

The ECLIPSE

July 2026

The Newsletter of the Barnard-Seyfert Astronomical Society

The Summer Observing Issue

The summer observing season is already well underway. Even a short session under the stars can be fun and productive. This month's newsletter celebrates the simple pleasure of exploring the night sky, whether you're just learning the constellations or have decades of experience at the eyepiece.

Inside you'll find practical tips on star hopping—a fun way to navigate the heavens without relying on electronics, how a few well-chosen filters can enhance views from planets to deep-sky objects, and feature the small but easy to find constellation Delphinus.

If you're looking for a new observing challenge, consider one of the many Astronomical League observing programs, and in particular their Urban Observing Program – let's see how many BSAS members can observe even a few objects featured in this program!

Finally, don't forget a pair of binoculars. For my money, simply sweeping along the glowing star clouds of the summer Milky Way can be one of astronomy's greatest pleasures.



Eagle Nebula (M16) by Pete Stegemeyer. 58 frames of 60s, 8" Orion astrograph, ASI585mc, processed in pixinsight

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NASA Celebrates **America's 250th**

Watch the short video at:

<https://www.youtube.com/watch?v=Lxr-NaO7Who>

"The night is more alive and more richly colored than the day." —
Vincent van Gogh



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About BSAS

Founded in 1928, the **Barnard-Seyfert Astronomical Society** is an association of amateur and professional astronomers who have joined together to share their knowledge and love of the night - *and day* - sky! We welcome everyone from beginners to pros alike!

BSAS meets on the third Wednesday of each month at the **Warner Park Nature Center** in Nashville, TN. Experienced members or guest speakers usually talk about some aspect of astronomy or sky observing. Subjects range from how the universe first formed to how to build your own telescope, to "Pluto: Dog, planet, or KBO?..."

The meetings are very casual and time is allotted for coffee, hang out and general astro-tivity! Meetings are free and open to the public, you do NOT need to be a member to attend!... Join us!

BSAS membership entitles you to several perks such as subscription discounts to *Astronomy* and *Sky & Telescope* magazines, access to the club's Equipment Loan Program, invitations to private club events, participation in our Google chat forums, and much more!

In addition to the regular meetings, BSAS also sponsors many public astronomy events, such as our famous monthly public star parties, Astronomy Day school events, collaborations with the Dyer Observatory, tents and displays at local festivals, and "Pop-Up" star parties!

More information about BSAS can be found on our website bsasnashville.com. If you have any questions, please email us anytime at info@bsasnashville.com.

Equipment Loan Program

Did someone say **FREE** telescope loans??... Why yes, yes they did!!

BSAS has telescopes ranging from 2.5" to 10", from beginner to advanced, that members can borrow for up to 60 days at a time! We also have other items such as H-alpha solar telescopes, Dobsonians, educational CDs, tapes, DVDs, and more!

BSAS will not be held responsible for lost sleep or gear addiction from use of this excellent astronomy equipment! For information on what's currently available, contact info@bsasnashville.com.

President's Corner

By Steve Hughes

Greetings BSAS Members,

I thought I'd take this opportunity to share a couple of upcoming improvements we've been working on for the club...

To better serve our members and improve club operations, the BSAS Board of Directors will soon be presenting an updated version of the **BSAS Bylaws** for membership vote and approval. The new bylaws will be available for review several week before the vote, which is tentatively scheduled for the September meeting.

This will also include an updated **BSAS Code of Ethics**.

We're also launching the **BSAS Community Ambassadors** program. BCAs are board approved, enthusiastic volunteers who represent and promote BSAS at public events, star parties, outreach activities, and community gatherings.

Stay tuned for more info!!

As always, be safe, be kind, and keep looking up!

Steve Hughes
President, BSAS

"Every star may be a sun to someone..." - Carl Sagan

Upcoming Events

July Member Meeting

Luke Finley
Visiting Chilean Observatories
Wednesday, July 15
7:00 - 9:00 p.m.
Warner Park Nature Center
7311 Highway 100 Nashville

Public Star Party Joint BSAS / Dyer

Saturday, July 25th
9:00 - 11:30 p.m.
Bowie Nature Park
7211 Bowie Lake Rd
Fairview

August Member Meeting

Wednesday, August 19
7:00 - 9:00 p.m.
Warner Park Nature Center
7311 Highway 100 Nashville



The *Eclipse* is the monthly newsletter of the Barnard-Seyfert Astronomical Society, Nashville, Tennessee.

Comments, questions, and submissions for future issues are welcome and may be sent to eclipse@bsasnashville.com.

