

San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



December 2023

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

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

Next SDAA Business Meeting

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

Next Program Meeting

Annual Banquet
January 27th

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Published Monthly by the

San Diego Astronomy Association

Incorporated in California in 1963

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Newsletter Deadline

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

January 27, 2024 SDAA Banquet

Topic: “New Eyes – New Universe” - the celestial surprises of the James Webb Space Telescope

Speaker: Steve Murray

Steve is a graduate of the University of Wisconsin-Madison with a PhD in Industrial and Systems Engineering. He's currently a freelance science writer and NASA/JPL Solar System Ambassador, following careers in naval aviation at MCAS Miramar, human performance research at Point Loma, and teaching at the University of San Diego. Steve has been a space enthusiast his entire life and counts several astronauts as friends. Through the years, he's also kept an eye on the skies - literally - as an amateur astronomer. Steve has been to Iceland and Alaska in search of the aurora borealis, and to Chile and France to visit some of the world's biggest telescopes.



Handlery Hotel on Saturday, January 27, 2024. The tentative schedule of events is as follows:

5-6pm - Self-hosted cocktail hour

6-7pm - Buffet dinner and club annual meeting

7-8pm - Guest speaker

8-9:30 - Auction and raffle

Banquet tickets will be \$85.

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

Link to Outreach Calendar <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 *November 14, 2023* – Unapproved and subject to revision

1. Call to Order

The meeting was held via Zoom and was called to order at 7:09pm with the following board members in attendance: Dave Decker, President; Kin Searcy, Vice President; Mike Chasin, Treasurer; Gene Burch, Recording Secretary; Alicia Linder, Corresponding Secretary; Hiro Hakozaki, Director; Gracie Schutze, Director; Bee Pagarigan, Director; Steve Myers, TDS site maintenance committee.

2. Approval of Last Meeting Minutes

The October meeting minutes were approved.

3. Treasurers & Membership Report

The October Treasurer's report was approved. Mike said the budget is doing well and reported the following:

- FY 2022-2023 Federal, State taxes, and Registry of Trusts filed, property taxes paid (\$11)
- Raffle reports for 2022 and 2023 filed, requested permit for 2024
- \$1 transferred to CFG Bank high yield savings, more next month
- Bills paid to Ketcham for bathroom roof repairs (\$1,683)
- Reimbursed Burch for merchandise order (\$1,260), Myers for bathroom roof supplies (\$914), Krizak for loaner scope repairs (\$64)

4. Standard Reports

a. Site Maintenance Report:

The bathroom roof at TDS was repaired and many thanks to Steve for coordinating the work! Bee and Steve reported that both the bathroom and the Lipp/Warming room buildings need inspection and probably repair to the siding and possibly the framing in the Lipp/Warming room. The main concern is the condition of the Warming room wall structure since it carries a considerable amount of weight when the Observatory roof rolls back. Steve will get bids on both. We also discussed the need to replace the patio cover and agreed this should be done soon as well.

b. Observatory:

The observatory is in excellent condition, the weather has been fantastic and we are seeing more activity at the star parties. November 4th, the UCSD Astronomy & Society of Physics clubs (60±) were in attendance. We also had a large number of general public visitors (10-15). The students were exceptional, appreciative, and respectful. Special thanks to David Wood (TARO), Kin Searcy & Bob Roth (co-hosts), Paul Krizak (Cruzen), Jim Traweek (8" D&G), and 27 members that loaned their private pads.

Gene, Hiro and other board members in attendance. I anticipate that the students will want to return next year. The Board of Directors should digest the impacts of this nontraditional usage of the TDS property – no need to make a decision at this time. I am conflicted – a lot of fun, target audience, but a lot of work. Kudos to Ed and all those who made the UCSD visit a success.



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c. Loaner Scope Report:

Three scopes currently out (SDAA-026, SDAA-028, SDAA-033).

SDAA-027 is back in business with an upgraded CG-5 mount from Dave Decker, and a new C6-N optical tube with upgraded focuser, donated by Mike John.

SDAA-033 (Orion XT10) and SDAA-034 (Coronado PST) added to the loaner fleet. Both were from the Bill Neis estate. Website updated with new items.

Some nice eyepieces from the Bill Neis estate were added to the loaner fleet eyepiece cases (40mm 2" Plossl, 40mm 1.25" Plossl, 20mm Meade SWA).

The Bill Neis estate items also included a Canon EOS T-adapter, which will be used for SDAA-032. A 1.25" T-adapter was added to SDAA-027.

I'm still watching for suitable donations to avoid having to spend club funds to get SDAA-032 ready to loan out. If anybody has a line on a compact all-in-one guidescope+camera (e.g. Orion Magnificent Mini autoguider) that is a significant chunk of what is needed. Also going to need T-rings and/or 2" bayonet mounts for Nikon bodies. A QHY PoleMaster would be superb. If any of these come up in possible donations, or if any members have a line on discounted/used parts, please let me know.

Great job Paul on the Loaner Scope program!

d. Private Pad Report:

We currently have 7 unleased pads and 14 people on the waiting list (several for quite a while and 1 looking to change pads). It is looking like I'm going to be able to lease 2, maybe 3 later this month. There is still reluctance for new lessee's until we have a formal policy regarding how to get electricity rewired on the pads after the grid reconstruction.

We discussed how to handle returned pads that have had significant improvements made to them, such as observatories. There is also the question of how to handle returned pads that need clean-up or repair, perhaps we require a deposit on newly leased pads? We probably need to re-write the Pad Lease Agreement to address these issues.

e. Program Meetings Report:

Wednesday's Program Meeting is the last meeting for 2023. It will be in-person at MTRP as well as via Zoom. This meeting will be the beloved show-and-tell that SDAA calls "Gadget Night." I tried to have a virtual gadget night but it was a flop. Now that we can be live, please bring your neat toys, clever solutions, and astro-crafts to show off at the meeting.

Banquet Speaker update: Our scheduled speaker, Bill Ochs, has had to cancel. Our speaker will now be Steve Murray and his topic will be how the James Webb Space Telescope has affected science. We also have a speaker lined up for February.



