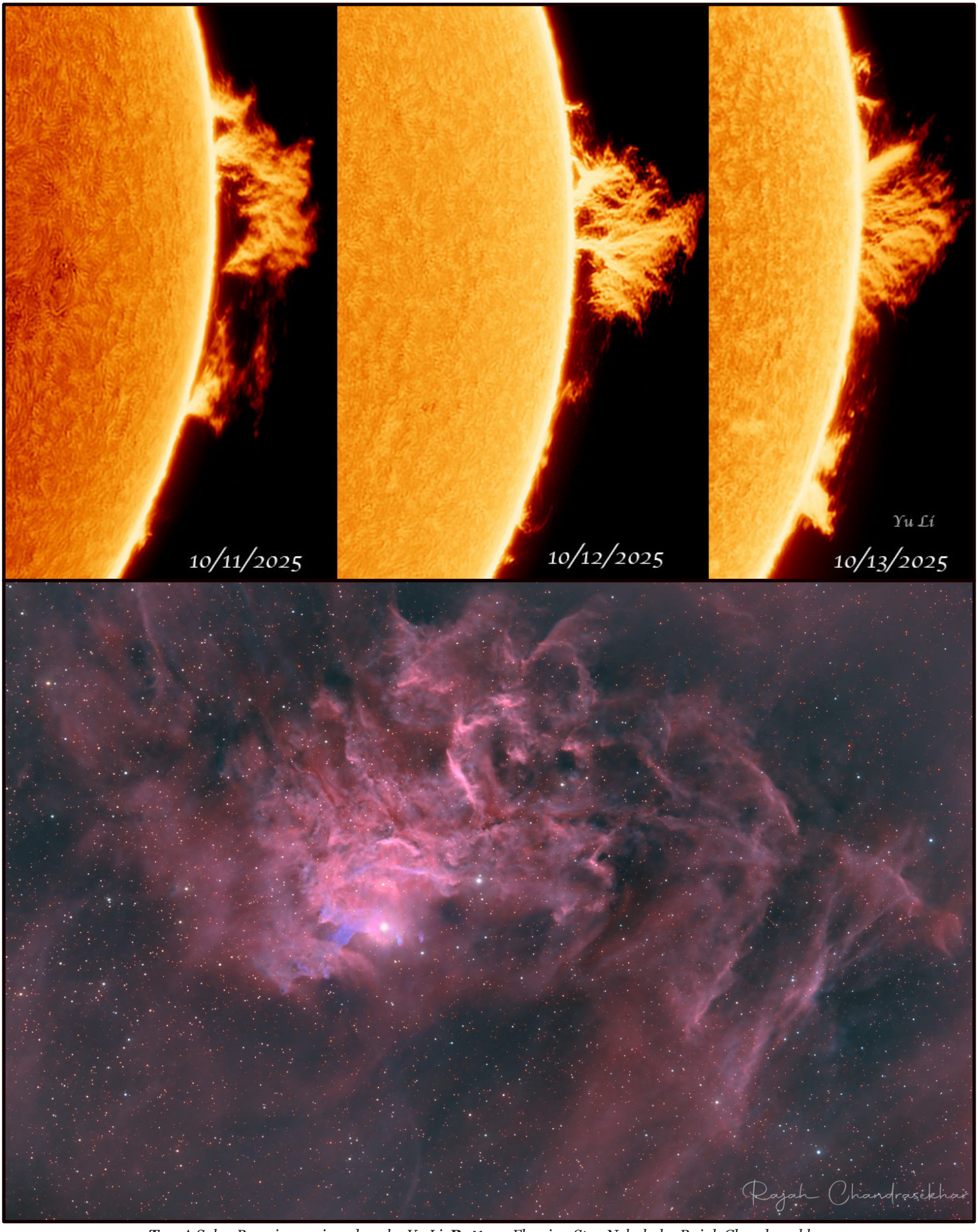
The Ephemeris

The Official Publication of the San Jose Astronomical Association

December 2025
Volume 36 Issue 4



San Jose Astronomical Association
SJAA 70 YEARS
EST. 1954



Top *A Solar Prominence in 3 days by Yu Li* ***Bottom*** *Flaming Star Nebula by Rajah Chandrasekhar*

Inside This Issue

Calendar

Board Meetings + Speaker
Saturday 12/6, 1/3, 2/7, 3/7
Houge Park, 6:00 - 7:30pm
Guest speaker follows meetings

Solar Sunday & Fix-It
Sunday 12/7, 1/4, 2/1, 3/1
Houge Park, 2:00 - 4:00pm

Astro 101 & In-Town Star Party
Friday 12/19, 1/16, 2/13, 3/20
Houge Park, time varies

Starry Nights Star Party
Sat. 12/13, 1/10, 2/21, 3/14
RCDO, time varies

Imaging SIG
Tues. 12/16, 1/20, 2/17, 3/17
Online, 7:30pm

Please refer to the SJ Astronomy Meetup page (www.meetup.com/SJ-Astronomy/events) where you can find specific event times, locations, maps and possible cancellation due to weather.

SJAA Contacts

President	Larry Zurbrick
Vice President	Carl Svensson
Treasurer	Rob Jaworski
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Director 2	Radhika Gupta
Director 3	Ken Miura
Director 4	Wolf Witt
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Director 7	Peter Melhus
Director 8	Glenn Newell
Director 9	Marianne Damon
Ephemeris Editor	Carl Svensson
Binocular Stargazing	Ed Wong
Fix-it Program	Larry Zurbrick
Hands on Imaging	–
Imaging SIG	Hy Murveit
Astronomy 101	Carl Svensson
In-Town Star Party	Muditha Kanchana
Library	David Kershaw
Loaner Program	Muditha Kanchana
Memberships	Kashaul Gangakhedkar
Publicity	Beth Johnson
Quick Start	Jonathon Lawton
Donations	Rich Gregor
Solar	Wolf Witt
Starry Nights	Joe Fragola
School Events	Jon Anderson
Refreshments	Marianne Damon
Social Manager	Beth Johnson
Speakers	Chris Gottbrath
Webmaster	Satish Vellanki
Volunteer Coordinator	Suchi Sankaranarayan

@sj_astronomy @sjastronomy

SJAA Ephemeris, the newsletter of the San Jose Astronomical Association, is published quarterly. Articles and Observation Reports for publication should be submitted by e-mail to ephemeris@sjaa.net. Please only submit original content (articles or photos) of your own authorship. Copyrighted content from other authors, including images, will be rejected.

