Volume 1 **Number 7**

September 2023

Grand Strand Astronomy Club
Monthly Events

General Membership Meeting:
Every 1st Thursday @ 7:00 pm
Meeting: VIA Zoom.
Please see email or Facebook for link

Observing Session: September 16th @ 8:00 pm
Location: Hampton Plantation
Gates open @ 6:00 pm

Inside This Months Newsletter

Grand Strand Astronomer's Social Media

Grand Strand Astronomers Web Site

Grand Stand Astronomers Facebook

Header photograph: NASA releases ultra-HD video of the sun | GMA

Insights From Ian

I hope everyone is getting ready for the fall. Since fall is usually the clearest time of the year (and not too cool), it's time to get out all your astronomy equipment, dust it off and test it out in anticipation of catching some photons.

We also have Saturn at opposition this month, which means it is as close to Earth as it gets and is up most of the night. It's a great time to observe and/or image this great sight. We are working to schedule some public observing nights in the fall, which will give us a chance to show off the night sky to the general public. Stay tuned for more information. In the meantime, keep looking up!

GSAC LEADERSHIP

Executive Officer
Ian Hewitt

Treasurer
John DeFreitas

Secretary
Gerald Drake

Social Media Coordinator
Denise Wright

Newsletter Editors
Gerald Drake
Tim Kelly

Call For Volunteers

Grand Strand Astronomy Club is looking for volunteers to help with the social media platforms such as Facebook, YouTube and Twitter if the need arises. Presently Facebook needs a new face lift and be brought up to present time activities. Our website can also use some TLC and someone responsible to keep it updated with club activities and astronomy related items. If anyone would like to help in these categories, please contact Ian Hewitt at the email address below.

This newletter needs contributions of articles related to astronomy. Send articals to **t.m.kelly349@gmail.com**. Please provide name of author of article to protect GSASTRO.

GSAC Telescope Loaner Program

Did you know our club has telescopes available for loan? They are Dobsonians that were donated to the club when we first started. These are available for club members to use at no charge. All you have to do is take care of them and return them if someone else wants to borrow one. The first one is an Orion XT 8. It's in great shape. It gives beautiful views of the moon, planets, and galaxies. Comes with accessories that include a 2X Barlow, 25mm eyepiece, 9mm eyepiece, and laser collimator tool. The other one is an Orion Skyquest XT 10 with Orion's IntelliScope computerized object locator. It includes more than 14,000 objects in its database so you'll be able to locate those dim galaxies. Should be hours of fun. Accessories are included. Both of these are begging to be used. Send us an email if you're interested in borrowing one.

Grand Strand Astronomy Club New Member

Grand Stard Astronomy Club would like to welcome Jean Ennis. Please join us on the next Zoom meeting. Pleasae see front page of this newsletter for when and how.

Astronomical League Advantages

As a member of Grand Strand Astronomy Club you automatically are a member of the Astronomical League. The Astronomical league is a nation wide organization with 10 regions across the U.S. This membership gives you access to numerous incredible programs, observing certificates, night sky guides and charts. You can read past and present issues of the Reflector Magazine.

Astronomical League Regions
https://www.astroleague.org/regions-2/

The Regions of the Astronomical League provide a place for amateur astronomers to meet other astronomers in the same area and learn from each other. Each Region has its own regional officers and its own regional convention.

Participating Vendors
https://www.astroleague.org/celestial-savings/

For more information about the "Celestial Savings Program" contact celestialsavings@astroleague.org

Downloadable Certificates from the Astronomical League
https://www.astroleague.org/downloadable-certificates/

These certificates are available to anyone organizing an event or any individual doing the appropriate activity.

Alphabetical Listing - Offerings From The Observing Program Division Of Astronomical League
https://www.astroleague.org/alphabeticobserving/

These are too numerous to list here

Observing Progam Selector Grid
https://www.astroleague.org/observing-program-selector-grid/

An observation grid is similar to the guide in that it helps remind the observer of the events and issues of most import; however, unlike the guide, the observation grid is a spreadsheet or log of sorts that enables the observer to actually record (and record their own reflections of) observable events in relationship to the constructs of interest.

Navigating The Night Sky Guides
https://www.astroleague.org/navigating-the-night-sky-guides/

Navigating the mid-September Night Sky as a PDF File, or as a JPG File
Navegando por el Cielo Nocturno de Septiembre as a PDF File, or as a JPG File
Delta Cephei as a PDF File, or as a JPG File
The Moon and Venus as a PDF File, or as a JPG File

Grand Strand Astronomers August Meeting Write-Up

Gerald Drake

This was a virtual meeting held via Zoom on August 3, 2023, from 7:00 to 8:00 PM. It was a joint meeting with the Lowcountry Stargazers Astronomy Club out of Charleston, SC. We've partnered with them at Hampton Plantation, so our clubs are known to each other.

The purpose of the meeting was to introduce the Planetarium Society of Charleston. They are in the beginning stages of plans to build a planetarium in the Charleston area. The meeting was called to order by the Lowcountry Stargazer's president. A brief introduction of all attendees was given. Note that our club was well represented. The Lowcountry Stargazers gave a brief treasurer and membership report. They are a much larger club than ours. A review of upcoming astronomical events was also given. Their observation report stated that nighttime imaging has been difficult due to clouds, but solar observing has been good.

The two Charleston Planetarium Society representatives were introduced and spoke briefly about what they are planning. Note that they are very early in their process to get a planetarium established. Their goal is to have public programming for planetary science at this facility. They are a 501(c)3 organization and have collected funds already via contributions. They plan to have an auction soon to raise more funds. They have a goal of raising around $250,000. They have also applied for federal grants.

A question was raised about where the facility will be located. They do not have a location yet and are open to options. They want to be in the Low Country near the Charleston, SC area. Another question was about the structure itself. They say that it will be state of the art, but have no detailed design yet. Several of the attendees stated they need detailed plans including a business model if they want to succeed. They said they will start working with a local realtor to find a possible location.

Another discussion was around corporate sponsorship. Someone suggested Boeing, who is prominent in that area, could be a likely sponsor. Meeting with local politicians is also in their plans. They said they could possibly use STEM money. Being in the Artemis era, this could mean lots of support. Attendees emphasized that the Charleston Planetarium Society needs to have an architectural plan so people can have a vision of what the planetarium is going to look like.

If you want to learn more about them, go to their website: **https://www.charlestonplanetarium.org/** They are also looking for volunteers to help them establish a planetarium in the Low Country.

The presentation was ended and The Lowcountry Stargazers shared their plans for an October outreach. Also discussed was Dark Sky International's website is: https://darksky.org/. Both clubs are getting involved. It is suggested the members read up on what it is all about and how we can help. It was noted that during the summertime, the moon rises out of the ocean. Makes for some good imagining. They also recommended binocular observing especially in the early morning.