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Kin will present the proposed new Board members at the November Monthly Membership Meeting and will solicit nominations from the floor:

Kin Searcy stepping down as Vice President, Bee Pagarigan was appointed by President Decker
Alicia Linder stepping down as Corresponding Secretary, David Wood was appointed by President Decker
Gene Burch running as Recording Secretary
Mike Chasin running as Treasurer
Director's running are Steve Meyers, Kin Searcy, Gracie Schutze, Hiro Hakozaki

f. AISIG Report:

The October Zoom meeting had a small turnout which we suspect was because of confusion in the scheduling. Those that joined the meeting were introduced to TARO, how it's works and how to request data. Since AISIG will not have any scheduled meetings until January I'll send out an unofficial request for meeting topics via the AISIG Groups I.O page.

g. Newsletter Report:

All looks great – Thanks, Andrea!

h. Website Report:

A web page is being set up for the Lucas Scholarships: <https://sdaa.org/the-lucas-scholarships/>. I need links to where a student can apply for them.

i. Social Media:

No report

j. Outreach Report:

October started out with the usual Stars-in-the-Park in support of the Fleet Science Center's 'The Sky Tonight.' Saturn was the big 'star' at the beginning of the month. Dennis Ammann conducted an astronomy lab out at Vallecito County Park on Oct. 11, but the winds were too high and it had to be scrubbed. The next night was just the opposite, clear, dry, and still, perfect for night viewing. The 8th grade class acted out the Andromeda Greek mythological story with Dennis narrating and the students acting out the play, complete with props. This was funny because the female and male parts were reversed, providing even more humor. When each new character was introduced, Dennis would point out that character in the autumn night sky, i.e., Perseus, Andromeda, Pegasus, etc. At 10:30pm, Dennis invited them to meet him next to their tents for a tour of the winter constellations at 4:30am Friday morning. Out of 34 students only 2 showed up along with their teacher, Nora Bowman. Those two students saw Jupiter straight up, Venus, M42, etc. before the sun chased everything away.



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Oct. 14 was a big day for SDAA Outreach, with over 2,000 visitors at Balboa Park observing the partial annular Solar eclipse. We had a team of members sharing various views of the event with multiple telescopes and solar glasses, as well as a live stream from TimeandDate.com (T&D), mostly featuring our own Gary Hawkins imaging from his home observatory. We shared the T&D stream with a laptop on site, and many picked up the link to continue viewing on cell phones. The Fleet Science Center was our partner for the morning with Dr. Snyder, CEO and Dr. Lisa Will, Fleet Science Center Resident Astronomer, both present to chat with patrons as well. Of special interest was SDAA member Ralph Petrozello handing out Ritz Crackers and index cards. The visitors could project the six holes in the Ritz Crackers onto the index card, giving the viewer six little sun crescents to see! Afterwards, they could eat their solar projectors!

Later that same day, Dennis hightailed it up to Dos Picos County Park to walk a Brownie Troop across the night sky. On Oct. 7 Woody Schlom, Corey Breining, and Dave Decker teamed up at the Lakeside Public Library for a Solar Eclipse Lecture and solar viewing in the parking lot. Same for Jose Magsaysay and Dave Decker for a second solar eclipse lecture at the National City Library on Oct. 12. The Boy Scouts hosted their annual Webelos Woods event with Chris Schmidt and Sonny Adams on Oct. 20, Friday night, sharing great planetary and stellar views with Scouts and families.

All of this in addition to our regular monthly events, made for a very busy October!

	Previous Total	October	YTD
Completed	59	15	74
Canceled	34	1	35
Total Attendance	5175	2817	7992

k. TARO Report:

TARO is active and accepting requests. As mentioned in the AISIG report, TARO information was presented to a small group of AISIG meeting attendees. Since that time TARO has received 3 requests for image data and 4 new requests for access to the TARO archives.

After the computer rebuilds, we are seeing fewer “glitches” in the software.

Last month TARO was invited to participate in the “Deep Sky Collective” - an international group of imagers whose goal is to collect large amounts of imaging data on unique targets not normally imaged by amateur astronomers. TARO’s involvement is to learn how to coordinate the project, process and combine the data from a wide variety of imaging systems and decide how best to present the final result with the goal of setting up a similar type of project within the SDAA AISIG.

l. Cruzen Report:

Cruzen Observatory was utilized 4 nights in October by members. The equipment is working well with only minor maintenance issues to resolve.



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I tightened the RA clutch on the Schaefer mount to hopefully address the tracking issue near the meridian.

Two Orion Stratus 68 degree eyepieces (13mm, 8mm) from the Bill Neis estate were added to the Cruzen eyepiece collection. These are very comfortable to use and a good focal length match with the TOA130.

On November 4 we had a somewhat experimental public outreach event with Cruzen. The observatory hosted several dozen people with no significant issues with crowding or use of the scopes. If done sparingly, I think we can utilize Cruzen for these sorts of outreach events in the future, particularly in cases where there are too many people to comfortably host in the Lipp alone.

The next training opportunity for Cruzen will be in February or March.

m. Merchandise Report:

We sold about \$2,000 worth of merchandise as a result of our annual special order and we have about \$2,200 worth of merchandise in stock that has been paid for, so the store is in good shape.

n. Astronomical League Report:

Nothing new at this time.

o. JSF Report:

Jeff Stevens modified the Google search page to include the SDAA webpage. We have also been working to make registering for JSF easier by adding a separate icon on the SDAA home page. Two of last year's volunteers have agreed to assist in the pre-planning of the event. Created a spreadsheet of tasks, contacts, and previous years requirements and costs.

p. Primary Grid Reconstruction Report:

The project is still moving slower than expected. The initial design engineer associated with the project has not been able to spend as much time on the project as previously thought. We finally received a "spit ball" quote from general contractor that was much higher than expected. No project details were provided. A Scope of Work has been created in order to engage other GC's and electrical contractors.

