

San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



July 2022

SDAA Update

SDAA is now actively using online facilities like Zoom and YouTube to provide access to club meetings and special events. While our public outreach events have restarted in some San Diego County facilities, most events in city owned facilities are still undergoing review.

Public outreach events have restarted at The Lipp telescope. The Lipp hosts will limit the amount of people inside the observatory when the telescope is operational. Please observe masking and social distancing guidelines if you are unvaccinated.

As the pandemic remains a part of our lives, please continue to observe safe practice guidelines while at TDS.

Program Meeting July 20th

Speaker: Kevin Schindler

Topic: Discovery at Lowell: The Past, Present, and Future of Lowell Observatory

Lowell Observatory has been called America's observatory because of its heritage of both scientific research and public outreach. In this program, Kevin Schindler will look at some of the observatory's highlights from the past, explore current research projects, and give an update on the expansion of its visitor experience.

Kevin Schindler is the Historian and Public Information Officer at Lowell Observatory, where he has worked for 27 years. He has written seven books and more than 500 magazine and newspaper articles on subjects ranging from astronomy to baseball, and contributes a bi-weekly astronomy column, "View from Mars Hill", to the Arizona Daily Sun newspaper. Fun fact: Schindler has both a fossil crab and an asteroid named after him.



You can register in advance for the meeting at the following link. After registering, you will receive a confirmation email containing information about joining the meeting. You may be required to log in with a Zoom login and password in order to attend the meeting.

<https://us02web.zoom.us/j/89298162225?pwd=TVZsTTg3dzRXcERDY0tXeHErVXArQT09>

<https://www.sdaa.org/>

A Non-Profit Educational Association
P.O. Box 23215, San Diego, CA 92193-3215

Next SDAA Business Meeting

July 12th at 7:00pm
10070 Willow Creek Rd
San Diego, CA 92131
Via Zoom

Next Program Meeting

July 20th at 7:00pm
Live Stream

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Newsletter Deadline

The deadline to submit articles for publication is the **15th** of each month.

[Link to SDAA Merchandise Store](https://www.sdaa.org/) <https://sdaa28.wildapricot.org/SDAA-Store>

[Link to Outreach Calendar](https://calendar.google.com/calendar/embed?src=g-calendar@sdaa.org&ctz=America/Los) <https://calendar.google.com/calendar/embed?src=g-calendar@sdaa.org&ctz=America/Los>



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San Diego Astronomy Association Board of Directors Meeting June 14, 2022 – Unapproved and subject to revision

1. Call to Order

The meeting was held via Zoom and was called to order at 7:45pm with the following board members in attendance: Dave Wood, President; Kin Searcy, Vice President; Melany Biendara, Treasurer; Gene Burch, Recording Secretary; Hiro Hakozaiki, Director; Dave Decker, Director; Mike Chasin, Director; Gracie Schutze, Director; Ben Grunbaum, Site Maintenance Chairperson; Dan Kiser, JSF Committee Chairperson.

2. Approval of Last Meeting Minutes

The May meeting minutes were approved.

3. Treasurers & Membership Report

The treasurer's report was approved. Mel is still working to recover the \$5,000 counterfeit check that Chase Bank cashed against our account and is refusing to reimburse. She is working with an attorney who has offered to help. The attorney has suggested that we first file a police report and Mel and Dave Decker will work on that. Our SDGE bills are still way higher than ever before. The 2022-2023 SDAA budget was approved. Because of the increased costs of utilities, our membership management software, insurance, and a new usage fee as we move towards in person meetings, the board reluctantly approved an increase in the monthly dues. The increase will become effective on July 1st of this year and will be reflected in renewals or new memberships after that date.

4. Standard Reports

a. Site Maintenance Report:

The TDS clean up event and BBQ went well. The 15 or so volunteers who came out helped clear away the soil that has been building up against the warming room and Lipp Observatory for, likely, decades. We need to examine the area that was covered with dirt to see if there is any damage to the actual structure or if it's just minor damage to the siding. Ben will work on that this month. Ben is also going to do more research on replacing the awning structure in the patio area. A couple volunteers helped clean out the culvert and the drainage area outside of the front gate. Yesterday's volunteers also cleaned the restrooms, cleaned up and organized the tool/storage container, weed whacked the entire public pad area, trimmed some brush back from the walkway between the private pads and bathroom, and filled in some trenches among several other tasks. Thanks to Dave for firing up the grill.

b. Observatory:

May gray has been tough on us. Public party shortened due to fog. Private party canceled due to wind and same. Trained another host. Jim Traweek, Both Roth, and Vince Bert assisted with a ton of little maintenance tasks and made a big difference. All the optics have been cleaned, the scope tracks better, and maintenance is up to date. We did open for the tau Herculids (TAH) and had a pretty successful evening. Meteors were not a storm but a nice shower. Telescope performed flawlessly. All is going well.



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c. Loaner Scope Report:

Loaner scope status:

- 1 scope currently loaned out (Coulter 10")
- Coulter is due back this month
- Orion XT10i was returned without incident on May 21
- Bushnell Voyager 8" Dob (SDAA 028) needs some TLC before it can be loaned out: new feet for the ground board, and the mirror needs to be washed. I'd like to add a Telrad base, and use one of the existing Telrads as needed and rotate around the fleet.
- Still looking for an astrophotographer to loan out SDAA 027 to ensure it's usable for beginners

Inventory updates:

- The many boxes of assorted eyepieces and accessories have all been sorted and selected. Five complete loaner eyepiece cases have been assembled. Two of these have some premium eyepieces, the rest are quality 1.25" Plossls. All unused eyepieces (MAs, Kellners, Ramsdens, .965", etc.) were set out in the warming room with a "free" sign.
- 90mm Meade achromat is still TBD, need to get tube rings.

Equipment donations and sales:

- delivered
- FTGH: 2x Sharpics table mount camera pole
- FTGH: Celestron alt-az mount with slow-motion controls
- this month's newsletter
- For Sale: Move-Shoot-Move star tracker (reduced)
- For Sale: Celestron C5 and iOptron Cube Pro mount w/tripod and case
- For Sale: USB 3.0 fiber extender
- Under discussion
- Plossl eyepiece projection kit with T-threads (40mm, 25mm, 15mm)

d. Private Pad Report:

Pad 62 has finished is concrete pour for the main slab and the pier. Note that since the BOD had already approved his overall plan for eventually adding Solar, I gave him permission to pour the small slab to mount the solar panels to while he was doing the pour for the main slab and pier. The small solar pad didn't require any brush removal or trimming.

e. Program Meetings Report:

Kin is hosting a trivia night for the June 15th meeting which should be fun. He has the rest of the year booked except for October. He's still working with Mission Trails in an effort to resume in person meetings, but there are still obstacles, including a "security" fee which could be as much as \$309 per meeting. Next month's speaker is Kevin Schindler from Lowell Observatory. Cal Tech still hasn't opened up the Palomar Observatory for tours and it's unlikely that they will before we have to make a decision for the JSF Palomar tours.



