

# The Bays Mountain Astronomy Club Newsletter



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# *Cosmic Reflections*

Greg Penner - BMAC Chair



reetings BMACers! As I am writing this article, we have officially reached the Spring Equinox. Our environment sure has started looking like spring, with trees and flowers blooming, birds singing, and March Madness in full swing. March was quite an interesting month. At our monthly meeting we had intended to have a club observing night, but due to clouds we instead had several telescopes set up in the planetarium theater. The various telescope designs were well represented with a refractor on alt-azimuth mount, dobsonian reflector, Schmidt-Cassegrain, and Maksutov-Cassegrain. The various features and pros/cons were described for each telescope. Hopefully, sometime next fall we can try another club observing night and get these scopes out under a starry sky! Early in the morning on March 14th we had a stunning total lunar eclipse (photos are included in this newsletter). I thoroughly enjoyed watching the progression of the eclipse. I paid particular attention to the overall brightness of the sky, comparing the fully illuminated moon vs. the fully eclipsed moon. I used as a gauge the 5th magnitude stars of the



Coma Star Cluster in Coma Berenices. The sky was much darker during the total eclipse with the star cluster visible to my unaided eye, compared to pre-eclipse when I could not see any of the star cluster.

For our April club meeting, we have been looking into the possibility of showing a video that I recently watched about "Getting Ready for the Next Galactic Supernova". If we can get some technical issues figured out, then we will watch that video. If we don't watch the video, then we will do an activity in which we utilize various star atlases and observing guides to learn how to find objects in the night sky. From my experience of observing the night sky for many years, I know it can be frustrating trying to find objects with my telescope. Learning how to effectively use star atlases and adjusting my expectations to reality has been helpful. I will bring to the meeting a number of atlases that I have acquired over the years. If any of you have similar resources, I encourage you to bring those as well. We will do some hands-on exercises finding



objects in the star atlases, and we'll talk about how to use that information to find the objects in the sky.

Also in April, we continue to have StarWatch at the park every Saturday night. These events are consistently well attended with anywhere from 20-50 people showing up. If you're not a trained volunteer, you can still come just as a member of the public to observe through our scopes and see how the event goes.

Astronomy Day which will be held at the park pavilion on Saturday, May 17th, so we hope to see you there!

Looking forward to seeing everyone in April,

Clear Skies!



# BMAC Notes

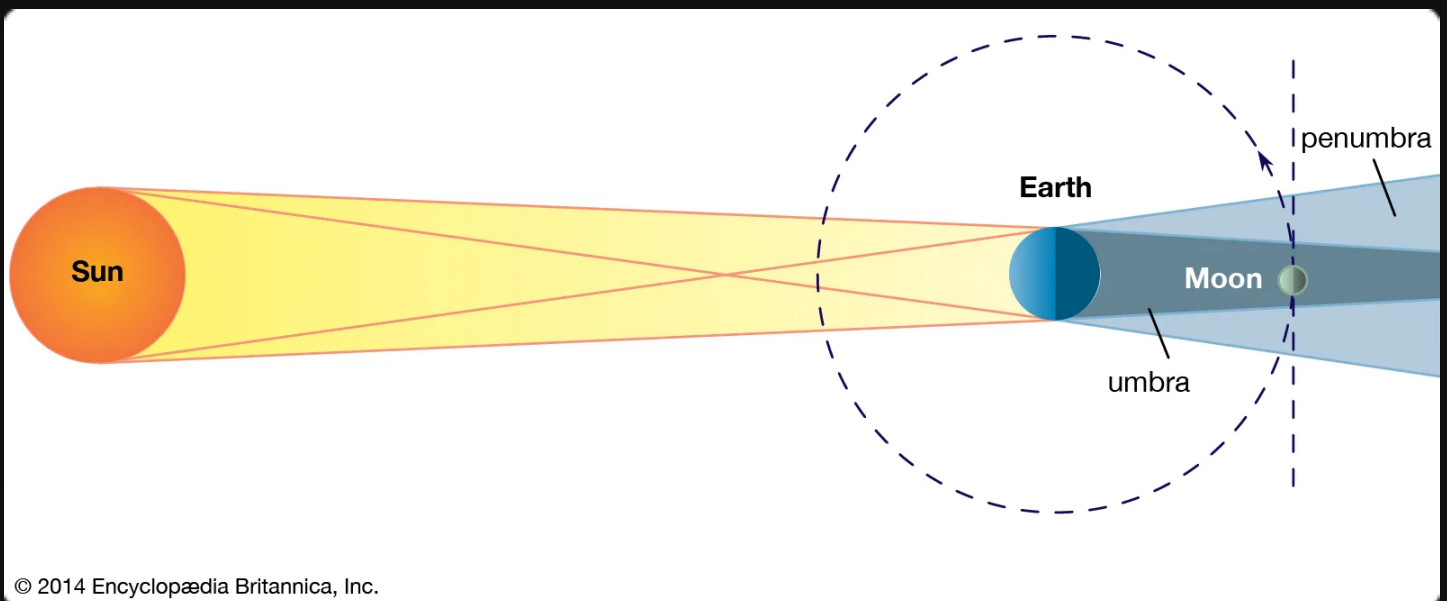




# Lunar Eclipse



n the night of March 13th, a lunar eclipse was visible to us here in the North America region. This was a total lunar eclipse, or if you watched the news sites it was referenced to as a 'blood moon'. Unlike our friend, the solar eclipse, this one is completely safe to view with your naked eye, but I would highly suggest binoculars or a telescope to enhance the viewing experience.



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*Illustration of a lunar eclipse. Credits: Britannica*



Some of our BMAC members were able to go out and view this special lunar eclipse. If you captured anything lunar eclipse related or just on a clear night, feel free to submit it to our new [email address](#). you missed this chance, no worries! Check out this NASA [website](#) to stay informed on what types of eclipses are coming up and where to view them.

Our BMAC member Michael Hopkins sent in some photos from his experience viewing the eclipse, he writes:

The moon can be an easy target for Astrophotography. I took full advantage of this opportunity, even at 2:30 in the morning.

As seen in this photo, the shadow from a very bright moon means you can use your own brightly lit parking lot to gaze at our moon.





*BMACer Michael shows us his reflection from the bright Moon on the night of March 13th.*

The red eclipsing moon can be seen on my cell phone attached to the telescope. These were the settings on the iPhone 16 Pro attached to the Celestron Nexstar 6Se with a 40mm Celestron eye piece.



*Michael's phone captures the lunar eclipse starting to happen.*

The moon at this point was full umbra covered by our home earth.





*The penumbra is starting to diminish the red tones.*

As the penumbra started taking the spot light the calming red tone of the moon diminished. The event came to an eventual end as the camera adjusted to the brightness of the suns growing reflection.



