Keene Amateur Astronomers

The Newsletter for Keene Amateur Astronomers

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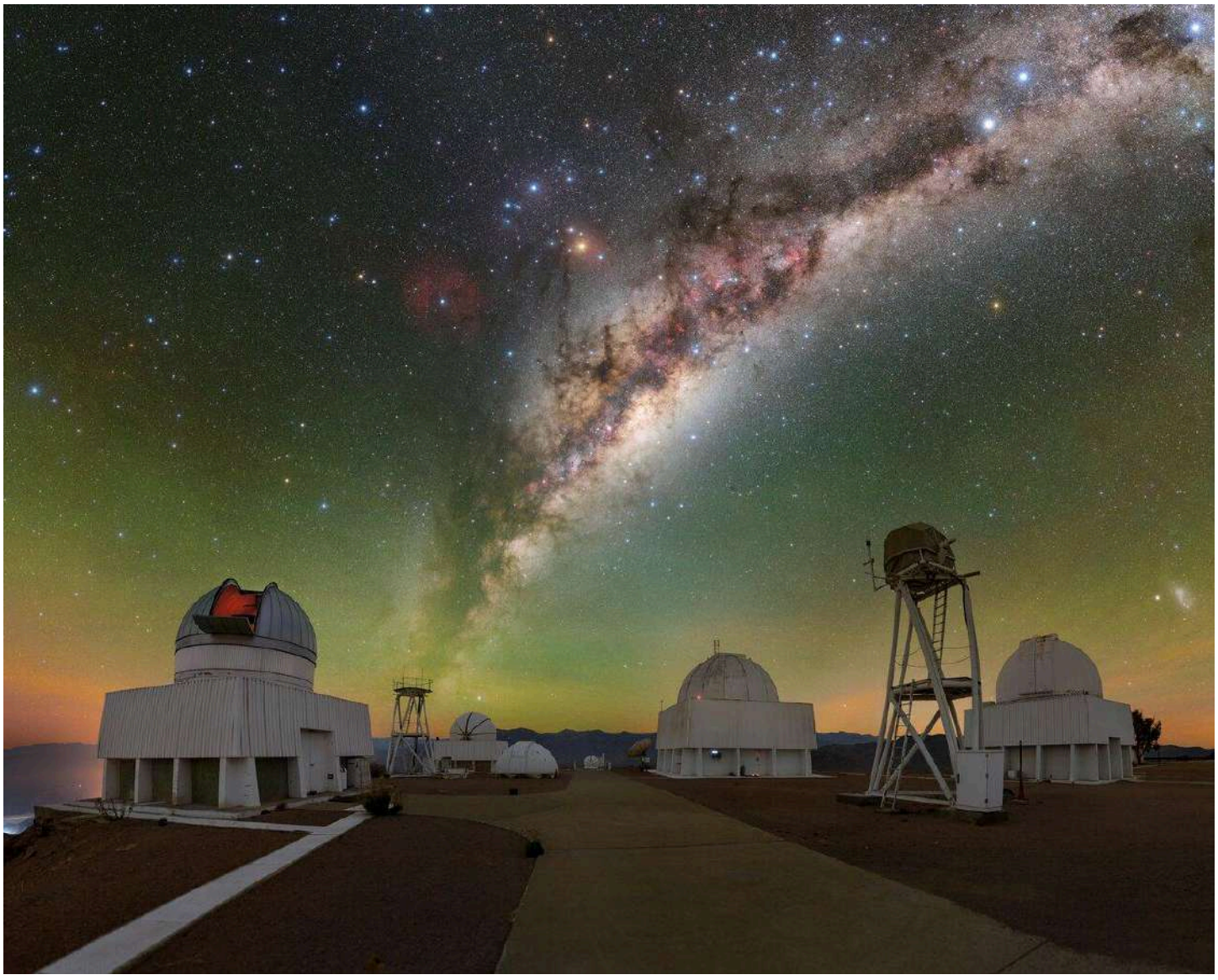
The Milky Way Over CTIO



