

# San Diego Astronomy Association

Celebrating Over 50 Years of Astronomical Outreach



October 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 October 19th*

Speaker: Dr. Stephen Shore

Topic: Amateur Spectroscopy and the AAVSO

Dr. Shore is the Chief of the Observational Spectroscopy Section of the AAVSO and a professor at the University of Pisa.

Dr Shore will give an introduction to spectroscopy and discuss a science case where amateurs can make a contribute to the science. Professional astronomers using large telescopes have limited resources and are willing to partner with amateurs for support with photometric and spectroscopic data acquisition. AAVSO, distinguished for its contribution to photometry, is conducting a major effort to rigorously collect and validate spectroscopic data from amateurs. .

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://sdaa.org/october-19-2022-program-meeting/>

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

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

### **Next SDAA Business Meeting**

October 11th at 7:00pm  
10070 Willow Creek Rd  
San Diego, CA 92131  
Via Zoom

### **Next Program Meeting**

October 19th at 7:00pm  
Live Stream

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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.

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>



# San Diego Astronomy Association

## *San Diego Astronomy Association Board of Directors Meeting September 15, 2022 – Unapproved and subject to revision*

### **1. Call to Order**

The meeting was held via Zoom and was called to order at 7:00pm with the following board members in attendance: Dave Wood, President; Kin Searcy, Vice President; Melany Biendara, Treasurer; Dave Decker, Director; Mike Chasin, Director; Gracie Schutze, Director; Hiro Hakoziaki, Director; Dan Kiser, JSF Committee Chairperson.

### **2. Approval of Last Meeting Minutes**

The August meeting minutes were approved.

### **3. Treasurer's & Membership Report**

The treasurer's report was approved. No update on the bank fraud. The SDG&E bills have been close to what was budgeted for this year.

### **4. Standard Reports**

#### a. Site Maintenance Report:

Mike Chasin has reached out to several contractors about replacing the current gate with an automated sliding gate. This is still in the early stages but it could cost in the neighborhood of \$15,000.

#### b. Observatory:

All is going well. Star parties continue to be staffed and well attended. Equipment is in great condition.

#### c. Loaner Scope Report:

Loaner scope status:

- 3 telescopes currently out:
- SDAA-026 (8" Zhumell) due Oct 28
- SDAA-027 (astrophotography rig) due Oct 28
- SDAA-029 (iOptron skyguider) due Oct 28
- SDAA-030 (AWB OneSky) returned and ready for reissue

Inventory updates:

Two Telrad bases purchased, so all of our Dobsonian loaners can accept a Telrad. We never have all the scopes loaned out at once, so the plan is to just move Telrads around as needed, and make sure all the scopes have Telrad bases.

Equipment donations and sales:

USB 3.0 fiber extender still for sale, lowered price \$25 on eBay, still no nibbles.



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Gene reached out to me about a Celestron CGX and an Orion f/9 RC astrograph that were leftover donations from the banquet, that we'd like to sell. I proposed that the CGX be utilized in the Cruzen observatory in place of the rather finicky Losmandy G11+Gemini-2, as the CGX will likely be more familiar and easier to use. This idea seems to have legs and pending review of the CGX and its condition (and suitability for Cruzen) I imagine that's what will happen. Thus, we'll have a Losmandy G11+Gemini-2 and the Orion astrograph for sale probably next month.

d. Private Pad Report:

Since the last update, we have leased 1 pad and have 3 new people on the waiting list. There will be a proposal shortly about cleaning up the pad that was just leased (it needs quite a bit of brush/cactus removal, but is in a fantastic location).

e. Program Meetings Report:

Kin reports that he has speakers for the rest of the year and hopes that we may actually be able to meet in person in November. He's still working on a speaker for January and the Banquet. Dave reported that we've had some problems with the Zoom link and he's working to get that sorted out.

f. AISIG Report:

No report. No word from Kevin Linde since the first meeting. Dave will reach out to him but we may need to find a new AISIG chairperson.

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 July and for YTD:

2022	July	YTD
Events Completed	11	53
Events Cancelled	0	16
Total Attendance	855	3503
Starmaster Events	2	10



# San Diego Astronomy Association

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In July we had (3) non-repeated events in addition to the regular monthly schedule. The Sierra Club Wilderness Basics Course hosted a graduation event at Horse Heaven Group Camp in Laguna, inviting us to share the sky with their 135 graduating students. The site is typical Mt. Laguna pine trees and presented a challenge for viewing, but our members, Damon, Carter, Sonny, Chris, Ed, and myself used a variety of instruments from an eVscope to the club's 14.5" Starmaster to share the sky.

With short lead time we were then invited to host a 2-day observing event at William Heise Campground. Dennis Ammann's previous association with the Ranger at Vallecito County Park set the stage for this one. Weather became an issue, yet our members Sonny, William, Cindy and I succeeded in sharing the sky with lots of campers.

Our last unusual event was a private star party for Mt. Helix Park volunteers. From the cross we set up for a very motivated group from the private Mt. Helix Park Foundation.

Many thanks to all members who support our Outreach effort privately and via our calendared events. Anyone interested in participating can contact the Outreach Coordinators for details.

k. TARO Report:

TARO is "hibernating" until the weather settles down.

l. Cruzen Report:

An evening was spent reviewing the TOA-130 operations guide written by Ed Rumsey. Using the guide, the observatory was opened, the scope aligned and used for observations. While the basic manual was well written, there were some issues encountered that makes it difficult to use the scope. There is an active discussion about swapping the mount, currently a Losmandy G-11, for a Celestron mount that has an easier user interface than the Gemini controller.

m. Merchandise Report:

JSF sold over \$600 worth of SDAA merchandise. Mel has ordered some license plate frames that should be available for sale soon – we'll let everybody know when they become available.

n. Astronomical League Report:

Nothing new to report.

o. JSF Report:

The 2022 JSF was very successful. We had clear skies, great weather and many positive comments from participants. There were no injuries reported. Two areas that could be improved were:

- 2 Food vendors dropped out late, due to staffing shortages. Ray from Julian General Store stepped-up and provide food options on Saturday afternoon/evening.
- MLO Tour participants did not bring their signed waivers as required. Next time, these should be collected in advance and provided to SDSU in mass.



# San Diego Astronomy Association

## Overall Summaries:

- Paid reservations included 16 RVs, 33 Tours, and 214 campers. When combined with volunteers and vendors, we had 271 total campers at JSF - 56 of these were teens and children.
- There were 116 on-line registrations and 5 on-site registrations. 25 of the on-line registrations were not forwarded to JSF in advance. (Investigation may be needed.) We shut-down on-line and on-site registrations on Friday night due to the many unplanned campers arriving.
- \$688 of additional sales of SDAA merchandise occurred at JSF and are not included in the numbers above.

