The Bays Mountain Astronomy Club Newsletter

November 2024

Kingsport, TN

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Cosmic Reflections

Greg Penner - BMAC Chair

reetings BMACer's!

We have finally reached one of our favorite times of the year: StarFest is upon us! I look forward to seeing those that registered up at Bays Mountain as we host people from all over the region for a fun and enriching Moonstruck weekend! I know that some people may still be experiencing disruption due to the effects of Hurricane Helene. My hope is that everyone who is able to attend can perhaps set their worries aside for a few days and enjoy the camaraderie with fellow astronomy enthusiasts amidst the natural beauty of the park. As a reminder, we will not have a club meeting in November.

Our next meeting will be December 6th, at which time we will have a club observing night. We would like club members to bring their telescopes and/or binoculars and we will set up by the observatory for a night of exploring the night sky, weather permitting. We will send out more info about this meeting and the alternate indoor plan, so be on the lookout for an email.

I would also like to encourage anyone who is interested in helping with the StarWatch event on Saturday nights at the park to sign up to be an official park volunteer. At the first StarWatch in October we had around 50 people show up and 4 telescopes operating to show the guests some great views of Saturn, the Moon and comet Tsuchinshan-ATLAS. If you're not sure if you would like to volunteer, you can just show up and be part of the crowd to see how the event goes. We always have a really fun evening!

Clear Skies!

BMAC Notes

BMACers Visit Observatory

A field trip was planned for club members to visit the Bare Dark Sky Observatory in Burnsville, NC on September 21. The weather and skies were great. As evening approached, clouds came in. Luckily, the skies broke up to see stars and a number of deep sky objects.

As you can see, they have a very large telescope with a 34" f/3.6 mirror. As you would expect, even with a very long focal length eyepiece, the images were quite magnified. Even though, M13 broke into separate stars, even in the center. Quite a treat.

Since it is an official dark sky sight, they have to have space available for free 24/7. Surrounding the observatory are small pad spaces for that purpose. Those pads are first-come, first-served with no reservations. One does need to purchase tickets ahead of time for the actual observatory and tour.

Approaching the observing site from the parking area. Image by Greg Penner.

At 2,700', the panoramic view is impressive. Image by Robin Byrne.

The motley crew from the BMAC.

Some of the public access observing pads. Image by Greg Penner.

This is one of the guides for the night. He and his spouse run the evening programs. He's holding a paddle to run the motorized alt-az mount. A work light is seen through the shroud for the truss tube structure. And yes, there is a Telrad at the top. Image by Robin Byrne.

Even though there is a Telrad, they use a green laser as a pointing device. Image by Robin Byrne.

BMACers Capture Comet

Photographically actually. Below are some images of Comet Tsuchinshan/ATLAS (C/2023 A3) covering some of the evenings we've been able to see it. As of the evening of October 28, the tail is almost gone leaving mostly the coma. It was still an easy binocular object though.

Greg Penner captured this image shortly after sunset on 10/11/24 as it was setting over Bays Mountain. Look hard and you'll see that the tail is quite short and wide. He states: Since it was so low in the sky, there was a lot of haze and I could only see it through 10x50

Greg captured this image on 10/14/24.

Adam Thanz captured this image at 8:23p EDT 10/22/24. 50mm f/1.2 lens, 2s @f/1.2, ISO12800.

Aurora... Again!

Whooda thunk that we'd see great aurora in East TN a second time in a short window? Below is an image by Greg Penner that highlights the excitement.

