VOLUNE 77 ISSUE #1

September 2025 Monthly Newsletter

PAStimes

A Publication of the Phoenix Astronomical Society

MARK SAVAN-MEDULLA NEBULA
34 HRS TOTAL EXPOSURE; SVX130T REFRACTOR; ASI2600MM CAMERA; 7NM SHO NARROWBAND FILTERS

In this newsletter you can expect:

AstroSavy

EVENT REMINDER

4 – Monthly Lecture Series: Visit to Major Chilean Observatories with Mark Johnston | 13 – Book Club | 18 – Telescope Workshop | 22 – ASIG Meeting

Stu's Views

Hi everyone!

Our Fall season is underway. Lectures, star parties and of course our monthly newsletter. We are working on another field trip for our members, like the successful visit we had to Lowell Observatory. More on that as we finalize plans.

Major change: All of our on-campus events at PVCC (Paradise Valley Community College) are now held in **building Q room 120A**. This is the former Maricopa County Library, just south of the campus athletic fields on 32nd Street. See the map in this newsletter.

Request: We are looking for a volunteer to update our history files. Contact me if interested.

Monthly lectures: Do you have any suggestions of whom we might invite for our monthly lectures?

Do you have any suggestions of topics or subject matter you would like presented? If so, contact our vice president Mark Johnston vicepresident@pasaz.org

Star Tours: This is a group of our members who give presentations about astronomy to local organizations, schools and businesses. Do you know of a community business or organization who would like to hire our Star Tours team? Contact: Andrew Stone startours@pasaz.org

FREE: Yep, free telescopes and eyepieces for you, our members of PAS...to borrow. We even have a pair of super-powerful binoculars for you in our loan program. Interested: telescope@pasaz.org

Clear skies everyone...they belong to you

Stuart Brachney

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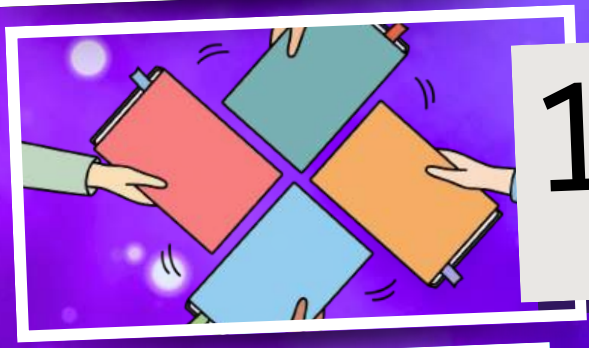
SEPTEMBER 2025
UPCOMING EVENTS
SCHEDULE

04/ THUR

MONTHLY LECTURE SERIES

Exploring Chile's Major Observatories with Mark Johnston



13/ SAT

BOOK CLUB-MEMBERS ONLY

The Particle at the End of the Universe: How the Hunt for the Higgs Boson Leads Us to the Edge of a New World by Sean M. Carroll, Chapters-1-4
Please reach out to: saeidmousavi@yahoo.com

16/ THUR

TELESCOPE WORKSHOP 101/201

101 What to buy
201 How to operate your telescope.

22/ MON

ASIG/ASTROIMAGING - MEMBERS ONLY

Are you passionate about capturing the beauty of the cosmos? Whether you're a beginner or an experienced astrophotographer, now is the perfect time to join

27/ SAT

STAR PARTY

Our Star Parties are held at one of our public star party sites which have an excellent view of the night sky. Parties begin before sunset so equipment setup may be completed in the daylight.

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.

September Lecture-Mark Johnston

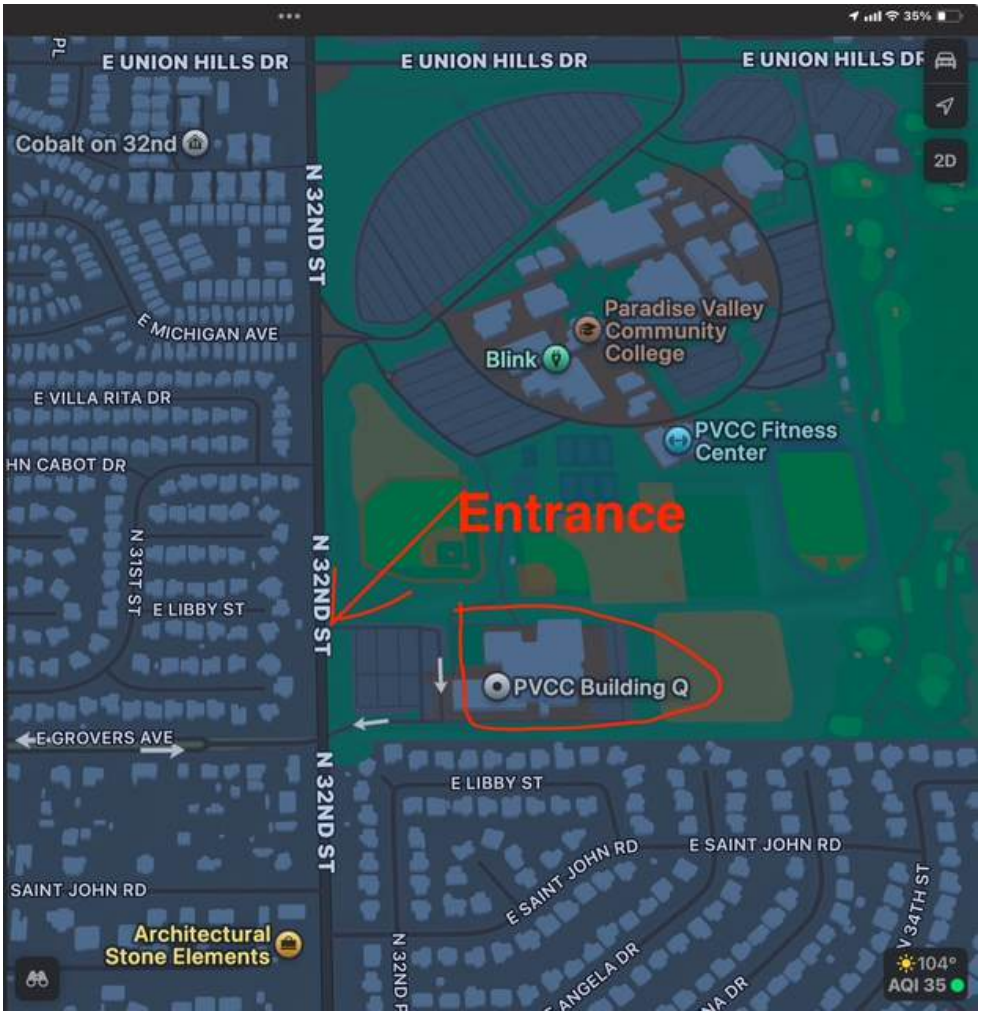
Topic: My visit to major Chilean observatories

Summary: I had the opportunity to visit the largest observatories in Chile in July, and get behind-the-scenes access to the telescopes, control rooms, astronomers and more. Join me to learn more about what's happening in our world-class observatories

Bio: Mark is the VP of our Phoenix Astronomical Society, a NASA Solar System Ambassador, NASA Eclipse Ambassador, ACEAP Ambassador to Chile, Telescope.live Ambassador, astrophotographer and social media influencer on Astronomy topics. He has a Master of Outreach from the Astronomical League and Gold Medal Service Award from the White House for his astronomy outreach activities.

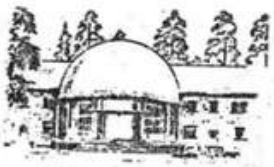
NEW LOCATION

All of our PAS events at Paradise Valley Community College are now being held in **Building Q room 120A.** This is the former Maricopa County Library building south of the PVCC athletic fields on 32nd street.



Here’s a recap of last month's Meeting

Blast from the past- November 1975



SKY - LINES

Monthly Newsletter of the PHOENIX ASTRONOMICAL SOCIETY, INC, Phoenix, Arizona. A non-profit, educational, scientific corporation. Mailing Address: 2736 West Rose Lane, Phoenix Arizona 85017.