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- f. AISIG Report:
No report
- g. Newsletter Report:
As always, the newsletter looks great – Thanks, Andrea!
- h. Website Report:
No Report
- i. Social Media:
No report
- j. Outreach Report:
Below is a summary of outreach event participation with numbers for April and for YTD:

2022	MAY	YTD
Events Completed	6	28
Events Cancelled	3	13
Total Attendance	235	2343

Of note for May, was our participation with Timeanddate.com on the live streaming of the Lunar Eclipse. Gary Hawkins and I, along with a few other astronomers in Africa, Canada, New York and Tucson, provided non-stop video of the event hosted on the Timeanddate.com YouTube channel, which enjoyed about 12,000 live views and more than 400,000 views since. We included the event as completed for May, but obviously, did not include any public attendance numbers.

For June, we have at least 8 SDAA members headed to the Grand Canyon Star Party to support the return of their annual park event. Each will have status as a park volunteer for the up to 9 days we are there. This event is coordinated by the Tucson Amateur Astronomy Association.

Using the Starmaster club scope, we have hosted 7 events for 132 visitors so far. During the Grand Canyon event, Ed Rumsey will be present with that scope.

- k. TARO Report:
After 6 Years of operation, the guide camera needed to be replaced. Many thanks to Michael Vander Vorst for donating the replacement Starlight Express guide camera and Jeff Herman for the installation and calibration work.



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Three exo planet observations were completed although a software bug was discovered that interfered with the observation. The bug has been reported to the developer.

l. Cruzen Report:

Gene is going to work with Mike Chasin and send out a survey to try and get an idea of how many Contributing members would be interested in using the observatory.

m. Merchandise Report:

Several hats were sold last month and we're getting close to ordering more stock

n. Astronomical League Report:

The Astronomical League Convention, ALCon 2022, is returning to in person status and will be hosted by the Albuquerque Astronomical Society (TAAS). The event is scheduled for July 28 – July 31, at the Embassy Suites Hotel, Albuquerque. It will **NOT** have a virtual, online option.

Flyer:

<https://alcon2022.org/>

Schedule:

<https://alcon2022.org/daily-schedule/>

If interested, check out the above flyer and schedule, then contact the Albuquerque club.

o. JSF Report:

Dan Kiser reported that planning for JSF continues. We are now focused on getting telescope vendors to donate prizes or set up booths. Some have already indicated that their budgets are still on hold due to the pandemic. We will keep working. I have provided a summary of the current registrations below. This usually increases as the event gets closer. We really need Cal Tech to agree to the Palomar Tour! If Cal Tech doesn't open up public tours of Palomar, we may reach out to SDSU and see if they would be willing to offer a tour of their observatory on Mt. Laguna.

JSF Registration Summary

June 9 2022

	Camping Adult	Camping Teen	Camping Child	Palomar Tour	RV Camping	Totals
Number	31	0	9	24	6	70
Dollars	\$1,240	\$0	\$0	\$960	\$600	\$2,800



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- p. Primary Grid Reconstruction Report
Still discussing the need for a State licensed electrical engineer to sign off on the project.

5. Old Business:

Bank Fraud Update – See Treasurer Report

Biendara

SDGE – still trying to figure out why our bills are so high

Biendara

Spring Clean-up was a success

Grunbaum

6. New Business:

New Business - none

- 7. Adjournment:** The meeting was adjourned at 8:50pm.