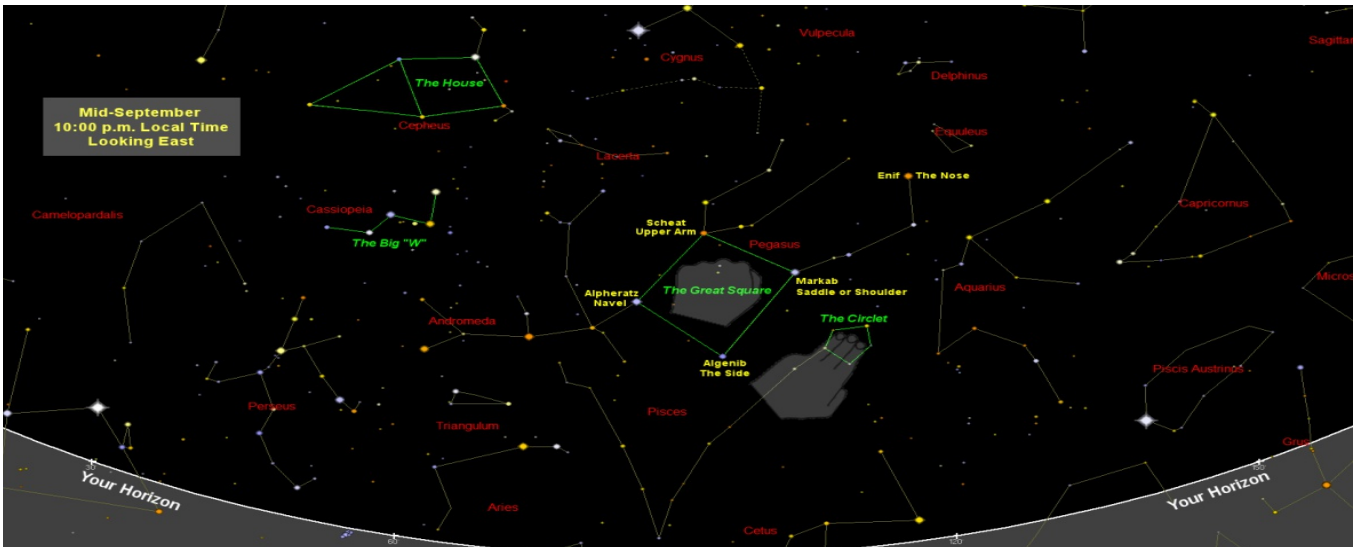
There was no Grand Strand Astronomers club business discussed in this meeting. Our upcoming events are Hampton Dark Sky observing on August 19, and our next indoor meeting is September 7.

Meeting adjourned!

Night Sky Map for September 2023: Pegasus & Measuring the Sky

https://www.almanac.com/night-sky-map-september-pegasus-measuring-sky

By: Jeff DeTray



September2023 Calendar of Celestial Events

http://www.seasky.org/astronomy/astronomy-calendar-2023.html

September 15 - New Moon. The Moon will located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 01:41 UTC. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

September 19 - Neptune at Opposition. The blue giant planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view and photograph Neptune. Due to its extreme distance from Earth, it will only appear as a tiny blue dot in all but the most powerful telescopes.

September 22 - Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 17.9 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

September 23 - September Equinox. The September equinox occurs at 06:43 UTC. The Sun will shine directly on the equator and there will be nearly equal amounts of day and night throughout the world. This is also the first day of fall (autumnal equinox) in the Northern Hemisphere and the first day of spring (vernal equinox) in the Southern Hemisphere.

September 29 - Full Moon, Supermoon. The Moon will be located on the opposite side of the Earth as the Sun and its face will be will be fully illuminated. This phase occurs at 09:59 UTC. This full moon was known by early Native American tribes as the Corn Moon because the corn is harvested around this time of year. This moon is also known as the Harvest Moon. The Harvest Moon is the full moon that occurs closest to the September equinox each year. This is also the last of four supermoons for 2023. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

September2023 Star Parties

http://www.seasky.org/astronomy/astronomy-events.html

Okie-Tex Star Party
September 8 - 16, 2023
Host: Oklahoma City Astronomy Club
Location: Camp Billie Joe in Kenton, Oklahoma
Website: http://www.okie-tex.com/

The Okie-Tex Star Party is famous for its incredibly dark sky, great food, presentations, fellowship and accommodations. They are also known for the Great Okie-Tex Giveaway! Over the years we have given away many telescopes, CCD cameras, eyepieces, software, star atlases and many other fabulous items! The event will also feature vendors, a swap meet, and meals.

York County Fall Star Party
September 13 - 17, 2023
Host: York County Astronomical Society
Location: York, Pennsylvania
Website: https://www.yorkcountystarparty.org/

Located on a private grass strip airport near Wellsville, Pennsylvania at 380 Kralltown Road, The YCSP horizon is extremely flat, stars are visible at less than 10 degrees above the horizon and light pollution seems to be at a minimum. The Milky Way is easily visible. Observing can be made from the grass airport taxiway. The airport is closed for YCSP Star Party. Hope to see you at the YCSP!

Great Lakes Star Gaze
September 14 - 17, 2023
Host: Great Lakes Star Gaze
Location: Gladwin, Michigan
Website: http://www.greatlakesstargaze.com/

Location and dark skies are the main attraction of this star party. Gladwin, MI is a central location that provides excellent observing without traveling hours into Northern Michigan. Limiting magnitudes are estimated to be around 6.5 at zenith with some minor light domes from the cities of Mt. Pleasant and Midland, some 30 miles away. This is a star party for the astronomer who loves to observe and mingle with other astronomers. Some practical and interesting talks are scheduled to enhance your weekend experience. The GLSG star party will be held at the River Valley RV Park in Gladwin, MI. Directions and more information about the star party can be found in the registration form.