San Jose Astronomical Association
P.O. Box 28243
San Jose, CA 95159-8243
http://www.sjaa.net/contact

Member Programs

SJAA LIBRARY

SJAA offers another wonderful resource: a library with good astronomy books and DVDs available to all of our members that will interest all age groups and especially young children who are budding astronomers! You may send all your questions/ comments to **librarian@sjaa.net**.

TELESCOPE FIX-IT SESSION

Fix-It Day, sometimes called the Telescope Tune Up or the Telescope Fix-It program, is a really simple service the SJAA offers to members of the SJAA community for free, though it's priceless. Headed up by Larry Zurbrick, the Fix It session provides a place for people to come with their telescope or other astronomy gear problems and have them looked at, such as broken scopes whose owners need advice, or need help with collimating a telescope.

http://www.sjaa.net/programs/fixit/

QUICK START PROGRAM

The Quick STARt Program, headed up by Jonathan Lawton, helps to ease folks into amateur astronomy. You have to admit, astronomy can look exciting from the outside, but once you scratch the surface, it can get seemingly complex in a hurry. But it doesn't have to be that way if there's someone to guide you and answer all your seemingly basic questions. The Quick STARt sessions are generally held quarterly.

http://www.sjaa.net/programs/quick-start/

LOANER PROGRAM

Muditha Kanchana (Kanch) heads up this program. The Program goal is for SJAA members to be able to evaluate equipment they are considering purchasing or are just curious about by checking out loaners from SJAA's growing list of equipment. Please note that certain items have restrictions or special conditions that must be met.

If you are an SJAA member and an experienced observer or have been through the SJAA Quick STARt program please fill this form to request a particular item. Please also consider donating unused equipment.

http://www.sjaa.net/programs/loaner-telescope-program/

ASTRO IMAGING SIG

SIG has a mission of bringing together people who have an interest in astronomy imaging, or put more simply, taking pictures of the night sky. Run by Hy Murveit, the Imaging SIG meets roughly every month over Zoom, often on the 3rd Tuesday evening of the month. We usually have a guest speaker presenting on some topic related to astro-imaging. Talks begin at 7:30pm. There is an opportunity to socialize and discuss imaging starting at 7pm when we start the Zoom call. Meeting topics, dates and times are posted on the SJAA Astro Imaging mail list in Google Groups. Past meetings are available on **YouTube**.

http://www.sjaa.net/programs/imaging-sig/

ASTRO IMAGING WORKSHOPS AND FIELD CLINICS

Not to be confused with the Imaging SIG group, this newly organized program is a hands on program for club members, who are interested in astrophotography, to have a chance of seeing what it is all about.

This program is currently on hold. We are looking for the next lead to bring the astro imaging offerings into the new year, and beyond. If you think this might be a good fit, reach out to volunteer@sjaa.net.

Public Programs

ASTRONOMY 101

Astronomy 101 covers various topics related to beginner astronomy and star gazing. The popular Intro to the Night Sky session takes place monthly, in conjunction with first quarter moon and In Town Star Parties at Houge Park. This is a regular, monthly session, run by Carl Svensson. Content varies from "what's up in the night sky" to basics of star-gazing and telescopes to specific topics of interest. After the session, the attendees will go outside for a guided, green laser tour of the sky, along with views through SJAA Telescopes at the In-Town Star Party, to get a better look at the night's celestial objects.

http://www.sjaa.net/programs/beginners-astronomy/

SCHOOL STAR PARTY

The San Jose Astronomical Association conducts evening observing sessions (commonly called "star parties") for schools in mid-Santa Clara County, generally from Sunnyvale to Fremont to Morgan Hill. Contact ssp@sjaa.net for additional information.

http://www.sjaa.net/programs/school-star-party/

SOLAR OBSERVING

Solar observing sessions, headed up by Wolf Witt, are usually held the 1st Sunday of every Month from 2pm - 4pm at Houge Park weather permitting. Please check SJ Astronomy Meetup for schedule details as the event time and location is subject to change.

http://www.meetup.com/SJ-Astronomy/

IN-TOWN STAR PARTY (ITSP)

This popular public star party is held every month, at our headquarters in Houge Park in San Jose. Enjoy celestial wonders from our very own backyard. Our volunteers are more than happy to show you the great views through their telescopes. Check our Meetup page for specific dates and times. All are welcome!

BEGINNER ASTRONOMY FORUM

This exclusively online event is an opportunity for anyone to come and ask questions about the early stages of astronomy and star-gazing as a hobby. Unlike our other Astronomy 101 offers, this session is entirely guided by your questions, so come prepared! We will have two or three SJAA volunteers on-hand to share their knowledge.

STARRY NIGHTS

SJAA partners with the Santa Clara County Open Space Authority (OSA) to co-host monthly public star parties, called Starry Nights. These events are held at Rancho Canada del Oro (RCDO) Open Space Preserve just 30 minutes south of downtown San Jose. Come enjoy a night sky that is sheltered from city lights. Space is limited, so reserve your spot at:

http://www.meetup.com/SJ-Astronomy/

BINOCULAR STARGAZING

Want to learn the night sky? Did you know that you don't need to spend a ton of money on a telescope to do so? All you need is a decent pair of binoculars. Bring your 10x50mm binoculars, some comfy clothes, a chair, and join us on a tour of the night sky!

http://www.sjaa.net/events/binocular-stargazing/

San Jose Astronomical Association Annual Membership Form

P.O. Box 28243 San Jose, CA 95159-8243
(Must be 18 years or older to apply)

New Membership or Renewal?
(check one)

☐ **NEW**

☐ **RENEWAL**

Membership Type
(check one)

☐ **$20 Membership with online Ephemeris**

☐ **$30 Membership with printed Ephemeris**
(mailed to address below)

NAME _____

ADDRESS _____

CITY/STATE/ZIP _____

PHONE _____

E-MAIL _____

Bring this form to any SJAA meeting or mail it to: SJAA, P.O. Box 28243 San Jose, CA 95159-8243
This newsletter is available online at http://www.sjaa.net/sjaa-newsletter-ephemeris/
Questions? Send e-mail to: memberships@sjaa.net. Join or renew online at http://www.sjaa.net/join-the-sjaa/

Astro 101: More Than You Might Think

By Wolf Witt **SJAA'S MISSION STATEMENT** includes the phrase "provide education about astronomy and related sciences" and to that end, SJAA has a robust set of public-facing programs, so that anyone may look through a telescope and learn about astronomy free of charge. In fact, this outreach is one reason why I was attracted to SJAA when I first joined in 2013. I get a lot of satisfaction from blowing someone's mind with, say, their first view of Saturn or some amazing science fact. If I can then instill a general interest in science, so much the better. I believe that everyone benefits from general science literacy, as it makes the world a more interesting place when it allows us to see beneath the (potentially misleading) obvious and then be a more effective member of society. Understanding the foundations of science and the scientific process makes us more critical consumers and better participants in our democracy, for how can we vote for the best leaders and policies if we don't know how to evaluate evidence and assess truth claims?