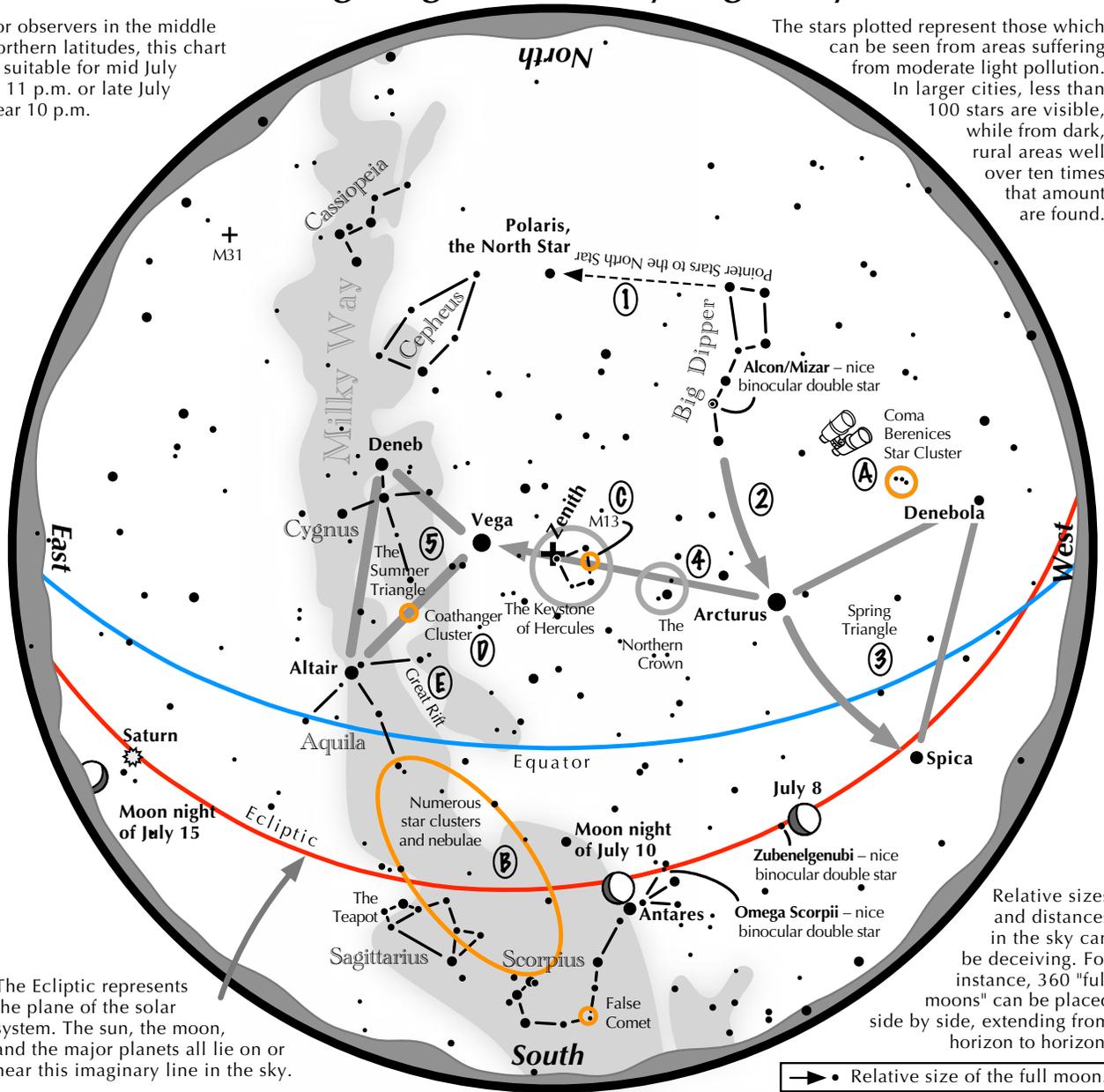


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Navigating the mid July Night Sky

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.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

Navigating the mid 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.



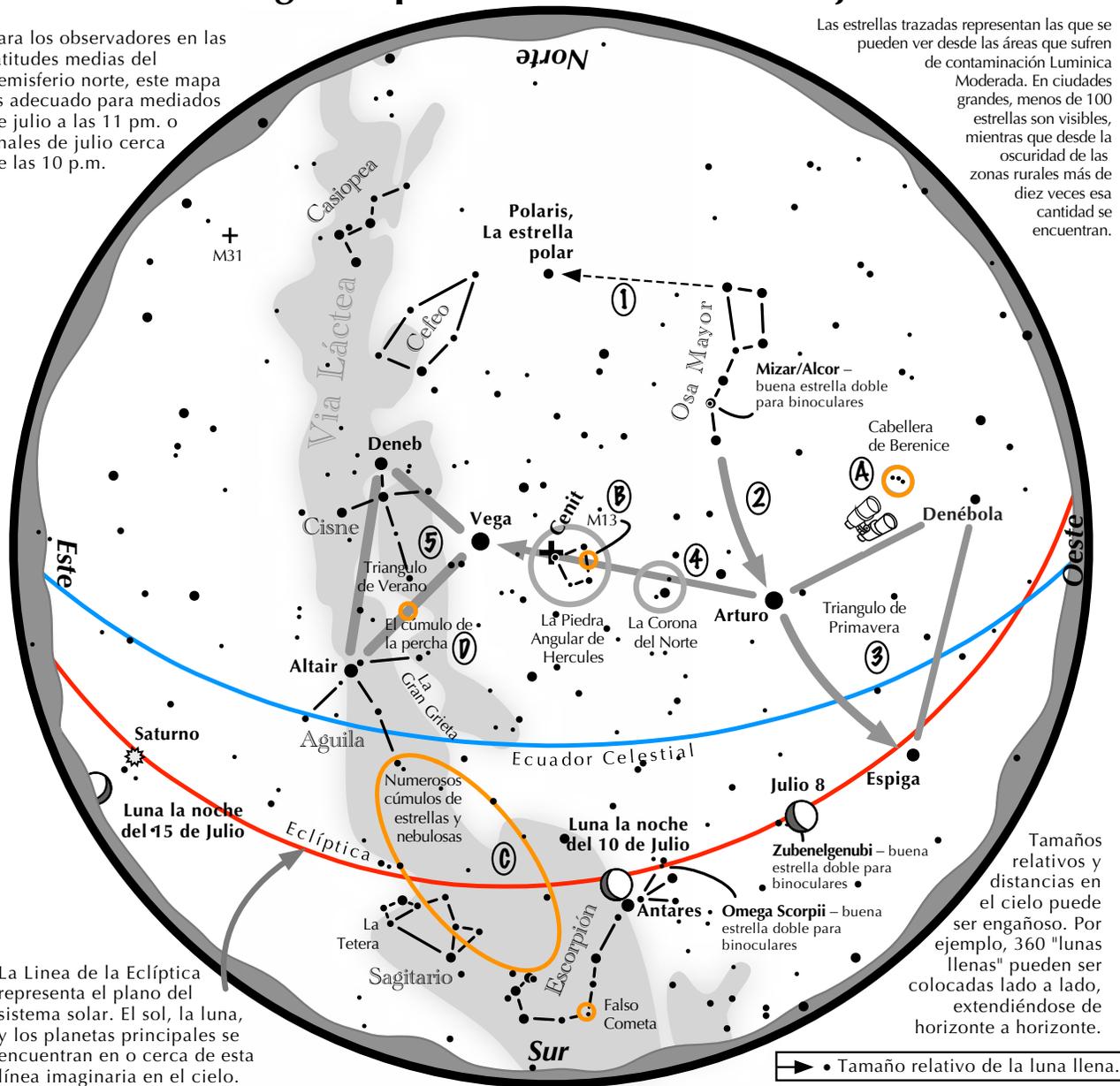


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Navegando por el cielo nocturno de julio

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para mediados de julio a las 11 pm. o finales de julio cerca de las 10 p.m.

Las estrellas trazadas representan las que se pueden ver desde las áreas que sufren de contaminación Luminica Moderada. En ciudades grandes, menos de 100 estrellas son visibles, mientras que desde la oscuridad de las zonas rurales más de diez veces esa cantidad se encuentran.



La Línea de la Eclíptica representa el plano del sistema solar. El sol, la luna, y los planetas principales se encuentran en o cerca de esta línea imaginaria en el cielo.

Tamaños relativos y distancias en el cielo puede ser engañoso. Por ejemplo, 360 "lunas llenas" pueden ser colocadas lado a lado, extendiéndose de horizonte a horizonte.

→ • Tamaño relativo de la luna llena.

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

- 1 Haz una línea hacia el norte desde las dos estrellas en la punta de la Osa Mayor. Pasa por Polaris, la estrella polar.
- 2 Siga el arco del mango del tazón de la Osa Mayor. Primero cruza Arturo, luego continúa hacia Espiga.
- 3 Arturo, Espiga y Denébola forman el triángulo de primavera, un gran triángulo equilátero.
- 4 Dibuja una línea desde Arturo a Vega. Un tercio del camino se encuentra "La Corona del Norte". Dos tercios de esa distancia llevan a la "piedra angular de Hércules." Se necesita un cielo oscuro para ver estas dos configuraciones estelares tenues.
- 5 En lo alto del este se encuentran las tres estrellas brillantes del Triángulo de verano: Vega, Altair y Deneb.

