



The Bays Mountain Astronomy Club Newsletter

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Cosmic Reflections

William Troxel - BMAC Chair



reetings fellow BMACers!

July is upon us, which means the annual picnic. You asked me to find a place for us and I have. The place will be sent in the MailChimp e-mail to all members as it is a members (and family)-only event. Please remember, this is pot luck, so that means bring a dish to share. This can be a main dish, side dish, dessert, etc. Also, bring a chair for yourself. Be ready to come out and have some great conversation and relax together as a club.

Now I want to give a big shout out to the winning team for this year's annual Astro-Jeopardy game. The winning team is pictured in this article. Congratulations to each member of the team. I want to remind you that we will not have a challenge question in July due to July being the annual picnic month.

I want to thank everyone for coming out and being part of the game. I hope you had fun and learned something new.

I also want to thank everyone for your support for another term as your club chairperson. I was touched that you still have the confidence in my leadership. I understand that we are still trying to see what and how we want the club to be going forward. I write this a lot, however, it still is very much on point. This is our club. Every member of the BMAC needs to be a part of the program. If you know of students, speakers, science teachers or anyone that wants to do a program, please reach out to me. I want to reach out to them and see what type of program they have and how to work it into our monthly schedule.

I am still working on the program for the August meeting. I will update you as soon as I get it all set.

Until then... Clear Skies!



The winners of the annual Astro-Jeopardy game held during the June meeting! Image by William Troxel.

BMAC Notes



Message from the Astronomical League



he Astronomical League has produced a new handout titled "Introduction to Amateur Astronomy Guide" that is available for a nominal shipping cost.

It is an 8 page, all color, glossy, 8.5" x 11" pamphlet covering basics of several fundamental topics to help people who are unfamiliar with astronomy to get started and encourage them to learn more. This is available to AL Clubs/Members in limited quantities at this time.

Ordering is done by response to the [Google Form](#).

If you have questions not answered on the Google Form, please contact [Mitch Glaze](#).

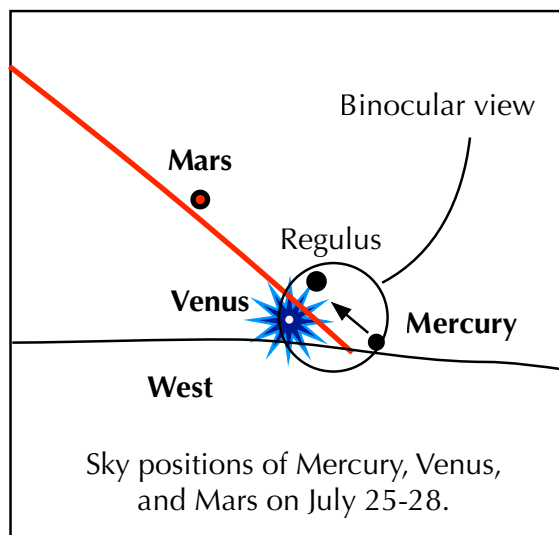
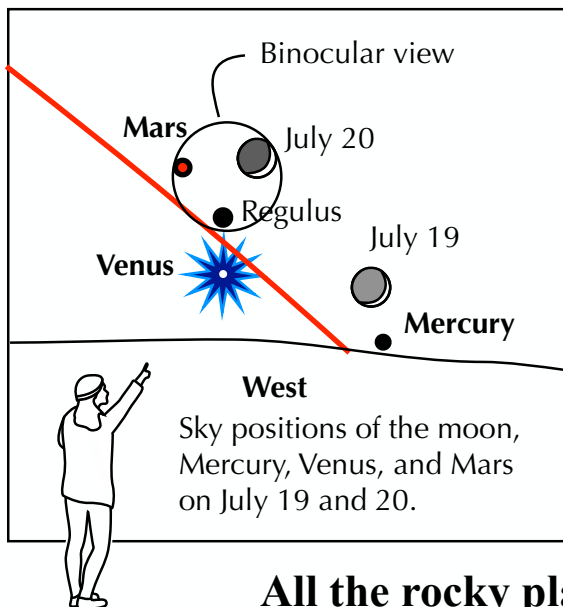
Sky News from the Astronomical League



he Astronomical League has a plethora of educational content to help you learn and enjoy the night sky more. The following inserts are just a tiny bit of what they provide.



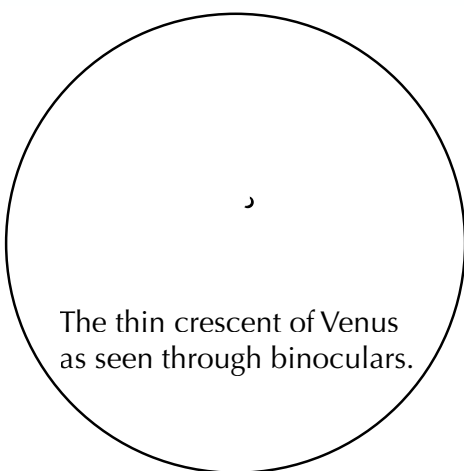
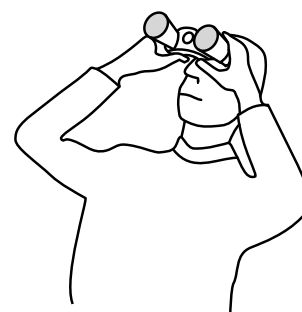
If you can see only one celestial show in the evening this July, see this one.



All the rocky planets, all at once!

On the evenings of July 19 and 20, look towards the west 30 minutes after sunset.

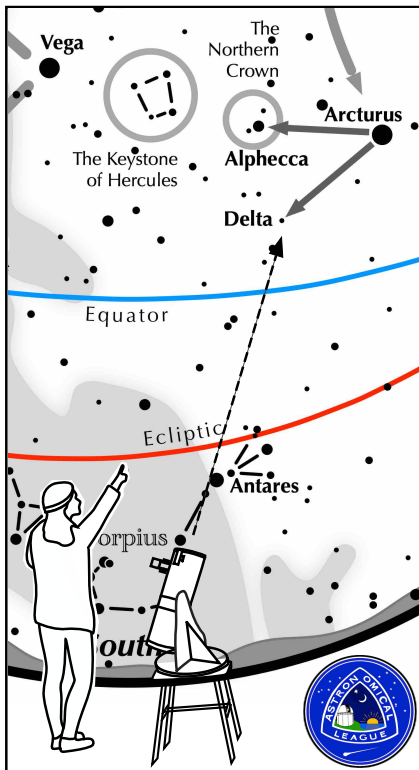
- Brilliant Venus will be seen as a tiny crescent in steadily held binoculars.
- On the first evening, the thin crescent moon, full with earthshine, hangs above Mercury. The little planet might be lost in the bright twilight.
- On July 20, the moon forms a triangle with Regulus and Mars. Venus sinks below them. Mars, having lost its splendor from last fall, might be difficult to spot in the bright twilight. Binoculars will help.