The vantage point of the foothills of the Chilean Andes provides some of the best views of the night sky in the world, especially from Cerro Tololo Inter-American Observatory (CTIO), a Program of NSF NOIRLab. Earth is oriented in such a way that most of the Milky Way can be seen on a clear night from the southern hemisphere, where CTIO is located. Beneath the oblique arms of our galaxy lie, left to right, the US Naval Observatory Deep South Telescope, DIMM1 Seeing Monitor, CHilean Automatic Supernova sEarch dome, aTmCam (straight back), SMARTS 1.0-meter Telescope, UBC Southern Observatory, and Curtis Schmidt Telescope. Credit: CTIO/NOIRLab/NSF/AURA/T. Slovinský

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Editor's Message

Wildfires in Canada are once again affecting both our air quality and the clarity of our night skies. Despite the haze, there's still plenty to see this month. Mars remains visible in the early evening, though it's noticeably dimmer than it was earlier in the year. Saturn rises around 10 p.m. at the beginning of the month and will rise earlier each night as the month progresses.

In the early morning sky, about an hour before sunrise, Jupiter and Venus put on a striking show. Their closest approach happens on the 11th, when they'll appear just one degree apart. The Astronomical League has featured this conjunction in their Observing Guides as the one event you don't want to miss this month. You can find the guide at the end of this newsletter.

Also gracing the skies this month is the much loved Perseid meteor shower. Unfortunately, the peak on the nights of August 11th and 12th coincides with a nearly full Moon, which will wash out many of the meteors. For the best chance to see some shooting stars, try observing earlier in the evening of the 11th about 90 minutes after sunset, before the Moon rises too high. Be sure to find a clear view facing north and east.

This month is a great time to view some of the treasures in the Summer Triangle. These include:

- The Coathanger asterism, easily spotted with binoculars and featured in the Astronomical League's guides.
- M27th, e Dumbbell Nebula, a bright planetary nebula in Vulpecula.
- Epsilon Lyrae, better known as the Double Double, o pairs of stars near Vega. A pair of binoculars or a telescope will reveal this as a double star. If you want to see both pairs, a 6-inch aperture telescope and good skies is recommended for best viewing.
- M57, the Ring Nebula, is another striking planetary nebula in Lyra.
- Albireo (Beta Cygni), is a stunning double star in Cygnus featuring a striking contrast between a bright golden star and a blue star. This visual double is often considered one of the most beautiful double stars in the sky.

I hope you have had an opportunity to visit my blog of my expedition to Chile as part of the Astronomy in Chile Educator Ambassador Program. Finding time to write has been challenging. I will be continuing to post more of my adventure.

I hope you have clear skies.

- Susan Rolke

Monthly Business Meeting

Our next meeting will take place on August 15th at 7 pm at the observatory.

Saving the Night: Why Dark Skies Matter for Us All

By Susan Rolke

Last week I made a day trip over to Stellafane. It was a great experience, I wish the weather had been a little cooler and the sky less cloudy. I had been looking forward to taking a look through the solar scopes but the clouds had other ideas. As I was walking around and orienting myself, I wandered into a talk that was being given not about telescopes or grinding mirrors, but about protecting our dark skies.

One of the comments the speaker made resonated with me, ‘the night sky is your friend.’

That simple phrase brought back a conversation I had with an astronomy teacher from Philadelphia. She had taken a group of her students to a dark sky park in Pennsylvania for some star gazing. Much to her surprise, many of her students expressed fear of being outside in nature in the dark and she needed to reassure them that they were safe. What should have been an exciting stargazing trip revealed something unexpected, an underlying fear of something they had never experienced before. A dark sky. No streetlights, no porch lights, no glow of distant cities.

When did this generational shift happen?

As a kid, I too was afraid of the dark but not of the night sky. I looked forward to being out under the starlight.

I remember late-night car rides, my forehead pressed against the window, watching the stars fly past as we drove down I-91 on our way home from “up North.” Summer nights meant begging my parents to let me stay up late to see the stars. I remember convincing my camp counselors to let us take beach towels out to the

field so we could lie back and watch the Perseid meteor shower. I recall watching the meteors and seeing the Milky Way, a gauzy ribbon of starlight stretching across the night sky.

