



PAStimes

A Publication of the Phoenix Astronomical Society

Stu's Views • Stu Brackney, President PAS

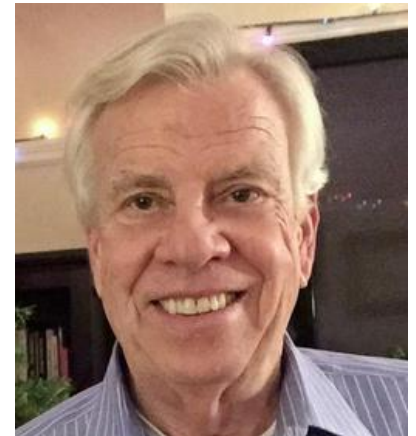
My friends, the weather professionals are forecasting early warm days and nights, as we move into April. Recently, night skies have been extremely clear viewing for all kinds of targets, including a lineup of the planets and of course our winter hunter Orion.

GREAT news! Your society has expanded its outreach into our community. You can now not only find us at www.pasaz.org and on Facebook but also Threads and Instagram, two very popular social media platforms. Our Event Manager Ruza Sabelja and Editor Richard Meyers were responsible for this achievement. Check us out.

ELECTIONS: We conduct annual elections for the entire board of directors during the month of April. These elections are conducted electronically online, enabling all members to participate. If you want to run for office or nominate someone, you can do that through our voting system. You should be receiving an email explaining the entire process. As we astronomers always say, "keep an eye out" for the emails.

Finally, we (your board of directors) are working on a PAS members trip. The tentative target is the Large Binocular Telescope at the Mount Graham National Observatory near Safford, AZ. Still in the planning stages. More information to follow.

Looking to buy a telescope? Check out this month's PAsTimes. And yes, you too can sell your equipment in our publication. Give it a try. Cheers everyone.



Lecture: April 3rd
Membership presenters Ted Blank and Richard Meyers

Now Forming : Astroimaging group: see page 2 for details

Workshop: April 17th
PVCC Main Campus

Star Party : May 3rd

ASIG: April 28th

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Upcoming Events

Don't forget to register—spots fill up fast!



April 2025

- 3rd - Monthly Lecture Series - Membership presenters Ted Blank and Richard Meyers
- 17th - Telescope Workshop-PVCC Main Campus
- 28th - ASIG -Meetup

May 2025

- 3rd -Public Star Party- Apache Wash Trailhead Park
- 8th - Monthly Lecture Series - TBD
- 22nd - Telescope Workshop-PVCC Main Campus
- 27th - ASIG -Meetup

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.

April Lecture Series

Membership presenters -Ted Blank will give us a talk on the Fountain Hills Discovery center project and then Richard Meyers will give us a talk on Oumuamua Interstellar Intruder-extraterrestrial civilization

TRENDING
NOW

Now Forming: Astroimaging Special Interest Group(ASIG)!

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 The Phoenix Astronomical Society's Astroimaging Special Interest Group as we launch this exciting new group!

Astroimaging, also known as astrophotography, is the practice of capturing images of celestial objects like stars, planets, galaxies, and nebulae. It combines photography and astronomy, allowing you to create stunning visuals of the universe while exploring its mysteries.

Our mission is to:

- 🌟 Advance the art and science of astroimaging.
- 🌌 Provide educational opportunities, mentorship, and technical Q&A.
- 📸 Inspire growth through shared experiences, monthly challenges, and interactive discussions.

This is your chance to join a collaborative community of like-minded enthusiasts, explore new techniques, and uncover the wonders of the universe through imaging!

Interested? Drop us an email to sign up for notifications of future events!

SIGN UP



Here's a recap of last month's lecture

"Reopening at Kitt Peak National Observatory: One Year In"

An Exploration of Kitt Peak National Observatory and public updates on our Science and Outreach

Presented by Vanessa Gressieux

About Vanessa: She is a University of Arizona alumni with over 12 years of astronomy outreach and education experience. As a proud member of the TAAA, Vanessa volunteers annually at the Grand Canyon Star Party. In addition to her role as the Guide and Docent Coordinator at Kitt Peak National Observatory, she serves as a Solar System Ambassador with NASA and JPL. Vanessa is also one of the founders of the Stars Over Sabino Star Party, which is hosted annually at Sabino Canyon in Tucson. Vanessa is passionate about education, outreach, and optical astronomy.

1. Resilience and Recovery Efforts

- KPNO overcame closures due to COVID-19 and a significant wildfire, with most infrastructure remaining intact.
- Restoration efforts included adit repairs and installing new guardrails on Mountain Road to enhance safety.

