San Diego Astronomy Association Celebrating Over 50 Years of Astronomical Outreach



August 2023

https://www.sdaa.org/ A Non-Profit Educational Association P.O. Box 23215, San Diego, CA 92193-3215

Next SDAA Business Meeting

August 8th at 7:00pm 10070 Willow Creek Rd San Diego, CA 92131 Via Zoom

Next Program Meeting August 16th at 7:00pm

Mission Trails Regional Park Visitor and Interpretive Center 1 Father Junipero Serra Trail

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Program Meeting August 16th

Topic: AISIG and imaging programs within SDAA Speaker: David Wood and others on AISIG



Past SDAA president and manager of SDAA's TARO Observatory, David Wood, is reinvigorating the imaging group within SDAA. He and others will give an introduction to this field that is becoming more accessible to members given advances in cameras and software.

The meeting will be online with Zoom.

https://sdaa.org/program-meeting/

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

Link to SDAA Merchandise Store <u>https://sdaa28.wildapricot.org/SDAA-Store</u>

Link to Outreach Calendar <u>https://calendar.google.com/calendar/embed?src=g-calendar@sdaa.org&ctz=America/Los_</u>





Register Now for 2023 Julian StarFest

Summer is heating up - and the 2023 Julian StarFest is fast approaching! Mark your calendars to attend the 2023 JSF. The event starts on Friday afternoon, August 11, 2023, and ends on Sunday morning, August 13, 2023.

Astronomical events:

The moon will be a waning crescent so will not interfere with imaging most of the night.

The sun is peaking at maximum and is showing a very active surface.

The Perseids meteor shower will be at its peak that weekend.

The Milky Way will be overhead and offering many nebulae for viewing and imaging.

To register, please visit the Julian StarFest web page: www.julianstarfest.com

This year, we will have door prizes donated by Celestron and by Woodland Hills Telescopes. A special "Thank You" to the Menghini Winery and all of our Sponsors and Donors. This year, JSF activities will include:

- Woody's Mobile Observatory viewing deep sky objects
- Observations of the sun
- Lectures by astronomers
- Guided laser constellation tour
- Raffle of astronomy Equipment, Grand Prize, Celestron 8" Star Sense Dobsonian.
- Astronomy Crafts for Kids
- Mount Laguna Observatory Tour
- Free Public Star Party
- Food vendors offering a variety of offerings

StarFest is one of the premier events in Southern California for astronomy. Julian has dark, steady, skies and at 4,300 feet in elevation, offers superb astronomical viewing. Each year many of the SDAA's 800 active members meet in August on the grounds of the Menghini Winery (think fine wine, fresh baked hot apple pie, and some of the best star viewing around). During the event we are typically joined by over 1000 guests who will attend the free public star party at 8PM on Saturday, August 12.

The San Diego Astronomy Association (SDAA) is a non-profit educational organization established and incorporated in 1963. The purpose of the SDAA is to further the education and enjoyment of its





members and the general public in the subjects of astronomy, space, and physical science. Please show your support for SDAA by registering now for JSF. All JSF proceeds will be used to fund SDAA activities.

To register, please visit the Julian StarFest web page: www.julianstarfest.com

For more information, please email us at info@julianstarfest.com

Special Thanks to the 2023 Julian StarFest Committee: Dan & Sandy Kiser, Arlene Smith, John Heglin, Bill Cecil









Mount Laguna Observatory



In the shadow of Palomar, many people are not aware of the other world class observatory located in our local mountains.

The Mount Laguna Observatory is operated by San Diego State University as the primary research, teaching, and training facility of its Department of Astronomy. It is operated under Special Use Permit from the United States Department of Agriculture Forest Service. Current institutional partners include the University North Carolina (UNC) and the University of Kansas (KU).

The Observatory is located forty-five miles east of downtown San Diego on the eastern edge of the Cleveland National Forest at an altitude of 6100 feet (1859 meters). Just to the east is the Anza-Borrego State Park, which is the largest state park in the nation. This remote location remains one of the darker major observatory sites in the continental United States.

Mount Laguna is part of the Southern California Coastal Range, and as such benefits from smooth laminar air flow directly off of the Pacific Ocean, which results in steady atmospheric conditions (or "seeing"). When combined with its dark skies, Mount Laguna Observatory remains one of the truly excellent astronomical sites remaining in North America.