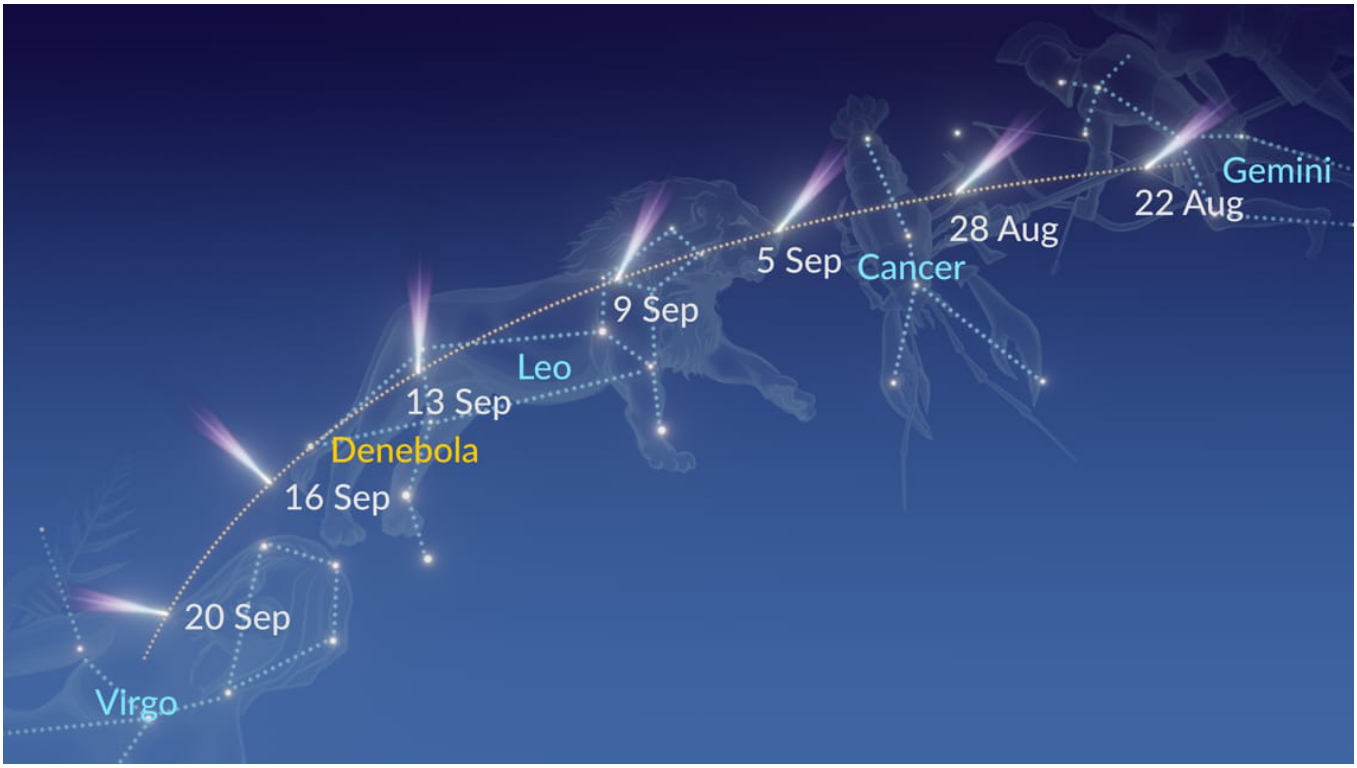
Black Forest Star Party
September 15 - 17, 2023
Host: Central Pennsylvania Observers (CPO)
Location: Potter County, Pennsylvania
Website: https://bfsp.org/

The Black Forest Star Party (BFSP) is an annual dark-sky amateur astronomy observing event hosted by the Central Pennsylvania Observers (CPO). Held every year since 1999, the BFSP generally spans a weekend in the late summer or early fall in Cherry Springs State Park in Potter County, Pennsylvania. Cherry Springs State Park is one of the darkest sites in the state of Pennsylvania and has been designated as Pennsylvania's first Dark Sky Park by the PA Department of Conservation and Natural Resources (DCNR). The amateur astronomers who have attended the BFSP can testify that the skies can be great! Below is a light pollution map of Pennsylvania, courtesy of the International Dark-Sky Association. Cherry Springs is located in the middle of the dark area black area in Potter county. It is about as dark here as it gets in Pennsylvania! The Cherry Springs site is also in a large field, at an altitude of 2300 feet above sea level. This makes for one great place to have a star party! Cherry Springs has become a very popular place! Many amateur astronomers are holding impromptu or organized events here during the observing season.

New Comet Alert: C/2023 P1 (Nishimura) - A Naked-Eye Spectacle for September 2023

By: StarWalk.Space - Astronomy App

https://starwalk.space/en/news/new-comet-c2023-p1



On August 11, Japanese amateur astronomer Hideo Nishimura detected a bright object very close to the Sun. No one had seen it before because the object was lost in the glare of our star. And, exciting news, it turned out to be a brand-new bright comet! On August 15, the Minor Planet Center officially confirmed the discovery and named the comet C/2023 P1 (Nishimura).

C/2023 P1 (Nishimura): latest comet news

Comet Nishimura is currently in the constellation Gemini. It has reached a magnitude of 8.1 and is gradually getting brighter. The comet's growing tail is now nearly 20' long. For a few hours before dawn, C/2023 P1 can be seen with binoculars with a 40-50 mm aperture or a small telescope.

Recent calculations show that the comet may be a periodic one with an orbital period of around 300 years, which is good news for observations. Statistically, comets that make their first approach to the Sun are the most likely to break apart. However, with each successive perihelion passage, the core of the comet becomes more robust, while the weaker ones drop out of the competition. And since C/2023 P1 has already encountered our star, it has a better chance of surviving its journey to perihelion.

Where to find C/2023 P1 (Nishimura)?

Here is the path of the comet for the nearest future:

August 26: C/2023 P1 (mag 7.7, elongation 34.9°) enters the constellation Cancer.
September 5: C/2023 P1 (mag 5.1, elongation 27.7°) enters the constellation Leo.
September 7: C/2023 P1 (mag 4.5, elongation 24.8°) passes 0°16' away from the star Ras Elased Australis (mag 3.0) in the constellation Leo.
September 9: C/2023 P1 (mag 3.8, elongation 21.2°) passes 0°20' away from the star Adhafera (mag 1.7) in the constellation Leo.
September 12: C/2023 P1 (mag 2.7, elongation 15.5°) reaches its closest approach to the Earth at a distance of 0.29 AU in the constellation Leo.
September 15: C/2023 P1 (mag 1.8, elongation 12.1°) passes 0°10' away from the star Denebola (mag 2.1) in the constellation Leo; enters the constellation Virgo.
September 17: C/2023 P1 (mag 1.6, elongation 12.2°) reaches perihelion in the constellation Virgo.
September 22: C/2023 P1 (mag 3.0, elongation 14.2°) passes 1°30' away from the star Porrima (mag 2.7) in the constellation Virgo.

In the Sky Tonight and Star Walk 2 apps, the comet's trajectory and brightness are constantly updated with the latest astronomical data, giving you the most accurate and up-to-date view of it.

When is the best time to see C/2023 P1 (Nishimura)?

Comet Nishimura should reach magnitude 4.5 on September 7. This is bright enough to observe C/2023 P1 with the naked eye. So, take a chance! The comet will be seen for a few hours before dawn in the constellation Leo. It will become even brighter over the next few days as it reaches perihelion, but also be closer to the Sun in the sky, making it more difficult to spot.

C/2023 P1 (Nishimura) at perihelion on September 17

On September 17, C/2023 P1 will reach its closest point to the Sun, called perihelion. It will be really close to our star, at a distance of about 0.9 AU from it. At that time, comet Nishimura could be as bright as 1.8 magnitude, which is visible to the naked eye. The comet will be located only around 12° away from the Sun in the sky, so you won't have much time to observe it. Spot C/2023 P1 at sunset in the constellation Virgo. People in the Northern Hemisphere will have the best view. There is still a possibility that the comet will fall apart as it reaches its closest point to the Sun, so keep following it.

By mid-October, C/2023 P1 will fade back to telescope visibility as it moves away from the Sun. In a few months, by February 2024, another bright comet, C/2023 A3 (Tsuchinshan-ATLAS), will enter the scene.

Comet Nishimura: The Bottom Line
The newly discovered C/2023 P1 (Nishimura) comet may become a naked-eye object by mid-September. On September 17, the comet will be at its brightest with a magnitude of 1.7, as it reaches perihelion (closest point to the Sun). However, due to its proximity to the Sun, observing it could be tricky at that time.