Don Filer, Editor

Astronomy in Chile

Have you dreamed of taking a trip to Chile to visit the major observatories there? The July monthly meeting of BSAS is your opportunity to hear all about such a trip from Luke Finley, a high school physics and astronomy teacher, at Independence HS in Thompson's Station and an official ambassador for the "Astronomy in Chile Educators Program" – <https://www.astroambassadors.com/>.

Luke and recently just got back from an amazing trip to Chile for a tour of most of the major observatories! He is going to talk about his trip, including his tours of the VLT, ELT, Vera Rubin, Atacama and more. He has tons of pictures and stories.

Don't miss this meeting – Wednesday, July 15, 7:00 at the Warner Park Nature Center.



We all know that numerous important observatories are located in Chile. In fact, over half of the world's astronomical infrastructure is located in the country. What makes Chile an astronomer's paradise? The Atacama Desert offers an unmatched combination of high altitude, extreme dryness, and over 300 clear nights a year. Its southern hemisphere location and strict light-pollution regulations provide the world's most pristine conditions for peering into space.

Major factors that make the region perfect for astronomical research:

- **Extreme Dryness:** The Atacama Desert is one of the driest places on Earth. Low humidity means there is virtually no water vapor to distort or block faint starlight.
- **High Altitude:** Telescopes are built on tall, isolated peaks, putting them above a massive portion of the Earth's blurring atmosphere and moisture.
- **Zero Light Pollution:** Sparsely populated regions and local lighting regulations create pitch-black skies, allowing incredibly deep views into the cosmos.
- **Southern Hemisphere View:** It provides an ideal vantage point to observe the center of the Milky Way, the Magellanic Clouds, and other deep-sky objects largely hidden from the northern hemisphere.
- **Stable Weather:** The climate is exceptionally consistent, ensuring minimal atmospheric turbulence which can otherwise blur telescope images.

Observing Program Challenge

Have you ever wondered what you can see in the city? Well here's the perfect program that we can all try out!

In much of Middle Tennessee, light pollution makes observing harder, but not impossible. The **Urban Observing Program** of the Astronomical League (AL) provides some guidance to help us do some rewarding observing even where there are many lights. The purpose of the program is “to bring amateur astronomy back to the cities, back to those areas that are affected by heavy light pollution.” <https://www.astroleague.org/urban-observing-program/>

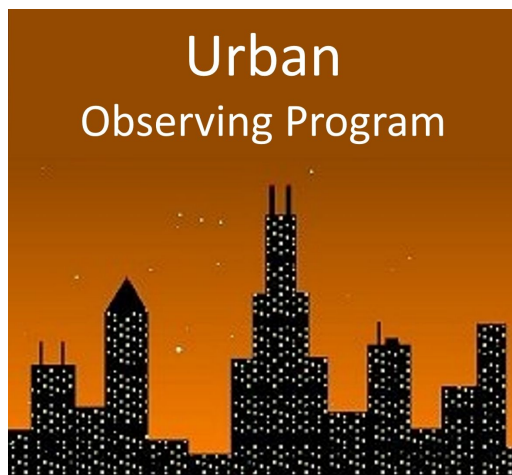
The BSAS is a member club of the Astronomical League (<https://www.astroleague.org>) and as such we all have access to their resources (some of which make regular appearances in this newsletter).

The introduction to the Urban Observing Program states: “Amateur astronomy used to be called “backyard astronomy”. This was in the days when light pollution was not a problem, and you could pursue your hobby from the comfort of your backyard. But as cities grew, so did light pollution, and the amateur astronomer was forced to drive further and further out into the country to escape that light pollution. It is not uncommon today for a city dweller to drive 100 miles to enjoy his/her hobby. But many people do not have the time or the resources to drive great distances to achieve dark skies. That is the reason for the creation of this program, to allow those who want to enjoy the wonders of the heavens in the comfort of their own neighborhoods to do so, and to maximize the observing experience despite the presence of heavy light pollution.”

To qualify for the AL’s Urban Observing Program certificate and pin, you need to observe 100 objects on the Urban Observing Program list. It is actually two separate lists found on their website, one for bright deep sky objects such as the Andromeda Galaxy, Pleiades, and Hercules Cluster, and another for variable and double stars (including Gamma Delphinus featured later in this newsletter).

Do you need to go for the certificate in order to participate? No! Let’s see if we can get as many BSAS members as possible to use the list to observe even a small number of objects. Future issues of *The Eclipse* will include reports of observations and updates on how we are doing.