5. Old Business:

- | | | |
|----|--|--------|
| a. | Our attorney has served Chase bank with two lawsuits, one in small claims court and one in Superior Court and we're waiting for court dates. | Chasin |
| b. | We placed an order for 25 each of 5 different sticker designs that should arrive soon. | Bee |

6. New Business:

- | | | |
|----|---|--------|
| a. | Private pad leases, deposits, improvements – see Private Pad report | Decker |
| b. | Other new business – need to select a banquet committee and get out a "save the date" email soon. | Decker |

7. Adjournment: The meeting was adjourned at 8:48pm.

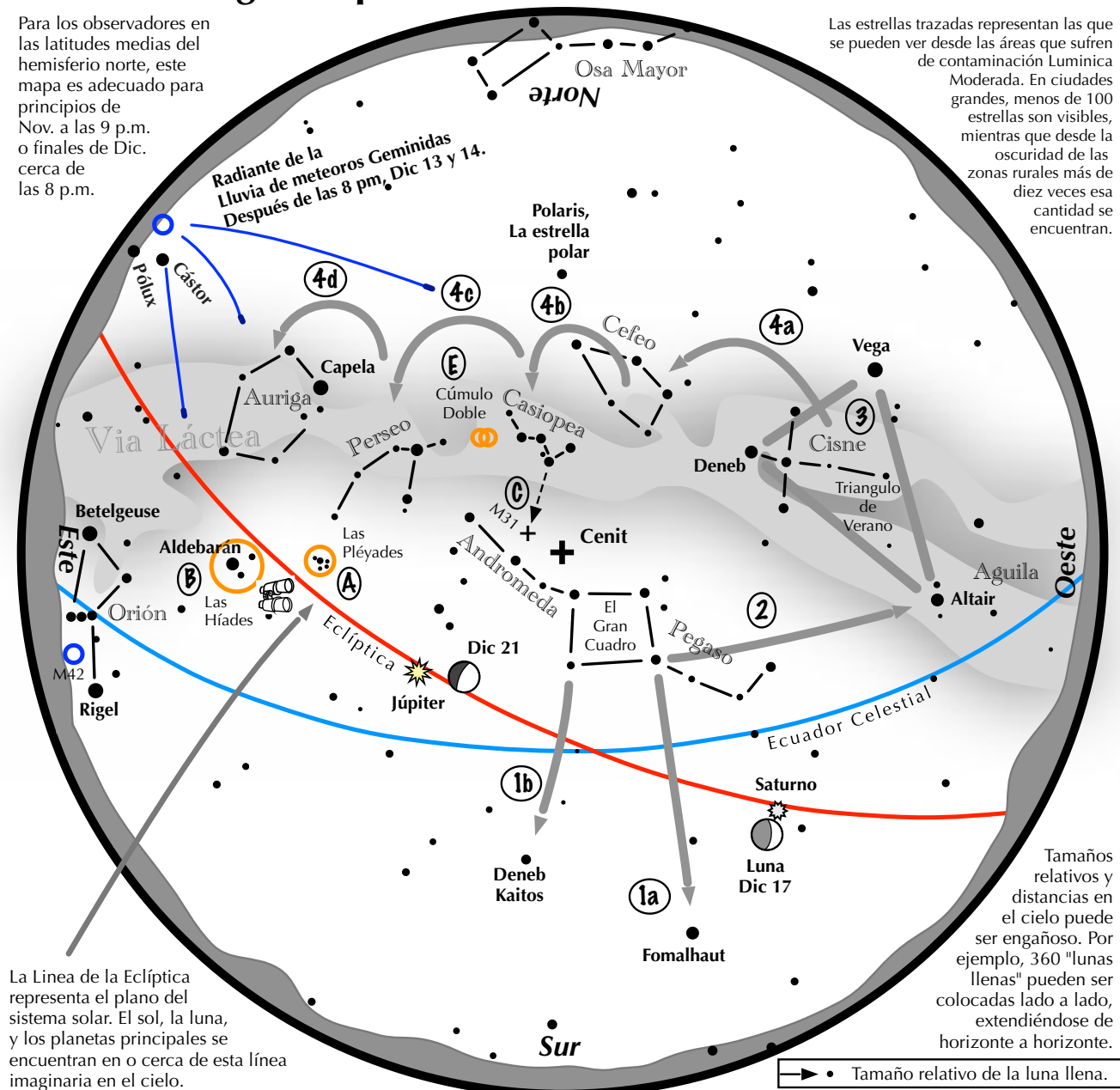


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Navegando por el cielo nocturno de Diciembre

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para principios de Nov. a las 9 p.m. o finales de Dic. cerca de las 8 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 Hacia el sur. Casi arriba está el "Gran Cuadro" con cuatro estrellas con el mismo brillo que las de la Osa Mayor. Extiende una línea imaginaria hacia el sur siguiendo las dos estrellas más occidentales del Gran Cuadro. La línea lleva a Fomalhaut, la estrella más brillante del sur. Una línea que se extiende hacia el sur desde las dos estrellas más orientales, lleva a Deneb Kaitos, la segunda estrella más brillante del sur.
- 2 Dibuja otra línea, esta vez hacia el oeste siguiendo el borde sur del Gran Cuadro. Lleva a la estrella Altair.
- 3 Ubique a Vega y Deneb, las otras dos estrellas del "Triángulo de verano." Vega es su miembro más brillante, mientras que Deneb se localiza en el medio de la Vía Láctea.
- 4 Salta a lo largo de la Vía Láctea desde Deneb hasta Cefeo, que se asemeja al contorno de una casa. Continúa saltando a la "W" de Casiopea, a Perseo y finalmente a Auriga con su brillante estrella Capela.



Destacan con Binoculares. A y B: examina las estrellas de las Pléyades y las Híades, dos cúmulos de estrellas a simple vista. **C:** Las tres estrellas más occidentales de la "W" de Casiopea apuntan hacia el sur hasta M31, la Galaxia de Andrómeda, un óvalo "borroso." **D:** Barrer a lo largo de la Vía Láctea desde Altair, pasar Deneb, a través de Cefeo, Casiopea y Perseo, y luego a Auriga para visualizar muchos intrigantes cúmulos de estrellas y áreas nebulosas. **E:** Cúmulo Doble de Perseo.





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ASTRONOMICAL LEAGUE Double Star Activity



Other Suns: Eta Tauri (Alcyone)

How to find Eta Tauri on a December evening

Face east. Look for the Pleiades star cluster. Eta Tauri is the cluster's brightest member. It is a quadruple star.