Editor: Gene A. Lucas, 6043 West Golden Lane, Glendale, Arizona 85302. (934 - 1889)

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LOWELL OBSERVATORY TOUR ENJOYED BY LARGE GROUP

A large crowd of P.A.S. members and their families travelled to Flagstaff Saturday, October 25 to tour Lowell Observatory and observe with the 20" refractor.

The afternoon was pleasantly warm for a tour of the Andrews Mesa site south of Flagstaff, where the group of about 35 saw the 24" and 72" reflectors, and the 13" astrocamera (the Pluto discovery telescope). Leaving the Mesa at sunset, the group was forewarned of a chilly evening to follow as the shadows lengthened!

Following dinner in Flagstaff, the group met again at the Observatory Library on Mars Hill for a brief talk by our host, Mr. Charles Capen, on the history and research of Lowell Observatory. After a walk-thru tour of the Planetary Sciences Building, Mr. Capen led the group, some 43 people, to the 20" refractor dome.

The rest of the evening was spent observing - a few "diehards stayed until about 1 a.m, when th Moon began to interfere.

Most who travelled to Flagstaff agreed it was a pleasant and interesting Saturday -- our thanks to Mr. Capen and the other Lowell staff.

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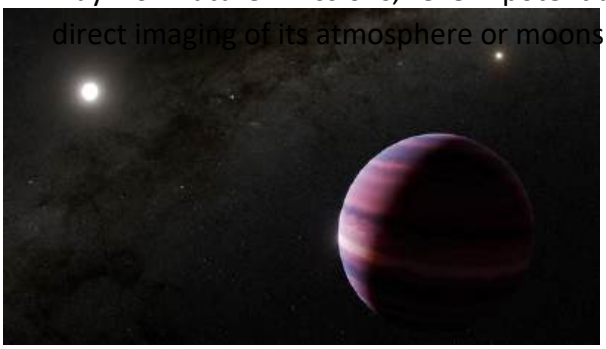
THIS ISSUE PRINTED COURTESY PHOENIX COLLEGE SCIENCE DEPT.

In the NEWS

The disappearing planet next door has astronomers intrigued

Astronomers using the James Webb Space Telescope (JWST) have likely discovered a Saturn-sized planet orbiting Alpha Centauri A, the closest Sun-like star to Earth at just 4 light-years away.

- The planet appears to orbit at a distance of 1–2 AU, similar to the distance from the Earth to the Sun, which places it in the habitable zone—though being a gas giant, it wouldn't be habitable itself.
- Alpha Centauri has long been a focus of exoplanet searches. While its companion star, Proxima Centauri, is known to host planets, Alpha Centauri A had none confirmed until now.
- The detection was made with JWST's MIRI instrument, which picked up the planet's infrared signal.
- Because of its proximity to Earth, this system offers a rare chance to study a nearby planet in detail and could pave the way for future missions, even potential direct imaging of its atmosphere or moons.



(Source: sciencedaily.com)

Hubble captures a wild star-birthing storm 160,000 light-years away

NASA and ESA's Hubble Space Telescope have captured a stunning image of the Tarantula Nebula, a massive star-forming region located 160,000 light-years away in the Large Magellanic Cloud. This nebula is home to some of the most massive stars known, with some reaching up to 200 times the mass of our Sun. (ScienceDaily)

The image reveals intricate dust clouds and intense stellar winds from rare Wolf–Rayet stars, which have shed their outer hydrogen layers, becoming extremely hot and luminous. These stars power dense and furious stellar winds, contributing to the chaotic environment that fuels the birth of new stars. (ScienceDaily)

This observation is part of the Scylla program, which complements the ULLYSSES program by investigating the structures of gas and dust surrounding massive young stars in the Small and Large Magellanic Clouds. The detailed image showcases the sculptural details in the nebula's dusty clouds, providing valuable insights into the processes of star formation in such extreme environments. (ScienceDaily)

For more information and to view the image, visit the full article on ScienceDaily. (ScienceDaily

Craft Beer Meets Cosmic Wonder

by Richard Meyers

Driving through Bend, Oregon, I spotted something unusual rising above a brewery: a gleaming dome. Curiosity got the better of me, so I pulled in, thinking, Why would a brewery have an observatory? That's how I discovered the Hopservatory, a place where craft beer and cosmic wonder come together in one unforgettable experience.

The Hopservatory is part of Worthy Brewing, founded by Roger Worthington. Inspired by a visit to the Oregon Observatory in Sunriver, Worthington dreamed of creating a space where beer lovers could also explore the stars. His vision was to spark awe and perspective—a reminder that while we savor what's close to home, we're also part of something far larger.

Completed in 2016, the Hopservatory is a 50-foot-tall tower connected to the brewery. Visitors start in the Transporter Room, decorated with a colorful Star Trek-inspired mosaic of hop comets, starships, and bicycles. Upstairs, the Control Room features educational displays about the universe.

At the top sits the heart of the Hopservatory: a 16-inch Ritchey-Chrétien telescope beneath a rotating Ash Dome. This professional-grade instrument, the same type used in research observatories, brings distant planets, star clusters, galaxies, and the moon's surface into crisp detail.

The Hopservatory is operated by the Worthy Garden Club, the brewery's nonprofit focused on science literacy and sustainability. Through partnerships with the Oregon Observatory and the University of Oregon, the Hopservatory hosts astronomers, educators, and special programs that connect the community with the cosmos.

Leading the way is Grant Tandy, a Central Oregon native and lifelong stargazer. Trained at the Oregon Observatory, Tandy guides guests through nightly viewing sessions, making astronomy accessible and engaging for all ages

Public stargazing nights run Thursday through Sunday, with a suggested donation of just $5 supporting science education. Guests climb the tower, learn a few cosmic facts, and then step up to the telescope for a close-up look at celestial wonders.

Daytime solar viewing events use specialized telescopes to reveal the sun's activity, while school field trips and private tours turn science into an interactive adventure for students and families.

The Hopservatory reflects Worthy Brewing's broader commitment to sustainability. The brewery invests in solar energy, water conservation, and eco-friendly practices. The observatory adds another dimension—encouraging people to look outward at the stars while thinking inward about the responsibility of caring for our own planet.

For me, stumbling upon the Hopservatory transformed an ordinary drive into a cosmic adventure. What began as a stop for a beer became a journey into the night sky. From hops to the heavens, this unique spot reminds us that awe can be found both in a pint glass and among the stars.

Lowell Observatory at Flagstaff, Arizona
by Richard Meyers

On July 21st, about 25 PAS members, friends, and family made the journey up to Flagstaff for a truly memorable evening at Lowell Observatory, guided by our host, Kevin Schindler. Kevin's deep knowledge and infectious enthusiasm brought the observatory's rich history and cutting-edge science to life in a way that left everyone inspired.

Before the tour, 15 shared a lively dinner, catching up, swapping stories, and fueling up for the night ahead—a perfect start to the evening.

Once we arrived at the observatory, the highlights unfolded one after another:

- Clark Telescope (24") – Stepping inside the historic dome felt like stepping back in time. This telescope, one of the observatory's earliest instruments, was crucial for early planetary observations. Built in the late 19th century, it represents the pioneering era when astronomers first began charting Mars and other planets with precision.
- Giovale Open Deck Observatory – Here, several modern telescopes were set up for public viewing. It was inspiring to see the legacy of historic instruments alongside modern technology, all under the clear, starry Arizona skies.
- Dyer Telescope (24") – Another impressive instrument, offering stunning views and insight into Lowell's ongoing astronomical research. The Dyer Telescope continues Lowell's tradition of exploring our solar system and beyond.
- Pluto Discovery Telescope – Perhaps the evening's most iconic stop: standing before the very telescope used by Clyde Tombaugh to discover Pluto in 1930. This historic achievement cemented Lowell Observatory's place in the history of planetary discovery.
- Rotunda Museum – We explored historic instruments, documents, and displays, tracing Lowell Observatory's long-standing contributions to astronomy. Founded in 1894 by Percival Lowell, the observatory initially focused on the study of Mars, sparking public fascination with his theories about Martian canals. Over the decades, the observatory evolved into a center for planetary and stellar research, ultimately leading to monumental discoveries such as Pluto.
- Dark Sky Planetarium Show – The evening concluded with an immersive planetarium experience, highlighting Arizona's dedication to preserving dark skies and reminding us all why we love gazing at the stars.
- A huge thank you to Kevin for guiding us with such passion and expertise, and to everyone who joined the trip—it was an evening full of learning, camaraderie, and inspiration. Events like this are exactly why PAS exists: to foster a love of astronomy and share the joy of discovery with our community.