We can help each other with tips and ideas at star parties or using our Google Groups discussion board. Let’s try it!



Making the Most of Astronomical Filters

One way to improve your observing experience is by using the right filter. While filters cannot magically make faint objects brighter, they can increase contrast by blocking unwanted wavelengths of light and allowing the features you want to see to stand out more clearly. Knowing which filter to use—and when—can make a noticeable difference at the eyepiece.

The most common filters for deep-sky observing are nebula filters, which come in three general types: broadband, narrowband, and line filters.

Broadband filters, often marketed as light pollution reduction (LPR) filters, transmit a wide range of wavelengths while suppressing some of the common emissions from older streetlights. They provide only modest improvement under today's LED-lit skies, but they can still enhance the contrast of large emission nebulae from moderately dark locations.

Narrowband filters, often sold as UHC (Ultra High Contrast) filters, are among the most versatile filters available. They transmit the light emitted by ionized oxygen (O III) and hydrogen-beta (H- β) while blocking much of the surrounding sky glow. A quality UHC filter can dramatically improve views of favorites such as the Lagoon Nebula (M8), Swan Nebula (M17), North America Nebula (NGC 7000), and Orion Nebula (M42).

Oxygen III (O III) filters are even more selective, passing only the two emission lines produced by doubly ionized oxygen. They excel on planetary nebulae—including the Ring Nebula (M57), Dumbbell Nebula (M27), and Helix Nebula (NGC 7293)—and often reveal delicate filamentary structure in the Veil Nebula that is otherwise difficult to detect.

Hydrogen-beta (H- β) filters are highly specialized. Only a handful of objects respond dramatically, including the Horsehead Nebula (B33) and California Nebula (NGC 1499).

It is important to remember that filters are not universal tools. They generally do not improve views of galaxies, star clusters, or most reflection nebulae, because these objects emit light across the full visible spectrum. In fact, using a nebula filter on a galaxy usually makes the view dimmer. Filters are most effective when used with moderate to low magnification, allowing the telescope to produce a bright exit pupil. Larger exit pupils deliver more light to your eye, helping faint nebulae remain visible while the filter suppresses background sky glow.

For most observers, a good UHC filter is the best first investment, followed by an O III filter for more specialized observing. Combined with dark skies, careful dark adaptation, and patient observing, these filters can reveal details that might otherwise remain hidden. They don't replace good observing techniques—they complement them, helping you see just a little deeper into the universe.

For a good discussion with illustrations, see

<https://www.prairieastronomyclub.org/useful-filters-for-viewing-deep-sky-objects/>

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Star Hopping: Finding Your Way Across the Night Sky

Long before computerized telescopes, astronomers learned to navigate the sky by **star hopping**—moving from one easily recognized star pattern to another until reaching a desired object. It's a skill that remains as rewarding today as ever. Rather than simply pressing a button, star hopping helps you become familiar with the constellations and develop a deeper understanding of the sky's layout.

The technique begins with a bright, easily identified "starting point." Using a star atlas or astronomy app, you then follow a series of recognizable stars and patterns to your target, much like following landmarks on a hiking trail. A low-power eyepiece or binoculars provide a wide field of view, making the journey easier.

Star hopping takes a little practice, but each successful search builds confidence. Before long, you'll find that many favorite galaxies, clusters, and nebulae become familiar destinations rather than elusive targets. Even observers with computerized Go-To telescopes often enjoy star hopping because it transforms an observing session into an exploration of the night sky, making every discovery feel a bit more personal.

Anyone interested in learning more about star hopping can go to <https://artcentrics.com/artcentrics-astronomy-main-page/astronomy-resources/astronomy-education/books/#StarHoppersGuide>. Jim Mazur, James Yoder, and Andrea Matthias have published an excellent book on star hopping which can be downloaded for free.

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Colored Filters for Planetary Observing

Unlike nebula filters, colored filters are designed to enhance subtle detail on the Moon and planets by increasing the contrast between features of different colors. Their effects are often modest, but on nights of steady atmospheric seeing they can reveal details that are otherwise difficult to detect.

A light red (#23A or #25) filter can improve the visibility of dark surface markings and polar caps on Mars, while an orange (#21) filter provides similar benefits with less image dimming. A light blue (#80A) filter is a favorite for Jupiter, enhancing contrast in the cloud belts and making the Great Red Spot easier to distinguish. It can also help bring out high clouds and polar features on Mars. A green (#56) filter improves contrast in Jupiter's belts and can make the polar caps of Mars stand out more clearly. A yellow (#8) filter is an excellent all-around choice, slightly reducing atmospheric haze and sharpening details on Mars, Jupiter, and Saturn without significantly dimming the image.