2. Telescope and Research Updates

- 2.1 Meter Telescope: Nearing reactivation for transient event observations.
- 4 Meter Mayall Telescope: Home to the Dark Energy Spectroscopic Instrument (DESI), creating a 3D map of the universe's expansion.
- WIYN Telescope: Recently re-aluminized, featuring 'imiloo, detecting small exoplanets.
- McMath-Pierce Solar Telescope: Being transitioned into the main Visitor Center with live solar/lunar imagery.

3. Visitor Center and Outreach Enhancements

- Full-capacity tours have resumed, including popular programs like:
 - Magnificent Moon
 - Dark Sky Discovery
 - Overnight Telescope Observing Program (10 nights/month)
- New exhibits include Science on a Sphere, with ongoing upgrades to ticketing and gift shop systems.
- Three outreach telescopes, including a new 24-inch telescope, will support public engagement.

4. Community Engagement and Volunteering

- Participation in events like the Dam Rodeo Parade and T-N Open Night (750+ attendees).
- KPNO seeks volunteers for docent and night guide roles, with QR codes provided for sign-up.

5. Fire Mitigation Efforts

- KPNO remains highly fire-sensitive, with mitigation plans in place to address potential future risks.

6. Telescope Mirror Manufacturing

- WIYN's mirror was cast at UA's Richard F. Caris Mirror Lab, while the 4-meter Mayall mirror was manufactured in New York with optical work completed locally.



In the NEWS

**Scientists discover smallest galaxy ever seen:
'It's like having a perfectly functional human
being that's the size of a grain of rice'**

Astronomers have discovered Andromeda XXXV, the smallest and faintest dwarf galaxy ever observed, orbiting the Andromeda galaxy about 3 million light-years away. This tiny galaxy, roughly a millionth the size of the Milky Way, challenges existing theories of cosmic evolution by surviving the extreme conditions of the early universe, which should have destroyed such small structures. Described as a "perfectly functional human being the size of a grain of rice" by University of Michigan professor Eric Bell, Andromeda XXXV has a mass of about 20,000 solar masses and continued forming stars for billions of years despite the odds. The discovery, made using massive datasets and the Hubble Space Telescope, suggests that galaxy formation is more complex than previously thought, leaving scientists puzzled about how it endured the universe's early heat. Future missions may uncover more such galaxies, potentially reshaping our understanding of cosmic history.

<https://www.space.com/the-universe/scientists-discover-smallest-galaxy-ever-seen-its-like-having-a-perfectly-functional-human-being-thats-the-size-of-a-grain-of-rice>

**128 new Saturn moons just announced.
Incredible!**

On March 11, 2025, the International Astronomical Union's Minor Planet Center announced the discovery of 128 new moons orbiting Saturn, bringing the planet's total moon count to 274—surpassing all other planets in our solar system. Led by Edward Ashton from the Institute for Astronomy and Astrophysics at Academia Sinica in Taiwan, the research team utilized the Canada-France-Hawaii Telescope between 2019 and 2023 to identify these faint, irregular moons. These small, potato-shaped objects, ranging from a few kilometers in size, were detected using the "shift and stack" technique, which enhances visibility by combining sequential images. The moons are thought to be fragments of larger bodies shattered by collisions within the last 100 million years, offering clues about Saturn's ring origins and dynamic history. A paper detailing 64 of these moons was submitted to the Planetary Science Journal, with findings suggesting a recent collisional event. Saturn's lead over Jupiter (with 95 moons) now seems secure, cementing its title as the solar system's "moon king." Naming these moons will follow the tradition of using Gallic, Norse, and Canadian Inuit mythological figures, though the sheer number may prompt new naming conventions. <https://earthsky.org/space/128-new-saturn-moons-discovered/>

PAS 2025 Election of Officers

All active members will receive an email with a link to our 2025 Nomination Form. By submitting this form, you may nominate yourself or another PAS member for each of the Board of Director's offices. We thank all PAS Members for taking the time to vote in this election.



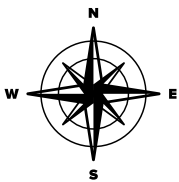
April 4th - Nomination forms are sent via email to all active PAS members

April 18th - Nomination submission deadline

April 21st – Voting ballots sent via email to all active PAS members

April 28th – Voting submission deadline

May 1st – Results of vote are announced at the Monthly Lecture Series meeting



Summary of March Outreach Events

1st-Star Party

6th -Lecture

15th- Star Tours- Private Party

20th- Telescope Workshop

28th- Star Tours- Dynamite Montessori Academy



TAKE A TOUR

AstroImaging Special Interest Group(ASIG)

The night sky is calling, and your incredible astroimaging skills are lighting up our group! Whether you're capturing distant galaxies, nebulae, or the moon in stunning detail, every shot you share inspires us all.

For our beginners—welcome aboard! Try starting with a simple setup: a DSLR or phone camera on a tripod can work wonders for bright objects like the moon or constellations. Play with longer exposures (10-30 seconds) to catch more light, and don't shy away from free editing tools like GIMP or apps like Snapseed to enhance your shots. Share your first attempts—we're here to cheer you on!