Photo By Stu Brackney

PAS Loan Program Worth its Weight in Gold

By Ryan Knott

Recently, I was lucky enough to win a hiking pass to trek The Wave in northern Arizona's Vermillion Cliffs National Monument. I wanted to make the most of being so close to national parks and chose to rent an Airbnb in Kanab, UT. A benefit of staying in Kanab is how little light pollution there is on the outskirts of the city. I knew I had to take advantage of the dark sky, but I didn't have the portable equipment that could fit in a totally packed car. Luckily for me, PAS loans out the perfect equipment and costs nothing if you're a member. This is an incredible deal that everyone should take advantage of.

The day before I hit the road, I checked out the ZWO S SeeStar S50. Phil Hoppes wrote a great piece in the August 2025 PAStimes about using the SeeStar that I highly recommend reading. The S50 is intuitive to use, has easy-to-understand directions, and downloads the images directly to the cellphone app. PAS also has an accessory equatorial mount, which improves imaging even more. Packed into its travel case, the SeeStar takes up almost no room at all and has internal rechargeable batteries that don't require an external power source like most other telescope mounts. This is a traveler's dream astrophotography system!

Once the SeeStar is set up, it hums to life, walks through how to polar align, and then slews to the target you selected in the ZWO app with automatic platesolving. Following the camera arm, you can roughly identify in the sky where the target is. I pointed out the location of diUerent Messier objects to my friends and read out loud the ZWO app's descriptions of the target and its host constellation. As I explained what we were looking at, the app began live stacking frames. Seeing arms of a spiral galaxy come into focus is really special.

As long as your phone is within range of the SeeStar, the stacking happens automatically. You can join your friends and talk or play games as the Seestar keeps imaging by itself. You can change targets automatically and see if the object is ascending or descending as the night progresses. The focusing happens internally but can be changed manually if desired. This really is the best solution for foolproof astrophotography in a compact travel size case. I cannot praise it enough!

In addition to the SeeStar I also checked out the PAS 2 inch eyepiece kit. These top-of-the-line TeleVue eyepieces have a great field of view and eye relief. When I returned from Kanab, there was a PAS star party north of Flagstaff with an awesome dark sky. I got to try out the eyepieces in my Orion 190 mm F7 Mak-Newt reflector and the stars really popped! Going from a 1.25 inch eyepiece to a 2 inch eyepiece makes a world of difference in the visual experience.

The PAS Telescope Loan Program is an incredible value. With an annual membership to PAS, you have access to dummy-proof portable travel astrophotography equipment like the SeeStar and incredible eyepieces that would cost thousands of dollars. Borrow them, and you can bring them with you to show friends and family and share your love of astronomy! Take a look at the PAStimes Telescope Loan Program and see if there's something you want to try out.

Photo By Rich Meyers

Photo By Rich Meyers

Photo By Stu Brackney

Photo By Stu Brackney

Photo By Rich Meyers

Photo By Chris Mahar

Photo By Stu Brackney

Photo By Rich Meyers

Photo By Rich Meyers

Summary of Outreach Events

July 26th -Dark Site trip Doney Mountain Trail, Flagstaff AZ. Photo's By Stu Brackney

Astroimaging Special Interest Group (ASIG)

Your astroimages have been stunning—each galaxy spiral and nebular glow pushes our group's passion deeper into the cosmos.

Monthly Target Challenge:

Easy (Small Telescopes):

- M27 (Dumbbell Nebula, Vulpecula) – A bright planetary nebula with a distinct oval shape. Small scopes reveal its bright core, while larger telescopes show the classic dumbbell outline.
- M11 (Wild Duck Cluster, Scutum) – A rich open cluster, easily visible as a dense "V" of stars. Beautiful even in small telescopes under dark skies.

Challenge (Large Telescopes):

- M31 (Andromeda Galaxy, Andromeda) – Our nearest large spiral galaxy. A spectacular sight in large scopes, revealing its bright core, dust lanes, and companion galaxies M32 and M110.
- NGC 7009 (Saturn Nebula, Aquarius) – A faint but stunning planetary nebula with a complex structure. Best viewed with medium-to-large telescopes and high magnification under dark skies.

Helpful YouTube channels

AstroBackyard – Excellent for beginner and intermediate astrophotographers, covering gear, imaging techniques, and post-processing.

Nebula Photos – Focuses on budget astrophotography, including DSLR and smartphone imaging.

Peter Zelinka – Great for nightscape and deep-sky astrophotography techniques.

Chuck's Astrophotography – Covers deep-sky imaging, processing tutorials, and equipment reviews.

NSN Webinar Series: JWST: Revealing the Invisible Universe - Principal Science Visuals Developer Joseph DePasquale will provide some background on the observatory and the art and science of image processing that reveals the inherent beauty of the infrared universe.

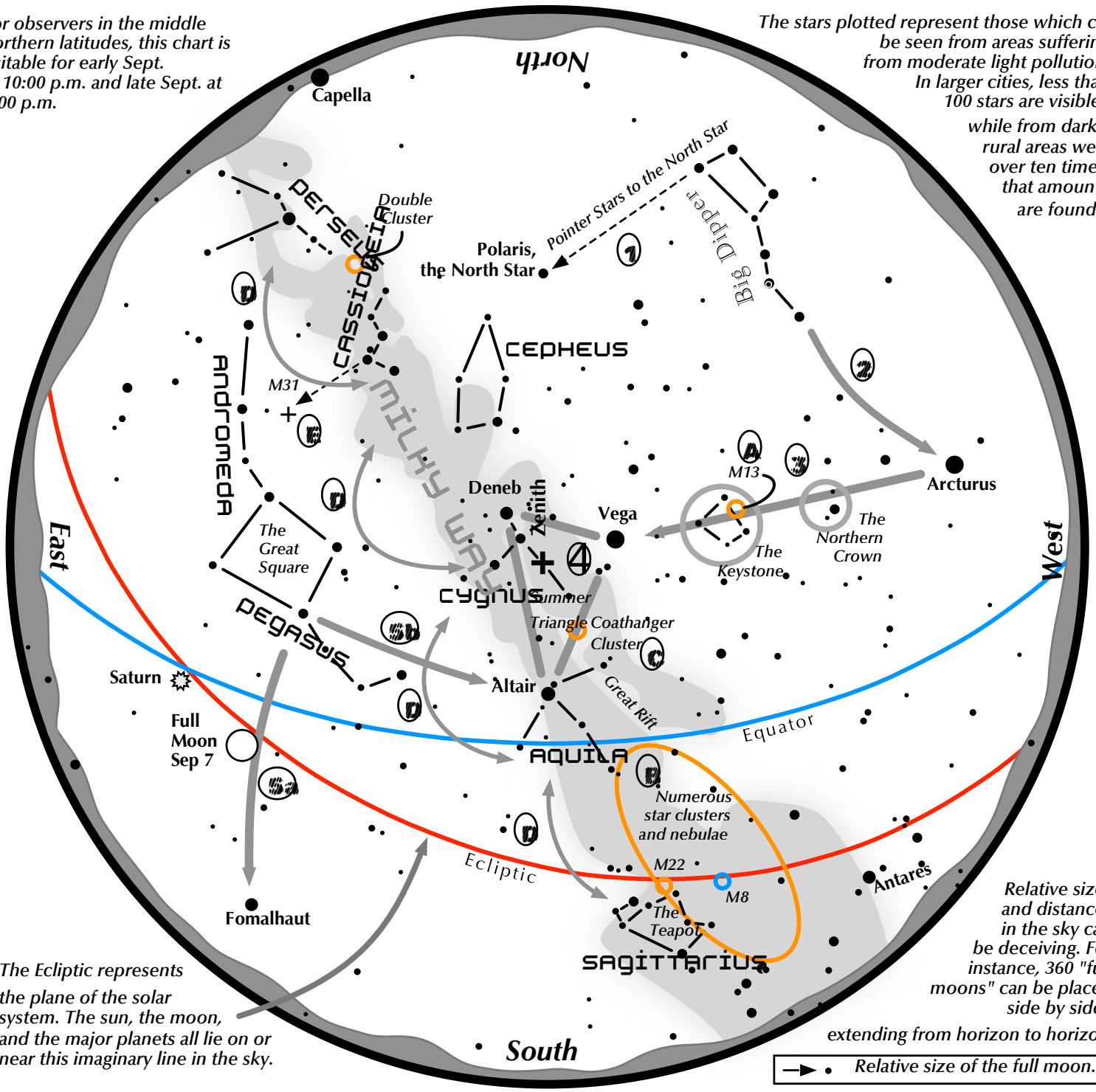
Masterofpixinsight-Masters of PixInsight is an educational platform dedicated to teaching astrophotographers how to effectively use PixInsight for deep-sky image processing.