The Observatory is home to several major research instruments:

- 50-inch (1.25-meter) Phillips Claud reflector with KU
- 40-inch (1.0-meter) reflector
- Clifford Smith 24-inch (0.6-meter) reflector
- "Evryscope" 20 x 2.4-inch (6.1 cm) refractor array with UNC

The Reginald Buller 21-inch (0.5-meter) visitors' telescope is used for instructional support and for special SDSU public outreach programs. This classic telescope has superb optics for visual astronomy. The Awona Harrington Visitors' Center, a five-bedroom apartment building, four-





bedroom dormitory, and large shop building are also located on site. Observatory support staff includes a resident astronomer, an engineer, and the observatory superintendent.

More information on the Mount Laguna Observatory can be found at <u>Department of Astronomy - San</u> <u>Diego State University (sdsu.edu)</u>

A special tour is also available on August 12, 2023, through the 2023 Julian StarFest. Please register for this tour by following the links at <u>Julian StarFest</u>





San Diego Astronomy Association Board of Directors Meeting

July 11, 2023 – Unapproved and subject to revision

1. Call to Order

The meeting was held via Zoom and was called to order at 7:04pm with the following board members in attendance: Dave Decker, President; Mike Chasin Treasurer; Gene Burch, Recording Secretary; Hiro Hakozaki, Director, Steve Myers, Primary Grid Reconstruction committee, Paul Krizak, Cruzen Observatory director, Bill Cecil, JSF coordinator.

2. Approval of Last Meeting Minutes

The June meeting minutes were approved.

3. Treasurers & Membership Report

The treasurer's report was approved. Mike reported that we now have checks from SDCCU and he's working on getting a credit card now. We have selected an audit committee and are working on a date that is agreeable to all. No updates on the counterfeit check. Since the fiscal year ended on June 30, Mike gave us a look at how the 2022/2023 budget compared to our actual expenses. Overall, it was a very good year for SDAA. The Board approved having Mike Chasin get a credit card from San Diego County Credit Union.

4. Standard Reports

a. <u>Site Maintenance Report:</u>

TDS Operations Committee Report for July 2023 Pagarigan/Myers/Kennedy

Items Completed:

• Updated TDS Site Orientation draft completed. To be submitted to TDS committee members via TDS Group Google Drive for comments/revisions.

Work in progress items:

• Members fine-tuning method of communication for both routine meetings and spontaneous updates since we go to TDS at different times

- TDS hit list items being prioritized (Document uploaded to TDS Group Google Drive)
- TDS Operations Manual ongoing work-in-progress (long term)

Upcoming Items:

• Pagarigan to host small group late July, early August at TDS for colleagues with zero to little astronomy experience. Will conduct a site orientation at same time to gain feedback for newly revised doc. Ideal goal is to gain ~5 more SDAA contributing members.

b. <u>Observatory:</u>

Observatory and scope are in excellent condition. Weather has improved. We are having some great evening star parties. Scope is also utilized by hosts for personnel observing.

Steve provided an update, saying that last weekend there were some problems with the encoders on the LIPP and that they think they diagnosed the problem as a bad connector. He and Ed removed the connector and used wire nuts to re-connect the cable and it seemed to work fine. If it continues to work well, they'll make the connection permanent. They also cleaned up some of the old wiring during the process.



c. Loaner Scope Report:

Four loaner scopes are out: SDAA-004 Meade LX-90; SDAA-023 Orion XT10; SDAA-026; Zhumell; SDAA-027 beginner astrophotography rig. SDAA-028 Bushnell Voyager has been returned. Weather has improved and the four loaner scopes that are out have been out since February, so I'll be collecting them in July.

I need to get some photos of the new Orion XT8 loaner, but it's otherwise ready to loan out. The 8" astrograph and CGX mount are still pending integration and testing for the loaner program. It's in the storage container, I just need to find time to get to TDS and work on it.