Check our ASIG calendar for April meetings to connect with the group, learn from each other, and plan some stargazing fun. Keep pushing the boundaries of what's possible—experiment with new techniques, share your tips, and let's keep this community shining as bright as the stars we chase. Can't wait to see your next masterpiece!



April Target Challenge:

Easy: NGC 3115 (Spindle Galaxy) - Lenticular galaxy in Sextans; bright core, easy to spot.

Easy: M108 - Edge-on spiral near the Owl Nebula in Ursa Major; pairs well in wide fields.

Hard: NGC 4214 - Irregular dwarf galaxy in Canes Venatici; faint with subtle star-forming regions.

Hard: NGC 4449 - Boxy irregular galaxy in Canes Venatici; low surface brightness.

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.

Fairbanks Alaska Aurora Adventure

March 18-20 PAS members Mark Johnston, Richard Meyers, Ruza Sabelja, and Frank Insana traveled to Fairbanks Alaska to see the Aurora. Clouds caused concern the first night but skies cleared for the main tour on the 19th and we had beautiful views. Temperatures were well below freezing but we were all prepared. The third night many of us went out again in rental cars and saw the Aurora stretch from horizon to horizon in green and red - an amazing sight!

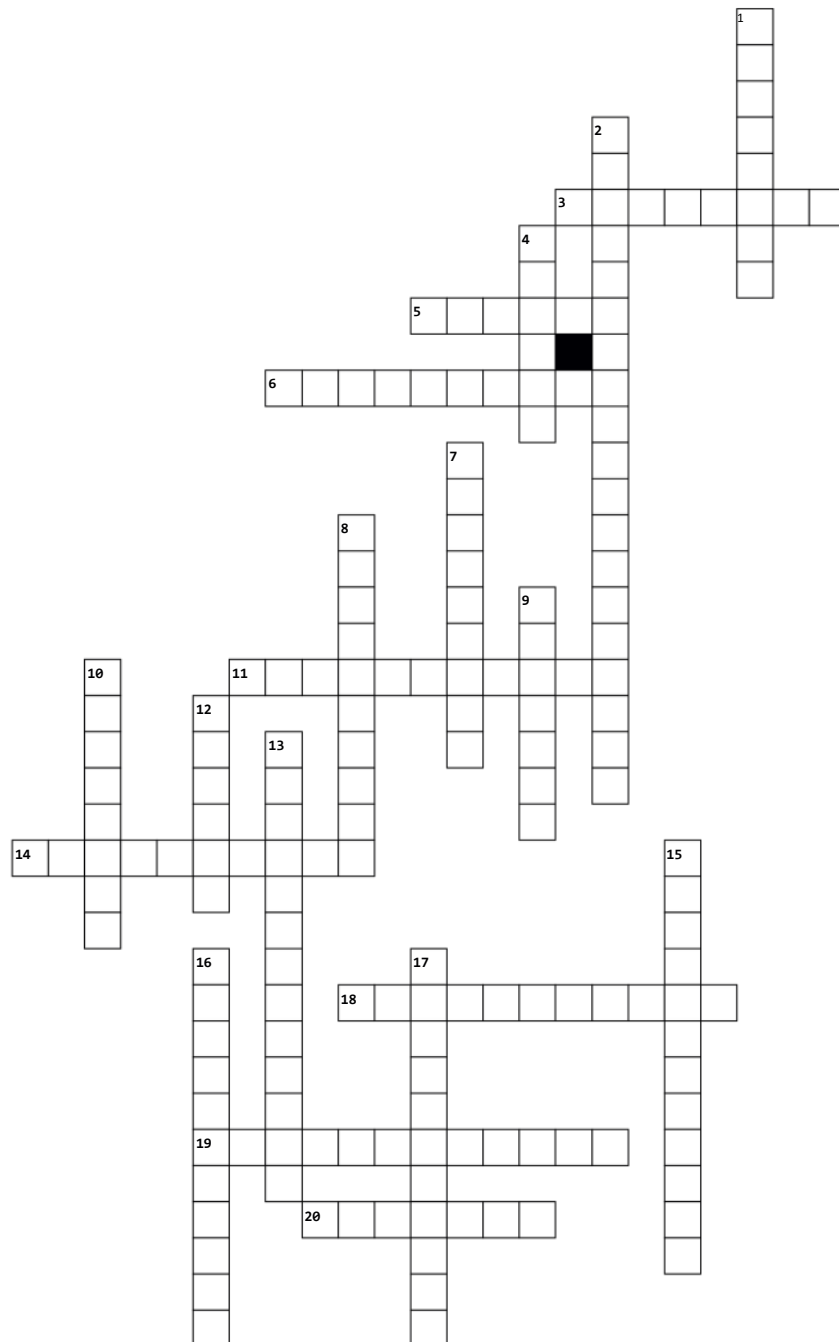


Photo by Mark Johnston



Photo by Mark Johnston

Solar Phenomena: Delve into the dynamic and captivating phenomena of our Sun.