20 Top TIPS for Better Astrophotography Dylan O'Donnell Dylan covers both image acquisition as well as processing and provides some great tips for better images.

Navigating the mid September Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Sept. at 10:00 p.m. and late Sept. at 9:00 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.

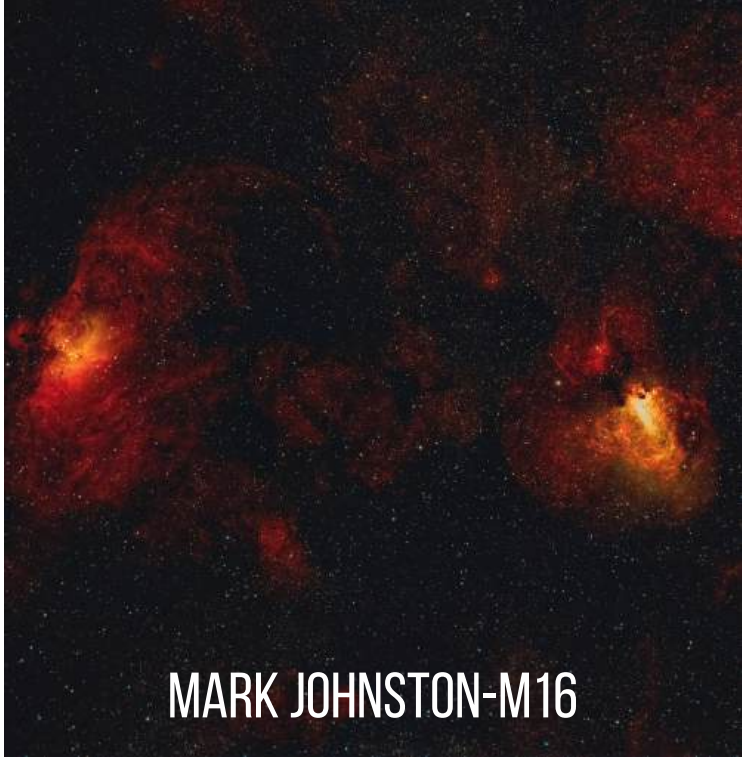
Relative size of the full moon.

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

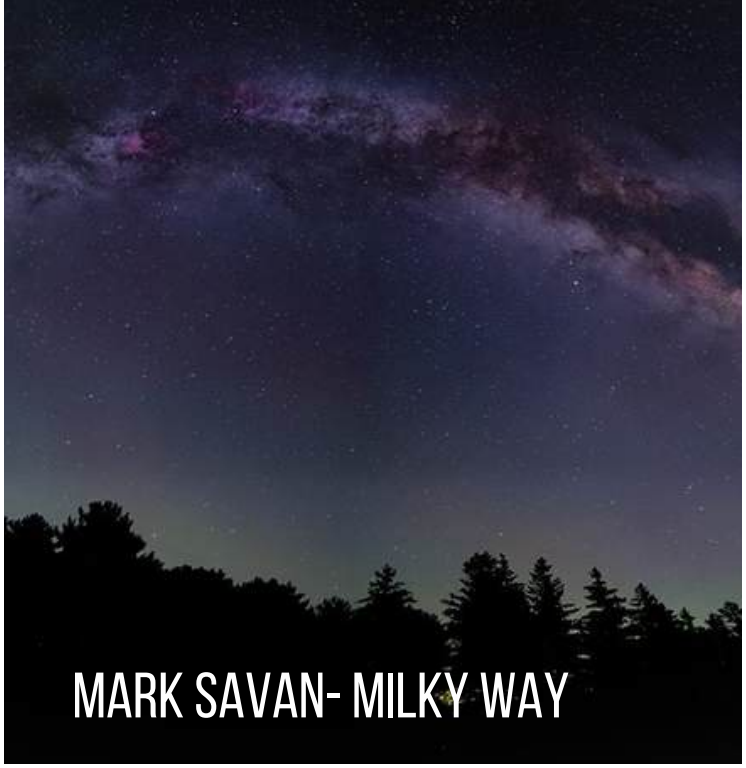
1. *Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.*
2. *Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the September evening sky.*
3. *Nearly overhead shines a star of similar brightness as Arcturus, 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.*
4. *The stars of the summer triangle, Vega, Altair, and Deneb, shine overhead.*
5. *The westernmost two stars of the Great Square, which lies high in the east, point south to Fomalhaut. The southernmost two stars point west to Altair.*

Binocular Highlights

A: *On the western side of the Keystone glows the Great Hercules Cluster.*
B: *Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.*
C: *40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.*
D: *Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.*
E: *The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.*