Special thanks to Dan and Sandy Kiser, The Menghini Winery, Celestron, MLO/SDSU, Tele Vue, Woodland Hills Telescopes, Woody's Mobile Observatory, the SDAA Board and all of our JSF volunteers and committee members.

p. Primary Grid Reconstruction Report:

Paul Ericson, a state licensed electrical engineer, has been contacted and we're planning a walk around the site on September 24<sup>th</sup>. This is the first step in obtaining a bid for the electrical upgrade.

## 5. Old Business:

- |    |  |          |
|----|--|----------|
| a. | Bank Fraud Update (see Treasurer's Report)   | Biendara |
| b. | SDGE billing update – last bills within budget   | Biendara |
| c. | Electrical Grid Update – Site visit planned for 9/24   | Wood     |
| d. | Banquet Updates – Mike C reports that the banquet planning is proceeding well, lots of volunteers and a tentative site has been identified and awaiting final details. | Chasin   |
| e. | Other old business - none  | Wood     |

## 6. New Business:

- |    |  |          |
|----|--|----------|
| a. | Paul Krizak has been asked to be the new Cruzen Observatory Director                                   | Wood     |
| b. | Open House and BBQ dates – set for 9-24  | Wood/All |
| c. | Bug Traps from the NAT – 2 bug traps placed at TDS by the Natural History Museum for research purposes | Wood     |
| d. | Other new business - none  | Wood     |

## 7. Adjournment: The meeting was adjourned at 8:30pm.

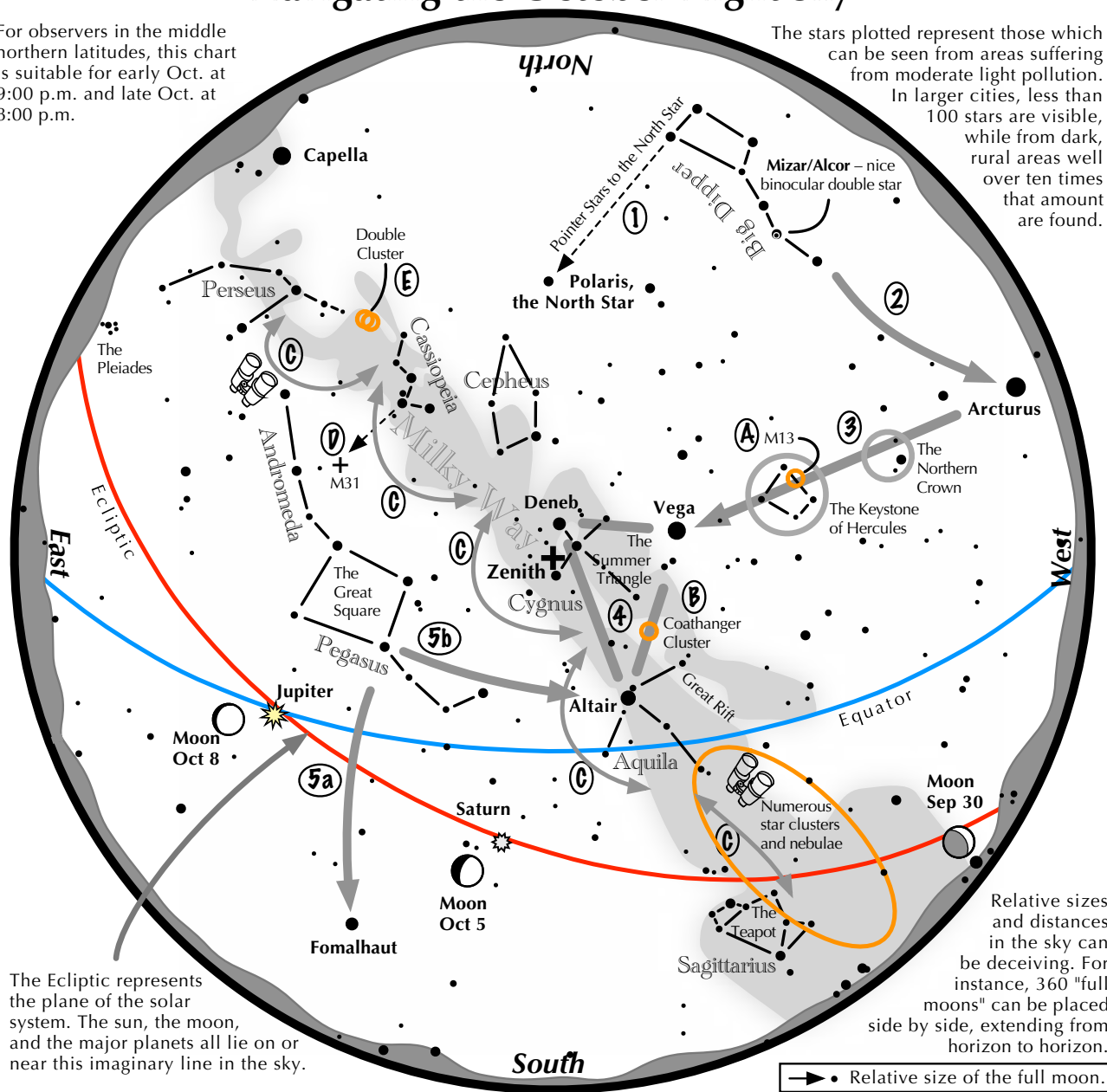


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## Navigating the October Night Sky

For observers in the middle northern latitudes, this chart is suitable for early Oct. at 9:00 p.m. and late Oct. at 8:00 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 October 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 intersects Arcturus, the brightest star in the early October evening sky.
- 3 To the northeast of Arcturus shines another star of the same 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.
- 4 Nearly overhead lie the summer triangle stars of Vega, Altair, and Deneb.
- 5 High in the east are the four moderately bright stars of the Great Square. Its two southern stars point west to Altair. Its two western stars point south to Fomalhaut.

### Binocular Highlights

**A:** On the western side of the Keystone glows the Great Hercules Cluster, a ball of 500,000 stars. **B:** 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger. **C:** Sweep along the Milky Way for an astounding number of fuzzy star clusters and nebulae amid many faint glows and dark bays, including the Great Rift. **D:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **E:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster.