Mars, having lost its splendor from last fall, might be difficult to spot in the bright twilight. Binoculars will help.

- Mercury climbs somewhat higher over the remaining evenings in July. On July 28, it lies directly next to Regulus, which has dropped much closer to the horizon. Venus may lie too close to the horizon to be spotted. Because of their low altitude, very clear skies and a low horizon are needed to see this.

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

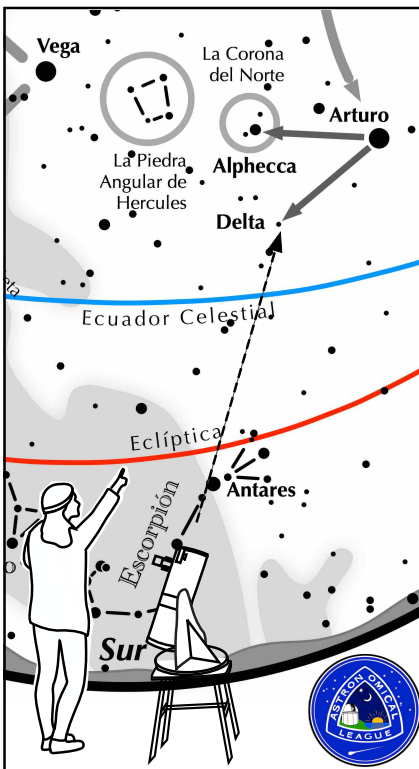
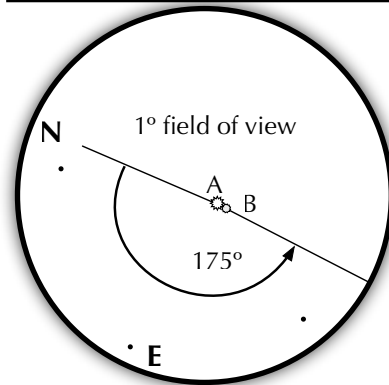
B magnitude: 5.2

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 Arturo que Alpha Centauri, pero al sureste.

Delta Serpentis

A-B separación: 4 sec

A magnitud: 4.2

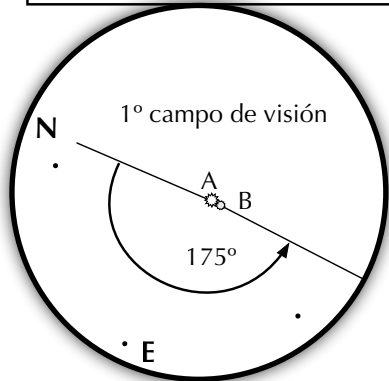
B magnitud: 5.2

PA: 175°

A & B color: blanca

Ampliación sugerida: >60x,

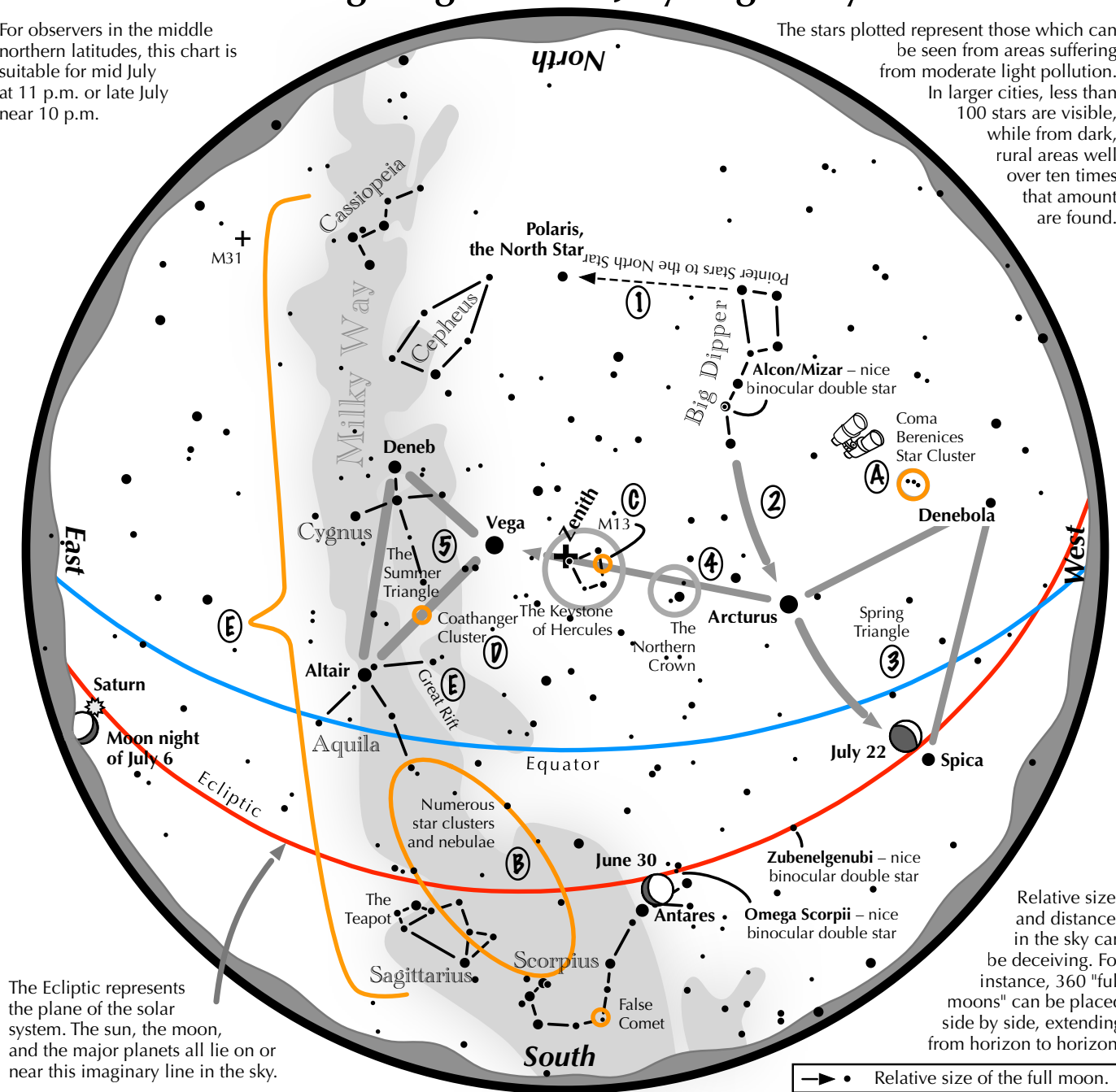
Apertura sugerida: >75 mm



Navigating the mid July Night Sky

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. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 3 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.
- 4 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.