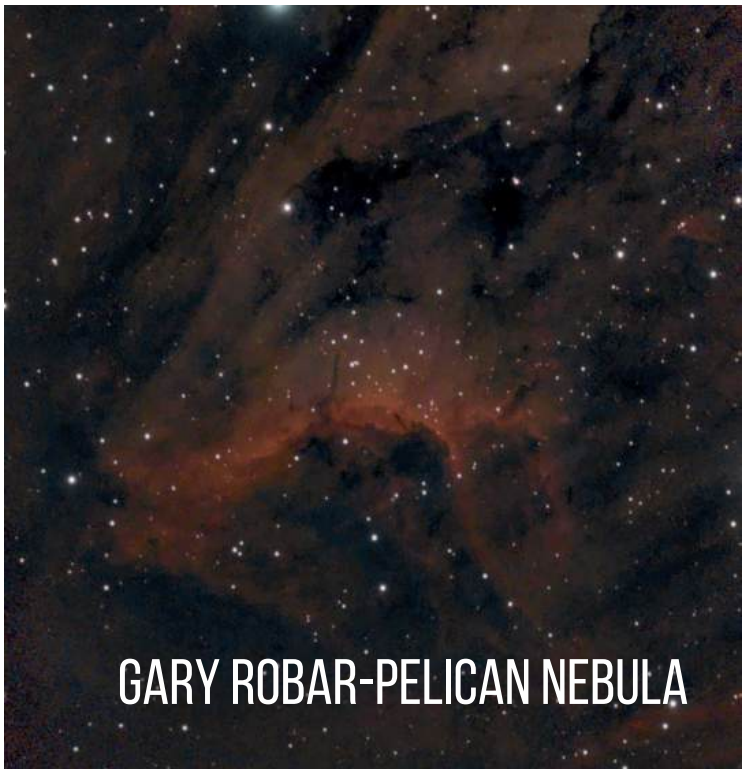


MARK JOHNSTON-M16

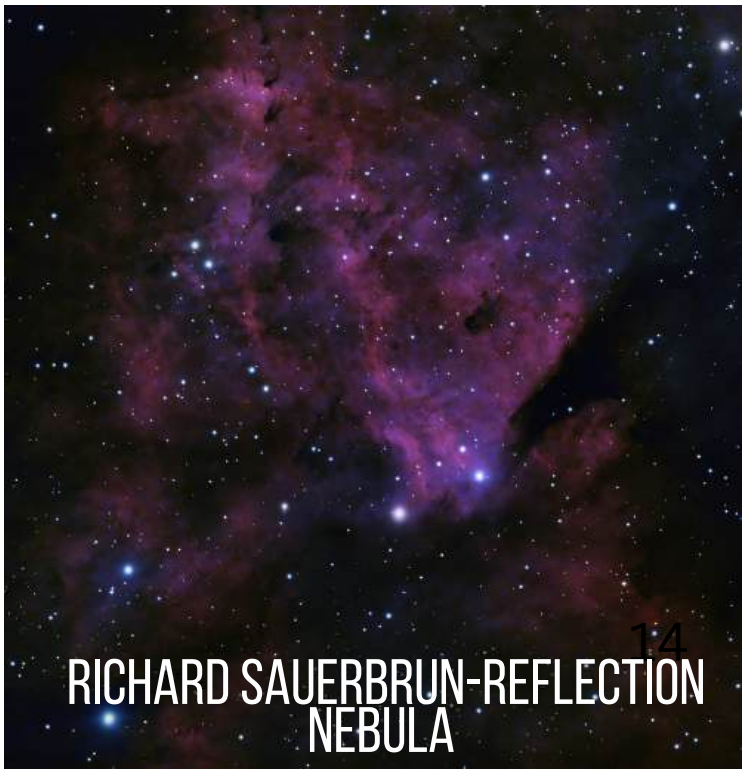


MARK SAVAN- MILKY WAY

SCOTT ADAMS-DENEB NEBULA

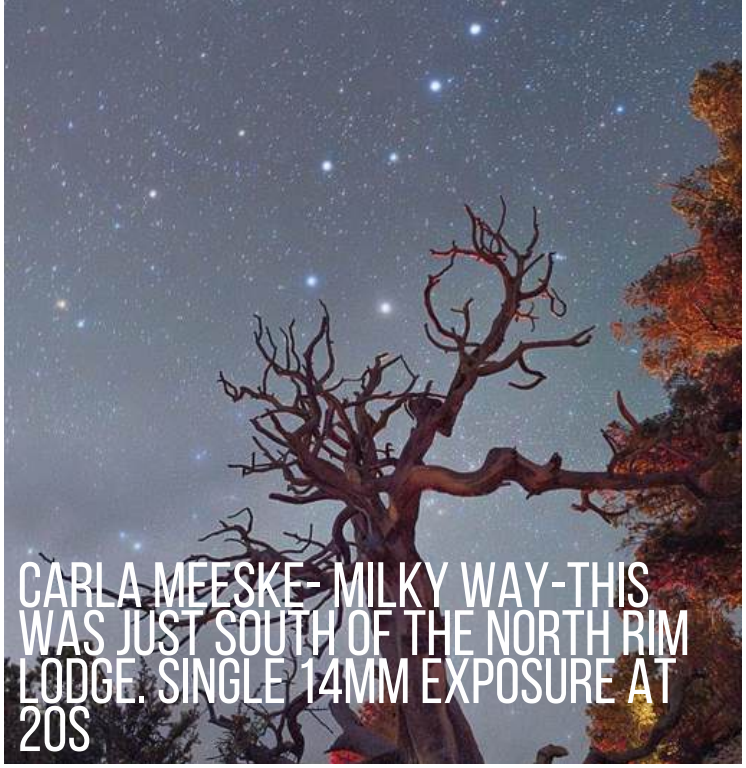


GARY ROBAR-PELICAN NEBULA



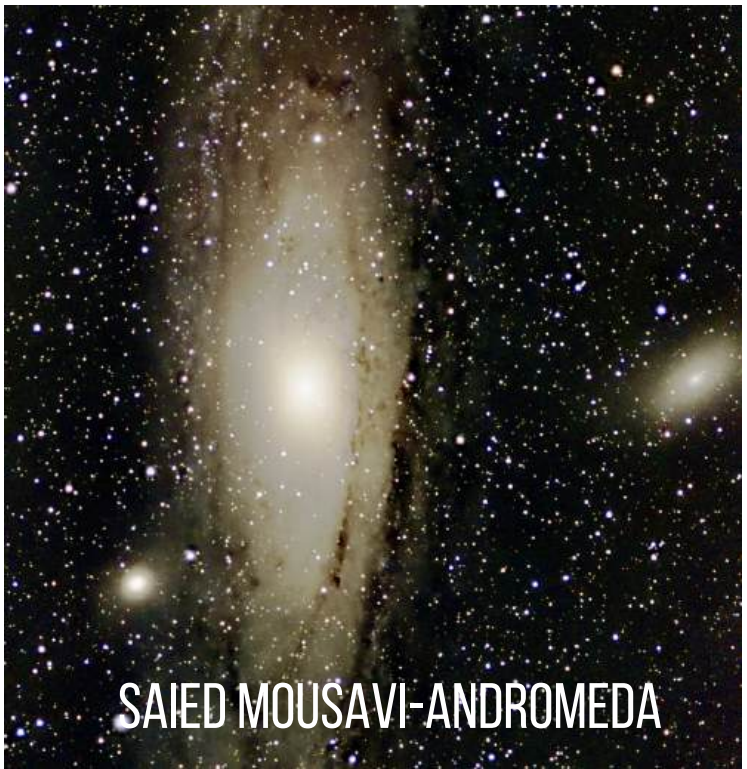
RICHARD SAUERBRUN-REFLECTION NEBULA

CARLA MEESKE-COMET IN PINK. SINGLE 24MM EXPOSURE AT 15S. COMET IS THE NAME OF THE CAR

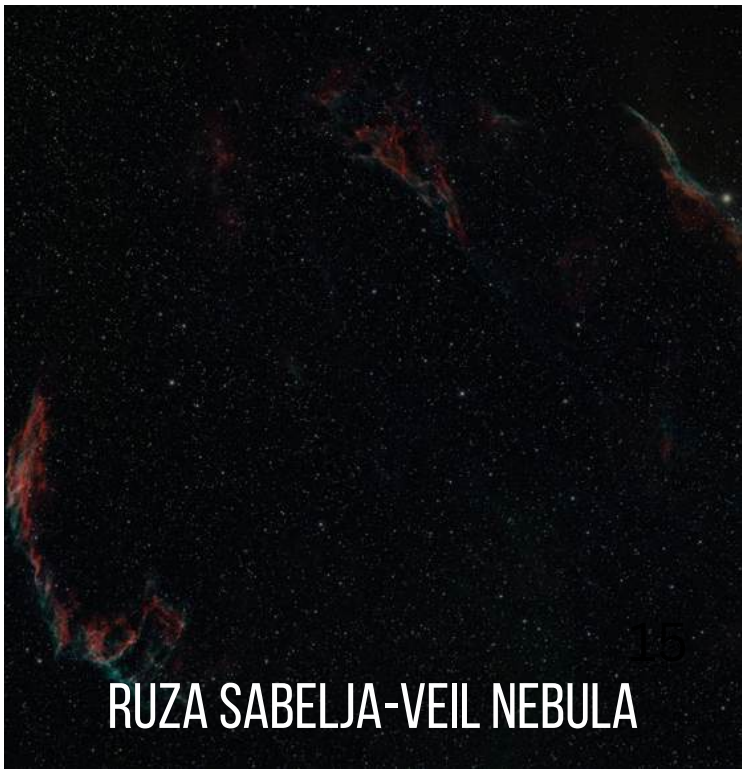


CARLA MEESKE- MILKY WAY-THIS WAS JUST SOUTH OF THE NORTH RIM LODGE. SINGLE 14MM EXPOSURE AT 20S

SCOTT ADAMS-MESSIER 17, THE OMEGA NEBULENEB NEBULA



SAIED MOUSAVI-ANDROMEDA

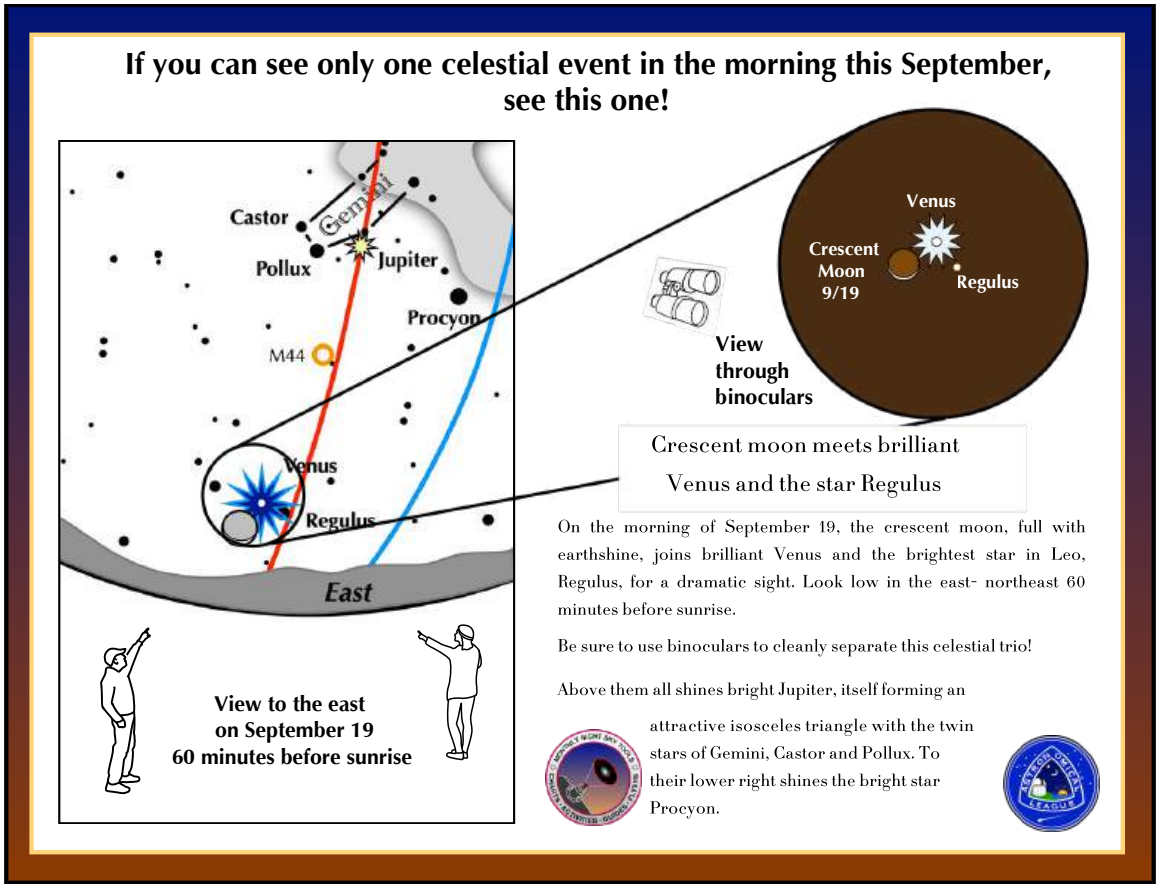


RUZA SABELJA-VEIL NEBULA

7 Visual Telescope Targets for This Month

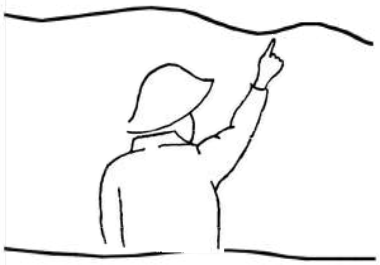
Each month we feature 7 good targets for small telescopes that should be visible in the evening

1. M16 Eagle Nebula Home of the famous “Pillars of Creation” Hubble photo
2. M11 Wild Duck cluster Open star cluster in Scutum
3. Beta Capricorn A five star system of which two are easily split in small scopes
4. Cr399 Coathanger cluster In binoculars or a wide field small scope, looks just like an upside down coat hanger
5. M56 Globular cluster in Lyra