It's better to start searching for the comet earlier, from September 7. By then, the comet should be visible to the naked eye for a few hours before dawn. Don't miss your chance! Use a stargazing app like Star Walk 2 or Sky Tonight to locate the comet in the sky with ease.

A Word (or 2) from DarkSky International

By: Gerald Drake

We are losing our dark skies! As amateur astronomers this is alarming. Artificial Light at Night, ALAN, has a negative impact on the human circadian rhythm and is linked to many chronic health issues. Additionally, ALAN has a negative impact on wildlife and pollinators. Here is a short list of things you and your neighbors can do to reduce ALAN.

Assess your nighttime lighting:

- Is the light needed-if not turn it off?
- Can the light be put on a timer or motion sensor?
- Can a shade be installed to direct the light downward where it is needed and reduce glare?
- Install a bulb that has a color temperature rating less than 3000K.

If you have a light provided by the utility company, ask the same questions above. Some utility companies can and will install shades, motion sensors, lower color temperature bulbs, or timers if it is requested.

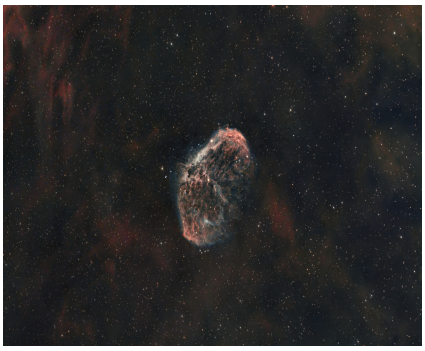
Write a letter to your local newspaper, city administrator, mayor, county council, explaining your concern about ALAN and its negative impacts. Sample letters are available through Starry Skies South and Dark Sky International.

Join Starry Skies South and DarkSky International
https://www.darksky.org/
Starry Skies South-southeast chapter of DarkSky International

The above message was sent by Mill Michaud who is a delegate for Dark Skies International, formerly IDA or International Dark Sky Association. He is putting together a coalition to get the message out about the negative effects of ALAN. He is the former president of Roper Mountain Astronomers Club out of Greenville, SC (**https://rmastro.com/**). Feel free to reach out to him at greenvillefarmcompany@gmail.com if you would like to help.

Capturing A Challenging Target

By: Chris Taylor



Taken during a short window between overcast skies, I recently managed to capture around 30 three-minute exposures of NGC6888 (The Crescent Nebula) before the clouds rolled in.

I had found capturing this target challenging in the past due to both local light pollution and the telescopes choices I had tried. The telescopes mostly having a too long focal length for their aperture – or too high a focal ratio. We'll get into this a little more below.

To mitigate local light pollution, on this image I used a dual-band filter (OIII/Ha) in front of the camera, which isolates specific wavelengths of light while suppressing all other wavelengths, including very importantly - those wavelengths produced by streetlights.

Another valuable tool I tried on this image is the Starizona HyperStar. The HyperStar replaces the secondary mirror of compatible Schmidt Cassegrain telescopes, converting them (mostly) from F/10 to F/2.

The F-ratio is a measure of the focal length of the telescope relative to its aperture. This determines how "fast" the telescope is. A higher F-ratio requires longer exposure times, while lower F-ratios allow for shorter exposure times. To determine focal ratio, divide the focal length of your telescope by the diameter of the mirror, or lens in the case of refractors.

With the HyperStar attached to my telescope, it converts from a native F/10 to a F2.2 light hoover. Starizona advises that the exposure times at F/2.2 are 25 times faster than at F/10. This means that 25 minutes of equivalent exposure can be achieved in just one minute. This is valuable in astrophotography as it is more forgiving of tracking and autoguiding errors, while reducing the chances of satellites and aircraft intruding and rendering your images useless. Better to throw away one of 25 images than an entire 25 minutes worth of effort.

For the telescope used in this image, a Celestron C9.25, the HyperStar also reduces the focal length from 2350mm to 525mm. While this reduction in focal length increases the field of view, it comes at the expense of what is effectively magnification. However, in astronomy, overall light-gathering capacity is often more important than magnification, making it a worthy compromise. It is important to note that the HyperStar is designed solely for astrophotography and cannot be used for visual observation.

Starizona suggest that the HyperStar can be used with an Alt-Az mount. While this is possible for brighter objects like the Orion Nebula (as shown in Starizona's video demonstration **(https://www.youtube.com/watch?v=z4gj985zRns**), you will be limited by exposure times and therefore the variety of objects you can photograph. Equatorial mounts with autoguiding, on the other hand, make the HyperStar a very powerful tool.

I have included the image of NGC6888 from the night of 11 July, taken from my driveway in Myrtle Beach and captured with the Celestron C9.25, the HyperStar, a 2" OIII/Ha filter, and a QHY183C camera on an autoguided Skywatcher EQ6 Pro Mount. The image is a combination of 28 three-minute exposures taken during a 90-minute break in the clouds.

Until next month - Clear Skies!

The Trip of A Lifetime - Astronomy In Chile Educators Program

By: Denise Wright

Are you interested in visiting the largest ground based observatories in the world ? Do you enjoy public outreach and sharing your astronomy knowledge with others ? Are you an astrophotographer who desires to take pictures under some of the darkest skies in the world ? If your answer to any of these questions is " YES " then the Astronomy in Chile Educators Program (ACEAP) is waiting for you to apply ! (**https://www.astroambassadors.com/**)

I found out about the ACEAP program from prior colleagues and friends. I saw their photographs, heard their stories and knew I had to apply. After filling out the application for the second time I was selected by the ACEAP program to visit South America to learn about astronomy research and share my story with my students, astronomy club members, and the local community. I bought my plane ticket to Santiago, Chile and had to be willing to learn, collaborate with others who shared my passions, and return to the US to share my story. The trip was sponsored by the Associated Universities and the National Science Foundation. After an eight hour flight from Miami, I arrived in Santiago, Chile to meet my cohort. They were amazing and inspiring science communicators in the world of astronomy. Some of the people included other classroom educators, astrophotographers, the current president of the Caribbean Institute of Astronomy, a NASA STEM education specialist, and an owner of an astronomy public outreach business. I truly felt I found my "people" and everyone's contribution was truly valued and the group's energy about the night sky was contagious.

During the first days of the trip we visited the Associated Universities Office in Santiago to hear from guest speakers from the European Southern Observatory, Chilean Public Outreach Specialists, and the director of PROVOCA, a program which specializes in getting more underrepresented populations exposed to the STEM Fields. After these fabulous discussions the following day we boarded a plane to stay overnight in La Serena. The next day we took a van to drive to Mt. Cerro Pachon to visit the Cerro Tololo Inter-American Observatory (CTIO) . I was in awe as we climbed up the mountain and I can view the mammoth telescopes at the top. Our first telescope we visited when reaching the summit was the Gemini Telescope; its sister telescope resides in Hawaii.