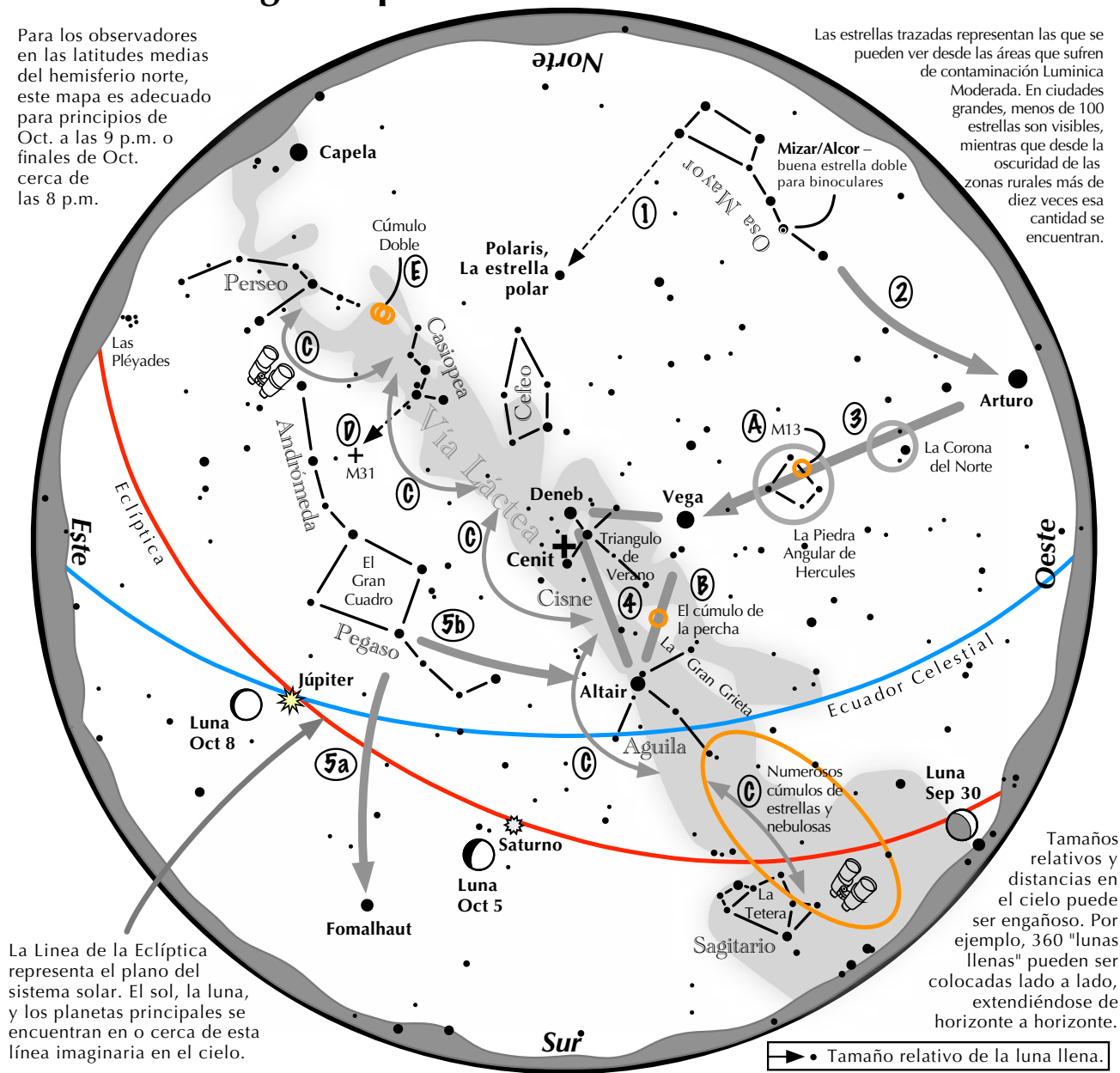


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## Navegando por el cielo nocturno de Octubre

Para los observadores en las latitudes medias del hemisferio norte, este mapa es adecuado para principios de Oct. a las 9 p.m. o finales de Oct. 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 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 de la Osa Mayor. Se cruza con Arturo, la estrella más brillante en el cielo de la noche de octubre.
- 3 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.
- 4 Las estrellas del Triángulo de verano, Vega, Altair y Deneb, brillan en el Cenit.
- 5 En lo alto del Este se encuentran las cuatro estrellas brillantes de la Gran Cuadro de Pegaso. (5a) Sus dos estrellas occidentales apuntan al Sur hacia Fomalhaut. (5b) Sus dos estrellas meridionales apuntan al Oeste hacia Altair.

### Puntos destacados con binoculares

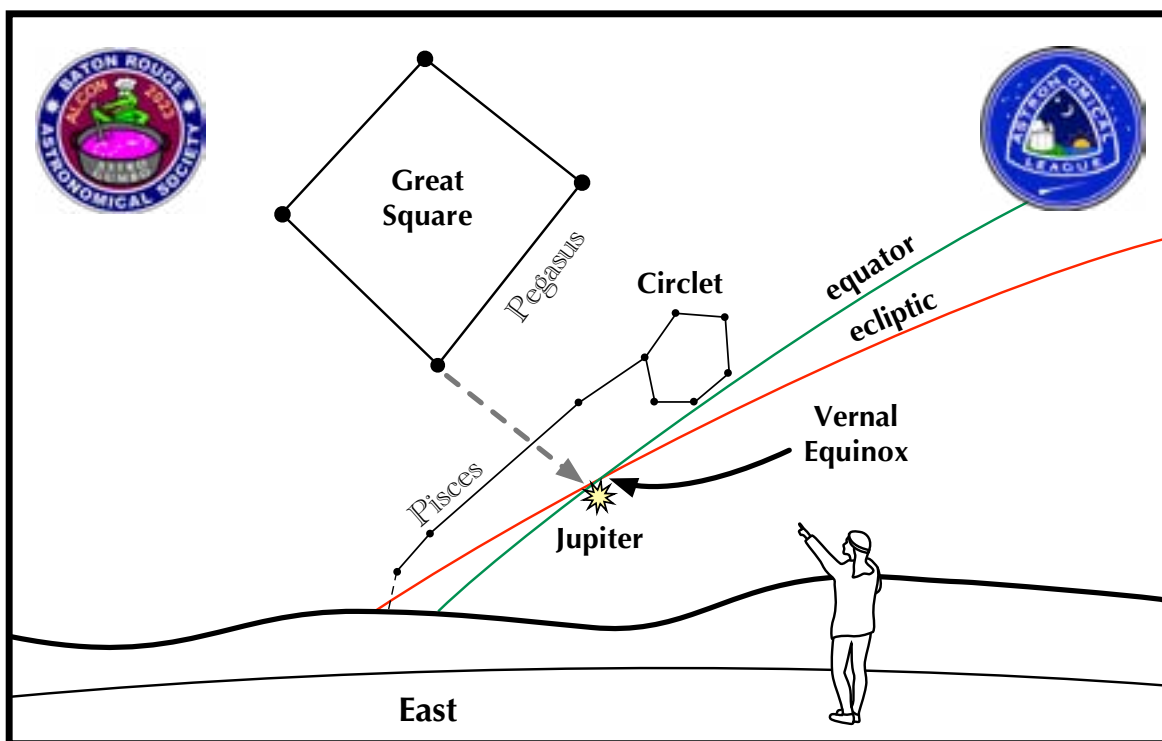
**A:** En el lado occidental de la Piedra Angular de Hércules, un círculo borroso de 500,000 estrellas. **B:** Casi a la mitad de la distancia entre Altair y Vega, Brilla la "Percha," un grupo de estrellas que describe un perchero. **C:** Recorre la Vía Láctea en busca de un número asombroso de destellos tenues y bahías oscuras, incluido La Gran Grieta. **D:** Las tres estrellas más occidentales de las "W" de Casiopea apuntan hacia el sur hasta M31, la Galaxia de Andrómeda, un óvalo "borroso." **E:** Entre la "W" de Casiopea y Perseo se encuentra el Doble Cúmulo.