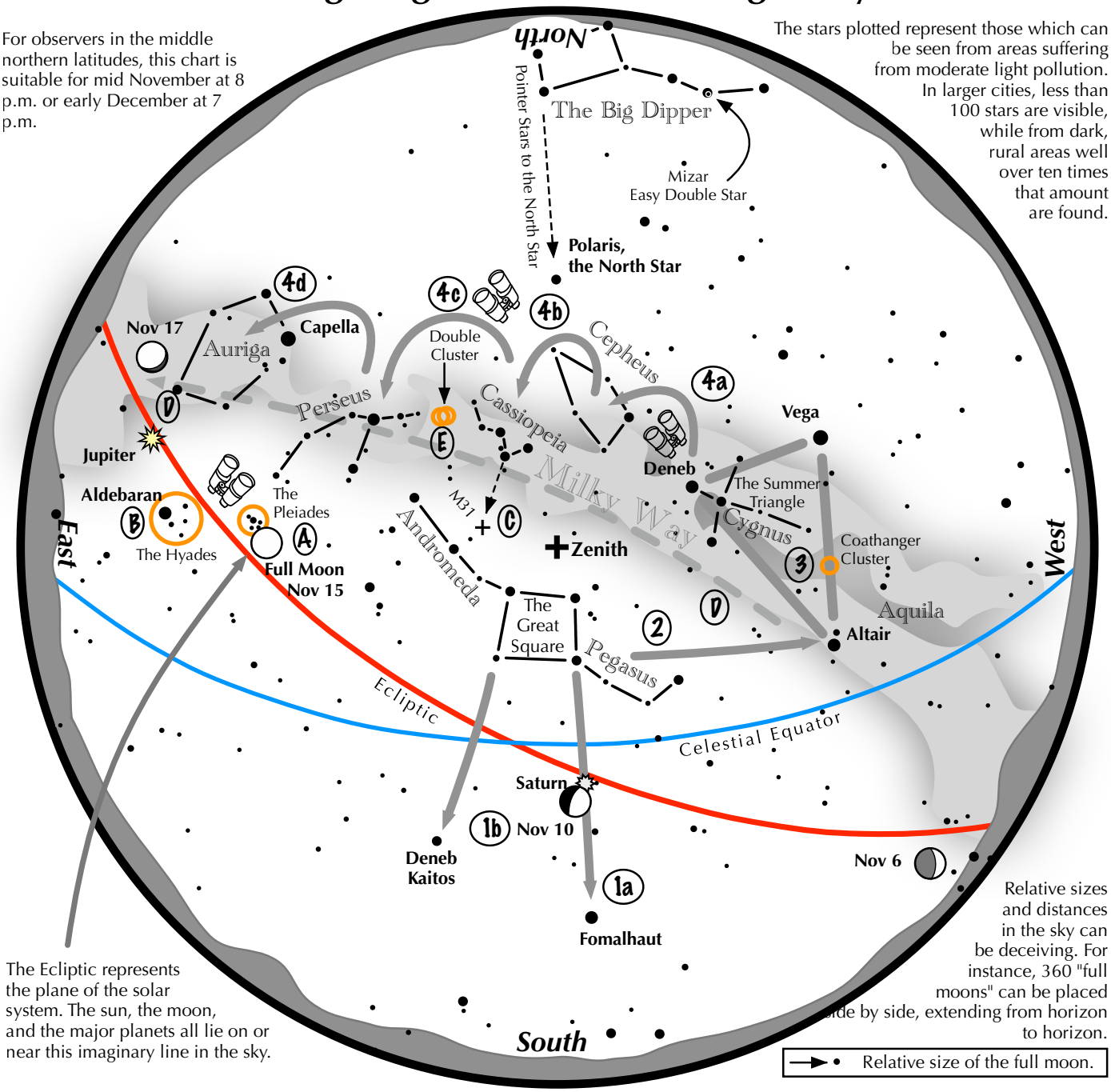
Sky News from the Astronomical League

The 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.

Navigating the November Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid November at 8 p.m. or early December at 7 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 November night sky: Simply start with what you know or with what you can easily find.

1. Face south. Almost overhead lies the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend a line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the south. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brighest star in the south.
2. Draw a line westward following the southern edge of the Square until it strikes Altair, part of the "Summer Triangle."
3. Locate Vega and Deneb, the other two stars of the Summer Triangle. Vega is its brightest member, while Deneb sits in the middle of the Milky Way.
4. Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, then to Perseus, and finally to Auriga with its bright star Capella.

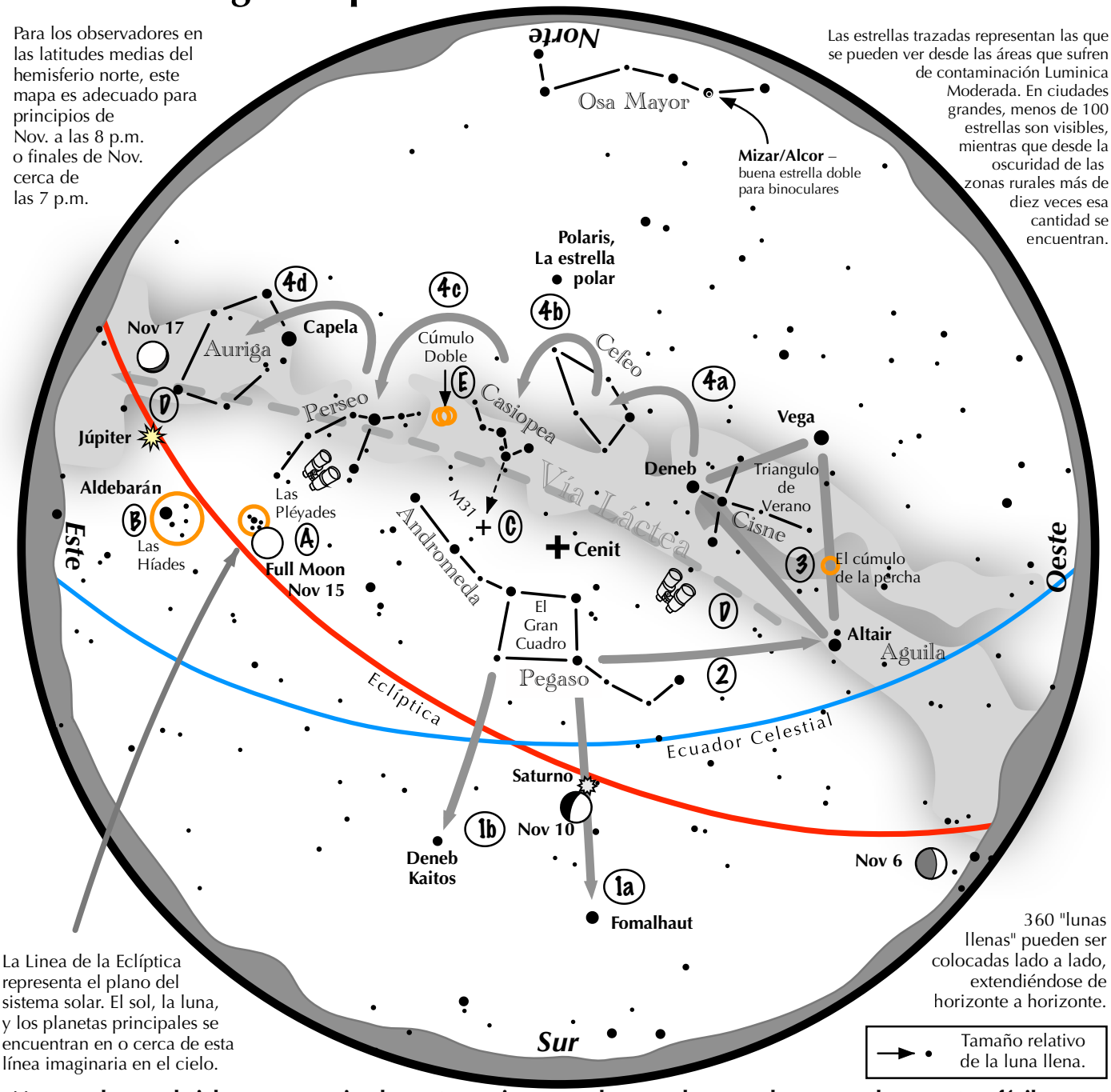
Binocular Highlights

A and B: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas. **E.** The Double Cluster.