Puntos destacados con binoculares

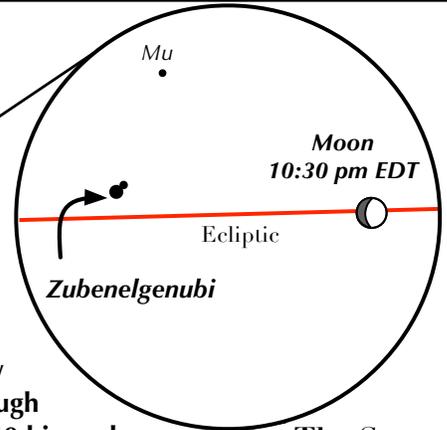
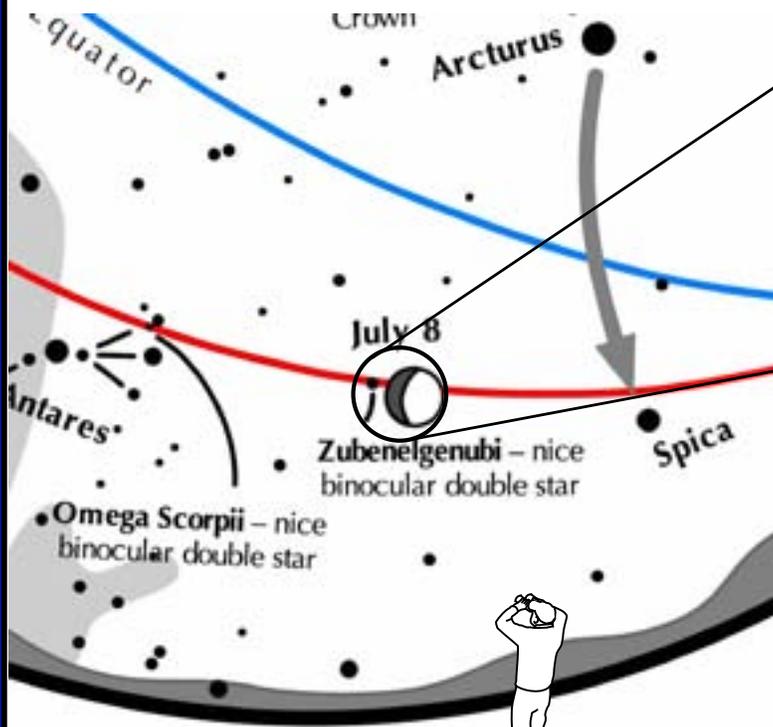
A: Mira alto en el este para ver el cúmulo de estrellas perdidas de Cabellera de Berenice. **B:** M13, un brillo redondo de un cúmulo de más de 500,000 estrellas. **C:** Entre las brillantes estrellas de Antares y Altair, se esconde un área que contiene muchos cúmulos de estrellas y nebulosas. **D:** Casi a la mitad de la distancia entre Altair y Vega, Brilla la "Percha," un grupo de estrellas que describe un perchero.





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



View through 10x50 binoculars

The Scene:

Waxing gibbous Moon approaches a wide double star

Look to the south-southwest 75-90 minutes after sunset on July 8.

- The Moon will be found hanging in the darkening twilight.
- People with good eyesight should be able to spot Alpha Librae Zubenelgenubi to the Moon's immediate left. Or the bright moonlight might totally obscure the star.
- Aim binoculars at the Moon. Zuben will be seen as being a double star with its dimmer component immediately to the upper right of the brighter star.

Zubenelgenubi? Practice saying it:
Zube - en - el - gen - ubi

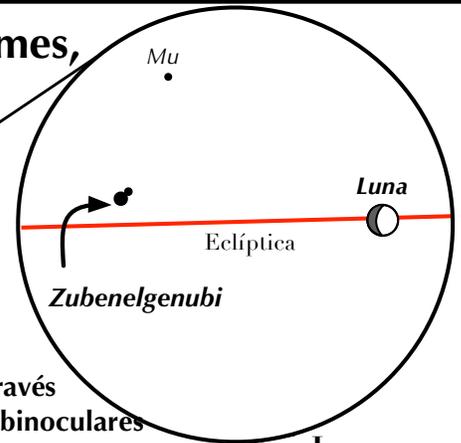
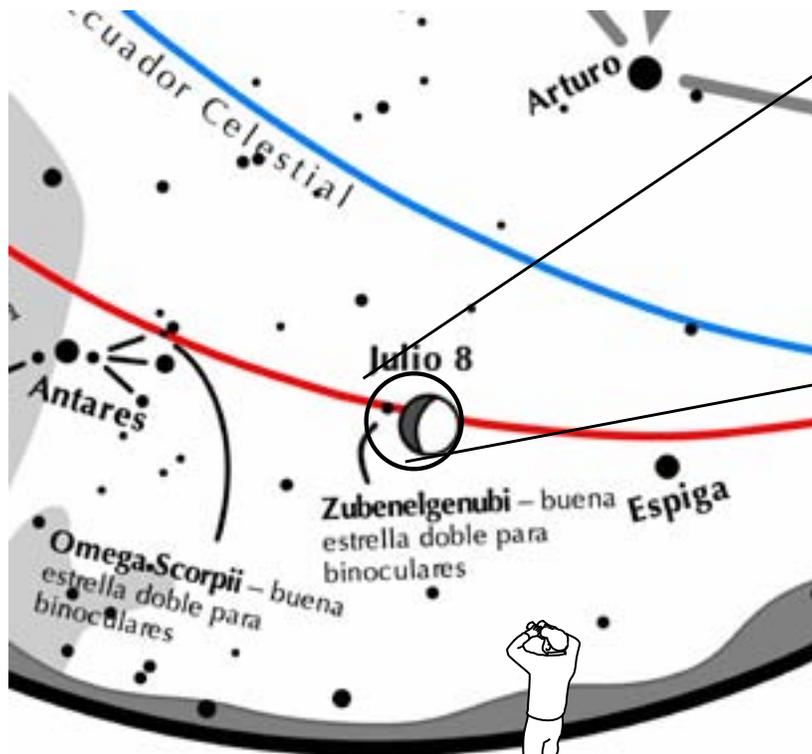
South-southwest
75-90 minutes after sunset
on July 8





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Si puedes observar un solo evento celestial este mes, considere este:



ver a través
10x50 binoculares

La escena:

Luna gibosa creciente se acerca a una amplia estrella doble

Mire hacia el sur-suroeste entre 75 y 90 minutos después de la puesta del sol el 8 de julio.

