

Monthly Newsletter



PAStimes

A Publication of the Phoenix Astronomical Society



In this newsletter
you can expect:

[Message From
the President](#)

[Grand Canyon
Star Party](#)

[DWARFLAB](#)

[See One Event](#)

[Navigating the
Night Sky](#)

[M6 & M7](#)

[Solar Observer's
Handbook](#)



**EVENT
REMINDER**

| 20 – Book Club |

Stu's Views



Mother Nature has once again delivered her soaring heat, which reminds me to remind you: hydrate and drink plenty of water, especially if you are venturing out at night to capture views of the night sky.

Summertime is a good time to do an equipment inventory.

1. Inventory all of your equipment. Create a list that includes the date purchased, cost, and location.

2. Is that expensive equipment insured? Check with your home policy carrier.

3. Upgrade the firmware on your "go-to" telescope system.

4. Clean everything. If you are not sure how, YouTube has tons of videos on cleaning your eyepieces and telescopes.

5. Repairs: If you have some issues, now is the time to address them. PAS strongly recommends Starizona.com in Tucson as your best starting point. 520-292-5010

6. It is absolutely a good idea to get yourself a cover for your scope.

7. Location: Store all your equipment together to save time when you want to set up.

8. Summertime is often a "discount price" time for astronomy equipment.

9. If you are shopping, remember that used scopes and other equipment are not a bad choice.

10. If you just purchased a new or used scope, use the summertime to practice loading it in your vehicle, setting it up, and tearing it down in your living room. Do this often so you become an expert. Again, time is the issue.

Finally, and maybe the most important thing to do: create a "checklist" that identifies everything you want to take with you when you go out to view the night sky. This list, if you use it, will stop you from crying when you discover what you left behind!

Clear skies, everyone.



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Stuart Brachney

JULY 2026 UPCOMING EVENTS



X

THUR

MONTHLY LECTURE SERIES

Summer break



Telescope
Workshop
201

"How to Operate Your
Telescope"



X

THUR

TELESCOPE WORKSHOP

101/201

Summer break



25

SATURDAY

BOOK CLUB

Battle of the Big Bang: The New Tales
of Our Cosmic Origins

by Niayesh Afshordi, Phil Halper



X

THUR

PUBLIC STAR PARTY

Summer break



Astro
Imaging
SIG

X

MON

ASIG/ASTROIMAGING

Summer break

**MORE
INFORMATION**

For more information and to register for these events, go to the [PAS Event Calendar and Registration Site](#). It is important to register for all events. In case of an event change or cancellation, you will be notified via email.

Phoenix Astronomical Society Members Receive Exclusive DwarfLab Discount

Phoenix Astronomical Society Expands Member Loaner Inventory with Dwarf Labs Smart Telescopes

The Phoenix Astronomical Society is excited to announce a new partnership with Dwarf Labs and the addition of two innovative smart telescopes to our member loaner program!

Through the generosity of Dwarf Labs, PAS has received the following equipment:

- Dwarf 3 Smart Telescope
- Dwarf Mini Smart Telescope
- Dwarf EQ Tripod

These compact, portable smart telescopes combine imaging, tracking, and observing capabilities into an easy-to-use system controlled through a smartphone app. They are designed to help beginners and experienced astronomers alike explore the night sky, capture images of deep-sky objects, and enjoy astronomy with minimal setup.

Available Beginning July 2026

Both the Dwarf 3 and Dwarf Mini will be added to the PAS Loaner Program and will be available for checkout by PAS members. This exciting addition provides members with an opportunity to experience the latest generation of smart telescope technology before making a purchasing decision or simply to enjoy a new way of observing and imaging the night sky. Learn Before You Borrow. To help members get started, we encourage borrowers to review the following resources before using the equipment:

Dwarf Labs Official YouTube Channel

<https://www.youtube.com/@dwarflabofficial>

Helpful Setup and Training Videos

Introducing the Dwarf Mini

<https://www.youtube.com/watch?v=EAEZIEuGFDg>

Dwarf 3 User Interface Overview

<https://www.youtube.com/watch?v=c3VOetziekY>

Setting Up the Dwarf in EQ Mode

<https://www.youtube.com/watch?v=KKZ6P6O-Z8Y>

In addition, YouTube contains many excellent tutorials and user experiences. Simply search for "Dwarf Smart Telescope" to find reviews, imaging demonstrations, setup guides, and observing tips.

A Growing Partnership

Dwarf Labs has also offered educational support, product demonstrations, and special PAS member discount on their products!

We are grateful for their support of our mission to promote astronomy education and outreach throughout Arizona.

Should you consider buying a product, please reach out to us for discount details and redemption instructions.

We encourage all members to take advantage of this exciting opportunity and experience the future of smart astronomy.

Clear skies,

5% Discount available here on purchases: <https://checkout.dwarflab.com/discount/PASAZ>



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Here's a recap of last month's Meeting by Richard Meyers

From Launch to Legacy: What OSIRIS-REx Revealed About Asteroid Benu

A summary of Dr. Daniela Mendoza Dea Jillina's presentation to the Phoenix Astronomical Society. When NASA launched the OSIRIS-REx spacecraft in 2016, the mission carried a deceptively simple ambition: fly to a nearby asteroid, grab a handful of it, and bring it home. What the team discovered in the process has rewritten our understanding of the early solar system — and perhaps of life itself.

Dr. Gioina, a mission team scientist, walked PAS members through the story from selection to sample analysis. Asteroid Benu was chosen from a field of roughly half a million known asteroids based on its accessible orbit, slow rotation, large size (about 500 meters), and its rare B-type carbon-rich composition. Scientists suspected it might preserve the kinds of primitive materials delivered to early Earth — the volatile-rich building blocks that helped transform a molten, lifeless planet into the blue marble we inhabit today.

When the spacecraft arrived at Benu in 2018, surprises came immediately. The surface expected to be covered in fine sandy regolith — based on Spitzer thermal data — turned out to be a boulder-strewn rubble pile. The low thermal readings were due to the porosity of those boulders, not grain size. Then Benu started throwing rocks at the spacecraft. Active particle ejection events, mass movements, and cratering indicated a geologically lively body — though one whose fundamental chemistry formed billions of years ago on a much larger parent object that was collisionally disrupted.

The October 2020 touch-and-go sample collection was equally eventful. The surface was so weak and cohesionless that contact sensors never triggered; timers had to fire the thrusters manually. The spacecraft briefly submerged into the surface and collected far more material than planned — over 120 grams, well exceeding the 60-gram goal.