The desire to achieve such lofty outcomes takes me back to SJAA's many public offerings, including the Astro 101 presentation series, which may light the spark for someone's journey into science and critical thinking. When I joined SJAA, David Grover delivered his Introduction to the Night Sky presentation before In-Town Star Party (ITSP) events. Customized for every month, his presentation prepared visitors with an understanding of constellations, major asterisms, deep-sky objects and seeing conditions. In addition, in 2016, SJAA's then president Teruo Utsumi asked me whether I would create another type of intro-to-astronomy presentation. I ended up calling my presentation Sights of the Cosmos, or by its less poetic title, Stuff in Space. We then alternated between David's and my presentation, offering SJAA visitors more varied content that was generally well received. We kept this going even through the COVID years (via Zoom) until David moved out of the area.

After David left, we had only Sights of the Cosmos, so Carl Svensson stepped up and created Intro to Observing the Night Sky, his own take on what David used to do. And because astronomy has many facets and can be approached in many ways, we kept going, recruiting additional authors and presenters for a diverse set of intro presentations that expose people to the many wonders of astronomy and ideally capture their imaginations.

Even if you've been to one Astro 101 presentation, or if you consider yourself an intermediate amateur astronomer, you may still enjoy one of our current Astro 101 offerings.

Sky watching and space science oriented presentations include:

- Intro to Observing the Night Sky -- Carl Svensson
- Know Your Cosmic Neighborhood: Astronomy Close To Home -- Wolf Witt
- So You Want to be an Amateur Astronomer -- Kal Krishnan
- Sights of the Cosmos or Stuff in Space: What We See And How We See It -- Wolf Witt
- Exploring Galaxies -- Carl Svensson
- Moons of the Solar System -- Wolf Witt
- Astro Tidbits 1: Gravity, Rockets, Rogues and Aliens -- Wolf Witt
- From the Big Bang to Biosignatures -- Mahika Khosla, Jaya Bhattacharyya
- Solar Flares -- Isabelle Niu

For people to get started with their own observing or photography equipment, we have:

- All About Binoculars -- Carl Svensson
- Telescope Primer -- Wolf Witt
- Intro to Astrophotography -- Kal Krishnan

But wait, that's not all! More material is planned, some of it already in development.

- Introduction to Astronomy for Kids -- Mahika Khosla, Jaya Bhattacharyya
- The Unseen Universe: Illuminating Dark Matter -- Parvati Madhusoodhanan
- Exploring Nebulae -- Carl Svensson
- Celestial Tales: History, Mythology and Legends of Astronomy -- Rashi Girdhar
- Astro Tidbits 2: Stars, Distances, Flashes and Bangs -- Wolf Witt
- Astro Tidbits 3: Air, Weather, Dust and Diamonds -- Wolf Witt

And don't fret if you can't make it to Houge Park. We've been making Astro 101 content more accessible by offering not only the usual in-person talk before each ITSP but also by scheduling some presentations online, so that anyone can attend from anywhere. All of these events, along with more detailed descriptions, get listed on SJAA's Meetup page or on SJAA's web site's calendar pages:

- Meetup: https://www.meetup.com/sj-astronomy/events/
- SJAA Web Site, Public Events: https://www.sjaa.net/calendar/public-events/
- SJAA's All-Events Calendar: https://www.sjaa.net/calendar/all-events/

Note also that SJAA has two further offerings under the Astro 101 umbrella. First, we have the Astronomy Beginners' Forum. This forum is an online meeting that we schedule roughly every two months, and it's intended to serve people who are newly getting into astronomy but may not know where to start. During each forum, we

address questions from the attendees and often talk about the basics of buying a telescope or finding objects in the night sky. Second, for those who really want to dive deeply into the world of telescopes, we've twice held an afternoon-long Telescope Workshop. During these hours, we cover the basics of telescope optics, present the different types of telescope architectures and the tradeoffs among them, talk about different types of mounts, and explain different accessories such as eyepieces and finders. Also, we offer cookies! If you want a cookie and your brain filled with telescope knowledge, look for a future Telescope Workshop on Meetup.

In closing, I'll share my view of the goals of SJAA's Astro 101 and general outreach effort as such:

- Dazzle with beautiful views and promote a sense of connection to the universe.
- Inspire a sense of awe in the scale of the cosmos and the diversity found within.
- Provide an understanding of the forces and mechanisms that drive our solar system and the universe.
- Make astronomy interesting and accessible to everyone.
- Encourage an ongoing interest in astronomy and science in general.
- Especially to young people, highlight how science is an ongoing enterprise and much remains to be discovered (like fast radio bursts, dark matter, dark energy).
- Demonstrate that everyone can derive value from science literacy, thereby making the world a more interesting place and giving reality more depth.
- Encourage knowledge and skills that can make everyone a more critical consumer and more effective participant in our society and democracy.

While not all who attend SJAA's public events go on to become club members, and some may not pursue any science beyond once looking through a telescope, we know that we do have a valuable impact. Our programs generally receive positive reviews, and there have, for example, been high-school students who have gone on to university for astrophysics programs. Maybe we can look forward to one of them solving dark matter!

Remember that all of SJAA's activities are run entirely by volunteers. If you value SJAA's Astro 101 program or any of SJAA's other offerings, consider helping out. Don't worry if you don't feel ready. All of us are learning all the time, and we'd be happy to work with you, so you can contribute in ways that feel interesting and rewarding to you while also advancing SJAA's mission. If you're open to volunteering, please send a note to volunteer@sjaa.net.

Either way, maybe I'll see you at one of the upcoming Astro 101 events!

Email Group Maintenance

By Carl Svensson **I'M EXCITED TO ANNOUNCE** that we will be giving all of our SJAA members greater control over which email groups (Google Groups) they wish to participate in. As you hopefully are already aware, we currently offer two different email lists for members to communicate with each other: Observers and Astroimaging. The Observers group caters to those seeking, planning, and reporting cosmic observations, while the Astroimaging group provides a place for imagers to discuss their images, processing, and equipment.