*The sun's brightness really starts to show!*

While we were enjoying the Lunar Eclipse the Blue Ghost lander took a photo of the Solar Eclipse from the moons surface. This photo is thanks to Firefly Aerospace via SWNS and Talker News.





*The diamond effect seen from the Moon. Thanks to Michael for sharing! Credit: Firefly Aerospace*



Our BMAC chair, Greg Penner was also able to capture some photos.



*Taken by iPhone through Takahashi 90 mm refractor.*





*Taken by iPhone through Takahashi 90 mm refractor.*

# *Sky News from the Astronomical League*



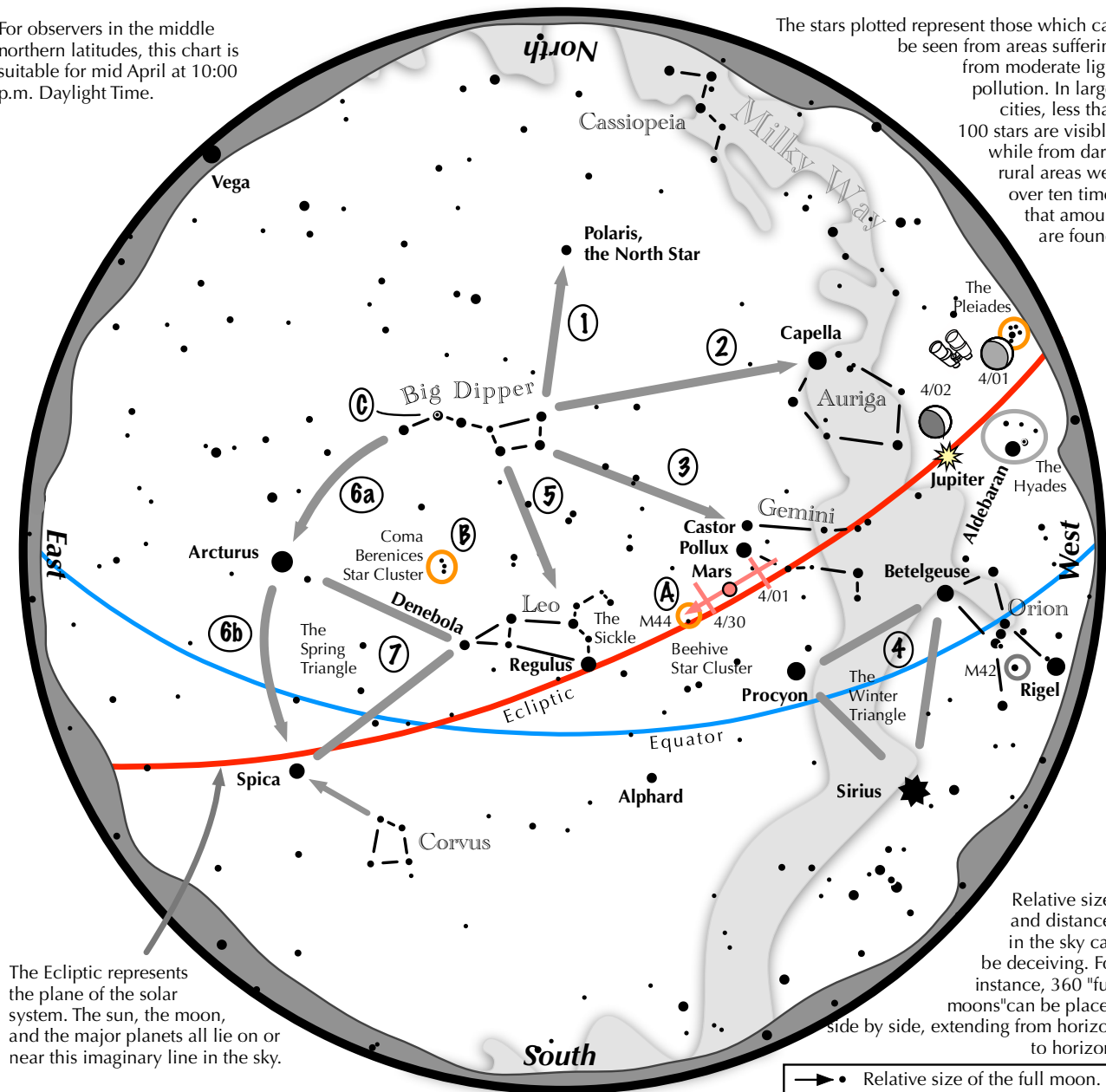
he Astronomical League has a plethora of educational content to help you learn and enjoy the night sky more. The following inserts are just a tiny bit of what they provide.



# Navigating the April Night Sky, Northern Hemisphere

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

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



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

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

### Binocular Highlights

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

Duplication allowed and encouraged for all free distribution.