The night was never something to fear. It was something to chase.

In some places, the stars are still telling stories.

The Milky Way looking at Alpha and Beta Centauri, Coalsack Nebula, and the Southern Cross. Photo Moises Caeiro.

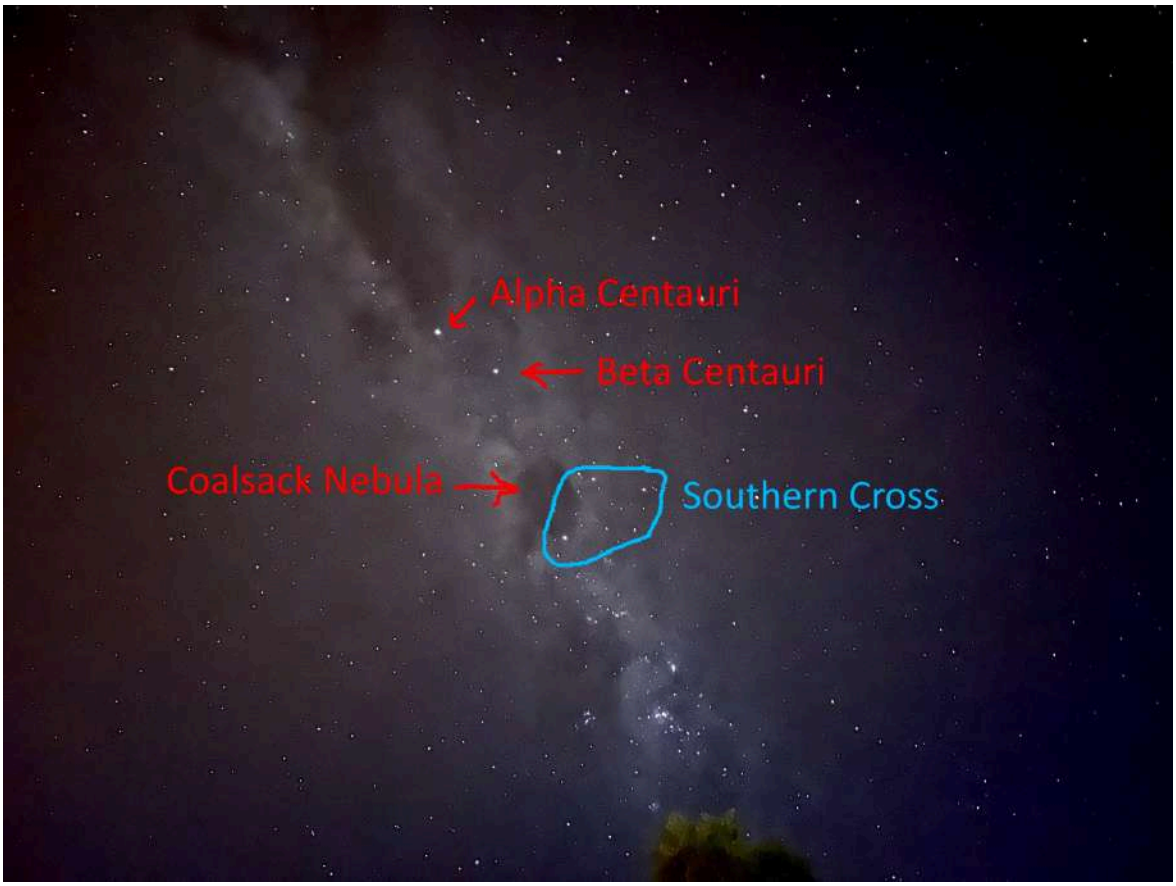
Under the inky night skies of Chile's Atacama Desert, the Milky Way not only shines, but reveals dark patches within it. It is no wonder that the Likan Antay, an Indigenous people of the region, recognize dark constellations formed by dense cosmic dust clouds within the Milky Way. One of these is the black llama.

On my recent trip to Chile, I visited Reserva Elementa, near San Pedro de Atacama. That evening, after sharing a meal of local dishes, we gathered around the campfire under a vast, starlit sky. Our host began to tell us the story of the black llama, a constellation seen not in the stars, but in the dark spaces of the Milky Way.