Signing up for these groups previously meant slogging over to the respective Google Group webpage, requesting access, and then waiting for someone to notice and let you in. Now, I am very happy to announce that you can join (or leave) these groups right from your member profile at membership.sjaa.net! Access will be granted on-the-spot. No more waiting for approvals, and missing precious discussion time. As soon as you sign up, you are presented with the option to join. Look for the "Groups" section under "Edit Profile."

Of course, if you prefer, you can request access via the groups page or by emailing asksjaa@sjaa.net. The Astroimaging group remains open to the public, while the Observers group remains a members-only group.

One side-effect of this change, is that we have to bring the groups into the sjaa.net domain, which means renaming them! This is not a decision made lightly. We really want to make communications as smooth as possible for all of our members. For wonky technical reasons, the previous configuration did not allow us to automate managing the subscriptions to these lists. We'd have to manually check on pending member requests, evaluate, and accept or deny. Some unfortunate souls got stuck waiting weeks or months to get approved. This update will prevent that scenario in the future. These two Google Groups are getting a new address:

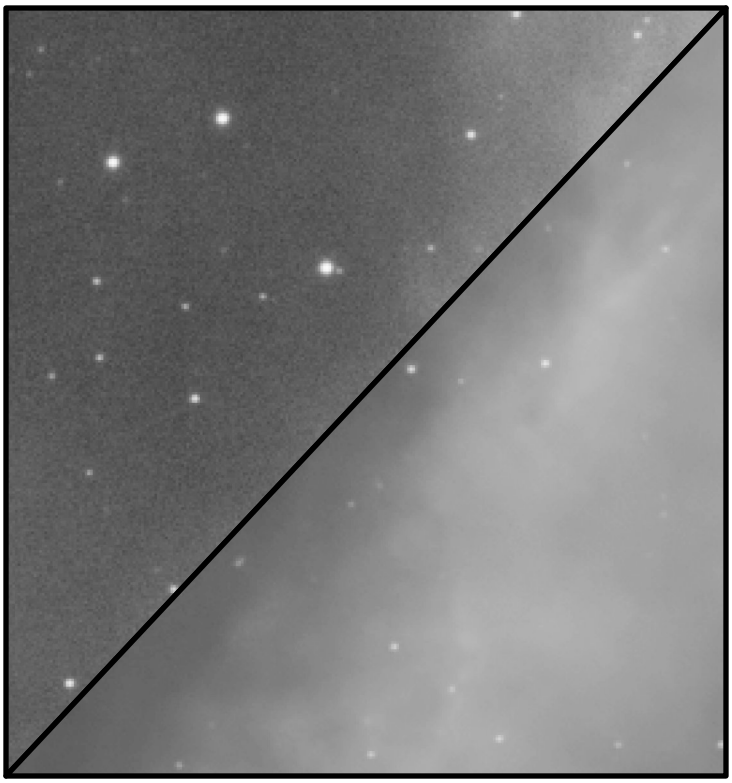
sjaa-astroimaging@googlegroups.com
sjaa-observers@googlegroups.com

These are being renamed to astroimaging@sjaa.net and observers@sjaa.net. Please post to the updated groups, and update your email filters accordingly!

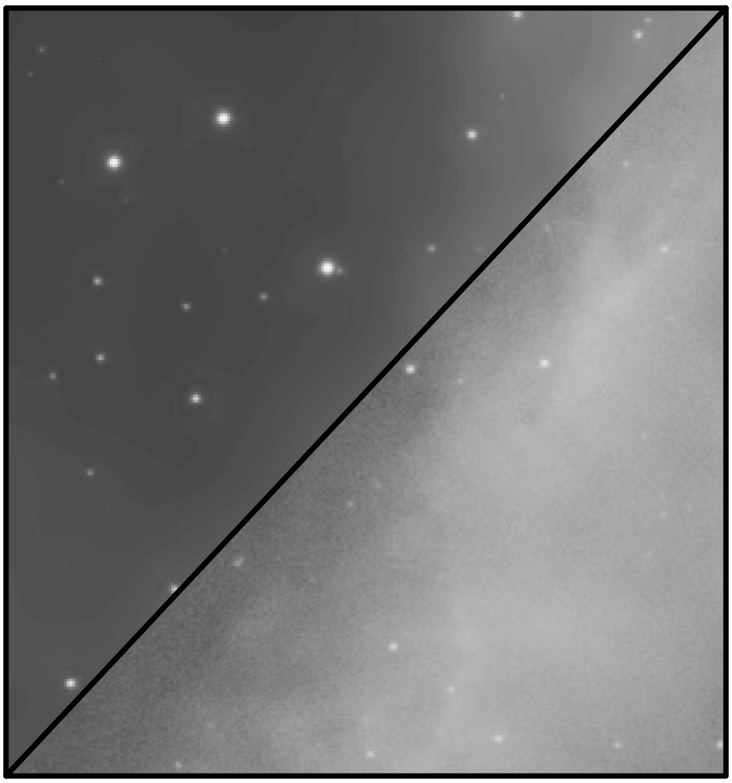
All members of the old groups have been copied over to their corresponding new group. The old groups will remain active until December 9th, at which point they will become read-only. Please start using the new groups from now on, and manage your membership on your member profile.

This level of automation also allows us to potentially offer more groups to our members. If this is something you are interested in, please let us know! Either reply to me or reach out via asksjaa@sjaa.net. Thank you for your support! See you in the forums!

Imaging Secrets: Denoise



The California Nebula before and after AI denoise. Modern denoise algorithms make use of AI to strike the right balance of detail and smoothness.



It is easy to go over-board when applying denoise. Note how subsequent applications of denoise seem to create wavy splotches on the borders between colors.

Carl Svensson **ASTROPHOTOGRAPHY IN 2025** looks a lot different than it did twenty years ago. Heck, it looks a lot different than it did even five years ago! The rise of smart scopes and AI-guided image processing tools has helped to fuel the astrophotography fire, and bring awe-inspiring celestial imaging down to earth. There are volumes to be written about astrophotography image processing (and we'll try to get to most of it in the coming issues!), but today, let's focus on one technique in particular: denoise.