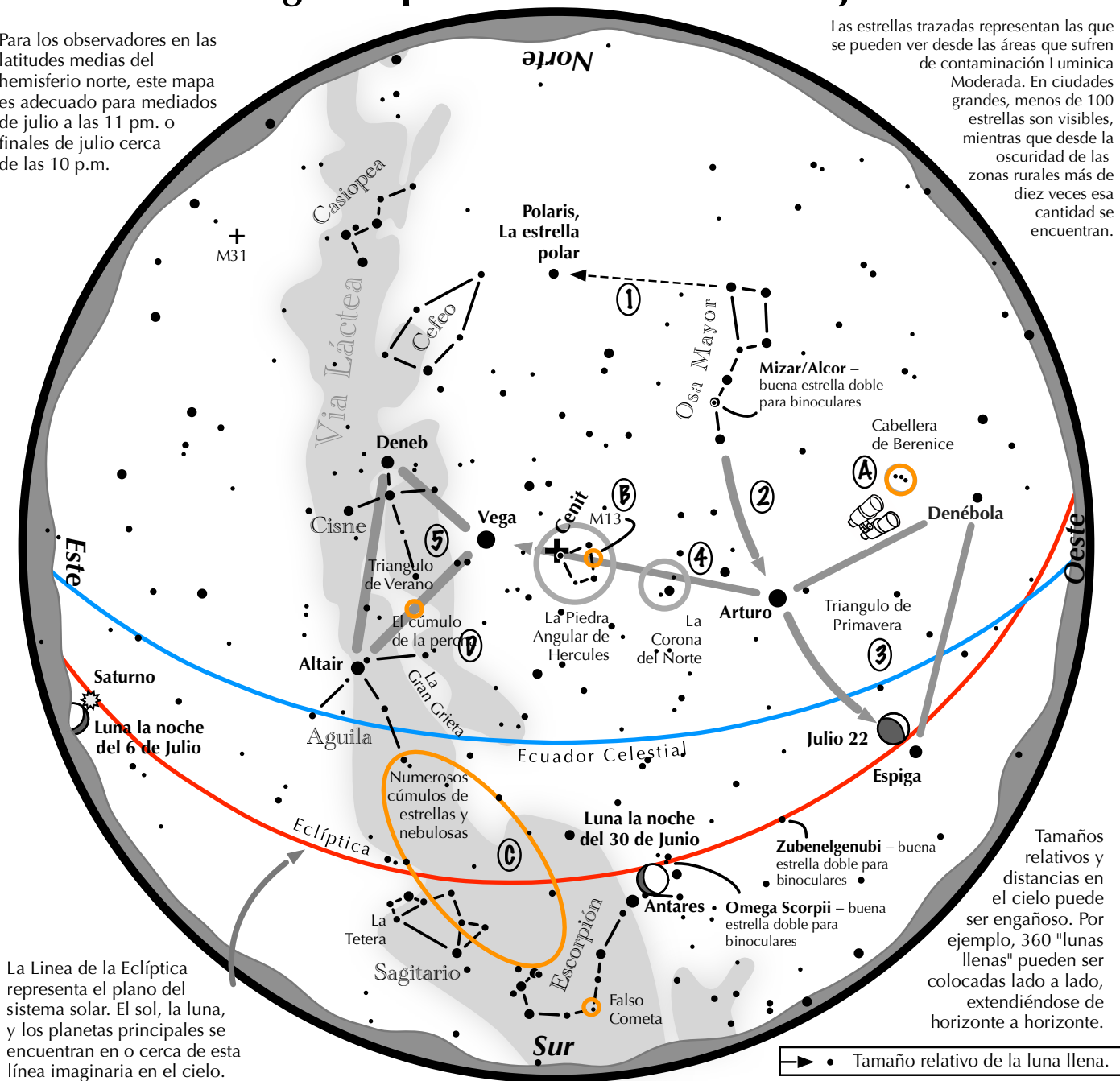
Astronomical League www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.



Navegando por el cielo nocturno de julio

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para mediados de julio a las 11 p.m. o finales de julio cerca de las 10 p.m.

Las estrellas trazadas representan las que se pueden ver desde las áreas que sufren de contaminación Luminica Moderada. En ciudades grandes, menos de 100 estrellas son visibles, mientras que desde la oscuridad de las zonas rurales más de diez veces esa cantidad se encuentran.



La Línea de la Eclíptica representa el plano del sistema solar. El sol, la luna, y los planetas principales se encuentran en o cerca de esta línea imaginaria en el cielo.

Tamaños relativos y distancias en el cielo puede ser engañoso. Por ejemplo, 360 "lunas llenas" pueden ser colocadas lado a lado, extendiéndose de horizonte a horizonte.

► • Tamaño relativo de la luna llena.

Navegando por el cielo nocturno: simplemente comience con lo que sabe o con lo que puede encontrar fácilmente.

- 1 Haz una línea hacia el norte desde las dos estrellas en la punta de la Osa Mayor. Pasa por Polaris, la estrella polar.
- 2 Siga el arco del mango del tazón de la Osa Mayor. Primero cruza Arturo, luego continúa hacia Espiga.
- 3 Arturo, Espiga y Denébola forman el triángulo de primavera, un gran triángulo equilátero.
- 4 Dibuja una línea desde Arturo a Vega. Un tercio del camino se encuentra "La Corona del Norte". Dos tercios de esa distancia llevan a la "piedra angular de Hércules." Se necesita un cielo oscuro para ver estas dos configuraciones estelares tenues.
- 5 En lo alto del este se encuentran las tres estrellas brillantes del Triángulo de verano: Vega, Altair y Deneb.

Puntos destacados con binoculares

A: Mira alto en el este para ver el cúmulo de estrellas perdidas de Cabellera de Berenice. **B:** M13, un brillo redondo de un cúmulo de más de 500,000 estrellas. **C:** Entre las brillantes estrellas de Antares y Altair, se esconde un área que contiene muchos cúmulos de estrellas y nebulosas. **D:** Casi a la mitad de la distancia entre Altair y Vega, Brilla la "Percha," un grupo de estrellas que describe un perchero.



Wildacres Fall Star Party 2023

Wildacres Fall Star Party 2023

Attend the Wildacres Fall Star Party 2023 in the Blue Ridge Mountains. Don't miss this opportunity to kick back with your scope and astronomy friends under the dark, crisp skies of Western North Carolina!

When: Monday afternoon, September 18 –
Thursday morning, September 21, 2023

Cost: \$260 per person

What is included?

- **THREE** nights of lodging in 2-person, motel-like rooms with private bath at Wildacres Retreat located near Little Switzerland and directly off the Blue Ridge Parkway
- **EIGHT** great meals: 3 dinners, 2 lunches, 3 breakfasts

Cool, clear nights for great observing! (We hope!)

Great food!

Informal programs and presentations!

Motel-like rooms, no camping!

**Wine and cheese
reception one
night!**

Minimal moon!!!