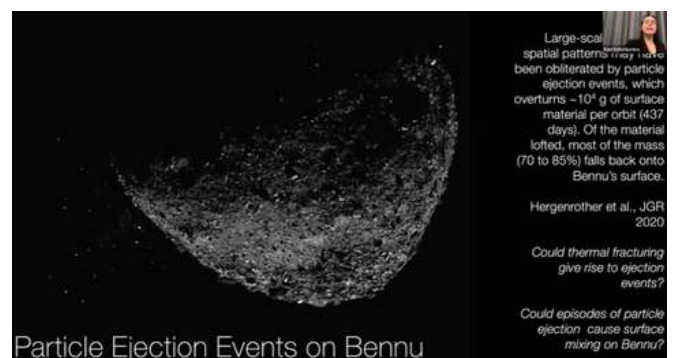
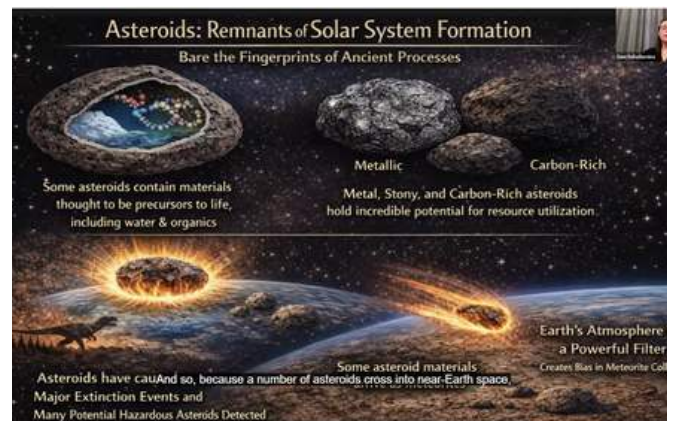
When the sample capsule landed in Utah's desert in September 2023, researchers wasted no time. Inside they found hydrated clay minerals, sulfides, iron oxides, and carbon nanoglobules — all textbook signatures of aqueous alteration, the chemical processing that happens when liquid water reacts with rock. Benu's parent body, it appears, once harbored pockets of warm liquid water at roughly room temperature, where mineral-rich brines slowly evaporated and chemically evolved — forming sequences of evaporite minerals strikingly similar to those seen in California's Mono Lake.

Most striking has been the organic chemistry. The sample contains 14 of the 20 amino acids used in terrestrial biology, present in equal proportions of left- and right-handed forms — suggesting life's preference for left-handed amino acids is a biological choice, not an inherited cosmic bias. Researchers have also detected nucleobases, ribose (the sugar backbone of RNA), glucose (a first in any asteroid material), and gum-like organic polymers. Taken together, the Benu sample now contains all the molecular building blocks needed to assemble RNA.

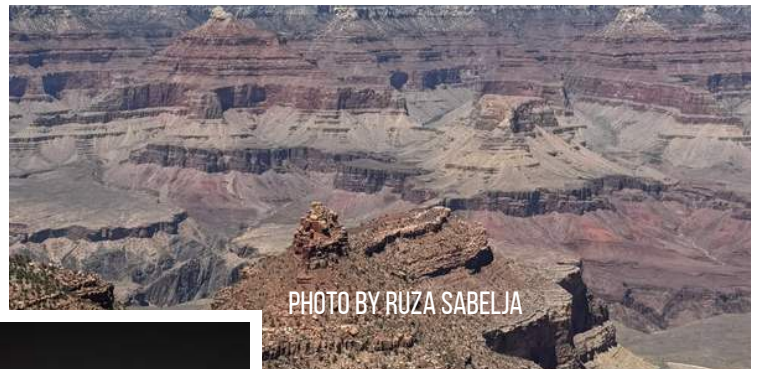
The mission has since been extended as OSIRIS-APEX, now en route to asteroid Apophis for its historic close Earth flyby in April 2029 — the nearest approach of a sizeable asteroid in recorded human history.

The bottom line from two years of sample analysis: complex organic chemistry didn't wait for planets to form. It was happening on small, icy bodies in the cold outer solar system within a few million years of their formation — and those bodies may have seeded Earth with the very ingredients of life.

The OSIRIS-REx mission officially concludes in September 2026.

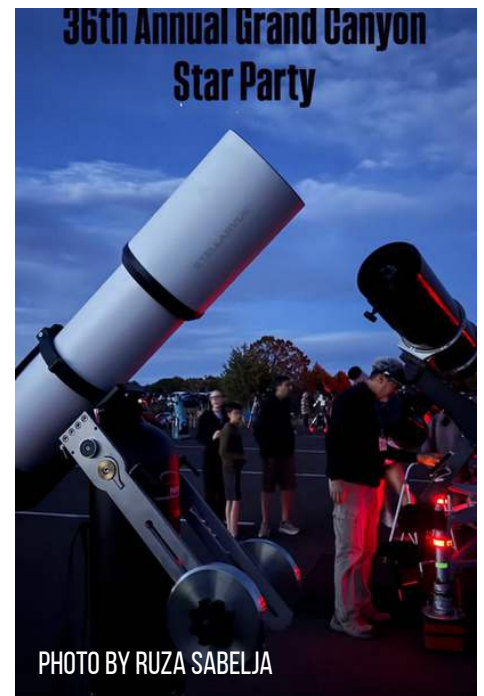


Summary of Outreach Events



Star Tours & Outreach events:

- 6, 13, 20, & 27 CIVANA
- 6th-14th Grand Canyon Star Party



Under the Rim: Eight Nights at the Grand Canyon Star Party

by Richard Meyers

The Grand Canyon Star Party is a free, week-long public astronomy event held annually on the South Rim of Grand Canyon National Park. No tickets or sign-up are required — just a valid park entrance pass. The event runs from sunset to around 11 p.m. each night, with nightly speaker presentations at 8 p.m. followed by telescope viewing on the large lot behind the Visitor Center. Rangers offer constellation tours at 9, 9:30, and 10 p.m.

The South Rim event is organized by the [Tucson Amateur Astronomy Association](#). The North Rim portion is historically organized by the [Saguaro Astronomy Club of Phoenix](#) — though for 2026, the North Rim Star Party was cancelled due to damage from the Dragon Bravo wildfire. The South Rim event ran as scheduled, June 6–13.

For PASTimes readers thinking ahead: 2027 dates are May 29 – June 5. 2028: June 17–24.

The Volunteer Community

What makes the Grand Canyon Star Party more than just a public star party is the community of volunteer astronomers who gather for the full eight days. TAAA organizes a full social calendar running alongside the nightly outreach, and it's one of the best parts of attending as a volunteer.

Each evening kicks off with a Popsicle Party at 7 p.m. by the registration cart on the telescope lot — a brief gathering for introductions, announcements, and suggestions before the public arrives. It sets a collegial tone for the night.