The tale begins with a black llama that travels from the Andes all the way to the sea. It drinks the water. As it walks, that same water is returned to the land as blessings in the form of rain and morning dew.

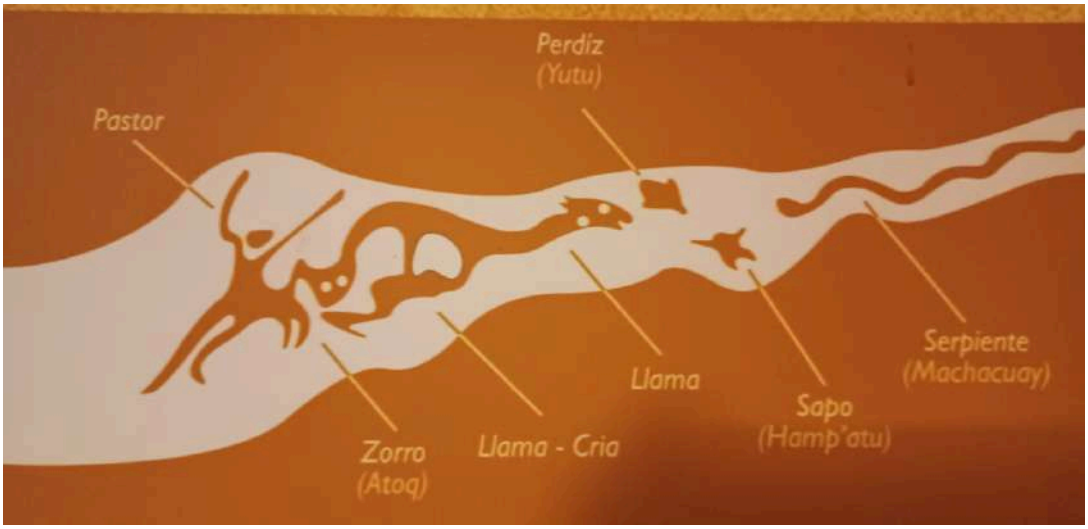
Long ago, a group of hunters spotted the llama and tried to catch it. Realizing the danger, the llama fled, racing through mountains and desert alike. At the edge of a cliff, with no path left to run, it leapt into the sky. To this day, a hoofprint is said to remain, etched into the rock from where it jumped.

Since the day the llama leapt into the sky, an annual ceremony has been held in its honor. During the celebration, a figure of the llama is adorned with colorful wool and rings.



Prior photo with mark up. Photo Moises Caeiro.

Today, the llama lives on in the Milky Way, running forever across the night.



The dark constellations in the Milky Way. Alpha and Beta Centauri are the eyes of the llama. Photo Susan Rolke

Just like that story the words of the speaker from Stellafane came back to me. “The night sky is your friend.” Or maybe it was, “Make friends with the night sky.”

And yet, so many never get the chance to know that sky.

Today, more than 80% of the U.S. population can no longer see the Milky Way from where they live. Worldwide, that number is climbing. Our skies are glowing—not with starlight, but with the scattered haze of artificial light.

This matters more than we realize.

The Perseid Meteor Shower. Photo NASA/Preston Dyches

On a personal level, we’re losing a connection to something ancient and universal—a shared history written in stars. But it’s also a growing problem for science. Ground-based observatories depend on dark skies, using massive mirrors (some over 30 feet across) to study distant galaxies. These telescopes can’t simply be relocated to space. Nor is it feasible to put all of our telescopes into space, it is far too expensive and there is the issue of servicing and upgrading the instrumentation.

Even remote observatories aren’t immune. One site in Chile operated by the European Southern Observatory faces a 50% increase in light pollution due to a proposed mining operation nearby.

And it’s not just astronomers who are impacted.

Light pollution disrupts ecosystems. Birds lose their migration cues. Fireflies, those glowing companions of summer, can't find each other to mate. Hatchling turtles are confused by the lights from the hotels on the beach. Predators and prey struggle with unnatural night cycles.