Navegando por el cielo nocturno de Noviembre

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para principios de Nov. a las 8 p.m. o finales de Nov. cerca de las 7 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 Linea 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.

360 "lunas llenas" pueden ser colocadas lado a lado, extendiéndose de horizonte a horizonte.

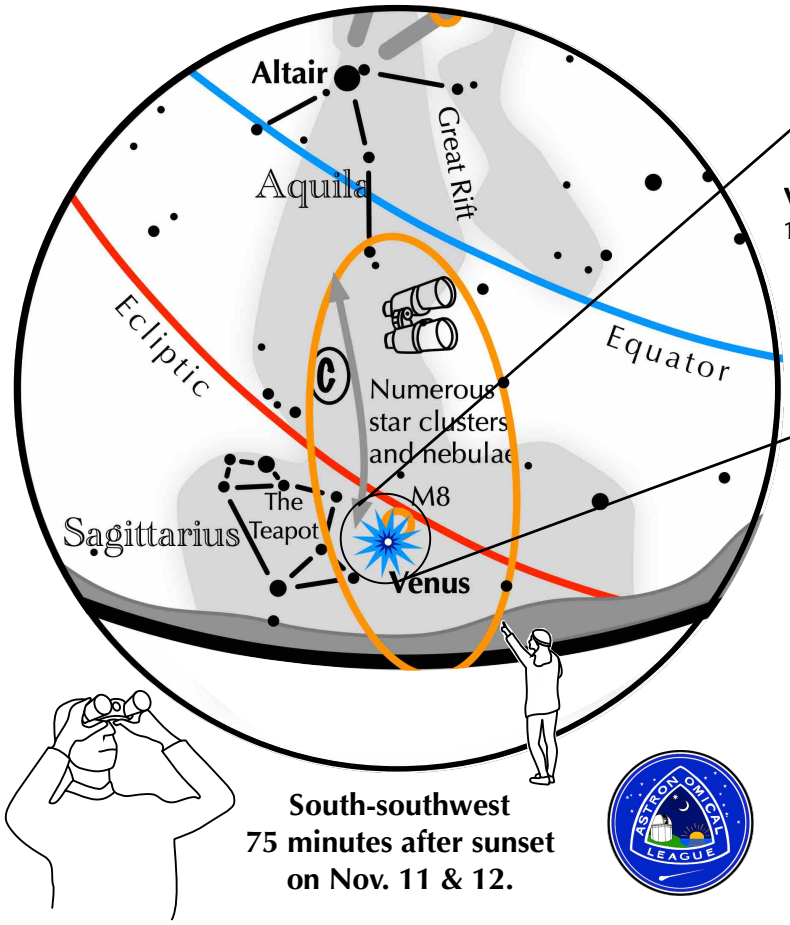
Tamaño relativo de la luna llena.

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

1. Hacia el sur. Casi arriba está el "Gran Cuadro" con cuatro estrellas con el mismo brillo que las de la Osa Mayor. Extiende una línea imaginaria hacia el sur siguiendo las dos estrellas más occidentales del Gran Cuadro. La línea lleva a Fomalhaut, la estrella más brillante del sur. Una línea que se extiende hacia el sur desde las dos estrellas más orientales, lleva a Deneb Kaitos, la segunda estrella más brillante del sur.
2. Dibuja otra línea, esta vez hacia el oeste siguiendo el borde sur del Gran Cuadro. Lleva a la estrella Altair.
3. Ubique a Vega y Deneb, las otras dos estrellas del "Triángulo de verano." Vega es su miembro más brillante, mientras que Deneb se localiza en el medio de la Vía Láctea.
4. Salta a lo largo de la Vía Láctea desde Deneb hasta Cefeo, que se asemeja al contorno de una casa. Continúa saltando a la "W" de Casiopea, a Perseo y finalmente a Auriga con su brillante estrella Capela.

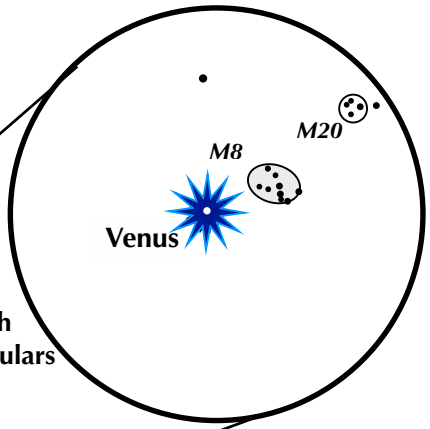
Destacan con Binoculares. A y B: examina las estrellas de las Pléyades y las Híades, dos cúmulos de estrellas a simple vista. **C:** Las tres estrellas más occidentales de la "W" de Casiopea apuntan hacia el sur hasta M31, la Galaxia de Andrómeda, un óvalo "borroso." **D:** Barrer a lo largo de la Vía Láctea desde Altair, pasar Deneb, a través de Cefeo, Casiopea y Perseo, y luego a Auriga por muchos intrigantes cúmulos de estrellas y áreas nebulosas. **E.** Cúmulo Doble de Perseo.

If you can observe only one evening celestial event this month, consider this one:



South-southwest 75 minutes after sunset on Nov. 11 & 12.