Sunday brought a pizza party at 12:30 p.m. in the Aspen Loop at Mather Campground, Site 30 — pizza and salad courtesy of TAAA. Tuesday was a lunch and IMAX double feature in Tusayan: meet at We Cook Pizza and Pasta at 11:45 a.m.,

then catch the 1:30 p.m. showing of Grand Canyon: Rivers of Time followed immediately by Deep Sky, featuring JWST images at IMAX scale — all for \$17.

Thursday brought Huevos Rancheros at 10 a.m., again at the Aspen Loop, with volunteers pitching in on prep starting at 9:30.

The week closed Saturday with a catered lunch at noon, courtesy of the Grand Canyon Conservancy.

It's a genuine community. By mid-week you know people's names, their scopes, and their observing quirks. That's hard to replicate at a one-night star party.

Day 1 — Setting Up Under a Windy Sky

I arrived Saturday and pulled into the lower parking lot, already well-populated with telescopes staked out by Friday arrivals and early Saturday regulars. Finding a clear patch of pavement took patience — a good reminder that arriving Thursday or Friday pays off if you want choice real estate on the scope field.

With the scope uncovered and cooling down, I headed off to claim a campsite. GCSP offers a selection of free sites for volunteers, but I opted for my own spot in the Pine Loop — tents only, quieter, and tucked under the ponderosas. The wind had other ideas. It blew hard all day and kept at it well into the evening, rattling tent poles and sending gear tumbling.

At 7 p.m., rangers and TAAA volunteers gathered the crowd for the Popsicle Party — about thirty minutes of orientation covering light etiquette, the evening's schedule, and dark sky basics. A word from experience: dress warmly. Temperatures at the South Rim drop quickly after sunset even in June.

The 8 p.m. talk wrapped at 9 and the crowds began streaming in. As the sun went down and the western sky deepened to indigo, Jupiter appeared low on the horizon — and through the eyepiece of my 11-inch SCT, it was immediately impressive.

Belt structure, the Great Red Spot, all four Galilean moons lined up like jewels on a wire. Lines formed quickly at the eyepiece, and the reactions were exactly what you remember from your own first look through a telescope: Oh! Wow. Is that real?

Amazing! Visitors came from coast to coast — Miami, Maine, Indiana, Pennsylvania, Georgia, Arkansas, Texas, Illinois, New Mexico, Arizona, California — and from across the world: Sweden, Japan, India, France, South Korea. In a single evening at one telescope, the canyon seemed to shrink the whole planet.

After Jupiter set, the night shifted to deep sky. M13 — the Great Hercules Cluster — filled the eyepiece with a dense snowfall of ancient stars until shutdown at 11 p.m. A few diehards stayed on into the small hours.

Day 2 — The Park by Day, Pizza by Night

Sunday is for the park itself. The road to South Rim viewpoints (Hermit Rest) is closed to cars, so cyclists and pedestrians have the pavement or path to themselves — a rare and beautiful thing along the canyon edge. Windy again, but slightly better seeing conditions at night.

The afternoon brought the pizza party at Aspen Loop, a welcome mid-event gathering where you get to actually see the people you've been standing next to in the dark all week.

The highlight of the evening came early: a chance to watch Io transit across Jupiter's face and disappear behind the planet — quiet celestial clockwork that rewards patience. New countries added to the list: Costa Rica and Brazil.

Fellow observers shared gear wisdom earned the hard way. Two field-tested favorites from the week: a red LED name badge that doubles as hands-free lighting at the eyepiece, and a set of vice grips clamped to a folding table to keep a monitor from walking away in the wind.

Small solutions that make a long night much more comfortable — the kind of thing you only learn by doing, or by talking to someone who has.

Days 3–7 — Finding a Rhythm at the Rim

Monday through Friday settled into a pattern that any seasoned GCSP volunteer will recognize: hike or bike in the morning while the light is good and the canyon is coolest, catch a shower and clean up in the afternoon at the Camper Services building, then head out to the telescope lot in time for the 8 p.m. lecture and the slow gathering of darkness.

The lectures are worth catching. Each night a different speaker takes the stage — rangers, astronomers, and guest educators covering topics from dark sky preservation to planetary science. Even a partial listen while getting the scope aligned pays off. The content is accessible to the public but often goes deep enough to hold a volunteer's interest too.

The bike route out to the viewpoints with no car traffic remains one of the unexpected pleasures of being there for a full week. You get the canyon in different light each day — morning gold, midday blue shadow, afternoon ochre — and it never quite looks the same twice. The wind was a companion all week, some nights manageable, others not.



Day 8 — Saturday: A TED Talk Worth Waiting For

The closing day of GCSP 2026 brought something special for the volunteer crew: an informal bonus presentation by our own Ted Blank, NASA Solar System Ambassador, on the story of NASA's Ingenuity Mars Helicopter. Think of it as a TED Talk — delivered by the right Ted, at exactly the right moment.

Ingenuity's story is one of the great underdog achievements in the history of spaceflight. Designed as a technology demonstration to attempt just five short flights over 30 days, the small solar-powered helicopter — weighing less than 4 pounds, with rotor blades spinning at nearly 2,500 rpm to grip an atmosphere just 1% as dense as Earth's — ended up completing 72 flights over nearly three years, serving as an aerial scout for the Perseverance rover across Jezero Crater. Its first flight on April 19, 2021 was described as a "Wright Brothers moment" for planetary exploration. It finally fell silent on January 18, 2024, after a rotor blade sustained damage on its last landing.

Ted brought the story to life in the way only a NASA Ambassador can — with the technical depth to satisfy the astronomers in the room and the storytelling warmth to make it feel personal. For those who'd missed his guest speaker appearance earlier in the week, this was a second chance well worth taking.

It was a fitting close to eight days under one of the darkest skies in the American Southwest: a reminder that the same human curiosity that draws people to a telescope at the canyon's edge also sends helicopters to Mars.

Planning Your Visit

The Grand Canyon Star Party is one of the best public outreach events in amateur astronomy. A few things worth knowing before you go:

- It's free with park admission. No registration needed for visitors.
- Best viewing is after 9 p.m., though planets are often visible at dusk. Many scopes come down at 11 p.m., but some observers stay much later.
- Use a red flashlight — white light and cell phone screens are strongly discouraged on the telescope lot. Cover any flashlight with red cellophane or configure your smartphone to a red screen.
- Dress in layers. June nights at the rim can be cold, especially with wind. The volunteer Cold Weather Clothing Closet has layers available to borrow if needed.
- Beat the heat by day — if it's a warm year, plan active daytime activities for the morning and seek shade between 1 and 4 p.m. The Visitor Center, GC Community Library, and GC Recreation Center all offer cool indoor spaces.
- Campground and lodging reservations are strongly recommended — the park fills up during star party week.