Paul provided an update and said that all the scopes have been returned. We have a donated CG5 that we'll swap out with the one in SDAA27. He also picked up 4 12v/2amp power supplies that should come in handy. The 8" Astrograph is looking good but he needs to buy an auto-guider for it.

d. <u>Private Pad Report:</u>

There are no updates since last month. Oddly, there haven't even been inquiries in about 2 months now. This is normally the busy time of year with people asking about pads.

e. <u>Program Meetings Report:</u>

June hybrid program meeting in-person and Zoom was a big success thanks to David Wood and Gracie. There were 33 people at MTRP and 18 on the Zoom. Tim Thompson is a great speaker and would make a great banquet speaker if he is available. LA Astro Society uses the same method as SDAA to figure out banquet dates. Gene reported there have been 104 views of the June program on our YouTube channel.

f. AISIG Report:

First meeting was held on Wednesday the 28th. Thirty-five members attended the Zoom meeting. The primary goal was to establish the interest level (a lot) and get an idea of possible topics. A good portion of the attendees are very much newbies and there is great interest in having an imaging "boot camp". Gene said there have been 80 views of the AISIG meeting on our YouTube channel.

g. <u>Newsletter Report:</u>

All looks great – Thanks, Andrea!

h. <u>Website Report:</u>

A few pages on the website have information that is out of date now that pandemic restrictions are over. Please send any corrected text. Most of the problems with the new email addresses were fixed, but I am still concerned that board members and committee chairs will not receive sdaa.org emails if it goes to an email they do not check often. Anyone not checking the email at least daily should set up forwarding to an email that they do check regularly.

i. <u>Social Media:</u>

No report



j. <u>Outreach Report:</u>

Only three events survived the June Gloom last month, the two Sycamore Canyon (East & West) events and K.Q. Ranch. This might be an all-time record or canceled outreach events. The two Sycamore Canyon(s) were slightly inland, taking the dreaded coastal marine layer a longer time to move in, which gave us enough time to successfully complete these two events. As for K.Q. Ranch being 4,500' above sea level, the overcast just couldn't climb that high in June. All the other events were canceled because of the typical SoCal night and morning low clouds.

As for July, Stars-in-the-Park was a tremendous success with 300 people visiting the telescopes. We attribute this to the two monthly shows at the Fleet Science Center's Planetarium, plus there were a lot of vacationers in the mix. Kumeyaay Lake Campground was maxed out with campers who stopped by to view the night sky through SDAA telescopes. At Oakoasis County Park, there were 17 SDAA members with numerous telescopes of all types sharing the night sky with the general public. It looks like July will finally give us clear warm summer skies. Dave D noted that our numbers are down due to the June Gloom and the schools being out for summer.

2023	June	YTD		
Events Completed	3	38		
Events Canceled	5	29		
Total Attendance	92	3151		

Here are the totals for the month of June:

k. <u>TARO Report:</u>

We are close to reviving operations. The new control computer has been configured and tested. The Sky Alert weather module was found to be faulty. It was sent back to Interactive Astronomy for repair and calibration. After inspecting the sensors, the entire sensor unit was replaced with a new sensor at a substantially reduced cost. The new sensor should be back in service by the weekend of 7/15 at which point we can begin initial systems testing.

I. <u>Cruzen Report:</u>

Only one pending facilities issue, and it's minor -- I need to adjust the counterweights on the Schaefer mount to add a little bias, to avoid tracking/gear lash problems when pointing at certain areas of the sky. I will be sending out an invitation to all eligible SDAA members (1-year full contributing membership) for the August Cruzen training session. Based on the rate of reservation/usage from our "guinea pigs" I feel it's safe to "go big" and get as many members trained up and certified as we can during the August session. After the training session Cruzen will be officially open for business!

Amazing work Paul and Bee!

m. <u>Merchandise Report:</u>

A few more hats and license plate frames were sold. Gene ordered more hats and beanies and hopefully they'll be ready before JSF.

n. <u>Astronomical League Report:</u>

The weather is improving... looking for an astro project? Something easy and simple, or challenging with great personal reward? Try one of these: https://www.astroleague.org/alphabeticobserving/



o. <u>JSF Report:</u>

-The plaque honoring the Menghini's is complete.

-Anticipate TeleVue donation pending their receiving request on letterhead.

-Finalized Diamond Restroom contract.

-Security is a question. Last year's organization backed out Sunday. Do you anticipate needing one?

-County permit appears to be complete. Will deliver on site August 11.

-Will need to order more merchandise for JSF.

-Will be meeting with Sandy and Dan to go over program, prepare packets, merchandise order, etc.

-Still hoping to fill open volunteer spaces and prepare assignments.