Every astrophotographer knows the struggle: you've spent hours under the stars capturing precious photons, only to find your images plagued by noise—that grainy, speckled texture that obscures faint nebulosity and fine detail. Noise is an unavoidable byproduct of the imaging process, amplified by factors like sensor heat, high ISO settings, and short exposure times. Fortunately, modern denoising tools have become remarkably sophisticated, allowing us to suppress noise while preserving the delicate structures we worked so hard to capture.

Traditional approaches like Multiscale Linear Transform (MLT) and Multiscale Median Transform (MMT) have long been workhorses in the astrophotographer's arsenal. These techniques decompose an image into multiple scales or layers, allowing you to selectively reduce noise at different detail levels while protecting larger structures like nebulae and galaxies. Both MLT and MMT work by decomposing images into multiple scales, but they use different mathematical approaches: MLT uses linear wavelet transforms that have proven efficient for noise reduction of linear images, while MMT uses median filtering that is ringing-free and can handle multiple pixel scales without creating artifacts around bright stars or edges. Effective denoising with these tool involves tweaking their parameters and applying several passes in different stages of your workflow.

There's no doubt that the hard work of MLT and MMT adjustments pay off, but the real game-changer in recent years, however, has been AI-powered denoising tools like NoiseXTerminator or Cosmic Clarity. Built on neural networks trained on thousands of astronomical images, these tools analyze your image and attempt to separate signal from noise with minimal user intervention. The results can be stunning: smooth backgrounds that preserve natural color gradients, retained fine detail in nebulous regions, and a dramatically improved signal-to-noise ratio—all with just a few clicks. While some purists prefer the hands-on approach of traditional methods, there's no denying that AI denoising has democratized high-quality noise reduction, making professional-looking results accessible to beginners and veterans alike.

Whether your work flow is AI-enabled or not, denoise is an essential step towards stunning astrophotography.

Shot Through The Clouds

The Wizard Nebula.

The Pleiades after Seestar processing.

The Pleiades with a modified stretch to better show the affect of interfering clouds.

By John Gates **ON MONDAY NOVEMBER 10TH**, 2025 the SJAA, along with the Eastbay Astronomical Society, held a School Star Party (SSP) at the Warm Springs Elementary School in Fremont. The weather, specifically the apparent cloud cover, was far from optimal.

A look back at the weather conditions on that night indicates the poor seeing conditions were primarily caused by high and heavy haze along with a high relative humidity. These conditions resulted in an inability to visually see even the Summer Triangle. Trying to see the Pleiades, using a Mark I Eyeball while being low on the horizon at the time, was also difficult to impossible. Despite these conditions, I deployed a pair of Seestar smart telescopes. One was an S50 using its built-in Alt/Az mount. The other was an S30 on an Equatorial wedge. Their targets: The S50 was aimed at the Wizard Nebula while the S30 was set to capture the Pleiades.

The Wizard Nebula (NGC 7380, Sh2-142), an emission nebula, proved difficult to image given the conditions. However, the Pleiades imaged surprisingly well.

The Wizard Nebula (NGC 7380, Sh2-142), imaged on the 10th, is shown here as it appeared during the SSP. This image is a stack of 225, 10-second exposures obtained using a dual-band LP filter. Under cloud-free conditions, the Wizard would be plainly visible; in this image, it is barely discernible.

As an aside, this stack would have been significantly deeper had a technical mishap (a 'what does this button do' incident) not occurred at the 225-exposure point. An attempt was made to start a new stack; however, the cloud cover had become even thicker, completely obscuring the subsequent image.

In contrast, the Pleiades (M45) open star cluster was surprisingly easy to image.

The image on the left is as displayed during the SSP. The image on the right is a stretched version of the .fits stack, processed to aid in visualizing the cloud cover. To the naked eye, the cloud cover appeared denser than indicated here.

Both images comprise a stack of 461, 10-second exposures, acquired using an IR Cut filter. The blue dust regions are not as bright as one might expect. While a longer integration time might have enhanced them, it could also have made the already prominent clouds even more so.

Moving forward, I will no longer despair over heavy haze or high cloud cover. By selecting targets wisely (such as star clusters or brighter nebulae), it is possible to achieve a worthwhile night of astronomical observation even under less than ideal conditions.

Observing Highlights

12/13 **Geminids Meteor Shower**
The king of meteor showers peaks after midnight with up to 120 meteors per hour.

12/21 **December Solstice**
The December solstice occurs at 15:02 UTC. The Sun will reach its southernmost position in the sky.

01/03 **Quadrantids Meteor Shower**
At up to 40 meteors per hour at its peak it is thought to be the dust left behind by an extinct comet known as 2003 EH1.

01/10 **Jupiter at Opposition**
The giant planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun.

2/19 **Mercury at Greatest Elongation**
The planet Mercury reaches greatest eastern elongation of 18.1 degrees from the Sun.

3/3 **Total Lunar Eclipse**
Visible from Houge Park, the Moon passes completely through the Earth's dark shadow, or umbra.

New Moon: 12/20, 1/18, 2/17, 3/19

Full Moon: 12/4, 1/3, 2/1, 3/3

Source: http://www.seasky.org/astronomy/astronomy-calendar-2026.html

Kids Corner

Word Search

- Observation
- Star Chart
- Binoculars
- Telescope
- Stars
- Constellations
- Orion
- Taurus
- Aries
- Gemini
- Canis Major
- Auriga

B U N S C P S Y E E C T Q N B
O T R T O K T Z S O N R G B J
E J R A N Q O E V C Y G E N G
S O L R S A W B L A Y N M Z A
V R G C T U C I S E L O I I R
D I Z H E R A N H V S H N W I
B O L A L I N O N K Z C I D E
U N S R L G I C Q P F M O S S
T E T T A A S U T B T S X P D
A A A W T V M L I K W F H E E
U E R V I N A A R I Z M T I L
R J S J O Q J R W Q W F V S L
U X D D N U O S N U Z L K N G
S V L O S T R O G I M L Z C Z
X O B S E R V A T I O N N N T

Fun Facts

- At the solstice, the Sun's path appears farthest north or south, depending on which half of the planet you are on.
- Seasons change on Earth because the planet is slightly tilted on its axis as it travels around the Sun.
- For the Northern Hemisphere, the summer (June) solstice occurs around June 20-21, and the winter (December) solstice happens around Dec. 21-22.

Source: nasa.gov

Imaging Index

New to this edition, the Imaging Index consolidates key details about how the member images featured throughout the issue were captured. Use this as a reference to see what equipment and exposure times different photographers use on different targets, and a handy guide to find member photos throughout the issue.