Across

3. Small, bright cells on the Sun's surface caused by convection.
5. The superheated, ionized gas that makes up the Sun.
6. A disturbance caused by solar wind interacting with Earth's magnetosphere.
11. The type of radiation emitted by the Sun that causes sunburn.
14. A large, bright feature extending outward from the Sun's surface.
18. The visible surface of the Sun, where most sunlight is emitted.
19. The period of greatest solar activity in the Sun's cycle.
20. The event when the Sun first appears above the horizon.

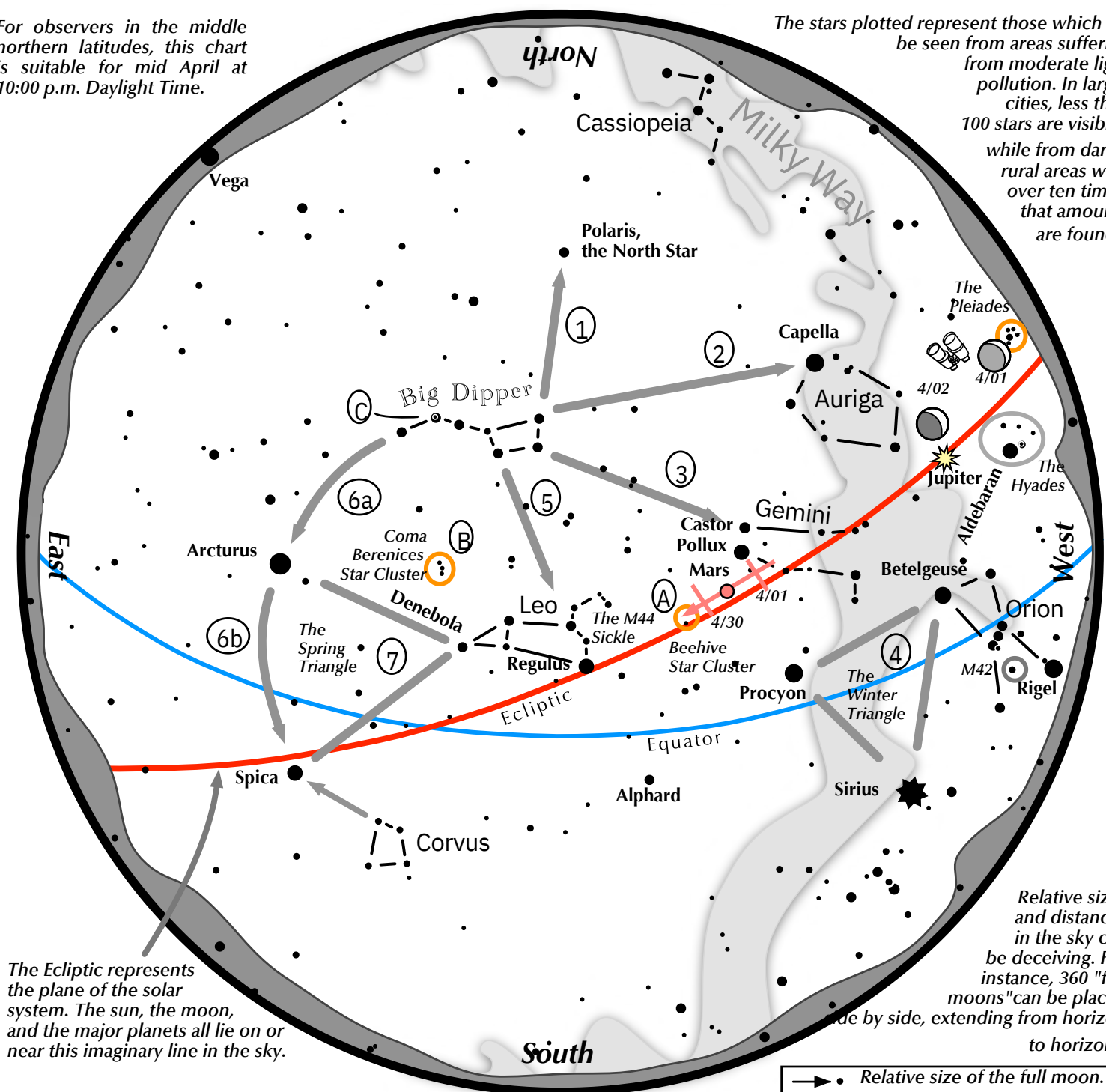
Down

1. Thin jets of plasma that rise and fall from the Sun's chromosphere.
2. A massive burst of solar plasma and magnetic fields released into space.
4. The process that powers the Sun by combining hydrogen atoms.
7. A continuous stream of charged particles released by the Sun. 8. A sudden, intense burst of radiation from the Sun's surface. 9. The event when the Moon blocks the Sun's light from Earth. 10. Dark, cooler areas on the Sun's surface caused by magnetic activity. 12. The outermost layer of the Sun, visible during a total solar eclipse.
13. The invisible force protecting Earth from solar particles.
15. The period of least solar activity in the Sun's cycle.
16. The vast region around the Sun dominated by solar wind.
17. A device used to block the Sun's light to study the corona.