These telescopes have the ability to survey the entire sky and work in the optical/infrared spectrum of light. Our group was able to go inside the telescope and see the massive optical lens and meet the technicians who are responsible for making the science happen on the instrument. While on the mountain we also visited the SOAR telescope, the future Vera Rubin, and went inside the Four Meter Blanco Telescope. While inside the Blanco we were able to open the observatory roof and rotate around to view the amazing area. All cameras were out and the group was in total awe ! We spent the night at Cerro Tololo and the astrophotographers in the group were devastated since we were clouded out !

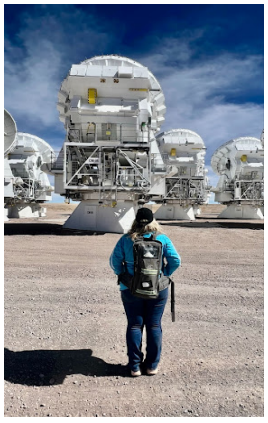
Clouded out at Cerro Tololo but look at the sunset !
Photo by: Denise Wright

Yet, Cerro Tololo advertises 300 clear nights a year, so, we were disappointed, however we were able to see the most spectacular colors in the sky due to the clouds as the sun was setting in the beautiful moutains.

The next day we flew from La Serena to the Calama Airport. We rented trucks to drive us through the Atacama Desert to arrive and stay at Atacama Large Millimeter Array (ALMA) near the city of San Pedro. The scenery was spectacular from the rock formations, huge solar turbines, dormant volcanoes, and viewing the vicuna (Chilean Lamas) grazing in the desert. When arriving at ALMA we had to watch a safety video and learn about how our bodies may have to adapt to being in a higher altitude. We drove our trucks to 10,000 feet to stay at the luxury dorms at ALMA, the largest ground based radio observatory in the world, and were greeted by the outreach specialists as we arrived. The facilities at ALMA were similar to a city, there was a full cafeteria, medical facilities, housing, indoor pool, workout gym, and covered dome so residents could play soccer. The staff who works/lives at ALMA have seven days on the mountain and seven days off. While visiting this radio telescope we had the opportunity to hear from telescope technicians, computer scientists, research astronomers, and the city planner. It made us realize there are so many careers and working parts to maintain a research facility of this magnitude. The sun finally started to set in the Atacama Desert and the shouting began as we saw the darkest sky ever in our lives. The Milky Way was so vibrant the constellations and stars were numerous. I now understand why San Pedro is a center of astro-tourism and why they call the Milky Way Galaxy the River of Light. I was overjoyed to see the moon upside down, the celestial objects that I have never seen before such as the Southern Cross and the Magellanic Clouds. Our astrophotographers in the group got out their cameras and were snapping away and were in pure joy.

The next morning we all woke up and could not say enough about the sky. We took our van to San Pedro High School to visit and teach a small lesson to the students majoring in astro-tourism. It was joyful to see each of us stand up and teach and share astronomy based activities. I gave out astronaut pens and inspirational bracelets to the students. I felt like I was giving out gold. They were so excited. My heart felt full teaching these students and they spoke a beginner level of English so we were able to communicate fairly easily. We traveled back to our accommodations on the mountain and the next day we had health checks so that we could travel to Alma's high site at 16,500 feet to see the radio telescopes.

Our blood pressure had to be in the correct range to travel that high in the mountains. Sure, enough, I was super excited for this opportunity and my blood pressure at first was 157/80 and did not pass the health check. I was told to lay down and calm and they would recheck my blood pressure again. Sure enough, after I calmed my blood pressure was in range and off to the high site. When arriving at the high site I felt like I was visiting the planet Mars there were no trees or vegetation on site. I was given an oxygen tank to assist with my breathing at such a high altitude. I was able to view the three different radio telescope designs by the United States, Japan, and Europe. These telescopes span over 16 kilometers on the surface of the mountain.

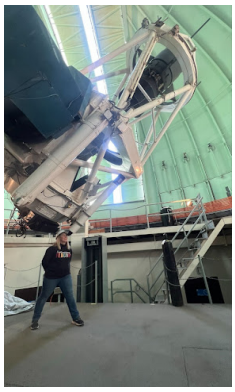


At the ALMA high site wearing my oxygen tank.
Photo by: Denise Wright

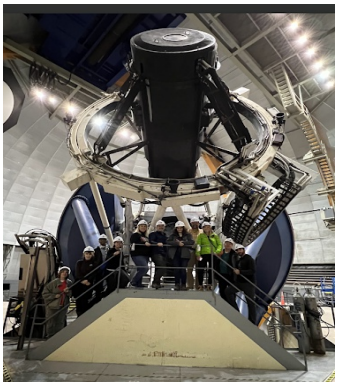
While on the top of the mountain they were moving one of the radio telescopes to a new area to create a different configuration. We got to see how the transporter lifted the telescope and was able to drive it to the new location. It was an amazing site to see and it allowed our group to get some great photos.

The last night of the trip we visited a Dark Sky Park. We sat around a fire where we were served wine and cheese and heard cultural music and were told stories about the legends of the night sky. It was absolutely incredible to look up at the sky that night. Then later in that evening we met an astronomy educator who used her green laser to point out the constellations and used her dobsonian telescope to point to a variety of southern sky objects.

I can overall rate this trip as spectacular !! I am a better and more informed educator from this experience. I saw the southern sky for the first time and learned about the groundbreaking astronomy research that is happening in Chile. I have expanded my professional and personal astronomy network and I am forever changed by this experience. I cannot urge you enough, APPLY, to be an ACEAP ambassador if you have the opportunity to visit San Pedro, Chile to see the southern sky ! It will take your breath away !



Denise looking through the 4 meter Blanco
Photo by: Denise Wright



Picture of our ACEAP group in front of the 4 meter Blanco.
Photo by: Denise Wright

Denise Wright, is a member of Grand Strand Astronomers, an Earth and Space Science Teacher, in Horry County Schools. This year she is on a year long teaching sabbatical leave and is serving as an Albert Einstein Distinguished Teaching Fellow in the United States Air Force and Space Force, in Alexandria, Virginia. After her year fellowship she plans on returning to Horry County Schools.

Discover the Advantages of Owning a Stargazing Rental Property

By: Megan Eskey

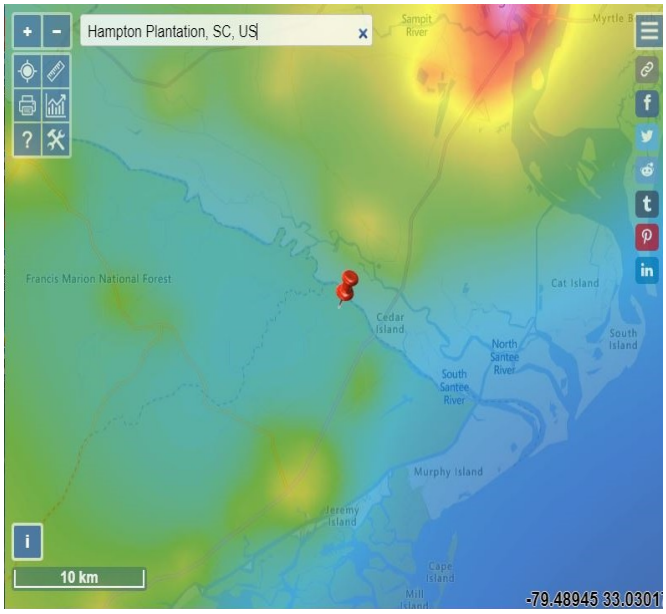
Have you always wanted to purchase a vacation rental property, but felt that the coastal inventory was overpriced with few affordable options?