Eta Tauri

A-B separation: 118 sec

A magnitude: 2.8

B magnitude: 6.3

Position Angle: 290°

A-C separation: 182 sec

C magnitude: 8.2

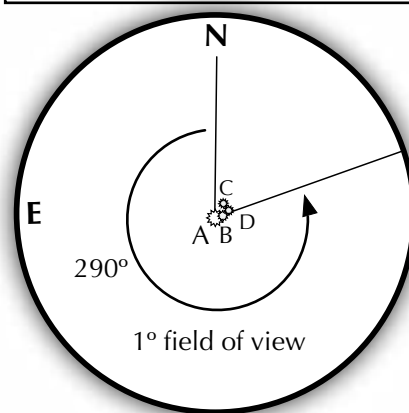
Position Angle: 313°

A-D separation: 192 sec

D magnitude: 8.7

Position Angle: 296°

Suggested magnification: >20x
Suggested aperture: >3 inches



Otros Soles: Eta Tauri (Alcyone)

Cómo encontrar a Eta Tauri en una tarde de Diciembre

Mira al Este. Busque el cúmulo de estrellas de las Pléyades. Eta Tauri es el miembro más brillante del grupo. Es una estrella cuádruple.

Eta Tauri

A-B separación: 118 sec

A magnitud: 2.8

B magnitud: 6.3

PA: 290°

A-C separación: 182 sec

C magnitud: 8.2

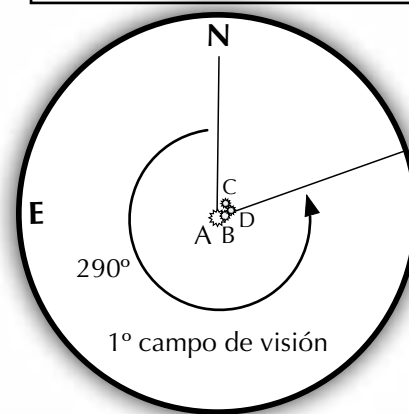
PA: 313°

A-D separación: 192 sec

D magnitud: 8.7

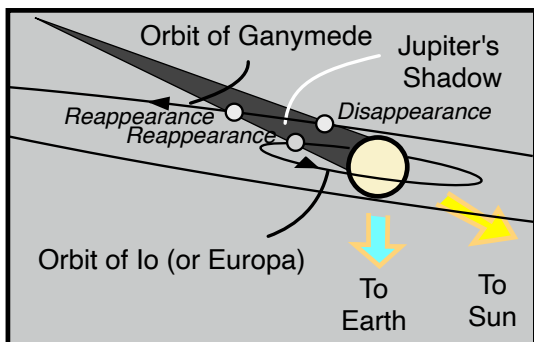
PA: 296°

Ampliación sugerida: >20x,
Apertura sugerida: >75 mm





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Galilean moon emergence

(Elapsed time varies with moon)

Elapsed time: 30 sec.

Elapsed time: 2 min.

Elapsed time: 4 min.



An "Oh! Wow!" moment through your telescope

Imagine seeing a world emerge in the darkness, taking several minutes to fully appear. Such a body is Io, Europa, or Ganymede on multiple occasions this December.

Aim a telescope at Jupiter shining in the south a few minutes before the event is predicted to take place. Look away from the planet's bright disk, about one planet diameter from its eastern edge. At the designated time, a faint speck can be discerned. As the seconds pass, that speck grows brighter and brighter.

This is one of the large Galilean moons, slowly leaving Jupiter's shadow while orbiting the giant planet. December is a good month this year to witness an event like this in the evening sky, because Jupiter's shadow angles to the east of the planet, putting the emerging moon relatively far from the planet's glare. Each moon takes a different time to fully emerge, because of its diameter and of its orbital velocity around the planet.

Note: December 12 and 19 have Ganymede disappearing into the shadow and reappearing. December 21 and 28 have Io and Europa both disappearing near the same time.

Make sure that Jupiter is sufficiently above the horizon at your location and that the evening twilight has sufficiently darkened. Begin viewing a few minutes before the listed times.

Event commencement: (all times CST)

Io	Dec 5, 11:34 pm
Io	Dec 7, 6:04 pm
Ganymede	Dec 12, disappearance 5:41 pm, reappearance 7:48 pm
Io	Dec 13, 1:30 am
Europa	Dec 14, 6:24 pm
Io	Dec 14, 7:58 pm
Ganymede	Dec 19, disappearance 9:45 pm, reappearance 11:49 pm
{ Europa	Dec 21, 9:03 pm
{ Io	Dec 21, 9:53 pm
{ Europa	Dec 28, 11:42 pm
{ Io	Dec 28, 11:48 pm
Io	Dec 30, 6:18 pm

Use a "high" magnification!



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December 2023 Another Look

Dave Phelps

December's New Moon is on Tuesday the 12th. The Full Cold Moon will be on Tuesday the 26th. Fridays the 8th and the 15th have smallish moons that will contribute to dark skies for your star parties.

The Full Cold Moon on the 26th will be the first full moon of winter. The winter solstice is on December 21, at 1927 hrs.

There are a number of conjunctions this month, one with Venus on the 9th and one with Saturn on the 17th. Neptune will be occulted by the moon on the 19th. Occultation visibility will be in the southern Indian Ocean off the southwest coast of Australia. In the southwestern US, we can expect a close approach.

Native American names for the December Full Moon include Drift Clearing Moon, Frost Exploding Trees Moon, Hoar Frost Moon, Little Spirit Moon, Long Night Moon and Moon of the Popping Trees.

The Old English and Anglo-Saxon names are the Moon Before Yule or the Long Night Moon while the Celts added the Oak Moon and the Full Cold Moon.

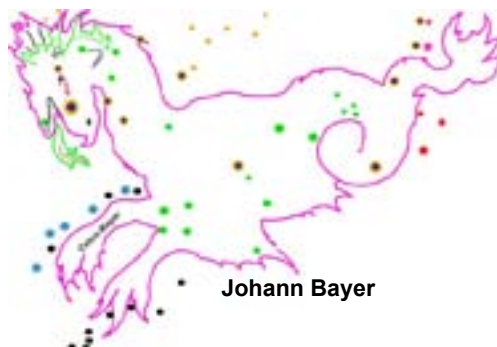
In French its Pleine lune de Décembre,

In German Vollmond im Dezember,

In Spanish Luna llena de Diciembre and in

Greek Φεγγάρι Γεμάτος Δεκεμβρίου, or Fengári Gemátos Dekemvríou,

This year 1st magnitude, El Nath, Beta β Tauri, will be occulted on December 25th from 1657 to 1920 hours.