Positions	Date	Openings	Duration
Event Set-up	August 10	4	9 am to 2 pm
Camper Parking	August 11	5	2 pm to 6 pm
Camper Parking	August 12	3	10 am to 2 pm
Mt Laguna Coordination	August 12	2	8 am to 11 am
JSF Merchandise Booth	August 11	5	10 am to 2 pm / 2 pm to 10 pm
JSF Merchandise Booth	August 12	5	10 am to 2 pm / 2 pm to 10 pm
Raffle Drawing	August 12	2	6 pm to 7 pm
Star Party Visitor Parking	August 12	6	6 pm to 10 pm
White Light Prevention	August 12	2	6 pm to 10 pm
Break Down	August 13	8	8 am to 10 am

p. <u>Primary Grid Reconstruction Report:</u>

Several attempts have been made to reach out to the electrical engineer that had been helping us develop the grid design and permit processes. I have had no response to any of my attempts. Subsequently, I have contacted a former VP of Morrow Meadows corporation who is familiar with the site and our needs. He is hopeful he can help us find a qualified engineer to get us moving on the project.

5. Old Business:

6.

а.	By-Laws Clarification – we will hold a meeting on August 8 th at 6:00pm via Zoom to discuss and announce the updated language. Mike will send out a notice to all members on or about August 1 st .	Decker
b.	Banquet/Handlery Date & Contract – we decided to hold next year's banquet on January 27 th and Mike will confirm the reservation and make the deposit.	Chasin
с.	Other Old Business – None	Decker
New Bu	usiness:	
a.	Year End review of Budget – see Treasurer's report.	Chasin

b. Other New Business - None





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ASTRONOMICAL LEAGUE Double Star Activity





Otros Soles: Beta Capricorni

Cómo encontrar Beta Capricorni en una tarde de Agosto

Encuentra al brillante Altair, el miembro del sureste del Triángulo de Verano. Luego ubique el asterismo "Tetera" de Sagitario. Úsalos para formar un triángulo rectángulo con Beta Capricorni como vértice del ángulo recto.

Beta Capricorni A-B separación: 207 sec A magnitud: 3.2

B magnitud: 6.1 PA: 267° A & B color: naranja, blanca

Buena estrella doble para binoculares! Ampliación sugerida: >10x, Apertura sugerida: >50 mm



If you can see only one celestial event this August, see this one.



The full occultation event on Aug. 24 of Antares by the moon occurs for the central part of the US. Both coasts will not see the complete event. For disappearance and reappearance times in your area, visit the International Occultation Timing Association webpage:

http://lunar-occultations.com/iota/bstar/0824zc2366.htm



Start looking in the southwest shortly after sunset on August 24. Watch the moon slowly approach Antares, then suddenly block it. Binoculars will give better view.



Occultations demonstrate the moon's eastward orbital motion as Earth's rotation causes it to move in a westward arc across the night sky.



Another Look August 2023. August's Full Moon is on the first and is traditionally called the Sturgeon Moon. Other names include the Green Corn Moon, Barley Moon, Fruit Moon, and Grain Moon. This year, it is also a Super moon. Other Native American names include the Black Cherries Moon, Flying Up Moon, Mountain Shadows Moon and Ricing Moon. Two weeks after on August 16 is the New Moon, a Micro Moon. There is a grazing occultation of Antares on August 24. On August 31 is the second Full Moon of August, making it a Blue Moon. As with the previous Full Moon, it is also a <u>Super moon</u>. In French - Pleine Lune D'août, In German - Vollmond im August and in Spanish – Luna Llena de Agosto. For years, I would go up to the Grandview campground in the White Mountains outside Bristlecone Pines Forest for the Perseid's. This year they peak on August 12-13, close to the new moon and on a weekend. Hunor Find someplace dark, they're a can't miss. ipolt Franz Hercules-the Kneeling One, 6207 also the Phantom, while Aratus wrote of an earlier time where: Ruticilus A2162 ...like toiling man, revolves A form. Of it can no one clearly speak. Abell 39 Nor to what toil he is attached but, simply, Kneeler they call him. Labouring on his knees Like one who sinks he seems DoDr8 ornephoro And his right foot is planted on the twisting Serpent's head. Aratus "Phainomena" Near to the Dragon's head, in toil-spent posture, asalget Revolves a phantom, whose name none can tell, 100 Nor what he labours at, they call him simply The Man upon his knees, his knees seem bent In desperate struggle, while from his shoulders His hands are high uplifted and outspread As far as he can stretch, his right foot's sole Is planted on the crest of the coiled Dragon. 18 (Aratus) 17 Known only as the Kneeling Man to the ancient Greeks, his name was Engonasi. He was depicted



as worn and exhausted from his battles and his tasks. Aratus also said "no one knows his name or what he labors at".