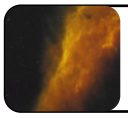
C/2025 A6 Lemmon | Nikon D5300
Mike Beerer | 17m
RedCat 51 | Page 15

C/2025 R2 Swan | Nikon D5300
Mike Beerer | 4h 18m
RedCat 51 | Page 15

C/2025 A6 Lemmon | ZWO ASI294MM Pro
Francesco Meschia | 48m, 30x60", 55x20"
Astrotech AT65EDQ | Astronomik LRGB
AP Mach1 GTO | Page 1 (Cover)

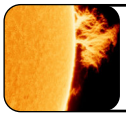
C/2025 A6 Lemmon | ZWO Seestar S30
Rich Klein and Mike Madden | 22m, 132x10”
Page 15

C/2025 A6 Lemmon | ZWO ASI 1600MM Pro
Carl Svensson | 51m, 51x60”
Stellarvue SV80ST | Page 15



California Nebula | ZWO ASI 1600MM Pro
Carl Svensson | 14h15m, 289x180”
Stellarvue SV80ST | Page 16 (Cover)

IC405 Flaming Star | ZWO ASI 1600MM Pro
Rajah Chandrasekhar | 12h15m, 245x180”
Astro-Tech AT130EDT | Page 2



Solar Prominence | ZWO ASI432MM
Yu Li | SkyWatcher SolarQuest
Lunt 60mm | Page 2

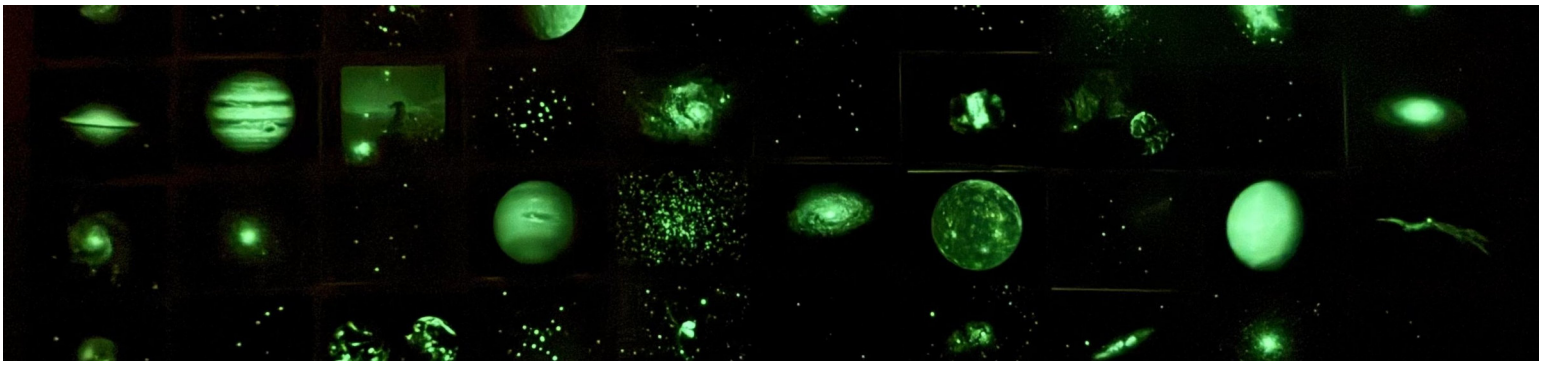
A Glow-in-the-Dark Window into the Universe

By Suchi Sankaranarayan **IT'S NOT OFTEN** when you can look at a picture of a celestial object and then look up to see it right there. But a science station can offer you exactly that. At the last two In-Town Star Parties, we had an Astro Match science station. Wolf Witt has kindly and enthusiastically printed glow-in-the-dark images of a variety of celestial objects - close ups of planets, constellations, nebulae and galaxies.

Science stations at SJAA events are a fun hands-on event you can check out while waiting for your turn to look through a telescope. The hope is to offer a learning experience that expands curiosity and engages different learning styles. I've helped Wolf run the Astro Match station at two start parties and it's been delightful. This station has been an organic way to connect with more members and visitors.

We have more than fifty laminated images of various celestial objects and some very cool 3D printed glow-in-the-dark chips with the names of these celestial objects. Lit up by a UV lamp to 'charge' up the photos, participants pick a chip and try to match it to the corresponding picture. You can get lucky if you picked Saturn - a lot of us know how to pick that planet from a line-up, but how about something more challenging like the Beehive Cluster? We've had some interesting conversations on how these galaxies and clusters were named, trying to make meaning of the names and literally connecting dots to see patterns. It's a moment of collective serendipity when someone sees the bird in the Eagle Nebula or the wide brim in the Sombrero Galaxy. The icing on the cake is when any of the Astro Match pictures can also be seen through a telescope in the same night, offering a learning experience of knowing how our eyes perceive the same thing in a photo and through a lens.

I'd encourage you to stop by the next star party and check out the science station tables. There's more - we've been setting up a Thermal Imaging station of late. Astro Match has been successful with audiences of all ages, especially children who like the gamified experience of learning more about space and our neighbors. It's a chance to see galaxies that we may not be able to check out for a few months and invites many conversations on where and when we can see them. Or strike up a conversation on why the Wild Duck Cluster is named so.



Member Survey Results

By Wolf Witt **JUST THIS YEAR,** SJAA has been celebrating its 70-year anniversary! I wasn't even alive when SJAA was founded, so I have no idea what our astronomy club looked like when it was young, but I'm sure it has changed a lot throughout the years. I've certainly seen some evolution since I joined SJAA in 2013. For example, we started holding star parties at Pinnacles National Park, the public solar program expanded its offerings, we've been working more with students who are considering futures in astronomy or astrophysics, and, partly inspired by the COVID years, we've been offering content online. But regardless of what we did yesterday, there's always a future ahead of us, posing the question: What will we do tomorrow?

Among the SJAA leadership team, your club officers, the board of directors and the program leaders, we have no shortage of ideas for improvements or expansions of SJAA's offerings. But wait... Who is to say that the twenty or so people that comprise the leadership group are representative of the needs and desires of the general SJAA membership, a membership that's now almost 500 people strong? We know that people join SJAA for varying reasons, each person looking for different resources, events or experiences. To understand and consider members' current perceptions of SJAA and their ideas for improvements, earlier this year, Larry Zurbrick sent out a member survey that you may recall seeing in your email inbox. About 25% of members responded to this survey, and we greatly appreciate their thoughts and the time they took to provide valuable feedback. If you were one of those survey respondents, thank you!