Fireflies and the night sky. Photo Mike Lewinski

Humans feel it too. Our circadian rhythms, sleep patterns, and mental health all depend on darkness. Research is still emerging, but what we know is clear. Darkness is not the enemy. It's essential for our well-being.

There's a growing trend to reclaim our connection with the cosmos. Star bathing.

Yes, it's essentially a rebranded version of stargazing, but if it takes a new trendy label to bring people outside, I say let's embrace it. In a recent study published in the Journal of Environmental Psychology, researchers found that people who feel connected to the night sky report greater happiness and stronger mental well-being.

A sense of cosmic perspective, of being small and part of something vast, grounds us. It reminds us that we belong to a universe that is much greater than ourselves.

The good news? You can start making a difference at home.

Start by preserving the night sky outside your door.

- Turn off unnecessary outdoor lights.
- Use warm-colored bulbs (2700K or lower) to reduce blue light.
- Install or retrofit shielded fixtures that direct light downward.
- Support local dark sky parks and their events.
- Educate others—especially young people—about the value of the dark.
- Advocate for smart lighting ordinances in your town.
- Learn more and get involved at DarkSky International

And most importantly, share the sky.

The stars are still there, waiting.

Waiting for us to turn down the lights, step outside, and look up.

Because the night sky *is* your friend.

Resources:

- Participate in Globe At Night and go to Campaigns to measure how dark your sky is
- The New World Atlas of Artificial Sky Brightness
- Assess your home's outdoor lighting – DarkSky International

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Night Sky Network Online Webinar

The NASA Night Sky Network will be back in September.

Observing

To find out skywatching tips for this month, click on the following link to learn more.

Video: What's Up August 2025 Sky Watching Tips from NASA

You can find past pdfs of the Astronomical League charts **here.** Turn the end of the Newsletter to see what is up this month.

NASA Night Sky Notes, August 2025

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!

August's Night Sky Notes: The Great Rift

By Dave Prosper
Updated by Kat Troche

The Milky Way, Painting by Miguel Araoz Cartagena, b. 1977, Oil on canvas, 2014. This painting by Cusco artist Miguel Araoz Cartegna depicts the Milky Way over Cusco during July and August - the time when the sky is clear and most of the Inka constellations can be easily observed. Credit: Doug McMains, National Museum of the American Indian. Courtesy of the Museo del Convento de Danto Domingo, Cusco, Peru.

Summer skies bring glorious views of our own Milky Way galaxy to observers blessed with dark skies. For many city dwellers, their first sight of the Milky Way comes during trips to rural areas - so if you are traveling away from city lights, do yourself a favor and look up!

To observe the Milky Way, you need clear, dark skies and enough time to adapt your eyes to the dark. Photos of the Milky Way are breathtaking, but they usually show far more detail and color than the human eye can see – that's the beauty and quietly deceptive nature of long exposure photography. For Northern Hemisphere observers, the most prominent portion of the Milky Way rises in the southeast as marked by the constellations Scorpius and Sagittarius. Take note that, even in dark skies, the Milky Way isn't easily visible until it rises a bit

above the horizon, and the thick, turbulent air obscures the view. The Milky Way is huge, but it is also rather faint, and our eyes need time to truly adjust to the dark and see it in any detail. Avoid bright lights as they will ruin your night vision. It's best to attempt to view the Milky Way when the Moon is at a new or crescent phase; a full Moon will wash out any potential views.

The Vera C. Rubin Observatory, located at Cerro Pachón, Chile, under the Milky Way. The bright halo of gas and stars on the left side of the image highlights the very center of the Milky Way galaxy. The dark path that cuts through this center is known as the Great Rift, because it gives the appearance that the Milky Way has been split in half. Image Credit: RubinObs/NOIRLab/SLAC/NSF/DOE/AURA/B. Quint

Keeping your eyes dark-adapted is especially important if you want to not only see the haze of the Milky Way, but also the dark lane cutting into that haze, stretching from the Summer Triangle to Sagittarius. This dark detail is known as the Great Rift, and is seen more readily in very dark skies, especially dark, dry skies found in high desert regions. What exactly is the Great Rift? You are looking at massive clouds of galactic dust lying between Earth and the interior of the Milky Way.