View through 10x50 binoculars

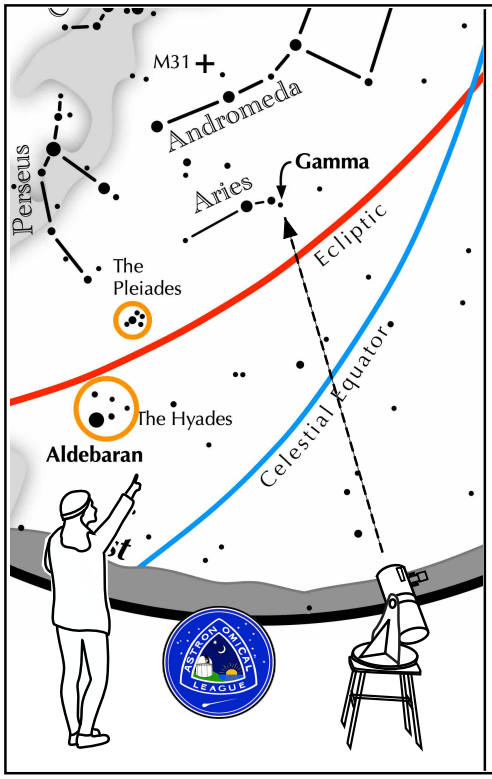


Venus reveals celestial treasures

Look to the south-southwest 75 90 minutes after sunset.

- On November 11 & 12, look for Venus low in the south-southwest. It will be the brightest object in the area.
- Use binoculars to view Venus. To its immediate upper right, subtly glows a nebulous star cluster, M8, nicknamed "the Lagoon Nebula" (4100 L-Y distant).
- To the upper right of M8 dimly glows another star forming nebula and cluster, M20, called "the Trifid Nebula" (5200 L-Y distant).

ASTRONOMICAL LEAGUE Double Star Activity



Other Suns: Gamma Arietis

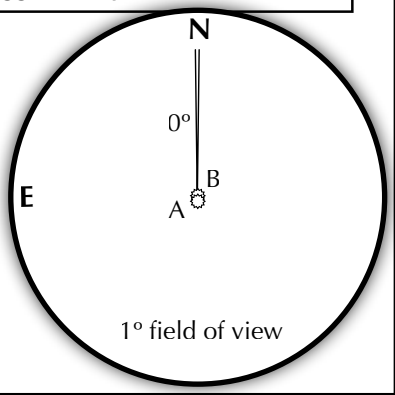
How to find Gamma Arietis on a November evening

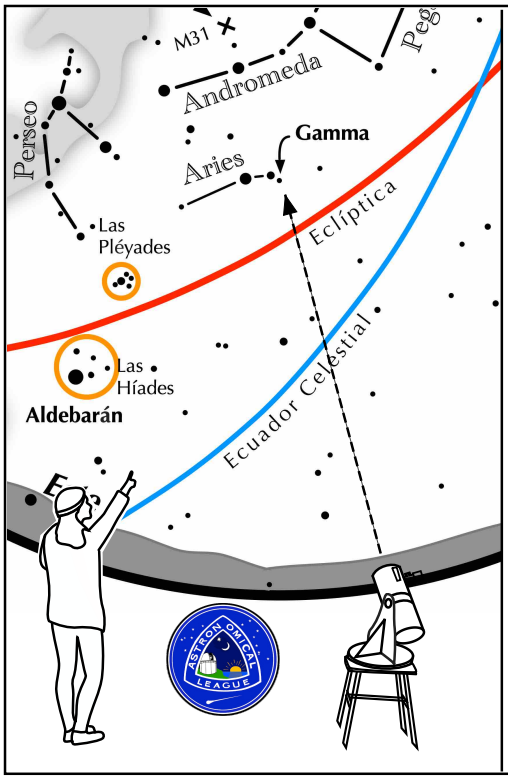
Face east. Locate the Pleiades. Aries lies to its upper right about the same distance that it is from the Hyades. Gamma is a dim star at the end of the string of stars that form Aries.

Suggested magnification: >50x
Suggested aperture: >2 inches

Gamma Arietis
A-B separation: 7.5 sec
A magnitude: 4.5
B magnitude: 4.6
Position Angle: 0º
A & B colors:
white, white

Also known as the "Ram's Eyes."





Otros Soles: Gamma Arietis

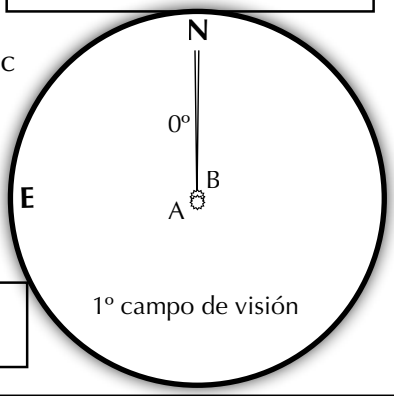
Cómo encontrar Gamma Arietis en una tarde de Noviembre

Mire hacia el este. Localiza las Pléyades. Aries se encuentra en la parte superior derecha aproximadamente a la misma distancia que de las Híades. Gamma es una estrella tenue al final de la cadena de estrellas que forman Aries.

Ampliación sugerida: >50x,
Apertura sugerida: >50 mm

Gamma Arietis
A-B separación: 7.5 sec
A magnitud: 4.5
B magnitud: 4.6
PA: 0º
A & B color:
blanca, blanca

También conocido como "Ojos de Carnero".