Reserve your spot by the September 1 deadline by mailing your payment and registration form to the name and address on the registration form.

Checks cashed upon receipt to hold your registration.

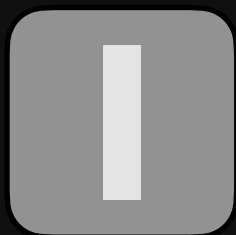
- Pets are not permitted at Wildacres Retreat.
- Park equipment trailers down the hill in the flat area near the dining hall.
- In the event of a medical emergency, the closest dispatched ambulance comes from Marion and response time is approximately 45 minutes.
- Wildacres Retreat does not currently have charging stations for guests' electric vehicles. The closest location with two 40 amp Level 2 chargers available for all makes and models, including Tesla with adapter, is in Little Switzerland at Books and Beans (828-467-8107) in the same building as the Switzerland Café. Charges apply.

Stellar Observations

Greg Penner



A Supernova in M101



In the April newsletter, I wrote about keeping an eye out for supernovae, whether in our own galaxy (which would be amazing!) or in other galaxies. As it turns out, on May 19th, Japanese amateur astronomer Koichi Itagaki discovered a supernova in M101 (a.k.a. the Pinwheel Galaxy). At a distance of 20 million light years, the supernova had an apparent magnitude of +14.9 at the time of discovery, which increased to +13.5 within less than 12 hours. As of late May, it had reached magnitude +11.0, making it well within reach for visual observations using a 6 inch telescope (possibly even a 3" - 4" telescope depending on sky conditions). The supernova has the designation 2023ixf, and its status can be followed on this [website](#).



Gemini North Telescope image of SN2023ixf. The supernova is the bright star at the left. - International Gemini Observatory / NOIRLab / NSF / AURA Image Processing: J. Miller (Gemini Observatory/NSF's NOIRLab), M. Rodriguez (Gemini Observatory/NSF's NOIRLab), M. Zamani (NSF's NOIRLab), T.A. Rector (University of Alaska Anchorage/NSF's NOIRLab) & D. de Martin (NSF's NOIRLab)

On May 21st I set up my 12.5" reflector on my driveway in Bortle 5 (suburban light pollution) skies and found M101 as a faint smudge. The sky conditions that night were slightly hazy. I believe there was some smoke in the upper atmosphere from distant wildfires. I took some time to compare the orientation of M101 compared to the stars in the eyepiece field of view and compared what I was seeing to images I found that identified the supernova. I positively identified it right where it should be and made a sketch in my logbook. There were multiple 11th and 12th magnitude stars in the field of view, and the supernova appeared to be about magnitude +12 by comparison. Even though what I viewed appeared to look like any other dim star, I knew I was looking at a star that had exploded 20 million light years away [Ed.: And 20 million years ago!] and was now equally as bright to my senses as stars that are only hundreds of light years away! This was my first time ever to see a supernova with my own eyes... very cool indeed!

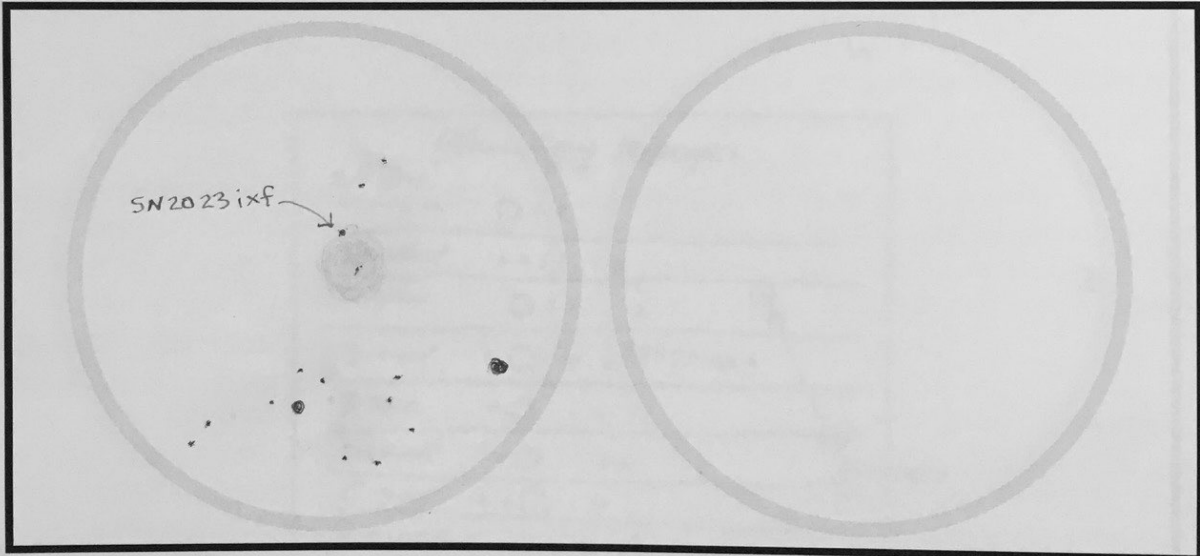


M101 Location in July - Stellarium image

Observation Log

Observer's Name: Greg Penner
Latitude: 36°32' N Longitude: 82°25'03" W
Object Name: M101/SN2023ixf Catalog ID: _____
Alternative Names / Nomenclature: _____
Type of Object: Galaxy/Supernova Constellation: Ursa Major
Right Ascension: 14h03m Declination: +51°20'
Azimuth: _____ or Altitude: _____
Magnitude: +12 Size: Stellar Filters Used: N/A
Date: 05/21/23 Time: 11:00 _____ AM ☒ PM ☒ LT _____ UT
Seeing: Fair Transparency: Fair 4/5 EDT
Instrument Used: 12.5" Reflector Magnification: 79X