Do you own a ski cabin or beach house that isn't generating enough passive income? Astrotourism is a growing market with a year-round season, a lower entry point, and a wide range of options at the higher elevations.

Do you have an interest in cosmic events like eclipses, conjunctions and meteor showers? Join the growing wave of astrotourists who experience the night sky at its best in dark sky communities with no light pollution. Add a glass solarium or a low-cost home dome observatory with a large telescope to attract stargazers and amateur astronomers at all ages from around the world.

Public observatories have hotly-contested and hugely over-subscribed telescopes, and the pandemic has created a boom of star gazers wanting to look to the heavens. Observatory Solutions will provide the telescopes at their cost. Airbnb says they have about 3000 listings that come equipped with telescopes.

In South Carolina, Hampton Plantation and the surrounding areas, including the Francis Marion and Sumter National Forests, have among the darkest skies in the state, at class 3 Bortle.



Further inland, away from the coast, the Battle of Rivers Bridge State Park is also Bortle 3 for the best dark sky views. The Bortle Dark-Sky Scale is a nine-level numeric scale that measures the night sky's and stars' brightness (naked-eye and stellar limiting magnitude) of a particular location. It quantifies the observability of celestial objects and the interference caused by light pollution and skyglow (wide scale illumination of the sky or parts of the sky at night). The most common cause of skyglow is man-made lights that give off light pollution. John E. Bortle created the scale and published it in the February 2001 edition of Sky & Telescope magazine to help amateur astronomers compare the darkness of observing sites.

The scale ranges from class 1, the darkest skies available on Earth, through class 9, inner-city skies.

My next step is to work with a US mapping company, FiOR Innovations, to make the first map of the Moon to include a system of roads. We have inked a contract to host the digital map on their servers and to make a 2D map that includes the first three roads in space, provisionally named *Wingo Epps Circle, Heller Eskey Highway and Neil Armstrong Bridge*. At this time, there is no international oversight body to guide the nomenclature rules for the planetary roads, although in the future the International Astronomical Union (IAU) may adopt the responsibility, along with approving the names for planets and planetary features. The planetary **quadrangles were named** by the US Geological Survey (USGS) under contract to the Jet Propulsion Laboratory (JPL) back in the Apollo era, so the process may remain an American one until other countries express interest in getting involved. I've named the first 32 roads in space, but have not attempted to define guidelines. Currently, there are 24 provisional names on the Moon and 8 on Mars. I have submitted a request to the Gazetteer of Planetary Nomenclature at USGS to adopt the Eskey System as a standard for planetary addresses, similar to how the Bortle Dark-Sky scale is now the standard for skyglow. The final product would ideally be the First Atlas of the First Roads in Space.

If you have not yet made a significant contribution to space science, but would like to, I am considering tying the purchase of US astroproperties at latitudes 33 – 43 to the opportunity to name a road, thereby tying the roads on Earth to roads on the Moon and Mars.

The first step would be to choose a starting point and a destination for your road. These could be peaks of eternal light, craters, lunar maria, or other geographical features. NASA has an elaborate **process for choosing good landing sites** on the Moon, so we will work together to find one for you. The Bortle 3 locations in South Carolina are at latitude 33. Did you know that Hampton Plantation is in the process of becoming a certified Dark-Sky Park? Located halfway between the bright lights of Myrtle Beach and Charleston, the area around the park provides spectacular night views. For a map of light pollution in the US, click on the image above. If you are interested in getting on the list of provisional names, get in touch at **Megan.Eskey@reloquence.com** with your proposal. Do you know of any space pioneers? Be a source of acknowledgement and appreciation.

What's Up, Doc? †

Astronomical League
September 2023 (Eastern Daylight Time)
Dr. Aaron B. Clevenson, Observatory Director, Insperity Observatory

This document presents those objects are visible this next month for many Astronomical League Observing
Programs. If you are working on a more advanced program, I assume you are tracking where your objects are all the time. It concentrates on the common and starter level programs. This is based on 9 PM Eastern Daylight Time at about 39° North Latitude (Washington DC).
Naked-Eye Clubs

Meteors – any night, any time, anywhere, the darker the sky the better.

Shower	Duration	Maximum	Type
Orionids	8/25 to 11/19	10/22 after midnight	MAJOR (ZHR: 15)
Aurigids	8/29 to 9/4	9/1	Moderate (ZHR: 6)
Northern Delta Aquarids	8/8 to 9/1	8/20	Weak (ZHR: < 2)
August Gamma Cephedis	8/22 to 9/1	8/28	Weak (ZHR: < 2)

Constellation Hunter, Northern Skies (and some Southern Skies) - any night, any time, anywhere, the darker the sky the better.
Last Chance this cycle: Ursa Major, Leo Minor, Coma Berenices, Virgo.
Transit: Ursa Minor, Draco, Hercules, Corona Borealis, Serpens, Ophiuchus, Scoprius.
New arrivals: Lacerta, Cygnus, Pegasus, Capricornus, Sagittarius.

Binocular Clubs
Binocular Messier – Monthly highlights include:
Easy – 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 15, 16, 17, 18, 22, 23, 24, 25, 27, 29, 39, 52, 55, 92, 103.
Medium – 14, 19, 28, 40, 49, 53, 62, 63, 64, 80, 81, 82, 83, 94.
Hard – 9, 26, 51, 54, 56, 71, 75, 97, 101, 104, 106.
Big Binoculars – 58, 59, 60, 61, 69, 70, 72, 84, 85, 86, 87, 88, 89, 90, 99, 100, 102, 107, 108, 109.

Deep Sky Binocular – Monthly highlights include (by Astronomical League numbers):
1, 3, 4, 5, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

Other Clubs

Messier

In addition to those listed under Binocular Messier, check out: 21, 57, 73, 91, 98.

Caldwell

1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 26, 27, 29, 30, 32, 33, 34, 35, 36, 37, 38, 42, 45, 47, 52, 55, 57, 66, 68, 69, 75, 76, 78, 81, 82.

Double Star (by Astronomical League numbers):

1, 4, 7, 9, 10, 12, 13, 14, 15, 17, 18, 22, 26, 29, 31, 35, 36, 37, 38, 39, 41, 43, 44, 45, 46, 47, 48, 50, 51, 52, 54, 56, 57, 58, 60, 62, 63, 64, 66, 67, 68, 69, 70, 71, 72, 74, 84, 86, 87, 88, 90, 91, 93, 94, 96, 97.

Other Clubs (of the Solar System)

Solar System – These are the tasks that can be done this month:

Sun – Any clear day is a good time to get those sunspots.