6. 61 Cygni Double orange binary in Cygnus. High proper motion made it the first star to have its distance determined by parallax
7. Albireo The most beautiful double star in the sky will also become the brightest star in Earth’s sky…in 3.87 million years.

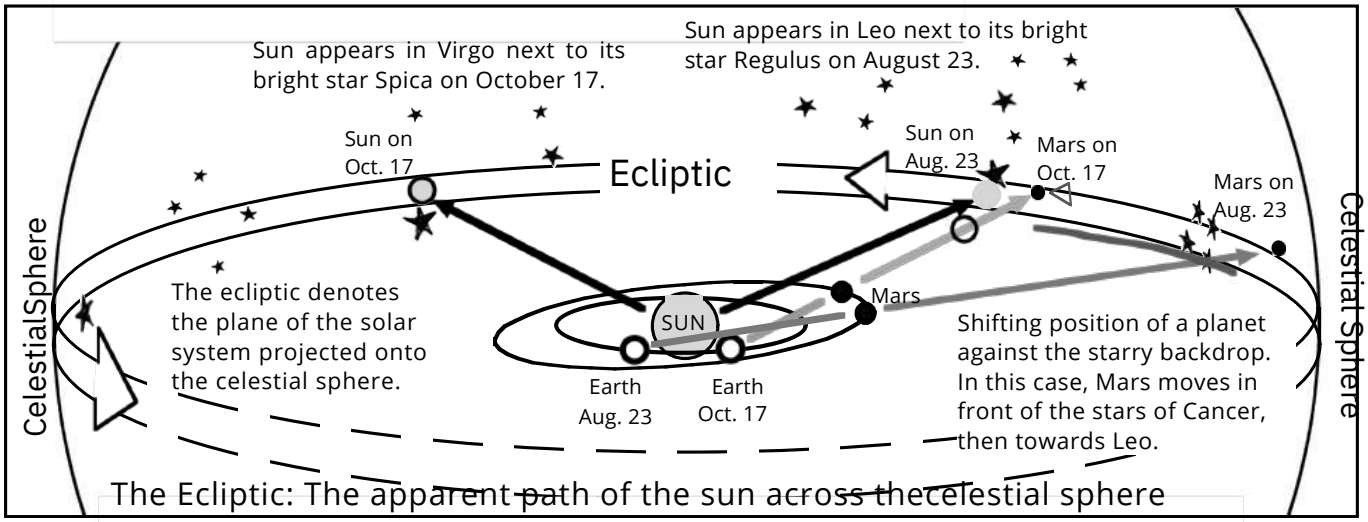


IS that a planet or a star?

Three tell tale visual characteristics a planet:



1. A planet shines witha steadylight, unless it is verycloseto thehorizon. It doesn't "twinkle," whilea star does.
2. A planet is always located near the ecliptic.
3. A planet slowly shifts its position nightly with respect to the background stars.



The Ecliptic: The apparent path of the sun across thecelestial sphere

Mercury

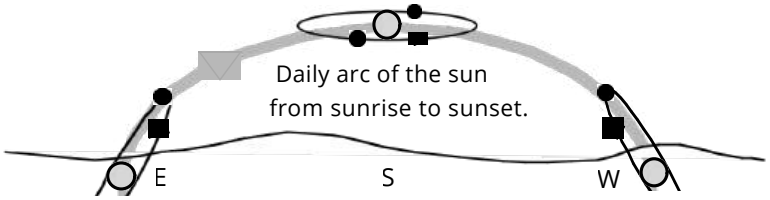
- Either low above westernhorizon in the evening, or
- Low above the eastern horizon in the morning.
- A challenge to spot.

Venus

- Dazzling white object.
- Either above the western horizon in the evening,
- or rising above the eastern horizon in the morning.
- Veryeasy to see.

The Inner Planets: Mercuryand Venus

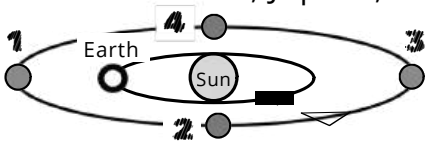
When Mercury or Venus move between the Earth and the sun or when they orbit on the sun's far side, they appear near it in our day sky and can't be seen.