Complicating everything and telescoping history, our images show Hercules holding a branch of the Golden Apples of the Hesperides (Oranges?) with Cerberus entwined in its branches.

Centuries before, along the Euphrates, Hercules and Draco were known as Izhdubar, the sun god and Tiamat the dragon. This image certainly led to the Greek's Hercules and the Lernaean Hydra. These same Euphatians saw Izhdubar as he moved through the twelve zodiacal constellations over the course of the year, perhaps the first inkling of his twelve labors, later adopted by the Greeks. The Phoenicians in the same way, who were influenced by ideas of religion and what we would probably think of as astrology, attributed divinity to the sun, moon, and stars, and regarded them as the sole causes of the production and

destruction of all things. The sun, under the name of Hercules, was their highest divinity.

For those of you familiar with your ancient poetry, Izhdubar may be more familiarly translated to either Nimrod or Gilgamesh.

Consistent throughout the centuries, this Kneeling Man asterism has had its stars borrowed by the Arabs for their flocks and the pasture where they dwelt and by the Chinese for a marketplace and a seat for their Emperor.

We can thank Hevelius for Cerberus and Ramus Pomifer, two obsolete constellations held in Hercules' right hand by Senex and in his left hand in the more familiar Bayer,



Stars to look for include alpha α , Rasalgethi, an orangish blue double. Beta β , Komephoros, is 2ndmagnitude and called pale yellow or even golden red.

Kappa κ has been pointed out by Webb and in the Bedford Catalogue as tawny and garnet, with a combined magnitude of about 5. There is a third companion for your bigger telescopes. I think Delta δ is worth looking at also. It is an obvious double described by Smyth as greenish white and grape red. It is also a possible five star system.

In addition to a number of Gliese systems in Hercules, systems that are multiple and quite close, Hercules has at this time 15 planetary systems. Some are named: Franz- Hat-P-14, Hunor- Hat-P-2, Irena- Wasp-38, ω Herculis- Cujam- HR 6117, β herculis- Kornephoros- HR 6148, λ herculis-Maasym-HR 6526, κ herculis- Marsic- HR 6008, α 1 herculis- Rasalgethi- HR 6406, δ herculis- Sarin- HR 6410 and Ogma HD 149026.

Paraphrasing Scott Houston, Winter bring us scores of open clusters, Autumn planetaries and spring

galaxies, but Summer is globular cluster time. The chart with the golden stars was based on the mid-July sky about 9:00 pm. Using just your eyes, binoculars or your short focus Dob, you can see from north to south M92, M13 in Hercules; M12, M10, and M107 in Ophiuchus; M80 and M4 in Scorpius.

Then it is easy to find M5 in Serpens and M14, M19 and M62 in Ophiuchus. There is 9th magnitude NGC 6229 at Hercules' foot and 11th magnitude NGC 6426 in Ophiuchus. There are at least a half dozen more, brighter than 10th magnitude and more for your telescope.

Lastly, we do not want to forget our awesome Palomar Globular's. Pal 14 at 15th magnitude and Pal 15 at 14th magnitude.



https://ocastronomers.org/wp-content/ uploads/2019/01/m107.jpg https://ocastronomers.org/wp-content/ uploads/2019/01/m012.jpg As we sated our appetite for Globular Clusters, now let's stretch our know-how and look or some Open Clusters. This was the first time I came across a Dolidze-Dzimselejsvili



open cluster, though I did find references to two Dolidze clusters. One in Ophiuchus and one in Cygnus. We'll look for Dolidze 9 in Cygnus in a few months.

Madona V. Dolidze was a Russian astronomer from the Republic of Georgia who compiled a catalog of open clusters. He was later joined by G.N. Dzimselejsvili and together compiled the catalog of eleven open cluster bespoken to their name.

M107, M12 and M92, John Sanford OCA

Hercules has five DoDz clusters, most with less than a dozen stars and all with magnitudes between 8 and 10 or 11. Also, most are close to a half degree in size.