Featured Constellation

Delphinus: The Dolphin of the Summer Sky

Although **Delphinus** occupies only a tiny patch of the heavens, it is surprisingly easy to recognize once you know what to look for. High in the evening sky during late summer and early autumn, Delphinus lies just east of the bright star Altair in Aquila and west of the larger constellation Pegasus. See next page for star chart and observing ideas.

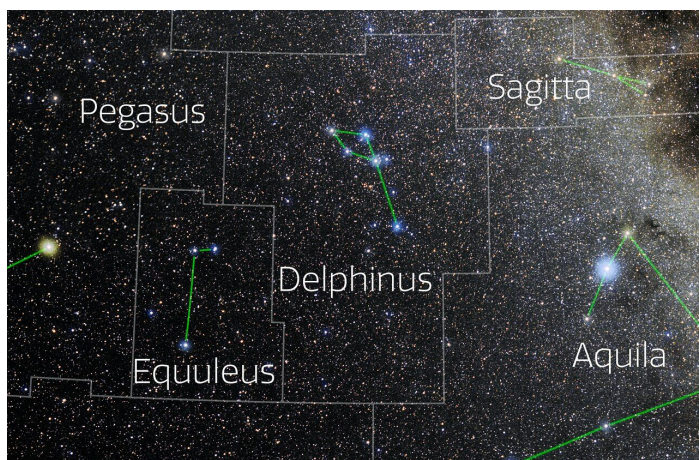
The constellation's five brightest stars form a distinctive kite- or diamond-shaped pattern with a short tail, an arrangement that many observers call "Job's Coffin." Once spotted, it is difficult to mistake for anything else. Despite its modest size, Delphinus has been known since antiquity and is one of the original 48 constellations cataloged by the Greek astronomer Ptolemy nearly 2,000 years ago.

Greek mythology offers several stories explaining the dolphin's place among the stars. In one popular tale, the sea god Poseidon enlisted a dolphin to persuade the sea nymph Amphitrite to become his bride. The dolphin succeeded and, in gratitude, Poseidon placed it in the sky. Another legend tells of the musician Arion, who was rescued from drowning by a dolphin enchanted by the sound of his lyre.

Delphinus does not contain many bright deep-sky objects, but it rewards careful observers with several attractive double stars. Gamma Delphini is among the finest in the summer sky, displaying a beautiful color contrast between its golden primary and bluish-green companion in small telescopes. Nearby STF 2725 is another pleasing double that is easily split under steady seeing.

One object of historical interest is Nova Delphini 2013, a star that suddenly brightened enough to become visible to the naked eye before gradually fading over the following months.

Because Delphinus is relatively small and rich in stellar patterns rather than faint galaxies or nebulae, it makes an excellent target for beginners learning to navigate the night sky. Spend a few minutes tracing its elegant outline, then pause to imagine a dolphin leaping through the celestial sea—a delightful reminder that some of the sky's greatest treasures are also among its most subtle.



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Delphinus, take a closer look

*Surprises await for the binocular
and small telescope user*



Delphinus is a small constellation following Altair in its westward motion across the sky. To some observers, the tracing of its major stars really does resemble a leaping dolphin. While it doesn't contain any bright highlights, it packs binocular and telescope features.

Gamma Delphini

A nice double star, easily split at 50x.

Asterisms:

A68 13 stars mag. 10-13 forming a distinctive triangle 10 minutes east of Iota.

A70 lies 1° northwest of Gamma Delphini. The "Flyswatter."

A74 Imaginative "Toadstool" shape of 13 stars of mag. 9-12.

A 109 - Job's Coffin: comprises the rough parallelogram of Gamma, Alpha, Beta, and Delta Delphini.

Variable Stars:

U 6.1-7.6; ~120 days

EU 5.4-6.7; ~59 days

CT 6.8-8.5; ~83 days

13 Delphini

5.7 & 8.5 magnitude; 1.5 seconds sep.

A challenging double star, needs >250x and good seeing.

To find Globular Cluster

NGC 7006 (aka Caldwell 42):

Place the snout of the dolphin (Gamma Delphini) on the west side of the finder field. NGC 7006 lies on the eastern edge.