Johann Bayer



Urania's Mirror

The constellation of Cetus is identified across the world. In French we have Baleine, In Italian its Balaeua, and in German Wallfiseh and in classical Greek its Kētos-Ketos

Cetus is the fourth largest constellation, it has dimensions of 50° East to West and 20° North to South, at one time it was written that Cetus is the largest constellation, but contains few telescopic objects of interest.

Thank you to Percy Jact At Skylarks

There appears to be some thought on how Cetus died. We are accustomed to the story of Perseus unmasking the head of the Medusa and turning our sea monster to stone. This is a very popular legend bolstered by the accounts of historians claiming the petrified remains were carried to Rome. No less a personage as Jerome, who first translated the bible from Greek to Latin, claimed to have seen them in Tyre.



Charles Kingsley has so beautifully told the story:

"On came the great sea-monster, coasting along like a huge black galley, lazily breasting the ripple, and stopping at times by creek or headland to watch for the laughter of girls at their bleaching, or cattle pawing on the sandhills, or boys bathing on the beach. His great sides were fringed with clustering shells and seaweeds, and the water gurgled in and out of his wide jaws as he rolled along, dripping and glistening in the beams of the morning sun. At last he saw Andromeda, and shot forward to take his prey, while the waves foamed white behind him, and before him the fish fled leaping."



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" Then down from the height of the air fell Perseus like a shooting-star—down to the crest of the waves, Andromeda hid her face as he shouted. And then there was silence.

"Slowly she looked up trembling, Perseus springing toward her; and, instead of the monster, a long, black rock, with the sea rippling quietly round it."

(Adapted from "Astronomy with an Opera Glass" Garrett P. Serviss 1888)

An alternative, though not as poetic, view is that Perseus had to put up a fight, using his sword to slay the monster.

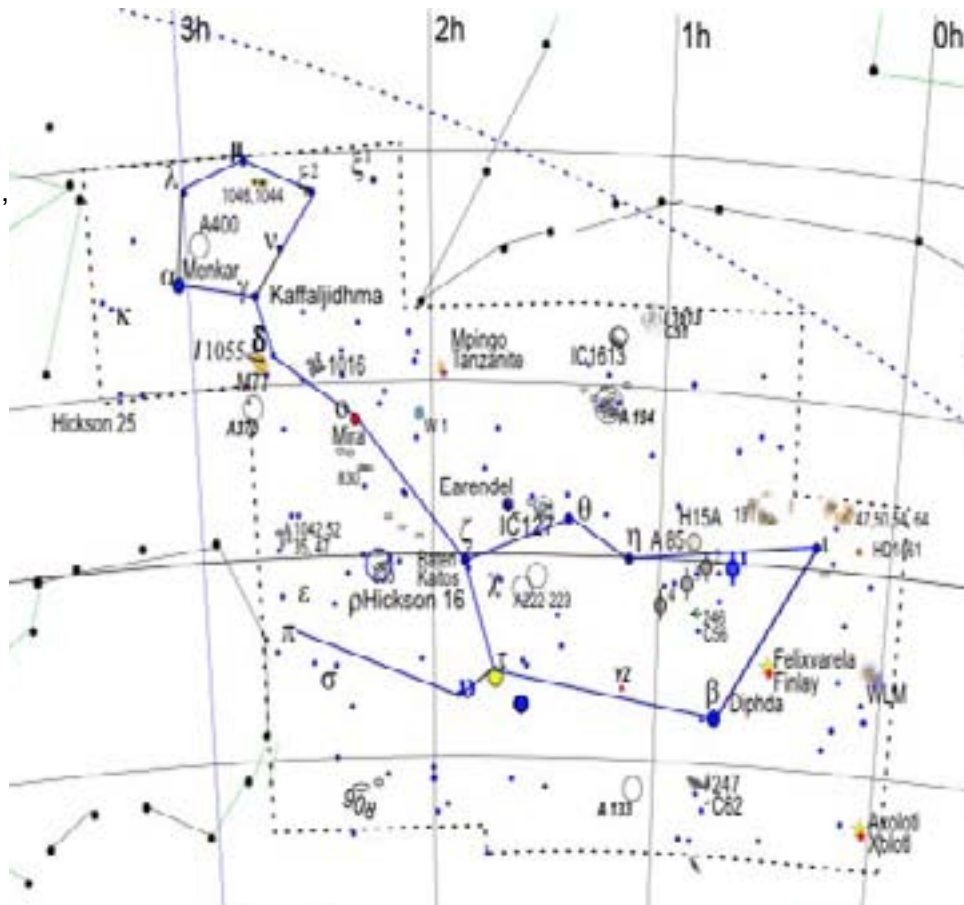
Commonly depicted by the Greeks as a hybrid creature, Cetus had forefeet, huge jaws, and a scaly body like a giant sea serpent. Even though the constellation is also known as the Whale, the mythical creature does not in fact look like a whale. Historically, we can track Cetus back to the Two Rivers and the Babylonians, at least 4000 years ago. We believe the original Cetus was the dragon Tiamat, a creature still feared in fantasy novels today.

Of course, Chinese culture has also named the stars around Cetus, seeing farms silos, and even a farm manager.

In time and for thousand of years water was feared as "Chaos" and Tiamat was one of the agents of Chaos. In the centuries before, during and after the agrarian civilizations of the Euphrates, water was the source of life. The story of the flood almost certainly originated with the annual flooding of the Tigris and Euphrates. It was paralleled by early Egyptians who also relied on the annual flooding of the Nile to

reinvigorate the land with new soil and nutrients. It was along the coast of the Mediterranean, for millennia the sea was the source of food, commerce, travel and trade.