Navigating the April Night Sky, Northern Hemisphere

For observers in the middle northern latitudes, this chart is suitable for mid April at 10:00 p.m. Daylight Time.

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 April night sky: Simply start with what you know or with what you can easily find.

- 1 Extend an imaginary line north from the two stars at the tip of the Big Dipper's bowl. It passes Polaris, the North Star.
- 2 Draw another imaginary line west across the top two stars of the Dipper's bowl. It strikes Capella low in the northwest.
- 3 Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
- 4 Look in the west-southwest for the bright Winter Triangle stars of Sirius, Procyon, and Betelgeuse.
- 5 Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
- 6 Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
- 7 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.

Binocular Highlights

- A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.
 B: Look nearly overhead for the loose star cluster of Coma Berenices.
 C: In the Big Dipper's handle shines Mizar next to a dimmer star, Alcor.



Member Astro Images-Lunar Eclipse

-RICHARD PIPKIN



-CYRUS MOUSAVI



-MARK JOHNSTON

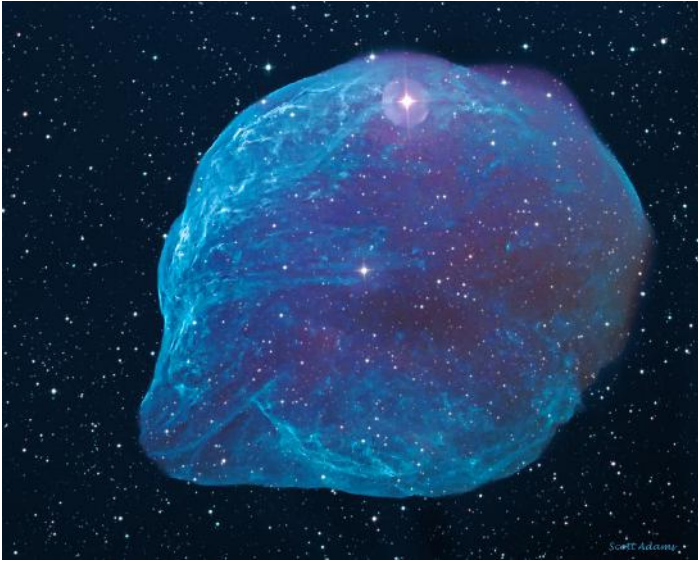


-RICHARD SAUERBRUN



Member Astro Images

**DOLPHIN'S HEAD NEBULA,
SH2-308-SCOTT ADAMS**



**M63-PHILLIP
HOPPES**



**MILKY WAY
-CARLA
MEESKE**



**M13-HERCULES
GLOBULAR CLUSTER -
SAEID MOUSAVI**



**MARKARIAN'S CHAIN
IN VIRGO - MARK
JOHNSTON**

7 Telescope Targets for March

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

1. Leo Triplet Trio of galaxies: M65, M66, and the ‘Hamburger’ galaxy
2. Algieba Gamma Leonis is a tight yellow/yellow binary star
3. Tau Leonis Yellow blue binary beside a white/white binary
4. NGC3242 Ghost of Jupiter Bright planetary nebula in Hydra
5. M81/82 Two of the brightest galaxies in the northern sky, side by side in Ursa Major
6. M101 The Pinwheel Galaxy is a large face-on spiral just above the handle of the Big Dipper
7. Mizar/Alcor A double quadruple system, seen as a visual binary and telescopic triple. Used as an eyesight test since ancient times