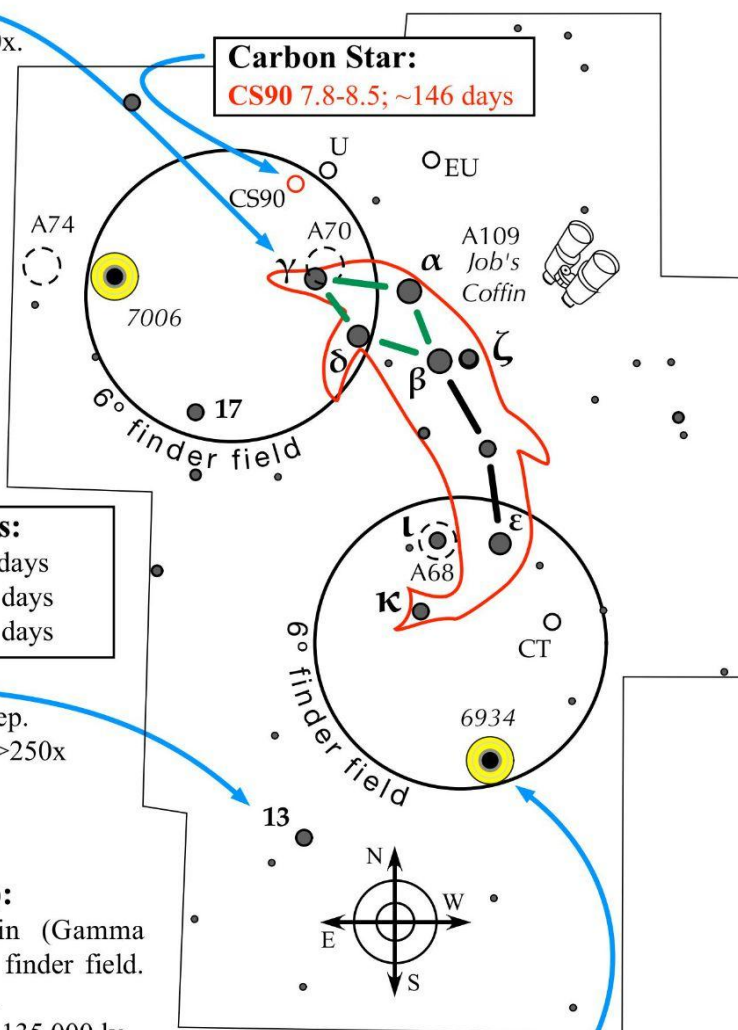
Mag: 10.6; Dia: 2.8 min; Distance: 135,000 ly.

AL Observing Programs represented here:

Constellation Hunter, Double Star, Variable Star, Asterism, Caldwell, Globular Cluster, & Carbon Star.

Carbon Star:

CS90 7.8-8.5; ~146 days



To find Globular Cluster

NGC 6934 (aka Caldwell 47):

Place Epsilon and Iota Delphini at the north edge of the finder field. The globular cluster lies near the southern edge.

Magnitude: 8.8; Diameter: 1.2 minutes

BSAS Observations



*Image of summer Milky Way by Spencer Waugh at Fall Creek Falls.
Sony A7RV camera with a Sony G Master 16-35 GMII F/2.8 wide
angle lens.*



*The sun was looking particularly "bedazzling"
Saturday afternoon at the Shelby Bottoms star
party! Image by Steve Hughes.*

Want to see your images here? Send
with a short description to
eclipse@bsasnashville.com.



*A few hours of Earth
turning beneath a
sky full of stars.
Image by Tom
Beckermann*