Sketch



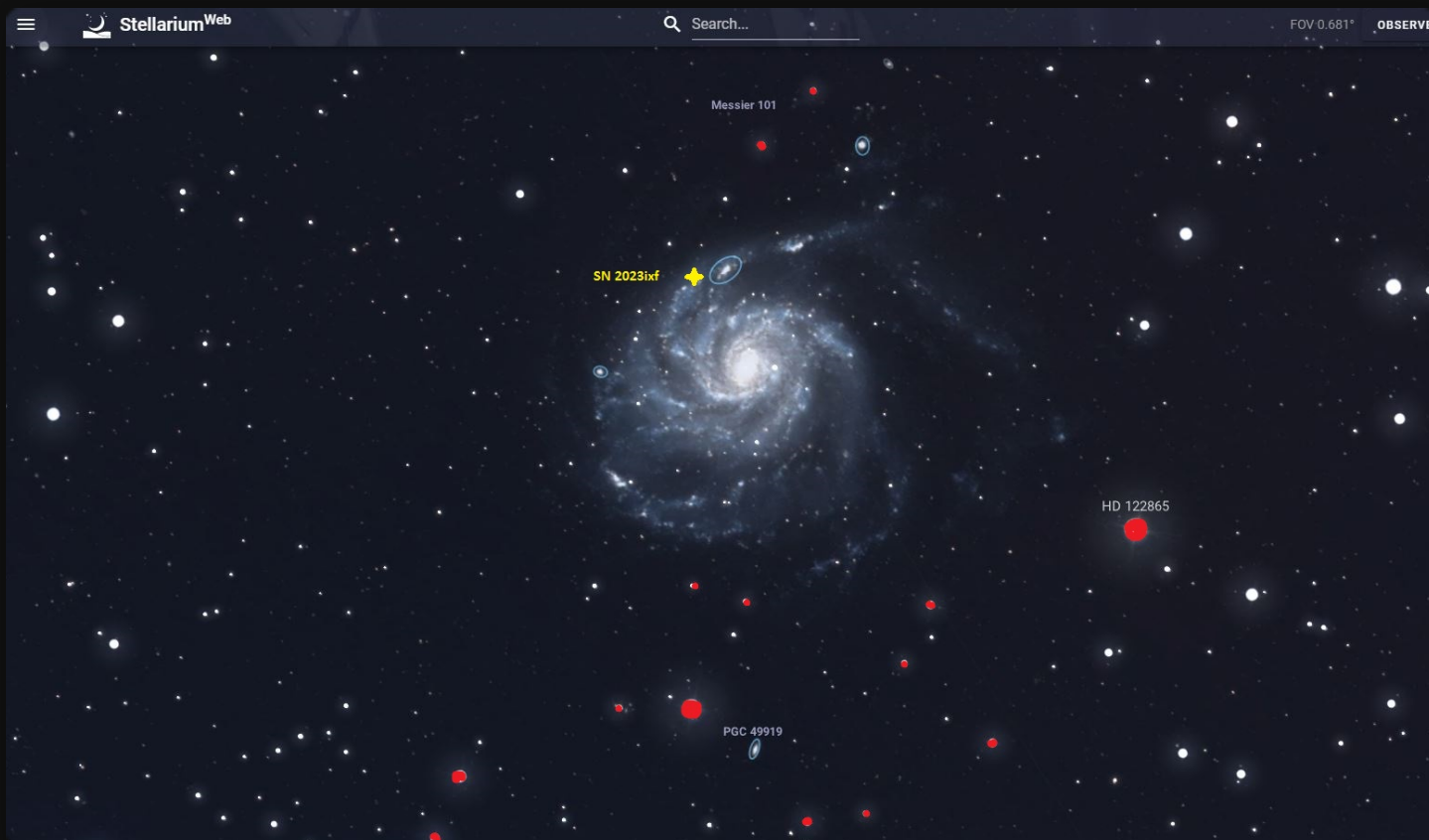
Eye-piece 1: 24 mm

Eye-piece 2: _____ mm

Naked-Eye Sketch

Notes/Description: Found SN2023ixf at location shown on
photographs from published discovery images. The SN was
similar brightness as numerous +11-12 magnitude
stars in the field.

Greg Penner's observation log for SN2023ixf in M101



Stellarium image of M101 with SN2023ixf approximate location noted. Stars highlighted in red correspond to field stars in Greg Penner's observation log sketch.

M101 can be found easily because it makes a nearly equilateral triangle with the two stars at the end of the Big Dipper handle. Those two stars, Alkaid and Mizar, will be fairly high in the northwestern sky in the first half of July as the Big Dipper is oriented bowl down and handle up. The Moon is full on July 3rd, so by around July 7th through around July 20th, moonlight should not be interfering with observations of M101 and the supernova. Even if your telescope aperture isn't large enough

(and/or sky conditions aren't good enough) to make out M101 very well, knowing the pattern of stars in the vicinity of the galaxy can help you locate the supernova. SN2023ixf should still be shining at magnitude +11 to +12 for a few months, continuing to be visible in backyard telescopes. Here is a [link](#) to an article by Sky & Telescope's Bob King with much more information about the supernova.

The Queen Speaks

Robin Byrne



Happy Birthday Jane Luu



his month, we celebrate the accomplishments of a woman who helped discover a new part of our Solar System. Jane Luu was born July 15, 1963 in Saigon, South Vietnam. In addition to her parents and three siblings, Luu was also surrounded by a large extended family who all lived nearby, including many cousins with whom to make mischief. Her father was a clerk for the US army, while her mother worked at home taking care of the family. Luu learned French from her father and attended a French school, where memorization was emphasized over understanding, and no science was taught. Meanwhile, Luu, when not in school, put her creative mind to work through writing stories and making crafts. When she had the money to spare, she would rent books from neighborhood shops.

In 1975, when Luu was 11 years old, her father came home with the news that they would have to leave the country. The Vietnam War had ended, and since he worked for the US, it was

not safe for them to stay. That night, they packed the essentials, with Luu's mother planning for the possibility of living on the street and packing accordingly. They spent the next five days camped outside the airport. Thanks to her father's connections, they were able to fly out on a US army plane. Luu's family spent the next week at a refugee camp on Wake Island, in the Pacific Ocean. The next stop was another refugee camp, this time in California at Camp Pendleton. Living in a large tent with dozens of strangers in a new place was exciting for the young, adventurous girl.

The family eventually found rental places in which to stay temporarily, while Luu's father learned skills to get a new job. Luu's maternal aunt visited the family and invited them to move back with her to Paducah, Kentucky. So while Luu's father continued to stay in California to find work, the rest of the family piled into one car, along with her aunt, uncle and two cousins, and made the long trip to Paducah. Over the next year, they made Kentucky their home. When Luu's father got work as a bookkeeper in Ventura, California, back to California they

went. Luu's mother also got a job, doing work in an electronics factory. Finally, they were becoming settled in the US, though Luu's mother never did learn English.

When Luu was in 8th grade, she was given the opportunity to skip the rest of that year and move into 9th grade. She grabbed the opportunity. Luu easily got good grades, not feeling challenged by the work at all. When it came time to choose a college, Luu only knew about a couple schools in California, so her father bought a guide to the top colleges in the US. Luu applied to the top ten on the list, being accepted to MIT, Stanford, and Princeton. Ultimately, she chose Stanford because they offered the best financial assistance.

So, in 1980, Luu began her college career at Stanford. Following her father's advice, Luu began as a Mechanical Engineering major, but she didn't enjoy it. A friend suggested she try physics, and Luu found her calling. She graduated in 1984 with a bachelor's degree in physics.

After graduation, Luu got a job working at the Jet Propulsion Lab, which was her first exposure to astronomy and space. She was particularly enthralled by the images of the planets that the various JPL spacecraft were sending back to Earth. Luu wanted to know more about our Solar System.