Other "dark nebulae" of cosmic clouds pepper the Milky Way, including the famed Coalsack, found in the Southern Hemisphere constellation of Crux. Many cultures celebrate these dark clouds in their traditional stories along with the constellations and the Milky Way. One such story tells of a Yacana the Llama, and her baby, wandering along a river that crossed the sky – the Milky Way. The bright stars Alpha and Beta Centauri serve as the llama's eyes, with the dark sections representing the bodies of mother and baby, with the baby below the mother, nursing.

In the activity, "Our Place In Our Galaxy", if the Milky Way were shrunk down to the size of North America, our solar system would be about the size of a quarter. At that scale, Polaris - which is about 433 light years distant from us - would be 11 miles away. Image Credit: Astronomical Society of the Pacific

Where exactly is our solar system within the Milky Way? Is there a way to get a sense of scale? The "Our Place in Our Galaxy" activity can help you do just that, with only birdseed, a coin, and your imagination. You can also discover the amazing science NASA is doing to understand our galaxy – and our place in it - in the Galaxies section of NASA's Universe page.

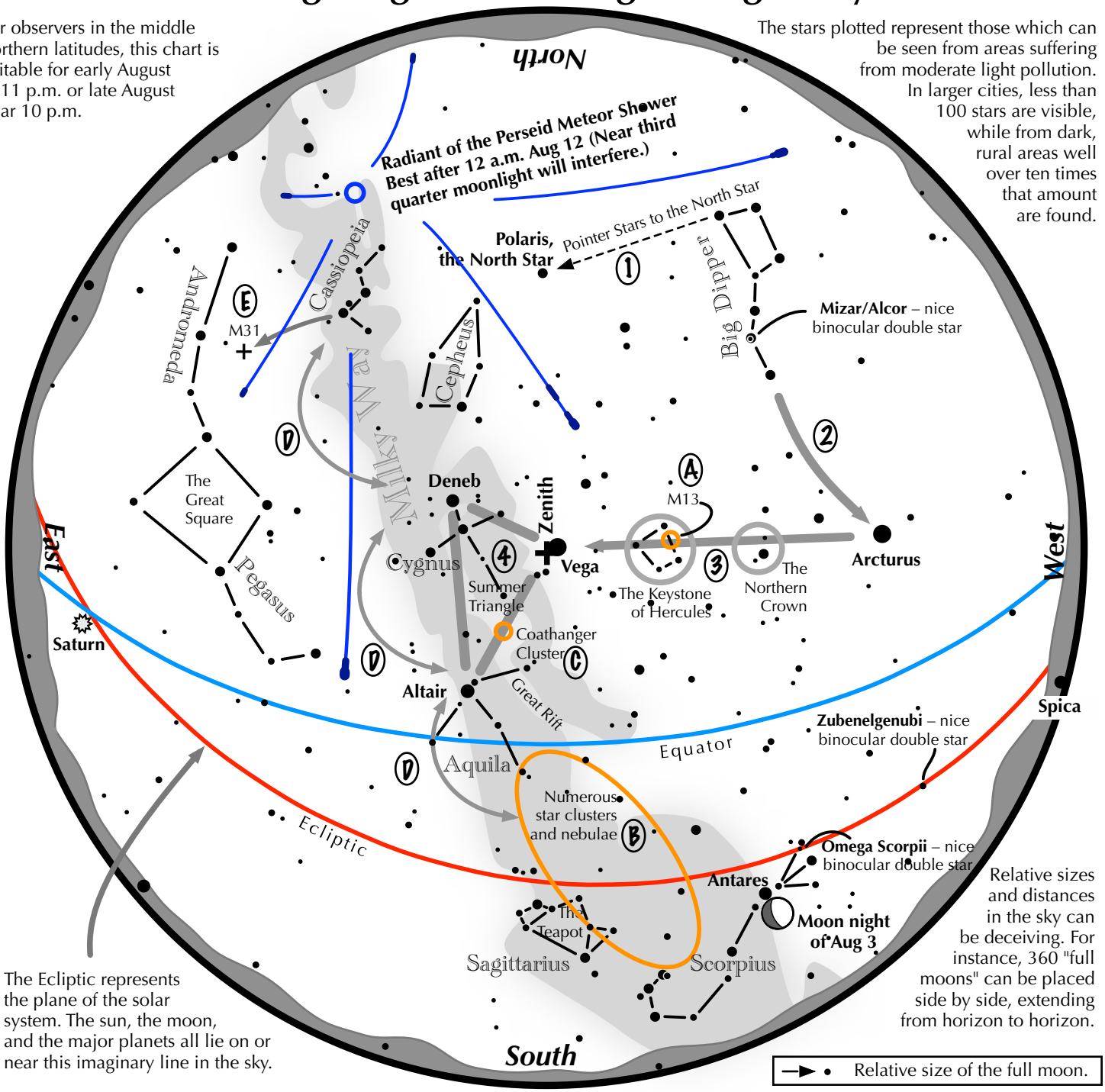
Originally posted by Dave Prosper: June 2021