More BSAS Observations

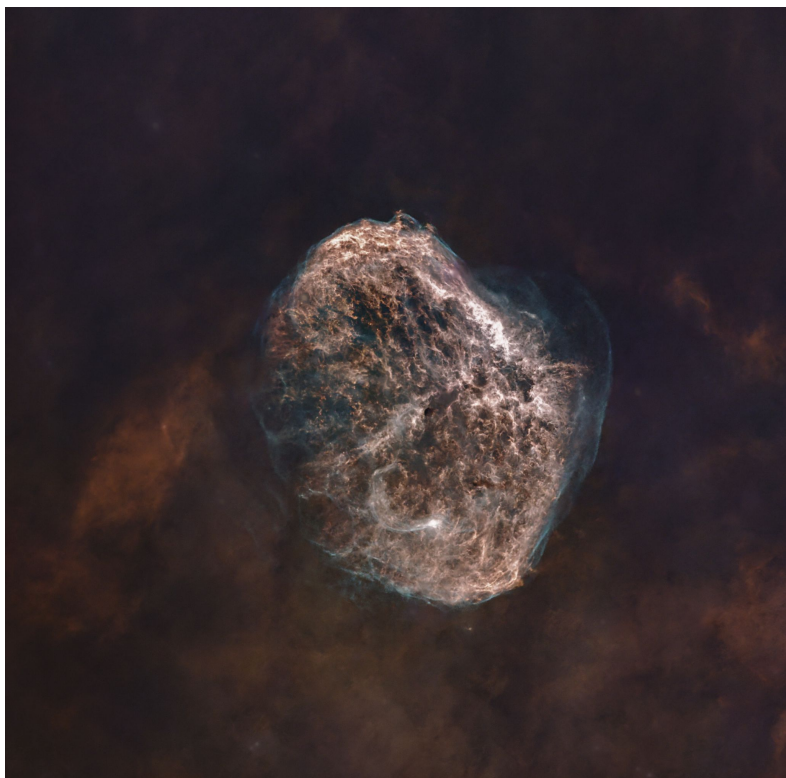


Image of NGC 6888 Crescent Nebula by Sheldon Gibson at Pickett Memorial State Park. 5hrs of data: 4hrs L-Extreme and 1hr UV-IR (for true star color). Hi Res image may be found at <https://app.astrobin.com/i/kok63w?r=0>



Moon and Venus at close conjunction on June 17. Image by Don Filer.



If you've seen something cool, send a description to eclipse@bsasnasville.com (it's not all about the images as much as we love them!)

"Holy sunspots, Batman!" by Tom Beckermann

International Observe the Moon Night is July 28, 2026!

BSAS Miscellany

USA Today Article on Light Pollution

On May 6, USA Today published an excellent article on light pollution. It is great to see more written in the popular press on this topic.

<https://www.usatoday.com/story/graphics/2026/05/06/artificial-light-pollution-earth-sky/89875586007/>

Astronomy On Tap Nashville

Dates for Astronomy On Tap for the remainder of 2026 are:

- July 28
- August 25
- September 29
- October 27
- December 8

All begin at 7:00pm at Fait la Force Brewing, 1414 3rd Ave S, Nashville.

For a bit of fun...do you ever wonder how far you have traveled since you were born? Check out the cosmic odometer:

<https://cosmicodometer.space/>

Beyond the World Cup: How communities are redefining sports lighting



Dark Sky International recently published a story on sports lighting.

“The FIFA World Cup showcases some of the most advanced sports venues on Earth. But a significant innovation in sports lighting is taking place far from the tournament's largest stadiums—on local fields where new technologies are proving that communities do not have to choose between a well-lit pitch and the quality of life that comes with dark nights.”

Link:

<https://darksky.org/news/beyond-the-world-cup-spotlight-how-communities-worldwide-are-redefining-sports-lighting/>

Data Centers and light pollution

Another timely item because of plans to build data centers around Nashville is a statement from Dark Sky International. These points pertain to all industrial developments, not only data centers.

They note that in certain oil and gas applications, rigorous shielding and controls have reduced light pollution by 98% while saving 60% in annual energy costs.

Link:

<https://darksky.org/news/data-center-light-pollution-darksky-statement-on-responsible-development/>

If you are going to see the total solar eclipse on August 12, send pics!