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If you can see only one celestial event in the evening this October, see this one.



## Jupiter lies at the Vernal Equinox

- Look in the east–southeast 90 minutes after sunrise during October.
- Choose an evening when no bright moon is in the sky, such as one after October 12.
- Jupiter shines brightly above the horizon very near the location of the vernal equinox – the sun's position on March 21.
- Jupiter also acts as a good guide in finding the six dim stars of the "Circlet" of Pisces. This odd stellar grouping really does take on the shape of a flattened circle. Dark skies are needed to see this interesting asterism.
- Jupiter will not be in the same location next year, as it have moved eastward approaching the Pleiades. However, the Circlet will always lie immediately south of the Great Square. So, once you meet it, these stars will be a celestial friend greeting you in the same sky location this time every year.





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## ASTRONOMICAL LEAGUE

The RASC Observer's Handbook and Observer's Calendar are now available for pre-order on the League Sales webstore!

### OBSERVER'S CALENDAR



A beautiful complement to the Handbook, filled with dates of notable celestial events – lunar and planetary conjunctions, eclipses, meteor showers and more.

**\$20 EACH + \$6 S+H**

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The popular 350–page classic in its 115th Year. Special pricing for 2023 USA edition!

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### League Sales

<https://store.astroleague.org/index.php>



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## 2022 October Another Look

Full moon October 9, called the Hunter's Moon; New Moons Sunday Sept 25 and Tuesday Oct. 25 Native Americans named this Full Moon after Autumn, including Drying Rice Moon, Falling Leaves Moon, and Freezing Moon. The Celts used Seed Fall Moon to describe this moon. Also, the Pagan Blood Moon or Sanguine Moon

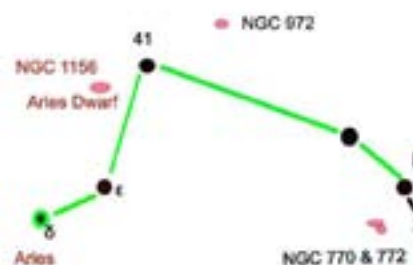
On Oct 25 is a partial solar eclipse. At max the Moon covers 82.11% of Sun's surface somewhere east of the Urals and north of Novosibirsk. The partial phase is visible into Spain, Africa; the southern tip of India will see a tiny notch taken out.

When you take into account that Aries is one of the puny constellations surrounded by Triangulum and Pisces it is a wonder why it is so famous. That being said, Aries could be one of the oldest constellations identified. If we accept that the constellations as we know them, excluding India and China, were first named several thousands of years ago in and around the region of the Euphrates River, it is probable, 3500 years ago, that the stars were not named because they looked like anything but because they identified with a certain significance in their daily lives. It is also probable that star configurations were pinpointed by civilizations preceding the Euphratean era. One thing is likely, however, that many of the names given any particular star grouping meandered all over the ancient world and influenced civilizations from Greece and Mesopotamia down to Egypt and the Nile valley; and as we know, the Romans incorporated Grecian culture into their own, Latinizing their names.

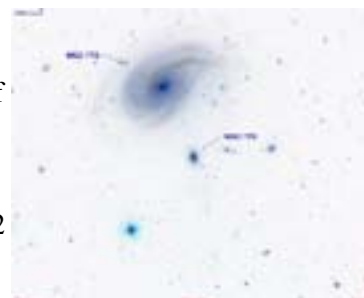
(Aries and *Musca Borealis* as depicted in *Urania's Mirror*, a set of constellation cards published in London c.1825)



Thus, 3500 years ago the Chaldeans, who named the sun after their flocks, put a name to the stars where the sun shone as the seasons changed. Through the centuries the name stuck. Now, as the seasons change the vernal equinox is in Pisces while 3500 years ago, it was in Aries. Now, the First Point in Aries is slightly below the circlet of Pisces.



I think one of the more fun myths associated with Aries was that of Helles and Phrixus, who were given a ram to escape their evil stepmother. Racing across the Adriatic up into Asia Minor, Helles fell off, thus naming that narrow strait, near the Dardanelles, between Greece and Turkey the Hellespont. The ram raced across the Black Sea bringing the brave young man to safety in Colchis, now modern Georgia. The Ram magically changed its fleece to gold, was sacrificed in thanks to the gods, (I wonder if the ram thought it was such a great honor) and the fleece placed in a grove guarded by a dragon, ready to be stolen by Jason and the Argonauts.



Near Beta and Gamma Arietis is NGC 772 and its satellite galaxy 770. NGC 772 is big and bright at 11<sup>th</sup> magnitude and you can find NGC 770 at 14<sup>th</sup>. It is interesting that NGC 772 is also number 78 in Arp's **Atlas of Peculiar**

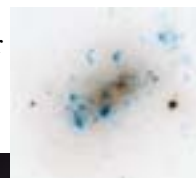
**Galaxies.** Image courtesy of *Image créée à l'aide du logiciel Aladin Sky Atlas du Centre de Données astronomiques de Strasbourg et des données de SDSS (Sloan Digital Sky Survey).*



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Aries also has its own dwarf galaxy NGC 1156. NGC 1156 is interesting. It has no structure because of interaction with other galaxies. Those bright spots are star forming regions. NGC 1156 is 12<sup>th</sup> magnitude so you will find it in your 8" backyard telescope.

NGC 1156



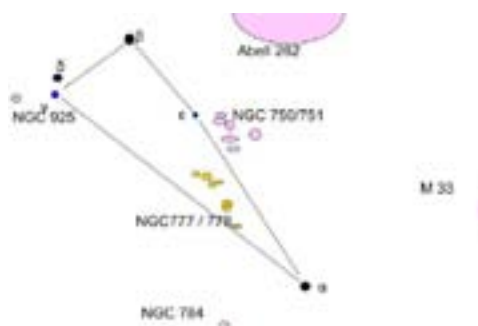
Up at the top of Aries is NGC 972, another interesting galaxy. Images of it from Hubble show what looks like at first glance an irregular galaxy, but closer study finds its spiral structure hidden by the knots of star nurseries gas and dust. It is 12<sup>th</sup> magnitude but only 10 arcmin in size. Still if you compare the moon is at 31 arcmin, you can get a good idea of the relative size of NGC 972. Both images *Credit: Hubble Image of the Week*



While up at the top of Aries find 41 Arietis. It is a triple star system with components of 4<sup>th</sup>, 11<sup>th</sup> and 11<sup>th</sup> magnitudes. 41 Ari has an official name from the Hindu, Bharani, it means 2<sup>nd</sup> lunar mansion. 41 Ari is also a part of the obsolete constellation of Musca Borealis, first introduced on a globe of 1612 by the Dutchman Petrus Plancius and shown above the Ram in our clipping from Urania's Mirror.