Is it any wonder than that those same ancients, trying to understand their existence, created connections with the nature surrounding them and ascribed reason to the rising of the



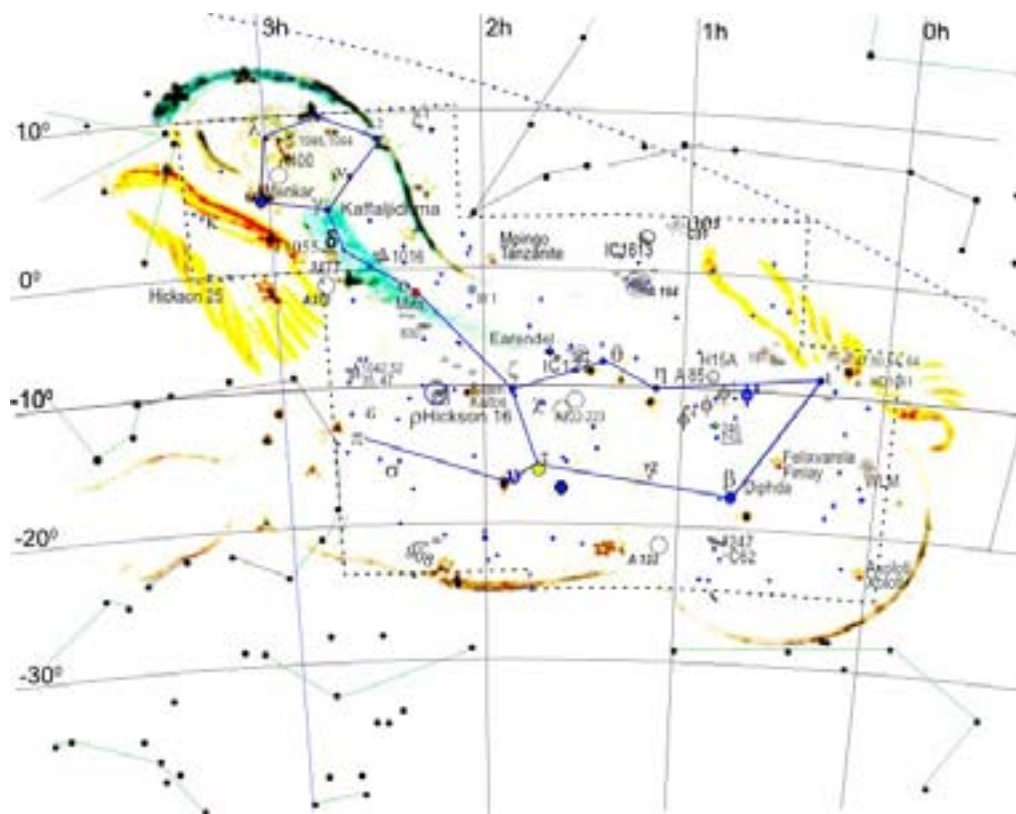


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constellations and reason to the movement of the sea. Our first sea monsters, our first Cetus' were demigods in need of appeasement to bring the rain, grow the crops, calm the water and bring luck to the fishing. It is little wonder that in times of drought, flooding and wild storms, we offered gifts and sacrifices, even, if necessary a young woman.

To the original Babylonian astrologers, a large portion of the sky became "The Sea"; water-related constellations: Cetus, Aquarius, Pisces, Eridanus. Pisces Austrinus and Capricornus the sea goat.

With gills pulmonic breathes the enormous whale,
And spouts aquatic columns to the gale;
Sports on the shining wave at noontide hours,
And shifting rainbows crest the rising showers. Darwin.



Cetus is a somewhat faint constellation without any stars brighter than 2nd magnitude. However it is still a rich hunting ground for double, multiple and variable star observers. Plus since it is away from the glare of the Milky Way it is a wealthy hunting ground for galaxies. It even has a planetary nebula bright enough to reach from your backyard. Also

in Cetus, Patrick Moore chose three objects for inclusion in his Caldwell catalog.

Cetus has several stars with wonderful names that show a little of the Arab influence in the constellation. Alpha α Ceti's name is Menkar, meaning Nose. It is also a part of one of the Chinese celestial granaries and in Arabic a hand,

Beta β Ceti has two names, Diphda and Deneb Kaitos. β is the brightest star in Cetus, a bit brighter than α . Diphda comes from the Arabic "southern tail of the frog" and Deneb Kaitos from the Arabic "tail of the whale". In China this star bore the strange title of "Superintendent of Earthworks." Gamma γ Ceti has the tongue twister name of Kaffaljidhma, meaning the "Short Cut Hand", the name actually includes several other stars in the Arabic cosmos. γ is a triple star system.

The most famous star in Cetus is Mira, "The Wonderful, Omicron \omicron Ceti. Mira is the first variable star scientifically described and the first variable I reported to the AAVSO.



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There are 19 more stars in Cetus with Bayer designations, many of them multiple systems, 18 stars are named either alone or in system combinations.

There are 61 planetary systems and close to Mira, on the line between δ and ζ is a star with the beautiful name Earendel, the Morning Star. You will not see Earendel, she is 27th magnitude and 28 billion light years away. She is the oldest star we've found yet. You see her on the distortion caused by the gravitational lensing in the center of the red circle.

Another beautifully named star is Axólotl, named in Mexico, Axólotl means water animal and is a species of salamander. Axólotl is a planetary system having a massive planet named Xolotl after the god of fire and lightning.

Felixvarela and its planet Finley were named by Exoplanets in honor of a great human being. The first to teach science in Cuba.

Mpingo is an ebony type wood used in Tanzanian music. It is also a star with a planet named Tanzanite.



Cetus' distance from the Milky Way allows us to spend some quality time searching for galaxies away from the dense background of the Milky Way. Historically, Cetus was considered rather boring, with no bright stars or star clusters. Certainly we have some individual galaxies we love to come back to time and time again, and, it is my experience that galaxies tend to like to group together. There always seems to be another just a bit out of the field of view. Cetus is no exception. It has Abell clusters, a Seyfert galaxy called Cetus A, the planetary nebula and its Caldwell objects.

M77 is close to δ and is 9th magnitude so will be easy to find. Its a big face on spiral with an easy to see bright nucleus. M77 is also known as Cetus A

<https://www.astrobin.com/91f58r/B/?q=M77>

NGC 246, Caldwell 56 is an 8th magnitude planetary nebula that you will enjoy finding. Its big enough and bright enough that you will see some detail. This image by John Sanford taken back in 2003 will help you get an idea of what it will look in your eyepiece.