For more information and future dates, visit the [NPS Grand Canyon Star Party page](#).



SPOTLIGHT: The Solar Observer's Handbook: Observing · Imaging · Understanding the Sun

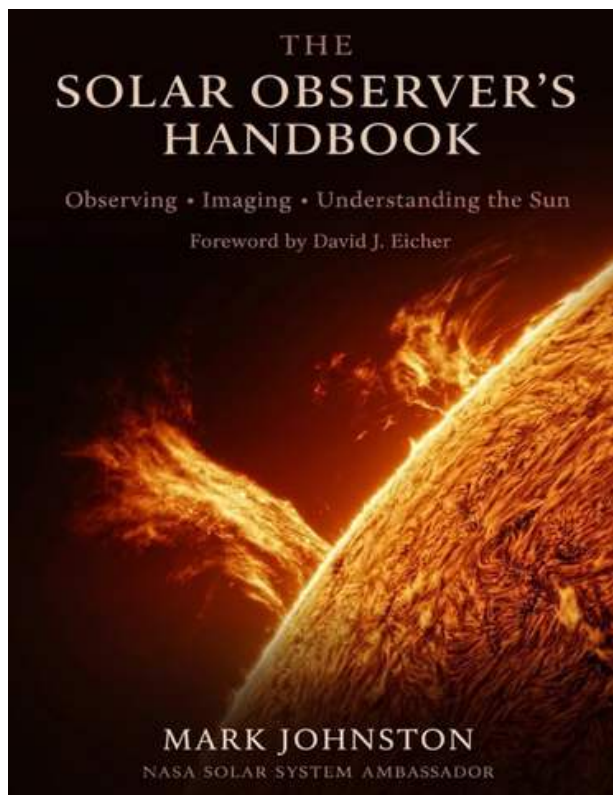
NASA Solar System Ambassador and Phoenix Astronomical Society Vice President Mark Johnston has long championed solar astronomy through education and hands-on imaging. His AZAstroGuy outreach content – including live solar imaging demonstrations – shows how today's equipment and techniques can reveal the Sun's intricate detail with striking clarity: delicate prominences arcing above the limb, active regions bristling with magnetic complexity, and the fine granular texture of the photosphere itself.

That same spirit of accessible, practical solar astronomy drives *The Solar Observer's Handbook: Observing · Imaging · Understanding the Sun*. Written for anyone curious about our nearest star, the book moves readers from safe first-light viewing through progressively more advanced imaging and processing workflows — always grounded in the science behind what they're seeing.

The handbook is available on [Amazon](#), and Mark's [AZAstroGuy](#) videos offer a compelling companion resource for those who learn best by watching the techniques in action.

Together, they represent exactly the kind of modern, approachable solar astronomy that PASTimes readers are well-positioned to explore.

Reach out to Mark for more details. markj57@gmail.com.



M6 & M7

When these two big, bright, and beautiful open star clusters appear in the early evening in early July, summer is upon us.



If you have recently begun your journey under the stars, why not whet your appetite by exploring southeastern Scorpius and its two wonderful open star clusters, M6 & M7. You will return to them year after year!

While they are visible to the unaided eye from a dark location, binoculars help greatly.

1. Identify Scorpius standing low in the south-southeast on an early summer evening. As summer progresses, it ascends low in the south, then swings low in the southwest in the early fall.
2. From red Antares, direct your gaze southward down the scorpion's back, then turn eastward.
3. When its tail hooks northward, continue the length of that hook.
4. M6 and M7 should be plainly visible in the binocular field.

M6:

A faint hazy glow is seen by the unaided eye from a dark, clear site. Two dozen stellar lights can be discerned with 10x50 binoculars.

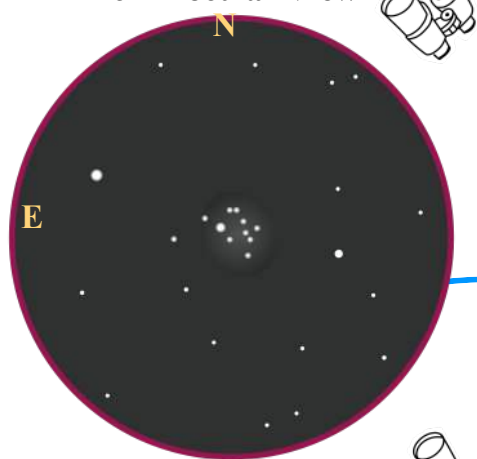
- Integrated Magnitude: 4.2
- Size: 33 minutes

M7:

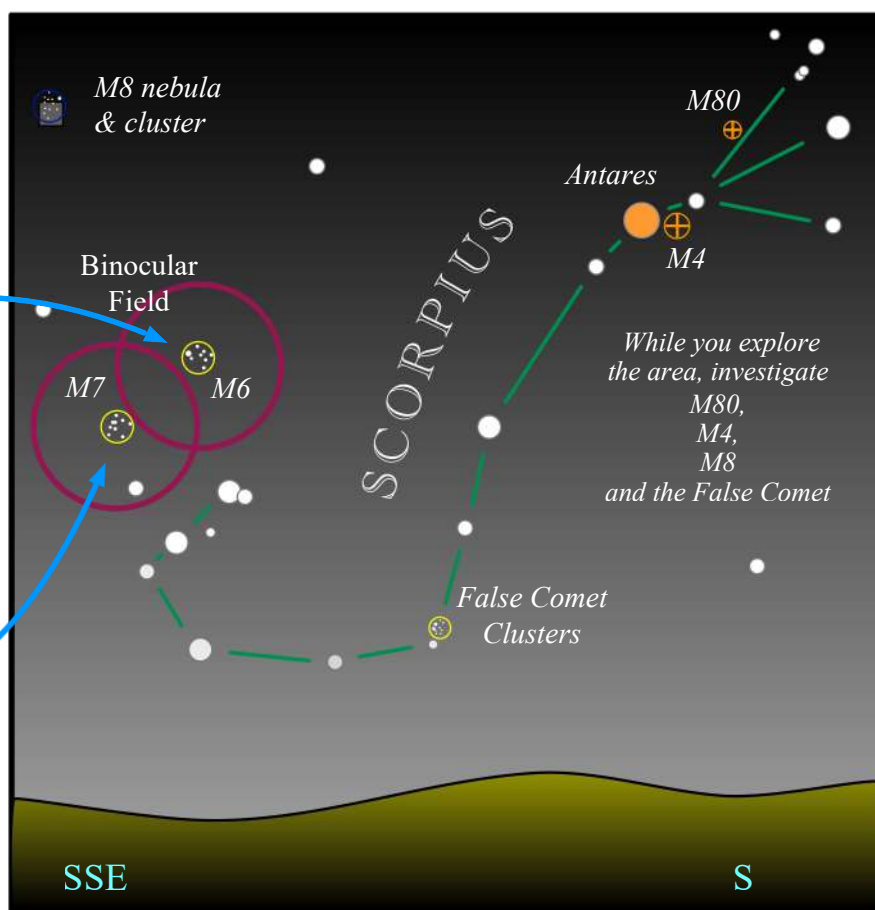
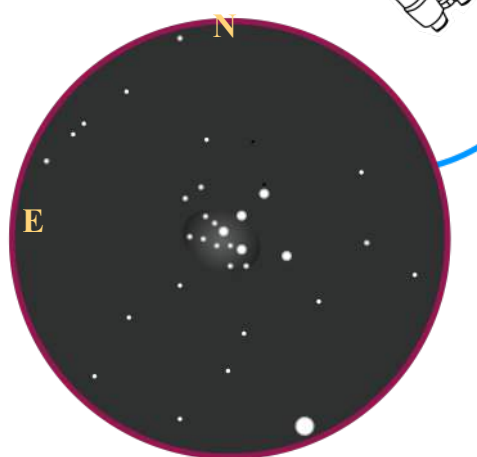
A glittery glow is easily spotted off the scorpion's tail by the unaided eye. Binoculars reveal many faint stars.