It being that time of year, Triangulum is galaxies, galaxies and more galaxies.

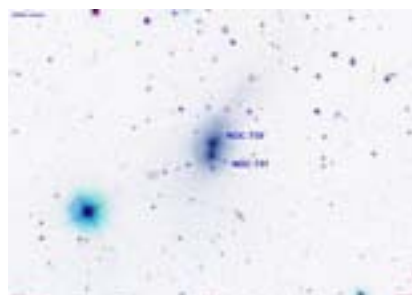
Near each other just off the line from delta to alpha are NGCs 777 and 778. NGC 777 is a bright 12<sup>th</sup> magnitude nearly textbook elliptical. Its beautifully formed, an oval gradually getting denser and brighter from the edges of the galaxy to its star-like nucleus. NGC 778 is not too far off and can be seen in wide angle images much smaller than its companion. NGC 778 visual magnitude is 14 in the blue range so it will be a properly difficult object to locate. If you can spread out its 8x4 arcsec image you will see a tilted spiral with some unusual knots and clumps.



1902



2014



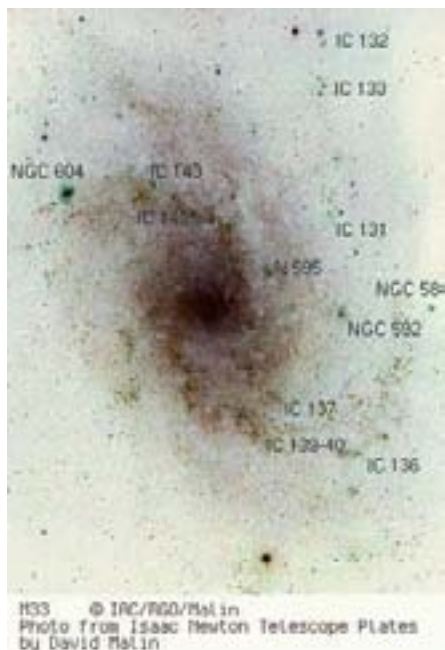
<https://www.drewexmachina.com/2021/06/27/a-century-of-progress-telescopic-views-of-the-triangulum-galaxy/> and [https://www.messier.seds.org/more/m033\\_map.html](https://www.messier.seds.org/more/m033_map.html)

Moving over to the other side of Triangulum, there is another knot of interacting galaxies comprised of NGC 750 and NGC 751, number 166 on Arp's "Atlas of Peculiar Galaxies". Near delta  $\delta$  and gamma  $\gamma$



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Trianguli is **N925** a nice loose spiral. It is named the Almatha Galaxy: Quite pretty and at 10' by 5', should be fairly easy to see, though a little low in surface brightness.



NGC 598 or better known as M33 is one of the largest deep sky objects and one of the brightest we have. So, why is it so hard to see sometimes? It's huge, 70×41moa, but that size compared with its low surface brightness has given it the reputation of being a difficult object. Its 5<sup>th</sup> magnitude so we should be able to see it visually under dark enough skies, and we can. I have a homemade collimation eyepiece, a 1.25" round piece of aluminum with a 1/8" hole bored through it. It works as a great eye focuser, eliminating extraneous light around the edge of your eye. With it on a mountain in Utah I saw M33 and even resolved a few knots.

The Malin image shows four NGC's and 8 IC's. The trick is to try to identify them visually using a map like this as your guide. The four H II star forming regions identified in the image are NGC 595, NGC 588, NGC 592 and NGC 604.

In antiquity Triangulum was seen as a triangle and the Greeks even called it Deltaton because it resembled the capital letter delta in their alphabet. It resembled the Nile delta and the Island of Sicily because of three peaks on the island. Sicily is the legendary home of Ceres, the goddess of agriculture and our minor planet. Ceres apparently loved the island so much she asked Zeus to place it in the heavens.

**Pisces Urania's Mirror, Second Edition**

## Pisces

*"The Fishes shine one higher than the other, from each of them extends as 'twere a band that fastens tail to tail, as wide it floats, and one star large and brilliant clasps its ends"*

*The Heavenly Knot 'tis called" Frothingham's Aratos*



The asterisms that make up Pisces, the Northern Fish and the Western Fish are a part of Ptolemy's original 48, but are thousands of years more ancient. The Babylonians and other civilizations up to and including the Romans regarded the star group as two fishes tied together by a cord or ribbon. The star at the base of the ribbons is Alpha α Piscium. It is a named star, Al Rescha, meaning the knot. In one of my references, it is posited that the dual nature of the constellation contributed to or was in turn contributed to by the addition of an extra month every six years of the Babylonian calendar. That's how







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ancient this constellation is. Due to the precession of the equinoxes, the vernal equinox is close to the circlet.

The Greeks had the most fun with this constellation. They wove into it the Titan's war with the gods, the birth of the most dangerous Titan of all, an escape and a stellar honor. Typhon was supposedly the fiercest monster ever created. He had serpentine feet, many heads and could breathe fire. His story easily goes back to the Egyptians, and we can trace its origin back millennia, as far as the civilizations that grew along the Euphrates. In the Greek saga, Typhon, our monster, attacked the gods, seeking to give the Titans rule over the world. The gods escaped by turning themselves into animals. Aphrodite and her son Eros escaped into the river (either the Euphrates or the Nile depending on the narrator,) by changing themselves into fish. Minerva honored this pretense by placing the fish in the heavens. So, what happened to Typhon? Zeus defeated him thus cementing his authority over the heavens. He then buried him under Mt. Etna, making it the largest volcano in Europe.

The single Messier in Pisces is M74, a big, beautiful face on spiral. M74, also known as NGC 628 is a large, 10'x10', 9<sup>th</sup> magnitude galaxy that is usually the bane of the Messier Marathoner. It all has to do with its surface brightness. M74 doesn't have much in the way of bright star forming regions. Its face is uniform from the nucleus out to the spiral arms. M74 courtesy of: **ESO PESSTO**



My observing plan was to choose a particular constellation and learn it. I figured that I would never be able to find out everything that a constellation had to offer and doing a constellation a month would ensure that I would have a lifetime's work ahead of me. Pisces is a great example of that. I was first interested because it is faint and had an interesting circlet of stars. I decided to search for and identify every galaxy within reach of my 17.5-inch mirror. I never came close. In the circlet neighborhood alone, there are three clusters of galaxies within reach of your 12 inch and detectable in your 8 inch. The rough chart I made shows eight reachable clusters.