The survey showed that we're doing some things well. For example, people valued our public and member star parties, the various astronomy presentations and the Fix-It program.

But of course we want to know how we can become better! One theme that emerged from the survey results revolves around communication. SJAA organizes many events and services, some public and some for members only, but not all members are aware of what's available or some are unclear on what exactly a particular event or program offers. To improve this situation, we're taking several steps, including:

Welcome Videos: Currently, individuals who find SJAA for the first time need to learn about our club by looking over the SJAA web site and Meetup. Further, folks who newly join SJAA as contributing members get a welcome email with some instructions, but they're also largely at the mercy of the website. To supplement the web resources and provide a better initial orientation, we're working on several welcome videos that summarize what people can expect from SJAA and where to look for more information.

Monthly Ephemeris Bulletin: This email publication has been going out for some time now, and by all accounts it has been a welcome addition to club communications. If you haven't seen it, please look for it in your email inbox. (The mail comes from ephemeris.production@sjaa.net with a title like "December Bulletin Now Available".)

Weekly Newsletter: We're newly considering this newsletter to highlight immediate astronomical occurrences and make club events for the current week more accessible. Look for this newsletter in your inbox.

Expanded Ephemeris Content: Survey respondents like the astro-photographs in SJAA's quarterly Ephemeris publication and would like to see more, including more technical details of how these photos were taken. Respondents also expressed interest in more how-to articles (e.g. how to achieve certain outcomes with a Seestar smart telescope). We're working on additional content of this kind.

Discord: For those who don't know, Discord is a popular communications platform that allows a community like SJAA to create, in Discord parlance, a server for text chats as well voice and video calls among the community's members. The SJAA server offers separate chat channels for member events, binoculars and other topics, and we can create further channels as we desire. Discord apps are available for Mac and Windows laptops and for mobile devices. If you might be interested, give Discord a try. The SJAA Discord server has been live since September and will get exponentially better the more people participate, so join, say hello and help us build our online community. For instructions on how to join, look for an email titled "Discord for SJAA"; the steps are simple. (If you're not interested in Discord, that's also okay. We'll still be sending out communications through previously existing channels.)

Another theme, not surprisingly, relates to community. No doubt, many join SJAA (or any club) to be around and exchange thoughts with like-minded individuals. Forming the desired personal connections, however, can be tricky. To remove some of this trickery and allow individuals to become part of the ever-expanding SJAA community more easily, we have two primary efforts in the works:

New Member Meet-and-Greet Nights: To allow new SJAA members to meet each other as well as some SJAA veterans, we'll set up a meet-and-greet evening every two months, each time primarily targeting those who joined SJAA within the prior six months. These evenings will be great opportunities to meet like-minded folks, learn more about SJAA's offerings, and eat some pizza. (We're currently considering holding these events on weeknights, like a Tuesday or Wednesday, so as not to interfere with other SJAA events already scheduled on weekends.) If you're someone who recently joined SJAA, look for an invitation in your email inbox!

Mentor Connect: Over the last year, Carl Svensson, our Vice President and Ephemeris Editor, built an excellent new software tool for managing SJAA's sign-up process and general membership database. We're now building on

top of this database to allow individuals to do two things:

In their own profiles, record areas of expertise (e.g. Schmidt Cassegrain Telescopes) and indicate whether they're open to sharing their expertise with others, that is whether they're willing to be mentors to other SJAA members.

Look for individuals who have expertise and are offering to provide mentorship in a certain area (like SCTs) and then contact those people for information or assistance.

We're hoping that this upcoming feature will foster connections and friendships that will make astronomy and SJAA more rewarding for all involved. Keep your eyes open for an announcement that this new capability is live! (Note that any new features of this type are entirely opt-in, so if you prefer not be bothered by any of this, that's perfectly fine.)

The survey results also brought other findings, but we'll discuss those and additional actions in a future issue of the Ephemeris.

For now, please remember that SJAA is an all-volunteer organization, and anything that gets done only happens because people donate their time to do it. You can help make things happen! For example, people would like to see SJAA offer more content on YouTube. Do you have or do you want to learn production skills for such content? Help us make it! Or do you like to write? People would like to see more member-written articles and expert interviews in the Ephemeris. If you have a particular interest or expertise to share, write about it. Or if you're just getting started and barely know anything yet, that's also fine. Articles from the perspective of folks just getting into astronomy can be super helpful to others who are on the same journey.

Also note that you could be part of the SJAA leadership team and help us set direction and make decisions for the future.

If you want to offer your time to make SJAA better in any way, please contact volunteer@sjaa.net. Do not worry whether you have useful skills. Volunteer first, and then we'll figure out the details. We'll do our best to help you learn what's necessary.

Finally, if you have further ideas about what SJAA should be doing better, please send a note to asksjaa@sjaa.net. SJAA is YOUR club. You have a voice, and we want to hear it.

Discord for SJAA

By Carl Svensson **THIS PAST QUARTER** saw the exciting, grand opening of the SJAA Discord server! For those who may be unfamiliar, Discord is a platform built around community and chat. This provides all SJAA members a space to connect with one another, ask questions, get help, and share observations in real time. It is complementary to our email groups, which remain a tent pole for the organization. It is completely free to use.

Here's how to get started:

1. Sign up for discord at discord.com if you do not already have an account.
2. Use this link to join our server: https://discord.gg/wQ6nZGaJKW
3. Follow the instructions in the welcome channel and start chatting!

This platform is a fun way to engage in real-time conversations with other members of SJAA. There are many channels, each of which focus on a different topic, like #binoculars, #imaging, #solar, #science and more. These are essentially chat rooms dedicated to the various niches of amateur astronomy. There are also several feeds and forums. The forums act more like traditional message boards, and are dedicated to sharing astrophotos, seeking help, and buying/selling equipment. There are also several read-only channels for important announcements, as well as feeds of fun astronomy information including: NASA APOD, Astrobin IOTD, observing forecasts, eclipse information, weekly observing highlights, and even a feed to highlight astrophotos from within SJAA membership!

One of the best features of Discord is that it allows you to take more control over your notifications. You can show/hide channels at your discretion. Every channel and feature remains easily findable, and you can choose which channels give you notifications, and if other members can message you directly. Think of it like e-mail filters, but someone has already set them up for you, and you can pick and choose which ones notify you!