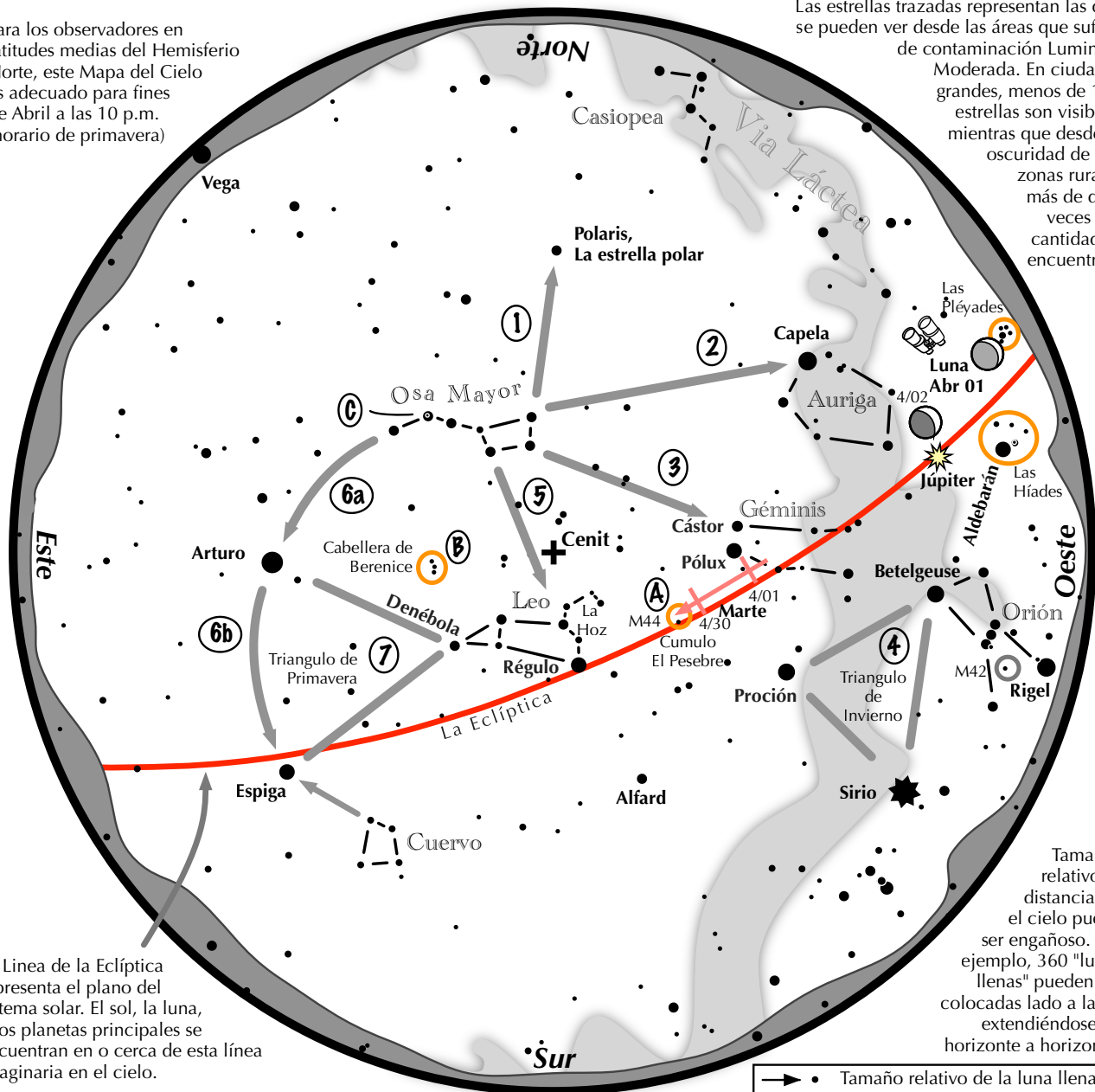


Astronomical League  
[www.astroleague.org](http://www.astroleague.org)

# Navegando por el cielo nocturno de Abril

Para los observadores en latitudes medias del Hemisferio Norte, este Mapa del Cielo es adecuado para fines de Abril a las 10 p.m. (horario de primavera)

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.



**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 Haz una línea a través de las dos estrellas superiores de la punta del tazón de la Osa Mayor. Llegaras a Capela en el noroeste.
- 3 A través de las dos estrellas diagonales de la Osa Mayor, dibuja una línea que apunta a las estrellas gemelas de Cástor y Pólux en Géminis.
- 4 Busque en el oeste-suroeste las brillantes estrellas del Triángulo de Invierno de Sirio, Proción y Betelgeuse.
- 5 Directamente debajo del tazón de la Osa Mayor se encuentra Leo con su estrella principal, Régulo.
- 6 Siga el arco del mango del tazón de la Osa Mayor. Primero cruza Arturo, luego continúa hacia Espiga, luego Cuervo.
- 7 Arturo, Espiga y Denébola forman el triángulo de primavera, un gran triángulo equilátero.

## Puntos destacados con binoculares

**A:** M44 (Cumulo El Pesebre), un cúmulo de estrellas apenas perceptible a simple vista, se encuentra al sureste de Pólux. **B:** Mira alto en el este para ver el cúmulo de estrellas perdidas de Cabellera de Berenice. **C:** Mizar brilla junto a una estrella más tenue, Alcor.

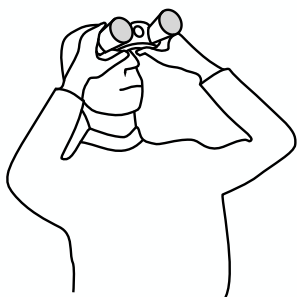
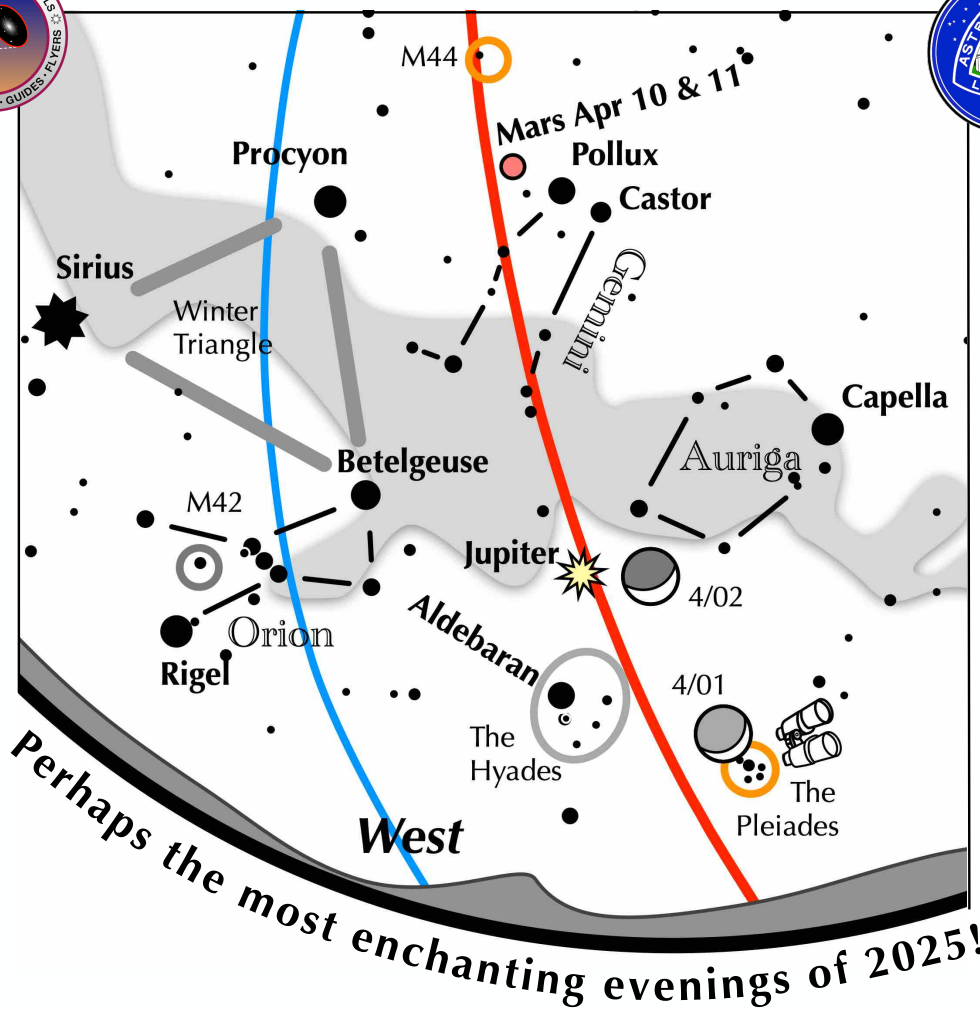


Traducción al español por Dr. Salvador Aguirre

Duplicación permitida y fomentada para toda distribución gratuita



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



**Enhance the scene –  
use binoculars!**

[www.astroleague.org](http://www.astroleague.org)

On April 1 & 2, look low in the west-northwest 60 minutes after sunset.