In 1986, Luu was accepted to the graduate program in the Earth, Atmospheric and Planetary Science Department at MIT. But first, during the summer before her graduate school year began, Luu traveled to Kathmandu, Nepal to do volunteer work for Save the Children, teaching English in one of the villages. That summer, Luu also traveled to Tibet with some Peace Corps volunteers, having several adventures along the way, but creating indelible memories of a unique place. This was the beginning of her love for travel.

That Fall, Luu began her graduate career at MIT, and was in heaven. She had the freedom to study everything she found of interest. She began working with David Jewitt, exploring the Solar System's small bodies: asteroids, comets, and moons. In

1987, they began a project to study the outermost reaches of the Solar System, expecting to confirm that it was mostly empty. This project would last for the next two decades. In the meantime, Luu pursued her own research, studying the connection between comets and asteroids. This eventually became her doctoral thesis. While Luu was working on her thesis, Jewitt took a position at the University of Hawaii, so Luu moved to Hawaii to continue working with him, while still being enrolled at MIT. Using the telescopes on Mauna Kea, they continued their research projects.

In 1990, Luu graduated from MIT with her PhD in Astronomy. She received a post-doctoral fellowship at the Harvard-Smithsonian Center for Astrophysics in Massachusetts, though she still managed to spend as much time in Hawaii as she possibly could.

Luu and Jewitt continued studying the outer Solar System, and in 1992, their efforts finally paid off. On August 30, using the 2.2 meter telescope on Mauna Kea, they found an object in the

outer Solar System that was orbiting the Sun. They first dubbed it "Smiley" after the elusive spy in the John le Carré novels, but it was later given its official name of 1992 QB1. It would be the first Kuiper Belt Object to ever be discovered.



Jane Luu, November 24, 2018.
Author Hsin-Jen Hsu

In recognition of her contributions to this major discovery, Luu received numerous honors, including the Annie J. Cannon Award in Astronomy from the American Astronomical Society, and a Hubble Fellowship from the Space Telescope Science Institute. Luu used the Hubble Fellowship to spend a year at the University of California at Berkeley, and then the following year at Stanford. In 1994, after the Fellowship had been completed, Luu took a faculty position at Harvard University in the Astronomy Department. Four years later, Luu left Harvard for a teaching position at the University of Leiden in the Netherlands. She remained there for the next three years. It was here that she met her husband, fellow astronomer Ronnie Hoogerwerf. They now have one daughter.

In 2001, Luu changed course in her career. While up to this point she was focused on doing research, now she decided to work on instrumentation, joining the Technical Staff at the MIT Lincoln Laboratory. Luu felt that her understanding of science instruments was lacking, and decided the best way to learn was by building them herself. So she went from being a confident

observational astronomer to an engineering apprentice, but enjoyed the opportunity to do and learn about something new.

However, that didn't mean that Luu was no longer doing astronomical research. She continued collaborating with Jewitt. In December 2004, they announced the discovery of water ice on the Kuiper Belt Object, Quaoar. They hypothesize that the water ice is normally only found under the surface, but was exposed due to a collision in Quaoar's past.

Luu's work with Jewitt, and also with Michael Brown, led to another round of awards for all three. In 2012, they were awarded the Kavli Prize in recognition of "... discovering and characterizing the Kuiper Belt and its largest members, work that led to a major advance in the understanding of the history of our planetary system." That same year, Luu and Jewitt were awarded the Shaw Prize "... for their discovery and characterization of trans-Neptunian bodies, an archeological treasure dating back to the formation of the Solar System and the long-sought source of short period comets."

Luu continues to study the small bodies in our Solar System, and, so far, has discovered 37 minor planets. One of the asteroids in the Asteroid Belt was even named after her: Asteroid 5430 Luu. From a challenging childhood to an impressive career, Jane Luu is a woman to be admired. Whether you enjoy gazing at comets, or spotting an asteroid, part of what we know about those objects is thanks to this month's honoree, so give a shout out to Jane Luu.

References:

[Wikipedia - Jane Luu](#)

[Opening My Eyes to the Things Beyond Earth as Told by Jane X. Luu - The Kavli Prize](#)

[Autobiography of Jane Luu - The Shaw Prize](#)