Star Party Targets

- Planets: Venus (evening, west), Jupiter (evening, high), Saturn (late night/pre-dawn), Mars (after midnight, east), and Mercury (early April, low west after sunset).
- Deep-Sky Objects: Virgo Cluster (M87, M84, M86), Leo Triplet (M65, M66, NGC 3628), M51 (Whirlpool Galaxy), M13 (Hercules Cluster), M81/M82 (Bode’s and Cigar Galaxies), M104 (Sombrero Galaxy), M3 (globular cluster), NGC 4565 (Needle Galaxy), M94 (spiral galaxy), M97 (Owl Nebula), M44 (Beehive Cluster), and the Double Cluster (NGC 869/884).
- Notable Stars: Arcturus (Boötes), Regulus (Leo).
- Events: Lyrid Meteor Shower (peak April 22–23, 10–20 meteors/hour).
- Leo: High in the south, marked by Regulus and the Sickle; features the Leo Triplet (M65, M66, NGC 3628).
- Virgo: Rising in the east with Spica; home to the Virgo Cluster (M87, M84, M86) and M104 (Sombrero Galaxy).
- Ursa Major: Overhead with the Big Dipper; hosts M81/M82 (Bode’s and Cigar Galaxies) and M97 (Owl Nebula).
- Boötes: Northeast, led by bright Arcturus; includes M3 (globular cluster).
- Canes Venatici: Below Ursa Major’s handle, with Cor Caroli; offers M51 (Whirlpool Galaxy), M3, and M94

These targets offer a mix of easy and challenging objects, making them perfect for a star party where observers of all skill levels can enjoy the night sky. Happy stargazing! 🌌

Understanding the Light-Year (ly)

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1 light-year = 5,870,000,000,000 miles = about 5.9 trillion miles

... another 498 light-seconds (or 8.3 minutes) to the Sun.

Orbit of Neptune
249
(4.1 light-hours)

Orbit of Uranus
160
(2.7 light-hours)

Orbit of Saturn
80
(1.3 light-hours)

Orbit of Jupiter
40
(0.7 light-hours)

Mars 12
Venus 6
Earth 8
Mercury 3
Sun

8.6 light-years

*Sirius, brightest star
in our night sky*

Proxima Centauri, the nearest star and member of the Alpha Centauri star system

4.25 light-years

Sun, our star

- ★ *Distance to nearest star, Alpha Centauri: 4.3 light-years*
- ★ *Distance to next spiral arm in Milky Way: 7,000 light-years*
- ★ *Distance to center of the Milky Way Galaxy: 27,000 light-years*
- ★ *Diameter of Milky Way Galaxy: > 100,000 light-years*

All stars visible to the unaided eye:
4.3 ly – 7,000 ly

★ *Distance to the farthest object
a person can see with the unaided eye:
M31, the Andromeda Galaxy – 2.6 million light-years*

*Andromeda
Galaxy Group*

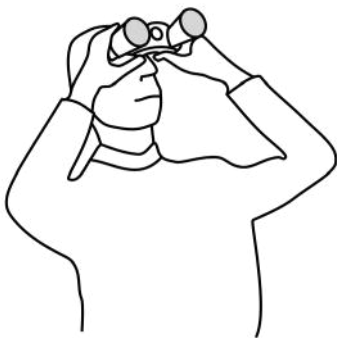
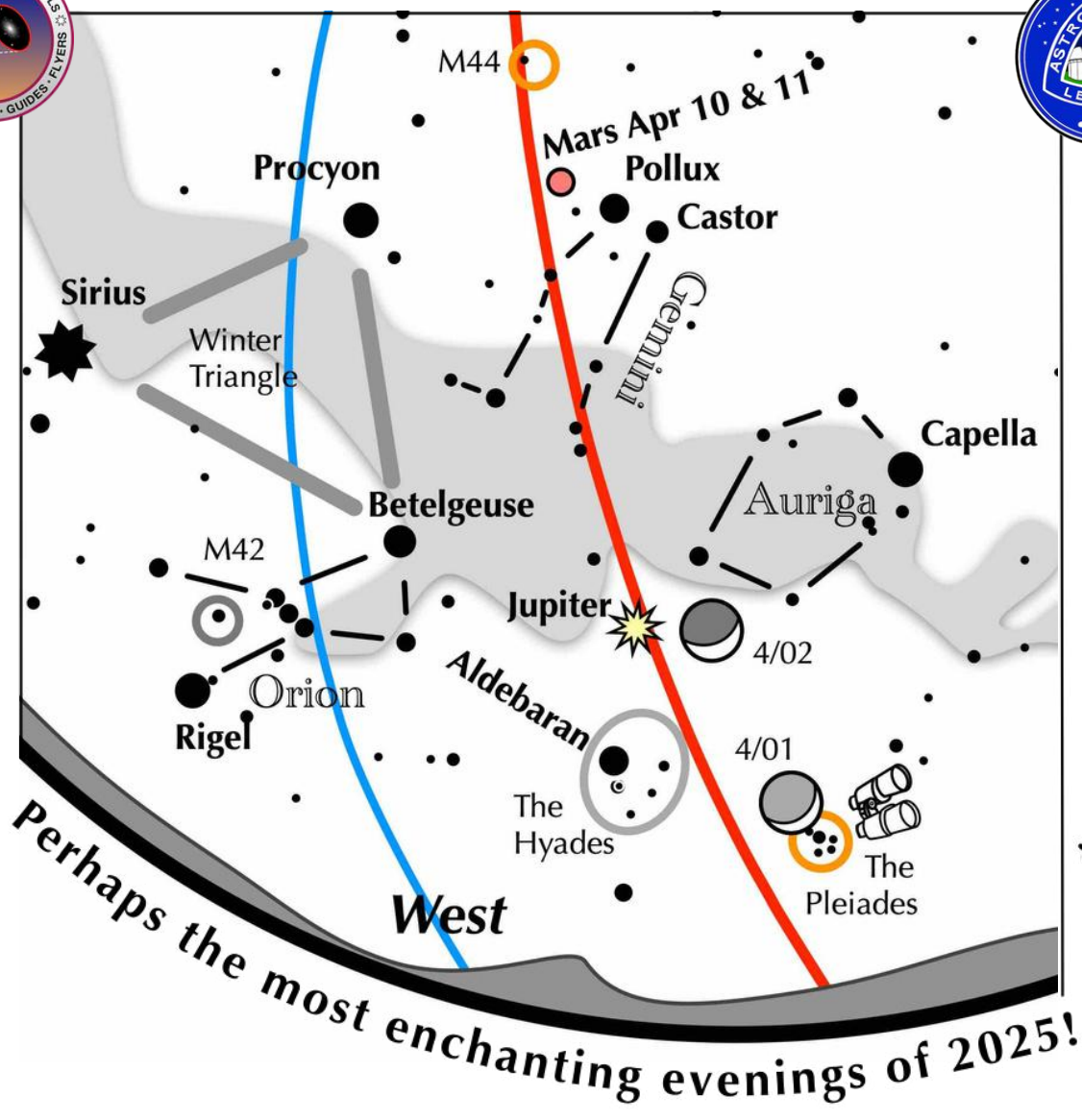
2.6 million light-years