Near Nu v is DoDz9. The DoDz Catalog compiled by Paul Markov back in 2001,

https://astrobuysell.com/paul/DoDzClusters.htm,

is a little different from the AstroLeague's, if you would like to compare.

https://cfas.org/data/uploads/astronomy-ebooks/openclusters_manual.pdf.



DoDz7 is near Rasalgethi, alpha α and is very sparse.

DoDz8 is near Sarin delta δ , is also very sparse, but listed at 14" and 8th magnitude. Those specs should make it easier to identify. The last

two DoDz's in Hercules are up at the top right of the keystone, between M13 and eta η herculis.

DoDz5 and 6 are also sparse, less than a dozen stars but easily visible at 9th+ magnitude.

All the DoDz images can be found on flckr by Dan Crowson.

One of the fellows at Cloudynights, Jef De Wit did drawings which you can find at:

https://www.cloudynights.com/topic/483527-all-the-dolidze-dzimselejsvili-clusters/ One final note about DoDz's is that there is some doubt all of the members of each cluster are actually gravitationally bound together. Sigh.

One source has sixty-six deep sky objects 13th magnitude and brighter that we can find in Hercules. It also has an additional thirteen in the 14th magnitude range. Burnham lists over one hundred and fifty double and multiple stars, nearly one hundred variable stars, three planetary nebula, 3 globular clusters and seven galaxies. There are seven Abell galaxy clusters associated with Hercules, and the Hercules – Corona Great Wall, five within the constellation boundaries. Any way we choose to look, Hercules is a constellation that could easily take years to explore and study in detail.







Abell 39 is over by Corona. It's almost 13th magnitude, maybe a little fainter, with a 15th magnitude white dwarf central star. It is the only Abell planetary in Hercules, so I thought it was worth a mention. It's big, 3 min x 3 min and should be visible with an OIII filter. **Peter Goodhew, Flickr**

NGC 6210 is a bright 9th magnitude planetary of 5 min x 5 min. on a line between beta β and δ delta. Carsten Dosche https://www.astrobin.com/186371/2q=ngc 6210

NGC 4593 is also bright at 10th magnitude and 3 min x 3 min.

NGC 6058 is over by Abell 2197, its a 4 min x 4 min and 13th magnitude.



The last planetary is Hu 2-1, a smallish 13th magnitude planetary over by 110 Her, right in the middle of the apple tree. Hu is named for Milt Humason, a mule skinner who carried supplies up to the Mt. Wilson site when it was being built and then stuck around and became an assistant. He had to have been quite a guy, someone with whom I would have liked to have had a cup of coffee.

Hercules has six galaxies in the 11th magnitude range that are worth while searching for.

They are NGC's 6166 - elliptical, 6181 – spiral barred, 6207 – spiral, <u>http://www.astrosurf.com/mcianci/ngc6207.html</u>., 6482 – elliptical,

http://server1.sky-map.org/starviewobject_type=2&obj ect_id=26h49&object_name=NGC+6482&locale=EN 6487 – elliptical and 6548 – spiral barred. http://www.kopernik.org/images/archive/n6548.htm None of them are too big, in the 2 to 3 minute range. Amateur images are few.

There are five Abell galaxy clusters of



note in Hercules, down his flank from his knee to his club. Abell's 2197 and 2199 are a pair, a favorite target for astrophographers, anchored by N6160 and N6163, 11th magnitude, the area contains several hundred galaxies many of which will be visible in

your 12" telescope.Abell 2151Abell 2151 is the Hercules super cluster. A2151 has severalhundred galaxies, but all faint. Probably deep sky images are thebest bet. A2151 is anchored by 14th magnitude NGC 6041.

http://www.astronet.ru/db/msg/1222791

Just below are A2152 and A2147.

https://stellarscenes.net/object_e/abell2152.htmWithin the area of a couple of full moons are hundreds of galaxies, all faint. There will be thousands once Webb get a bead on them.

A2152 and A2147

Dark Skys Dave Phelps







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SDAA Editorial Staff

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NASA Night Sky Notes

August 2023



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!

Super Blue Sturgeon Moon Vivian White

On August 1st, catch a **full Moon** rising in the east just 30 minutes after sunset. We are seeing the entire sunlit side of the Moon as it is nearly (but not quite) in line with the Sun and Earth. The *Farmers' Almanac* calls this month's Moon the "Sturgeon Moon", for the time of year when this giant fish was once abundant in the Great Lakes. Cultures around the world give full Moons special names, often related to growing seasons or celebrations.