The Space Place - NASA Night Sky Network

Linda Shore, Ed.D

Find a Ball of Stars

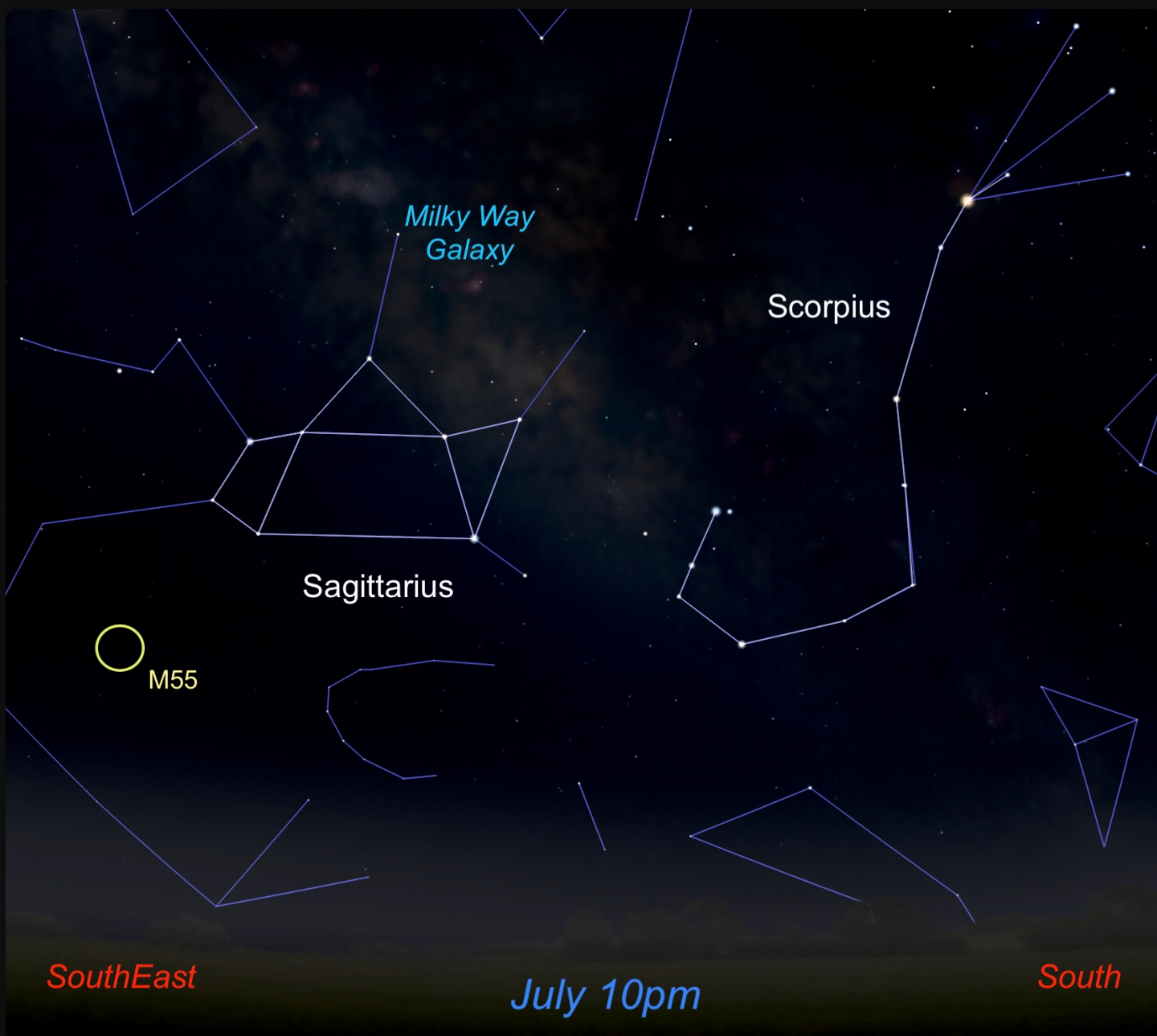


rench astronomer Charles Messier cataloged over 100 fuzzy spots in the night sky in the 18th century while searching for comets – smudges that didn't move past the background stars so they couldn't be comets. Too faint to be clearly seen using telescopes of the era, these objects were later identified as nebulae, distant galaxies and star clusters as optics improved. Messier traveled the world to make his observations, assembling the descriptions and locations of all the objects he found in his *Catalog of Nebulae and Star Clusters*. Messier's work was critical to astronomers who came after him who relied on his catalog to study these little mysteries in the night sky, and not mistake them for comets.

Most easily spotted from the Southern Hemisphere, this "faint fuzzy" was first cataloged by another French astronomer, Nicholas Louis de Lacaille in 1752 from Southern Africa. After searching many years in vain through the atmospheric haze and

light pollution of Paris, Charles Messier finally added it to his catalog in July of 1778. Identified as Messier 55 (M55), this large, diffuse object can be hard to distinguish unless it's well above the horizon and viewed far from city lights.

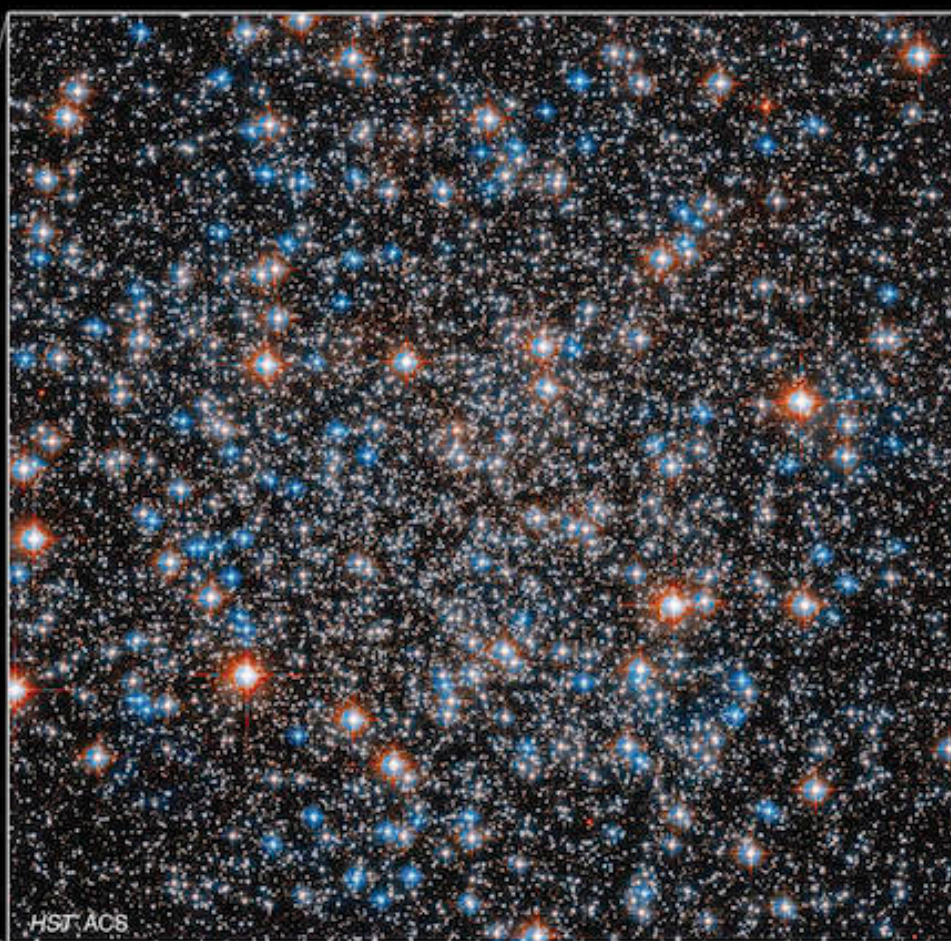
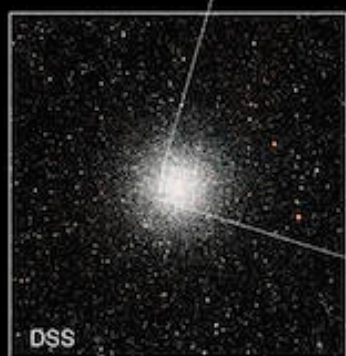
July is a great month for getting your own glimpse of M55 - especially if you live in the southern half of the US (or south of 39°N latitude). Also known as the "Summer Rose Star," M55 will reach its highest point in northern hemisphere skies in mid-July. Looking towards the south with a pair of binoculars well after sunset, search for a dim (mag 6.3) cluster of stars below the handle of the "teapot" of the constellation Sagittarius. This loose collection of stars appears about $\frac{2}{3}$ as large as the full Moon. A small telescope may resolve the individual stars, but M55 lacks the dense core of stars found in most globular clusters. With binoculars, let your eyes wander the "steam" coming from teapot-shaped Sagittarius (actually the plane of the Milky Way Galaxy) to find many more nebulae and clusters.



Look to the south in July and August to see the teapot asterism of Sagittarius. Below the handle you'll see a faint smudge of M55 through binoculars. More "faint fuzzies" can be found in the steam of the Milky Way, appearing to rise up from the kettle. Image created with assistance from Stellarium: stellarium.org

As optics improved, this fuzzy patch was discovered to be a globular cluster of over 100,000 stars that formed more than 12 billion years ago, early in the history of the Universe. Located 20,000 light years from Earth, this ball of ancient stars has a diameter of 100 light years. Recently, NASA released a magnificent image of M55 from the Hubble Space Telescope, revealing just a small portion of the larger cluster. This is an image that Charles Messier could only dream of and would have marveled at! By observing high above the Earth's atmosphere, Hubble reveals stars inside the cluster impossible to resolve from ground-based telescopes. The spectacular colors in this image correspond to the surface temperatures of the stars; red stars being cooler than the white ones; white stars being cooler than the blue ones. These stars help us learn more about the early Universe. Discover even more [here](#).