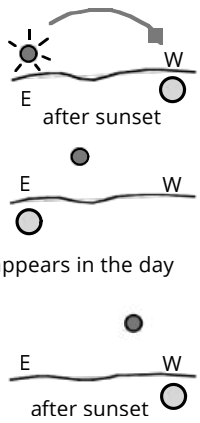
When Mercury or Venus lies to the right of the sun, it is a morning star and can be seen in the eastern twilight before sunrise.

When Mercury or Venus lies to the left of the sun, it is an evening star and can be found in the western twilight after sunset.

The Outer Planets: Mars, Jupiter, and Saturn



1. When the planet is opposite the sun, it rises near sunset and is visible all night. It is closest to the Earth and shines at its brightest.
2. When the planet lies ahead of the Earth in their orbits, it is seen high in the east before sunrise. It is often said to be a "Morning Star" in the east.
3. When the planet moves on the far side of the sun, it appears in the day sky near the sun and can't be seen.
4. When the Earth lies ahead of the planet in their orbits, it is seen high in the west after sunset and sets around midnight. It is often said to be an "Evening Star" in the west.



Mars

•When it is close to the Earth, Mars is a very bright red-orange object in the east after sunset, high in the sky near midnight, and in the west before sunrise.

Jupiter

• When it is not positioned near the sun, Jupiter is always seen as a bright pale yellow object.

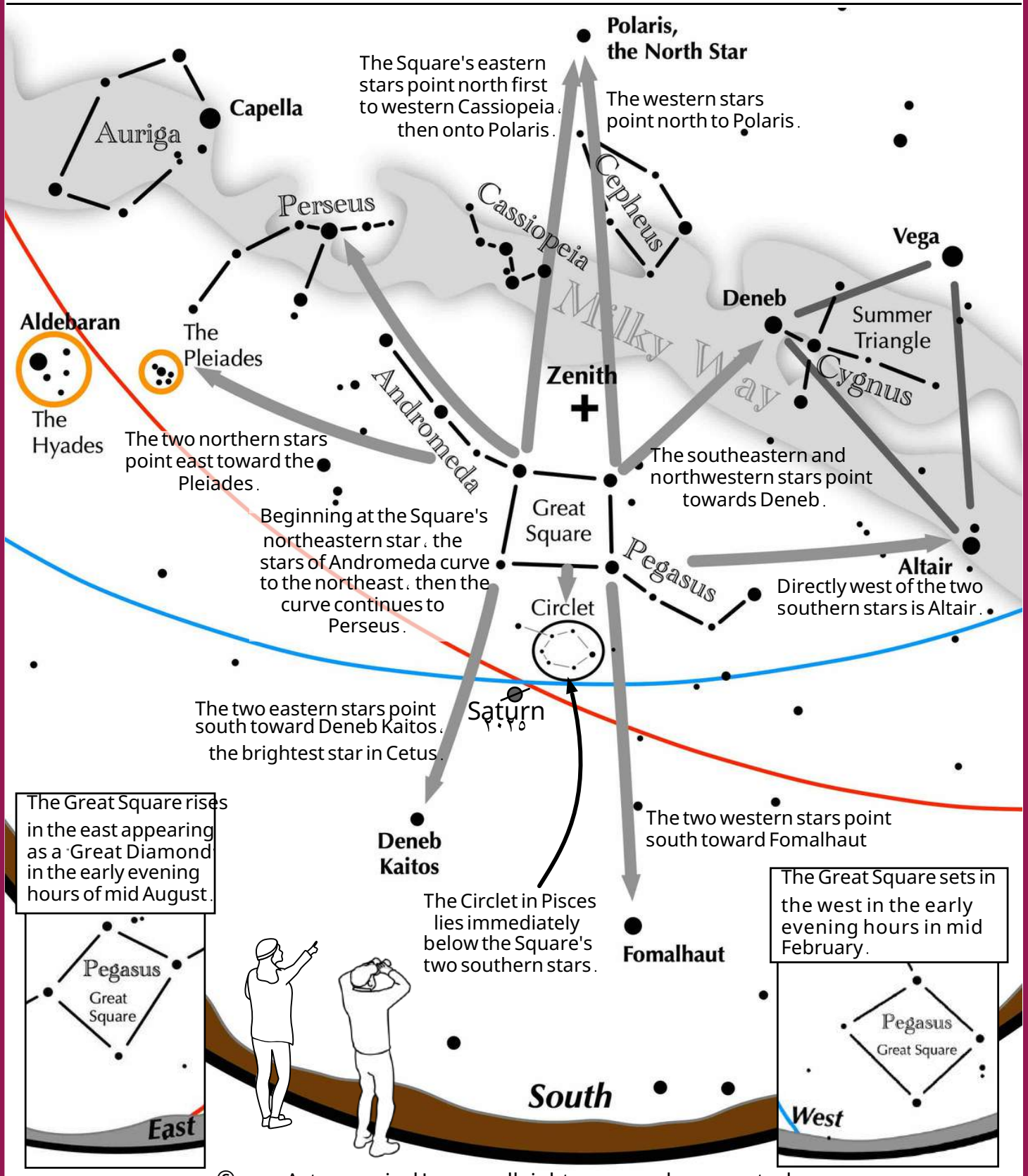
Saturn

• When it does not appear close to the sun, Saturn is seen as a bright creamy starlike object.
• It moves slowly with respect to the background stars.

Astronomical League
www.astroleague.org
Design by John Jardine Goss

Navigating the mid Autumn Night Sky: Great Square Guide

Befriend thesefourstars, slightly dimmer than thoseof themorefamous Big Dipper, and they'll guide you on a tour of the Autumn sky.



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Helpful Astronomy Websites

by Mark Johnston

The following websites are great free resources to help you plan and enjoy your astronomy adventures

Astromart: astromart.com/
This is one of the top two sites for buying and selling used astronomy gear, product reviews, and forums where you can discuss any aspect of astronomy with other enthusiasts. A small fee is required.

Astrometry.net: https://nova.astrometry.net/
This site will take any astronomy image you send it (galaxy, starfield, nebula, etc) and then tell you what it is and where it is in the sky.

Astronomy Tools: astronomy.tools/calculators/field_of_view/
This site has a lot of capabilities but I use it primarily to figure out how a target (e.g. the Helix nebula) will look in my eyepiece or astronomy camera. You pick your scope, camera, eyepiece and target and the site does the rest.

Astrospheric: www.astrospheric.com/
Probably the best short term astronomy weather forecasting tool, providing predictions of clouds, transparency and seeing.

Clear Sky Charts: www.cleardarksky.com/
Excellent source of astronomy seeing conditions forecast. Also a great tool for finding observing sites with lower light pollution.

Cloudynights: www.cloudynights.com/
This is one of the top two sites for buying and selling used astronomy gear, product reviews, and forums where you can discuss any aspect of astronomy with other enthusiasts. Free.

Dark site finder: darksitefinder.com/map/
Great website for finding a dark observing location.

Heavens above: heavens-above.com/
Top site for predicting naked eye observations of satellites. See when the ISS is visible in your neighborhood!

Jupiter transits: shallowsky.com/jupiter/
For anyone with a small telescope, this is a great site. You can find out when the Great Red Spot and Jupiter's satellite transits are visible.

Solar Dynamic Observatory (SDO): https://sdo.gsfc.nasa.gov/data/
Find out how the Sun looks right now, at various wavelengths. If you own a solar telescope, this site coupled with Astrospheric is all you need to plan fabulous solar observing!

Starizona: https://starizona.com/
Astronomy store located in Tucson, Arizona. They specialize in a wide range of astronomy equipment and accessories, catering to both amateur and professional astronomers. Their offerings include telescopes, cameras, filters, and eyepieces, among other products. Knowledgeable staff and passion for astronomy.

Telescopius: telescopius.com/
This site is very helpful in planning an observing evening. It will tell you when any particular target is rising and setting and when is the best time to observe it. This allows you to sequence your observing in a planned manner.

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.