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

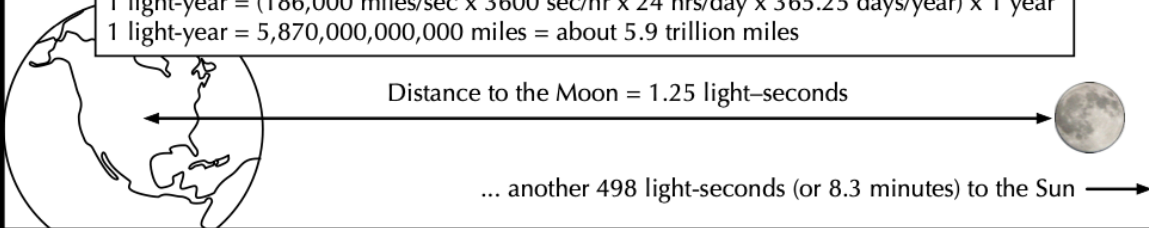


*A light-year is a unit expressing distance, not time.*

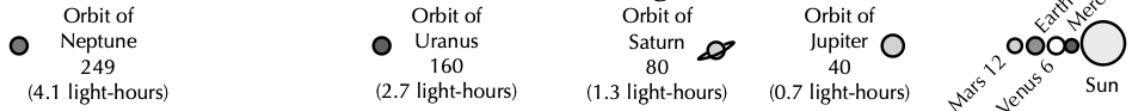
# Understanding the Light-Year (ly)

**One light-year equals the distance that light travels through a vacuum in one year:  
about 5.9 trillion miles (or about 9.5 trillion km)**

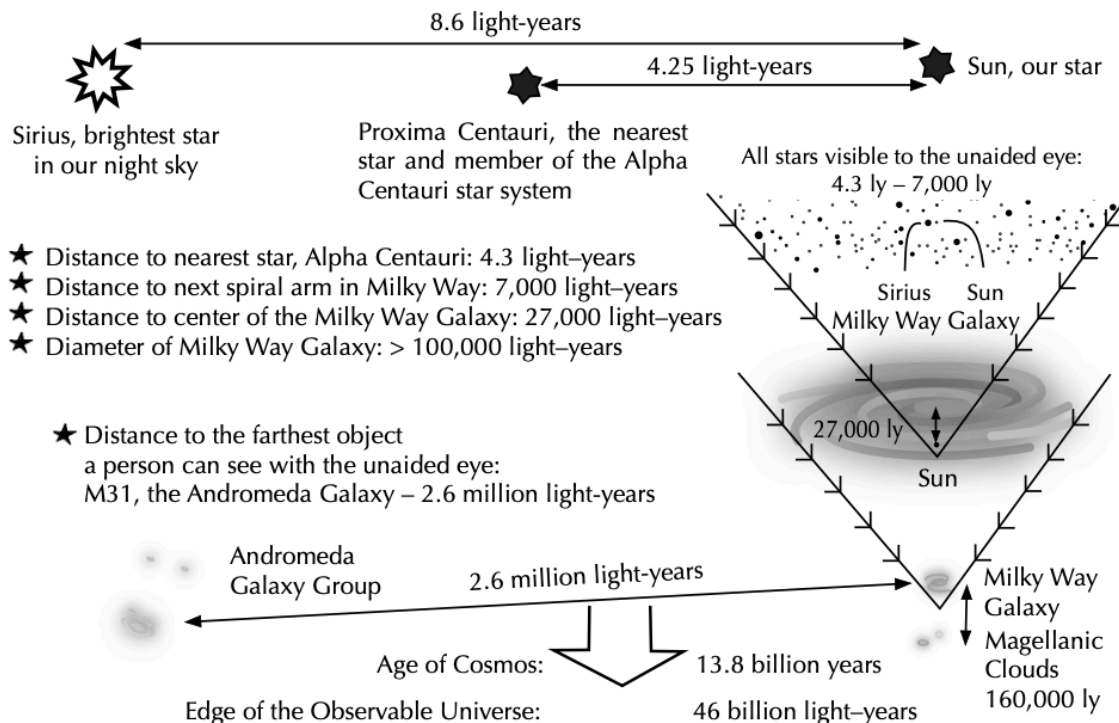
1 light-year = distance that light travels through a vacuum in 1 year  
1 light-year = (velocity of light) x 1 year  
1 light-year = (186,000 miles/sec x 3600 sec/hr x 24 hrs/day x 365.25 days/year) x 1 year  
1 light-year = 5,870,000,000,000 miles = about 5.9 trillion miles



## Distance from the Sun (light-minutes)



## Distance to the Stars - and beyond (light-years) ...



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Caption





Un año luz expresa distancia, no tiempo.

## Entendiendo el año luz (al)

Un año luz es igual a la distancia que recorre la luz a través del vacío en un año:  
aproximadamente 5,9 billones de millas (o alrededor de 9,5 billones de kilómetros)

1 año luz = distancia que recorre la luz a través del vacío en 1 año  
1 año luz = (velocidad de la luz) x 1 año  
1 año luz = (186,000 millas / seg x 3600 seg / hora x 24 hora/día x 365.25 día/año) x 1 año  
1 año luz = 5,870,000,000,000 millas = aproximadamente 5,9 billones de millas



Distancia a la luna = 1.25 segundos luz



... otros 498 segundos luz (o 8,3 minutos) al sol

### Distancia del sol (minutos luz)

Órbita de  
Neptuno  
249  
(4.1 horas luz)