Stellar Observations

Greg Penner

October Surprises

In the world of politics, an "October Surprise" is a news event that may influence the outcome of an upcoming November election. Outside of the political sphere, we have certainly had some other surprises show up this October. The first surprise was not a very happy one. Hurricane Helene came roaring through our region causing unprecedented destruction and chaos. We have all seen the wide range of impacts caused by the storm, but I will just touch on how it relates to our astronomy activities. The first effect was that our October BMAC meeting was cancelled, so we missed out on a presentation from Trina Ray of the Europa Clipper mission. Hopefully we can get her rescheduled some time in the future. Another effect of the storm is decreased access to a wonderful astronomical resource up in the North Carolina mountains. Back in late September, some of us from the club visited the Bare Dark Sky Observatory near Burnsville, NC. The observatory is just one part of a larger environmental education facility called the Earth to Sky Park, which includes a

planetarium, aquaponics lab, gardens and trails. As you will see in the accompanying pictures, this observatory is an amazing place to do some stargazing! For their public stargazing events, they have a 34" Newtonian telescope and a 14" SCT housed in a roll-off roof building. Surrounding the building are 8 concrete pad viewing areas where people can set up their own telescopes for viewing. Even though we had to fight clouds much of the night, we had a great time viewing some deep sky objects. My main takeaway from the evening was that I planned to return to this observatory soon and often. The observing pads around the perimeter of the building are available for anyone to bring personal telescopes to use any night on a first come/first served basis at no cost. They have their own astronomy club that meets for observing sessions once a month and is open to anyone. So I immediately made plans to take my scope up there for the October session, but SURPRISE! Helene changed those plans in a hurry. I have been in communication with the observatory staff and they say that even though the park in its entirety is closed due to damage from the storm, the

observatory and planetarium are intact: great news! They hope to reopen the park in January 2025. Once they are back open, I would encourage all of our club to get up there sometime for a program, you won't regret it!

The next October Surprise that we experienced was another round of northern lights! Back on May 10th we experienced what seemed like a once-in-a-lifetime spectacular show of the aurora borealis right here in East Tennessee. We sure were surprised to see another great display of the colorful lights during the night and early morning of October 10-11. Once again the most vivid colors were only visible in photos, but I did see some colors with my naked eye and had a lot of fun sharing the experience with friends and family. One helpful discovery we made during this round of northern lights was a pretty reliable resource for real-time monitoring of their visibility. "The Aurora Guy" is on Twitter (@Vincent_Ledvina on X) and also has an online blog. His real name is Vincent Ledvina and he is a Space Physics Ph.D. student at the University of Alaska Fairbanks. In the 2 or 3 days leading up to the latest round of

aurorae, he was tweeting a lot of info regarding the possibility of seeing the lights at our latitude. He distills much information from data sources such as the GOES Magnetometer and then lets the public know if there's a good chance to see the aurora. We have found that his forecasts are very accurate and we intend to keep following him for more opportunities to see aurorae. NOAA's Space Weather Prediction Center currently predicts solar maximum will occur in July, 2025, so we could still have more opportunities to see northern lights!

The final October Surprise is the appearance of Comet Tsuchinshan/ATLAS (C/2023 A3). This one was not a total surprise, as we have been watching this comet and hoping for a nice October appearance, but seeing spectacular comet predictions actually come true is somewhat of a surprise since they fizzle out so often! As of the writing of this article in mid-October, we've had a few evenings to view the comet and so far I am quite impressed with the brightness of the coma and the length of the tail. The view I had from a semi-rural location the evening of 10/14, I would estimate the coma was 2nd

magnitude and the tail was about 10 degrees long. [Ed.: From darker skies, a 20° tail was viewed.] Currently, bright moonlight is creating a washed out sky that is likely diminishing the view of the tail. By the time you are reading this newsletter the comet will likely have dimmed a couple of magnitudes, but also the bright moonlight will be out of the picture. This is definitely the best comet I have seen since Hale-Bopp! I'm hoping the rest of October gives us many more views of this comet as it travels away from us at almost 200,000 km/hr. Even as the comet fades, we should be able to view it through binoculars and telescopes through the remainder of 2024. Perhaps between now and the end of the year more surprises await, but if not, 2024 is shaping up to be a very memorable year for sky-watching events!

The Queen Speaks

Robin Byrne

Happy Birthday Carolyn Hurless

This month we celebrate the life of a woman who was a prolific amateur astronomer. On November 24, 1934, Carolyn Klaserner was born in Ohio to her parents, Frank and Charlotte.

In 1947, at the age of 13, Carolyn's love for astronomy began. What started with a passion for science fiction quickly transitioned to science fact. When Herbert Speer, the president of the local astronomy club, noticed the same name appearing in astronomy books checked out from the local library, he decided to find out who this young person was. He met Carolyn and invited her to join the club.

With the help of fellow club members, Carolyn made her own 8-inch reflector telescope. She ground the mirror herself, achieving an f/4 curvature, allowing the telescope to be much shorter than most homemade scopes. Because of the shorter focal length, the telescope ended up being much easier for her

to transport. In language very indicative of the era, Carolyn described her telescope as "feminine" because of its petite size. She would use this telescope for the majority of the observations she made over the course of her life.

In college, Carolyn, surprisingly, didn't study astronomy. Instead, she studied music (in particular piano) and trained to become a music teacher. A fellow music teacher, Don Hurless, would become her husband. Carolyn worked full-time as a music teacher for her entire career, but when not at work, she continued her astronomical observations.

A fellow Ohioan, amateur astronomer Leslie Peltier, took an interest in Carolyn and became her mentor. Peltier was already a member of the American Association of Variable Star Observers (AAVSO), and encouraged Carolyn to observe variable stars. Peltier taught Hurless a technique for observing fainter variable stars, called "heavy breathing." The technique consists of breathing heavily and quickly through the nose before looking through the eyepiece. Then, while looking for

the target star, breathe slowly through the nose, until the star is found, and then speed up the breathing again. The idea is that the increased oxygen reaching the brain and eye improves the ability to detect details.