Near the circlet are 12<sup>th</sup> magnitude NGCs 7714 and 7715 also known as Apr 284. A pair of interacting galaxies discovered by John Herschel in 1830.

<https://esahubble.org/images/heic1503a/>



Next to the circlet is 19 Piscium, better known as TX Piscium. 19 Piscium is one of the reddest stars known. The star has an apparent magnitude that varies between 4.9 and 5.5 magnitudes. It is a variable carbon star, which is to say a late type star that contains clouds of carbon circulating in the atmosphere. That's kinda wowser to imagine, isn't it.

*This wide field image of N524 was taken by Gregg L. Rupple on*  
<http://greggsastronomy.com/ngc524.html>

In the center of Pisces near the cusp is another group dominated by the 10<sup>th</sup> magnitude NGC 524. It's going to look like an elliptical, in fact early observers described it as a dense E1 galaxy. Actually, N524 is a tightly wound face on galaxy. It will be tough to see it, however.





# San Diego Astronomy Association

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The NGC 383 group is up north against Andromeda, not too far from  $\tau$  Piscium. It is another “string of pearls” and quite beautiful as I remember. Arp put it into his *Atlas of Peculiar Galaxies* as number 331. The credit for this image belongs to: *NGC 382 Image créée à l'aide du logiciel Aladin Sky Atlas du Centre de Données astronomiques de Strasbourg et des données de SDSS (Sloan Digital Sky Survey)*

The: Webb Deep-Sky Society” also cataloged this cluster. A finders and identifier chart is on-line at <https://www.webbdeepsky.com/images/galaxies/ngc383.pdf>

NGC 474/470 are found off the southern fish between  $\alpha$  and  $\zeta$ , another tough cluster to find. I reckoned its magnitude at 11-12. I never saw the faint swirls around N474. I guess it's being disrupted by N470. This group is also Arp 227 and can be found on-line at the Webb Society.

*Galaxy NGC 474: Cosmic Blender Credit & Copyright:*  
*[Mischa Schirmer](#) APOD 2007 Oct 8*

So, Aries, Triangulum and Pisces, bundled together beneath Andromeda and Pegasus and maybe passed over a little bit by their more famous neighbors. Still, they are a significant part of the realm of galaxies. I hope you enjoy finding and observing them.

Dark Skies  
Dave Phelps





# San Diego Astronomy Association

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## *Nightfall / Borrego Springs*

NIGHTFALL will be back in Borrego Springs on October 27-30.

Riverside Astronomical Society is planning to have all the regular events once again, including the Scorpion Hunt, the Ice Cream Social, the Star Be Cue, Swap Meet, and Reception, as well as a full Imaging Conference by premier astroimager—Ron Brecher.

They are planning a collection of presentations on Astro topics and other activities. Although not finalized yet, programs include:

Bruce Herwig---Imaging the Borrego Monsters

Dennis Mammana---Sky Tour

Ken Graun---Messier's Objects

Richard Eisenberg—Astronomy and the Aging Eye

And, they are working on others.

So, make your plans by calling the Palm Canyon. Be sure to tell them that you are coming for Nightfall, or they will tell you they are full (and they may be!) ( (760) 767-5341 (800) 242-0044 )

You can find out more on the website: [Intro – Nightfall Star Party & Imaging Conference](#)

Note that there is no registration for Nightfall itself. The events are free and open to all comers. BUT, there is a fee and registration for the Ron Brecher workshop. You can register for that at [Workshops & Presentations – Nightfall Star Party & Imaging Conference](#)







# 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](mailto:Newsletter@SDAA.Org).



# San Diego Astronomy Association

Pictures from SDAA BBQ - 9/24/22



David Wood at the Grill



Dave Decker, Corey Breininger



Jim Traweek, Gary C., & other members



# San Diego Astronomy Association

Pictures from SDAA BBQ - 9/24/22



At the feeding line







# San Diego Astronomy Association

Pictures from SDAA BBQ - 9/24/22



Public Pads were busy





# San Diego Astronomy Association

NASA Night Sky Notes

October 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](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

## **Fomalhaut: Not So Lonely After All**

David Prosper

Fall evenings bring a prominent visitor to southern skies for Northern Hemisphere observers: the bright star **Fomalhaut!** Sometimes called "The Autumn Star," Fomalhaut appears unusually distant from other bright stars in its section of sky, leading to its other nickname: "The Loneliest Star." Since this star appears so low and lonely over the horizon for many observers, is so bright, and often wildly twinkles from atmospheric turbulence, Fomalhaut's brief but bright seasonal appearance often inspires a few startled UFO reports. While definitely out of this world – Fomalhaut is about 25 light years distant from us – it has been extensively studied and is a fascinating, and very identified, stellar object.

Fomalhaut appears solitary, but it does in fact have company. Fomalhaut's entourage includes two stellar companions, both of which keep their distance but are still gravitationally bound. Fomalhaut B (aka TW Piscis Austrini, not to be confused with former planetary candidate Fomalhaut b\*), is an orange dwarf star almost a light year distant from its parent star (Fomalhaut A), and Fomalhaut C (aka LP 876-10), a red dwarf star located a little over 3 light years from Fomalhaut A! Surprisingly far from its parent star – even from our view on Earth, Fomalhaut C lies in the constellation Aquarius, while Fomalhaut A and B lie in Piscis Australis, another constellation! – studies of Fomalhaut C confirm it as the third stellar member of the Fomalhaut system, its immense distance still within Fomalhaut A's gravitational influence. So, while not truly "lonely," Fomalhaut A's companions do keep their distance.

Fomalhaut's most famous feature is a massive and complex disc of debris spanning many billions of miles in diameter. This disc was first detected by NASA's IRAS space telescope in the 1980s, and first imaged in visible light by Hubble in 2004. Studies by additional advanced telescopes, based both on Earth's surface and in space, show the debris around Fomalhaut to be differentiated into several "rings" or "belts" of different sizes and types of materials. Complicating matters further, the disc is not centered on the star itself, but on a point approximately 1.4 billion miles away, or half a billion miles further from Fomalhaut than Saturn is from our own Sun! In the mid-2000s a candidate planetary body was imaged by Hubble and named Fomalhaut b. However, Fomalhaut b was observed to slowly fade over multiple years of observations, and its trajectory appeared to take it out of the system, which is curious behavior for a planet. Scientists now suspect that Hubble observed the shattered debris of a recent violent collision between two 125-mile wide bodies, their impact driving the remains of the now decidedly non-planetary Fomalhaut b out of the system! Interestingly enough, Fomalhaut A isn't the only star in its system to host a dusty disc; Fomalhaut C also hosts a disc, detected by the Herschel Space Observatory in 2013. Despite their distance, the two stars may be exchanging material between their discs – including comets! Their co-mingling may help to explain the elliptical nature of both of the stars' debris discs. The odd one out, Fomalhaut B does not possess a debris disc of its own, but may host at least one suspected planet.