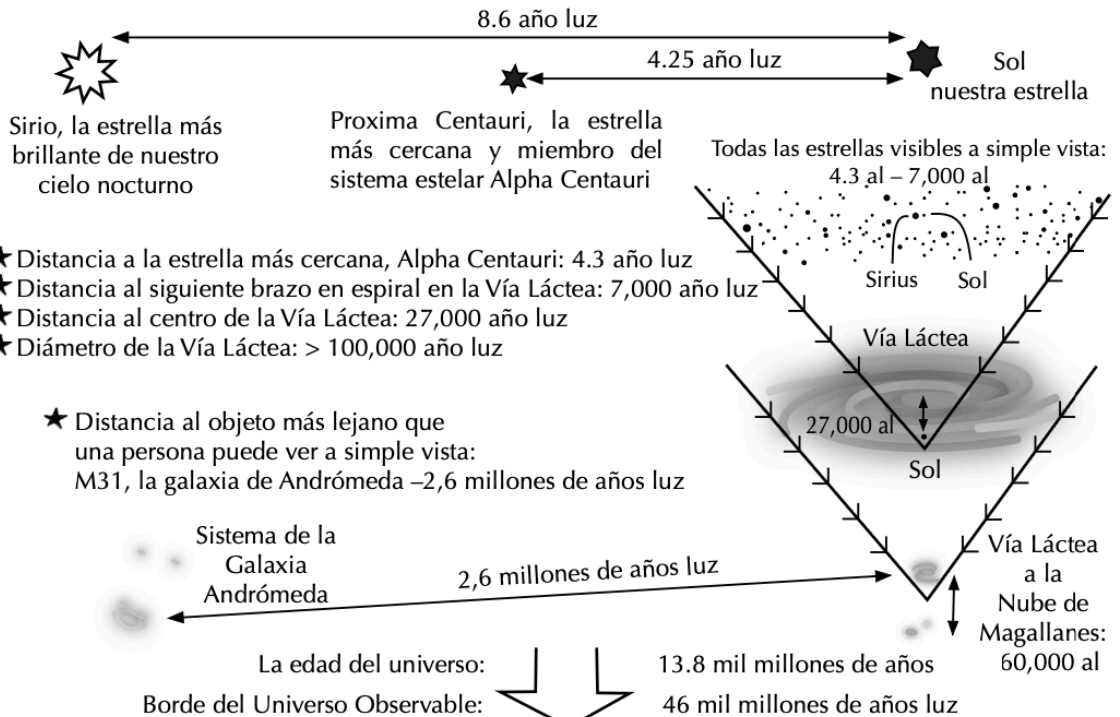
Órbita de  
Urano  
160  
(2.7 horas luz)

Órbita de  
Saturno  
80  
(1.3 horas luz)

Órbita de  
Júpiter  
40  
(0.7 horas luz)

Marte 12  
Tierra 8  
Mercurio 3  
Venus 6  
Sol

### Distancia a las estrellas - y más allá (año luz) ...



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Traducción al español por Dr. Salvador Aguirre

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Caption

# *Astronomy Day*

*Saturday, May 17, 2025*



MACers, if you are wanting to help share your passion about astronomy, then this is your chance.

We'll have tables set up at the Pavilion for demos, displays, activities, etc. The fun of what is set up is from your creativity in what you bring.

The BMAC is part of the Bays Mountain Park Association, so we'll be joining them in their annual Kids to Bays Event. They will have tables set up throughout the park to teach about nature and the environment. All geared to kids and families.

Ideas could be to display/demonstrate your optics, help illustrate an astronomical concept to make it understandable to a young one, an activity, etc. The possibilities are stellar and astronomical : ).



# *Natural Tunnel Star Party*



hen: Saturday, April 26, 2025 @ 7pm & Saturday,  
September 27, 2025 @ 6:30pm

Where: Natural Tunnel State Park - located at the Gazebo.

For more information, please contact Ray O'Connor at  
(276)248-1712.



# Stellar Observations

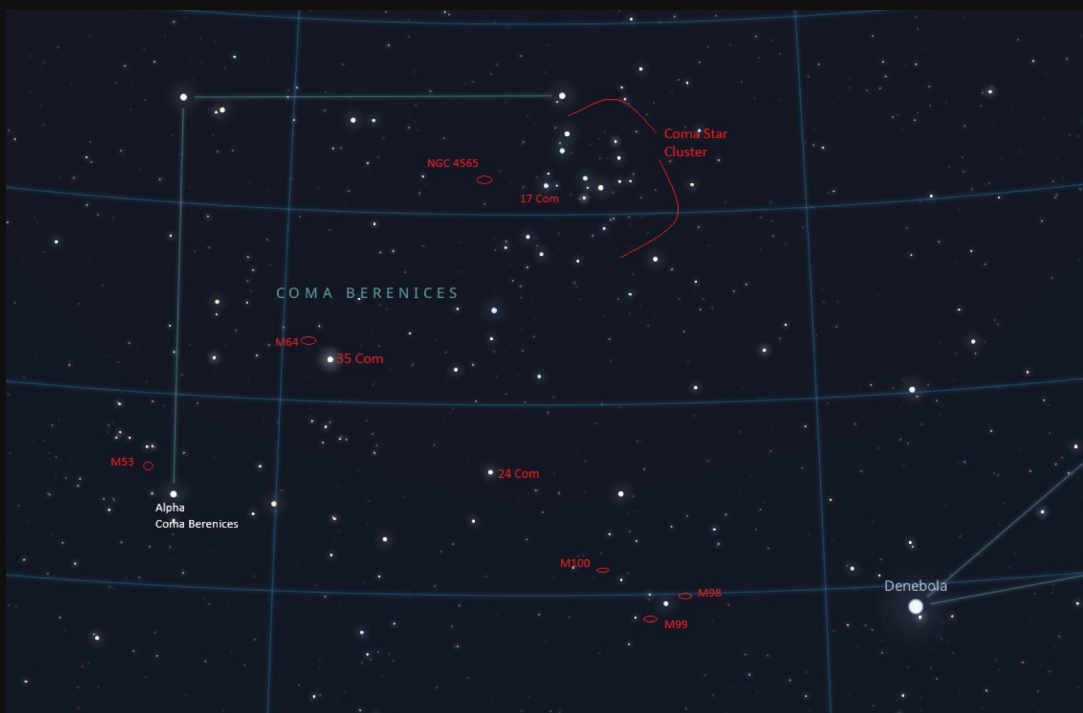
Greg Penner





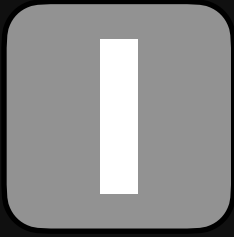


*Coma Berenices location - image from Stellarium*



*Coma Berenices object finder - Image from Stellarium,  
annotated by Greg Penner*

# Coma Berenices



In last month's article, we looked at one of the most recognizable constellations, Leo the Lion. Following right behind the lion in the April sky is a

constellation that may be difficult to identify from moderately light polluted skies, Coma Berenices (Berenice's Hair). The name of the constellation is a reference to the hair of Queen Berenice of Egypt. The Coma star cluster is what gives the constellation its name. A loose collection of 5th and 6th magnitude stars, the Coma cluster was likely originally thought of by the Greeks as the tuft at the end of the tail of the lion. Then, during the time of Egypt's Ptolemy II, Queen Berenice cut off her hair and offered it to the gods for the safe return of her husband from battle. According to legend, the gods then placed her hair in the sky for all to see and this star cluster's new name took hold.