To increase the efficiency of her time at the telescope, Carolyn set about memorizing the finder fields of every variable star she observed. Using Norton’s Star Atlas, she marked the target with an "x" and then circled the field she could see through her telescope. She not only memorized the star fields, but also the magnitudes of the comparison stars she used to estimate the apparent magnitudes of the variables she observed. In this way, a typical observing session consisted of her rapidly finding a variable, making a quick magnitude estimate, and then on to the next star. In addition to observing from her home, Carolyn would also travel weekly to Peltier’s observatory to use his 12-inch refractor under darker skies for the fainter variables.

One of her earliest variable star observations was of SS Cygni. This star is a white dwarf in a binary system in which material

from the companion star is accreted onto the white dwarf. When enough material falls onto the white dwarf, it ignites, leading to an outburst. Carolyn observed such an outburst in 1959, seeing it brighten from magnitude 12 to magnitude 8.

Carolyn's primary interest were faint (magnitude 14 and higher), long period variables (LPV's). These are stars that vary in brightness with periods of 100's to 1000's of days. The stars are red giants and supergiants that are fluctuating in size due to changes in internal temperatures.

Carolyn Hurless even made observations that contributed to papers published by professional astronomers. Working with a team that included Leslie Peltier, she observed the light curves of eclipsing binary stars with enough detail to detect that the stars actually reflect some light from their companion star.

Carolyn knew that having a mentor like Peltier made all the difference in her success as an amateur astronomer, so she made sure to be a similar role model and guide for new

astronomy club members. She also took that attitude further through her involvement in AAVSO, sharing her expertise with observers all over the world through a newsletter she published (at her own expense), called Variable Views. In the newsletter, AAVSO members could introduce themselves and share their observations. It grew into a place to publish full articles about their findings. Hurless would also write her own articles, including humorous anecdotes from her own experiences. However, after 22 years, the expense of publishing the newsletter became too much, and Carolyn made the decision to stop.

The camaraderie with fellow observers went beyond the newsletter to actually meeting up in person at her house. Hurless and her husband would host an annual star party, dubbed the "August Orgy." Sometimes they would include a trip to Peltier’s observatory for a night of observing. In addition to star gazing, the parties would often include musical performances by Carolyn and Don.

Carolyn was extremely active in AAVSO in other ways, as well. From 1965-1967 she served as a councilor for the organization. And from 1967-1973, she held the post of 2nd Vice President. Through AAVSO, Carolyn also corresponded with observers all over the world, often sponsoring people to allow them to become a member of the organization. One such person was Jaroslav Kruta from Czechoslovakia. Carolyn would send him tape recordings to help him learn English, and made arrangements for AAVSO members, who were traveling to Czechoslovakia, to meet up with him. As a way to thank Carolyn for all she did, Kruta built her a telescope. But, he was concerned that sending it through the mail from a country with such a repressive government would result in it being confiscated. So, he disassembled the telescope, labeling every piece, and sent it to her one or two pieces at a time, along with instructions on how to put it all together. Carolyn's husband, Don, was able to assemble it, revealing a lovely, small telescope with nice optics.

Sadly, the end of Carolyn Hurless' life was not a happy one. As she got older, she suffered from severe chronic pain, the source of which was never discovered. On February 13, 1987, Carolyn couldn't take any more and shot herself in the head. Don never remarried, and died in 2015.

Carolyn Hurless holds the honor of being the most prolific female observer in AAVSO history, logging 78,876 observations in their database. In recognition of her contributions, her name lives on in the form of an asteroid discovered in 1981, 3434 Hurless. And in 2012 the AAVSO created the Carolyn Hurless Online Institute for Continuing Education (CHOICE), a pilot program designed to meet one of Hurless' goals of providing an online education center.

At the time of this writing, T Corona Borealis has not yet erupted as a nova. But this star is similar to the SS Cygni system that Hurless observed back in 1959. I can't help but think that she would have been monitoring this star diligently in anticipation of the outburst. When it does finally put on its

show, we should all take a moment to remember Carolyn Hurless and all of her contributions to our knowledge of variable stars.

References:

Carolyn Hurless - **Wikipedia**

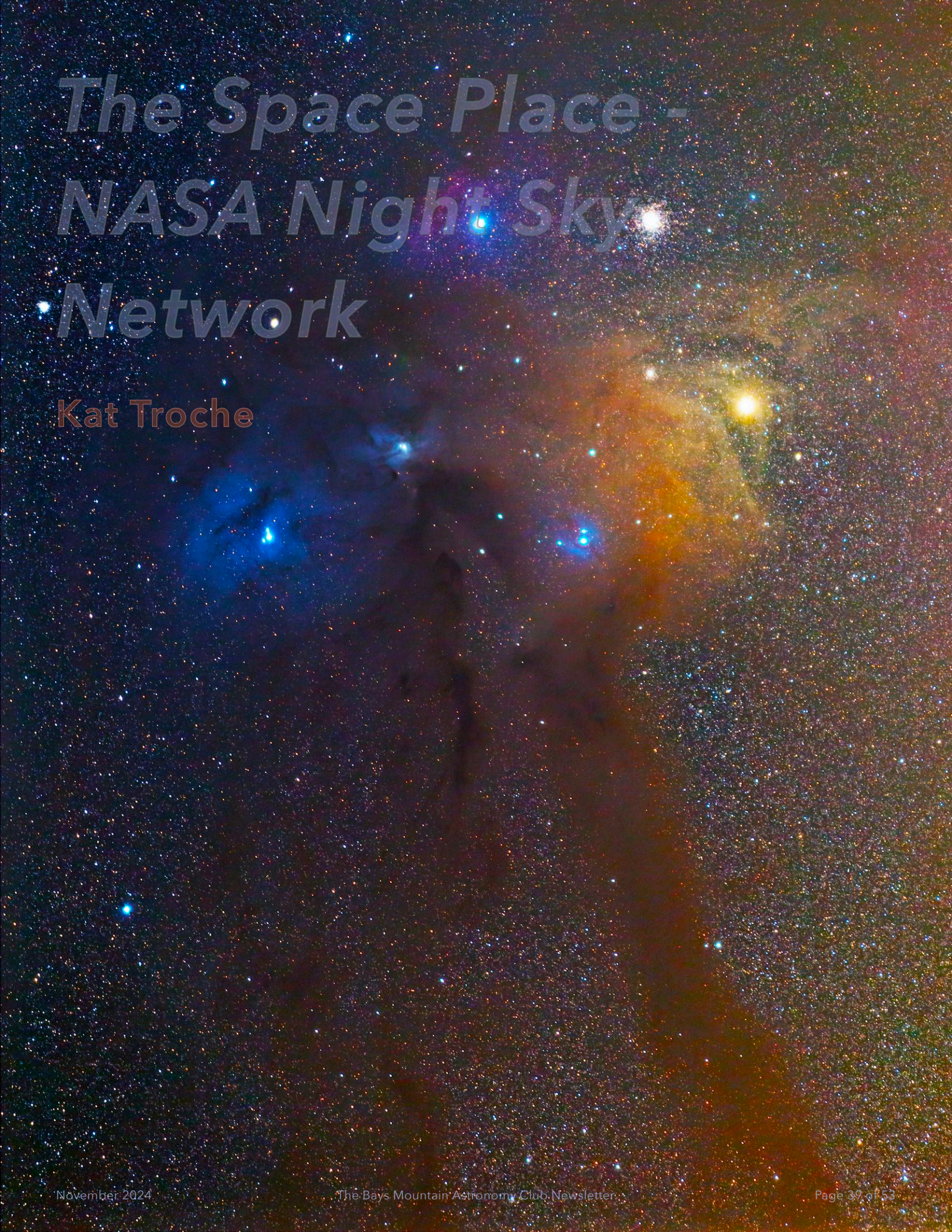
Carolyn Hurless - **AAVSO**

The Kruta Telescope - A Labor of Love - **AAVSO**

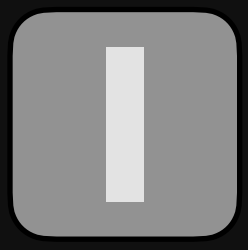
Long-period variable star - **Wikipedia**

The Space Place - NASA Night Sky Network

Kat Troche



Snowballs from Space



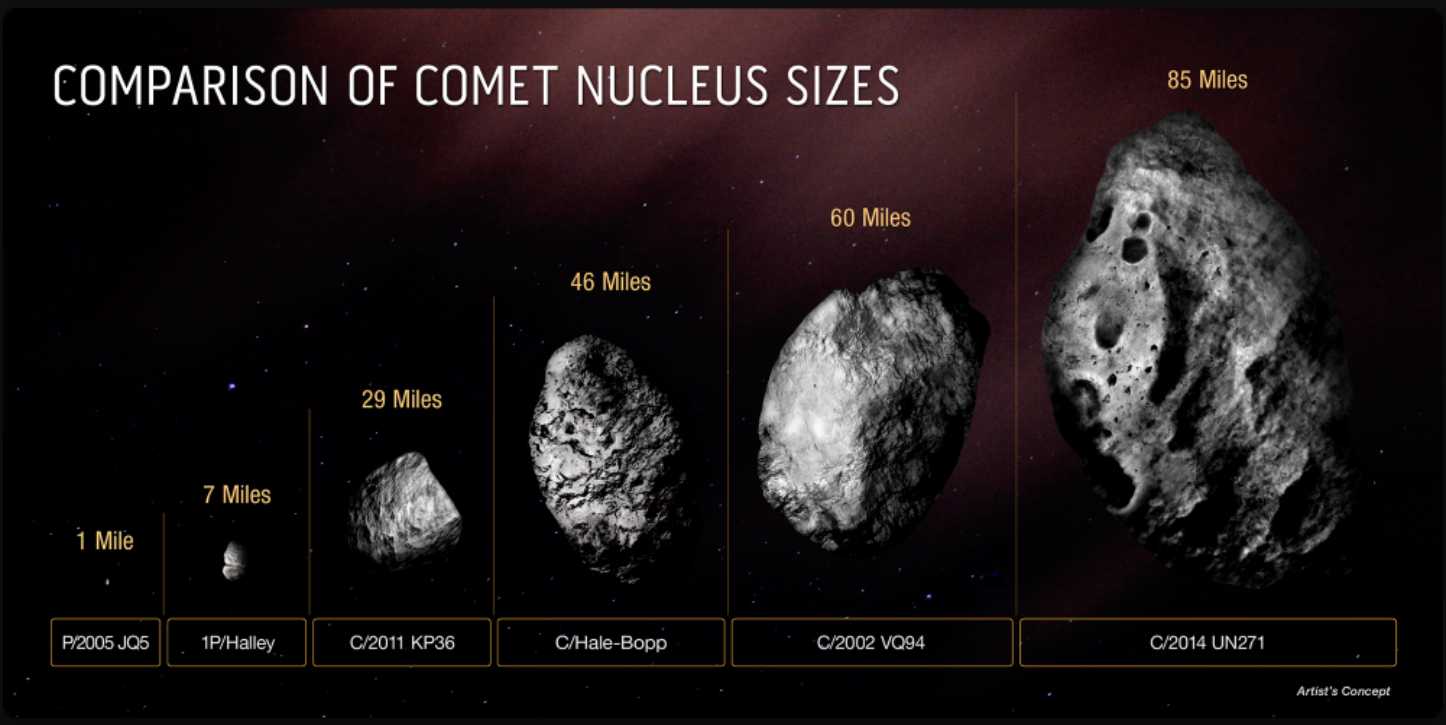
f you spotted comet C/2023 A3 (Tsuchinshan-ATLAS) in person, or seen photos online this October, you might have been inspired to learn more about these visitors from the outer Solar System. Get ready for the next comet and find out how comets are connected to some of our favorite annual astronomy events.