While Hubble imaged the infamous "imposter planet" of Fomalhaut b, very few planets have been directly imaged by powerful telescopes, but NASA's James Webb Space Telescope will soon change that. In fact, Webb will be imaging Fomalhaut and its famous disc in the near future, and its tremendous power is sure to tease out more amazing discoveries from its dusty grains. You can learn about the latest discoveries from Webb and NASA's other amazing missions at [nasa.gov](https://nasa.gov).

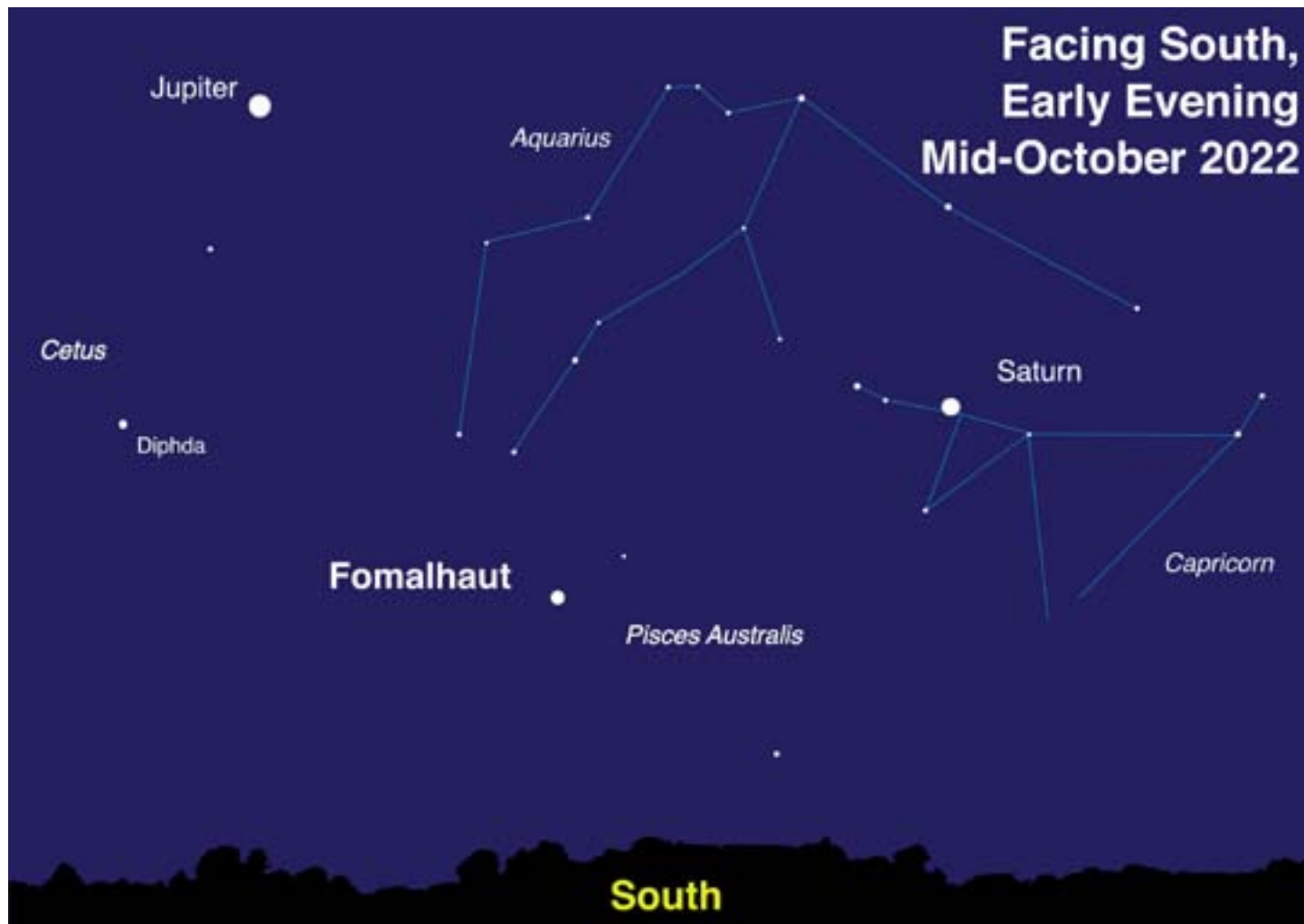
*\*Astronomers use capital letters to label companion stars, while lowercase letters are used to label planets.*



# San Diego Astronomy Association

NASA Night Sky Notes

October 2022



Sky map of the southern facing sky for mid-latitude Northern Hemisphere observers. With Fomalhaut lying so low for many observers, its fellow member stars in the constellation Piscis Australis won't be easily visible for many without aid due to a combination of light pollution and atmospheric extinction (thick air dimming the light from the stars). Fomalhaut is by far the brightest star in its constellation, and is one of the brightest stars in the night sky. While the dim constellations of Aquarius and Capricorn may also not be visible to many without aid, they are outlined here. While known as the "Loneliest Star," you can see that Fomalhaut has two relatively close and bright visitors this year: Jupiter and Saturn!