Although the stars of Coma Berenices are not showy (none are brighter than 4th magnitude), some real astronomical gems await discovery in this constellation if you view it away from city lights and use the right equipment. The obvious first object to observe is the aforementioned Coma Berenices Star Cluster, also known as Melotte 111. This star cluster is best viewed with binoculars as it covers an area more than 5 degrees in diameter. The view through binoculars is quite nice, with over a dozen stars between magnitude 4.8 and 6.5. The cluster is about 260 light years distant, making it the third nearest star cluster to our Solar System.



The next objects to view require a small telescope and the ability to do some stellar navigation. The double star 24 Comae Berenices will be worth the effort to hunt down. Imagine a line between Denebola (tail star of Leo) and Alpha Comae Berenices (see chart). At the midpoint of this line and slightly north, you will see two 5th magnitude stars about 4 degrees apart. The star on the left is 24 Comae Berenices. In a 4" - 6" telescope, you will see a beautiful color contrast double star, with a bright yellowish-orange primary and blue secondary. Many refer to this double star as the springtime Albireo. After absorbing the beauty of this double star, why not find another? 35 Comae Berenices is a 4.7 magnitude star about 5 degrees to the northeast and is well worth hopping over to take a look. Through a 4" - 6" telescope, you will see another nice color contrast with a yellow primary and a 9th magnitude purple/lilac colored companion about 29 arcseconds away. The primary actually has a very close companion only 1.2 arcseconds away, but that may prove to be too close to see. Try the highest

magnification that the seeing conditions allow and maybe you'll see the entire triple star system.

Now we will start going deeper and view some real showpiece objects that look great in larger 8" - 12" reflector telescopes. While you still have 35 Com in your eyepiece, just nudge your telescope 1 degree to the northeast, and you should see a small, oval smudge. This is M64, otherwise known as the Black-Eye Galaxy. Once you have it centered in a low power eyepiece, increase your magnification to the 150x - 200x range, and you might be able to detect the dark patch that gives the galaxy its name. M64 is thought to be about 20-25 million light years away, but it is one of the brighter galaxies visible in our sky at magnitude 8.5.



*M98, M99, M100 finder chart - image from Stellarium,  
annotated by Greg Penner*

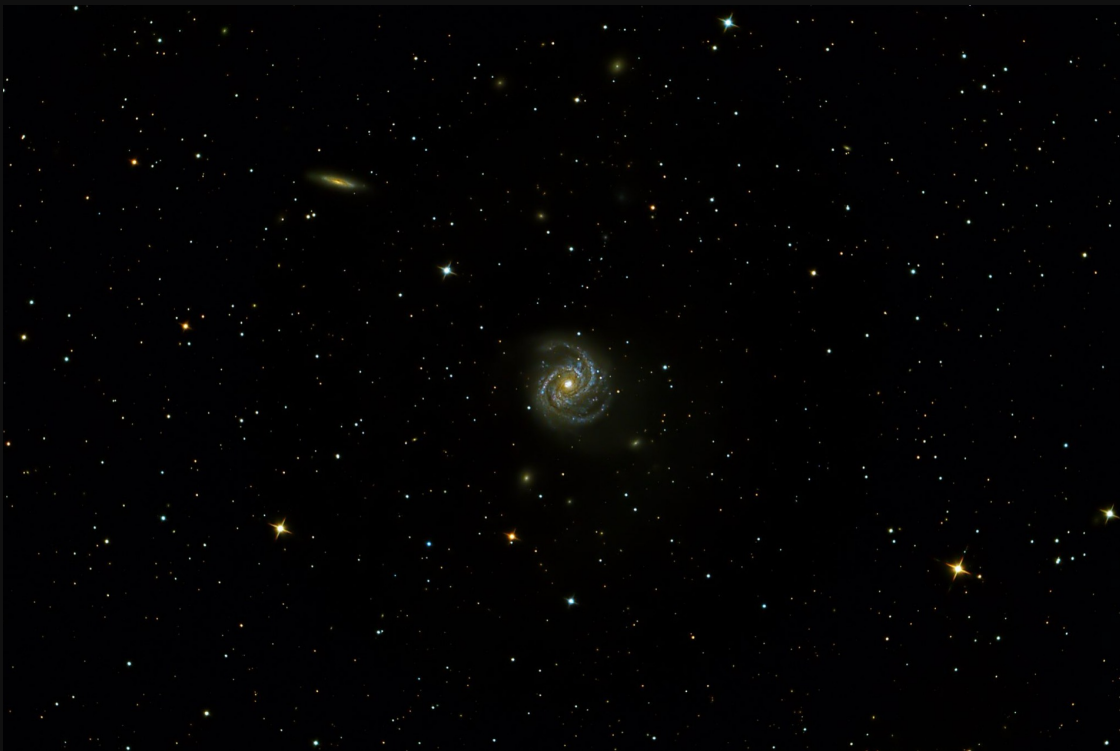


*M98 - image by European Southern Observatory*





*M99 - R/B band color image from DSS2*



*M100 - image by Wolf Creek Observatory*



*M64 Blackeye Galaxy - image from Mount Lemmon SkyCenter  
Schulman Telescope*

Coma Berenices is home to many galaxies because in the southwest area of the constellation is the Coma-Virgo Galaxy Cluster, which is the heart of the Local Supercluster. In this area we will find a nice trio of Messier's galaxies conveniently situated around the 5th magnitude star 6 Comae Berenices, which is located about 1/3 of the way from Denebola to Alpha Comae Berenices (see chart). M98, M99, and M100 are all easily found within 1 - 2 degrees from 6 Com. M98 is a 10th

magnitude spiral galaxy that we see almost edge on and is one of a few galaxies of the Coma-Virgo Cluster that has a blue shift rather than a red shift. This means the galaxy is moving toward us and has a velocity of 243 kilometers per second. Larger telescopes should show some mottling in the spiral arms. M99 is another 10th magnitude spiral, but this one is oriented face on to us. If conditions are dark enough, a medium to large size telescope should show the spiral arms. M99 has one of the largest red shifts in the cluster, moving away from us at 2,380 kilometers per second. The final galaxy in this trio, M100, is the brightest at magnitude 9.3 and lies face on to us. Even small telescopes should be able to find this galaxy, but medium to large scopes at 150x magnification should give a nice view of the spiral arms.