Please come join the over 120 members who are already in the server, and chat away. The more people get involved, the more robust our community will be. I hope to see you there!

Membership Profile

By Carl Svensson **YOUR SJAA MEMBERSHIP** is getting an upgrade! If you've renewed your membership in the last three months, you may have noticed a change to the renewal process. We have moved our membership management to a dedicated web app. This dramatically improves our process for managing memberships and gives us the flexibility to automate things that have been manual efforts, like sending renewal reminders, sending donation letters, and reporting monthly membership updates to the board. It also helps us verify that we have correct contact information for people who sign up.

But it's not just a benefit for SJAA leadership, it also helps all the members. This change is what allows automated email list maintenance (see page 7). It allows you to indicate your skills and interests for various volunteering opportunities. It will also help enable our upcoming mentorship program, which Wolf described in the survery results article (see page 12).

If you haven't seen it yet, please take a minute to fill out your profile at membership.sjaa.net. As always, any and all personal information is kept secure, and access is only available to SJAA leadership as needed.

The View From Below The Skies

EARLIER THIS YEAR, the SJAA leadership team conducted a member survey to solicit input from our members. We, the board of directors and program leaders, were interested in our members' views, comments, and opinions of our various programs and activities as well as areas which we could improve or add new programs. Wolf Witt (a.k.a. Director 4 and Solar Program Coordinator) has written a summary of the inputs we received and the actions that we have taken to address several of the inputs and suggestions that we received. Please read his summary article that appears in this issue of the Ephemeris (page 12). As always, we value our members' comments and input.

On another note, we will be expanding the Fix It program to include requests from non-members of SJAA in 2026. An online survey will be included as part of the program, like the QR code surveys we ask participants to fill out at our other public events. If there is a high demand for Fix It services, extended hours and/or additional dates and times may be added to the calendar. SJAA members will have priority in the repair queue.

Larry Zurbrick
President, SJAA

By The Numbers

DID YOU KNOW that SJAA has a robust social media presence? We are fortunate to have followers across many different platforms. Our content includes astrophotos from our membership, photos of club events, and announcements of select events. For the latest information about our events, always consult our Meetup page and calendar: both available through sjaa.net. But, why not add some space dust to your feed, and follow SJAA on your platform of choice? Use those algorithms for good, and help us in our mission to bring astronomy and related science education to the public. Meanwhile, check out how we are growing, below. Thanks to Beth Johnson for maintaining most of the social media stats.

Membership	499	(+13)
Meetup Followers	8,129	(+317)
X Followers	897	(-5)
Facebook Followers	857	(+1)
Blue Sky Followers	605	(+17)
Instagram Followers	223	(+6)
Discord	122	(+122)
Mastodon Followers	46	(+8)

September 2025 - November 2025

Board Minutes

SJAA AND SAN JOSE RELATIONS On October 2nd, SJAA received notice that we were approved for another 3 years of using our Houge Park location, with the option to renew for three more years two additional times.

VOLUNTEER COORDINATOR This position will be filled by new member, Suchi Sankaranarayan. Look for more information next issue.

PARTNER PROGRAMS Wolf has pursued several sources of potential collaboration with other astronomy clubs. He has reached out to the Seattle Astronomical Society, and worked with the Santa Cruz Astronomy Club to corss promote events.

GRANT RANCH Larry has coordinated with the folks at Grant Ranch to secure a permit to allow us to use a portion of the park for member-only observing sessions.

WE LOVE THE NINETIES Bob Garfinkle provided the club with copies of The Ephemeris from the '90s. These copies were graciously scanned by John Lawton, and are now archived on our cloud storage.

CALENDAR FOR 2026 Kanch gave an overview of our current calendar setup, and provided the template for seeding next year's calendar of events. Program leads and SJAA leadership are reviewing it.

WALDEN WEST Wolf has been driving engagement with Walden West to provide ongoing support for star parties for the children served by Walden West's programs.

COMMUNICATION POLICY Carl proposed an official communication policy for communiations among SJAA leaders, volunteers, and members. The board approved this policy on November 1st.

GOOGLE GROUP MAINTENANCE Carl proposed renaming some of our Google Groups in order to facilitate automatic management of these groups, and better serve our members. The board made an Advisory Motion in favor of moving forward with move.

Excerpts from this quarter's board meetings are above. Full minutes are available online at https://www.sjaa.net/about/board-meeting-minutes/

Fall Comets

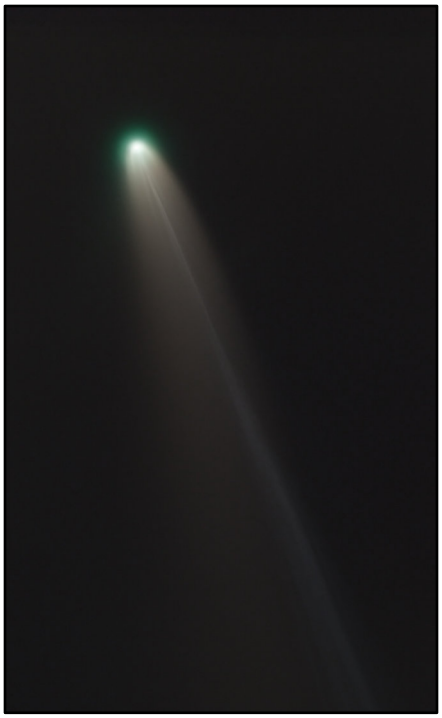
By Carl Svensson **THE FALL SEASON** once again delivered some really great comet observing this year. Two comets in particular dominated our telescopes in September and October: C/2025 R2 Swan and C/2025 A6 Lemmon.

Swan's large green coma and pronounced, but ever-shrinking tail dazzled its way past popular deep sky targets, photo-bombing stunning images, like Mike's M16 and Swan capture below. R2 Swan's coma burst to life sometime in late August and mid September, brightening from magnitude 11 to magnitude 6(ish) along the way.

In contrast to Swan, Lemmon's star feature was its tail. Both the dust tail and ion tail of Lemmon proved to be dramatic sights. The ion tail stole the show, as wider and wider images revealed not only more of the tail, but a dramatically and rapidly evolving shape in the tail. Over the course of hours and days, the tail appeared to waft like a flag in the wind. No wonder so many of us imaged it!

C/2025 A6 Lemmon by Mike Beerer

C/2025 A6 Lemmon by Rich Klein and Mike Madden



C/2025 A6 Lemmon by Carl Svensson

C/2025 R2 Swan and M16 by Mike Beerer