Sunset is 2003 mid-month.

Venus, Jupiter, and Uranus are too close to the Sun or are morning objects.

Moon:

The Maria requirement can be done any time the moon is visible. Look before 8/8, and after 8/22 for the fullest views.

The Highlands requirement can be done at the same time.

The Crater Ages requirement is best done on 8/21 or 8/22.

The Scarps requirement is best done on 8/23.

Occultations occur all the time, the bright ones can be found on the internet. Objects disappear on the East side of the moon.

Mercury is in Leo and sets at 2123 at mid-month.

Mars is in Leo and sets at 2240 at mid-month.

Asteroids – Course Plotting and Measuring Movement requirements can be done at any time on any asteroid.

Ceres is in Virgo and is up all evening mid-month.

Saturn is in Aquarius and rises at 2255 at mid-month. All requirements can be done when Saturn is visible: markings, moons, etc.

Neptune is in Pisces and rises at 2334 mid-month.

Pluto is in Sagittarius and is up all evening mid-month.

Lunar

Key timings are indicated below:

New, 8/15 4 days, 8/19 7 days, 8/22 10 days, 8/25 14 days, 8/29

Old moon in new moons arms – before 0038 on 8/19, ~10 % illuminated. (72 hr > New)

New moon in old moons arms – after 0038 on 8/13, ~10 % illuminated. (72 hr < New)

Waxing Crescent – before 0038 on 8/18, ~4 % illuminated. (48 hr > New)

Waning Crescent – after 0038 on 8/14, ~4 % illuminated. (48 hr < New)

Astronomical Events this Month:

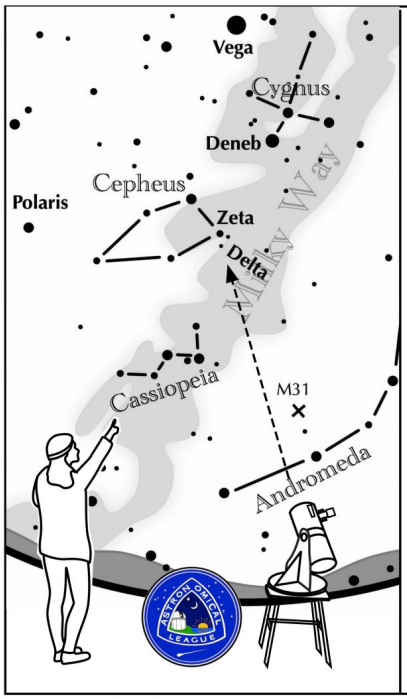
- 8/2 – Lunar Perigee
- 8/6 – Jupiter at Western Quadrature
- 8/8 – Eta Eridanids Meteor Shower
- 8/9 – Mercury at Greatest Eastern Elongation
- 8/9 – Mercury at Dichotomy
- 8/13 – Perseid Meteor Shower
- 8/13 – Venus at Inferior Conjunction
- 8/15 – Uranus at Western Quadrature
- 8/16 – Lunar Apogee
- 8/17 – Kappa Cygnids Meteor Shower
- 8/22 – Mercury is Stationary
- 8/27 – Saturn at Opposition
- 8/28 – Uranus is Stationary
- 8/30 – Lunar Perigee

* - Although these clubs are not detailed in this "What's Up Doc?" handout, you can get information on many of their objects by using the "What's Up Tonight, Doc?" spreadsheet (version 4.1). To get your copy, talk to the Doc, Aaron Clevenson, by sending an email to **aaron@clevenson.org.** It is also available on the club website.

† - "What's Up Doc?" is used with permission from Warner Bros. Entertainment Inc.

Insperity Observatory, 2505 S. Houston Avenue, Humble, TX:
https://www.humbleisd.net/page/insperity-humble-isd-observatory

ASTRONOMICAL LEAGUE Double Star Activity



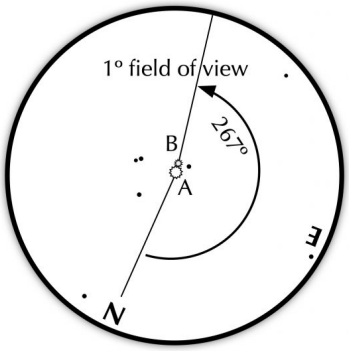
Other Suns: Delta Cephei

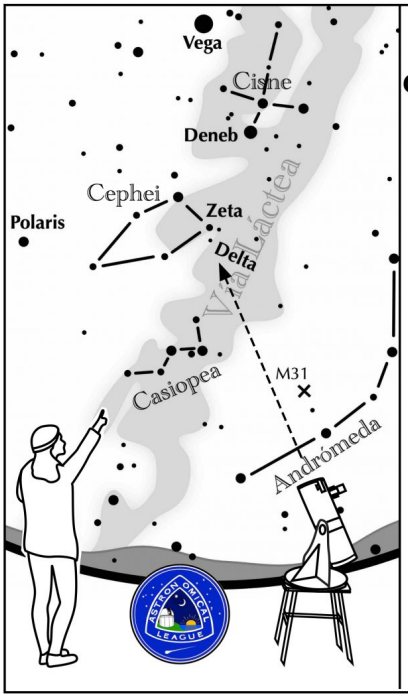
How to find Delta Cephei on a September evening

Face northeast and find bright Deneb, the northernmost star of Cygnus. It is nearly overhead. Between Deneb and the "W" shaped Cassiopeia lies the house-shaped constellation Cepheus. Find Zeta, the lower left star of the "house." Dimmer Delta shines just below it.

Suggested magnification: >20x
Suggested aperture: >2 inches

Beta Capricorni
A-B separation: 41 sec
A magnitude: 4.2
B magnitude: 6.1
Position Angle: 191°
A & B colors:
yellow, blue





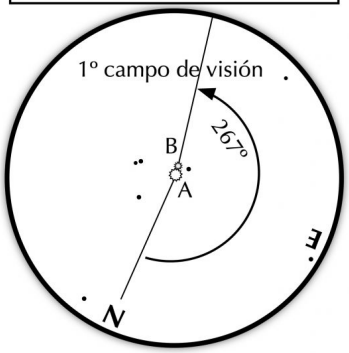
Otros Soles: Delta Cephei

Cómo encontrar Delta Cephei en una tarde de Septiembre

Mire hacia el noreste y encuentre a la brillante Deneb, la estrella más al norte de Cisne. Está casi arriba. Entre Deneb y Casiopea en forma de "W" se encuentra la constelación de Cefeo en forma de casa. Encuentra a Zeta, la estrella inferior izquierda de la "casa". La Delta con brillo debil, esta justo debajo de ella.