- La Luna se encontrará suspendida en el oscurecer del crepúsculo.
- Las personas con buena vista deberían poder detectar Alpha Librae, Zubenelgenubi, inmediatamente a la izquierda de la Luna. O la brillante luz de la luna podría oscurecer totalmente la estrella.
- Apunte los binoculares a la Luna. Zuben se verá como una estrella doble con su componente más tenue inmediatamente en la parte superior derecha de la estrella mas brillante.



Sur-suroeste
75-90 minutos después del
atardecer el 8 de julio.

Traducción al español por Dr. Salvador Aguirre

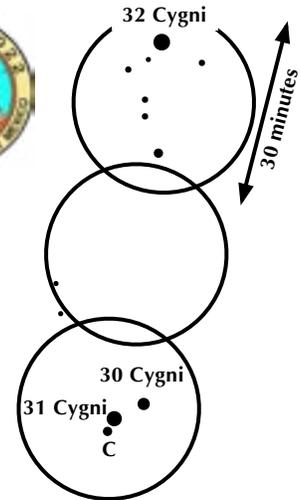
www.astroleague.org/outreach; Duplicación permitida y fomentada para toda distribución gratuita. Liga Astronómica



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Just in time for July 4th: The Patriotic Star

- Around this time of year, Cygnus rises high in the northeast.
- Draw an imaginary line from Deneb, its brightest star to Delta, the western star on the constellation's cross bar.
- About half way between Deneb and Delta lies an intriguing stellar smear.
- Binoculars reveal two groups of stars.



This Fourth of July, aim higher than the exploding fireworks to the "Patriotic Star." Can you see the red, white and blue?

Just in time for Independence Day is the sky's own "Patriotic Star." Actually, it is grouping of three stars, each being the brightest component of its own multiple system.

- The brightest partner, twinkling at mag. 3.8, is 31 Cygni (aka Omicron 1 Cygni).
- Six minutes to its northwest glows the 4.9 mag. 30 Cygni, while the dimmest member, "C," has a magnitude of 7.0.

Aim your scope at these three stars to make your own color estimation. You may agree with some observers that their advertised red, white, and blue colors may be a bit of a stretch. Slightly de-focus the trio to give small, round blurs instead of crisp points. Now can you distinguish color differences among these three very different stars?

Orangish-red 31 Cygni is classified as a super giant with a surface temperature of approximately 4000°F, about 2000°F cooler than our own sun. Incredibly, if placed within our own solar system, its radius bloats the star's surface beyond Mars! 30 Cygni is hotter at 8700°F, giving it a white appearance. Finally, "C" fires the hottest, possessing a temperature over 11000°F. If you look closely, it appears bluish.

The northern portion consists of 3.9 magnitude 32 Cygni, also called Omicron-2, set against five 7th and 8th magnitude field stars. Altogether they form a "micro-cygnus." The pretty flock of Cygnets points one degree south to the stellar family headed by the Patriotic Star, 31 Cygni.



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ALCON 2022

JULY 28 – 30 • EMBASSY SUITES HOTEL
1000 Woodward Place NE • Albuquerque New Mexico 87102

 For more information and ALCON registration, visit
alcon2022.astroleague.org

Hosted by the Albuquerque Astronomical Society • TAAS.org



Why ALCon?

Astronomy is often seen as being a solitary pursuit - but not always ...

Why, then, do many people make the effort to attend astronomy conferences and star parties, sometimes traveling great distances to do so? Why do many people devote several days of their limited vacation time attending these gatherings? Why do many of the same people do this year after year?

Could it be that the total experience gained at the eyepiece demands more than just what the eye sees during the moment? Could it be that it also needs an understanding of what is being seen? Could it be that it requires personally interacting with others who have had similar experiences?

At ALCon, discover and learn from experts in various fields
+ authors + magazine editors + research scientists + university professors + NASA mission specialists + astronauts + observers + sketchers + imagers

It all adds up to a larger sense of personal discovery.

Yes! ALCon!

<https://alcon2022.org>



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Another Look July, 2022

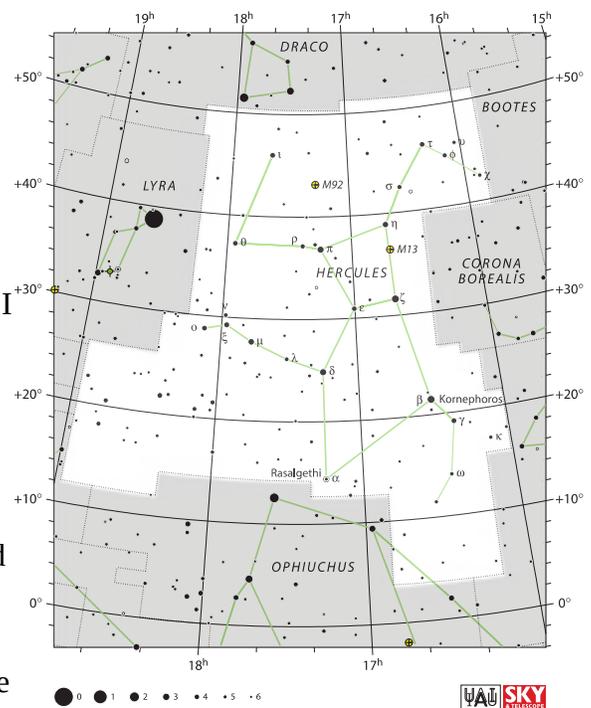
Buck Moon - Some refer to this moon as the Thunder moon, due to the summer storms in this month. Other names include the Hay moon, after the July hay harvest.

New Moon – July 28, 0955 PDT;

Full Moon – July 13, 1038 PDT

Some Native American tribes call it Salmon Moon and Raspberry Moon. In Celtic, this Moon was known as the Claiming Moon, Wyrth Moon, Herb Moon, and Mead Moon.

I once searched for Abell 2151, the Hercules Cluster. It is way off in a corner of Hercules almost in Serpens Caput. I remember it well. It was one of those objects that I could move the Horse to, look through the Telrad and have it in the eyepiece. I nicknamed it the String of Pearls because NGC 6040 and NGC 6041 formed a curving line with NGC 6039 and other fainter galaxies. I was mesmerised. I remember counting nearly a dozen galaxies around NGC's 6040-41 and I have read that there are over 200 galaxies in the field. Uranometria shows around 20 galaxies visible to any telescope that can reach 14th and 15th magnitude, more to add to the bucket list. The Cluster is part of the larger Hercules Super-cluster and the even bigger Hercules-Corona Great Wall, none of which I have ever studied. Maybe that's a good thing. It seems the experts are disputing whether the H-C Great Wall belongs with the other recognized GW's, though, at least one reference describes it as the largest structure in the universe. [Hercules Constellation: Stars, Myth, Facts, Location... Constellation Guide \(constellation-guide.com\)](#)



Not too far away from Abell 2151 is the Turtle Nebula, NGC 6210, an amorphous planetary a little brighter than 9th magnitude and not too far from Beta β Herculis. Beta's name is Kornephoros and is at the shoulder of Hercules and down from the keystone. Kornephoros is the brightest star in Hercules, a few tenths brighter than Rasalgethi, Alpha α Herculi and a decent triple star system that is tough to resolve.