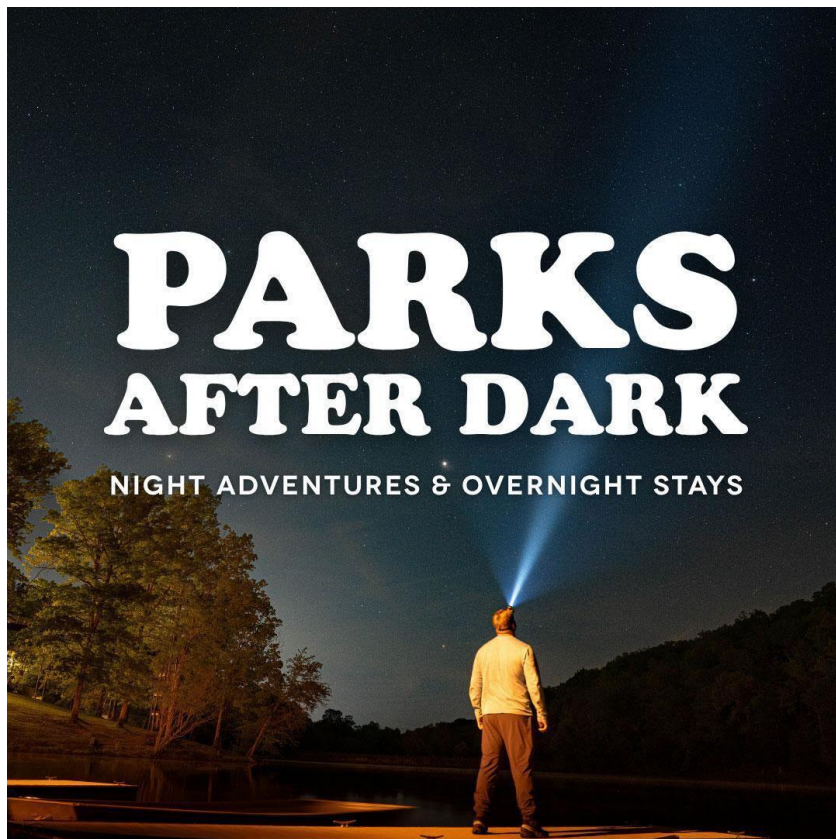
Tennessee State Parks After Dark

This month's email newsletter from the Tennessee State Parks was a full bore push to encourage taking advantage of all the parks have to offer at night.

"Stay late and experience Tennessee State Parks in a whole new light with guided events. From full moon floats and night swimming to meteor shower viewing, these after-dark adventures pair perfectly with overnight getaways."

It featured a long list of options under headings such as "Moonlight on the Water," "Full Moon Adventures," "Night Hikes and Critters," "Stars, Meteors & Skywatching," and "Sleep Under the Skies." Many of our favorite parks for observing are featured.

If you would like to subscribe to their newsletter, [sign up for future emails.](#)



Become a Member of BSAS! Visit bsasnashville.com to join online. All memberships have a vote in BSAS elections and other membership votes.

Also included are subscriptions to the BSAS and Astronomical League newsletters. Annual dues: • Regular: \$25 • Family: \$35 • Senior/Senior Family: \$20 • Student: \$15 * To qualify as a student, you must be enrolled full time in an accredited institution or home schooled.