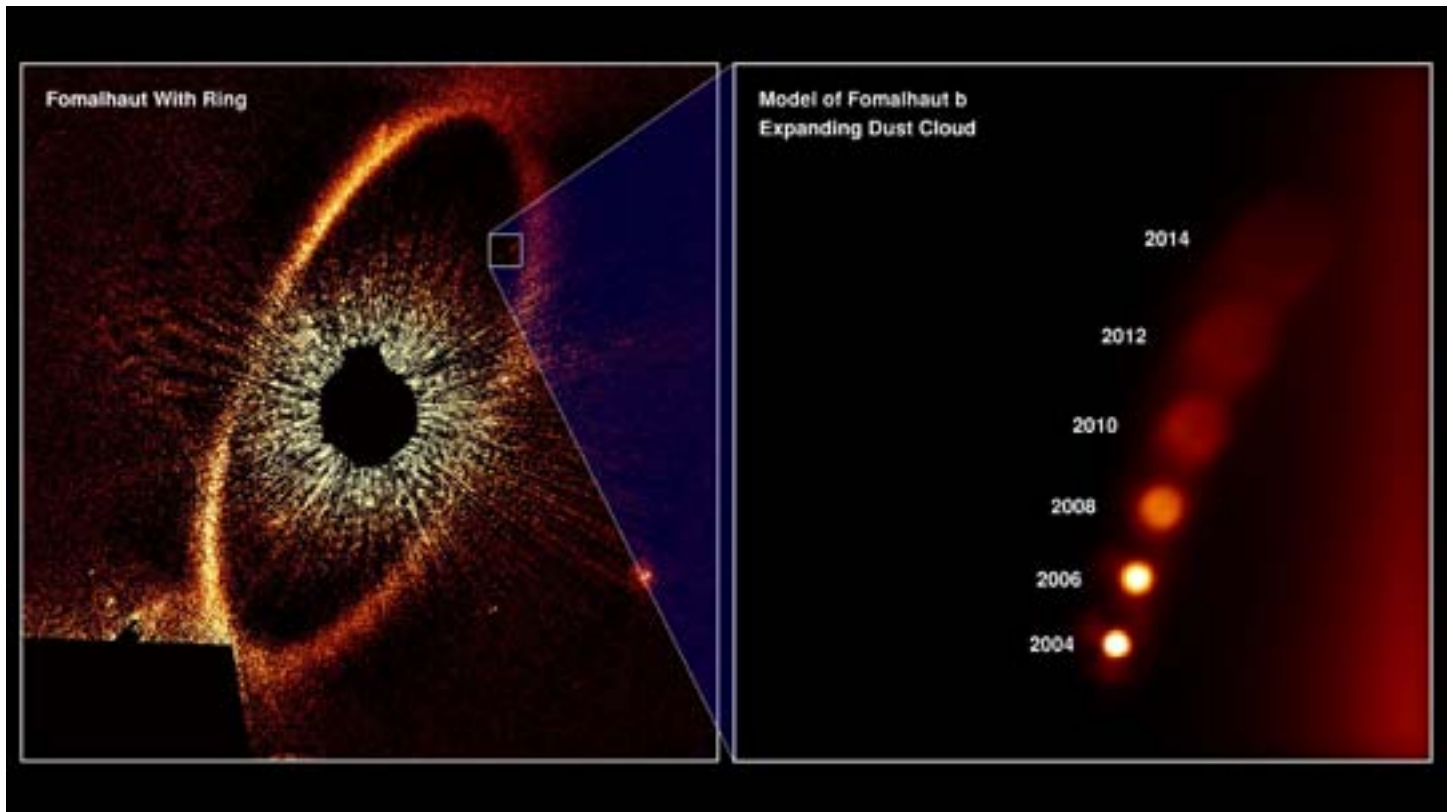
*Illustration created with assistance from Stellarium*



# San Diego Astronomy Association

NASA Night Sky Notes

October 2022



The magnificent and complex dust disc of the Fomalhaut system (left) with the path and dissolution of former planetary candidate Fomalhaut b displayed in detail (right).

*Image credits: NASA, ESA, and A. Gáspár and G. Rieke (University of Arizona) Source:*

<https://www.nasa.gov/feature/goddard/2020/exoplanet-apparently-disappears-in-latest-hubble-observations>





# San Diego Astronomy Association

## 2022/3 TDS Star Party Schedule

Date	Type	Sunset	Astro. Twi.	Moonrise(set)	Illum. <sup>†</sup>	Notes	Hosts
Oct-15	Public	6:15 PM	7:37 PM	10:21 PM	70.5%	Mercury at Greatest Western Elongation - Oct 8 (AM)	
Oct-22	Member	6:07 PM	7:29 PM	5:06 AM	8.4%	Orionids peak night of Oct 20-21 (ZHR <sup>††</sup> 20)	Jeniene Knight w/associate
Nov-19	Public	4:45 PM	6:11 PM	2:50 AM	21.1%	Leonids peak night of Nov 17-18 (ZHR <sup>††</sup> 15)	Sara Brown & Bob Roth
Nov-26	Member	4:43 PM	6:09 PM	(7:31 PM)	12.4%	Thanksgiving Weekend	
Dec-17	Public	4:44 PM	6:13 PM	1:34 AM	37.8%	Geminids peak night of Dec 13-14 (ZHR <sup>††</sup> 150)	Bob Roth
Dec-24	Member	4:48 PM	6:16 PM	(6:21 PM)	3.4%	Ursids peak night of Dec 21-22 (ZHR <sup>††</sup> 10)	Lipp unmaned
1/14/2023	Public	5:04 PM	6:31 PM	12:21 AM	55.6%		
1/21/2023	Member	5:10 PM	6:36 PM	7:52 AM	0.2%	Mercury at greatest western elongation. (1/30)	
2/11/2023	Public	5:30 PM	6:53 PM	11:14 PM	72.0%		
2/18/2023	Member	5:36 PM	6:59 PM	6:23 AM	3.7%		
3/18/2023	Member	6:58 PM	8:20 PM	5:55 AM	12.6%		
3/25/2023	Public	7:03 PM	8:26 PM	(11:40 PM)	20.9%		
4/15/2023	Member	7:18 PM	8:44 PM	4:29 AM	24.8%	Mercury at greatest eastern elongation. (4/11)	
4/22/2023	Public	7:23 PM	8:51 PM	(10:27 PM)	8.6%	Lyrids peak night Apr 22-23 (ZHR 18)	
5/13/2023	Public	7:39 PM	9:13 PM	3:03 AM	38.5%		
5/20/2023	Member	7:43 PM	9:20 PM	(9:14 PM)	1.6%	Mercury at greatest western elongation. (5/29)	
6/10/2023	Public	7:56 PM	9:37 PM	1:36 AM	52.8%	Venus at greatest eastern elongation. (6/4)	
6/17/2023	Member	7:58 PM	9:40 PM	8:03 PM	0.3%		
7/8/2023	Public	7:59 PM	9:39 PM	12:07 AM	67.3%		
7/15/2023	Member	7:57 PM	9:35 PM	4:36 AM	3.9%		
8/12/2023	Public	7:36 pm	9:06 PM	3:26 AM	12.2%	Perseids peak night of Aug 12-13 (ZHR 100)	
8/19/2023	Member	7:29 PM	8:57 PM	(9:23 PM)	10.9%	Saturn at Opposition. (8/27)	
9/9/2023	Public	7:02 PM	8:26 PM	2:17 AM	24.5%		
9/16/2023	Member	6:53 PM	8:16 PM	(7:52 PM)	3.0%	Neptune at Opposition. (9/19)	
10/7/2023	Public	6:25 PM	7:47 PM	1:07 AM	40.2%	Draconids Meteor Shower. (10/7)	
10/14/2023	Member	6:16 PM	7:38 PM	(6:22 PM)	0.0%	Annular Solar Eclipse. (partial here)	
11/4/2023	Public	5:55 PM	7:18 PM	11:54 PM	57.8%	Taurids peak night Nov 4-5. (ZHR 5)	
11/11/2023	Member	4:49 PM	6:14 PM	5:34 AM	2.8%	Uranus at Opposition - Nov 13	
12/9/2023	Member	4:42 PM	6:10 PM	4:22 AM	12.0%	Mercury at greatest eastern elongation. (12/4)	
12/16/2023	Public	4:44 PM	6:12 PM	(8:54 PM)	20.1%	Geminids peak night Dec 13-14 (ZHR 150)	

<sup>†</sup> Illumination at meridian crossing.

<sup>††</sup> Published *zenithal hourly rate(s)* ZHR vary widely between sources.

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