Age of Cosmos:  13.8 billion years

Edge of the Observable Universe: 46 billion light-years

Milky Way
Galaxy
Magellanic
Clouds
160,000 ly

If you can see only one celestial event this April,
see this one.



Enhance the scene –
use binoculars!

On April 1 & 2, look low in the west-northwest 60 minutes after sunset. • On the first evening, the crescent moon, glowing full with earthshine, floats immediately above the delicate Pleiades star cluster. To its upper left, shine Aldebaran and the intriguing Hyades star cluster. And bright Jupiter lies above that. • On the second evening, the slightly thicker, but more pronounced crescent moon moves above the Pleiades and next to Jupiter. • Above it all, red Mars plows through Gemini, reaching alignment with Castor and Pollux on April 10 & 11.



This article is distributed by NASA's Night Sky Network (NSN).

The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

April's Night Sky Notes: Catch the Waves!

By Kat Troche

The Electromagnetic Spectrum

If you've ever heard the term "radio waves," used a microwave or a television remote, or had an X-ray, you have experienced a broad range of the electromagnetic spectrum! But what is the [electromagnetic spectrum](#)? According to Merriam-Webster, this spectrum is "the entire range of wavelengths or frequencies of electromagnetic radiation extending from gamma rays to the longest radio waves and including visible light." But what does that mean? Scientists think of the entire electromagnetic spectrum as many types of light, only some that we can see with our eyes. We can detect others with our bodies, like infrared light, which we feel as heat, and ultraviolet light, which can give us sunburns. Astronomers have created [many detectors](#) that can "see" in the full spectrum of wavelengths.

Telescope Types

While multiple types of telescopes operate across the electromagnetic spectrum, here are some of the largest, based on the wavelength they primarily work in:

Radio: probably the most famous radio telescope observatory would be the Very Large Array (VLA) in Socorro County, New Mexico. This set of 25-meter radio telescopes was featured in the 1997 movie [Contact](#). Astronomers use these telescopes to observe protoplanetary disks and black holes. Another famous set of radio telescopes would be the Atacama Large Millimeter Array (ALMA) located in the Atacama Desert in Chile. ALMA was one of eight radio observatories that helped produce the first image of supermassive black holes at the center of M87 and Sagittarius A* at the center of our galaxy. Radio telescopes have also been used to study the microwave portion of the electromagnetic spectrum.



This illustration shows the wavelength sensitivity of a number of current and future space- and ground-based

observatories, along with their position relative to the ground and to Earth's atmosphere. The wavelength bands are arranged from shortest (gamma rays) to longest (radio waves). The vertical color bars show the relative penetration of each band of light through Earth's atmosphere.

Credit: NASA, STScI

Infrared: The James Webb Space Telescope (JWST) operates in the infrared, allowing astronomers to see some of the earliest galaxies formed nearly 300 million years after the Big Bang. Infrared light allows astronomers to study galaxies and nebulae, which dense dust clouds would otherwise obscure. An excellent example is the [Pillars of Creation](#) located in the [Eagle Nebula](#). With the side-by-side image comparison below, you can see the differences between what JWST and the Hubble Space Telescope (HST) were able to capture with their respective instruments.