Last Updated by Kat Troche: July 2025

Navigating the mid August Night Sky

For observers in the middle northern latitudes, this chart is suitable for early August at 11 p.m. or late August 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.

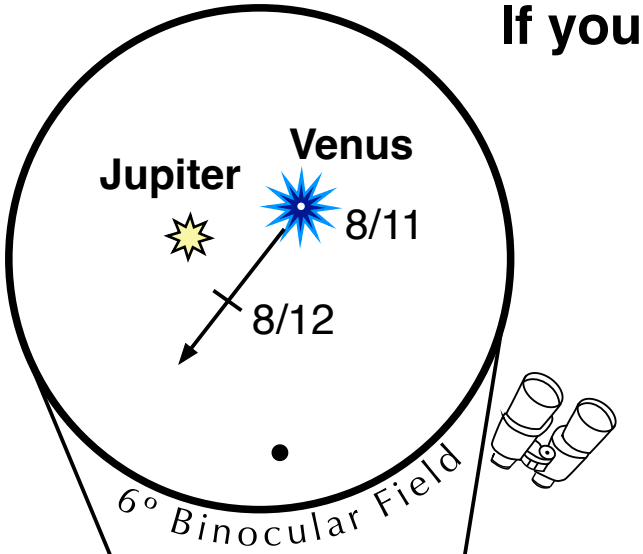
Navigating the mid August night sky: Simply start with what you know or with what you can easily find.

1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the June evening sky.
3. To the northeast of Arcturus shines another star of the same 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: On the western side of the Keystone glows the Great Hercules Cluster.
B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
D: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
E: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

If you can view only one celestial event this month, view this not this one, but these two!