M 55



The large image shows just the central portion of M55 taken by the Hubble Space Telescope. Above Earth's atmosphere, this magnificent view resolves many individual stars in this cluster. How many can you count through binoculars or a backyard telescope? Original Image and Credits: NASA, ESA, A. Sarajedini (Florida Atlantic University), and M. Libralato (STScI, ESA, JWST); Smaller image: Digital Sky Survey; Image Processing: Gladys Kober

The Hubble Space Telescope has captured magnificent images of most of Messier's objects. Explore them all [here](#).

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky](https://nightsky.org) to find local clubs, events, and more!

BMAC Calendar & More



Calendar:



MAC Meetings:

- Friday, August 4, 2023 - 7p - Topic TBA.
- Friday, September 1, 2023 - 7p - Topic TBA.
- Friday, October 6, 2023 - 7p - BMACer Robin Byrne will present "Vera Rubin: The Woman and the Observatory."
- Friday, December 1, 2023 - 7p - Topic TBA.
- Friday, February 2, 2024 - 7p - Topic TBA.
- Friday, March 1, 2024 - 7p - Topic TBA.
- Friday, April 5, 2024 - 7p - Topic TBA.
- Friday, May 3, 2024 - 7p - Topic TBA.
- Friday, June 7, 2024 - 7p - Topic TBA.
- Friday, August 2, 2024 - 7p - Topic TBA.



unWatch:

- Every clear Saturday & Sunday - 3p-3:30p - March-October - By the Dam
- View the Sun safely with a white-light view if clear.; Free.
- You must have completed the Park Volunteer Program in order to help with the public program. If you have, and have been trained, please show up at least 30 minutes prior to the official start time.



tarWatch:

- October 7 & 14, 2023 - 7:30p
- October 21, 28 & November 4, 2023 - 7p
- November 11, 18 & 25, 2023 - 6p
- View the night sky with large telescopes at the observatories. If poor weather, an alternate live tour of the night sky will be held in the planetarium theater. Free.
- You must have completed the Park Volunteer Program in order to help with the public program. If you have, and have been trained, please show up at least 30 minutes prior to the official start time.



Special Events:

- **Annual Club Picnic - July 2023**

- Date and site location will be sent directly to full BMAC members. BMACers and their families are welcome to enjoy an evening of astronomy-themed games and activities along with a potluck dinner and observing.

- **StarFest 2023 - November 3, 4 & 5, 2023**

- Our 38th annual astronomy convention / star gathering for the Southeast United States. Three days of astronomy fun, 5 meals, 3 keynote speakers, unique T-shirt and more!
- **Pre-registration by Oct. 13, 2023 with full payment is mandatory for attendance. Sorry, no walk-ins nor "visits."**
- [Link for all the StarFest info including registration and hotel reservation links.](#)

- **BMAC Dinner - January 2024 - Day & Time TBD**

- Look for an e-mail with the latest information.

- **Astronomy Day - May 18, 2024 - 1p-4p; 8:30p-9:30p**

- Come help share the fun of astronomy with the public. There will be tables with different themed topics plus solar and night viewing.

Regular Contributors:



William Troxel



Robin Byrne



Greg Penner



Adam Thanz

William is the current chair of the club. He enjoys everything to do with astronomy, including sharing this exciting and interesting hobby with anyone that will listen! He has been a member since 2010.

Robin Byrne has been writing the science history column since 1992 and was chair in 1997. She is an Associate Professor of Astronomy & Physics at Northeast State Community College (NSCC).

Greg Penner is a semi-retired architect living in the Tri-Cities area since 2018. He has enjoyed astronomy since childhood when he received a "department store telescope" and viewed Saturn for the first time. He has been a member since 2018.

Adam Thanz has been the BMAC Newsletter Editor for all but a small number of issues since 1992. He is the Planetarium Director at Bays Mountain Park and an astronomy adjunct instructor at NSCC since 2000.

Connection:

Bays Mountain Astronomy Club:

- 853 Bays Mountain Park Road; Kingsport, TN 37650
- (423) 229-9447 - [Park Site](#) - [Club Site](#)
- Newsletter edited by [Adam Thanz](#)

Dues:

- Dues are highly supplemented by the Bays Mountain Park Association and volunteerism by the club. As such, our dues are kept at an extremely low cost.
- \$16 / person / year
- \$6 / each additional family member
- Note: if you are a Park Member (which incurs a separate, additional fee), then a 50% reduction in BMAC dues are applied.
- Dues can be paid in many ways. The easiest way is to pay via the CivicRec online portal. If you are a current member, please log in with your e-mail address and reset your password if you have not already done so. You can then update your membership. Here's the direct [link](#). If you want to add family members, then add them via the internal link. You can also pay at the gift shop, by mail or over the phone.

Chapter Background Image Credits:

- **Cover image of Southern Milky Way by Adam Thanz.**
 - *Sony A7ii with Zeiss Batis 2.8/18 lens, f/2.8, 8 sec., ISO 6,400, August 9, 2020.*
- **Table of Contents image of Comet NEOWISE (C/2020 F3) by Adam Thanz**
 - *Sony A7ii with Sony FE 2.8/90 Macro G OSS lens, f/2.8, 8 sec., ISO 4,000, July 15, 2020.*
- **Cosmic Reflections image of the Summer Triangle area of the Milky Way by William Troxel.**
 - *Image captured July 23, 2016.*
- **BMAC Notes painting of the Moon with moon glow by Christa Cartwright.**
 - *Painting based on a photograph of the Moon Christa captured July 2020.*
- **Stellar Observations image of Crescent Nebula by David Reagan.**
 - *This image was taken with a 140mm refractor in his suburban backyard using an AstroPhysics 900 mount, 8.7 hours of 5 minute Ha and OIII subexposures, combined in AstroPixelProcessor as an HOO image and processed in Lightroom and Photoshop. Image captured in 2022.*
- **The Queen Speaks image of a solar halo by Robin Byrne.**
 - *iPhone 7, June 8, 2020.*
- **The Space Place - NASA Night Sky Network image of the Rho Ophiuchi cloud complex by Brandon Stroupe.**
 - *Canon 6D with Canon 2.8/70-200mm lens, f/2.8 @200mm, 20 x 120 sec. exposures, ISO 1,000, stacked in Deepsky Stacker, processed in Adobe Photoshop CC, Skywatcher Star Adventure mount, September 19, 2015.*
- **BMAC Calendar & More image of the Moon by Greg Penner.**
 - *iPhone shooting through a 9mm eyepiece and 12.5" Truss Tube Dobsonian @212x.*
- **All background images used with permission by their authors.**