M92, NGC 6341 and M13, NGC 6205 are closely matched cousins, though M13 gets all the print. They differ in magnitude by only a half, 6.3 and 5.8 and are almost the same classification, IV vs V. M92 is in the upper regions of the constellation between Hercules' legs, you will see a very sharp nucleus, while, well, you know how to find M13. Point your finder a third of the way down the right side of the keystone and there is the best globular in the north.

Up closer to the top of Hercules, actually his feet, is NGC 6229 a 9th magnitude globular that is apparently quite old and quite rich in metals. Its density class is not listed though its metallicity



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bimodality is designated as **GC(v)B** in the galaxy morphological classification. Not something I am competent to discuss. If you know, send an email to the editor or the chain and let us all know.

Very close to M92, about a degree north-east, is a small group of 14th magnitude galaxies, the NGC 6329 group. I remember seeing four galaxies with not much detail. If you have a big enough mirror and an eyepiece that gives you a degree field of view, you can add them to your life list.

The figure of Hercules as a kneeling man goes back thousands of years. The Babylonians associated the asterism with their own legendary heros, Gilgamesh, Nimrod and their sun-god Isdubar. Phoenicians identified it as the sea-god Melkarth and the Greeks from as early as 450 BC minted coins representing their demi-god Heraklee. Alexander the Great believed he was a direct descendant. In fact it is written that old Alex seemed to think he was his reincarnation. Funnily enough, though Hercules is the offspring of Zeus and the mortal Alceme, his name translates roughly as “glory of Hera”. Bet that ticked her off.

The famous keystone of Hercules is one of the most recognizable in the spring, summer and autumn skies and usually one of the first things I look for along with Lyra and Cygnus. Hercules has dozens of variable, double and multiple stars and star systems. One of the finest is Alpha α , a large orange giant with a companion of “emerald green”. (*Mary Proctor, “Evenings with the Stars”*) [“Evenings with the stars”.: Proctor. Mary: Amazon.com: Books](#)

Alpha is an interesting star. As its magnitude varies from 3rd magnitude to 4th magnitude, it pulsates, ie: its size varies also. For now, imagine it from the center of the solar system to the orbit of mars, but even more, it has an envelope that extends almost 1000 AU. Alpha’s temperature averages 2500 degrees Kelvin. Its density must be about the same as a hard vacuum. I wonder how far we could travel inside that star in our 100th generation starliner. (Do you remember a “Mote in God’s Eye”?)

https://en.wikipedia.org/wiki/Ramus_Pomifer#/media/File:Bode_cerberus.jpg



Ramus Pomifer, the latin for apple branch was a constellation between Hercules and Lyra. It was depicted in the form of a branch held in Hercules' left hand. The also obsolete constellation of [Cerberus](#) made up of much the same stars - became combined with it in later depictions, with the name “Cerberus et Ramus”.

Serpens Serpens held by Ophiuchus, as depicted in [Urania's Mirror](#) a set of constellation cards published in [London](#) c. 1825. Above the tail of the serpent is the now-obsolete

constellation [Taurus Poniatovii](#) while below it is

[Scutum](#)

<https://en.wikipedia.org/wiki/Serpens>

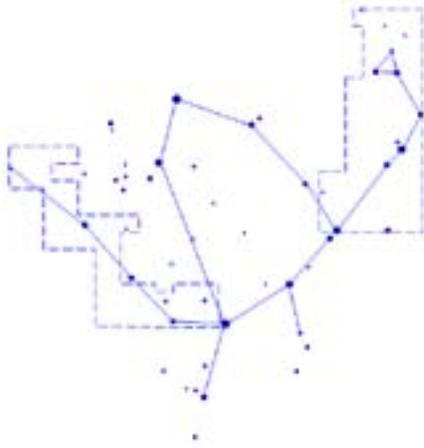
Ophiuchus is the odd shaped hexagon south of Hercules that holds some of the more interesting objects in the sky along with his brother constellations Serpens Cauda and Serpens Caput. The area has represented snakes or serpents or even maybe dragons since Babylonian time. The





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Greeks, though, put a pin in it. Generally Ophiuchus represents Aesculapius, (many variable spellings), mythologically a son of Apollo who learned how to bring back someone from the dead. Serpens is the snake that showed Aesculapius how to do it by bringing another snake to life by dropping herbs on it.



The story I remember from my Bullfinch's is that Aesculapius was raised by the Centaur Chiron, for whom, apparently we have the constellation of the centaur. It was Chiron who taught him the art of healing. It is said that Zeus killed him with a thunderbolt because he was afraid he would make all men immortal..

The name of the large constellation Ophiuchus means "serpent-bearer" in Greek. The ancient astronomer Ptolemy included *Ophiuchus* in his list of 48 constellations which he documented in the 2nd

(*Constellations except Zodiac, Northern and Southern - Vector stencils library*) century. (It used to be referred to as *Serpentarius*, which is Latin and has the same meaning.) It is one of the 88 modern constellations.

In Greek myth, *Ophiuchus* was said to depict the god Apollo wrestling the snake guarding the Oracle of Delphi. Although the myth changed many times over the years, it was always associated with a man wrestling a serpent.

Serpens has two Messier's M5 and M16. Ophiuchus has seven Messier's M9, M10, M12, M14, M19, M62 and M107. A happy hunting ground for you marathoners. [Pipe Nebula \(astrosurf.com\)](http://astrosurf.com)

There are also two Palomar Globulars Pal 15, really tough at 14th magnitude, and Pal 6, possible at 11.5 magnitude. The Palomar Cluster catalog would be a challenge for any experienced amateur with some decent equipment. They are just difficult to see. I can remember the first time I saw Pal 6, it was small and dim and very exciting. It is located down not too far from the galactic center amid all that munge of star clouds, clusters and dark nebula. As you're looking south, it is just below the Pipe Nebula, the biggest(?) dark nebula in the sky and holder of several Barnard numbers, Barnard 59, 65–67, and 78. Just up from the Pipe is my favorite dark nebula, the Snake B72. *By en:user:Friendlystar - English Wikipedia, CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=4986855>; https://en.wikipedia.org/wiki/Snake_Nebula#/media/File:Snake_Nebula.jpg*



If you decide to search for Pal 15, you will need a strong star chart like Uranometria to do the search. You will find it near the center of Ophiuchus, near M10 and M12. I believe I only saw a glimpse of it back then.