<https://ocastronomers.org/wp-content/uploads/2018/12/NGC246Cet.jpg>

Abell 370 <https://www.astrobin.com/352w9d/B/>

There are 5 galaxy clusters in Cetus. Abell 133, Abell 222, Abell 370 and Abell 400. There is also JKCS 041, near Mira, and in 2009 the furthest cluster of galaxies seen from earth. Also not too far from Mira is IRC 0218, the most distant strong gravitational lensing galaxy currently known. Very close to β is a galaxy cluster with the curious name Gioiello, which is Italian for Jewel. Gioiello, found in 2011, is, at that time, the most distant massive galaxy cluster found. It got its name from the jewel-like colors in its image.

[https://upload.wikimedia.org/wikipedia/commons/7/73/XDCP_J0044.0-2033_\(Gioiello_cluster\).jpg](https://upload.wikimedia.org/wikipedia/commons/7/73/XDCP_J0044.0-2033_(Gioiello_cluster).jpg)

Two of our Caldwell objects in Cetus are C51 and C62, They are



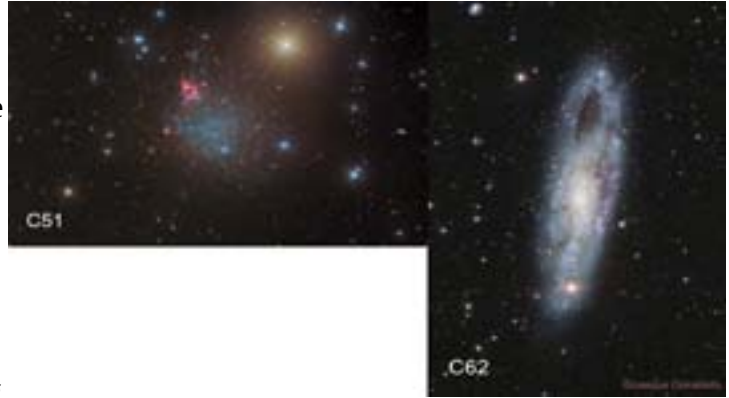


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both 9th magnitude, however, C51 is a dwarf galaxy, i.e. low surface brightness. It'll be fun to find it. NGC247 <https://www.astrobin.com/search/?q=ngc+247#vv7eq7IC> 1613 <https://www.astrobin.com/zss9uq/?q=ic> 16

For you guys with big mirrors, Whiting1 is a 15th magnitude Globular Cluster in the halo of our Milky Way galaxy. It is not too far from Mira. I have its location labeled W1 on the chart.

Holmberg 15A is also on the chart at RA 00h 42m and -9°. It is almost 15th magnitude. It anchors Abell 85, which is faint. Holm 15A is a huge elliptical galaxy with a huge central core, which you can find in your larger scopes. The closest bright galaxy to H15A is NGC 191, a 12th magnitude colliding pair of galaxies, a good starting point.



Over close to Eridanus is a small group of galaxies and an extremely diffuse rather strange galaxy. NGC 1052 is an 11th magnitude elliptical galaxy close to 14th magnitude 1042 and in a tight group with 12th magnitude 1035 and 13th magnitude 1047. Interestingly, the group contains NGC 1052-DF2 an ultra diffuse galaxy with no visible magnitude determined

jclopez01 @[https://www.flickr.com/search/?text=wlm galaxy](https://www.flickr.com/search/?text=wlm%20galaxy) and reportedly with no Dark Matter. DF2 would be an incredible find.

It will be interesting to observe Wolf-Lundmark-Melotte. It's at 11th magnitude and 11' x 4' in size, so not too small. WLM stands for, the three astronomers who had a hand in finding and figuring out what it is. They determined that it's an irregular galaxy as seen in this image by jclopez01. Its way out there on the outer edges of the local group, so not a bad galaxy to put on your life list. **WLM-Jon Flickr**



So Cetus, the 17th, 18th, 19th and early 20th century astronomers did not have too much to say about it except for the obvious. They didn't have the equipment we have today for visual work, so it was mainly a large open area sprinkled with some interesting stars and whatever their four and six inch Clark's could find. Best of luck stretching your observing chops and

Dark Skys

Dave Phelps





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The majority share of private Observatory F (third from the top) is for sale. SDAA TDS observatories are especially great for members who like comfortable observing with large and permanent telescopes at TDS. Observatory F is also set up for remote access photometry/photography. A 16" LX200 classic with equatorial mount, cameras, spares and more is included. Although equipment has depreciated, costs of building have appreciated. If seriously interested, send an email to tds_obs_f@yahoo.com for a complete description and spreadsheet.





San Diego Astronomy Association

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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?

Join the campaign to rid the Newsletter of little boxes by sharing them with the membership. In return for your efforts, you will get your very own byline or photograph credit in addition to the undying gratitude of the Newsletter Editor. Just send your article or picture to Newsletter@SDAA.Org.



San Diego Astronomy Association

NASA Night Sky Notes

December 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!

A Flame in the Sky – the Orion Nebula

By Kat Troche

It's that time of year again: winter! Here in the Northern Hemisphere, the cold, crisp sky offers spectacular views of various objects, the most famous of all being [Orion the Hunter](#).



Credit: Stellarium Web

As we've previously mentioned, Orion is a great way to [test your sky darkness](#). With your naked eye, you can easily spot this hourglass-shaped constellation. Known as an epic hunter in Greco-Roman, Orion and all its parts have had many names and meanings across many cultures. In Egyptian mythology, this constellation represented the god *Sah*. The Babylonians referred to it as *The Heavenly Shepard*. In most cultures, it is Orion's Belt that has many stories: [Shen](#) in Chinese folklore, or [Tayamnicankhu](#) in Lakota storytelling. But the Maya of Mesoamerica believed that part of Orion contained [The Cosmic Hearth](#) – the fire of creation.