Description: Obsession 18" f/4 UC with Feather Touch Focuser, Argo Navis (factory installed), Shroud, Telrad
-Purchased the equipment 3 years ago, but have not used the scope in a year having moved from visual to imaging. At 65 years old with the onset of cataracts imaging is a more satisfying pursuit to me now. I also have the Paracorr, 21mm, 13mm Ethos eyepieces which the purchaser may elect to buy as well (priced separately)
Price: $8,000
Contact Information: Toby Patton
Preferred Contact Method: flyfishman2010@gmail.com

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.

Explore Scientific AR102 with Tripod
· 102mm Doublet Refractor
· 2" Eyepiece adapter
· Alt-Az manual mount
Member Price: $400
SOLD

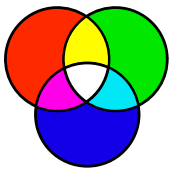
Celestron 6" AstroMaster
· 6" Newtonian Telescope – OTA only
Member Price: $50
SOLD

Meade ETX-70
· 70mm Refracting Go-To Telescope
· 1.25" eyepiece adapter
· Battery operated motorized mount
· With carry case
Member Price: $70
SOLD

Celestron 6" F/4 Newtonian Astrograph Telescope
• Fast 6"-aperture reflector lets you take short exposures with bright, high-resolution results
• Precise 2" dual-speed (10:1) linear-bearing Crayford focuser lies 7" back in the optical tube to block stray light and boost contrast
• Compact 22.5" length and light 12.7 lb. assembled weight doesn't require an enormous mount
• Includes two heavy-duty hinged tube rings, 8x50 finder scope, dovetail mounting bar, and more
Member Price: $250
SOLD

Celestron Powerseeker 127
· 127mm Newtonian Telescope
· 2" Eyepiece adapter
· German equatorial mount
· With tripod
Member Price: $50
SOLD

Celestron 8" Schmidt-Cassegrain
· 8" Telescope (classic Orange Tube)
· Alt-Az mount
Member Price: $50
SOLD



Various Filters – 1.25"
Red, Yellow,Blue,Green,Multiple O3 filters
Member Price: $100

Telescope Loan Program

The PAS Telescope Loan Program provides PAS active members access to various donated telescopes and accessories to enhance their learning of visual astronomy as well as astrophotography.

Check-out Process: The entire PAS inventory of telescopes is available for active members to use. Some telescopes require completion of a training program, others do not. Several of the loaner telescopes represent a significant dollar value. In certain cases, the PAS member will be asked to provide credit card information as insurance against potential damage or loss.

A kit of eyepieces and accessories is available for all loaner telescopes if needed. There is also a special kit of advanced 2" eyepieces available for loan as well as advanced finder scopes. Laser collimation tools are also available for loan if needed.

Loan periods are for a maximum of one month. However, longer periods may be granted in special cases.

All telescope equipment and accessories must be picked up at the PAS storage facility and delivered back to the facility by the end of the loaner period. If you wish to check out one of PAS's telescopes, send an email to telescope@pasaz.org with the following information:

- Full Name
- Email Address
- Desired Telescope and/or accessory kit
- Check out date
- Check in date
- Additional information as needed

ZWO SeeStar S50
Coronado Personal Solar Telescope (PST)
Orion SkyQuest XT-10 - 10" Dobsonian
Orion Skyquest XT-8 – 8" Dobsonian
Meade ETX-70 Go-To Refractor
Sky-Watcher – 10" Collapsible Motorized Dobsonian
Accessory Kit #4 - Advanced Observing
Accessory Kit #5 – 1.25" Eyepieces & filters





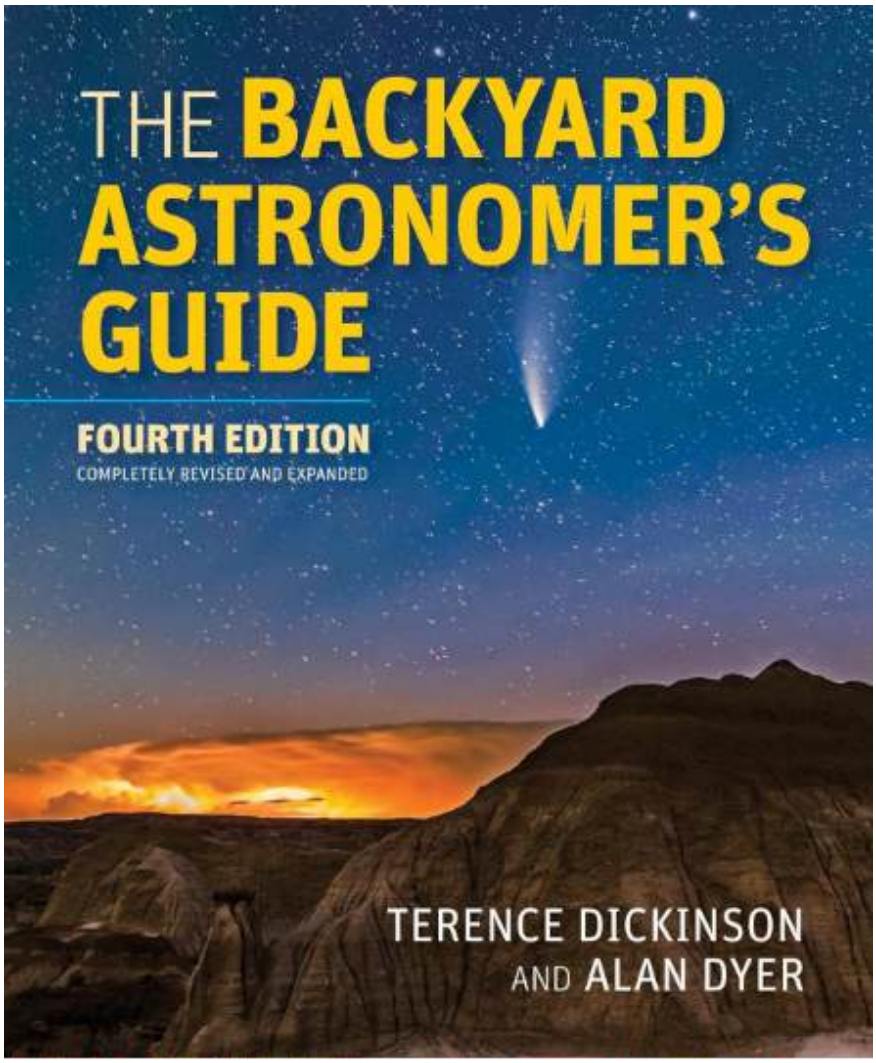


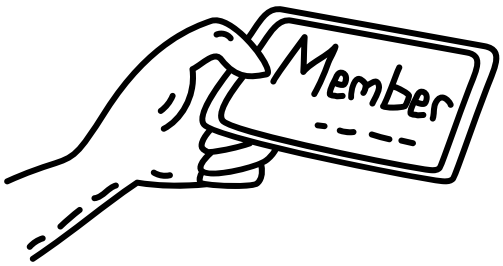




Book: "The Backyard Astronomer’s Guide" by Terence Dickinson & Alan Dyer

For anyone looking to take their stargazing to the next level, The Backyard Astronomer’s Guide is an indispensable resource. Dickinson and Dyer provide an in-depth look at observational tools, including telescopes, binoculars, and accessories, while offering expert advice on choosing the right gear based on your needs and budget. The book also covers advanced observation techniques, helping readers make the most of their equipment. It’s packed with practical tips, star charts, and stunning photographs of celestial objects.
Verdict: A comprehensive, well-rounded guide for both beginner and intermediate astronomers who want to make the most of their equipment and observation skills.





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, your Board of Directors decided not to keep up with inflation. They did not raise your annual dues! More good news is, you can easily renew your membership by going to our public website www.pasaz.org, look in the left index column for the link "Join Our Society," click on that, and there you go. Your membership runs from 1 January to 31 December or from the date you sign up to the end of the year. Our Membership Manager will assist you with any questions you may have: 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!

Phoenix Astronomical Society Contact Info

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Star Tours Team 2025

Mark Johnston
Ted Blank
Mark Savan
Andrew Stone-Star Tours Manager
Richard Sauerbrun
Stu Brackney
Roger Anzini
Peter Turner
Chris Ford
Scott Adams
Ryder David
Alessandro Cavallaro
Richard Meyers

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