- Integrated Magnitude: 3.3
- Size: 80 minutes

M6 Binocular View



M7 Binocular View



RECAP of June ASIG meeting by Richard Meyers

[AstroBin](#) (presented by Salvatore Lovene) has been running for 15 years and now hosts over one million images from roughly 20,000 active members, with 8,000–10,000 users active on any given day. It's far more than an image host. AstroBin functions simultaneously as a searchable equipment database, astrophotography forum, social network, and marketplace — all tightly integrated. On the technical side, it supports image files up to 4 GB and up to 32,000 pixels per axis, with full zoom and no downsampling, making it ideal for large mosaics. Every uploaded image is plate-solved and automatically tagged with coordinates, constellation, rotation, and hemisphere data.

The equipment database is one of AstroBin's most powerful features. Telescopes, mounts, cameras, filters, accessories, and even processing software and plugins are all indexed and linked to images. As an example, the ZWO ASI 2600MC Pro currently leads as the most-used camera on the platform, appearing in roughly 51,000 images from 3,300 users. Members can save equipment "setups" for faster future uploads, and the multi-parameter search — filterable by instrument type, object, moon illumination, integration time, aperture, and more — makes it an excellent research tool for planning sessions or evaluating gear combinations. A search for M45 through apochromatic refractors, for instance, returns 847 results that can be sorted by integration time.

Community features include activity feeds, image versioning, galleries, private messaging, and an Image of the Day program run by a jury of approximately 60 active members. The integrated marketplace benefits from AstroBin's provenance system — upload dates cannot be modified — which builds trust in equipment listings. On AI policy, fully generated AI images are prohibited and removed; images where aggressive processing introduces non-real features are also discouraged, though Salvatore acknowledged that partial AI-assisted processing remains a difficult gray area to police.

[Dark Sky Sites](#) (presented by Barrington Russell) was born out of a frustrating personal experience: a trip to a dark site near Córdoba, Spain, where a light dome from the city ruined a planned shot of the Dark Shark nebula. The insight was that standard light-pollution maps don't tell you whether a specific direction from a site is dark — only that the site is dark on average. Dark Sky Sites was built to fix that.

The platform uses a physics-based engine that ingests VIIRS satellite upward radiance data and propagates it through a virtual 3D atmosphere, modeling scattering, extinction, aerosols, atmospheric profiles, and terrain masking. The result is a simulation of actual sky brightness as seen from the observer's position in any azimuth and altitude — not just a blurred overhead map. Maps are updated monthly (daily is technically possible but noisier), and multiple visualization modes are available, including a simulated all-sky dome view and an interactive 3D first-person perspective showing horizon light domes in false color.

Particularly useful for planning is the Observation Impact tool, which lets you compare your home location to multiple candidate dark sites. One demonstration showed that 40 hours of imaging from a city location could be matched by just 1.7 hours at a nearby dark site. The travel-worth calculator takes this further, weighing drive time and setup/teardown against imaging-time savings to produce a ratio — one demo returned a 468:1 ratio, representing 890 hours saved for a two-hour drive. The Dark Sky Finder can also locate candidate sites automatically, ranking them by Bortle class or by the best compromise between darkness and travel time.