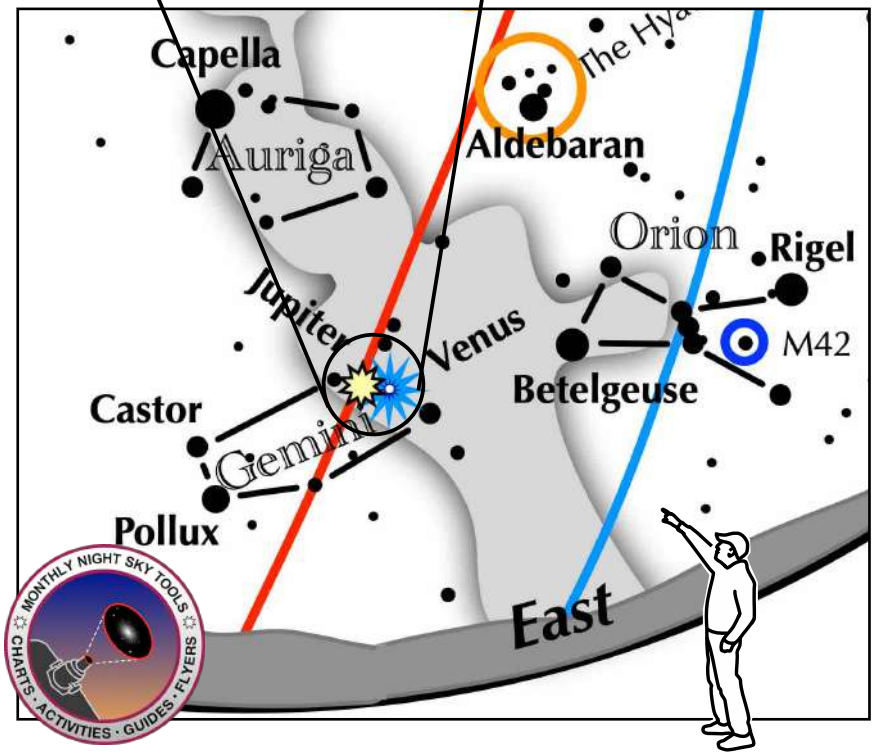


1. Look to the east 90 minutes before sunrise on August 11 and 12.
2. Find Venus and Jupiter shining left of Orion. They will be next to each other.
3. Use binoculars to separate them.

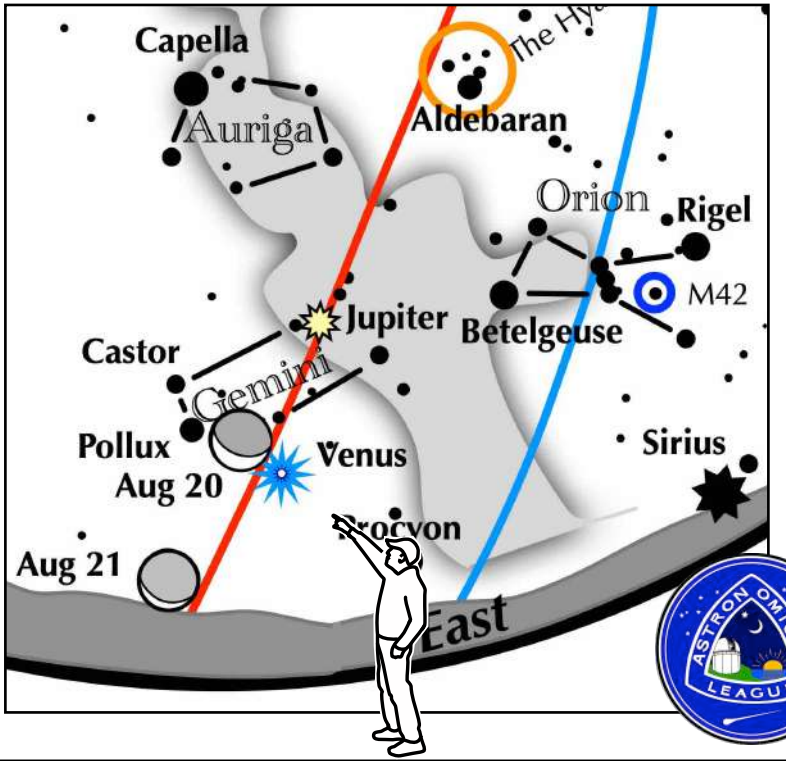
4. On August 20 and 21 about 90 minutes before sunrise look to the east-northeast.
5. On the 20th, the crescent moon, full with earthshine, floats near Venus.
6. On the 21st, a thinner crescent rises shortly before sunrise.
7. You will also see Sirius and Procyon rising.

What great way to start your day!

August 11 & 12



August 20 & 21



Yes, it really does resemble the outline of a coat hanger.

Brocchi's Cluster or Collinder 399
(but everyone calls it the *Coathanger*)

New to stargazing?
This is a wonderful object to observe through binoculars.

The Coathanger is not hard to find!

1. Locate bright Vega and Altair, both members of the Summer Triangle.
2. The Coathanger lies 40% of the way from Altair to Vega.
3. Its brightest stars are 5.1 magnitude 4 Vulpeculae and 5.6 mag. 5 Vulpeculae.
4. Its other stars are 6th and 7th magnitude.

These stars are not gravitationally associated with each other. They are just in a chance line of sight arrangement.

NGC 6802
A small telescope reveals the dim glow of this open cluster. It lies immediately east of the easternmost star of the Coathanger's bar.
Magnitude: 9
Diameter: 3 arc minutes