One final galaxy to view in Coma Berenices is one of my personal favorites. NGC 4565 is considered “the showpiece” of all edge-on galaxies. The easiest way to find this galaxy is to center your telescope on the 5th magnitude star 17 Comae Berenices (part of the Coma Star Cluster) and then nudge your scope 2 degrees to the east. Or find 17 Com, then just let the galaxy drift into your field of view in about 7 minutes (using a non-tracking telescope). Known as the Needle Galaxy, the apparent size is 14 x 1.8 minutes with a magnitude of 9.6. In 8” - 12” scopes, it is a stunning dagger of light. The larger scopes will show the dust lane bisecting the thin needle-shaped galaxy for a truly unique view!



*NGC 4565 Needle Galaxy - image by Ken Crawford*

We can't leave Coma Berenices without looking at one more type of object. The globular cluster M53 will be easy to find. Use a low power eyepiece and center Alpha Comae Berenices. Depending on how wide your view is, you might see a smudge at the periphery of your view. Nudge your telescope just 1 degree northeast, and you will surely see the fuzzy ball of stars. Once you've found it, use a higher magnification, and you should see a nice bright core with a granular texture. The larger the telescope aperture, the more stars you will resolve around

the bright core. M53 is intrinsically very bright, but it is one of the more distant globular clusters at over 60,000 light years away.



*M53 - image by Wolf Creek Observatory*

This spring, don't ignore the otherwise non-showy constellation Coma Berenices. Within the borders of this constellation, there are plenty of outstanding gems to fill your night with oohs and aahs!



# *The Queen Speaks*

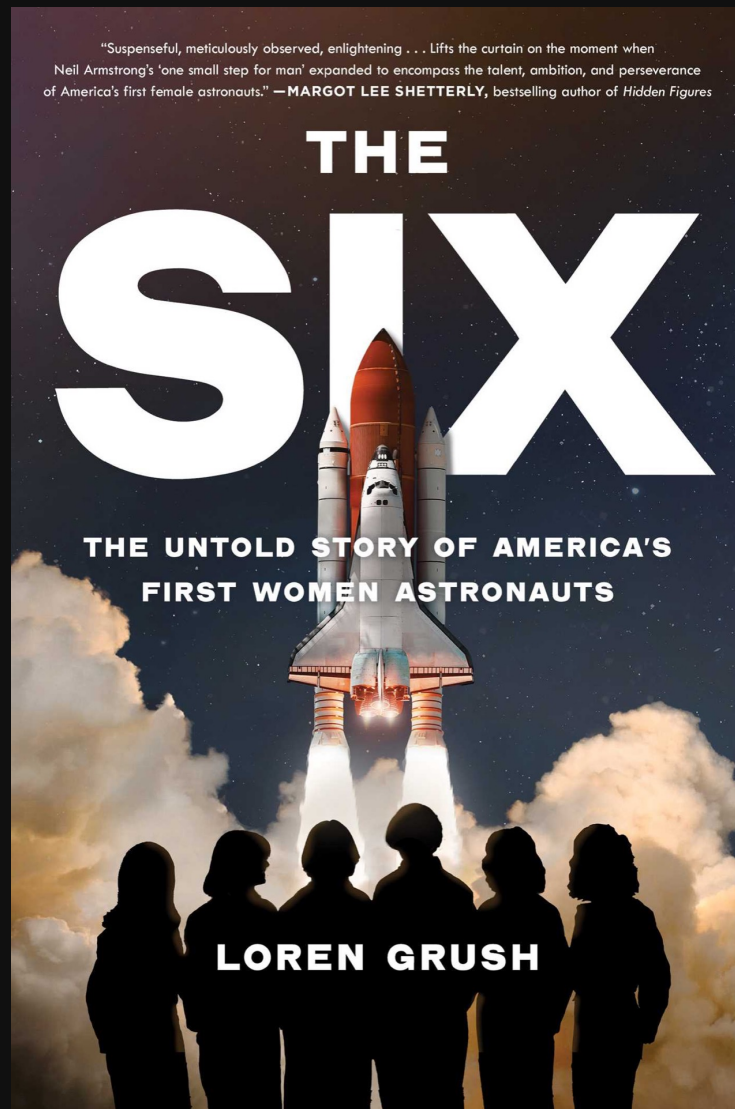
**Robin Byrne**



# The Six - Book Review



My love of women's contributions to science, coupled with a passion for space program history immediately drew me to the book *The Six: The Untold Story of America's First Women Astronauts* by Loren Grush.



*Cover of The Six by Loren Grush. Credit: Goodreads*

This book tells the story of the first women recruited by NASA for the space program. As the Space Shuttle program was ramping up, NASA needed a new batch of astronaut candidates to fly the latest spacecraft. For the first time, included in the ranks of newcomers were both women and people of color. In 1976, the call went out for applicants, publicized by a video starring Nichelle Nichols from Star Trek, highlighting the message that women and people of color were welcome. Once the application window closed in 1977, the panel in charge of recruitment had to wade through the myriad application forms to narrow the list down. Even with a much shorter list, it still took months of interviews to finally end up with a roster of 35 people who would officially become NASA Astronaut Group 8, though they gave themselves the nickname of TFNG's for Thirty-Five New Guys. Among those 35 new astronaut candidates were Anna Fisher, Shannon Lucid, Judy Resnik, Sally Ride, Rhea Seddon, and Kathy Sullivan.

In the book, we start with what each woman was doing professionally before applying to become an astronaut, plus a



little of their personal lives. We're then taken through their experiences while being interviewed, and the fateful moment when they got the news that they would be an astronaut. Once the TFNG's were introduced to the world, the media immediately focused on the women, and much of it was biased by sexist stereotypes that were still very prevalent at the time. The six women quickly developed their individual approaches for dealing with such attitudes, ranging from humor to quickly shutting it down and sticking to business.

Then it was time to get to work. The extensive training and tasks within NASA were explored for each woman, ultimately leading up to their first flights, and in some cases, subsequent flights, as well. We also learn about what was happening in their relationships and, for some of the women, growing families.

The story would not be complete without discussing the Challenger disaster that occurred on January 28, 1986, taking Judy Resnik's life, and Sally Ride's role as part of the panel that investigated the cause of the explosion. The story also takes us

through Sally Ride's life after NASA, up to her death from pancreatic cancer in 2012.

As much as I pay attention to the space program, I am ashamed to admit that I had not heard of two of the original six women: Anna Fisher and Rhea Seddon. Anna Fisher had been a medical doctor prior to becoming an astronaut, and also has the distinction of being the first mother to fly in space. Rhea Seddon, from Murfreesboro, Tennessee no less, was also a medical doctor. While at NASA, she met her future husband, "Hoot" Gibson, also an astronaut. Their first child was dubbed "astrotot" as the first child born to two astronaut parents.

*The Six: The Untold Story of America's First Women Astronauts* by Loren Grush is an enjoyable read, with many details about each of the women that were new to me. If you like reading about the space program and women's contributions to it, you will want to read *The Six*, too.