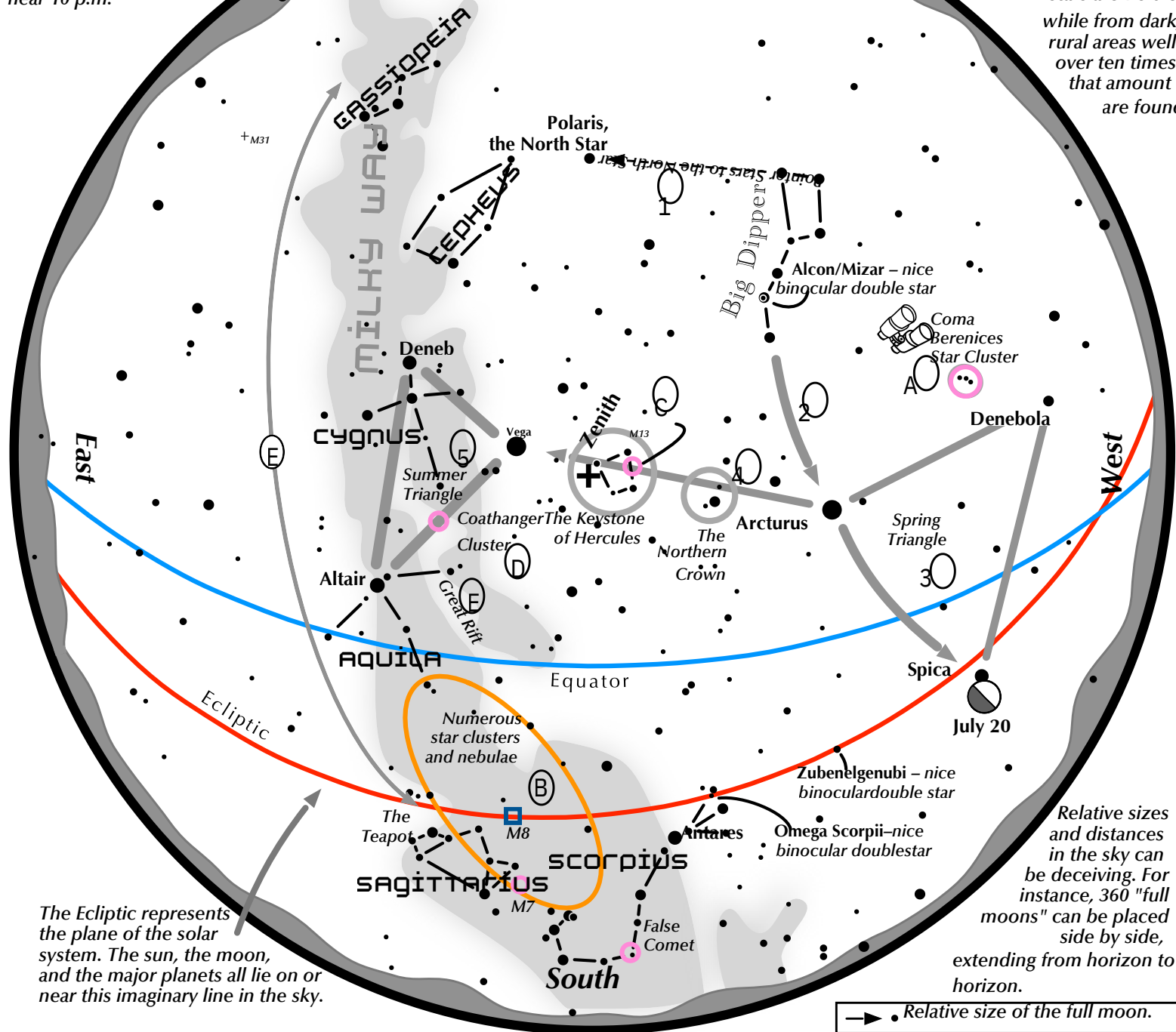
The simulation can be locally calibrated through community SQM (sky-quality meter) submissions. Users who submit readings from Unihedron-class devices help the model converge toward real-world conditions; most submissions fall within about 0.2 magnitudes of the simulation. A free API is also available for embedding time-series data, SQM outputs, and other widgets

Navigating the mid July Night Sky

2026

For observers in the middle northern latitudes, this chart is suitable for mid July at 11 p.m. or late July near 10 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

Navigating the mid July night sky: Simply start with what you know or with what you can easily find.

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the July evening sky, then continues to Spica.
- 3 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 4 To the northeast of Arcturus shines another star of similar brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 5 High in the East lies the Summer Triangle stars of Vega, Altair, and Deneb.

Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: On the western side of the Keystone glows the Great Hercules Cluster, containing nearly 1 million stars.
- D: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- E: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.





MARK SAVAN-WR 134 -
SUPERNOVA REMNANT



May issue of BBC Sky at Night magazine!

△ The Jellyfish Nebula

Andrew Stone, Cave Creek, Arizona, USA, 16 February 2026

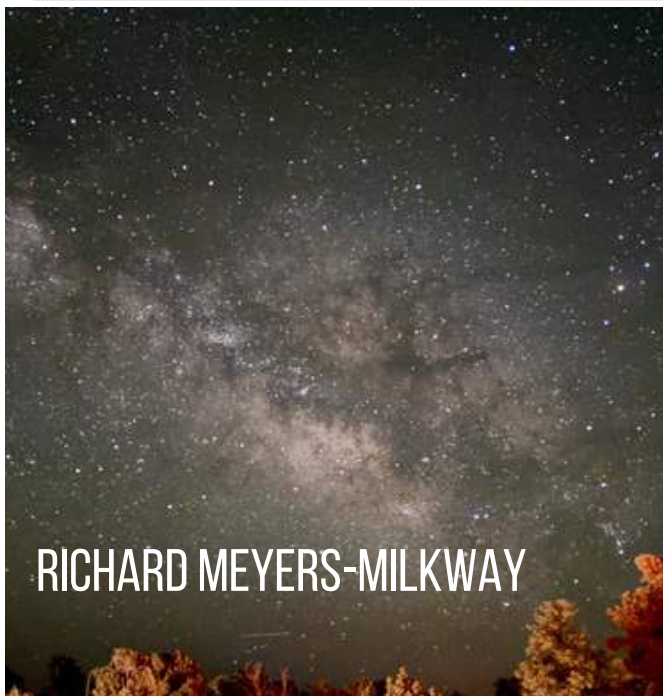


Andrew says: "I realised IC 443 would make an excellent SHO target. The ghostly OIII kept on growing as I gathered data and it was exciting to watch this image take shape."

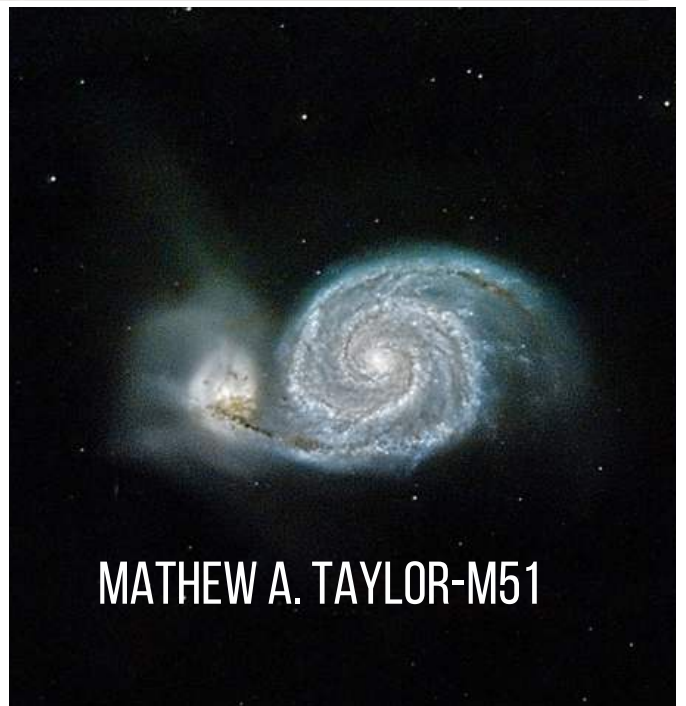
Equipment: ZWO ASI294MC Pro camera, iStar Phantom FCL 140 refractor, ZWO AM5 mount