Comet Composition

A comet is defined as an icy body that is small in size and can develop a 'tail' of gas as it approaches the Sun from the outer Solar System. The key traits of a comet are its nucleus, coma and tail.

The nucleus of the comet is comprised of ice, gas, dust, and rock. This central structure can be up to 80 miles wide in some instances, as recorded by the Hubble Space Telescope in 2022 – large for a comet but too small to see with a telescope. As the comet reaches the inner Solar System, the ice from the nucleus

starts to vaporize, converting into gas. The gas cloud that forms around the comet as it approaches the Sun is called the coma. This helps give the comet its glow. But beware: much like Icarus, sometimes these bodies don't survive their journey around the Sun and can fall apart the closer it gets.



This diagram compares the size of the icy, solid nucleus of comet C/2014 UN271 (Bernardinelli-Bernstein) to several other comets. The majority of comet nuclei observed are smaller than Halley's comet. They are typically a mile across or less. Comet C/2014 UN271 is currently the record-holder for big comets. And, it may be just the tip of the iceberg. There could be many more monsters out there for astronomers to identify as sky surveys improve in sensitivity. Though astronomers know this comet must be big to be detected so far out to a distance of over 2 billion miles from Earth, only the Hubble Space Telescope has the sharpness and sensitivity to make a definitive estimate of nucleus size.
Illustration: ***NASA, ESA, Zena Levy (STScI)***

The most prominent feature is the tail of the comet. Under moderately dark skies, the brightest comets show a dust tail, pointed away from the Sun. [Ed.: Actually, it is a trail of debris left behind the comet, but can be pushed some by solar pressure.] When photographing comets, you can sometimes resolve the second tail, made of ionized gases that have been electrically charged by solar radiation. These ion tails can appear bluish, in comparison to the white color of the dust tail. The ion tail is also always pointed away from the Sun. [Ed.: If the dust tail pointed away from the Sun, just like the ion tail truly is, then we'd never see the two tails pointing in opposite directions once the comet passes perihelion.] In 2007, NASA's STEREO mission **captured images of C/2006 P1 McNaught and its dust tail**, stretching over 100 million miles. Studies of those images revealed that solar wind influenced both the ion and dust tail, creating striations – bands – giving both tails a feather appearance in the night sky.

Comet McNaught over the Pacific Ocean. Image taken from Paranal Observatory in January 2007. Credits: ***ESO/Sebastian Deiries***

Coming and Going

Comets appear from beyond Uranus, in the Kuiper Belt, and may even come from as far as the Oort Cloud. These visitors can be short-period comets like Halley's Comet, returning every 76 years. This may seem long to us, but long-period comets like Comet Hale-Bopp, observed from 1996-1997 won't return to the inner Solar System until the year 4385. Other types include non-periodic comets like NEOWISE, which only pass through our Solar System once.

But our experiences of these comets are not limited to the occasional fluffy snowball. As comets orbit the Sun, they can [also] leave a trail of rocky debris in its orbital path. When Earth finds itself passing through one of these debris fields, we experience meteor showers! The most well-known of these is the Perseid meteor shower, caused by Comet 109P/Swift-Tuttle. While this meteor shower happens every August in the northern hemisphere, we won't see Comet Swift-Tuttle again until the year 2126.

A view of the 2023 Perseid meteor shower from the southernmost part of Sequoia National Forest, near Piute Peak. Debris from comet Swift-Tuttle creates the Perseids. Credit: ***NASA/Preston Dyches***

See how many comets (and asteroids!) have been discovered on **NASA's Comets page**, learn how you can **cook up a comet** and check out our mid-month article where we'll provide tips on how to take astrophotos with your smartphone!

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** to find local clubs, events, and more!

BMAC Calendar & More

Calendar:

MAC Meetings:

- Friday, December 6, 2024 - 7p - BMACer's Observing Night.
- Friday, February 7, 2025 - 7p - Topic TBA.
- Friday, March 7, 2025 - 7p - Topic TBA.
- Friday, April 4, 2025 - 7p - Topic TBA.
- Friday, May 2, 2025 - 7p - Topic TBA.
- Friday, June 6, 2025 - 7p - Topic TBA.
- Friday, August 1, 2025 - 7p - Topic TBA.
- Friday, September 5, 2025 - 7p - Topic TBA.
- Friday, October 3, 2025 - 7p - Topic TBA.
- Friday, December 5, 2025 - 7p - Topic TBA.

SunWatch:

- 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.

StarWatch:

- October 5 & 12, 2024 - 7:30p
- October 19, 26 & November 2, 2024 - 7p
- November 9, 16, 23 & 30, 2024 - 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:

- **BMAC Dinner - January 2025**
  - This event is for members and their families. Look for an e-mail in January with all the information.
- **Astronomy Day - ?, 2025 - 12p-3p; 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.
- **Annual Club Picnic - July 2025**
  - 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 2025 - November 7-9, 2025**
  - Our 40th annual astronomy convention / star gathering for the Southeast United States. Three days of astronomy fun, 5 meals, 4 keynote speakers, unique T-shirt and more!
  - **Pre-registration by Oct. 16, 2025 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.**

Regular Contributors:

Greg Penner

Robin Byrne

Adam Thanz

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.

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).

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.*
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