As the Moon rises later and later each night, the bright sunlit part appears to get smaller or "wane" - we call this a waning **gibbous Moon**. About a week later, on August 8th, we see only one half of the Moon alight. At this phase, the Moon rises around midnight and sets around noon. Have you ever seen the Moon in the daytime? You may notice this phase towards the southwest in the morning sky. Hold up a ball or egg beside it and see how the Sun lights up the same part.

By August 16th, the Moon has gone through its crescent phase and is now only showing its dark side towards the Earth. Did you know the **dark side** and the **far side** of the Moon are different? The Moon always shows the same face towards Earth due to the gravitational pull of Earth, so the far side of the Moon was only viewed by humans for the first time in 1968 with the Apollo 8 mission. However, the dark side is pointed at us almost all the time. As the Moon orbits the Earth, the sunlit side changes slowly until the full dark side is facing us during a **new Moon**. When the Moon is just a small crescent, you can sometimes even see the light of an **Earthshine** reflecting off Earth and lighting up the dark side of the Moon faintly.

Then as the Moon reappears, making a waxing (or growing) **crescent Moon**, best seen in the afternoons. By the time it reaches the first quarter on August 24th, we see the other half of the Moon lit up. At this point, the Moon passes through Earth's orbit and marks the spot where the Earth was just 3 hours prior. It takes the Earth about 3 hours to move the distance between the Moon and Earth.

The Moon on August 30th is referred to as a blue moon. **Blue moons** are not actually blue in color of course; it refers to the second full Moon in any month. Since it takes 29.5 days to complete the cycle from full to new and back to full, most months will see only one. But occasionally, you'll fit two into one month, hence the phrase "once in a blue moon." We see a blue moon about once every 3 years on average - next in May 2026. In addition, this full Moon appears larger in the sky than any other full Moon this year - an unofficial **supermoon**. A supermoon appears larger than average because it is closer in its slightly elliptical orbit. The difference in apparent size between the smallest and largest full Moon is about the size difference between a quarter and a nickel. Even at its largest, you can always cover the whole Moon with your pinky extended at arm's length.

Follow the Moon with us this month and keep a Moon journal if you like - you may be surprised what you discover! <u>moon.nasa.gov/moon-observation</u>



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Image of waning crescent Moon shown next to a ball on a stick that is lit by the Sun on the same side as the Moon, with trees and a blue sky in the background. Try this with an egg or any round object when you see the Moon during the day! Credit: Vivian White



Earthshine as seen from the International Space Station with the sun just set - Astronaut Photograph ISS028-E-20073 was taken on July 31, 2011, and is provided by the ISS Crew Earth Observations Facility and the Earth Science and Remote Sensing Unit, Johnson Space Center



Date	Туре	Sunset	Astro. Twi.	Moonrise(set)	Closing	Illum. [†]	Hosts
8/12/2023	Public	7:36 pm	9:06 PM	3:26 AM	11:00 PM	12.2%	Ed Rumsey
8/19/2023	Member	7:29 PM	8:57 PM	(9:23 PM)	10:30 PM	10.9%	
9/9/2023	Public	7:02 PM	8:26 PM	2:17 AM	10:00 PM	24.5%	Joe Fox (need a trainer)
9/16/2023	Member	6:53 PM	8:16 PM	(7:52 PM)	10:00 PM	3.0%	
10/7/2023	Public	6:25 PM	7:47 PM	1:07 AM	9:30 PM	40.2%	Paul Krizak
10/14/2023	Member	6:16 PM	7:38 PM	(6:22 PM)	9:30 PM	0.0%	Igor von Nyssen
11/4/2023	Public	5:55 PM	7:18 PM	11:54 PM	9:00 PM	57.8%	
11/11/2023	Member	4:49 PM	6:14 PM	5:34 AM	8:00 PM	2.8%	
12/9/2023	Member	4:42 PM	6:10 PM	4:22 AM	8:00 PM	12.0%	
12/16/2023	Public	4:44 PM	6:12 PM	(8:54 PM)	8:00 PM	20.1%	

2023 TDS Star Party Schedule

Illumination at meridian crossing.

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