CALEB SEXTON LDN 541

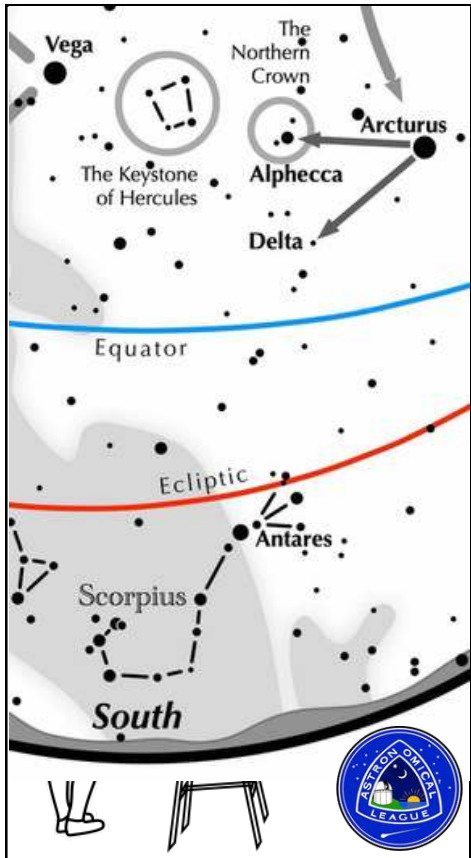


RICHARD MEYERS-MILKWAY



MATHEW A. TAYLOR-M51

ASTRONOMICAL LEAGUE Double Star Challenge



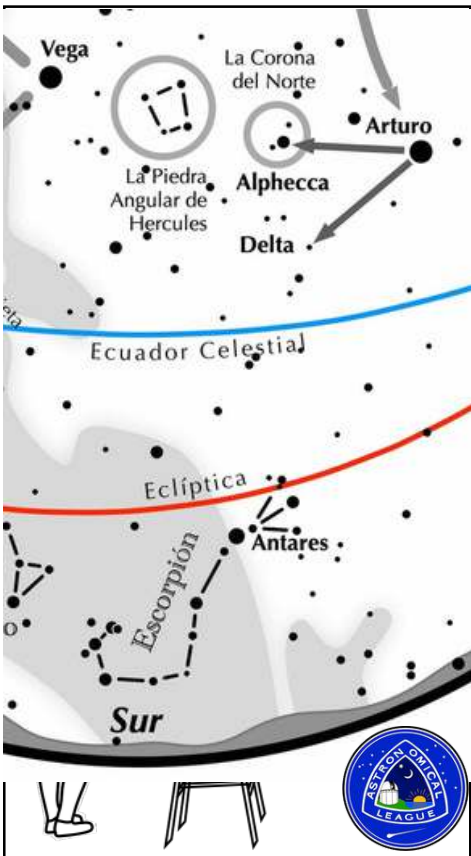
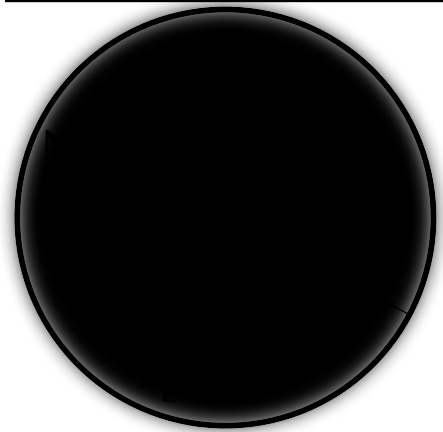
Other Suns: Delta Serpentis

How to find Delta Serpentis on a July evening

Find bright Arcturus, nearly overhead. To its northeast is a similarly bright star, Vega. One-third the distance between the two is Alpha Centauri. Delta Serpentis lies the same distance from Arcturus as Alpha Centauri, but to the southeast.

Delta Serpentis A-B
 separation: 4 sec
 A magnitude: 4.2
 B magnitude: 5.2
 Position Angle: 175°
 A & B colors: white

Suggested magnification: >60x
 Suggested aperture: >3 inches



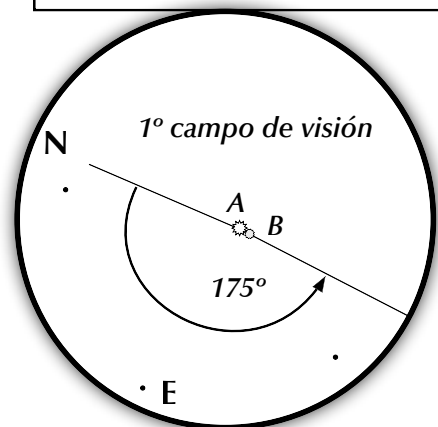
Otros Soles: Delta Serpentis

Cómo encontrar Delta Serpentis en una tarde de julio

Encuentra Arturo brillante, casi arriba. Al noreste hay una estrella igualmente brillante, Vega. Un tercio de la distancia entre los dos es Alpha Centauri. Delta Serpentis se encuentra a la misma distancia de Arcturus que Alpha Centauri, pero al sureste.

Delta Serpentis A-B
 separación: 4 sec A
 magnitud: 4.2 B
 magnitud: 5.2 PA:
 175° A & B color:
 blanca

Ampliación sugerida: >60x,
 Apertura sugerida: >75 mm



Used equipment for sale

Duration: Ads run for 3 months and may be renewed if submitted by the deadline and space permits.

Cost: Ads are FREE for members only. Equipment Requirements: All items must be in good working order.

Acceptable items include books, star charts, telescopes, eyepieces, finder scopes, binoculars, lasers, and other astronomy-related gear. Submission Details: Email the following information to editor@pasaz.org: *Make *Model *Description (Under 100 words-include a link to the manufacturer's site if available) *Price *Contact Information *Preferred Contact Method(Email or phone) *Approximate Location

PAS is not responsible for the ads and does not guarantee the quality of the items for sale. PAS reminds everyone, you purchase at your own risk, so do your research beforehand.

Posted 05/2026

MEADE ETX-LS 8" telescope for sale. Have instruction manual and 8X50 Rear Focus Viewfinder. ~~\$1,400.00~~ **\$600** or best offer. -Judy Pester (Paradise Valley) , judyloves356@gmail.com

Posted 06/2026

Losmandy G11 Gemini 2 Level 6, OP worm gear, freshly cleaned and serviced, HD nonfolding tripod local pickup PAS member price \$2,250 Andrew Stone andrews@pasaz.org



PAS offer: This is a first come, first served offer. Review the list. Decide what you want. Email president@pasaz.org what you want. He will set up a day/time for you to come to his location to purchase. Bring your check payable to **Phoenix Astronomical Society** or cash ... no credit cards please. Nothing this month!



Telescope Loan Program

PAS Telescope Loan Program- The PAS Telescope Loan Program gives active PAS members access to a range of donated telescopes and accessories. These instruments are intended to support both visual astronomy and astrophotography learning experiences.