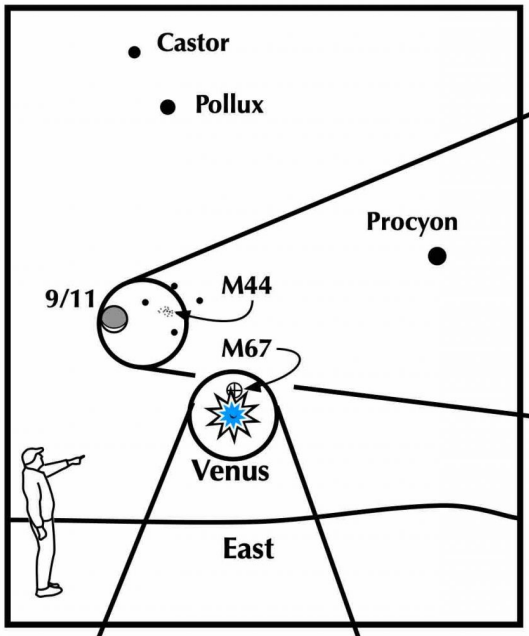
Ampliación sugerida: >20x,
Apertura sugerida: >50 mm

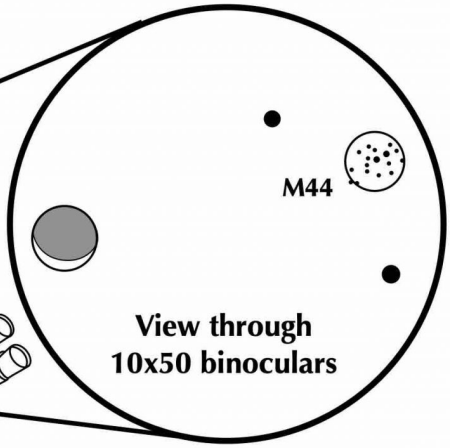
Delta Cephei
A-B separación: 41 sec
A magnitud: 4.2
B magnitud: 6.1
PA: 191°
A & B color:
amarilla, azul

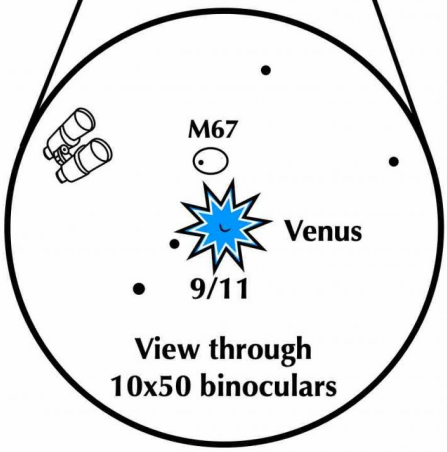


The Moon Visits M44 and Venus Vists M67

If you can see only one celestial event in the morning this September, see this one.



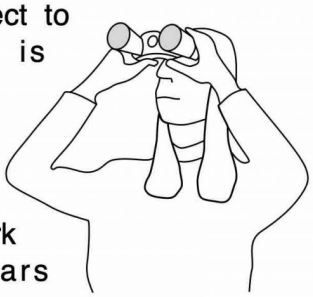




Moon visits M44, Venus visits M67

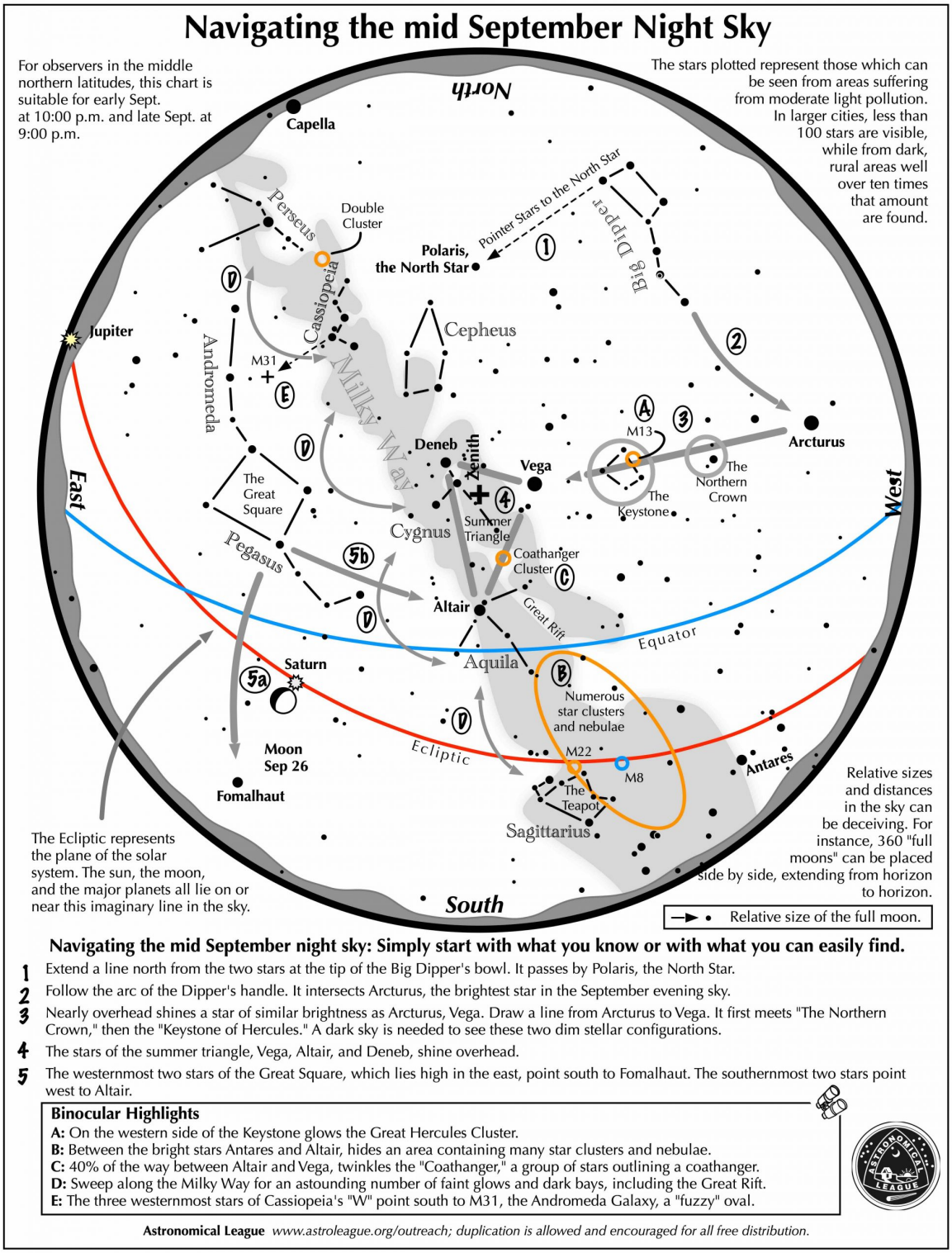
On the morning of Sep 11, look to the east 90 minutes before sunrise.

- The crescent moon, full with earthshine, glows left of M44, the Beehive cluster.
- M44 can easily be seen in binoculars.
- The dazzling object to their lower right is Venus.
- Just above Venus lies another star cluster, M67. If viewed from a dark location, binoculars should reveal its fuzzy presence.
- If the binoculars are securely mounted, the tiny crescent of Venus should be barely discerned amid the planet's glare.



ALCON

Navigating The mid September Night Sky



Reprinted with permission of Astronomical League