Hopefully when I can get some telescope time I can search for it again. If you find yourself intrigued, there are two more Palomar's close – Pal 5 at 12th magnitude and Pal 7 at 11th. Pal 7 is down in the left



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hand corner by Nu v where Ophiuchus and S. Cauda meet. Pal 5 is tougher, its up in S. Caput very close to M5. The Palomar cluster catalog can be found at <http://www.deep-sky.co.uk/observing/palglob/palglob.htm>.
Good luck and Good Hunting.

As you know this region of the sky is among the richest. The Milky Way, nebula, clusters, Barnard's and constellations abound. So let me return to a suggestion I made months ago: get a decent planisphere and look at the sky. Like some of you, I was also guilty of tunnel vision. Focusing on some faint and fuzzy while staring at my setting circles. If you can't point out the six stars that make up the body of Ophiuchus and the four stars that make up the head of Serpens Caput, you could use a refresher course on using your eyes.

Lets slip over to the "Cauda" side of Ophiuchus next and find Barnard's star; it's only six light years away and has the largest proper motion recorded. It's a red 9th magnitude star. Its history is sorta cool, E.E. Barnard. a great double star hunter noticed that his star had significant movement when he compared photo-plates twenty-two years apart back in 1916. Since then he (she, shim?) has been immortalized in the literature of Douglas Adams, Arthur C. Clark and others.

You will find Barnard's star close to Beta Ophiuchi and surrounded by lots of fun stuff. NGC 6572 is a bright planetary nebula of 8th magnitude. Very near is IC 4665 a very open star cluster. Barnard's star is between IC 4665 and Mel 186. If you thought 4665 was spare wait till you try to identify Mel 186. There is just a ton of stuff in this area, enjoy you star hopping.

Between M16 and Barnard's star, Aquila, Scutum and Serpens Cauda, is one of the richest square degrees of sky we have, laying there along the edge of the Milky Way. Look in from our solar system in the Perseus arm of our galaxy to the Sagittarius arm, next arm in. Then slip you telescope down the corner where Serpens meets Scutum, and there you have it... Open Cluster NGC 6611. If you put a nebular filter in your eyepiece you will pick up IC 4703, a strong star forming region. Burnham call this object the "Star Queen" nebula because he imagined a throne in the dark notch at the center of IC 4703. He had the virtue of using some big professional instruments in his career as well as access to Mt. Wilson and Palomar plates. Then came the Hubble. You won't see the pillars, they are the back of the Queen's throne, but you can imagine and it would be pretty awesome to see what one of these new hybrid instruments could do. I've inserted an image that should give you an idea of what to look for in



https://www.cloudynights.com/uploads/monthly_06_2018/post-276706-0-67698400-1530396168.jpg

your backyard telescope. The Horse did a great job especially with a nebular filter but nothing like we see you astrophotographers doing today. I recommend that you go to the OCA web site and look at this image. It is very well done though not attributed. [Emission nebula M16 \(Eagle Nebula\) in Serpens. - Orange County Astronomers \(ocastronomers.org\)](#) While in the region, there is Barnard Dark Nebula galore within just a few degrees of the Eagle. Look for B92 and B93 close at hand, B312, up by the Swan, B103, Lynds 443, B97, B95 and B314 nearer to M11 and up there north of Scutum and into Aquila is B111, B119, Lynds 557, 564, 582 and 617.



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2022 Julian StarFest®

Register now to attend the 2022 SDAA Julian StarFest! On August 26 & 27, 2022, the Julian StarFest will once again grace the dark skies of the Menghini Winery in Julian. This is a fantastic opportunity to set up your telescope at a nearby dark sky location. Come and meet or renew those friendships with other SDAA Members. JSF will also include many of the same activities as in the past:

- Free public star party on Saturday night, August 27
- Camping availability for tent and RV campers from August 26 to 28
- Woody's Mobile Observatory
- Astronomy games and crafts for kids
- Raffle for donated astronomy equipment on Saturday
- Optional behind the scenes tour of the world-famous Palomar Observatory on Saturday

JSF is fun way for members and non-members alike to share in the joy of astronomy. In addition, JSF attendees will also be able to visit the Menghini Winery and the nearby town of Julian, well known for its apple pies, gifts, specialty shops and hospitality.

For more information, please visit the JSF website at <https://www.julianstarfest.com/> or send questions to info@julianstarfest.com. Registration is now open on the SDAA website. We look forward to seeing you at the 2022 SDAA Julian StarFest!





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JSF Photos





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June 4th TDS site clean-up



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Have a great new piece of gear? Read an astronomy-related book that you think others should know about? How about a photograph of an SDAA Member in action? Or are you simply tired of seeing these Boxes in the Newsletter rather than something, well, interesting?

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NASA Night Sky Notes

July 2022



This article is distributed by NASA's Night Sky Network (NSN). The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Find Hercules and His Mighty Globular Clusters

David Prosper

Hercules is one of the standout heroes of Greek mythology, but his namesake constellation can be surprisingly hard to find - despite being one of the largest star patterns in our night skies! Once you find the stars of Hercules, look deeper; barely hidden in the space around his massive limbs and "Keystone" asterism are two beautiful globular star clusters: M13 and M92!

Since the constellation itself is relatively dim but bordered by brighter constellations, you can find the stars of Hercules by looking between the bright stars Vega and Arcturus. They are fairly easy to identify, and we have tips on how to do so in previous articles. Vega is the brightest star in the constellation Lyra and one of the three stars that make up the Summer Triangle (*June 2020: Summer Triangle Corner: Vega*). Arcturus is the brightest star in the constellation Boötes, and can be found by "arcing to Arcturus" from the handle of the Big Dipper (*May 2021: Virgo's Galactic Harvest*). You may be able to Hercules's "Keystone" asterism first; this distinct pattern of four stars is traditionally shown as the torso of the great hero, though some illustrators prefer marking the Keystone as the head of Hercules. What pattern do *you* see in the stars of Hercules?