Overview-Members can borrow from the full PAS telescope inventory. Equipment ranges from beginner-friendly setups to higher-value imaging systems, offering opportunities to explore different observing and imaging techniques.

Check-out Requirements

Some telescopes require completion of a short training program before use

Higher-value equipment may require credit card information as a security measure against loss or damage

An accessory kit (eyepieces and supporting gear) is available for all loaner telescopes when needed

Loan Period

Standard loan duration is up to one month
Extensions may be granted in special cases upon request

Pickup & Return

All equipment must be collected from the PAS storage facility

All items must be returned to the same facility by the agreed end date

How to Request a Telescope

To check out a telescope, email telescope@pasaz.org with the following information:

Your full name

PAS membership status

Preferred telescope (if known)

Intended use (visual observing or astrophotography)

Requested loan dates



NEW-Dwarf lab Mini

NEW- Dwarf Lab 3

NEW Askar 103 APO 103mm f/6.8 Triplet Refractor Telescope, with ioptron AZ Mount Pro and an advanced eyepiece kit

2 x ZWO SeeStar S50

Coronado Personal Solar Telescope (PST)

Orion SkyQuest XT-10 - 10" Dobsonian

Orion Skyquest XT-8 – 8" Dobsonian

Sky-Watcher – 10" Collapsible Motorized Dobsonian

Accessory Kit #4 - Advanced Observing

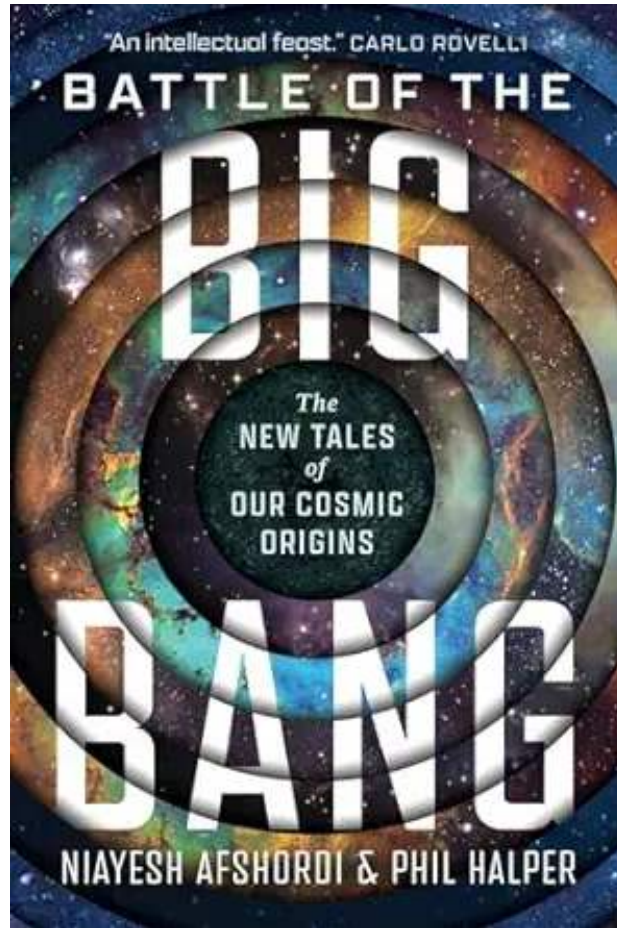
Accessory Kit #5 – 1.25" Eyepieces & filters





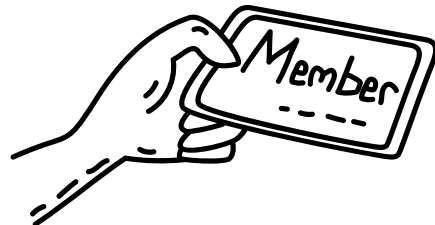
The 2026 Book Club

For more information or to join, contact Cyrus at saeidmousavi@yahoo.com



Battle of the Big Bang: The New Tales of Our Cosmic Origins
by Niayesh Afshordi (Author), Phil Halper (Author)

By most popular accounts, the universe started with a bang some 13.8 billion years ago. But what happened before the Big Bang? And how do we know it happened at all? Here prominent cosmologist Niayesh Afshordi and science communicator Phil Halper offer a tour of the peculiar possibilities: bouncing and cyclic universes, time loops, creations from nothing, multiverses, black hole births, string theories, and holograms. Along the way, they offer both a call for new physics and a riveting story of scientific debate.



Are you fascinated by the stars and eager to explore the wonders of the universe? Do you want to connect with like-minded individuals who share your passion for astronomy?

Hi everyone! Great news. Renewing your membership is quick and easy: just visit www.pasaz.org, look in the left index column for “Join Our Society,” click it, and you’re on your way.



We now offer a year-round membership, which means you can join at **any time with no enrollment deadlines**, and you’ll receive a full 12 months of benefits. If you have any questions, our Membership Manager is happy to help at membership@pasaz.org.



Benefits of PAS Membership



- Helping the Society accomplish its mission of astronomy outreach and education
- Contributing toward the Society’s ability to provide college scholarships to astronomy students
- Participation on the Society’s email distribution list
- Email receipt of the Society’s monthly newsletter
- Participation in the Society’s telescope loaner program
- Ability to serve as a teacher at the Society’s telescope workshops
- Ability to serve as a mentor at the Society’s star parties
- Ability to participate in the Astro Imaging Special Interest Group (ASIG)
- Ability to serve as a paid presenter in the Society’s Star Tours program
- Opportunity to purchase used astronomical equipment at 50% off current value
- Access to club trips to the darkest Arizona sites and top observatories
- Connections with professional astronomers and researchers through guest lectures or workshops.
- Opportunities to hold leadership positions within the club, such as committee chairs or officers.



By becoming a member of the Phoenix Astronomical Society, you not only enhance your own astronomical journey but also contribute to a vibrant community that shares your passion. Together, let's explore the universe and inspire others to do the same.

Sign Up Now and Start Exploring the Cosmos with Us!

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PAS is incorporated in the state of Arizona as a non-profit, scientific and educational 501(c)(3) organization. Our newsletter PASTimes is published monthly and distributed via the Internet. All issues are available for download on our website **www.pasaz.org**. Ads for astronomy equipment are provided as a courtesy to sellers and buyers, and do not constitute any endorsement by PAS. All photos by Richard Meyers unless otherwise credited. All articles and photos are copyright by their respective authors or PASTimes.

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Ryder David

Alessandro Cavallaro

Richard Meyers

Damon Finell

Luke Douglas

Star Tours Team 2026

These individuals have successfully met the qualifications to participate in Star Tours Events and receive compensation \$\$ for their services. ☀