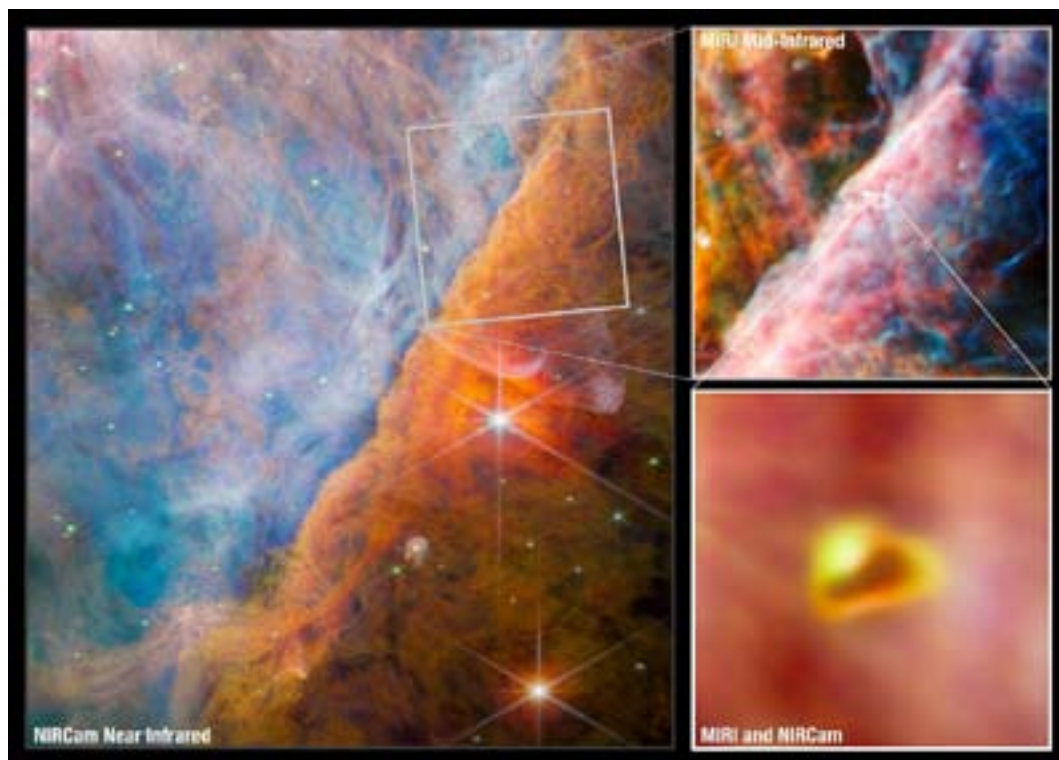
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1,500 light years away from Earth sits the star-forming region and crown jewel of Orion – Messier 42 (M42), the Orion Nebula. Part of the “sword” of Orion, this cloud of dust and gas sits below the first star in Orion’s Belt, Alnitak, and can easily be spotted with the naked eye under moderate dark skies. You may also use binoculars or a telescope to resolve even more details, like the Trapezium: four stars in the shape of a baseball diamond. These young stars make up the core of this magnificent object.

Of course, it’s not just for looking at! M42 is easily one of the most photographed nebulae around, by astrophotographers here on the ground, large ground-based observatories, and space telescopes alike. It has long been a place of interest for the Hubble, Spitzer, and Chandra X-ray Space Telescopes, with James Webb Space Telescope joining the list in February 2023. Earlier this year, NASA and the European Space Agency released [a new photo](#) of the Orion Nebula taken from JWST’s NIRCam (Near-Infrared Camera), allowing scientists to image this early star forming region in both short and long wavelengths.



ESA/Webb, NASA, CSA, M. Zamani (ESA/Webb), PDRs4ALL ERS Team

But stars aren’t the only items photographed here. In June 2023, JWST’s NIRCam and MIRI (mid-infrared instrument) imaged a developing star system with a planetary disk forming around it. That’s right – a solar system happening in real time – located within the edges of a section called the [Orion Bar](#). Scientists have named this planet-forming disk **d203-506**, and you can learn more about the chemistry found [here](#). By capturing these objects in multiple wavelengths



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of light, we now have even greater insight into what other objects may be hiding within these hazy hydrogen regions of our night sky.

In addition to our Dark Sky Wheel, a fun presentation you can share with your astronomy club would be our [Universe Discovery Guide: Orion Nebula, Nursery of Newborn Stars](#) activity. This will allow you to explain to audiences how infrared astronomy, like JWST, helps to reveal the secrets of nebulae. Or, you can use public projects like the NASA-funded [MicroObservatory](#) to capture M42 and other objects.

Learn more about what to spy in the winter sky with our upcoming mid-month article on the [Night Sky Network page](#) through NASA's website!



San Diego Astronomy Association

2023 TDS Star Party Schedule

Date	Type	Sunset	Astro. Twi.	Moonrise(set)	Closing	Illum. [†]	Hosts
1/14/2023	Public	5:04 PM	6:31 PM	12:21 AM		55.6%	Kin Searcy & Ed Rumsey
1/21/2023	Member	5:10 PM	6:36 PM	7:52 AM		0.2%	Sara Brown & Patrick Dugan
2/11/2023	Public	5:30 PM	6:53 PM	11:14 PM		72.0%	Per Martin
2/18/2023	Member	5:36 PM	6:59 PM	6:23 AM		3.7%	Igor von Nyssen & Rumsey
3/18/2023	Member	6:58 PM	8:20 PM	5:55 AM		12.6%	Steven Myers
3/25/2023	Public	7:03 PM	8:26 PM	(11:40 PM)		20.9%	Ed Rumsey & Joe Fox
4/15/2023	Member	7:18 PM	8:44 PM	4:29 AM		24.8%	Jerry Hilburn
4/22/2023	Public	7:23 PM	8:51 PM	(10:27 PM)		8.6%	Ed Rumsey & Dave Decker
5/13/2023	Public	7:39 PM	9:13 PM	3:03 AM	10:30 PM	38.5%	George Sarabia
5/20/2023	Member	7:43 PM	9:20 PM	(9:14 PM)	10:30 PM	1.6%	Jerry Hilburn
6/10/2023	Public	7:56 PM	9:37 PM	1:36 AM	11:00 PM	52.8%	
6/17/2023	Member	7:58 PM	9:40 PM	(8:03 PM)	11:00 PM	0.3%	Bob Roth
7/8/2023	Public	7:59 PM	9:39 PM	12:07 AM	11:00 PM	67.3%	Per Martin
7/15/2023	Member	7:57 PM	9:35 PM	4:36 AM	11:00 PM	3.9%	Igor von Nyssen
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%	Bob Roth
9/9/2023	Public	7:02 PM	8:26 PM	2:17 AM	10:00 PM	24.5%	Joe Fox & Ed Rumsey
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%	Bob Roth
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%	Bob Roth
12/16/2023	Public	4:44 PM	6:12 PM	(8:54 PM)	8:00 PM	20.1%	

[†] Illumination at meridian crossing.

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