## References:

**The Six: The Untold Story of America's First Women Astronauts**  
by Loren Grush; Scribner; 2023





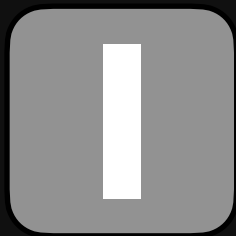
# *The Space Place - NASA Night Sky Network*

By Kat Troche



# *Catch the Waves!*

## *The Electromagnetic Spectrum*



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



*This illustration shows the wavelength sensitivity of a number of current and future space- and ground-based observatories, along with their position relative to the ground and to Earth's atmosphere. The wavelength bands are arranged from shortest (gamma rays) to longest (radio waves). The vertical color bars show the relative penetration of each band of light through Earth's atmosphere. Credit: NASA, STScI*

## Telescope Types

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



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

- **Infrared:** The James Webb Space Telescope (JWST) operates in the infrared, allowing astronomers to see some of the earliest galaxies formed nearly 300 million years after the Big Bang. Infrared light allows astronomers to study galaxies and nebulae, which dense dust clouds would otherwise obscure.

An excellent example is the Pillars of Creation located in the Eagle Nebula. With the side-by-side image comparison below, you can see the differences between what JWST and the Hubble Space Telescope (HST) were able to capture with their respective instruments.



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

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



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



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

### *Try This At Home!*

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

## ADDITIONAL LINKS:

Electromagnetic Spectrum: <https://www.nasa.gov/directorates/somd/space-communications-navigation-program/spectrum-overview/>

Hubble's Highlights: <https://science.nasa.gov/mission/hubble/science/science-highlights/>

Cosmic Coloring Compositor: <https://public.nrao.edu/color/>

Clues to the Cosmos: <https://nightsky.jpl.nasa.gov/documents/756/CluesCosmosHandouts.pdf>

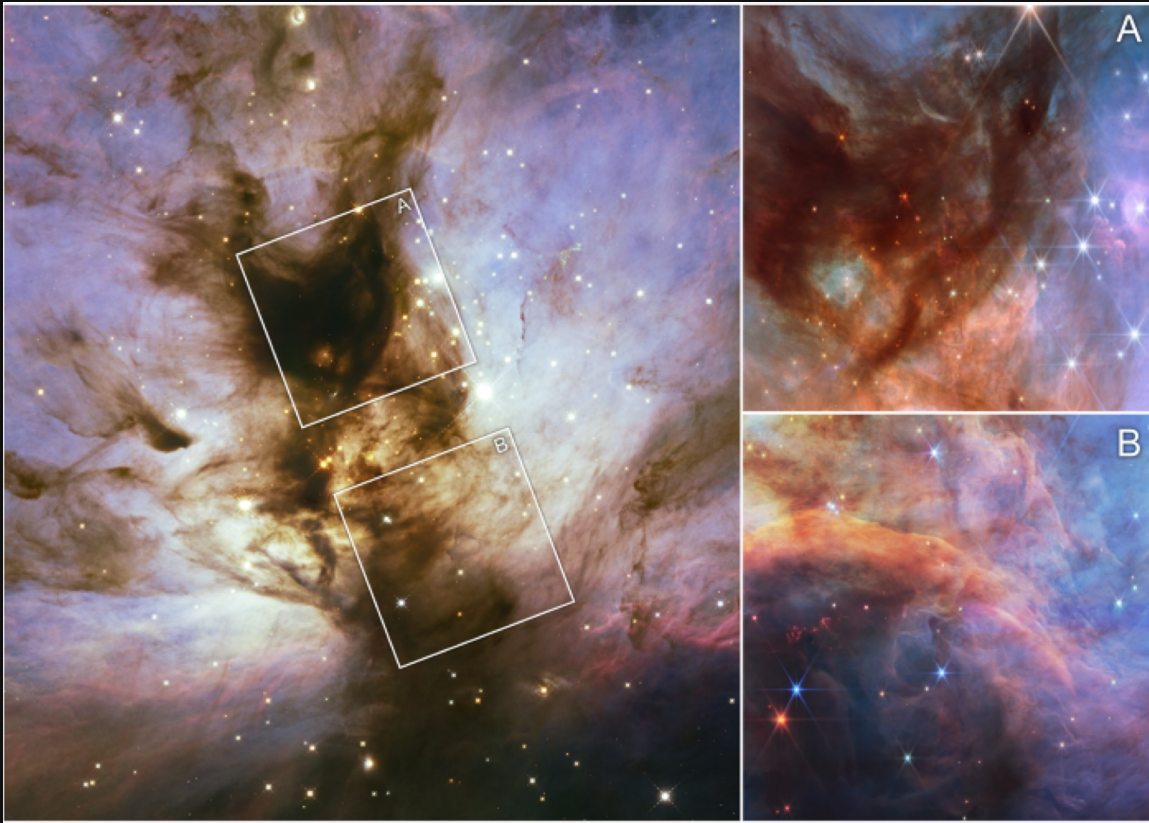
## IMAGE CREDITS:

[Telescopes and Wavelengths](#)

[Pillars of Creation Comparison](#)

[Multiwavelength Crab Nebula](#)

BONUS IMAGE - [Flame Nebula](#)



*This collage of images from the Flame Nebula shows a near-infrared light view from NASA's Hubble Space Telescope on the left, while the two insets at the right show the near-infrared view taken by NASA's James Webb Space Telescope. Credit: NASA, ESA, CSA, STScI, Michael Meyer (University of Michigan), Matthew De Furio (UT Austin), Massimo Robberto (STScI), Alyssa Pagan (STScI)*

***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, April 4, 2025 - 7p - Topic: Video / Star Atlas Reading
- Friday, May 2, 2025 - 7p - Topic: Student Presentations
- 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.
- Friday, February 6, 2026 - 7p - Topic TBA.
- Friday, March 6, 2026 - 7p - Topic TBA.
- Friday, April 3, 2026 - 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:**

- April 5, 12, 19 & 26, 2025 - 8:30p
- 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:

- **Astronomy Day - May 17th, 2025 - 12p-3p**
- Come help share the fun of astronomy with the public. There will be tables with different themed topics.
- **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.](#)
- **BMAC Dinner - January 2026**
  - This event is for members and their families. Look for an e-mail in January with all the information.

# Regular Contributors:



*Greg Penner*



*Robin Byrne*



*Mackenzie Henley*

**G**reg 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.

**R**obin 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).

**M**ackenzie Henley is our new head editor of the Bays Mountain Astronomy Club newsletter, her first issue beginning March of 2024. She is an undergraduate student at the University of Tennessee Knoxville.

# Connection:

## **B**ays Mountain Astronomy Club:

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

## **D**ues:

- 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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