NASA's Hubble Telescope captured the Pillars of Creation in 1995 and revisited them in 2014 with a sharper view. Webb's infrared image reveals more stars by penetrating dust. Hubble highlights thick dust layers, while Webb shows hydrogen atoms and emerging stars. You can find this and other parts of the Eagle Nebula in the Serpens constellation. Credit: NASA, ESA, CSA, STScI, Hubble Heritage Project (STScI, AURA)

Visible: While it does have some near-infrared and ultraviolet capabilities, the Hubble Space Telescope (HST) has primarily operated in the visible light spectrum for the last 35 years. With over 1.6 million observations made, HST has played an integral role in how we view the universe. [Review Hubble's Highlights here.](#)



The Crab Nebula, located in the Taurus constellation, is the result of a bright supernova explosion in the year 1054, 6,500 light-years from Earth. Credit: X-ray: NASA/CXC/SAO; Optical: NASA/STScI; Infrared: NASA/JPL/Caltech; Radio: NSF/NRAO/VLA; Ultraviolet: ESA/XMM-Newton

X-ray: Chandra X-ray Observatory was designed to detect emissions from the hottest parts of our universe, like exploding stars. X-rays help us better understand the composition of deep space objects, highlighting areas unseen by visible light and infrared telescopes. This image of the [Crab Nebula](#) combines data from five different telescopes: The VLA (radio) in red; Spitzer Space Telescope (infrared) in yellow; Hubble Space Telescope (visible) in green; XMM-Newton (ultraviolet) in blue; and Chandra X-ray Observatory (X-ray) in purple. You can view the breakdown of this multiwavelength image [here](#).

Try This At Home

Even though we can't see these other wavelengths with our eyes, learn how to create multiwavelength images with the [Cosmic Coloring Compositor](#) activity and explore how astronomers use representational color to show light that our eyes cannot see with our [Clues to the Cosmos](#) activity.

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!

Starzonia: <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

NEW



PAS offer: This is a first come, first served offer. Review the list. Decide what you want. Email stuartbrackney@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



Celestron 6" AstroMaster

- 6" Newtonian Telescope – OTA only

Member Price: \$50



Meade ETX-70

- 70mm Refracting Go-To Telescope
- 1.25" Eyepiece adapter
- Battery operated motorized mount
- With carry case

Member Price: \$70



Celestron Powerseeker 127

- 127mm Newtonian Telescope
- 2" Eyepiece adapter
- German equatorial mount
- With tripod

Member Price: \$50



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

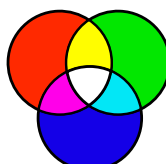
Member Price: \$250



Celestron 8" Schmidt-Cassegrain

- 8" Telescope (classic Orange Tube)
- Alt-Az mount

Member Price: \$50



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





Loeb challenges mainstream scientific skepticism and advocates for open-minded inquiry into unconventional possibilities. He argues that if 'Oumuamua is artificial, it raises profound questions about intelligent life beyond Earth and the need for increased investment in interstellar exploration.

Though controversial, Extraterrestrial encourages rethinking the boundaries of scientific exploration and urges consideration of alternative hypotheses about cosmic phenomena.

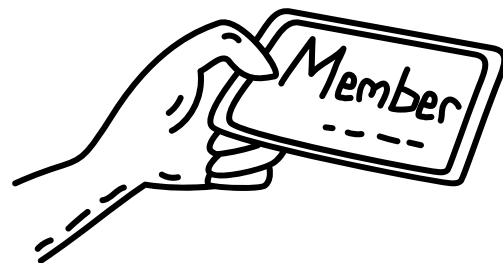




Sign Up

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 on the left index column for the link "Join Our Society," click on that and there ya go. Your membership runs from 1 January to 31 December or the date you sign up to the end of the year. Our new Membership Manager, Mr. Richard Pipkin will assist you with any questions you may have: richardpipkin@pasaz.org



Benefits of PAS Membership

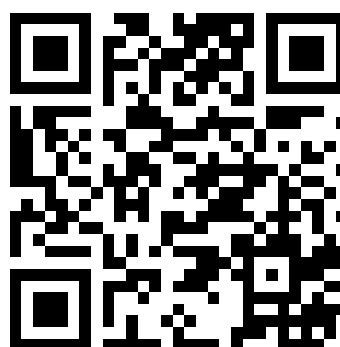
- Helping the Society accomplish its mission of astronomy outreach and education
- Contributing toward the Society's ability to provide college scholarships to astronomy students
- Participation on the Society's email distribution list
- Email receipt of the Society's monthly newsletter
- Participation 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!

Join Our Society

 pasaz.org



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Star Tours Team 2025

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

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