Globular star clusters appear "fluffy," round, and dense with stars, similar to a dandelion gone to seed, in contrast to the more scattered and decentralized patterns of open clusters. Open clusters are generally made up of young stars that are gradually spreading apart and found inside our Milky Way galaxy, while globular clusters are ancient clusters of stars that are compact, billions of years old, bound to each other and orbit around our galaxy. Due to their considerable distance, globular clusters are usually only visible in telescopes, but one notable exception is M13, also known as the Great Cluster or Hercules Cluster. During very clear dark nights, skilled observers *may* be able to spot M13 without optical aid along the border of the Keystone, in between the stars Zeta and Eta Herculis - and a bit closer to Eta. Readily visible as a fuzzy "star" in binoculars, in telescopes M13 explodes with stars and can fill up an eyepiece view with its sparkling stars, measuring a little over half the diameter of a full Moon in appearance! When viewed through small telescopes, globular clusters can appear orblike and without discernable member stars, similar in appearance to the fuzzy comae of distant comets. That's why comet hunters Edmund Halley and Charles Messier discovered and then catalogued M13, in 1714 and 1764 respectively, marking this faint fuzzy as a "not-comet" so as to avoid future confusion.

While enjoying your view of M13, don't forget to also look for M92! This is another bright and bold globular cluster, and if M13 wasn't so spectacular, M92 would be known as the top celestial sight in Hercules. M92 also lies on the edge of naked-eye visibility, but again, binoculars and especially a telescope are needed to really make it "pop." Even though M92 and M13 appear fairly close together in the sky, in actuality they are rather far apart: M13's distance is estimated at about 25,000 light years from Earth, and M92's at approximately 27,000 light years distant. Since M13 and M92 appear so close together in our skies and relatively easy to spot, switching between these two clusters in your scope makes for excellent star-hopping practice. Can you observe any differences between these two ancient clusters of stars?

Globular clusters are closely studied by astronomers for hints about the formation of stars and galaxies. The clusters of Hercules have even been studied by NASA's space telescopes to reveal the secrets of their dense cores of hundreds of thousands of stars. Find their latest observations of globular clusters - and the universe - at nasa.gov.



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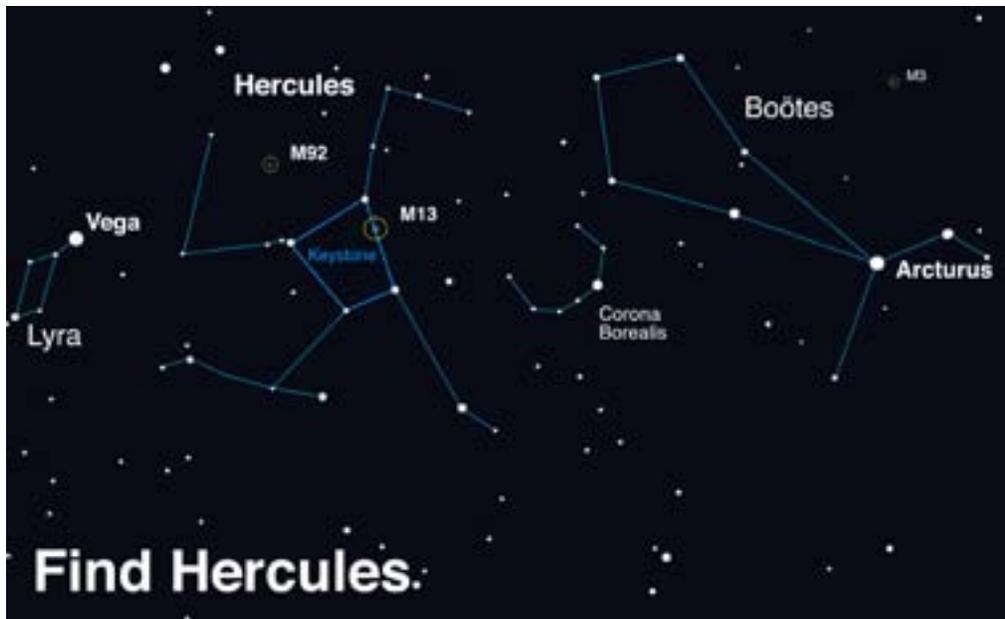
NASA Night Sky Notes

July 2022



Composite image of the dense starry core of M92 imaged in multiple wavelengths. While your own views of these globular clusters won't be nearly as crisp and detailed, you might be able to count some of its member stars. How far into their dense cores can you count individual stars? Credits: ESA/Hubble & NASA; Acknowledgment: Gilles Chapdelaine.

Source: <https://www.nasa.gov/feature/goddard/2017/messier-92>



Look up after sunset during summer months to find Hercules! Scan between Vega and Arcturus, near the distinct pattern of Corona Borealis. Once you find its stars, use binoculars or a telescope to hunt down the globular clusters M13 and M92. If you enjoy your views of these globular clusters, you're in luck - look for another great globular, M3, in the nearby constellation of Boötes. Image created with assistance from Stellarium: stellarium.org



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2022 TDS Star Party Schedule

Date	Type	Sunset	Astro. Twi.	Moonrise(set)	Illumination [†]	Notes
Jul-23	Public	7:53 PM	9:29 PM	2:22 AM	22%	
Jul-30	Member	7:48 PM	9:22 PM	(9:25 PM)	5%	S. delta Aquariids peak night of Jul 29-30 (ZHR ^{††} 16)
Aug-20	Public	7:27 PM	8:55 PM	1:01 AM	37%	Saturn at Opposition on Aug 14
Aug-27	Member	7:19 PM	8:45 PM	7:30 AM	0%	Mercury Greatest Eastern Elongation - Aug 27 (PM)
Sep-17	Public	6:51 PM	8:14 PM	11:40 PM	54%	Neptune at Opposition on Sep 16
Sep-24	Member	6:42 PM	8:04 PM	6:20 AM	2%	Jupiter at Opposition on Sep 26
Oct-15	Public	6:15 PM	7:37 PM	10:21 PM	71%	Mercury at Greatest Western Elongation - Oct 8 (AM)
Oct-22	Member	6:07 PM	7:29 PM	5:06 AM	8%	Orionids peak night of Oct 20-21 (ZHR ^{††} 20)
Nov-19	Public	4:45 PM	6:11 PM	2:50 AM	21%	Leonids peak night of Nov 17-18 (ZHR ^{††} 15)
Nov-26	Member	4:43 PM	6:09 PM	(7:31 PM)	12%	Thanksgiving Weekend
Dec-17	Public	4:44 PM	6:13 PM	1:34 AM	38%	Geminids peak night of Dec 13-14 (ZHR ^{††} 150)
Dec-24	Member	4:48 PM	6:16 PM	(6:21:PM)	3%	Ursids peak night of Dec 21-22 (ZHR ^{††} 10)

[†] Illumination at meridian crossing.

^{††} Published *zenithal hourly rate(s)* ZHR vary widely between sources.

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