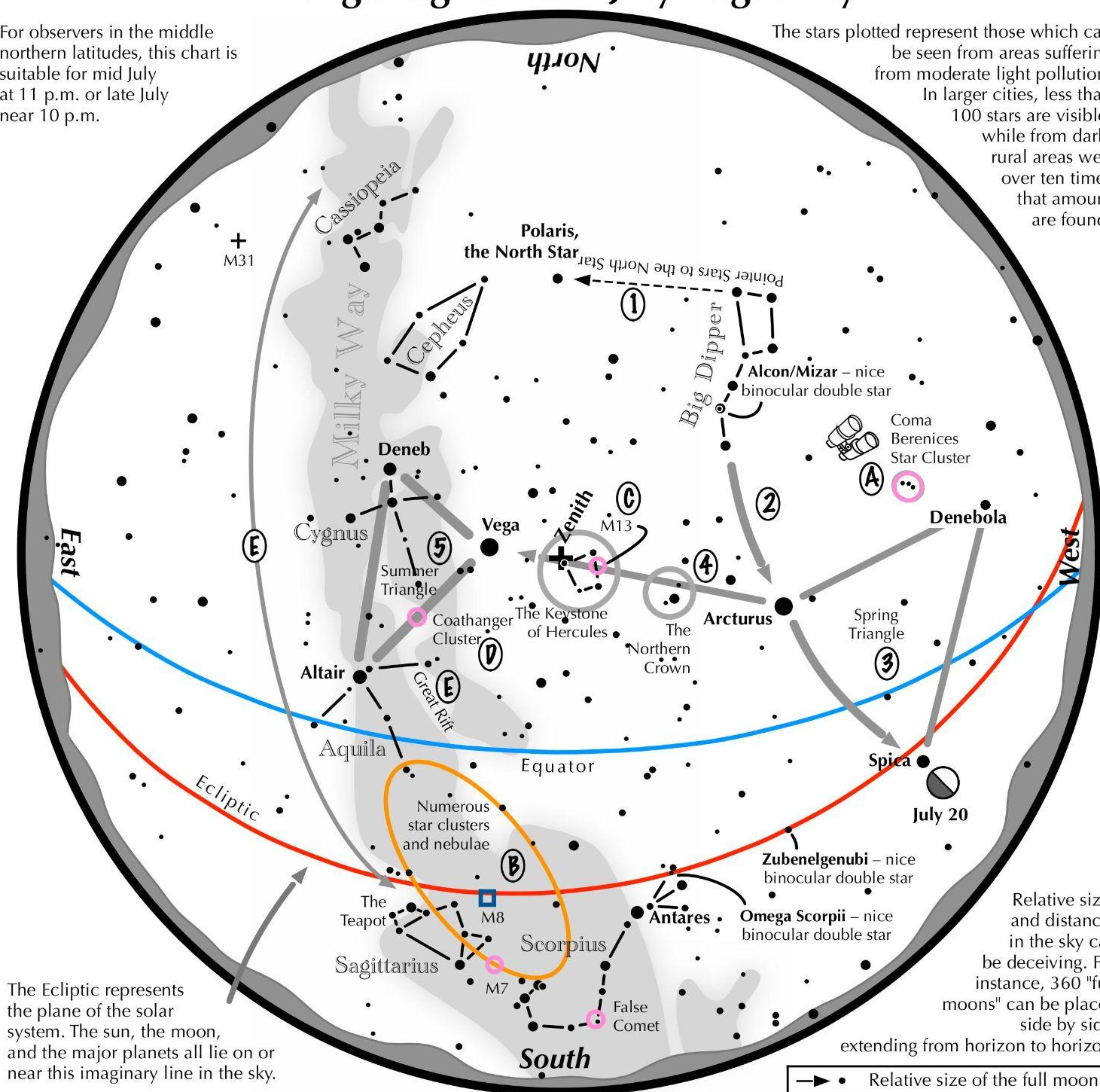


Navigating the mid July Night Sky

2026

For observers in the middle northern latitudes, this chart is suitable for mid July at 11 p.m. or late July near 10 p.m.

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



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

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

- 1 Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
- 2 Follow the arc of the Dipper's handle. It first intersects Arcturus, the brightest star in the July evening sky, then continues to Spica.
- 3 Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
- 4 To the northeast of Arcturus shines another star of similar brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
- 5 High in the East lies the Summer Triangle stars of Vega, Altair, and Deneb.

Binocular Highlights

- A: Between Denebola and the tip of the Big Dipper's handle, lie the stars of the Coma Berenices Star Cluster.
- B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
- C: On the western side of the Keystone glows the Great Hercules Cluster, containing nearly 1 million stars.
- D: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
- E: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.



Upcoming Events & Activities

July Member Meeting

Luke Finley

Visiting Chilean Observatories

Wednesday, July 15th, 7:00 - 9:00 pm

Warner Park Nature Center

7311 Tennessee Highway 100, Nashville

Other Upcoming Events

Check the BSAS website (<https://www.bsasnashville.com/calendar>) and BSAS social media channels for upcoming events, including more joint-venture BSAS/Dyer star parties.

Call for Volunteers!!

BSAS is a non-profit, 100% volunteer operated organization. Please consider giving us a hand if you can!

Specifically, we could use some help with the following:

- Monthly Meeting Setup: Help set up the space and tech for the meetings.
- Program Committee: Help research content for our monthly meetings.
- Event Crew: Help with setting up our various events.

If you have an interest in helping with any of the above, or in any other way, please email us at volunteer@bsasnashville.com.

Night Sky Network

The Night Sky Network (NSN) program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.org to find local clubs, events, and more! You can catch up on all of NASA's current and future missions at nasa.gov. With articles, activities and games NASA Space Place encourages everyone to get excited about science and technology. Visit spaceplace.nasa.gov to explore space and Earth science!

Looking For Meeting Minutes?

Regular- and Board-Meeting minutes are stored on the BSAS Google Drive, and available for review once posted.



In honor of the club's 90th anniversary we partnered with Hatch Show Print to create a unique poster that would honor the achievement of the club. For those who don't know Hatch Show has been making posters for a variety of events and concerts for 140 years. In all that time we are their first astronomy club. On the poster at the center is the moon. This was made from a wood grained stencil that the shop has used for over 50 years. To contrast that the telescope that the people are using is a brand new stencil made for our poster. The poster has three colors. First the pale yellow color of the moon was applied. Next the small stars, circles, and figures at the bottom were colored in metallic gold. The third color is a blue for the night sky. Where it overlaps with the metallic gold it creates a darker blue leaving the figures at the bottom looking like silhouettes.

This was a one-time printing so the 100 that we have are all that will be printed.

The prints are approximately 13 3/4" x 22 1/4" and are available for \$20 at our membership meetings, or \$25 with shipping by ordering through bsas.nashville.com. Frame not included.



Next BSAS meeting
Wednesday, July 15, 7:00 p.m.

Warner Park Nature Center
7311 Tennessee Highway 100
Nashville, TN 37221